FARALLON CONSULTING

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INTERIM ACTION WORK PLAN

ALLEY AREA OF BLOCK 38 WEST SITE
BETWEEN REPUBLICAN STREET AND MERCER STREET
SEATTLE, WASHINGTON

Agreed Order No. DE 17963
Facility Site Identification No. 62773
Cleanup Site Identification No. 15008

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 397-019

For:
City Investors IX LLC
505 5th Avenue South
Seattle, Washington 98104

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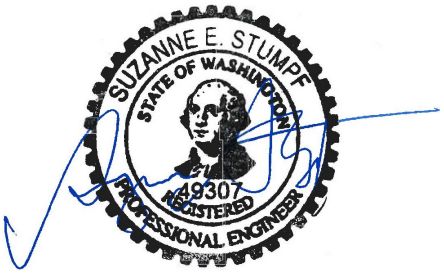
Prepared by:



Suzy Stumpf, P.E.
Principal Engineer

Reviewed by:

Clifford T. Schmitt, L.G., L.H.G.
Principal Hydrogeologist

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APPENDICES

ACRONYMS AND ABBREVIATIONS

1999 EA Update	the letter regarding Preliminary Environmental Assessment Update, Westlake Avenue Property (428, 500, 510, and 520 Westlake Avenue North), Seattle, Washington dated April 5, 1999, from Rob Roberts and Julie K.W. Wukelic to City Investors VI LLC c/o Joe Delaney, Foster Pepper & Shefelman
2018 Geotechnical Report	draft *Geotechnical Engineering Services, Block 38, Seattle, Washington* dated September 17, 2018, prepared by GeoEngineers
2019 IAWP	*Interim Action Work Plan, Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington* dated November 8, 2019 prepared by Farallon
2019 Phase I Report	Draft *Phase I Environmental Site Assessment Report, South Lake Union Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington* dated August 9, 2019, prepared by Farallon
Alley	the alley east-adjacent to 500 through 536 Westlake Avenue North in Seattle, Washington that is owned by the City of Seattle
AO	Section VII.E of Agreed Order No. DE 17963 dated April 20, 2020 between the Washington State Department of Ecology and City Investors IX
bgs	below ground surface
Block 38	is comprised of the West property, the north-south–trending Alley that bisects the block, and the East property
Block 38 West Site	is generally located at 500 through 536 Westlake Avenue North in Seattle, Washington and extends to the east into an adjacent alley that is owned by the City of Seattle
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Cleanup Action Plan
City Investors IX	City Investors IX LLC
COCs	constituents of concern
CVOCs	chlorinated organic volatile compounds

Draft RI Work Plan	*Agency Review Draft Remedial Investigation Work Plan, Block 38 West Property, 500 Through 536 Westlake Avenue North, Seattle, Washington* dated July 20, 2020, prepared by Farallon
DRO	total petroleum hydrocarbons as diesel-range organics
East property	the property at 535 Terry Avenue North and 960 Republican Street
Ecology	Washington State Department of Ecology
Ecology Guidance	*Guidance for Remediation of Petroleum Contaminated Sites* revised June 2016
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
Farallon	Farallon Consulting, L.L.C.
GRO	total petroleum hydrocarbons as gasoline-range organics
IAWP	Interim Action Work Plan
mg/kg	milligrams per kilogram
msl	mean sea level
MTCA	Washington State Model Toxics Control Act Cleanup Regulation
NAVD88	North American Vertical Datum of 1988
NFA	No Further Action
ORO	total petroleum hydrocarbons as oil-range organics
PAH	polycyclic aromatic hydrocarbons
PQL	practical quantitation limits
SAP	Sampling and Analysis Plan
SEPA	State Environmental Policy Act
SVOCs	semivolatile organic compounds
TEC	toxicity equivalent concentration

UST	underground storage tank
VOCs	volatile organic compounds
West property	the property at 500 through 536 Westlake Avenue North in Seattle, Washington

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Interim Action Work Plan (IAWP) on behalf of City Investors IX LLC (City Investors IX) to describe an interim action planned for the Alley (defined below), a portion of which is part of the Block 38 West Site in the South Lake Union Area of Seattle, Washington (Figure 1). This IAWP was prepared in accordance with Section VII.E of Agreed Order No. DE 17963 dated April 20, 2020 between the Washington State Department of Ecology (Ecology) and City Investors IX (AO).

The Block 38 West Site as defined under the AO is where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located. The Block 38 West Site, which is listed in Ecology's contaminated sites database as Facility Site Identification (ID) No. 62773 and Cleanup Site ID 15008, is generally located at 500 through 536 Westlake Avenue North in Seattle, Washington (West property) and extends to the east into an adjacent alley that is owned by the City of Seattle (Alley).

For simplicity, the entire City block will be referred to in this document as Block 38. This is a name used by the property owner to refer to this particular City block in Seattle. It is not a denomination by the City. Block 38 is comprised of the West property, the north-south–trending Alley that bisects the block, and the parcels at 535 Terry Avenue North and 960 Republican Street (East property). Block 38 is bordered by Mercer Street to the north, Terry Avenue North to the east, Republican Street to the south, and Westlake Avenue North to the west (Figure 2).

The interim action described herein consists primarily of removal of soil with concentrations of hazardous substances, to be performed in connection with improvements to the Alley associated with the redevelopment of the West property. The interim action will be performed consistent with the cleanup requirements of the Washington State Model Toxics Control Act Cleanup Regulation (MTCA), as established in Chapter 173-340 of the Washington Administrative Code (WAC 173-340).

Subsurface investigations have been conducted at the Alley since 1998. Based on the results of these subsurface investigations, the following hazardous substances have been detected at concentrations exceeding regulatory screening levels in soil at the Alley: petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), cadmium, and lead. Construction activities associated with the current West property redevelopment include creating a through-alley that provides access to the West property and buildings on the East property from Mercer Street and Republican Street. Soil containing hazardous substances will be encountered during these activities. The interim action will remove to the extent practicable shallow soil contamination encountered during utility improvements, roadway resurfacing, and subsurface structural improvements at the southern end of the Alley. For the purposes of this interim action, the Alley is treated as part of the Block 38 West Site remedial action; the extent of the Block 38 West Site will be determined as part of the remedial investigation.

The results of the interim action will be presented in an Interim Action Report, and as applicable, summarized in the Block 38 West Site remedial investigation.

1.1 PURPOSE AND OBJECTIVE

The purpose of this IAWP is to describe the interim action planned for removal of soil containing hazardous substances at concentrations exceeding applicable screening levels in the Alley encountered during improvements. Implementation of this IAWP is considered a partial cleanup, as it only addresses part of the Block 38 West Site (and other areas where construction related activities will result in the removal of soil containing hazardous substances). The interim action is being conducted to remove fill material containing hazardous substances from the Alley while it is accessible during construction activities and Alley improvements. This partial cleanup corrects a problem that may cost substantially more to address if delayed until after the property is redeveloped (WAC 173-340-430). This IAWP has been developed in accordance with MTCA. The interim action will be an Ecology-supervised remedial action for the Alley and will not foreclose reasonable alternatives for the final cleanup action at the Block 38 West Site.

The interim action will permanently remove soil containing hazardous substances encountered within the limits of construction excavation associated with the Alley improvements to the extent practicable. Based on documented soil impacts from elevations 25 to 15 feet North American Vertical Datum of 1988 (NAVD88), hazardous substances in shallow soil could potentially impact shallow groundwater quality at the Block 38 West Site (see Section 2.4 for information on local hydrogeology). Groundwater conditions will not be evaluated under the proposed interim action. Groundwater quality will be further assessed during remedial investigation work planned for the Block 38 West Site, which will be conducted after interim remedial action activities and construction of the building on the West property are completed. The work plan for the remedial investigation (Farallon 2020d) (Draft RI Work Plan), as required in the AO, has been submitted to Ecology and is currently under review.

1.2 DOCUMENT ORGANIZATION

This IAWP has been organized into the following sections:

- **Section 2**, **Alley Area Description and Background**, provides the Alley description and history, a summary of current and historical uses of adjacent and surrounding lands, and the geology and hydrogeology of the South Lake Union region.
- **Section 3**, **Summary of Previous Investigations and Independent Remedial Actions**, provides a summary of previous environmental investigations and independent interim actions conducted at the Alley and West and East properties.
- **Section 4**, **Summary of Known Conditions**, discusses the hazardous substances, media of concern, screening levels for the interim action, confirmed and suspected source areas, nature and extent of contamination, and contaminant fate and transport at the Alley.

- **Section 5**, **Interim Action Implementation**, describes the scope of work for Alley preparation and mobilization, soil excavation, and structural improvements.
- **Section 6**, **Permits and Other Regulatory Requirements**, summarizes applicable local, state, and federal laws and permitting and substantive requirements pertaining to the interim action.
- **Section 7**, **Compliance Monitoring**, describes the protection, performance, and confirmational monitoring that will be conducted as part of the interim action.
- **Section 8**, **Reporting and Schedule**, describes reporting requirements and provides a schedule for implementation of the interim action.
- **Section 9**, **References**, lists the documents cited in this IAWP.
- **Section 10**, **Limitations**, provides Farallon's standard limitations applicable to this IAWP.

2.0 ALLEY AREA DESCRIPTION AND BACKGROUND

This section provides the Alley description and history, a summary of current and historical uses and regulatory status of adjacent West and East properties, and the geology and hydrogeology of the South Lake Union region.

2.1 ALLEY

Block 38 is in a commercial and light industrial area zoned as mixed residential and commercial in the South Lake Union area (SM-SLU 175/85-280) approximately 1 mile north of downtown Seattle. The Alley at Block 38 is owned by the City of Seattle. It bisects Block 38 and is accessed from Mercer Street descending from street level to an approximate elevation of 25 feet NAVD88 and is used for vehicle access to a parking garage on the East property. The Alley is approximately 415 feet long by 15 feet wide. A historical timber-framed trestle formerly extended north from Republican Street into the alley approximately 120 feet, its constructed height was approximately 18 feet higher than the current elevation of the southern portion of the alley (Figure 2). The trestle was constructed for support of the rail spur that extended out to the former shoreline of South Lake Union (Farallon 2018). As discussed below, the northern portion of Block 38 historically was marshland along the southern shore of Lake Union.

Block 38 is approximately 600 feet south of the present shoreline of Lake Union. According to a U.S. Geological Survey (1909) Seattle Special quadrangle map, the original shoreline of Lake Union extended farther south than its current location, to as far as the current location of Mercer Street. In the late 1800s and the early 1900s, the southern end of Lake Union was filled with sawdust and wood waste generated by lumber mill operations and other fill materials. The historical use of Block 38 as a lumber mill and for lumber storage resulted in deposition of wood waste across Block 38.

The following provides additional information regarding historical use of the Alley based on a review of historical aerial photographs:

- The Alley did not appear to be paved in 1953. At that time it had provided access from Mercer Street to a dirt lot centrally located at the West property and access to a former fueling station and coal storage facility on the northern and central portions and a building on the southern portion of the East property. The railroad trestle was present on the southern portion of the Alley.
- In 1968, the Alley did not appear to be paved; however, the central portion of the West property had been developed from a dirt lot to a commercial building with a rooftop parking lot, and an asphalt parking lot replaced commercial businesses on the north and central portions of the East property.
- In 2002, the Alley appeared to be paved and the railroad trestle was still present on the southern portion of the Alley.

In late 2019, the railroad trestle was demolished and removed as part of the West property redevelopment activities. The southern portion of the Alley is currently fenced off and used for staging construction materials for the West property. Currently, the central and northern portion of the Alley has an asphalt-paved surface, is accessible from Mercer Street, and is used to access the commercial buildings on the East property.

A catch basin centrally located at the Alley captures stormwater, which is conveyed to the King County Metro sewer system.

2.2 ADJACENT AND SURROUNDING LAND USE

The Alley is located between the West and East properties, each of which has contamination in soil and/or groundwater that abut the Alley. This section summarizes the historical uses and the regulatory status of the West and East properties.

2.2.1 West Property

The West property at 500 to 536 Westlake Avenue North is west-adjacent to the Alley. The West property historically was undeveloped marshland that extended along the southern shore of Lake Union and onto the north-adjacent property in the late 1880s, as detailed in the draft Phase I Environmental Site Assessment Report (Farallon 2019b) (2019 Phase I Report) and the Preliminary Environmental Assessment Update letter (Hart Crowser, Inc. 1999) (1999 EA Update).

The West property totals approximately 1.06 acres of land that was previously developed with structures formerly used for retail, temporary office space, storage, and parking, and comprises King County Parcel Nos. 1983200196, 1983200180 and 1983200170. Historical operations included a lumber storage yard across the majority of the property from the 1890s until approximately 1920 when the first commercial and retail structures were built. Historical businesses at the property included blacksmith shops, wagon shops, horse stables, warehouse storage, an auto repair facility, a veterinary hospital, a commercial printer, and various retail businesses from the early 1900s through 2019.

Historical operations resulted in the release of hazardous substances that caused contamination of soil and groundwater at the West property. Ecology listed the Block 38 West Site (includes the West property) as a contaminated site with Facility Site ID No. 62773 and Cleanup Site ID 15008 in 2019.

The former West property structures were demolished as part of the current redevelopment. Street elevations adjacent to the West property vary from an approximate elevation of 41 feet NAVD88 on Republican Street adjoining the southern portion of the West property to an approximate elevation of 31 feet NAVD88 on Mercer Street adjoining the northern portion of the West property.

The redevelopment of the West property includes construction of a multi-story mixed-use building with 12 stories above street level and four levels of underground parking. The planned finished floor elevation of the lowest level of parking is -3.25 feet NAVD88, with the bottom of footing elevation for the majority of the foundation at approximately -6.5 feet NAVD88 and the excavation

extending deeper in areas for footings or elevator pits. The mass excavation, including removal of contaminated soil, was completed in June 2020 and additional structural foundation features were installed through August 2020.

The scope of work described in the *Interim Action Work Plan, Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington* dated November 8, 2019 prepared by Farallon (2019 IAWP) is being implemented as an independent interim action conducted in conjunction with the redevelopment of the Block 38 West Property. Since entry of the AO for the Block 38 West Site, the independent interim action has been conducted under the auspices of the AO.

2.2.2 East Property

The East property at 535 Terry Avenue North and 960 Republican Street is east-adjacent to the Alley (Figure 2). The East property totals approximately 1.08 acres of land that has primarily been used for commercial and light industrial purposes since the late 1800s and comprises King County Parcel Nos. 1983200150 and 1983200160.

Historical operations on the northern portion of the East property (535 Terry Avenue North) included a lumber mill and yard, gasoline service station, and fuel yard associated with coal storage East property through the 1950s. By the late 1960s, this portion of the property was a parking lot until redeveloped in 2009 with a five-story commercial office building with a parking garage known as the Interurban Exchange 2 Building.

Historical operations on the southern portion of the East property (960 Republican Street) included lumber storage until the late 1920s when a three-story commercial office building was constructed. The building, known as the Rosen Building, was used as a warehouse for electrical appliances and general storage through the 1960s and currently is a medical and dental office.

Historical operations resulted in releases of hazardous substances that caused contamination of soil and groundwater at the East property. This property is currently associated with the Rosen Property Site, also known as the Interurban Exchange 2 Site, listed in Ecology's contaminated sites database as Facility Site ID No. 2500 and Cleanup Site ID 5123.

Figure 2 shows the location of historical features and lot configuration on the East property.

2.3 ALLEY FUTURE LAND USE

The redevelopment activities on the West property include creating a through-alley that provides access to Block 38 from Mercer Street at an elevation of 31 feet NAVD88 and to Republican Street at an elevation of 41 feet NAVD88. As part of the redevelopment on the West property, City Investors IX has recorded a 2-foot alley dedication to the City of Seattle in coordination with the Seattle Department of Transportation Real Property Group. The Alley improvements will start in January 2021, pending Ecology's approval, and will be phased over a 6-month period to limit impacts to operating businesses on the East property.

2.4 GEOLOGY AND HYDROGEOLOGY

The Puget Sound region is underlain by Quaternary sediments deposited by a number of glacial episodes. Deposition occurred prior to, during, and following glacial advances and retreats, creating the existing subsurface conditions. The naturally occurring sediments in the South Lake Union area consist primarily of interlayered and/or sequential deposits of alluvial clays, silts, and sands that typically are situated over deposits of glacial till that consist of silty sand to sandy silt with gravel. Outwash sediments consisting of sands, silts, clays, and gravels were deposited by rivers, streams, and post-glacial lakes during glacial advances and recessions. Advance outwash sediments have been largely over-consolidated by the overriding ice sheets. These advance outwash sediments are overlain by a till-like layer and/or recessional outwash sediments that are less consolidated (Galster and Laprade 1991).

Block 38 is approximately 600 feet south of Lake Union and in the late 1800s and the early 1900s, the southern end of Lake Union was filled with sawdust and wood waste generated by lumber mill operations and other fill materials. Field observations made during subsurface investigations conducted by Farallon and others confirmed a wood debris layer is present beneath Block 38 (Figure 3).[1]

Cross sections depicting the general lithology and hydrogeology of the Alley and West property are presented on Figures 11 through 13, which are based on field observations made during the subsurface investigations conducted by Farallon and others and documented in boring logs. The locations of the cross sections are shown on Figure 3. According to Farallon observations made during subsurface investigations conducted on adjacent properties and at the Block 38 West Site and a review of boring logs from geotechnical drilling (GeoEngineers, Inc. [GeoEngineers] 2018), three general stratigraphic units are present at Block 38:

- The shallowest unit consists of fill material with recent deposits, including lacustrine sediments, and comprises silt, sandy silt, and sand with variable gravel content. In some areas, this shallowest unit includes wood waste, peat, and organic silt. The shallowest unit is present across Block 38.
- The fill and recent deposits are underlain by a dense stratum of heterogeneous glacially consolidated deposits comprising dense sand and variable silt and gravel content and very stiff to hard silt with variable sand and gravel content. According to GeoEngineers (2018), the recent glacially consolidated soil contact typically slopes down to the north toward Lake Union. The borings in the Alley were too shallow to encounter glacially consolidated deposits. At the West property, the contact occurs between approximate elevations of 11 to -6 feet NAVD88.

[1] This description and the description of stratigraphy and groundwater-bearing zones in this section represent conditions present at the Block 38 West Property prior to remedial and mass excavations conducted as part of redevelopment activities.

- A poorly graded dense advance glacial outwash sand with minor silt is encountered below the intermediate unit of glacially consolidated soil at elevations ranging from -30 to -40 feet NAVD88. The sand and gravel layer that was observed in the boring for monitoring well FMW-130 at an elevation of -22 feet NAVD88 is likely the transition zone between the intermediate unit of glacially consolidated soil and the poorly graded dense advance glacial outwash sand. In some areas where the intermediate glacially consolidated unit is thin or absent, the top of the outwash sand is encountered at shallower depths. The glacial outwash has been noted to be underlain by very dense fine-grained soil during drilling of borings several hundred feet northwest of Block 38.

Based on the subsurface and geotechnical investigations completed at the adjacent West and East properties, three general water-bearing zones are present at Block 38. Interpretation of these zones has been documented by others through investigation of nearby sites in the South Lake Union area and are referred to as the Shallow Water-Bearing Zone, Intermediate Water-Bearing Zone, and Deep Outwash Aquifer. The interpretation and associated designations established by others are generally consistent with Farallon's observations at Block 38 and are described as follows:

- The Shallow Water-Bearing Zone is the uppermost water-bearing zone encountered in the fill and underlying recent deposits. This zone varies in thickness from approximately 5 to 15 feet and was encountered at depths ranging from approximately 5 to 8 feet below ground surface (bgs). Monitoring wells formerly located at the West property that were screened within the Shallow Water-Bearing Zone include FMW-132 through FMW-135; those at the East property included former monitoring wells MW-1 and MW-1A through MW-4.
- The Intermediate Water-Bearing Zone is present below the Shallow Water-Bearing Zone in the glacially consolidated soil at approximate elevations of 5 to 10 feet NAVD88 (at depths of approximately 15 to 20 feet bgs). The Intermediate Water-Bearing Zone is continuous across Block 38. Based on previous subsurface investigations conducted at the West property, the Shallow Water-Bearing Zone at is in direct communication with the Intermediate Water-Bearing Zone (i.e., there is no aquitard, which is a low permeability geologic formation or layer separating these groundwater-bearing zones).
- The Deep Outwash Aquifer, the top of which is present at approximate elevations of -30 and -40 feet NAVD88 (approximately 55 to 65 feet bgs) at the West property, is in dense advance outwash sand deposits consisting of sand with minor silt. The Deep Outwash Aquifer is continuous across Block 38. The thickness of the Deep Outwash Aquifer is not known. Monitoring wells FMW-137 and FMW-138, on the northern and southern ends of the Alley, are screened in the outwash sand deposits comprising the Deep Outwash Aquifer.

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND INDEPENDENT REMEDIAL ACTIONS

Results of the subsurface investigations conducted at the Alley and adjacent properties are summarized below. The objectives of the subsurface investigations were to obtain lithologic, hydrogeologic, and analytical data to characterize environmental conditions. Independent remedial actions that were previously conducted at the West and East properties are also summarized below.

3.1 ALLEY

Subsurface investigations have been conducted at the Alley since 1998. This section summarizes the activities and results from previous subsurface investigations at the Alley. Boring locations associated with these investigations are shown on Figure 3. Analytical data are summarized in Tables 1 through 3 and are shown on Figures 4 through 9.

3.1.1 Subsurface Investigations – GeoEngineers, 1998 and 2008

GeoEngineers of Seattle, Washington (GeoEngineers) conducted subsurface investigations at the Alley in 1998 and 2008 to evaluate potential impacts associated with former operations at the East property (GeoEngineers 2008). GeoEngineers advanced one boring (B-6) and a test pit (TP-10[2]) in the Alley to evaluate soil conditions and provide recommendations for potential cleanup actions (Figure 3).

Boring B-6 was advanced within the southern half of the alley in December 1998, to an approximate depth of 39 feet bgs. Soil samples were collected from the boring at depths of approximately 3 and 13 feet bgs (elevations of 23.6 and 13.6 feet NAVD88) and analyzed for petroleum hydrocarbons as gasoline-range organics (GRO), diesel-range organics (DRO), and oil-range organics (ORO), and for benzene, toluene, ethylbenzene, and xylenes (BTEX). The results indicated the presence of ORO at a concentration of 850 milligrams per kilogram (mg/kg) in the 3-foot sample. No other analytes were detected in the samples. The analytical data are summarized in Table 1 and shown on Figures 4 through 7.

Test pit TP-10 was advanced within the northern half of the alley in May 2008, to an approximate depth of 4 feet bgs (elevation of 20.5 feet NAVD88). One soil sample was collected from the bottom of the test pit (sample TP-10-4) and analyzed for PAHs and metals. The results indicated the presence of cPAHs with a total cPAHs toxicity equivalent concentration (TEC)[3] of 0.245 mg/kg, and detected concentrations of cadmium and lead at 2.4 and 1,900 mg/kg, respectively. Other PAHs were also detected at low concentrations in the sample, including fluorene,

[2] Identified as "TP-10-4" on the attached figures and tables.
[3] Total cPAH concentration calculated using the toxicity equivalency method in accordance with WAC 173-340-708(8).

fluoranthene, pyrene, and benzo(g,h,i)perylene ranging from 0.04 mg/kg to 0.33 mg/kg. The analytical data are summarized in Tables 2 and 3 and shown on Figures 8 and 9.

3.1.2 Utility Pothole Investigation – Farallon, 2019

Utility pothole observations were conducted between January 7 and 26, 2019 to support waste profiling for utility locating work coordinated by Gary Merlino Construction Co. of Seattle, Washington and conducted by Applied Professional Services, Inc. of North Bend, Washington.

The utility pothole work was conducted using an air knife and vacuum truck to remove shallow soil to expose the existing utilities. A total of 14 potholes were advanced during this work, of which 12 were located within the Alley (PH-1, PH-2, PH-4, PH-11, PH-11A, PH-12, PH-13, PH-13A, DW-5, DW-6, NGas-1 and NGas-2). A Farallon Geologist observed and logged subsurface conditions and retained soil samples from selected intervals for laboratory analysis based on field indications of potential contamination. The information recorded for each pothole log included soil types encountered, visual and olfactory observations (e.g., staining, odor, etc.), and volatile organic vapor concentrations as measured using a photoionization detector. Pothole logs for the Alley are provided in Appendix A.

Soil samples were retained from 4 of the 14 utility potholes within the southern half of the alley (PH-4, PH-11A, PH-12, and PH-13) for laboratory analysis based on field observations. Soil samples were collected from non-utility fill material directly beneath the utility backfill at shallow depths ranging from 3 to 4.5 feet bgs (elevations of 22 to 20 feet NAVD88). Soil samples were collected using a hand auger and transferred directly into laboratory-prepared glass sample containers fitted with Teflon-lined lids in accordance with Farallon's standard sampling procedures.

Soil samples were submitted to OnSite Environmental, Inc. of Redmond, Washington (Onsite) for analysis of one or more of the following analytes using the following laboratory analytical methods:

- GRO by Northwest Method NWTPH-Gx;
- DRO and ORO by Northwest Method NWTPH-Dx; and
- cPAHs by EPA Method 8270D/SIM.

The analytical results indicated detectable concentrations of GRO, DRO, ORO, and/or cPAHs in 3 of the 4 samples. GRO was only detected in the sample from PH-12 at a concentration of 2,100 mg/kg; DRO was detected in the samples from PH-11A and PH-12 at concentrations of 520 and 9,400 mg/kg, respectively; ORO was detected in the samples from PH-11A and PH-12 at concentrations of 1,100 and 21,000 mg/kg, respectively; and cPAHs were detected in the samples from PH-4, PH-11A, and PH-12 at total TECs ranging from 0.14 to 152 mg/kg. No compounds were detected in the sample collected from PH-13. The analytical results are summarized in Tables 1 and 2 and shown on Figures 4, 6, 7, and 9.

3.1.3 Supplemental Subsurface Investigation – Farallon, 2020

Subsurface investigation activities were conducted on September 12 and 13, 2020 at the Alley to address the following data gaps identified in the Technical Memorandum regarding Supplemental Subsurface Investigation and Foundation Elements dated June 15, 2020, prepared by Farallon (2020c):

- Vertical limits of cPAHs- and petroleum-impacted soil;
- Lateral limits of cPAHs-impacted soil north of test pit TP-10 and south of utility pothole PH-4; and
- Lateral limits of petroleum-impacted soil east of the West property sidewall and in the vicinity of utility pothole PH-12.

The methodology for the September 2020 subsurface investigation activities in the Alley is summarized below.

Farallon subcontracted Anderson Drilling LLC of Lake Stevens, Washington (Anderson) to advance borings FB-10 through FB-16 in the Alley. Anderson mobilized a limited-access direct-push drill rig on September 12 and 13, 2020 to advance the borings. All of the borings were advanced to an approximate depth of 15 feet bgs, except for FB-16, which was advanced to an approximate depth of 20 feet bgs, corresponding to elevations ranging from 9.9 to 7.8 feet NAVD88. A Farallon Geologist observed subsurface conditions and prepared boring logs (Appendix A). The boring locations are shown on Figure 3.

Soil samples were collected from various depths corresponding to elevations ranging between 15 and 22.5 feet NAVD88 for laboratory analysis. A total of 23 samples were submitted to Onsite and analyzed for one or more of the following constituents using the previously identified analytical methods, unless indicated otherwise: GRO; DRO and ORO; BTEX by U.S. Environmental Protection Agency (EPA) Method 8021B; naphthalenes by EPA Method 8270D/SIM; cPAHs; and metals (i.e., arsenic, cadmium, chromium, mercury, and lead) by EPA Series Methods 6010D and 7471B.

Groundwater was not encountered and therefore groundwater samples were not collected.

The majority of detected constituents were encountered from approximate elevations 22.5 to 17.5 feet NAVD88 within the fill soil and/or organic debris material beneath the Alley. The analytical results are summarized below and data are provided in Tables 1 through 3. Laboratory analytical reports are provided in Appendix B.

ORO was detected in 12 of 15 samples analyzed, at concentrations ranging from 110 to 2,700 mg/kg (Figure 7; Table 1). DRO was also detected in 6 of the samples, at concentrations ranging from 32 to 160 mg/kg (Figure 6; Table 1). The laboratory indicated that all of the detected DRO concentrations were impacted by ORO in the samples. The highest concentrations were detected in the soil sample collected from boring FB-13 at a depth of 5.5 feet bgs (elevation of 17.5 feet NAVD88).

Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected in 7 of 8 samples analyzed, with total naphthalenes concentrations (the combined concentrations of the three compounds) ranging from 0.173 to 11.6 mg/kg (Figure 8; Table 2). The highest concentration of total naphthalenes was detected in the soil sample collected from boring FB-13 at an elevation of 22.5 feet NAVD88.

cPAHs were detected in 14 of 22 samples analyzed, at total TECs ranging from 0.26 to 32 mg/kg (Figure 9; Table 2). The highest concentration of cPAHs was detected in the soil sample collected from boring FB-13 at an elevation of 22.5 NAVD88.

GRO and BTEX constituents were reported non-detect at the laboratory practical quantitation limits (PQLs) in the four samples that were analyzed (two from FB-12 and two from FB-13; see Figures 4 and 5 and Table 1).

Metals were generally reported non-detect at the laboratory PQL or were detected at relatively low concentrations in the eight samples that were analyzed from borings FB-12 through FB-15. The results are included in Table 3.

3.2 BLOCK 38 WEST SITE

Subsurface investigations have been conducted on the Block 38 West Site (includes the West property) since 1999. This section summarizes the activities and results from previous subsurface investigations and independent interim actions conducted at the Block 38 West Site. Boring locations associated with these investigations are shown on Figure 3. Soil and groundwater data are summarized on Figures 3 through 13, presented in Tables 1 through 4, and discussed below. Copies of boring logs and validated laboratory analytical reports will be provided in the RI Report for the Block 38 West Site.

3.2.1 Phase II Soil Investigation – Dames & Moore, 1994

The 1999 EA Update (Hart Crowser, Inc. 1999) referenced previous work performed, including a Phase II soil investigation performed by Dames & Moore on Block 38 West Site in 1994. The 1994 soil investigation was performed in the area where a 1,500-gallon heating oil underground storage tank (UST) was removed in 1989 from the sidewalk north-adjacent to Republican Street, along the southern portion of the West property (Figure 2). The results from the 1994 soil investigation indicated that no petroleum-affected soil was present beneath the former heating oil UST; groundwater reportedly was not encountered. Information regarding the sample locations during that investigation was not provided in the documents available for review.

3.2.2 Geotechnical Investigation – GeoEngineers, 2018

GeoEngineers performed geotechnical engineering services at the Site in August 2018. The results of the geotechnical investigation were summarized in the draft *Geotechnical Engineering Services, Block 38, Seattle, Washington* dated September 17, 2018, prepared by GeoEngineers (2018) (2018 Geotechnical Report).

The 2018 Geotechnical Report summarized the subsurface conditions that were observed during the advancement of borings FB-01 through FB-06 and borings for monitoring wells FMW-132 through FMW-136 (Figure 3). The borings were completed to depths ranging from 10 to 51.5 feet bgs. Soil samples collected during the advancement of the borings were evaluated for moisture content, fines content, organic content, and Atterberg limits. Based on the evaluation of the geotechnical data collected for the Block 38 West Site, the following soil conditions were identified by GeoEngineers:

- Fill: Fill generally consists of very loose to medium dense silty sand with variable gravel, rubble (brick) and wood fragments, and soft to medium stiff silt and sandy silt. Wood waste is present in the lower portion of the fill soil. GeoEngineers speculated that a significant portion of the wood waste is likely from a lumber mill that previously operated in the vicinity of the Block 38 West Site. Fill at the Block 38 West Site is up to approximately 17-feet thick.
- Peat/Organic Silt Layer: A layer of organic material was encountered below the fill and generally consists of very soft to stiff peat, organic silt, and organic clay. The peat/organic silt layer is up to approximately 9-feet thick and generally does not extend below an approximate elevation of 5 to 10 feet NAVD88.
- Recent Deposits: Recent deposits were encountered below the peat/organic silt layer and generally consist of medium dense sand with variable silt and gravel content and medium stiff to very stiff silt with variable sand content. Recent deposits are up to approximately 18-feet thick.
- Glacially Consolidated Soil: Glacially consolidated soil was encountered below the recent deposits and generally consists of dense to very dense sand with variable silt and gravel content and very stiff to hard silt with variable sand and gravel content. Glacially consolidated soil represents competent foundation-bearing soil. The contact to glacially consolidated soil typically slopes down to the north toward Lake Union. The contact elevation to glacially consolidated soil ranges from approximate elevations of -6 to -11 feet NAVD88.

GeoEngineers estimated the regional water table at an elevation of 20 feet NAVD88 based on observed groundwater conditions in monitoring wells installed on adjacent properties and GeoEngineers' experience in the South Lake Union area. GeoEngineers further stated that the regional water table in the vicinity of the Block 38 West Site is influenced by recharge from Queen Anne Hill and Capitol Hill, infiltration of surface water, temporary dewatering activities, and changes in the water level in Lake Union. Their 2018 report also suggests that the 72-inch-diameter King County sewer main line in the Republican Street right-of-way and its backfill, south of the Site, influence groundwater levels locally through leakage into the drain. The 2018 Geotechnical Report stated that the Block 38 West Site is near the groundwater divide where water either flows toward Lake Union to the north or toward Elliott Bay to the southwest.

3.2.3 Subsurface Investigations – Farallon Consulting, 2014-2020

Farallon conducted various subsurface investigations at the Block 38 West Site between 2014 and 2020. The objectives of the subsurface investigations were to obtain lithologic, hydrogeologic, and analytical data to characterize environmental conditions at the Block 38 West Site, and, in part, to facilitate implementation of the independent interim remedial action conducted during the planned redevelopment project under the auspices of the AO. These activities are summarized below.

- **2014 Subsurface Investigation**

  The 2014 subsurface investigation included the installation of monitoring well FMW-130 in the Intermediate Water-Bearing Zone (Figure 3). Monitoring well FMW-130 was installed in July 2014 using a sonic drill rig operated by Cascade Drilling, L.P. of Woodinville, Washington. Monitoring well FMW-130 was installed to a depth of 60 feet bgs. Select soil, reconnaissance groundwater, and groundwater samples were submitted for laboratory analysis for one or more of the following: GRO, DRO, ORO, BTEX, PAHs and other semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs), including chlorinated VOCs (CVOCs).

- **2017 Groundwater Monitoring**

  Monitoring well FMW-130 was sampled on July 3, 2017 using EPA low-flow groundwater sampling procedures. The groundwater sample was placed on ice in a cooler under standard chain-of-custody procedures and delivered to OnSite for laboratory analysis. The groundwater sample was analyzed for the following constituents using the previously identified analytical methods: GRO; BTEX; and CVOCs.

- **2018 Subsurface Investigations and Groundwater Monitoring**

  Subsurface investigation activities conducted in 2018 included advancement of six borings (FB-01 through FB-06) and installation of five monitoring wells (FMW-132 through FMW-136) in August 2018; installation of monitoring wells FMW-137 and FMW-138 in November 2018; and groundwater monitoring activities.

  In August, FB-01 through FB-06 and monitoring wells FMW-132 through FMW-136 were installed to assess soil and groundwater conditions in the Shallow and Intermediate Water-Bearing Zones (Figure 3). The 11 borings were drilled to depths ranging from 10 to 51.5 feet bgs. Monitoring wells FMW-132 through FMW-135 were screened in the Shallow Water-Bearing Zone at depths ranging from approximately 5 feet bgs to 17 feet bgs (elevations between 20.7 and 8.4 feet NAVD88), and monitoring well FMW-136 was screened in the Intermediate Water-Bearing Zone at a depth of 30 to 40 feet bgs (elevation of -5 to -15 feet NAVD88). Select soil and groundwater samples were collected from the 11 locations and were submitted for analysis for one or more of the following constituents: GRO; DRO and ORO; BTEX; CVOCs; PAHs and other SVOCs, and metals. The methodology for the 2018 subsurface investigation of the Shallow and Intermediate Water-Bearing Zones is summarized in the 2019 IAWP.

In November, Deep Outwash Aquifer monitoring wells FMW-137 and FMW-138 were installed proximate to the northeastern and southeastern corners of the West property to evaluate groundwater quality in the Deep Outwash Aquifer (Figure 3). Monitoring well FMW-137 was screened at a depth of 72 to 85 feet bgs (elevation of -42 to -55 feet NAVD88) and monitoring well FMW-138 was screened at a depth of 90 to 100 feet bgs (elevation of -50 to -60 feet NAVD88). The methodology for the 2018 subsurface investigation and groundwater monitoring of the Deep Outwash Aquifer is summarized in the 2019 IAWP.

Monitoring wells FMW-130 and FMW-132 through FMW-136 were sampled on August 30 and December 28, 2018; and monitoring wells FMW-137 and FMW-138 were sampled on November 20 and December 28, 2018. All of the wells were sampled using EPA low-flow groundwater sampling procedures. Groundwater samples were placed on ice in a cooler under standard chain-of-custody procedures and delivered to OnSite for laboratory analysis. The groundwater samples collected from FMW-130 and FMW-132 through FMW-136 were analyzed for GRO, DRO, ORO, BTEX, PAHs and other SVOCs, and CVOCs; the samples from FMW-137 and FMW-138 were only analyzed for CVOCs.

- **2019 Subsurface Investigation and Groundwater Monitoring**

  Supplemental subsurface investigation activities conducted in 2019 included advancement of three borings (FB-07 through FB-09) and installation of five monitoring wells (FMW-144 through FMW-147 and FMW-149) in December 2019; and groundwater monitoring activities (Figure 3). Select soil and groundwater samples from the December 2019 subsurface investigation were submitted for analysis for one or more of the following constituents: GRO; DRO and ORO; BTEX; CVOCs; and PAHs and other SVOCs.

  Groundwater monitoring events were conducted at monitoring wells FMW-130 and FMW-132 through FMW-136 in March 2019, at monitoring wells FMW-137 and FMW-138 in March (groundwater level measurements only, no groundwater samples were collected), May, and July 2019, and at monitoring wells FMW-144 through FMW-147 and FMW-149 in December 2019. Groundwater monitoring events were conducted at monitoring wells FMW-137 and FMW-138 in October and November 2019. Groundwater sampling was conducted using EPA low-flow groundwater sampling procedures. Samples were analyzed for one or more of the following constituents using the previously identified analytical methods: GRO; DRO and ORO; BTEX; CVOCs; and PAHs and other SVOCs.

- **2019 to 2020 Test Pit Investigation**

  Between December 2019 and February 2020, test pits TP-1 through TP-18 were advanced at the Block 38 West Site to support and update the existing conceptual site model, support soil profiles for disposal, and collect performance or confirmation soil samples during the course of the independent interim action (Figure 3). The test pits were advanced by Hos Bros. of Woodinville, Washington using the bucket of an excavator. Soil samples were collected from 12 of the 18 test pits and submitted or laboratory analysis for one or more

of the following constituents: GRO; DRO and ORO; VOCs, including CVOCs and/or BTEX; PAHs, including cPAHs and total naphthalenes; total lead; 1,2-dibromoethane and 1,2-dichloroethane; polychlorinated biphenyls; and methyl tertiary-butyl ether.

The results of these investigations confirmed the presence of detectable GRO, DRO, ORO, BTEX, and PAHs (including cPAHs) in soil at the Block 38 West Site, primarily within the upper 15 feet of fill material. Detected concentrations of ORO, total naphthalenes, and cPAHs appeared to be the most prominent throughout the West property, with ORO as high as 9,000 mg/kg, total naphthalenes as high as 14.3 mg/kg, and total equivalent cPAHs as high as 21 mg/kg. Other compounds were detected in soil, but at a lower frequency and at relatively low concentrations. The lateral distribution of concentrations is illustrated on Figures 4 through 9 and vertical distribution is illustrated on Figures 11 through 13. Additional details and soil analytical data from these activities were provided in the Draft RI Work Plan (Farallon 2020d), which is currently under review by Ecology.

These investigations also confirmed detectable petroleum hydrocarbons in groundwater within the Shallow and Intermediate Water Bearing Zones beneath the Block 38 West Site. Additional details and data regarding groundwater quality can be found in the Draft RI Work Plan (Farallon 2020d). Groundwater level measurements and corresponding elevations from the monitoring events are presented in Table 4, and interpreted groundwater elevation contours and flow direction in the Shallow Water-Bearing Zone are shown on Figure 10.

3.2.4 Independent Interim Action

Investigations conducted at the Block 38 West Site have identified hazardous substances in soil and groundwater at concentrations exceeding screening levels based on MTCA Method A cleanup levels. Those screening levels were selected in general accordance with WAC 173-340-704 due to the limited number of compounds detected at the Block 38 West Site and in consideration of potential exposure pathways identified in the preliminary conceptual site model that was presented in the 2019 IAWP (Farallon 2019b). Hazardous substances that were detected at concentrations exceeding the screening levels were identified as constituents of concern (COCs) for the Block 38 West Site and the independent interim action conducted on the West property. Additional details regarding the preliminary conceptual site model for the Block 38 West Site were provided in the Draft RI Work Plan (Farallon 2020d), which is currently under review by Ecology.

The independent interim action has eliminated and/or reduced the threat to human health and the environment by removal of impacted soil, the Shallow Water-Bearing Zone, and the upper portion of the Intermediate Water-Bearing Zone from within the property boundary during the West property redevelopment project. Components of the independent interim action included excavation of soil with COCs detected at concentrations exceeding screening levels to eliminate source material, ongoing construction dewatering and treatment of contaminated groundwater, installation of a vapor barrier below and around the entire perimeter of the building foundation, and construction of the exterior walls and floor slab for the underground portion of the building using waterproof concrete.

Redevelopment of the West property began in late October 2019 and mass excavation activities were completed in June 2020. Approximately 64,200 tons of soil containing detectable concentrations of hazardous substances and wood/organic debris was removed from the West property through June 26, 2020. Of this total, approximately 23,000 tons contained concentrations of COCs exceeding the screening levels.

Construction dewatering is anticipated to continue through February 2021 with the rate of groundwater extraction gradually decreasing over the next 2 to 3 months as the building is constructed on the West property.

The independent interim action being conducted in conjunction with the redevelopment of the West property has removed the fill soil, wood debris, and soil with COCs detected at concentrations exceeding screening levels from within the limits of the West property. Results of performance soil sampling at the excavation extents indicate that ORO and cPAHs remain in soil along the eastern property boundary at concentrations exceeding their respective screening levels. The remaining exceedances are primarily at elevation 20 feet NAVD88 in sidewall samples H4-ESW through K4-ESW (Figures 7 and 9; Tables 1 and 2).

3.3 EAST PROPERTY

Historical operations on the East property resulted in the release of hazardous substances to soil and groundwater beneath the East property, adjacent rights-of-way, and adjacent properties (Figure 2). Documented releases are associated with the former Jenks Service Station facility (Lot 1) and a former fuel yard that consisted of coal storage and distribution (Lots 2 through 5), where the Interurban Exchange 2 Building currently resides. A reported release from a former heating oil UST (Lot 6) also occurred at the Rosen Building (Lots 6 and 7). Ecology currently associates these releases with the Rosen Property Site in the contaminated sites database (Facility Site ID No. 2500, Cleanup Site ID 5123, as noted previously). Figure 2 shows the location of historical features on the East property and lot configuration. A summary of environmental investigations and remedial actions completed (GeoEngineers 1999, 2008) follows.

Due to the significant amount of data associated with the Rosen Property Site, only select analytical results for soil samples collected from the western sidewall of the remedial excavation that occurred on Lots 1 through 5 – i.e., adjacent to the Alley – are summarized on Figures 2 through 9, presented in Tables 1 through 3, and discussed below.

3.3.1 East Property – Lots 1 through 5

Releases of petroleum hydrocarbons, metals (lead and cadmium), and PAHs, including naphthalenes and cPAHs, were confirmed prior to development and construction of the Interurban Exchange 2 Building. Farallon understands that an interim action was conducted in conjunction with redevelopment of the northern and central portions of the East property in 2008, which resulted in the removal of impacted soil and groundwater at Lots 1 through 5. Based on the results of the interim action confirmation soil sampling, GRO, DRO, and ORO were detected at concentrations exceeding MTCA Method A cleanup levels in soil samples collected from the

northern sidewall of the excavation on Lot 1, and cPAHs were detected at concentrations exceeding the MTCA Method A cleanup level on the western and southern sidewalls of the excavation on Lots 3 through 5 (GeoEngineers 2008). GRO and BTEX were detected at concentrations exceeding MTCA Method A cleanup levels in groundwater samples collected from dewatering wells on the northern shoring wall during the remedial excavation. No information regarding additional groundwater monitoring on or off the East property post-interim action was available.

The interim action was limited to the area of redevelopment and construction on Lots 1 through 5 of the East property, and impacted soil remained in the adjacent rights-of-way to the north and west, and potentially at Lot 6 on the southern portion of the East property. Based on confirmation samples from the excavation, GRO remained in the west sidewall near the northern end of the alley at a concentration of 11 mg/kg (sidewall sample EX-11-W21; Figure 4; Table 1) and cPAHs remained in the west sidewall along the central portion of the alley at total TECs ranging from 0.07 to 6 mg/kg (EX-19-W5, EX-20-W1.5, EX-40-EL22, and EX-41-EL22; Figure 8; Table 2). Lead also remained in the west sidewall along the central portion of the alley at concentrations ranging from 64 to 1,800 mg/kg (EX-19-W5, EX-20-W1.5, EX-39-EL23, EX-40-EL22, and EX-41-EL22; Table 3).

Ecology (2009) issued a property-specific No Further Action (NFA) determination based upon the results of the 2008 remedial action conducted by GeoEngineers (2008) at Lots 1 through 5 on the East property. The NFA determination was property-specific to Lots 1 through 5 (the portion of the East property containing the Interurban Exchange 2 Building) and Ecology had indicated that "further remedial action is still necessary elsewhere at the Site."

3.3.2 East Property – Lots 6 and 7

A release from a heating oil UST on Lot 6 associated with the Rosen Building was confirmed during the permanent decommissioning and removal of the UST in 1994 (GeoEngineers 1999). Residual DRO and ORO were detected in soil samples collected north of the former heating oil UST excavation area at concentrations exceeding MTCA cleanup levels established in 1994 but less than current MTCA Method A cleanup levels. The volume of soil associated with the former heating oil UST release that was excavated and disposed of off the Rosen Property Site was not documented. Petroleum hydrocarbons were reported as non-detect in a groundwater sample collected from a monitoring well north of the former heating oil UST excavation area. Based on the information available, it is not clear whether the monitoring well was down-gradient from the UST excavation area. No other information pertaining to this UST release was available for review.

4.0 SUMMARY OF KNOWN CONDITIONS

A summary of known conditions was developed for the Alley based on the historical and recent information summarized in Sections 2 and 3 of this IAWP. The information presented in the following sections incorporates elements of the preliminary conceptual site model presented in the Draft RI Work Plan (Farallon 2020d; currently under review by Ecology).

4.1 CONFIRMED AND SUSPECTED SOURCES AND AFFECTED MEDIA

The inferred sources of contamination at the Alley are presented below. Adjacent properties with documented and confirmed releases of hazardous substances associated with historical operations described in Section 3 that potentially have migrated near or to the Alley via soil, surface water runoff, and/or groundwater transport are also summarized below.

4.1.1 Alley

Based on the results of subsurface investigations completed to date, the following historical features were confirmed as sources of soil contamination at the Alley: historical placement of impacted fill soil; wood debris associated with the former lumber mill operations on Block 38; a coal fill layer encountered in borings FB-10 through FB-12; and localized impacts associated with former railroad trestle and supporting structures.

An impacted fill layer consisting of sand, silt, coal fragments, and wood chips/organic material was observed from approximate elevation of 25 to 15 feet NAVD88 and is attributed to historical fill operations at this city block along the original southern shoreline of Lake Union. The distribution of fill material and potential impacts from fill soil, coal fragments, and wood debris will be documented during the Alley interim action.

4.1.2 West Property

Based on the results of subsurface investigations and the independent interim action completed to date by Farallon, the following historical operations and/or features were confirmed as sources of soil and/or groundwater contamination at the West property: historical placement of impacted fill soil; wood debris associated with the former lumber mill operations on Block 38; a coal fill layer across the central and northern portions of the West property; and localized impacts associated with former bunker fuel oil USTs encountered in the northwestern portion of the West property. Farallon observed that the fill soil layer varied in thickness from 5 to 10 feet, with a coal fill layer observed at shallow depths during the mass excavation and in the east-central mass excavation and sidewall. Beneath the fill soil layer, the wood debris layer varied in thickness from 10 to 20 feet, was thickest along the north and northeastern West property boundaries, and is attributed to former lumber mill operations and lumber storage on Block 38 and former timber pilings associated with historical buildings. Accordingly, silt and underlying silty sand could potentially contain hazardous substances associated with fill and wood debris (Farallon 2018).

4.1.3 East Property – Lots 1 through 5

Based on the results of subsurface investigations and the interim action completed to date, the following historical operations and/or features were confirmed as sources of soil and/or groundwater contamination at Lots 1 through 5 of the East property: historical placement of impacted fill soil; wood debris associated with the former lumber mill operations on Block 38; USTs associated with the former gasoline service station; and fuel yard associated with coal storage.

Releases of petroleum hydrocarbons, metals (lead and cadmium), and PAHs, including naphthalenes and cPAHs, were confirmed on Lots 1 through 5 at the East property. An impacted fill layer consisting of sand, silt, wood chips, and coal fragments was observed from approximate elevation of 25 to 21 feet NAVD88 and a wood debris layer was encountered at elevations ranging from 21 to 14 feet NAVD88 across Lots 1 through 5. A similar layer of fill soil with black coal fragments and wood fragments is encountered from elevations 23 to 18 feet NAVD88 and may be attributed to historical fill operations at this city block along the original southern shoreline of Lake Union.

4.1.4 East Property – Lots 6 and 7

A release from a heating oil UST associated with the Rosen Building on Lot 6 of the East property was confirmed during the permanent decommissioning and removal of the UST in 1994 (GeoEngineers 1999). Available information indicates that residual DRO and ORO were detected in soil samples collected north of the former heating oil UST excavation area, which exceeded MTCA cleanup levels at that time but do not exceed current MTCA Method A cleanup levels and were reportedly not detected in groundwater (GeoEngineers 1999). Based on the information available, it is not clear whether the monitoring well was down-gradient of the UST excavation area.

DRO and ORO were detected in a soil sample collected at an elevation of 20 feet NAVD88 from boring FB-11 advanced west of the former heating oil UST in the Alley at relatively low concentrations (72 and 470 mg/kg, respectively). The potential contribution of a release at the Rosen Property Site to the Alley is a data gap and will be further assessed during the implementation of the interim action.

4.2 MEDIA OF CONCERN

The confirmed medium of concern at the Alley, which will be targeted for the interim action cleanup, is soil. Evaluation of groundwater, indoor air, and surface water (via stormwater discharge) as media of potential concern is not included in this work plan. Potential impacts to groundwater that has migrated from or to the Alley will be assessed during the remedial investigation for the Block 38 West Site, and to the extent impacts are associated with releases at the Block 38 West Site, addressed during the feasibility study and final cleanup action. The vapor intrusion to indoor air pathway is not currently a complete pathway for the Alley due to the absence of a building. The independent interim action at the West property included a chemical-resistant vapor barrier to mitigate against the potential indoor air exposure pathway for the building;

therefore, the vapor intrusion pathway will be mitigated with engineering controls. The conceptual site model, exposure pathways, and media of concern for the Block 38 West Site will be discussed in the RI Report. The property-specific NFA determination for the Rosen Property Site indicates indoor air is not a medium of concern associated with the interim action conducted on Lots 1 through 5 (Ecology 2009); however, that only applies to the area within the Lots 1 through 5 (Interurban Exchange Building 2) property boundary. Stormwater at the Alley is collected at a catch basin and discharges to the King County Metro Sewer system.

4.3 SCREENING LEVELS AND HAZARDOUS SUBSTANCES OF CONCERN

Screening levels are established as a conservative basis for defining the extent of contamination for each hazardous substance exceeding concentrations of potentially applicable cleanup levels and affected media at a site. The screening levels may or may not be selected as the cleanup levels in a cleanup action plan, once the remedial investigation is complete and the conceptual site model developed. MTCA Method A soil cleanup levels for unrestricted land use are appropriate screening levels for the Alley interim action because there is a limited number of hazardous substances in soil and the current and proposed future land use as a paved through-alley servicing commercial buildings on the West and East properties limits the potential for exposures.

Hazardous substances targeted for this interim action were selected based on the compounds that remain at concentrations exceeding the screening levels within or immediately adjacent to the Alley. The hazardous substances identified for soil and their respective screening levels are:

- GRO: 30 mg/kg;
- DRO: 2,000 mg/kg;
- ORO: 2,000 mg/kg;
- cPAHs: 0.1 mg/kg; and
- Total naphthalenes: 5 mg/kg;
- Lead: 250 mg/kg; and
- Cadmium: 2 mg/kg.

4.4 NATURE AND EXTENT OF HAZARDOUS SUBSTANCES

For the purposes of this work plan, only shallow soil with concentrations of hazardous substances is discussed in this section. The interim action for the Alley, a portion of which is part of the Block 38 West Site, is to remove to the extent practicable shallow soil contamination encountered during utility improvements, roadway resurfacing, and subsurface structural improvements at the southern end of the Alley. Based on the results of the subsurface investigations and actions performed at and adjacent to the Alley, the nature and extent of soil contamination has been defined vertically and to the west. The extent of hazardous substances exceeding screening levels in shallow soil in the Alley will be evaluated at the final limits of the utility improvements to the north, east, and south during the interim action.

Figures 4 through 9 show the nature and extent of soil impacts by hazardous substances and Figures 11 through 13 show the nature and extent of contamination at the Alley, West property, and the western sidewall of the East property in vertical cross sections. Tables 1 through 3 summarize analytical results for hazardous substances detected in soil collected at the Alley, West property, and the western sidewall of the East property.

The majority of hazardous substances detected at concentrations exceeding screening levels were encountered from approximate elevations 22.5 to 17.5 feet NAVD88 at the Alley. The Alley improvements conducted in conjunction with the redevelopment of the West property will remove approximately 5 feet of contaminated fill soil to the extent practicable within the limits of the construction excavation and based on limitations due to structural issues with adjacent buildings and existing utilities.

ORO and cPAHs were detected at concentrations exceeding screening levels in soil samples collected from the eastern sidewall of the mass excavation on the West property at approximate elevation 20 feet NAVD88. Total naphthalenes and cPAHs, and/or lead were detected at concentrations that exceeded screening levels in soil samples collected from the western sidewall samples on the East property at elevations 23 to 19 feet NAVD88.

GRO was detected at a concentration of 2,100 mg/kg, which exceeds the screening level, in a soil sample collected from utility pothole PH-12 at an elevation of 21 feet NAVD88 at the Alley (Figure 4, Table 1). The lateral extent of GRO impacts to soil adjacent to utility pothole PH-12 is defined by analytical results for samples collected to the north at boring FB-13, to the east by utility pothole PH-13, to the south by boring FB-12 and utility pothole PH-11A, and to the southwest by B-6 (Figure 4). GRO was not detected in soil samples collected at the West property to the west of utility pothole PH-12. The vertical limits of GRO impacts to soil adjacent to utility pothole PH-12 at the Alley are defined at elevation 20 feet NAVD88 in boring FB-12 and utility pothole PH-13.

DRO was detected at a concentration of 9,400 mg/kg, which exceeds the screening level, in a soil sample collected from utility pothole PH-12 at an elevation of 21 feet NAVD88 in the Alley (Figure 6, Table 1). The lateral extent of DRO impacts in soil adjacent to utility pothole PH-12 is defined by analytical results for samples collected to the north at boring FB-13, to the east by utility pothole PH-13, and to the south by boring FB-12 (Figure 6). Any potential shallow DRO-impacted soil extending west onto the West property was removed as part of the independent interim action. The vertical limits of DRO impacts to soil adjacent to utility pothole PH-12 at the Alley are defined at elevation 20 feet NAVD88 in borings FB-12 and utility pothole PH-13.

ORO was detected at concentrations of 21,000 mg/kg and 2,900 mg/kg, which exceed the screening level, in a soil sample collected from utility pothole PH-12 at an elevation of 21 feet NAVD88 and at boring FB-13 at an elevation of 17.5 feet NAVD88 at the Alley, respectively (Figure 7; Table 1). The lateral extent of ORO impacts at the Alley is defined by analytical results for samples collected to the north at boring FB-15, to the east by northwest sidewall samples from the East property (Lots 1 and 2), and to the south by boring FB-12 (Figure 7, Table 1). ORO was not detected at a concentration exceeding the screening levels in soil samples collected at the West

property to the west of utility pothole PH-12. The vertical limits of ORO impacts to soil adjacent to utility pothole PH-12 at the Alley are defined by analytical results for samples collected at elevation 20 feet NAVD88 in boring FB-12 and utility pothole PH-13 and at elevation 15 feet NAVD88 at boring FB-13.

Total naphthalenes were detected at a concentration of 11.6 mg/kg, which exceeds the screening level, in a soil sample collected from boring FB-13 at an elevation of 22.5 feet NAVD88 at the Alley (Figure 8, Table 2). The lateral extent of total naphthalenes is defined by analytical results for samples collected to the north at boring FB-14, to the south by boring FB-12, and to the west by location H4-B. To the east, total naphthalenes were detected in soil at concentrations exceeding the screening level in a soil sample collected from the western sidewall, EX-40-EL22, at an elevation of 22 feet NAVD88 on the East property. Any potential shallow soil impacted by total naphthalenes extending east onto the East property was apparently removed as part of the interim action (Figure 8; Table 2). The vertical limits of total naphthalene impacts to soil at boring FB-13 at the Alley are defined by analytical results for a soil sample collected at elevation 20 feet NAVD88 from boring FB-13.

cPAHs were detected in soil at concentrations exceeding screening levels at elevations ranging from 22.5 to 17.5 feet NAVD88 at the southern portion and to 15 feet NAVD88 at the central and northern portions of the Alley. The lateral extent of cPAHs at the Alley have not been defined to the north of boring FB-16 or to the south of boring FB-10 (Figure 9; Table 2). The western extent of cPAHs in shallow soil detected at concentrations exceeding the screening levels in soil were excavated and removed from the West property (Figure 9; Table 2). The eastern extent of cPAHs in shallow soil detected at concentrations exceeding the screening levels in soil were excavated and removed from Lots 1 through 5 on the East property as part of that interim action. The lateral extent of cPAHs impacts is not defined east of the Alley on East property Lots 6 and 7, the Rosen Property Site; however, the soil in this area is covered by the existing Rosen Building (Figure 9; Table 2).

Cadmium and lead were detected at concentrations of 2.4 mg/kg and 1,900 mg/kg, respectively, which exceed the screening level, in a soil sample collected at test pit TP-10 at an elevation of 20.5 feet NAVD88 at the Alley. Cadmium and lead were not detected at a concentration exceeding the screening levels in soil samples collected at elevations 22.5 and 20 feet NAVD88 from borings FB-12 through FB-15 (Table 3). Cadmium and lead were not detected at concentrations exceeding the soil screening level on the West property. Lead was detected at concentrations exceeding the screening levels in soil samples collected at an elevation of 22 feet NAVD88 in western sidewall samples EX-40 and EX-41 on the East property (Table 3). The eastern extent of cadmium and lead in shallow soil detected at concentrations exceeding the screening levels for soil was excavated and removed from Lots 1 through 5 on the East property as part of that interim action.

The data collected during the September 2020 subsurface investigation conducted by Farallon demonstrates that the vertical extent of hazardous substances detected at concentrations exceeding screening levels has been defined for the Alley. Shallow contaminated soil to the west of the Alley was excavated and permanently removed from the West property and to the east of the Alley on

Lots 1 through 5 of the East property (Figures 4 through 13). The presence or absence of hazardous substances exceeding screening levels at the Alley will be further documented at the limits of the construction excavation.

5.0 INTERIM ACTION IMPLEMENTATION

Alley improvements will be conducted in conjunction with the redevelopment of the West property. These improvements are scheduled to begin in January 2021 and will create a through-alley that can be accessed by Mercer Street from the north and Republican Street from the south to service commercial buildings on Block 38. Construction at the Alley will require excavation across the alley to approximate elevations of 25 to 18 feet NAVD88 from north to south. The excavation sidewalls will use a one-to-one slope back or use the existing soldier pile and lagging shoring wall on the West property. All soil removed as part of this element of the construction process will be documented and properly disposed of as described below and in accordance with applicable laws and regulations.

5.1 INTERIM ACTION OBJECTIVES

Investigations conducted at the Alley have identified hazardous substances in soil at concentrations exceeding applicable screening levels. The objective of the interim action is to eliminate and/or reduce the threat to human health and the environment and to correct a problem that will likely cost substantially more to address if not completed during the Alley improvements.

5.2 PROPERTY PREPARATION AND MOBILIZATION

Preparation for implementation of the interim action, construction of the through-alley, and alley roadway resurfacing includes installation of security and erosion control measures per permitted construction plans and work related to re-routing and/or connecting underground utilities associated with the redevelopment of the West property.

Monitoring wells FMW-137 and FMW-138, located just off the northeastern and southeastern corners of the West property (i.e., at the northern and southern ends of the Alley) (Figure 2), will be protected and remain in place for future monitoring and sampling adjacent to the West property.

5.3 EXCAVATION OF CONTAMINATED SOIL

Based on previous investigations, soil containing detectable concentrations of hazardous substances extends to an approximate elevation of 17.5 to 15 feet NAVD88 at the Alley (Figure 11). The planned excavation activities within the Alley will extend to a depth of approximately 5 feet bgs or an elevation of 25 to 18 feet NAVD88 (north to south) in order to place structural backfill to support the new concrete road surface and access utilities. The proposed vertical extent of excavation is shown on the cross sections presented on Figures 11 through 13. Groundwater is not expected to be encountered during the planned work in the Alley, as the static groundwater level is typically at 18 feet NAVD88.

Figures 14 and 15 show the estimated lateral extent of impacted soil to be removed from the Alley, based on field observations and laboratory analytical results from the previous investigations. Soil encountered during development activities with concentrations of hazardous substances exceeding

their screening levels will be removed to the extent practicable and appropriately managed during utility and structural improvements at the Alley. Some soil containing hazardous substances is expected to remain following completion of the interim action, as the construction excavation extents will be limited due to structural issues associated with adjacent buildings and existing utilities.

The western boundary of the Alley is supported by the current shoring system for the West property. The eastern boundary of the northern half of the Alley abuts the shoring system for the Interurban Exchange 2 Building and associated gas and fiber optic lines. Those gas and fiber optic lines require a minimum 5-foot offset from the existing building, to the west, and require that the base of the fiber optic line not be undermined. The top of the fiber optic line is at an elevation of approximately 28 feet NAVD88 at the north end of the alley and at an elevation of approximately 19 feet NAVD88 in the central portion of the Alley. The eastern boundary on the southern half of the Alley abuts the shoring system for the Rosen Building. The footing for the Rosen Building and adjacent gas, fiber optic, and sewer lines in the Alley will be exposed. The excavation in this area requires exposing utilities to protect, connect to, and/or modify structural improvements to subgrade soil for construction of a ramp from the Alley to Republican Street.

Extensive shoring is not planned for the shallow construction excavation associated with utility connections and resurfacing of the Alley. The construction excavation will use a one-to-one slope back from established boundaries and/or a shoring trench box to reach the limits of the construction excavation.

All soil excavated from the Alley will be transported to an approved landfill for disposal. Soil with hazardous substances detected at concentrations less than the screening levels will require special handling and disposal measures beyond those used for handling and disposing of clean soil (i.e., soil that does not contain detectable concentrations of hazardous substances).

Farallon will observe soil cuttings generated during the installation of rigid inclusions associated with structural improvements planned for the southern portion of the Alley (discussed in Section 5.5) in order to monitor for potential presence of hazardous substances and to support waste disposal characterization. The cuttings will be field screened following the procedures described below in areas of confirmed or suspected soil with concentrations of hazardous substances. Field screening may consist of visual observation for evidence of soil staining or discoloration, and/or notation of noticeable odors, and may also include use of field instrumentation such as a photoionization detector for detection of volatile vapors. Farallon will conduct performance and confirmation soil sampling per Section 7.0, Compliance Monitoring, and in accordance with the Sampling and Analysis Plan that will be provided to Ecology for review and approval prior to conducting the interim action. Farallon will consult with Hos Bros. Construction and Malcolm Drilling as needed regarding management of soil based on soil categorization (see Section 5.4).

Soil will be excavated and directly loaded into trucks whenever possible for transportation and off-site disposal in accordance with Washington State Solid Waste Management Laws and Regulations (Chapter 70.95 of the Revised Code of Washington [RCW 70.95] and WAC 173-351 and 173-304) and Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* revised

June 2016 (Ecology 2016b) (Ecology Guidance). If direct loading of excavated soil into trucks is not feasible, temporary stockpiles will be maintained by Hos Bros. Construction as needed to segregate soil by disposal category until it can be loaded into trucks. Hos Bros. Construction will use discretion on best means and methods to construct and maintain stockpiles and to prevent intermixing of soil segregated by disposal category to the extent practicable given the constraints of the construction project and utility and structural limitations. Plastic sheeting should be placed on top of inactive stockpiles to prevent wind or runoff transport of excavated soil, and to prevent stockpile cross-contamination pending load-out. Plastic sheeting is not suitable for use beneath stockpiles of excavated soil placed on clean soil.

Farallon will assist City Investors IX with manifesting trucks loaded with soil, and tracking quantities of soil delivered to disposal facilities. Documentation of soil disposal will be maintained in the project file and for regulatory reporting.

5.4 OFF-PROPERTY DISPOSAL OF SOIL

Soil will be exported and disposed of off the Alley at an approved disposal facility according to waste soil category. The categories of soil containing concentrations of hazardous substances that will be generated during the construction and the corresponding disposal facilities are described below.

- **Category 3 Soil** is excavated soil containing hazardous substances at concentrations that do not meet acceptance criteria for disposal as non-impacted soil, but meets the acceptance criteria for disposal at the following facilities:
    - Cadman, Inc Subtitle D Landfill in Everett, Washington;
    - Republic Services Regional Subtitle D Landfill in Roosevelt, Washington; and
    - Waste Management Columbia Ridge Subtitle D Landfill in Arlington, Oregon.
- **Category 3+ Soil** is excavated soil with concentrations of hazardous substances exceeding the Cadman, Inc. disposal acceptance criteria. This category of soil also contains greater than 15 percent organic material not meeting acceptance criteria for disposal at the Cadman, Inc. facility. This soil will meet acceptance criteria for disposal at the following Category 3+ disposal facilities:
    - Republic Services Regional Subtitle D Landfill; and
    - Waste Management Columbia Ridge Subtitle D Landfill.

The actual volumes and location of each category of soil generated during excavation activities will vary based on the extent of the construction and fill material encountered and upon actual subsurface conditions encountered during the construction excavation.

5.5 UTILITY AND STRUCTURAL IMPROVEMENTS

The Alley improvements will occur over six phases to limit disruptions to operating businesses on the East property. An overview of those phases and additional construction information for the proposed alley improvements are presented in Appendix D.

Phases 1 and 2 involve connecting the sewer line from the West property to the existing 6-inch-diameter sewer line that runs south in the Alley toward Republican Street. The following activities will be conducted during Phase 1 and 2 of construction:

- The footings for the Rosen Building on the southern portion of the East property will be exposed;
- Existing utilities (gas, fiber optic, and sewer) will be exposed and protected;
- 30-inch-diameter rigid inclusions (structural columns) will be installed in a grid pattern to a minimum elevation of 4 feet NAVD88 to support construction of a ramp to connect the Alley to Republican Street;
- Structural fill will be imported; and
- A 6-inch-thick concrete surface will be placed in the Alley.

Phases 3 through 6 involve minor improvements that will require excavation of soil to approximately 5 feet, and importing and placement of a suitable backfill prior to finishing with a 6-inch-thick concrete surface.

6.0 PERMITS AND OTHER REGULATORY REQUIREMENTS

This section summarizes applicable local, state, and federal laws pertaining to the interim action, and the permitting and substantive requirements applicable to the interim action.

6.1 APPLICABLE LOCAL, STATE, AND FEDERAL LAWS

Pursuant to WAC 173-340-710, the interim action will comply with applicable local, state, and federal laws, and include applicable regulatory guidelines. The cleanup standards, waste disposal criteria, and documentation standards are:

- MTCA (RCW 70.105D and WAC 173-340);
- The Hazardous Waste Management Act (RCW 70.105);
- Washington State Solid Waste Management Laws and Regulations (RCW 70.95 and WAC 173-351 and 173-304);
- Dangerous Waste Regulations (WAC 173-303);
- Accreditation of Environmental Laboratories (WAC 173-50);
- The Occupational Safety and Health Act (Part 1910 of Title 29 of the Code of Federal Regulations [29 CFR 1910] and WAC 296-62);
- The State Environmental Policy Act (RCW 43.21 and WAC 197-11 and 173-802);
- Safety Standards for Construction Work (WAC 296-155); and
- Applicable local permits and ordinances indicated by the City of Seattle Municipal Code.

6.2 PERMITTING AND SUBSTANTIVE REQUIREMENTS

The following sections describe the permitting and substantive requirements applicable to the interim action.

6.2.1 State Environmental Policy Act

The State Environmental Policy Act (SEPA) (WAC 197-11) and the SEPA procedures (WAC 173-802) provide the framework for state agencies to evaluate the environmental consequences of a project and ensure appropriate measures are taken to mitigate environmental impacts. SEPA is applicable to the redevelopment project on the West property, which included the scope for the Alley Improvements.

Block 38 is located in the South Lake Union neighborhood of downtown Seattle for which an Environmental Impact Statement (EIS) was previously prepared. The EIS, which was prepared by the City of Seattle and finalized in 2012, evaluated general environmental impacts and mitigation strategies for development projects within the South Lake Union neighborhood (City of Seattle 2012). City Investors IX prepared and submitted an addendum to the South Lake Union EIS in

April 2019 that provided a site-specific analysis of environmental impacts and associated mitigation measures for the Block 38 West redevelopment project, including the Alley improvements. The City of Seattle determined that the project will not have a significant adverse impact on the environment[4].

6.2.2 City of Seattle Master Use Permit

City Investors IX obtained a Master Use Permit from the City of Seattle for the West property redevelopment project on the West property, which includes the scope for the Alley Improvements.

6.2.3 City of Seattle Grading and Shoring Permits

City Investors IX obtained a grading permit from the City of Seattle. Substantive requirements of a grading permit include erosion control, which is addressed by implementation of best management practices in accordance with a project-specific temporary erosion and sediment control plan.

6.2.4 Historical and Cultural Resource Protections

As required by state law, appropriate measures will be taken to evaluate the potential presence of historical, archaeological, or cultural resources. City Investors IX prepared a Cultural Resources Assessment, which was submitted to the Washington State Department of Archaeology and Historic Preservation. The Washington State Department of Archaeology and Historic Preservation concurred with the findings of the Cultural Resources Assessment requiring archeological monitoring during excavations with potential to intersect native soil. In addition, City Investors IX prepared a Monitoring and Inadvertent Discovery Plan for the West property redevelopment project, attached as Appendix D.

[4] Record No. 3017466-LU, City of Seattle Analysis and Decision of the Director of the Seattle Department of Construction and Inspections; Notice of Decision issued July 2, 2019.

7.0 COMPLIANCE MONITORING

Three types of compliance monitoring have been identified for remedial actions performed under MTCA (WAC 173-340-410): protection monitoring, performance monitoring, and confirmational monitoring. A paraphrased purpose for each is presented below (WAC 173-340-410[1]):

- **Protection Monitoring** confirms whether human health and the environment are adequately protected during the interim action;
- **Performance Monitoring** confirms that the interim action has attained screening levels or other performance standards necessary to demonstrate compliance with a permit or the substantive requirements of other laws; and
- **Confirmational Monitoring** confirms the long-term effectiveness of the interim action once screening levels or other performance standards have been attained.

7.1 PROTECTION MONITORING

A Health and Safety Plan has been prepared for the interim action that meets the minimum requirements for such a plan identified in federal (29 CFR 1910.120 and 1926) and state (WAC 173-340-810 and 296) regulations. The Health and Safety Plan identifies all known physical, chemical, and biological hazards; hazard monitoring protocols; and administrative and engineering controls required to mitigate the identified hazards. A copy of the Health and Safety Plan is provided in Appendix E. Protection monitoring will be performed in accordance with the Health and Safety Plan.

Construction workers encountering Impacted Soil will have completed 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with 29 CFR 1910.120 and will have completed Annual 8-Hour HAZWOPER refresher training, as needed.

7.2 SOIL PERFORMANCE MONITORING

Performance monitoring will provide soil analytical results to refine, classify, and/or identify the presence of hazardous substances exceeding screening levels in an excavation area with confirmation or evidence of potentially contaminated soil. The soil analytical results will define whether hazardous substances are present at concentrations exceeding screening levels. Performance monitoring will be performed to document soil conditions at the final limits of the excavation associated with utility and roadway improvements.

Performance monitoring will involve collecting in-situ samples for laboratory analysis to quantify concentrations of hazardous substances in soil. Discrete soil samples will be collected from the excavation areas to serve as confirmation samples where screening levels are attained.

Soil samples collected for performance monitoring, for confirmation monitoring, and to support soil profiling and disposal will be analyzed for the hazardous substances identified Section 4.3,

Screening Levels and Hazardous Substances of Concern. Samples of confirmed or potentially contaminated soil may be analyzed by one or more of the following:

- GRO by Northwest Method NWTPH-Gx;
- DRO and ORO by Northwest Method NWTPH-Dx;
- PAHs, including naphthalenes and cPAHs, by EPA Method 8270D; and
- RCRA Metals, cadmium and lead, by EPA Methods 6010D and 7471B.

The performance and confirmation soil samples will be analyzed on an appropriate turnaround schedule to facilitate soil cleanup activities during construction. The procedures for soil sample collection (e.g., frequency, location) and sample handling are described in the following sections. A Sampling and Analysis Plan will also be prepared upon finalization of this work plan.

7.2.1 Soil Sampling Frequency

The frequency of performance soil sampling will depend on the existing analytical data set and qualitative indications of potentially contaminated soil observed by the Farallon field personnel using the field-screening methods described in Section 5.3, Excavation of Contaminated Soil. The frequency of performance soil sampling may be higher near the lateral and vertical limits of an excavation area to provide sufficient samples for confirmational monitoring.

7.2.2 Soil Sampling Locations

The locations of the performance soil samples will depend on the existing analytical data set, excavation progress each day, and the configuration of the final excavation limits. The soil sample locations will be selected at the discretion of the Farallon field personnel based on a 30- (north to south) by 20-foot (east to west) grid system applied to the excavation areas and field-screening observations of soil conditions.

7.2.3 Soil Sampling Identification

The soil samples collected for performance monitoring from each sample location will be assigned a unique sample identifier and number. Soil samples collected from interior portions of the excavation will be assigned a unique sample identifier that will include the components listed below:

- Soil sampling grid designation (e.g., A2);
- Sampling grid designation, as appropriate:
    - North sidewall (NSW);
    - East sidewall (ESW);
    - West sidewall (WSW);
    - South sidewall (SSW);
    - Floor/bottom (B);

- Elevation of the surface soil sample in feet NAVD88; and
- Sampling date (e.g., MMDDYY).

For example, the soil sample collected from the north sidewall of sampling grid A/A5 at 17.5 feet NAVD88 on February 28, 2021 would be assigned the sample identifier A/A5-NSW-17.5-022821.

The sample identification will be placed on the sample label, the Field Report form, Sample Summary forms, and the Chain of Custody form.

7.2.4 Soil Sample Collection and Handling Procedures

The performance soil samples will be collected and handled following the procedures listed below.

- Soil samples will be collected directly from in-situ soil if the target sample interval is less than 4 feet below the depth of the surrounding land surface at the time of sampling (e.g., from a test pit less than 4 feet deep at the base of the mass excavation area). Soil samples will be collected from the center of the track hoe bucket if the target sample interval is from a test pit greater than 4 feet deep or if potentially hazardous conditions exist due to physical hazards or vapors. The samples will be collected using either stainless steel or plastic sampling tools. Non-dedicated sampling equipment, with the exception of the track hoe bucket, will be decontaminated between uses as appropriate.
- Information for each excavation and associated sampling will be logged, including at a minimum: sample depth, Unified Soil Classification System description, soil moisture, physical indications of the presence of hazardous substances (visual observations and olfactory indications), and field-screening results obtained using a photoionization detector and/or sheen testing.
- Soil samples will be transferred immediately into laboratory-supplied sample containers. Care will be taken to not handle the seal or inside cap of the container when the sample is placed into the containers, and the seals/caps will be secured.
- The sample container will be labeled with the medium (soil), date, time sampled, sample identification and number, project name, project number, and sampler's initials.
- The sample will be logged on a Chain of Custody form and placed into a chilled cooler for transport to the laboratory under chain-of-custody protocols.
- Disposable sampling and health and safety supplies and equipment will be discarded in an appropriate waste dumpster at the Site.

The excavation and sample locations will be identified relative to a landmark at the Alley using a measuring tape or other measuring device, and the soil sample location will be plotted on a scaled site plan. Digital photographs will be taken of each excavation when the final limits of the excavation have been defined.

7.3 CONFIRMATIONAL SOIL SAMPLING

Confirmational monitoring for soil will be conducted once performance soil sampling results indicate the excavation is approaching the lateral and vertical limits of soil containing hazardous substances at concentrations exceeding the screening levels or the Alley construction excavation limits, whichever occurs first. Confirmational monitoring will consist of collecting in-situ soil samples from the base and sidewalls of the excavation to confirm that no hazardous substances are present at concentrations exceeding screening levels. Performance monitoring soil sample locations will be used as confirmation soil sampling points in cases where the analytical results for the performance soil samples confirm that concentrations of hazardous substances less than the screening levels have been attained at the limits of the construction excavation. Confirmation soil samples will be collected from the final lateral and vertical limits of the excavation using the sampling methodology described in Section 7.2.1, Soil Sampling Frequency.

8.0 REPORTING AND SCHEDULE

Reporting for the Alley interim action is described below. In addition to the reporting described below, monthly progress reports required under the AO will continue to be prepared to provide a summary of:

- Activities performed for the interim action during the reporting period;
- Deviations from the scope of work;
- Changes in key personnel involved with the work;
- Deviations from the schedule and resolution;
- A summary of sampling and testing reports; work planned and deliverables for the next reporting period; and
- Public or regulatory communications.

The schedule for transmittal of data and interim action-related documents to Ecology is based upon the schedule specified for the independent interim action for the Block 38 West Site in Exhibit C of the AO and is provided below.

8.1 EIM DATA SUBMITTALS

Submittals to the Environmental Information Management (EIM) database in accordance with WAC 173-340-840(5) and the AO will be completed for the following:

- Soil analytical data associated with the supplemental subsurface investigation at the Alley in September 2020; and
- Soil analytical data collected for the interim action from January to June 2021.

Farallon will prepare location and environmental results data tables formatted to EIM specifications and submit them to Ecology's EIM system for review and upload into the EIM database after the data has been validated. Farallon anticipates one round of comments from Ecology and corresponding edits to the submitted tables prior to final upload into the database.

8.2 FINAL INTERIM ACTION WORK PLAN

This Draft Interim Action Work Plan is being issued for public review and comment in accordance with Section VII.E of the AO and WAC 173-340-600(16). Upon receipt of Ecology's comments, subsequent to public comment, the Final Interim Action Work Plan will be prepared and submitted to Ecology prior to its implementation.

8.3 INTERIM ACTION REPORTS

An Agency Review Draft Interim Action Report and Final Interim Action Report will be prepared as required for work being performed under the auspices of the AO and in accordance with the requirements of WAC 173-340-380, Ecology Guidance, and the Toxics Cleanup Program Cleanup Action Plan (CAP) Checklist (Ecology 2016a). The Interim Action Report will describe the activities and the results from this interim action and will include maps and figures that convey information pertaining to the nature and extent of soil contamination and its removal.

8.4 SCHEDULE

Below is a summary of the schedule for implementing the interim action and associated reporting.

- **Final Interim Action Work Plan.** 30 days after receipt of Ecology comments, subsequent to public comment.
- **Interim Action Sampling and Analysis Plan (SAP).** No later than 2 weeks after approval of the Final Interim Action Work Plan.
- **Interim Action Field Activities Completed.** 180 days (6 months) after approval of the Final Interim Action Work Plan (field work is anticipated to begin in February 2021).
- **Agency Review Interim Action Report.** 90 days (3 months) after completion of the Interim Action field activities and receipt of interim action validated data.
- **Final Interim Action Report.** 30 days after receipt of Ecology comments.

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10.0 LIMITATIONS

10.1 GENERAL LIMITATIONS

The conclusions contained in this document are based on professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location. The conclusions contained herein are subject to the following inherent limitations:

- **Accuracy of Information**. Farallon obtained, reviewed, and evaluated certain information used in this report/assessment from sources that were believed to be reliable. Farallon's conclusions, opinions, and recommendations are based in part on such information. Farallon's services did not include verification of its accuracy or authenticity. Should the information upon which Farallon relied prove to be inaccurate or unreliable, Farallon reserves the right to amend or revise its conclusions, opinions, and/or recommendations.
- **Reconnaissance and/or Characterization**. Farallon performed a reconnaissance and/or characterization of the Site that is the subject of this report/assessment to document current conditions. Farallon focused on areas deemed more likely to exhibit hazardous materials conditions. Contamination may exist in other areas of the Site that were not investigated or were inaccessible. Site activities beyond Farallon's control could change at any time after the completion of this report/assessment.

For the foregoing reasons, Farallon cannot and does not warrant or guarantee that the Site is free of hazardous or potentially hazardous substances or conditions, or that latent or undiscovered conditions will not become evident in the future. Farallon's observations, findings, and opinions can be considered valid only as of the date of the report.

This document has been prepared in accordance with the contract for services between Farallon and City Investors IX LLC, and currently accepted industry standards. No other warranties, representations, or certifications are made.

10.2 LIMITATION ON RELIANCE BY THIRD PARTIES

Reliance by third parties is prohibited. This report/assessment has been prepared for the exclusive use of City Investors IX LLC to address the unique needs of City Investors IX LLC at the Property at a specific point in time.

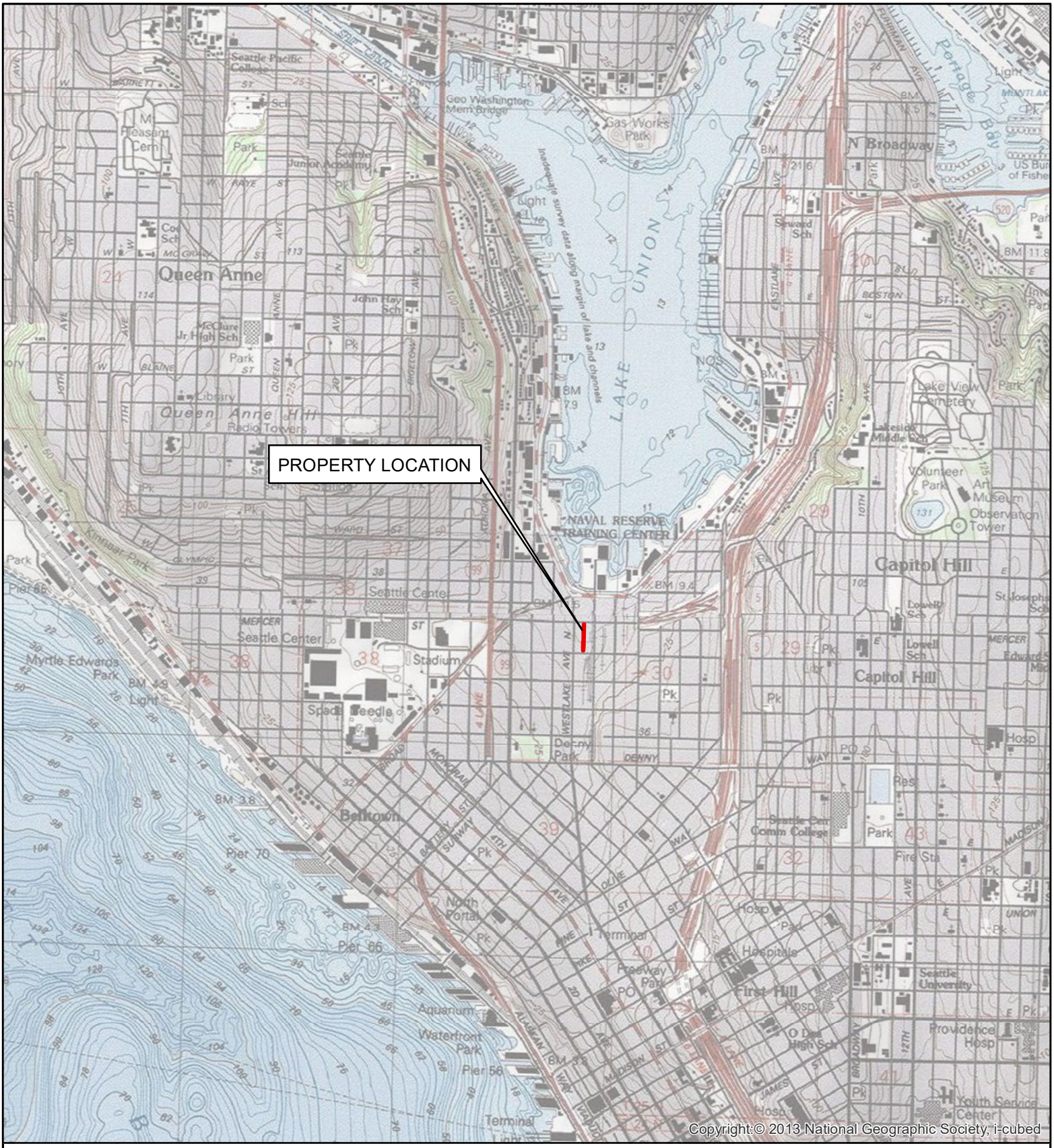
This is not a general grant of reliance. No one other than City Investors IX LLC may rely on this report unless Farallon agrees in advance to such reliance in writing. Any unauthorized use, interpretation, or reliance on this report/assessment is at the sole risk of that party and Farallon will have no liability for such unauthorized use, interpretation, or reliance.

FIGURES

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street

Seattle, Washington

Farallon PN: 397-019



REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE NORTH, WASHINGTON, DATED 1983

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Oregon
Portland | Baker City

California
Oakland | Folsom | Irvine

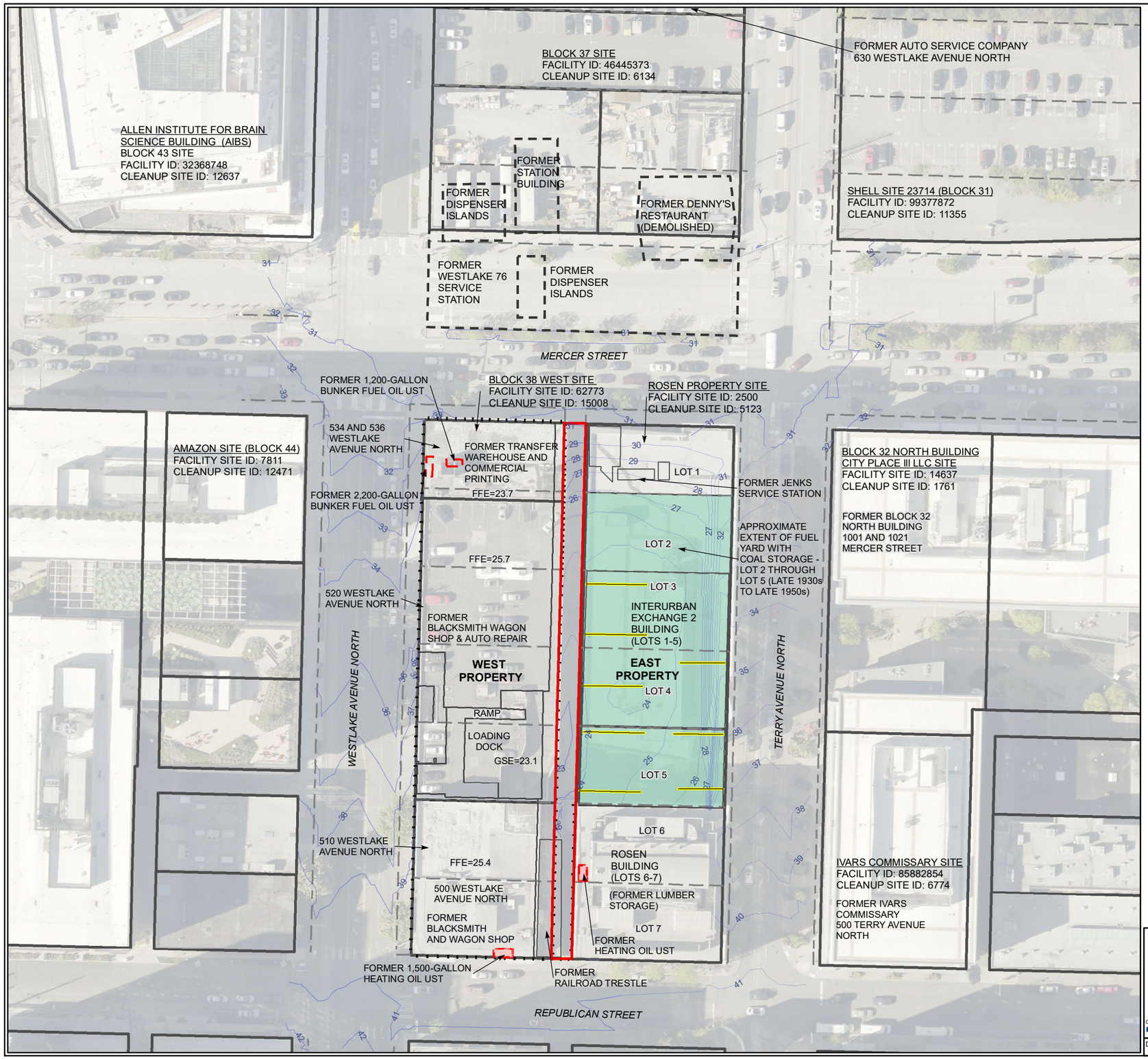
FIGURE 1

VICINITY MAP
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin | Checked By: CS | Date: 10/14/2020 | Disc Reference:

Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202009\Figure-01_SiteVicinity.mxd



LEGEND

- PILE
- FORMER COAL STORAGE BINS (BASED ON 1953
- BUILDING FEATURES (BUILDINGS ON BLOCK 38 WEST PROPERTY DEMOLISHED IN 2019)
- LOT LINE
- 30 GROUND SURFACE ELEVATION CONTOUR
- FORMER FEATURE
- APPROXIMATE LOCATION OF FORMER HEATING OIL OR BUNKER FUEL OIL USTs
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
LOADING DOCK HIGHER THAN GSE
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)
ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988

FFE = APPROXIMATE FINISH FLOOR ELEVATIONS OF GROUND FLOOR OF FORMER BUILDING
GSE = APPROXIMATE GROUND SURFACE ELEVATION OF FORMER LOADING DOCK AREA
UST = UNDERGROUND STORAGE TANK

N

0 80
SCALE IN FEET

ALL LOCATIONS ARE APPROXIMATE.
FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 2

PROPERTY MAP WITH HISTORICAL FEATURES
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin | Checked By: CS | Date: 1/7/2021 | Disc Reference:
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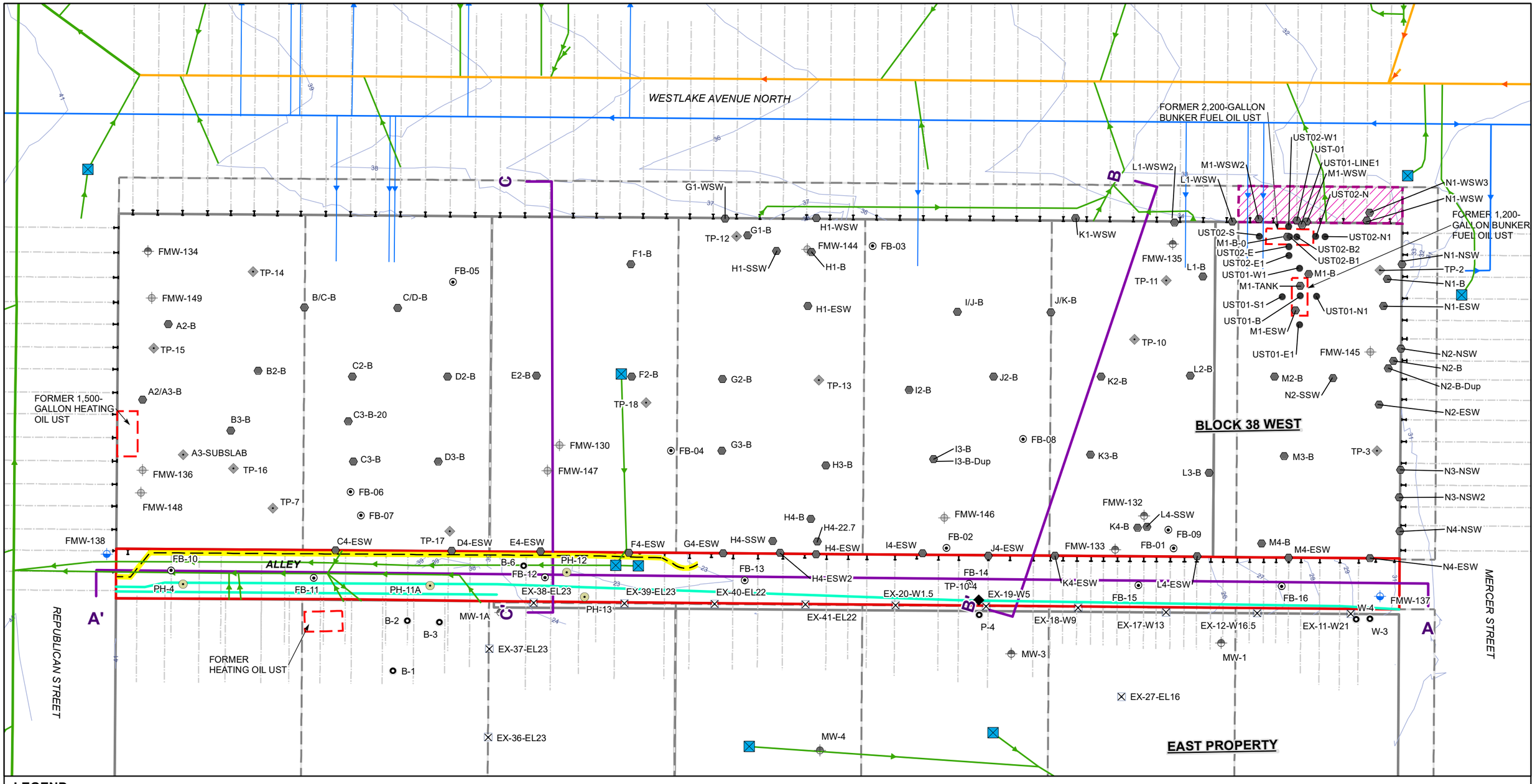

LEGEND

- DEEP OUTWASH AQUIFER
- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING
- EXCAVATION SAMPLE
- TEST PIT (GEOENGINEERS)
- POTHOLE (FARALLON)
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- KING COUNTY PARCELS
- LOT LINE
- LINE OF CROSS SECTION
- PILE
- TIEBACK
- CATCH BASIN
- SANITARY SEWER MAIN
- WATER LINE
- COMBINED MAIN
- FIBER OPTIC LINE
- PROPOSED GAS LINE

N

0 30

SCALE IN FEET

CDF = CONTROLLED DENSITY FILL
ELEVATION DATA PRESENTED IN FEET ABOVE MSL
IN THE NORTH AMERICAN VERTICAL DATUM OF 1988
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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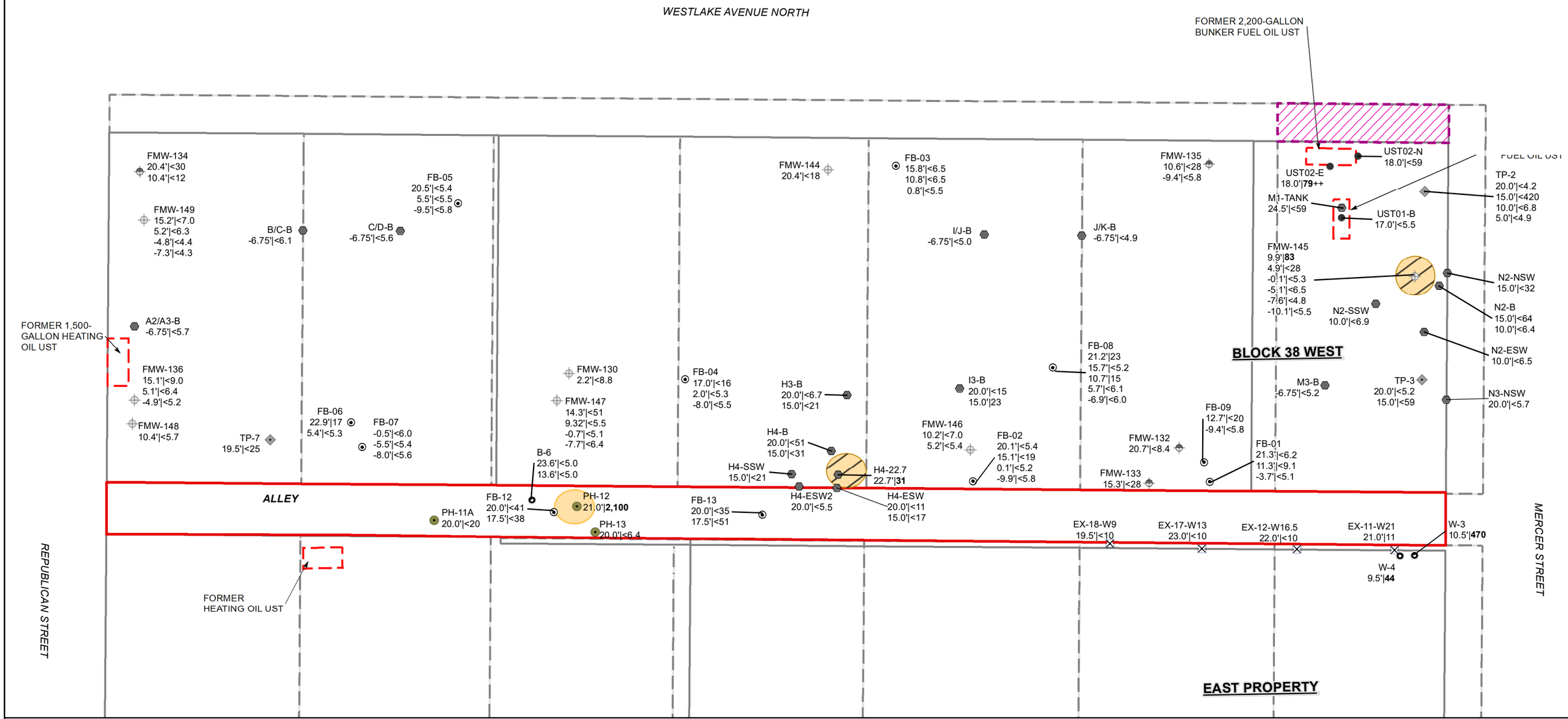
FIGURE 3

SITE PLAN WITH SOIL SAMPLE LOCATIONS AND CROSS SECTION LINES
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin
Checked By: CS
Date: 1/7/2021
Disc Reference: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-03_BL38W_Alley_17E_202011.mxd



LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- POTHOLE (FARALLON)
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | GRO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
++ = FUEL PATTERN INDICATIVE OF HEAVY OIL; PRODUCT CONFIRMED AS BUNKER C FUEL OIL
CDF = CONTROLLED DENSITY FILL
GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30
SCALE IN FEET

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FIGURE 4

SOIL ANALYTICAL RESULTS
FOR GRO
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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WESTLAKE AVENUE NORTH

FORMER 2,200-GALLON BUNKER FUEL OIL UST

UST02-E
18.0'|0.0033

UST02-N
18.0'|<0.00091

UST01-W1
19.0'|<0.00098

M1-TANK
24.5'|<0.00082

UST01-N1
19.0'|<0.00094

UST01-S1
19.0'|<0.00084

UST01-B
17.0'|<0.00092

UST01-E1
19.0'|<0.00083

TP-2
20.0'|<0.020
15.0'|<0.026

FMW-134
20.4'|<0.059
10.4'|<0.023

FMW-149
15.2'|<0.020
5.2'|<0.020
-4.8'|<0.020
-7.3'|<0.020

B/C-B
-6.75'|<0.020

C/D-B
-6.75'|<0.020

FB-05
20.5'|<0.020
5.5'|<0.020
-9.5'|<0.020

FMW-144
20.4'|<0.036

FB-03
15.8'|<0.020
10.8'|<0.020
0.8'|<0.020

FMW-135
10.6'|<0.055
-9.4'|<0.020

I/J-B
-6.75'|<0.020

J/K-B
-6.75'|<0.020

J2-B
20.0'|<0.00076

K2-B
20.0'|<0.037

FMW-145
9.9'|<0.020
4.9'|<0.020
-0.1'|<0.020
-5.1'|<0.020
-7.6'|<0.020
-10.1'|<0.020

FORMER 1,500-GALLON HEATING OIL UST

A2/A3-B
-6.75'|<0.020

FB-08
21.2'|**0.12**
15.7'|<0.020
10.7'|<0.020
5.7'|<0.020
-6.9'|<0.020

BLOCK 38 WEST

FMW-136
15.1'|<0.020
5.1'|<0.020
-4.9'|<0.020

FMW-130
2.2'|<0.020

FMW-147
14.3'|<0.10
9.3'|<0.020
-0.7'|<0.020
-7.7'|<0.020

FB-04
17.0'|<0.033
2.0'|<0.020
-8.0'|<0.020

I3-B
20.0'|<0.030

M3-B
-6.75'|<0.020

TP-3
20.0'|<0.020
15.0'|<0.12

N3-NSW
20.0'|<0.020

FMW-148
10.4'|<0.020

TP-7
19.5'|<0.0044

FB-06
22.9'|<0.024
5.4'|<0.020

FB-07
-0.5'|<0.020
-5.5'|<0.020
-8.0'|<0.020

FMW-146
10.2'|<0.020
5.2'|<0.020

FB-02
20.1'|<0.020
15.1'|<0.037
0.1'|<0.020
-9.9'|<0.020

FMW-132
20.7'|<0.020

FB-09
12.7'|<0.039
-9.4'|<0.020

FMW-133
15.3'|<0.057

H4-22.7
22.7'|<0.022

ALLEY

B-6
23.6'|<50
13.6'|<50

FB-12
20.0'|<0.083
17.5'|<0.075

FB-13
20.0'|<0.070
17.5'|<0.10

FB-01
21.3'|<0.020
11.3'|<0.020
-3.7'|<0.020

EX-11-W21
21.0'|<0.02

W-3
10.5'|<0.16

EX-18-W9
19.5'|<0.02

EX-17-W13
23.0'|<0.02

EX-12-W16.5
22.0'|<0.02

W-4
9.5'|<0.030

REPUBLICAN STREET

MERCER STREET

FORMER
HEATING OIL UST

EAST PROPERTY

LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR SOIL SAMPLES :
ELEVATION IN FEET NAVD88 | BENZENE
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30
SCALE IN FEET

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FIGURE 5

SOIL ANALYTICAL RESULTS
FOR BENZENE
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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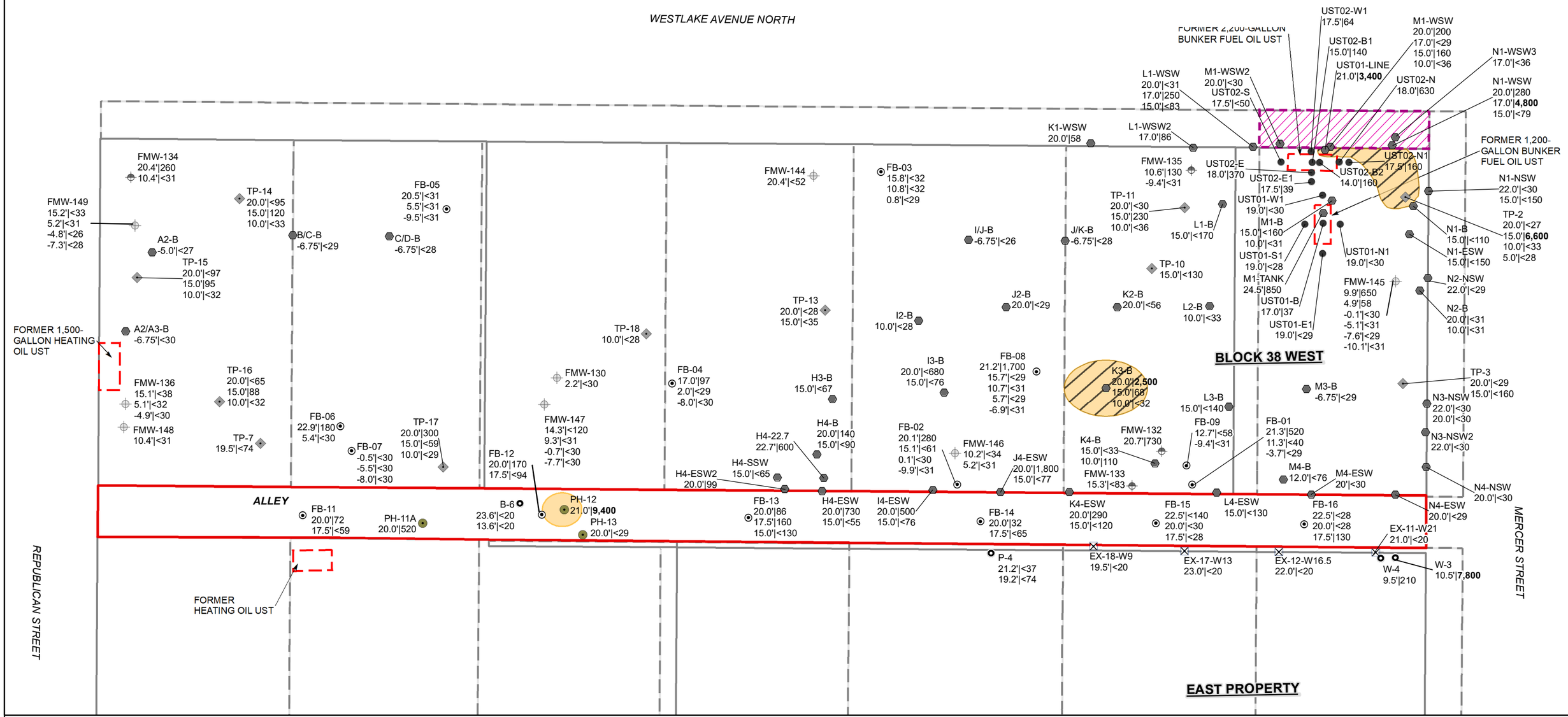

LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- POTHOLE (FARALLON)
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | DRO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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SCALE IN FEET

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FIGURE 6

SOIL ANALYTICAL RESULTS
FOR DRO
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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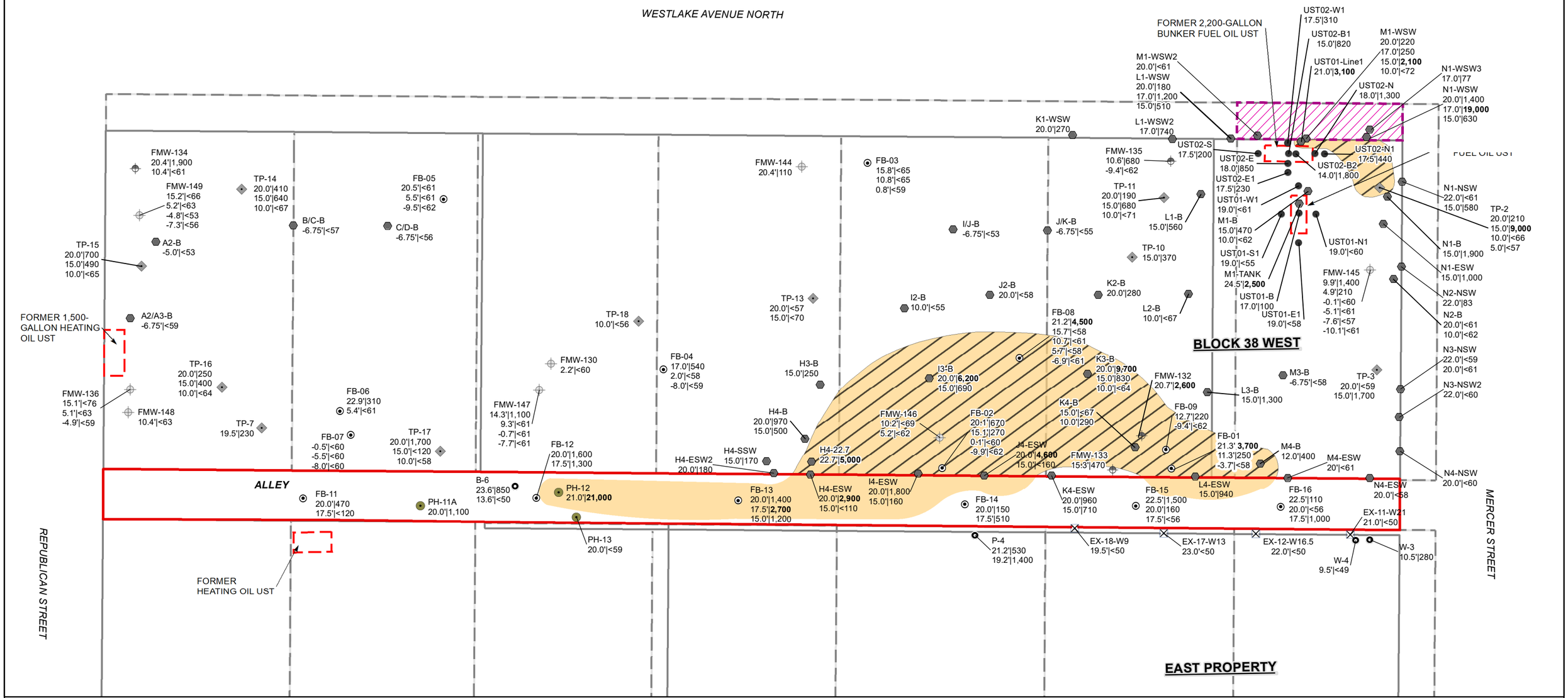

LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- POTHOLE (FARALLON)
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR 38 SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | ORO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
ORO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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FIGURE 7

SOIL ANALYTICAL RESULTS
FOR ORO
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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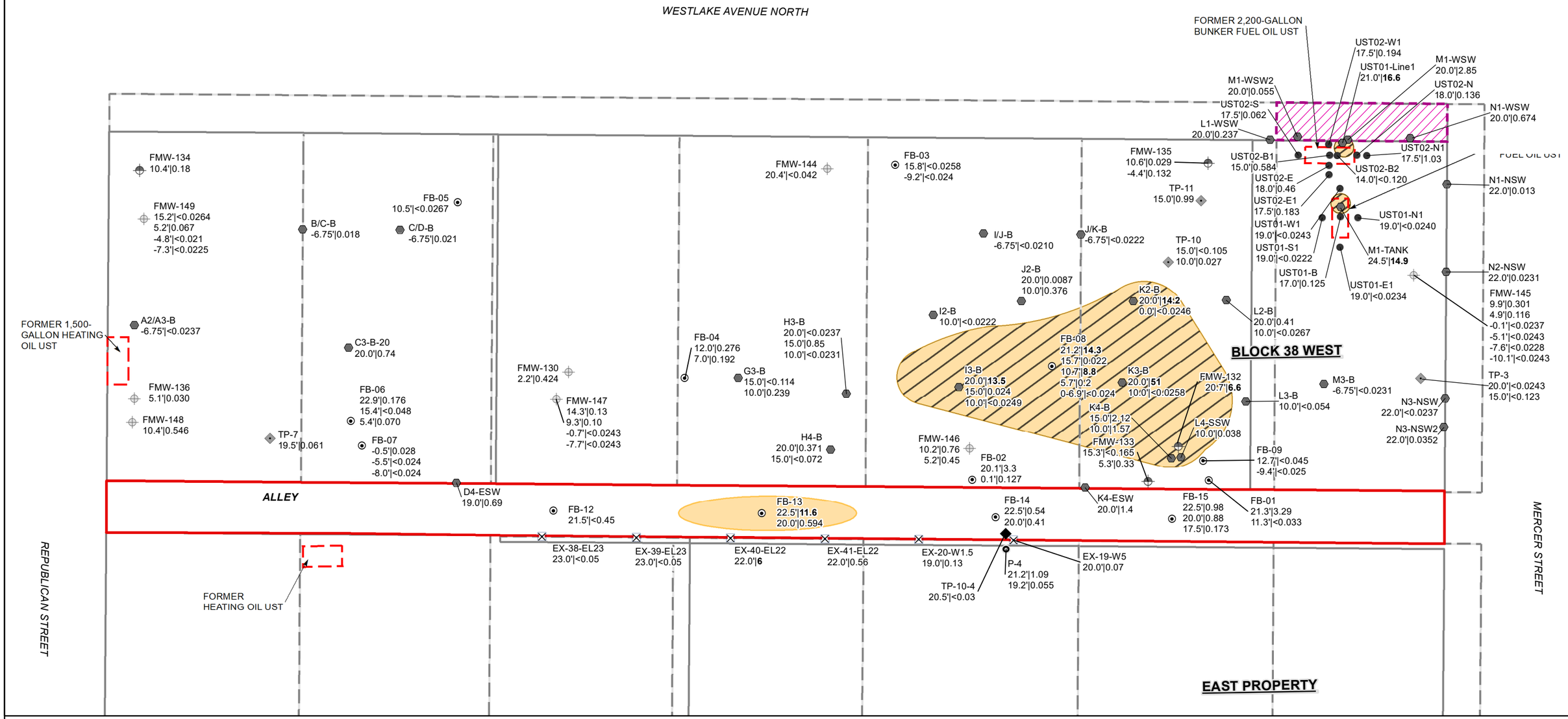
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-07_Soil-ORO_BL38W_AlleyTM_17E.mxd



LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- TEST PIT (GEOENGINEERS)
- UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | TOTAL NAPHTHALENES
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED FOR TOTAL TOXIC EQUIVALENT
CDF = CONTROLLED DENSITY FILL
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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FIGURE 8

SOIL ANALYTICAL RESULTS FOR TOTAL NAPHTHALENES
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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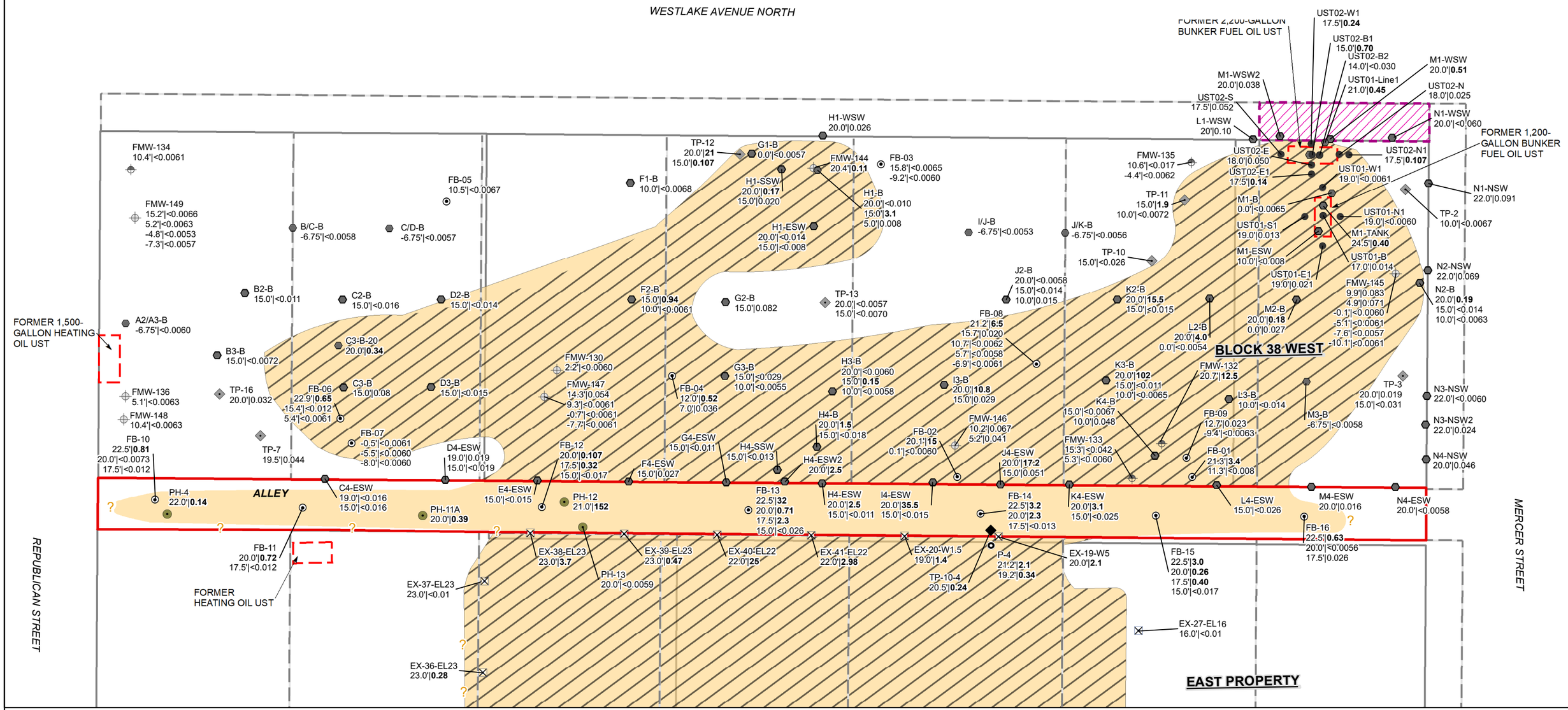

LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE
- TEST PIT (GEOENGINEERS)
- POTHOLE (FARALLON)
- UST SAMPLE LOCATION
- EXCAVATION SAMPLE LOCATION
- TEST PIT (FARALLON)
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL (? WHERE INFERRED)
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE

NOTES:
FOR SOIL SAMPLES:
DEPTH AND CONCENTRATIONS REPORTED AS:
ELEVATION IN FEET NAVD88 | cPAH TEC
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES ELEVATION AND CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED FOR TOTAL TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE (mg/kg)
CDF = CONTROLLED DENSITY FILL
cPAHs = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
TEC = TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE FOR cPAH MIXTURE
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30
SCALE IN FEET

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FIGURE 9

SOIL ANALYTICAL RESULTS
FOR cPAH TEC
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

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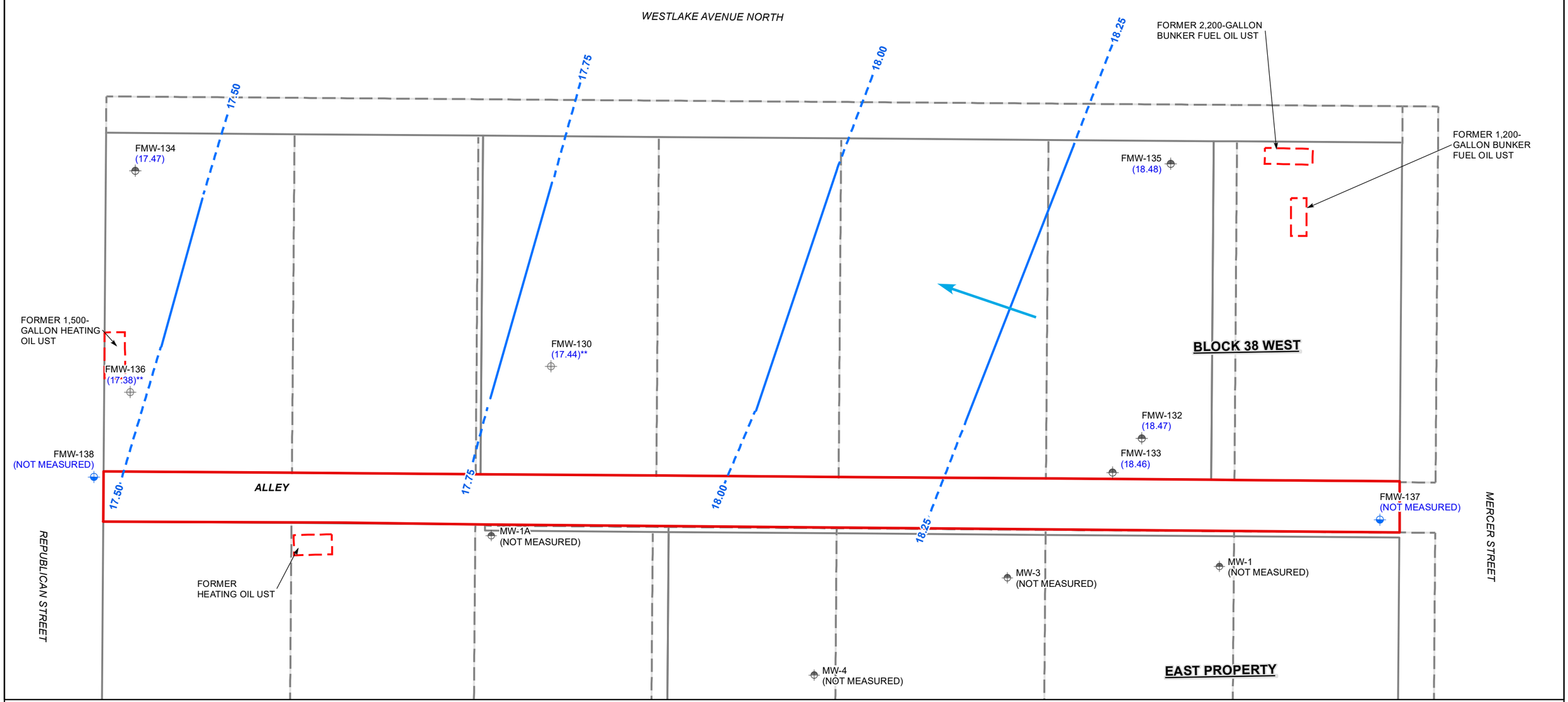

LEGEND

- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- DEEP OUTWASH AQUIFER MONITORING WELL
- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- (18.48) GROUNDWATER ELEVATION (03/26/19) MEASURED IN FEET RELATIVE TO NAVD 88
- (17.44)** ELEVATION NOT USED IN CONTOURING

- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- KING COUNTY PARCEL BOUNDARY
- LOT LINE
- 18.00 APPROXIMATE GROUNDWATER ELEVATION CONTOUR IN FEET NAVD88 (DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION

N

0 30
SCALE IN FEET

NOTES:
LOADING DOCK HIGHER THAN GSE
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)
ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988

ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 10
GROUNDWATER ELEVATION CONTOURS
SHALLOW WATER-BEARING ZONE
FOR MARCH 26, 2019
BLOCK 38 ALLEY
SEATTLE, WASHINGTON
FARALLON PN: 397-019

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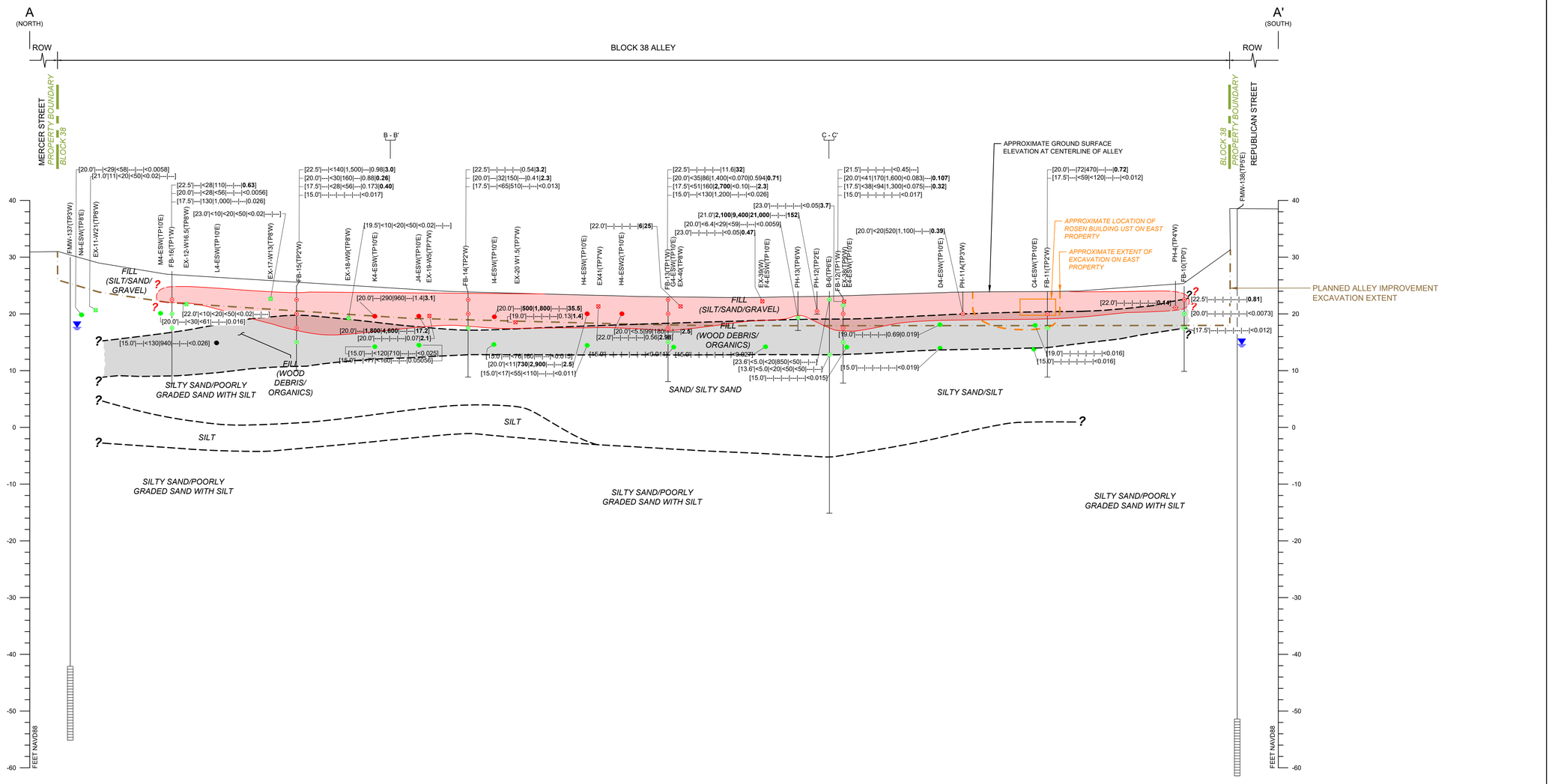
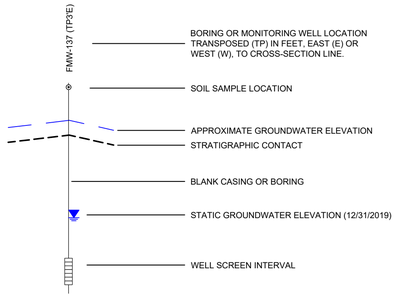
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-10_GW_Contours_BL38W_Alley.mxd



LEGEND



ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[20.1'|<5.4|280|670|<0.020|3.3|**15**] SOIL ANALYTICAL RESULT: [ELEVATION NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS

DRO = TPH AS DIESEL-RANGE ORGANICS

ORO = TPH AS OIL-RANGE ORGANICS

TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE

cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION

BOLD = INDICATES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION (MTCA) SCREENING LEVELS

--- = SAMPLE NOT ANALYZED FOR CONSTITUENT

< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

ESTIMATED EXTENT OF SOIL EXCEEDING MTCA SCREENING LEVELS

RED INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

⊠ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

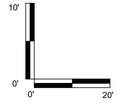


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FIGURE 11

CROSS SECTION A-A'
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By:NM Checked By:LS Date: 11/24/2020

B (WEST) — B' (EAST)

WESTLAKE AVENUE NORTH | BLOCK 38 WEST | BLOCK 38 ALLEY

PROPERTY BOUNDARY BLOCK 38 WEST

PLANNED ALLEY IMPROVEMENT EXCAVATION EXTENT

BLOCK 38 WEST PROPERTY BOUNDARY

PROPERTY BOUNDARY EAST PROPERTY

A – A'

ALLEY

L1-WSW(TP8'S) | FMW-135(TP10'S) | TP-11(TP12'S) | J-JK-B(TP20'N) TP-10(TP9'S) | K2-B(TP2'S) | FB-08(TP14'N) | K3-B(TP8'S) | K4-B(TP26'S) | FMW-146(TP28'N) | FMW-133(TP27'S) FB-04(TP2'N) | J4-ESW(TP12'N) | FB-14(TP17'N) | TP-10-4(TP12'N) | EX-19-WS(TP8'N)

FILL AND RECENT DEPOSITS

GLACIALLY CONSOLIDATED SOIL

SHALLOW WATER-BEARING ZONE

INTERMEDIATE WATER-BEARING ZONE

DEEP OUTWASH AQUIFER

FEET NAVD88

[20.0'|---|<31|180|---|0.237|0.10]

[17.0'|---|250|1,200|---|---|---]
[8/30/2018|<100|<260|<410|<0.20|1.32]
[12/28/2018|<100|370|<410|<0.20|0.56]
[3/26/2019|<100|<250|<410|<1.0|---]
[15.0'|---|<83|510|---|---|---]

FILL (SILT/SAND/GRAVEL)

FILL (WOOD DEBRIS/ORGANICS)

SILT/ SANDY SILT

SILTY SAND/ POORLY GRADED SAND WITH SILT

SILT/SANDY SILT

[-6.75'|<4.9|<28|<55|<0.020|<0.0222|<0.0056]

APPROXIMATE EXTENT OF EXCAVATION

[-9.4'|<5.8|<31|<62|<0.020|---|---]

SAND/SILTY SAND

FILL (SILT/SAND/GRAVEL)

[8/30/2018|<100|270|<410|<0.20|<0.291]
[12/28/2018|<100|310|<410|<0.20|<0.30]
[3/26/2019|<100|280|<400|<1.0|---]

FILL (WOOD DEBRIS/ORGANICS)

SILT

SILT

SAND/SILTY SAND

SILT

[-6.9'|<6.0|<31|<61|<0.020|<0.024|<0.0061]

SILT

[12/26/2019|170|**1,100**|**650**|<1.0|37.2]

[-9.9'|<5.8|<31|<62|<0.020|---|---]

SAND/SILTY SAND

[22.5'|---|---|---|---|0.54|**3.2**]

[20.5'|---|---|---|---|<0.03|**0.24**]

[20.0'|---|32|150|---|0.41|**2.3**]

[20.0'|---|**1,800**|**4,600**|---|---|**17.2**]

[20.0'|---|---|---|---|0.07|**2.1**]

[17.5'|---|<65|510|---|---|<0.013]

[15.0'|---|<77|<160|---|---|0.051]

FILL (WOOD DEBRIS/ ORGANICS)

APPROXIMATE EXTENT OF EXCAVATION

LEGEND

FB-08(TP14'N) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTH (N) OR SOUTH (S), TO CROSS-SECTION LINE

SOIL SAMPLE LOCATION

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

STATIC GROUNDWATER ELEVATION (12/31/2019)

GROUNDWATER ELEVATION AT TIME OF DRILLING

WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[12/26/2019|170|**1,100**|**650**|<1.0|37.2] GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[-6.9'|<6.0|<31|<61|<0.020|<0.024|<0.0061] SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS

DRO = TPH AS DIESEL-RANGE ORGANICS

ORO = TPH AS OIL-RANGE ORGANICS

TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE

cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)

--- = SAMPLE NOT ANALYZED FOR CONSTITUENT

< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

RED — INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN — INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

⊠ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

5' / 0' / 0' / 10'

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FIGURE 12

CROSS SECTION B-B'
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By:NM Checked By:CS Date: 11/24/2020

P:\Projects\397-019\CAD\Figures\2020-09-18 Alley (AWD\397-019 X Section.dwg 12/10/2020 2:47 PM (Nick Miller)

C (WEST) — C' (EAST)

WESTLAKE AVENUE NORTH | BLOCK 38 WEST | BLOCK 38 ALLEY

PROPERTY BOUNDARY BLOCK 38 WEST

BLOCK 38 WEST PROPERTY BOUNDARY

PROPERTY BOUNDARY EAST PROPERTY

PLANNED ALLEY IMPROVEMENT EXCAVATION EXTENT

A - A' ALLEY

APPROXIMATE LOCATION OF ROSEN BUILDING UST ON EAST PROPERTY

FILL AND RECENT DEPOSITS

GLACIALLY CONSOLIDATED SOIL

SHALLOW WATER-BEARING ZONE

INTERMEDIATE WATER-BEARING ZONE

DEEP OUTWASH AQUIFER

FEET NAVD88

45, 40, 35, 30, 25, 20, 15, 10, 5, 0, -5, -10, -15, -20, -25, -30

F1-B(TP25'S) | FB-05(TP27'N) | F2-B(TP25'S) | FMW-13(TP8'S) | FMW-14(TP4'N) | E4-ESW(TP3'N) | B-B(TP10'N) | PH-17(TP3'S) | FB-12(TP7'N) | PH-13(TP12'S) | EX-38(TP5'N)

FILL (SILT/SANDY SILT)

FILL (WOOD DEBRIS/ORGANICS)

SILT/SANDY SILT

SAND/SILTY SAND

SILT

GRAVEL/SILTY GRAVEL

APPROXIMATE EXTENT OF EXCAVATION

[**8/22/2018|<100|<260|<410|<1.0|---]

[**7/21/2014|+++|---|---|**5.1**|**650**]

[-9.5'|<5.8|<31|<62|<0.020|---|---]

[-7.7'|<6.4|<30|<61|<0.020|<0.0243|<0.0061]

[12/26/2019|<100|**1,900**|**1,400**|<1.0|3.14]

[8/30/2018|<100|<250|<410|<0.20|<0.291]
[12/28/2018|<100|<260|<410|<0.20|<0.33]
[3/26/2019|<100|<250|<400|<1.0|---]

23.6'|<5.0|<20|850|<50|---|---]

[23.0'|---|---|---|---|<0.05|**3.7**]

[21.5'|---|---|---|---|<0.45|---]

[20.0'|<6.4|<29|<59|---|---|<0.0059]

[20.0'|<41|170|1,600|<0.083|---|**0.107**]

[17.5'|<38|<94|1,300|<0.075|---|**0.32**]

[15.0'|---|---|---|---|---|<0.017]

[15.0'|---|---|---|---|---|<0.015]

[13.6'|<5.0|<20|<50|<50|---|---]

LEGEND

BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTH (N) OR SOUTH (S), TO CROSS-SECTION LINE — FB-05(TP27'N)

SOIL SAMPLE LOCATION

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

STATIC GROUNDWATER ELEVATION (MOST RECENT)

GROUNDWATER ELEVATION AT TIME OF DRILLING

TEMPORARY SCREEN INTERVAL

WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[**8/22/2018|<100|<260|<410|<1.0|---] GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

** DENOTES SAMPLE IS RECONNAISSANCE GROUNDWATER

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

+++ GRO REPORTED AT CONCENTRATION OF 2,100 µg/l; HOWEVER, RE-EVALUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION WAS NOT SIMILAR TO A TYPICAL GAS

[-9.5'|<5.8|<31|<62|<0.020|---|---] SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS

DRO = TPH AS DIESEL-RANGE ORGANICS

ORO = TPH AS OIL-RANGE ORGANICS

TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE

cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)

--- = SAMPLE NOT ANALYZED FOR CONSTITUENT

< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED

NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

RED INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

⊠ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

5' / 0' — 0' 10'

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FIGURE 13

CROSS SECTION C-C'
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By:NM Checked By:CS Date: 11/24/2020

BLOCK 38 WEST

EAST PROPERTY

ALLEY

MERCER STREET

MATCH LINE TO SOUTH PANEL

I2-B
FMW-151
FB-08
I3-B
I3-B-DUP
K3-B
M3-B
H3-B
L3-B
N2-ESW
N3-NSW-?
DW-18.2
FTP-3
N3-NSW
N3-NSW2
N4-NSW
H4-B
FMW-146
FMW-132
K4-B
L4-SSW
FB-09
H4-SSW
H4-22.7
H4-ESW2
H4-ESW
I4-ESW
FB-02
J4-ESW
K4-ESW
FMW-133
FB-01
L4-ESW
M4-B
M4-ESW
N4-ESW
FB-13
FB-14
TP-10-4
FB-15
FB-16
FMW-137
EX-41-EL22
EX-20-W1.5
EX-19-W5
EX-18-W9
EX-11-W21
EX-17-W13
EX-12-W16.5
P-4
W-4
W-3
A
EX-27-EL16

THE GAS AND FIBER OPTICS LINES ARE LOCATED DIRECTLY WEST OF THE INTERURBAN EXCHANGE 2 BUILDING SHORING WALL AND REQUIRE A MINIMUM OF 5-FOOT OFFSET FROM THE EXISTING BUILDING. ELEVATION TO THE TOP OF THE FIBER OPTIC LINE IS AT APPROXIMATELY 28 FEET NAVD88 AT THE NORTHERN END AND 19 FEET NAVD88 AT THE CENTRAL PORTION OF THE ALLEY. IN ORDER TO NOT UNDERMINE THE EXISTING GAS AND FIBER OPTIC LINES THE EXCAVATION WILL CONSIST OF A 1:1 SLOPE BACK FROM THE BASE OF THE EXISTING UTILITIES.

N

0 15

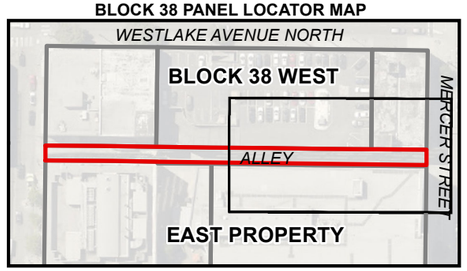
SCALE IN FEET

LEGEND

- DEEP OUTWASH AQUIFER
- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- TEST PIT (GEOENGINEERS)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- CONSTRUCTION EXCAVATION AREA
- PROPERTY BOUNDARY
- KING COUNTY PARCELS
- LOT LINE
- CATCH BASIN
- SANITARY SEWER MAIN
- FIBER OPTIC LINE
- STRUCTURAL OR UTILITY PROTECTION/BUFFER/SLOPE BACK
- A A' LINE OF CROSS SECTION
- E36 PILE AND IDENTIFIER
- TIEBACK

ELEVATION DATA PRESENTED IN FEET ABOVE MSL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

BLOCK 38 PANEL LOCATOR MAP



NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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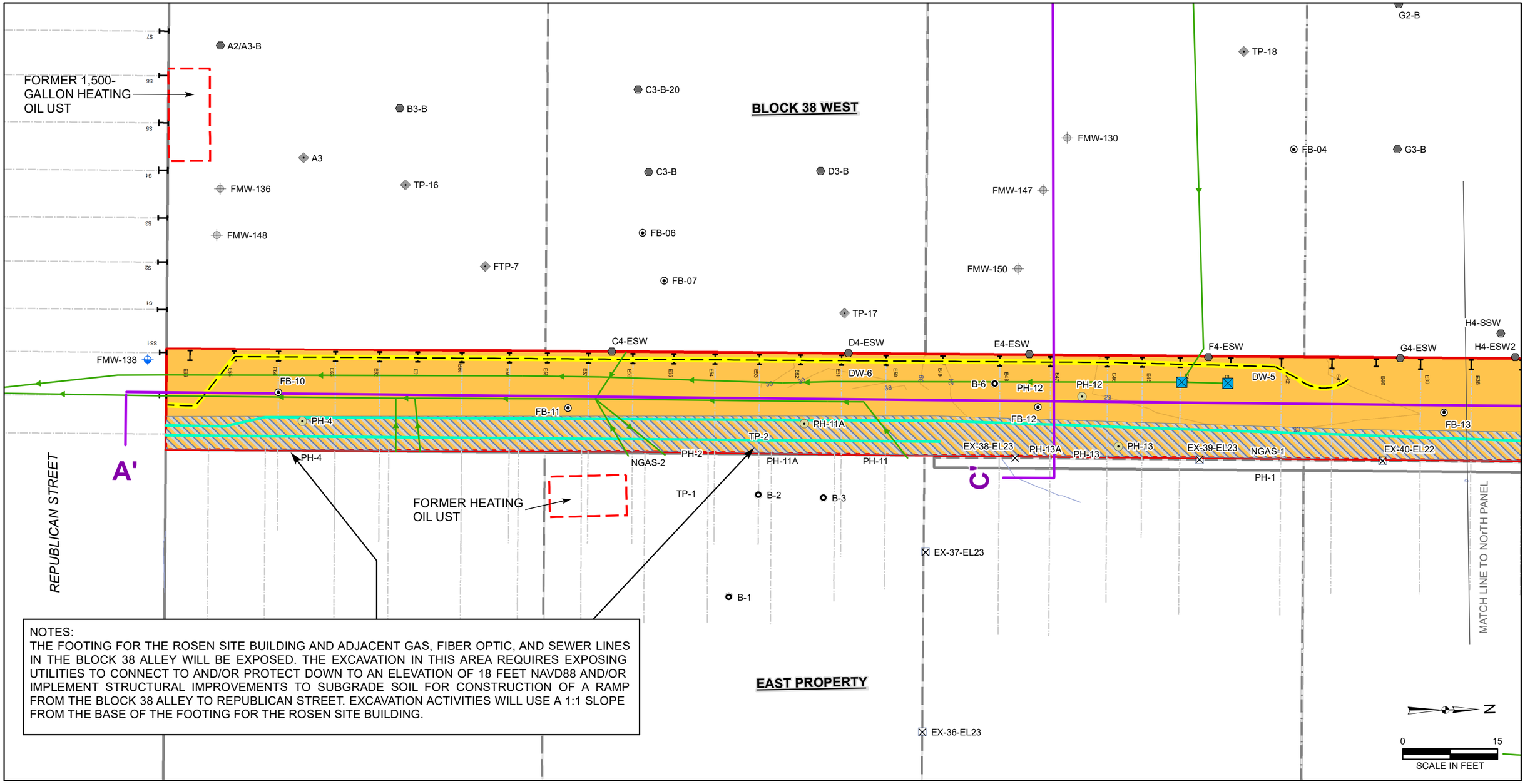
FIGURE 14

NORTH CONSTRUCTION EXCAVATION EXTENT
SOIL SAMPLE LOCATIONS
AND CROSS SECTION LINES
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin | Checked By: CS | Date: 2/3/2021 | Disc Reference: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-14_AlleyNorth_BL38WEA_Grid_Alley_17E_202101.mxd



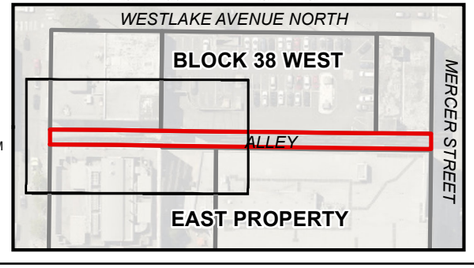
NOTES:
THE FOOTING FOR THE ROSEN SITE BUILDING AND ADJACENT GAS, FIBER OPTIC, AND SEWER LINES IN THE BLOCK 38 ALLEY WILL BE EXPOSED. THE EXCAVATION IN THIS AREA REQUIRES EXPOSING UTILITIES TO CONNECT TO AND/OR PROTECT DOWN TO AN ELEVATION OF 18 FEET NAVD88 AND/OR IMPLEMENT STRUCTURAL IMPROVEMENTS TO SUBGRADE SOIL FOR CONSTRUCTION OF A RAMP FROM THE BLOCK 38 ALLEY TO REPUBLICAN STREET. EXCAVATION ACTIVITIES WILL USE A 1:1 SLOPE FROM THE BASE OF THE FOOTING FOR THE ROSEN SITE BUILDING.

LEGEND

- DEEP OUTWASH AQUIFER WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- BORING (FARALLON)
- BORING (GEOENGINEERS)
- EXCAVATION SAMPLE (GEOENGINEERS)
- POTHOLE (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)
- PROPERTY BOUNDARY
- CONSTRUCTION EXCAVATION
- KING COUNTY PARCELS
- LOT LINE
- CATCH BASIN
- SANITARY SEWER MAIN
- FIBER OPTIC LINE
- PROPOSED GAS LINE
- STRUCTURAL OR UTILITY PROTECTION/BUFFER/SLOPE BACK
- A A' LINE OF CROSS SECTION
- E36 PILE AND IDENTIFIER
- TIEBACK

ELEVATION DATA PRESENTED IN FEET ABOVE MSL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

BLOCK 38 PANEL LOCATOR MAP



NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 15

SOUTH CONSTRUCTION EXCAVATION EXTENT
SOIL SAMPLE LOCATIONS
AND CROSS SECTION LINES
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin | Checked By: CS | Date: 2/3/2021 | Disc Reference: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-15_AlleySouth_BL38WEA_Grid_Alley_17E_202101.mxd

N

WESTLAKE AVENUE NORTH

ELEVATORS/ ELECTRICAL

FIRE WATER STORAGE VAULT

P1 SLOPING TO P2 BELOW 20' WATER TABLE

DRIVE AISLE

FMW-134

FMW-149

FB-05

FMW-144

FB-03

FMW-135

FMW-145

ELECTRICAL AND MECHANICAL

FMW-151

BLOCK 38 WEST

FMW-136

FMW-130

FB-04

FB-08

FMW-148

FB-06

FMW-147

FMW-132

FB-07

FMW-150

H4

FMW-146

FB-09

FMW-133

FB-01

FMW-138

ALLEY

EMERGENCY GENERATOR

MECHANICAL

CRANE PAD FOOTING

FB-02

FMW-137

MERCER STREET

REPUBLICAN STREET

STORMWATER RETENTION AND MECHANICAL

SLOPED ENTRY/ PARKING EQUIPMENT

EAST PROPERTY

LEGEND

- BORING
- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- DEEP OUTWASH AQUIFER MONITORING WELL
- PROPOSED FUTURE SHALLOW WATER-BEARING ZONE MONITORING WELL
- PROPOSED FUTURE INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- PROPOSED FUTURE DEEP OUTWASH AQUIFER MONITORING WELL

- AREAS WITH BUILDING CODE OR ACCESS RESTRICTIONS
- DRO AND/OR ORO DETECTED AT CONCENTRATIONS EXCEEDING SCREENING LEVELS (? ESTIMATED EXTENT INFERRED)
- DRO AND/OR ORO DETECTED AT CONCENTRATIONS EXCEEDING SCREENING LEVELS IN SHALLOW WATER-BEARING ZONE (? ESTIMATED EXTENT INFERRED)

- LOT LINE
- BLOCK 38 WEST PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

THE LOCATION OF PROPOSED EASTERN SHALLOW WATER-BEARING ZONE MONITORING WELLS WILL BE EVALUATED UPON COMPLETION OF SUPPLEMENTAL SUBSURFACE INVESTIGATION IN THE EAST-ADJACENT ALLEY.

DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS

0 30
SCALE IN FEET

NOTES:
ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 16

PROPOSED MONITORING WELL LOCATIONS BLOCK 38 WEST SITE BLOCK 38 ALLEY SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: tperrin
Checked By: CS
Date: 1/7/2021
Disc Reference:
Document Path: Q:\Projects\397_VULCAN\019_Block38\Mapfiles\017E_Alley IAWP 202011\Figure-16_PropMW_Sitemap-parking_Alley_17E_202011.mxd

TABLES

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)								
								NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
								DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Block 38 West Property																	
FB-01	FB-01-5.0-082118	Interior	Performance	Removed	5.0	21.3	8/21/2018	520	**3,700**	**4,220**	510 N	1,100	< 6.2	< 0.020	< 0.062	< 0.062	< 0.124
	FB-01-15.0-082118	Interior	Confirmation	Removed	15.0	11.3	8/21/2018	< 40	250	250	< 40	< 81	< 9.1	< 0.020	< 0.091	< 0.091	< 0.182
	FB-01-30.0-082118	Interior	Confirmation	Removed	30.0	-3.7	8/21/2018	< 29	< 58	< 87	---	---	< 5.1	< 0.020	< 0.051	< 0.051	< 0.102
FB-02	FB-02-5.0-082018	Interior	Performance	Removed	5.0	20.1	8/20/2018	280 N	670	950	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-02-10.0-082018	Interior	Confirmation	Removed	10.0	15.1	8/20/2018	< 61	270	270	---	---	< 19	< 0.037	< 0.19	< 0.19	< 0.38
	FB-02-25.0-082018	Interior	Confirmation	Removed	25.0	0.1	8/20/2018	< 30	< 60	< 90	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	FB-02-35.0-082018	Interior	Confirmation	In Place	35.0	-9.9	8/20/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	10.0	15.8	8/23/2018	< 32	< 65	< 97	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-15.0-082318	Interior	Confirmation	Removed	15.0	10.8	8/23/2018	< 32	< 65	< 97	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-25.0-082318	Interior	Confirmation	Removed	25.0	0.8	8/23/2018	< 29	< 59	< 88	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-04	FB-04-5.0-082118	Interior	Confirmation	Removed	5.0	17.0	8/21/2018	97 N	540	637	---	---	< 16	< 0.033	< 0.16	< 0.16	< 0.32
	FB-04-20.0-082118	Interior	Confirmation	Removed	20.0	2.0	8/21/2018	< 29	< 58	< 87	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
	FB-04-30.0-082118	Interior	Confirmation	In Place	30.0	-8.0	8/21/2018	< 30	< 59	< 89	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-05	FB-05-5.0-082218	Interior	Confirmation	Removed	5.0	20.5	8/22/2018	< 31	< 61	< 92	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-05-20.0-082218	Interior	Confirmation	Removed	20.0	5.5	8/22/2018	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
	FB-05-35.0-082218	Interior	Confirmation	In Place	35.0	-9.5	8/22/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-06	FB-06-2.5-082218	Interior	Confirmation	Removed	2.5	22.9	8/22/2018	180	310	490	---	---	17 T	< 0.024	< 0.12	< 0.12	< 0.24
	FB-06-20.0-082218	Interior	Confirmation	Removed	20.0	5.4	8/22/2018	< 30	< 61	< 91	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
FB-07	FB-07-24	Interior	Confirmation	Removed	24.0	-0.5	12/21/2019	< 30	< 60	< 90	---	---	< 6.0	< 0.020	< 0.060	< 0.060	< 0.12
	FB-07-29	Interior	Confirmation	In Place	29.0	-5.5	12/21/2019	< 30	< 60	< 90	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-07-31.5	Interior	Confirmation	In Place	31.5	-8.0	12/21/2019	< 30	< 60	< 90	---	---	< 5.6	< 0.020	< 0.056	< 0.056	< 0.112
FB-08	FB-08-2.5	Interior	Performance	Removed	2.5	21.2	12/21/2019	1,700 N	**4,500**	**6,200**	---	---	23 O	**0.12**	0.49	0.13	0.94
	FB-08-8	Interior	Confirmation	Removed	8.0	15.7	12/21/2019	< 29	< 58	< 87	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	FB-08-13	Interior	Confirmation	Removed	13.0	10.7	12/21/2019	< 31	< 61	< 92	---	---	15 T	< 0.020	< 0.064	< 0.064	< 0.128
	FB-08-18	Interior	Confirmation	Removed	18.0	5.7	12/21/2019	< 29	< 58	< 87	---	---	< 6.1	< 0.020	< 0.061	< 0.061	< 0.122
	FB-08-30.5	Interior	Confirmation	In Place	30.5	-6.9	12/21/2019	< 31	< 61	< 92	---	---	< 6.0	< 0.020	< 0.060	< 0.060	< 0.12
FB-09	FB-09-11	Interior	Confirmation	Removed	11.0	12.7	12/21/2019	< 58	220	220	---	---	< 20	< 0.039	< 0.20	< 0.20	< 0.4
	FB-09-33	Interior	Confirmation	In Place	33.0	-9.4	12/21/2019	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FMW-130	F-MW-130-20.0-072114	Interior	Confirmation	Removed	20.0	2.2	7/21/2014	< 30	< 60	< 90	---	---	< 8.8	< 0.020	< 0.088	< 0.088	< 0.176
FMW-132	FMW-132-5.0-082418	Interior	Performance	Removed	5.0	20.7	8/24/2018	730	**2,600**	**3,330**	---	---	< 8.4	< 0.020	< 0.084	< 0.084	< 0.168
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	10.0	15.3	8/24/2018	< 83	470	470	---	---	< 28	< 0.057	< 0.28	< 0.28	< 0.56
FMW-134	FMW-134-5.0-082318	Interior	Performance	Removed	5.0	20.4	8/23/2018	260	1,900	**2,160**	---	---	< 30	< 0.059	< 0.30	< 0.30	< 0.60
	FMW-134-15.0-082318	Interior	Confirmation	Removed	15.0	10.4	8/23/2018	< 31	< 61	< 92	---	---	< 12	< 0.023	< 0.12	< 0.12	< 0.24
FMW-135	FMW-135-15.0-082418	Interior	Confirmation	Removed	15.0	10.6	8/24/2018	130	680	810	---	---	< 28	< 0.055	< 0.28	< 0.28	< 0.56
	FMW-135-35.0-082418	Interior	Confirmation	In Place	35.0	-9.4	8/24/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FMW-136	FMW-136-10.0-082218	Interior	Confirmation	Removed	10.0	15.1	8/22/2018	< 38	< 76	< 114	---	---	< 9.0	< 0.020	< 0.090	< 0.090	< 0.18
	FMW-136-20.0-082218	Interior	Confirmation	Removed	20.0	5.1	8/22/2018	< 32	< 63	< 95	---	---	< 6.4	< 0.020	< 0.064	< 0.064	< 0.128
	FMW-136-30.0-082218	Interior	Confirmation	Removed	30.0	-4.9	8/22/2018	< 30	< 59	< 89	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
FMW-144	FWM-144-9.0	Interior	Confirmation	Removed	9.0	20.4	12/20/2019	< 52	110	110	---	---	< 18	< 0.036	< 0.18	< 0.18	< 0.36
FMW-145	FMW-145-13.0	Interior	Performance	Removed	13.0	9.9	12/20/2019	650	1,400	**2,050**	---	---	**83** O	< 0.020	< 0.075	< 0.075	< 0.15
	FMW-145-18.0	Interior	Confirmation	Removed	18.0	4.9	12/20/2019	58 N	210	268	---	---	< 28 U1	< 0.020	< 0.080	< 0.080	< 0.16
	FMW-145-23.0	Interior	Confirmation	Removed	23.0	-0.1	12/20/2019	< 30	< 60	< 90	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
	FMW-145-28.0	Interior	Confirmation	Removed	28.0	-5.1	12/20/2019	< 31	< 61	< 92	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.13
	FMW-145-30.5	Interior	Confirmation	In Place	30.5	-7.6	12/20/2019	< 29	< 57	< 86	---	---	< 4.8	< 0.020	< 0.048	< 0.048	< 0.096
	FMW-145-33.0	Interior	Confirmation	In Place	33.0	-10.1	12/20/2019	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.11
Screening Levels[6]								**2,000**	**2,000**	**2,000**	**2,000**		**30/100[7]**	**0.03**	**7**	**6**	**9**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)									
								NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
								DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
FMW-146	FMW-146-13.0	Interior	Confirmation	Removed	13.0	10.2	12/21/2019	< 34	< 69	< 103	---	---	< 7.0	< 0.020	< 0.070	< 0.070	< 0.14
	FMW-146-18.0	Interior	Confirmation	Removed	18.0	5.2	12/21/2019	< 31	< 62	< 93	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
FMW-147	FMW-147-8.5	Interior	Confirmation	Removed	8.5	14.3	12/21/2019	< 120	1,100	1,100	---	---	< 51	< 0.10	< 0.51	< 0.51	< 1.02
	FMW-147-13.5	Interior	Confirmation	Removed	13.5	9.3	12/21/2019	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.11
	FMW-147-23.5	Interior	Confirmation	Removed	23.5	-0.7	12/21/2019	< 30	< 61	< 91	---	---	< 5.1	< 0.020	< 0.051	< 0.051	< 0.102
	FMW-147-30.5	Interior	Confirmation	In Place	30.5	-7.7	12/21/2019	< 30	< 61	< 91	---	---	< 6.4	< 0.020	< 0.064	< 0.064	< 0.128
FMW-148	FMW-148-27.0	Interior	Confirmation	Removed	27.0	10.4	12/22/2019	< 31	< 63	< 94	---	---	< 5.7	< 0.020	< 0.057	< 0.057	< 0.114
FMW-149	FMW-149-21.0	Interior	Confirmation	Removed	21.0	15.2	12/22/2019	< 33	< 66	< 99	---	---	< 7.0	< 0.020	< 0.070	< 0.070	< 0.14
	FMW-149-31.0	Interior	Confirmation	Removed	31.0	5.2	12/22/2019	< 31	< 63	< 94	---	---	< 6.3	< 0.020	< 0.063	< 0.063	< 0.126
	FMW-149-41.0	Interior	Confirmation	Removed	41.0	-4.8	12/22/2019	< 26	< 53	< 79	---	---	< 4.4	< 0.020	< 0.044	< 0.044	< 0.088
	FMW-149-43.5	Interior	Confirmation	In Place	43.5	-7.3	12/22/2019	< 28	< 56	< 84	---	---	< 4.3	< 0.020	< 0.043	< 0.043	< 0.086
A2-B	A2-B-(-5.0)	Interior	Confirmation	Removed	---	-5.0	4/29/2020	< 27	< 53	< 80	---	---	---	---	---	---	---
A2/A3-B	A2/A3-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	6/3/2020	< 30	< 59	< 89	---	---	< 5.7	< 0.020	< 0.057	< 0.057	< 0.114
A3-Subslab	A3-SUBSLAB-22-010920	Interior	Performance	Removed	---	22.0	1/9/2020	< 76	< 150	< 226	---	---	---	---	---	---	---
	A3-SUBSLAB-25-010920	Interior	Performance	Removed	---	25.0	1/9/2020	82	660	742	---	---	---	---	---	---	---
B/C-B	B/C-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	6/3/2020	< 29	< 57	< 86	---	---	< 6.1	< 0.020	< 0.061	< 0.061	< 0.122
C/D-B	C/D-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	6/3/2020	< 28	< 56	< 84	---	---	< 5.6	< 0.020	< 0.056	< 0.056	< 0.112
H3-B	H3-B-20	Interior	Confirmation	Removed	---	20.0	2/20/2020	---	---	---	---	---	< 6.7	---	---	---	---
	H3-B-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	< 67	250	250	---	---	< 21	---	---	---	---
H4-22.7	H4-1.0-121319	Interior	Performance	Removed	1.0	22.7	12/13/2019	600 N	**5,000**	**5,600**	---	---	**31**	< 0.022	< 0.11	< 0.11	< 0.22
H4-B	H4-B-20.0	Interior	Confirmation	Removed	---	20.0	2/19/2020	140 N	970	1,110	---	---	< 51	---	---	---	---
	H4-B-15.0	Interior	Confirmation	Removed	---	15.0	2/19/2020	< 90	500	500	---	---	< 31	---	---	---	---
H4-ESW	H4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	730 N	**2,900**	**3,630**	---	---	< 11 H	---	---	---	---
	H4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/26/2020	< 55	< 110	< 165	---	---	< 17	---	---	---	---
H4-ESW2	H4-ESW2-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	99 N	180	279	---	---	< 5.5 H	---	---	---	---
H4-SSW	H4-SSW-15.0	Interior	Confirmation	Removed	---	15.0	2/27/2020	< 65	170	170	---	---	< 21	---	---	---	---
I2-B	I2-B-10.0	Interior	Confirmation	Removed	---	10.0	2/28/2020	< 28	< 55	< 83	---	---	---	---	---	---	---
I3-B	I3-B-20.0	Interior	Performance	Removed	---	20.0	2/23/2020	< 680	**6,200**	**6,200**	---	---	< 15 H	< 0.030 H	< 0.15 H	< 0.15 H	< 0.30 H
	I3-B-15.0	Interior	Confirmation	Removed	---	15.0	2/23/2020	< 76	690	690	---	---	< 26 H	---	---	---	---
	I3-B-DUP-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	---	---	---	---	---	23 T	---	---	---	---
I4-ESW	I4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	500 N	1,800	**2,300**	---	---	---	---	---	---	---
	I4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/22/2020	< 76	160	160	---	---	---	---	---	---	---
I/J-B	I/J-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	6/3/2020	< 26	< 53	< 79	---	---	< 5.0	< 0.020	< 0.050	< 0.050	< 0.100
J2-B	J2-B-20.0	Interior	Confirmation	Removed	---	20.0	2/14/2020	< 29	< 58	< 87	---	---	---	< 0.00076	< 0.0038	< 0.00076	< 0.00226
J4-ESW	J4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	1,800 N	**4,600**	**6,400**	---	---	---	---	---	---	---
	J4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/22/2020	< 77	< 160	< 237	---	---	---	---	---	---	---
J/K-B	J/K-B-(-6.75)	Interior	Confirmation	In Place		-6.75	6/2/2020	< 28	< 55	< 83			< 4.9	< 0.020	< 0.049	< 0.049	< 0.098
K1-WSW	K1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	58 N	270	328	---	---	---	---	---	---	---
K2-B	K2-B-20.0	Interior	Confirmation	Removed	---	20.0	2/6/2020	< 56	280	280	---	---	---	< 0.037	< 0.19	< 0.19	< 0.38
K3-B	K3-B-20.0	Interior	Performance	Removed	---	20.0	2/13/2020	**2,500** N	**9,700**	**12,200**	---	---	---	---	---	---	---
	K3-B-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	68 N	830	898	---	---	---	---	---	---	---
	K3-B-10.0	Interior	Confirmation	Removed	---	10.0	2/28/2020	< 32	< 64	< 96	---	---	---	---	---	---	---
K4-B	K4-B-15.0	Interior	Confirmation	Removed	---	15.0	2/26/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
	K4-B-10.0	Interior	Confirmation	Removed	---	10.0	2/26/2020	110	290	400	---	---	---	---	---	---	---
K4-ESW	K4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/4/2020	290 N	960	1,250	---	---	---	---	---	---	---
	K4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/22/2020	< 120	710	710	---	---	---	---	---	---	---
Screening Levels[6]								**2,000**	**2,000**	**2,000**	**2,000**		**30/100[7]**	**0.03**	**7**	**6**	**9**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)								
								NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]				
								DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
L1-B	L1-B-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	< 170	560	560	---	---	---	---	---	---	---
L1-WSW	L1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/3/2020	< 31	180	180	---	---	---	---	---	---	---
	L1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	2/10/2020	250 N	1,200	1,450	---	---	---	---	---	---	---
	L1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/24/2020	< 83	510	510	---	---	---	---	---	---	---
L1-WSW2	L1-WSW2-17.0	Sidewall	Confirmation	In Place	---	17.0	2/10/2020	86 N	740	826	---	---	---	---	---	---	---
L2-B	L2-B-10.0	Interior	Confirmation	Removed	---	10.0	2/28/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
L3-B	L3-B-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	< 140	1,300	1,300	---	---	---	---	---	---	---
L4-ESW	L4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/22/2020	< 130	940	940	---	---	---	---	---	---	---
M1-B	M1-B-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	< 160	470	470	---	---	---	---	---	---	---
	M1-B-10	Interior	Confirmation	Removed	---	10.0	2/25/2020	< 31	< 62	< 93	---	---	---	---	---	---	---
M1-WSW	M1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/3/2020	200	220	420	---	---	---	---	---	---	---
	M1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	2/10/2020	< 29	250	250	---	---	---	---	---	---	---
	M1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/24/2020	160 N	**2,100**	**2,260**	---	---	---	---	---	---	---
	M1-WSW-10	Sidewall	Confirmation	In Place	---	10.0	2/25/2020	< 36	< 72	< 108	---	---	---	---	---	---	---
M1-WSW2	M1-WSW2-20.0	Sidewall	Confirmation	In Place	---	20.0	2/3/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
M3-B	M3-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	5/28/2020	< 29	< 58	< 87	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
M4-B	M4-B-12.0	Interior	Confirmation	Removed	---	12.0	2/22/2020	< 76	400	400	---	---	---	---	---	---	---
M4-ESW	M4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/6/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
N1-B	N1-B-15.0	Interior	Confirmation	Removed	---	15.0	2/22/2020	< 110	1,900	1,900	---	---	---	---	---	---	---
N1-NSW	N1-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	1/31/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
	N1-NSW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/24/2020	< 150	580	580	---	---	---	---	---	---	---
N1-ESW	N1-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/22/2020	< 150	1,000	1,000	---	---	---	---	---	---	---
N1-WSW	N1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/3/2020	280 N	1,400	1,680	---	---	---	---	---	---	---
	N1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	2/10/2020	**4,800** N	**19,000**	**23,800**	---	---	---	---	---	---	---
	N1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/24/2020	< 79	630	630	---	---	---	---	---	---	---
N1-WSW3	N1-WSW3-170	Sidewall	Confirmation	In Place	---	17.0	2/21/2020	< 36	77	77	---	---	---	---	---	---	---
N2-B	N2-B-20.0	Interior	Confirmation	Removed	---	20.0	2/6/2020	< 31	< 61	< 92	---	---	---	---	---	---	---
	N2-B-15.0	Interior	Confirmation	Removed	---	15.0	2/23/2020	---	---	---	---	---	< 22 H	---	---	---	---
	N2-B-DUP-15.0	Interior	Confirmation	Removed	---	15.0	2/24/2020	---	---	---	---	---	< 64	---	---	---	---
	N2-B-10.0	Interior	Confirmation	Removed	---	10.0	2/23/2020	< 31	< 62	< 93	---	---	< 12 H	---	---	---	---
	N2-B-DUP-10.0	Interior	Confirmation	Removed	---	10.0	2/24/2020	---	---	---	---	---	< 6.4	---	---	---	---
N2-NSW	N2-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	1/31/2020	< 29	83	83	---	---	---	---	---	---	---
	N2-NSW-15.0	Sidewall	Confirmation	In Place	---	15.0	2/24/2020	---	---	---	---	---	< 32	---	---	---	---
N2-ESW	N2-ESW-10	Interior	Confirmation	Removed	---	10.0	2/25/2020	---	---	---	---	---	< 6.5	---	---	---	---
N2-SSW	N2-SSW-10	Interior	Confirmation	Removed	---	10.0	2/25/2020	---	---	---	---	---	< 6.9	---	---	---	---
N3-NSW	N3-NSW-20.0-121019	Sidewall	Confirmation	In Place	---	20.0	12/10/2019	< 30 H	< 61 H	< 91	---	---	< 5.7 H	< 0.020 H	< 0.057 H	< 0.057 H	< 0.114 H
	N3-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	1/31/2020	< 30	< 59	< 89	---	---	---	---	---	---	---
N3-NSW2	N3-NSW2-22.0	Sidewall	Confirmation	In Place	---	22.0	1/31/2020	< 30	< 60	< 90	---	---	---	---	---	---	---
N4-NSW	N4-NSW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/6/2020	< 30	< 60	< 90	---	---	---	---	---	---	---
N4-ESW	N4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	2/6/2020	< 29	< 58	< 87	---	---	---	---	---	---	---
TP-2	TP-2-20.0-121919	Interior	Confirmation	Removed	5.0	20.0	12/19/2019	< 27	210	210	---	---	< 4.2	< 0.020	< 0.042	< 0.042	< 0.084
	TP-2-15.0-121919	Interior	Confirmation	Removed	10.0	15.0	12/19/2019	**6,600**	**9,000**	**15,600**	---	---	< 420 U1	< 0.026	< 0.13	< 0.13	< 0.26
	TP-2-10.0	Interior	Confirmation	Removed	---	10.0	2/13/2020	< 33	< 66	< 99	---	---	< 6.8	---	---	---	---
	TP-2-5.0	Interior	Confirmation	Removed	---	5.0	2/13/2020	< 28	< 57	< 85	---	---	< 4.9	---	---	---	---
TP-3	TP-3-20.0-121919	Interior	Confirmation	Removed	5.0	20.0	12/19/2019	< 29	< 59	< 88	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	TP-3-15.0-121919	Interior	Confirmation	Removed	10.0	15.0	12/19/2019	< 160	1,700	1,700	---	---	< 59	< 0.12	< 0.59	< 0.59	< 1.18
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	12/23/2019	< 74	230	230	---	---	< 25	< 0.0044	< 0.022	< 0.0044	< 0.0132
Screening Levels[6]								**2,000**	**2,000**	**2,000**	**2,000**		**30/100[7]**	**0.03**	**7**	**6**	**9**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)									
								NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
								DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
TP-10	TP-10-15.0	Interior	Confirmation	Removed	---	15.0	2/4/2020	< 130	370	370	---	---	---	---	---	---	---
TP-11	TP-11-20.0	Interior	Confirmation	Removed	---	20.0	2/4/2020	< 30	190	190	---	---	---	---	---	---	---
	TP-11-15.0	Interior	Confirmation	Removed	---	15.0	2/4/2020	230	680	910	---	---	---	---	---	---	---
	TP-11-10.0	Interior	Confirmation	Removed	---	10.0	2/4/2020	< 36	< 71	< 107	---	---	---	---	---	---	---
TP-13	TP-13-20.0	Interior	Confirmation	Removed	---	20.0	2/7/2020	< 28	< 57	< 85	---	---	---	---	---	---	---
	TP-13-15.0	Interior	Confirmation	Removed	---	15.0	2/7/2020	< 35	< 70	< 105	---	---	---	---	---	---	---
TP-14	TP-14-20.0	Interior	Confirmation	Removed	---	20.0	2/14/2020	< 95	410	410	---	---	---	---	---	---	---
	TP-14-15.0	Interior	Confirmation	Removed	---	15.0	2/14/2020	120 N	640	760	---	---	---	---	---	---	---
	TP-14-10.0	Interior	Confirmation	Removed	---	10.0	2/14/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
TP-15	TP-15-20.0	Interior	Confirmation	Removed	---	20.0	2/14/2020	< 97	700	700	---	---	---	---	---	---	---
	TP-15-15.0	Interior	Confirmation	Removed	---	15.0	2/14/2020	95 N	490	585	---	---	---	---	---	---	---
	TP-15-10.0	Interior	Confirmation	Removed	---	10.0	2/14/2020	< 32	< 65	< 97	---	---	---	---	---	---	---
TP-16	TP-16-20.0	Interior	Confirmation	Removed	---	20.0	2/14/2020	< 65	250	250	---	---	---	---	---	---	---
	TP-16-15.0	Interior	Confirmation	Removed	---	15.0	2/14/2020	88 N	400	488	---	---	---	---	---	---	---
	TP-16-10.0	Interior	Confirmation	Removed	---	10.0	2/14/2020	< 32	< 64	< 96	---	---	---	---	---	---	---
TP-17	TP-17-20.0	Interior	Confirmation	Removed	---	20.0	2/18/2020	300 N	1,700	2,000	---	---	---	---	---	---	---
	TP-17-15	Interior	Confirmation	Removed	---	15.0	2/25/2020	< 59	< 120	< 179	---	---	---	---	---	---	---
	TP-17-10	Interior	Confirmation	Removed	---	10.0	2/25/2020	< 29	< 58	< 87	---	---	---	---	---	---	---
TP-18	TP-18-10.0	Interior	Confirmation	Removed	---	10.0	2/19/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
Alley																	
B-6	B-6-3	Alley	Confirmation	In Place	3.0	23.6	12/29/1998	< 20	850	850	---	---	< 5.0	< 50	< 50	< 50	< 50
	B-6-13	Alley	Confirmation	In Place	13.0	13.6	12/29/1998	< 20	< 50	< 70	---	---	< 5.0	< 50	< 50	< 50	< 50
FB-11	FB-11-20.0	Alley	Confirmation	In Place	---	20.0	9/12/2020	72 N	470	542	---	---	---	---	---	---	---
	FB-11-17.5	Alley	Confirmation	In Place	---	17.5	9/12/2020	< 59	< 120	< 179	---	---	---	---	---	---	---
FB-12	FB-12-20.0	Alley	Confirmation	In Place	---	20.0	9/13/2020	170 N	1,600	1,770	---	---	< 41	< 0.083	< 0.41	< 0.41	< 0.82
	FB-12-17.5	Alley	Confirmation	In Place	---	17.5	9/13/2020	< 94	1,300	1,300	---	---	< 38	< 0.075	< 0.38	< 0.38	< 0.76
FB-13	FB-13-20.0	Alley	Confirmation	In Place	---	20.0	9/12/2020	86 N	1,400	1,486	---	---	< 35	< 0.070	< 0.35	< 0.35	< 0.70
	FB-13-17.5	Alley	Confirmation	In Place	---	17.5	9/12/2020	160 N	**2,700**	**2,860**	---	---	< 51	< 0.10	< 0.51	< 0.51	< 1.02
	FB-13-15.0	Alley	Confirmation	In Place	---	15.0	9/12/2020	< 130	1,200	1,200	---	---	---	---	---	---	---
FB-14	FB-14-20.0	Alley	Confirmation	In Place	---	20.0	9/12/2020	32 N	150	182	---	---	---	---	---	---	---
	FB-14-17.5	Alley	Confirmation	In Place	---	17.5	9/13/2020	< 65	510	510	---	---	---	---	---	---	---
FB-15	FB-15-22.5	Alley	Confirmation	In Place	---	22.5	9/13/2020	< 140	1,500	1,500	---	---	---	---	---	---	---
	FB-15-20.0	Alley	Confirmation	In Place	---	20.0	9/13/2020	< 30	160	160	---	---	---	---	---	---	---
	FB-15-17.5	Alley	Confirmation	In Place	---	17.5	9/13/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
FB-16	FB-16-22.5	Alley	Confirmation	In Place	---	22.5	9/13/2020	< 28	110	110	---	---	---	---	---	---	---
	FB-16-20.0	Alley	Confirmation	In Place	---	20.0	9/13/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
	FB-16-17.5	Alley	Confirmation	In Place	---	17.5	9/13/2020	130 N	1,000	1,130	---	---	---	---	---	---	---
PH-11A	PH-11A-4.0-011919	Alley	Confirmation	In Place	4.0	20.0	1/19/2019	520 N	1,100	1,620	---	---	< 20	---	---	---	---
PH-12	PH-12-4.0-011919	Alley	Confirmation	In Place	4.0	21.0	1/19/2019	**9,400** N,M	**21,000**	**30,400**	---	---	**2,100**	---	---	---	---
PH-13	PH-13-3.0-011219	Alley	Confirmation	In Place	3.0	20.0	1/12/2019	< 29	< 59	< 88	---	---	< 6.4	---	---	---	---
Screening Levels[6]								**2,000**	**2,000**	**2,000**	**2,000**		**30/100[7]**	**0.03**	**7**	**6**	**9**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)								
								NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
								DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Block 38 East Property																	
EX-11-W21 (EL21)	EX-11-W21 (EL21)	W Sidewall	Confirmation	In Place	9.5	21.0	7/2/2008	< 20	< 50	< 70	---	---	11	< 0.02	< 0.05	< 0.05	< 0.15
EX-12-W16.5 (EL22)	EX-12-W16.5 (EL22)	W Sidewall	Confirmation	In Place	7.0	22.0	7/2/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
EX-17-W13 (EL23)	EX-17-W13 (EL23)	W Sidewall	Confirmation	In Place	6.5	23.0	7/3/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
EX-18-W9 (EL19.5)	EX-18-W9 (EL19.5)	W Sidewall	Confirmation	In Place	6.0	19.5	7/3/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
P-4	P-4-3.5	W Sidewall	Performance	Removed	3.5	21.2	6/12/2002	< 37	530	530	---	---	---	---	---	---	---
	P-4-5.5	W Sidewall	Performance	Removed	5.5	19.2	6/12/2002	< 74	1,400	1,400	---	---	---	---	---	---	---
W-3	W-3	W Sidewall	Performance	Removed	10.0	10.5	10/11/1993	**7,800**	280	**8,080**	---	---	**470**	< 0.16	< 0.16	0.19	0.87
W-4	W-4	W Sidewall	Performance	Removed	11.0	9.5	10/11/1993	210	< 49	210	---	---	**44**	< 0.030	< 0.030	< 0.030	0.063
Screening Levels[6]								**2,000**	**2,000**	**2,000**	**2,000**		**30/100[7]**	**0.03**	**7**	**6**	**9**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the laboratory reporting limit listed.

--- denotes sample not analyzed.

[1]Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2]Analyzed by Northwest Method NWTPH-Dx, unless otherwise noted. Results denoted as analyzed by NWTPH-Dx with silica gel were analyzed using a sample extract treated with sulfuric acid/silica gel cleanup procedure.

[3]Total is the sum of the DRO and ORO results.

[4]Analyzed by Northwest Method NWTPH-Gx, unless otherwise noted.

[5]Analyzed by U.S. Environmental Protection Agency Method 8021B, 8260C, or 8260D.

[6]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013.

[7]Cleanup level is 30 milligrams per kilogram if benzene is detected and 100 milligrams per kilogram if benzene is not detected.

[8]Analyzed by Northwest Method NWTPH-HCID (hydrocarbon identification).

BTEX = benzene, toluene, ethylbenzene, and xylenes

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO = TPH as gasoline-range organics

H = sample analyzed outside of holding time

M = hydrocarbons in the gasoline range are impacting the diesel-range result

N = hydrocarbons in the oil-range are impacting the diesel-range result

N1 = hydrocarbons in the diesel-range are impacting the oil-range result

ORO = TPH as oil-range organics

O = Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

T = the sample chromatogram is not similar to a typical gasoline standard

Table 2
Soil Analytical Results for PAHs
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2]															
									Non-Carcinogenic PAHs												Carcinogenic PAHs							
									Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total Naphthalenes[3]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[4,5]
Block 38 West Property																												
FB-01	FB-01-5.0-082118	Interior	Performance	Removed	Soil	5.0	21.3	8/21/2018	0.99	1.1	1.2	3.29	0.46	0.32	1.0	1.9	4.8	0.46	5.4	6.8	2.5	2.6	2.9	0.76	3.1	0.45	1.6	**3.4**
	FB-01-15.0-082118	Interior	Confirmation	Removed	Soil	15.0	11.3	8/21/2018	< 0.011	< 0.011	< 0.011	< 0.033	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.008
FB-02	FB-02-5.0-082018	Interior	Performance	Removed	Soil	5.0	20.1	8/20/2018	1.1	0.86	1.3	3.3	1.4	0.45	3.3	8.5	18	1.3	12	25	11	9.8	12	3.5	9.7	1.6	8.0	**15**
	FB-02-25.0-082018	Interior	Confirmation	Removed	Soil	25.0	0.1	8/20/2018	0.083	0.020	0.024	0.127	0.027	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	Soil	10.0	15.8	8/23/2018	< 0.0086	< 0.0086	< 0.0086	< 0.0258	< 0.0086	< 0.0086	< 0.0086	< 0.0086	0.011	< 0.0086	0.015	0.012	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
	FB-03-35.0-082318	Interior	Confirmation	In Place	Soil	35.0	-9.2	8/23/2018	< 0.0080	< 0.0080	< 0.0080	< 0.024	< 0.0080	< 0.0080	< 0.0080	< 0.0080	0.015	< 0.0080	0.017	0.017	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-04	FB-04-10.0-082118	Interior	Performance	Removed	Soil	10.0	12.0	8/21/2018	0.12	0.057	0.099	0.276	0.21	0.045	0.29	0.21	0.97	0.22	1.0	1.1	0.36	0.67	0.47	0.18	0.95	0.041	0.19	**0.52**
	FB-04-15.0-082118	Interior	Confirmation	Removed	Soil	15.0	7.0	8/21/2018	0.052	0.048	0.092	0.192	0.049	< 0.0082	0.029	0.018	0.078	0.043	0.16	0.1	0.027	0.027	0.025	0.0099	0.028	< 0.0082	0.017	0.036
FB-05	FB-05-15.0-082218	Interior	Confirmation	Removed	Soil	15.0	10.5	8/22/2018	< 0.0089	< 0.0089	< 0.0089	< 0.0267	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
FB-06	FB-06-2.5-082218	Interior	Performance	Removed	Soil	2.5	22.9	8/22/2018	0.087	0.044	0.045	0.176	0.13	0.042	0.20	0.35	0.81	0.094	0.89	1.1	0.49	0.47	0.52	0.17	0.50	0.054	0.34	**0.65**
	FB-06-10.0-082218	Interior	Confirmation	Removed	Soil	10.0	15.4	8/22/2018	< 0.016 H	< 0.016 H	< 0.016 H	< 0.048	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	0.020 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.012
	FB-06-20.0-082218	Interior	Confirmation	Removed	Soil	20.0	5.4	8/22/2018	0.070	< 0.0081	< 0.0081	0.070	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FB-07	FB-07-24	Interior	Confirmation	Removed	Soil	24.0	-0.5	12/21/2019	0.028	< 0.0081	< 0.0081	0.028	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FB-07-29	Interior	Confirmation	Removed	Soil	29.0	-5.5	12/21/2019	< 0.0080	< 0.0080	< 0.0080	< 0.024	---	---	---	---	---	---	---	---	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
	FB-07-31.5	Interior	Confirmation	In Place	Soil	31.5	-8.0	12/21/2019	< 0.0080	< 0.0080	< 0.0080	< 0.024	---	---	---	---	---	---	---	---	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-08	FB-08-2.5	Interior	Performance	Removed	Soil	2.5	21.2	12/21/2019	3.8	5.0	5.5	**14.3**	---	---	---	---	---	---	---	---	4.8	4.6	6.4	2.0	4.7	0.70	3.1	**6.5**
	FB-08-8	Interior	Performance	Removed	Soil	8.0	15.7	12/21/2019	0.013	< 0.0078	0.0089	0.022	---	---	---	---	---	---	---	---	0.015	0.013	0.017	< 0.0078	0.015	< 0.0078	0.011	0.020
	FB-08-13	Interior	Performance	Removed	Soil	13.0	10.7	12/21/2019	4.6	1.9	2.3	**8.8**	---	---	---	---	---	---	---	---	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0062
	FB-08-18	Interior	Confirmation	Removed	Soil	18.0	5.7	12/21/2019	0.12	0.040	0.040	0.20	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
	FB-08-30.5	Interior	Confirmation	In Place	Soil	30.5	-6.9	12/21/2019	< 0.0081	< 0.0081	< 0.0081	< 0.024	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FB-09	FB-09-11	Interior	Confirmation	Removed	Soil	11.0	12.7	12/21/2019	< 0.015	< 0.015	< 0.015	< 0.045	---	---	---	---	---	---	---	---	0.018	< 0.015	0.021	< 0.015	< 0.015	< 0.015	< 0.015	0.023
	FB-09-33	Interior	Confirmation	In Place	Soil	33.0	-9.4	12/21/2019	< 0.0083	< 0.0083	< 0.0083	< 0.025	---	---	---	---	---	---	---	---	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0063
FMW-130	F-MW-130-20.0-072114	Interior	Confirmation	Removed	Soil	20.0	2.2	7/21/2014	0.38	0.016	0.028	0.424	0.014	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
FMW-132	FMW-132-5.0-082418	Interior	Performance	Removed	Soil	5.0	20.7	8/24/2018	2.0	2.0	2.6	**6.6**	1.5	0.10	3.3	4.4	15	0.84	18	27	9.4	11	10	2.9	13	1.4	4.1	**12.5**
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	Soil	10.0	15.3	8/24/2018	< 0.055	< 0.055	< 0.055	< 0.165	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.042
	FMW-133-20.0-082418	Interior	Confirmation	Removed	Soil	20.0	5.3	8/24/2018	0.25	0.035	0.042	0.33	0.021	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FMW-134	FMW-134-15.0-082318	Interior	Confirmation	Removed	Soil	15.0	10.4	8/23/2018	0.14	0.012	0.028	0.18	0.014	< 0.0081	< 0.0081	< 0.0081	< 0.0081	0.016	0.021	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FMW-135	FMW-135-15.0-082418	Interior	Confirmation	Removed	Soil	15.0	10.6	8/24/2018	0.029	< 0.022	< 0.022	0.029	0.039	< 0.022	< 0.022	< 0.022	0.042	< 0.022	0.068	0.073	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
	FMW-135-30.0-082418	Interior	Confirmation	Removed	Soil	30.0	-4.4	8/24/2018	0.12	0.012	< 0.0082	0.132	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0062
FMW-136	FMW-136-20.0-082218	Interior	Confirmation	Removed	Soil	20.0	5.1	8/22/2018	0.030	< 0.0084	< 0.0084	0.030	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
FMW-144	FWM-144-9.0	Interior	Performance	Removed	Soil	9.0	20.4	12/20/2019	< 0.014	< 0.014	< 0.014	< 0.042	---	---	---	---	---	---	---	---	0.085	0.033	0.088	0.025	0.032	< 0.014	0.081	**0.11**
FMW-145	FMW-145-13.0	Interior	Confirmation	Removed	Soil	13.0	9.9	12/20/2019	0.075	0.17	0.056	0.301	---	---	---	---	---	---	---	---	0.063	0.062	0.060	0.018	0.11	0.011	0.037	0.083
	FMW-145-18.0	Interior	Confirmation	Removed	Soil	18.0	4.9	12/20/2019	0.018	0.054	0.044	0.116	---	---	---	---	---	---	---	---	0.055	0.051	0.051	0.016	0.066	< 0.0096	0.035	0.071
	FMW-145-23.0	Interior	Confirmation	Removed	Soil	23.0	-0.1	12/20/2019	< 0.0079	< 0.0079	< 0.0079	< 0.0237	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
	FMW-145-28.0	Interior	Confirmation	Removed	Soil	28.0	-5.1	12/20/2019	< 0.0081	< 0.0081	< 0.0081	< 0.0243	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-145-30.5	Interior	Confirmation	In Place	Soil	30.5	-7.6	12/20/2019	< 0.0076	< 0.0076	< 0.0076	< 0.0228	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
	FMW-145-33.0	Interior	Confirmation	In Place	Soil	33.0	-10.1	12/20/2019	< 0.0081	< 0.0081	< 0.0081	< 0.0243	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FMW-146	FMW-146-13.0	Interior	Confirmation	Removed	Soil	13.0	10.2	12/21/2019	0.25	0.33	0.18	0.76	---	---	---	---	---	---	---	---	0.050	0.060	0.054	0.015	0.059	< 0.0091	0.031	0.067
	FMW-146-18.0	Interior	Confirmation	Removed	Soil	18.0	5.2	12/21/2019	0.20	0.13	0.12	0.45	---	---	---	---	---	---	---	---	0.031	0.034	0.031	0.0084	0.035	< 0.0082	0.018	0.041
FMW-147	FMW-147-8.5	Interior	Confirmation	Removed	Soil	8.5	14.3	12/21/2019	0.095	< 0.031	0.035	0.13	---	---	---	---	---	---	---	---	< 0.079 U1	0.054	0.042	< 0.031	0.048	< 0.031	< 0.031	0.054
	FMW-147-13.5	Interior	Confirmation	Removed	Soil	13.5	9.3	12/21/2019	0.10	< 0.0081	< 0.0081	0.10	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-147-23.5	Interior	Confirmation	Removed	Soil	23.5	-0.7	12/21/2019	< 0.0081	< 0.0081	< 0.0081	< 0.0243	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-147-30.5	Interior	Confirmation	In Place	Soil	30.5	-7.7	12/21/2019	< 0.0081	< 0.0081	< 0.0081	< 0.0243	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FMW-148	FMW-148-27.0	Interior	Confirmation	Removed	Soil	27.0	10.4	12/22/2019	0.38	0.056	0.11	0.546	---	---	---	---	---	---	---	---	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
FMW-149	FMW-149-21.0	Interior	Confirmation	Removed	Soil	21.0	15.2	12/22/2019	< 0.0088	< 0.0088	< 0.0088	< 0.0264	---	---	---	---	---	---	---	---	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0066
	FMW-149-31.0	Interior	Confirmation	Removed	Soil	31.0	5.2	12/22/2019	0.044	0.010	0.013	0.067	---	---	---	---	---	---	---	---	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
	FMW-149-41.0	Interior	Confirmation	Removed	Soil	41.0	-4.8	12/22/2019	< 0.0070	< 0.0070	< 0.0070	< 0.021	---	---	---	---	---	---	---	---	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0053
	FMW-149-43.5	Interior	Confirmation	In Place	Soil	43.5	-7.3	12/22/2019	< 0.0075	< 0.0075	< 0.0075	< 0.0225	---	---	---	---	---	---	---	---	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0057
Screening Levels[6]												**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**

Table 2
Soil Analytical Results for PAHs
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2]																	
									Non-Carcinogenic PAHs													Carcinogenic PAHs							
									Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total Naphthalenes[3]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[4,5]
A2/A3-B	A2/A3-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	6/3/2020	< 0.0079	< 0.0079	< 0.0079	< 0.0237	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
B2-B	B2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
B3-B	B3-B-15	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0072
B/C-B	B/C-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	6/3/2020	0.018	< 0.0077	< 0.0077	0.018	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
C2-B	C2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
C3-B-20	C3-B-20	Interior	Performance	Removed	Soil	---	20.0	2/20/2020	0.46	0.12	0.16	0.74	---	---	---	---	---	---	---	---	0.25	0.32	0.29	0.090	0.27	0.029	0.14	**0.34**
C3-B	C3-B-15	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.059	0.11	0.075	0.021	0.087	< 0.014	0.028	0.08
C4-ESW	C4-ESW-19.0	Sidewall	Confirmation	In Place	Soil	---	19.0	2/28/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
	C4-ESW-15	Sidewall	Confirmation	In Place	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
C/D-B	C/D-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	6/3/2020	0.021	< 0.0075	< 0.0075	0.021	---	---	---	---	---	---	---	---	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0057
D2-B	D2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
D3-B	D3-B-15	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
D4-ESW	D4-ESW-19.0	Sidewall	Confirmation	In Place	Soil	---	19.0	2/28/2020	0.30	0.17	0.22	0.69	---	---	---	---	---	---	---	---	< 0.022	0.032	< 0.022	< 0.022	0.028	< 0.022	< 0.022	0.019
	D4-ESW-15	Sidewall	Confirmation	In Place	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.019
E4-ESW	E4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
F1-B	F1-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/29/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0068
F2-B	F2-B-15.0	Interior	Performance	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.73	0.54	0.63	0.25	0.48	0.081	0.51	**0.94**
	F2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/29/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
F4-ESW	F4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.021	0.020	0.020	< 0.015	0.020	< 0.015	< 0.015	0.027
G1-B	G1-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
G2-B	G2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.060	0.092	0.061	0.023	0.074	< 0.016	0.030	0.082
G3-B	G3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	< 0.038	< 0.038	< 0.038	< 0.114	---	---	---	---	---	---	---	---	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.029
	G3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	0.058	0.051	0.13	0.239	---	---	---	---	---	---	---	---	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0055
G4-ESW	G4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
H1-B	H1-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.010
	H1-B-15.0	Interior	Performance	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	2.3	3.0	2.3	0.78	2.5	0.22	1.2	**3.1**
	H1-B-5.0	Interior	Confirmation	Removed	Soil	---	5.0	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0079	0.019	< 0.0079	< 0.0079	0.022	< 0.0079	< 0.0079	0.008
H1-ESW	H1-ESW-20.0	Interior	Confirmation	Removed	Soil	---	20.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
	H1-ESW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.008
H1-SSW	H1-SSW-20.0	Interior	Performance	Removed	Soil	---	20.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.13	0.080	0.13	0.052	0.074	0.015	0.11	**0.17**
	H1-SSW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.011	0.054	0.020	< 0.0091	0.042	< 0.0091	< 0.0091	0.020
H1-WSW	H1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.020	0.017	0.018	< 0.0086	0.016	< 0.0086	0.011	0.026
H3-B	H3-B-20	Interior	Performance	Removed	Soil	---	20.0	2/20/2020	< 0.0079	< 0.0079	< 0.0079	< 0.0237	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
	H3-B-15.0	Interior	Performance	Removed	Soil	---	15.0	2/24/2020	0.29	0.22	0.34	0.85	---	---	---	---	---	---	---	---	0.11	0.15	0.11	0.036	0.13	< 0.018	0.056	**0.15**
	H3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	< 0.0077	< 0.0077	< 0.0077	< 0.0231	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
H4-B	H4-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/19/2020	0.26	0.041	0.070	0.371	---	---	---	---	---	---	---	---	1.1	1.3	1.1	0.46	1.1	0.11	0.60	**1.5**
	H4-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/19/2020	< 0.024	< 0.024	< 0.024	< 0.072	---	---	---	---	---	---	---	---	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.018
H4-ESW	H4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	1.9	2.0	2.2	0.54	2.2	0.22	1.2	**2.5**
	H4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
H4-ESW2	H4-ESW2-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	1.9	1.9	1.9	0.58	2.0	0.16	1.1	**2.5**
H4-SSW	H4-SSW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.013
I2-B	I2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	< 0.0074	< 0.0074	< 0.0074	< 0.0222	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
I3-B	I3-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/23/2020	7.8	1.9	3.8	**13.5**	---	---	---	---	---	---	---	---	8.3	8.9	8.1	2.4	8.3	0.84	4.4	**10.8**
	I3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/23/2020	0.024	< 0.020	< 0.020	0.024	---	---	---	---	---	---	---	---	0.021	0.022	0.023	< 0.020	0.027	< 0.020	< 0.020	0.029
	I3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/22/2020	< 0.0083	< 0.0083	< 0.0083	< 0.0249	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
I4-ESW	I4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	27	27	28	8.3	28	2.6	16	**35.5**
	I4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
I/J-B	I/J-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	6/3/2020	< 0.0070	< 0.0070	< 0.0070	< 0.0210	---	---	---	---	---	---	---	---	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0053
Screening Levels[6]												**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**

Table 2
Soil Analytical Results for PAHs
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2]																	
									Non-Carcinogenic PAHs												Carcinogenic PAHs					
									Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total Naphthalenes[3]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[4,5]
J2-B	J2-B-20.0	Interior	Confirmation	Removed	Soil	---	20.0	2/14/2020	< 0.0077	< 0.0077	0.0087	0.0087	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
	J2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.014
	J2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	0.15	0.076	0.15	0.376	---	---	---	---	---	---	---	---	0.0085	0.034	0.015	< 0.0081	0.023	< 0.0081	< 0.0081	0.015
J4-ESW	J4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	13	14	14	4.4	15	1.3	7.1	**17.2**
	J4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.039	0.033	0.035	< 0.021	0.036	< 0.021	0.023	0.051
J/K-B	J/K-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	6/2/2020	< 0.0074	< 0.0074	< 0.0074	< 0.0222	---	---	---	---	---	---	---	---	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0056
K2-B	K2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/6/2020	4.0	4.6	5.6	**14.2**	---	---	---	---	---	---	---	---	12	11	12	3.4	10	0.96	6.7	**15.5**
	K2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/24/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
	K2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	5/4/2020	< 0.0082	< 0.0082	< 0.0082	< 0.0246	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K3-B	K3-B-20.0	Interior	Performance	Removed	Soil		20.0	2/13/2020	22	14	15	**51**	---	---	---	---	---	---	---	---	78	86	74	23	72	7.8	43	**102**
	K3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/24/2020	---	---	---	**---**	---	---	---	---	---	---	---	---	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.011
	K3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	< 0.0086	< 0.0086	< 0.0086	< 0.0258	---	---	---	---	---	---	---	---	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
K4-B	K4-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/26/2020	1.2	0.33	0.59	2.12	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
	K4-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/26/2020	0.72	0.30	0.55	1.57	---	---	---	---	---	---	---	---	0.035	0.055	0.037	< 0.018	0.052	< 0.018	0.018	0.048
K4-ESW	K4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/4/2020	0.46	0.45	0.49	1.4	---	---	---	---	---	---	---	---	2.4	1.9	2.3	0.68	1.9	0.23	1.4	**3.1**
	K4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.025
L1-WSW	L1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/3/2020	0.087	0.071	0.079	0.237	---	---	---	---	---	---	---	---	0.076	0.073	0.10	0.030	0.077	0.011	0.054	0.10
L2-B	L2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/6/2020	0.41	< 0.21	< 0.21	0.41	---	---	---	---	---	---	---	---	3.0	2.9	3.3	1.1	2.4	0.42	1.8	**4.0**
	L2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	< 0.0089	< 0.0089	< 0.0089	< 0.0267	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	L2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0054
L3-B	L3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/26/2020	< 0.018	< 0.018	< 0.018	< 0.054	---	---	---	---	---	---	---	---	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.014
L4-ESW	L4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.026
L4-SSW	L4-SSW-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/28/2020	0.028	< 0.0081	0.010	0.038	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M1-B	M1-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
M1-ESW	M1-ESW-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.008
M1-WSW	M1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/3/2020	0.25	1.2	1.4	2.85	---	---	---	---	---	---	---	---	0.40	0.30	0.38	0.11	0.34	0.041	0.27	**0.51**
M1-WSW2	M1-WSW2-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/3/2020	0.015	0.022	0.018	0.055	---	---	---	---	---	---	---	---	0.028	0.022	0.039	0.012	0.031	< 0.0081	0.023	0.038
M2-B	M2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.14	0.14	0.11	< 0.077	0.13	< 0.077	< 0.077	**0.18**
	M2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	4/30/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.015	0.074	0.029	0.0085	0.046	< 0.0078	< 0.0078	0.027
M3-B	M3-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	5/28/2020	< 0.0077	< 0.0077	< 0.0077	< 0.0231	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
M4-ESW	M4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.012	0.010	0.016	< 0.0081	0.015	< 0.0081	0.0089	0.016
N1-NSW	N1-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	1/31/2020	0.013	< 0.0081	< 0.0081	0.013	---	---	---	---	---	---	---	---	0.070	0.062	0.075	0.022	0.066	< 0.0081	0.043	0.091
N1-WSW	N1-WSW-20.0	Interior	Confirmation	Removed	Soil	---	20.0	2/3/2020	0.094	0.20	0.38	0.674	---	---	---	---	---	---	---	---	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.060
N2-B	N2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.15 H	0.13 H	0.13 H	0.052 H	0.13 H	0.013 H	0.084 H	**0.19**
	N2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/23/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
	N2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/23/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0063
N2-NSW	N2-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	1/31/2020	0.014	< 0.0078	0.0091	0.0231	---	---	---	---	---	---	---	---	0.053	0.025	0.040	0.012	0.025	0.0090	0.074	0.069
N3-NSW	N3-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	1/31/2020	< 0.0079	< 0.0079	< 0.0079	< 0.0237	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
N3-NSW2	N3-NSW2-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	1/31/2020	0.0088	0.0094	0.017	0.0352	---	---	---	---	---	---	---	---	0.019	0.011	0.018	< 0.0080	0.012	< 0.0080	0.015	0.024
N4-NSW	N4-NSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.034	0.024	0.039	0.011	0.027	< 0.0080	0.038	0.046
N4-ESW	N4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
TP-2	TP-2-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
TP-3	TP-3-20.0-121919	Interior	Confirmation	Removed	Soil	5.0	20.0	12/19/2019	< 0.0078	< 0.0078	< 0.0078	< 0.0234	< 0.0078	< 0.0078	< 0.0078	0.0087	0.026	< 0.0078	0.016	0.028	0.015	0.012	0.014	< 0.0078	0.012	< 0.0078	0.0089	0.019
	TP-3-15.0-121919	Interior	Confirmation	Removed	Soil	10.0	15.0	12/19/2019	< 0.041	< 0.041	< 0.041	< 0.123	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.031
TP-7	TP-7-4.0	Interior	Confirmation	Removed	Soil	4.0	19.5	12/23/2019	0.061	< 0.020	< 0.020	0.061	---	---	---	---	---	---	---	---	0.031	0.033	0.044	< 0.020	0.067	< 0.020	0.025	0.044
Screening Levels[6]												**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**

Table 2
Soil Analytical Results for PAHs
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2]																			
									Non-Carcinogenic PAHs												Carcinogenic PAHs							
									Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total Naphthalenes[3]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[4,5]
TP-10	TP-10-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/4/2020	< 0.035	< 0.035	< 0.035	< 0.105	---	---	---	---	---	---	---	---	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.026
	TP-10-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/4/2020	0.027	< 0.0081	< 0.0081	0.027	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TP-11	TP-11-15.0	Interior	Performance	Removed	Soil	---	15.0	2/4/2020	0.35	0.32	0.32	0.99	---	---	---	---	---	---	---	---	1.5	1.5	1.3	0.51	1.4	0.15	0.79	**1.9**
	TP-11-10.0	Interior	Confirmation	Removed	Soil	---	10.0	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0072
TP-12	TP-12-20.0	Interior	Performance	Removed	Soil	---	20.0	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	---	16	19	14	5.7	17	1.6	8.4	**21**
	TP-12-15.0	Interior	Performance	Removed	Soil	---	15.0	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.083	0.084	0.075	0.023	0.078	< 0.014	0.043	**0.107**
TP-13	TP-13-20.0	Interior	Confirmation	Removed	Soil	---	20.0	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
	TP-13-15.0	Interior	Confirmation	Removed	Soil	---	15.0	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0070
TP-16	TP-16-20.0	Interior	Confirmation	Removed	Soil	---	20.0	2/14/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.023	0.029	0.029	< 0.017	0.029	< 0.017	< 0.017	0.032
Alley																												
FB-10	FB-10-22.5	Alley	Confirmation	In Place	Soil	---	22.5	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.61	0.58	0.71	0.17	0.68	0.065	0.37	**0.81**
	FB-10-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0073
	FB-10-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.012
FB-11	FB-11-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.54	0.50	0.62	0.17	0.52	0.058	0.37	**0.72**
	FB-11-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.012
FB-12	FB-12-21.5	Alley	Confirmation	In Place	Soil	---	21.5	9/13/2020	< 0.15	< 0.15	< 0.15	< 0.45	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	FB-12-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.081	0.084	0.089	< 0.025	0.085	< 0.025	0.058	**0.107**
	FB-12-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.25	0.21	0.22	0.083	0.19	< 0.025	0.16	**0.32**
	FB-12-15.0	Alley	Confirmation	In Place	Soil	---	15.0	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
FB-13	FB-13-22.5	Alley	Confirmation	In Place	Soil	---	22.5	9/12/2020	4.1	3.4	4.1	**11.6**	---	---	---	---	---	---	---	---	25	24	24	7.7	24	2.1	12	**32**
	FB-13-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/12/2020	0.40	0.084	0.11	0.594	---	---	---	---	---	---	---	---	0.55	0.55	0.53	0.16	0.50	0.046	0.30	**0.71**
	FB-13-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	1.8	1.9	1.8	0.46	1.6	0.15	1.0	**2.3**
	FB-13-15.0	Alley	Confirmation	In Place	Soil	---	15.0	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.026
FB-14	FB-14-22.5	Alley	Confirmation	In Place	Soil	---	22.5	9/12/2020	0.18	0.15	0.21	0.540	---	---	---	---	---	---	---	---	2.4	2.8	2.4	0.78	2.6	0.24	1.4	**3.2**
	FB-14-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/12/2020	0.14	0.13	0.14	0.410	---	---	---	---	---	---	---	---	1.8	1.7	1.6	0.47	1.6	0.16	0.97	**2.3**
	FB-14-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.013
FB-15	FB-15-22.5	Alley	Confirmation	In Place	Soil	---	22.5	9/13/2020	0.40	0.26	0.32	0.980	---	---	---	---	---	---	---	---	2.3	2.4	2.2	0.78	2.0	0.24	1.3	**3.0**
	FB-15-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/13/2020	0.25	0.29	0.34	0.880	---	---	---	---	---	---	---	---	0.20	0.21	0.20	0.064	0.20	0.020	0.11	**0.26**
	FB-15-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/13/2020	0.10	0.033	0.040	0.173	---	---	---	---	---	---	---	---	0.31	0.26	0.27	0.098	0.25	0.025	0.18	**0.40**
	FB-15-15.0	Alley	Confirmation	In Place	Soil	---	15.0	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
FB-16	FB-16-22.5	Alley	Confirmation	In Place	Soil	---	22.5	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	0.49	0.45	0.47	0.13	0.45	0.051	0.29	**0.63**
	FB-16-20.0	Alley	Confirmation	In Place	Soil	---	20.0	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0056
	FB-16-17.5	Alley	Confirmation	In Place	Soil	---	17.5	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	---	< 0.029	0.032	0.029	< 0.029	0.055	< 0.029	< 0.029	0.026
PH-4	PH-4-4.5-012619	Alley	Confirmation	In Place	Soil	4.5	22.0	1/26/2019	---	---	---	---	---	---	---	---	---	---	---	---	0.11	0.079	0.10	0.035	0.086	0.013	0.078	**0.14**
PH-11A	PH-11A-4.0-011919	Alley	Confirmation	In Place	Soil	4.0	20.0	1/19/2019	---	---	---	---	---	---	---	---	---	---	---	---	0.30	0.25	0.31	0.081	0.26	0.031	0.20	**0.39**
PH-12	PH-12-4.0-011919	Alley	Confirmation	In Place	Soil	4.0	21.0	1/19/2019	---	---	---	---	---	---	---	---	---	---	---	---	120	110	100	31	110	9.9	63	**152**
PH-13	PH-13-3.0-011219	Alley	Confirmation	In Place	Soil	3.0	20.0	1/12/2019	---	---	---	---	---	---	---	---	---	---	---	---	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0059
TP-10-4	TP-10-4	Alley	Confirmation	In Place	Soil	4.0	20.5	5/5/2008	< 0.03	---	---	< 0.03	< 0.03	< 0.03	< 0.03	0.1	0.21	0.04	< 0.03	0.33	0.16	0.17	0.25	0.36	0.29	< 0.03	< 0.03	**0.24**
Screening Levels[6]												**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**

Table 2
Soil Analytical Results for PAHs
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Sample Date	Analytical Results (milligrams per kilogram)[2]																			
									Non-Carcinogenic PAHs													Carcinogenic PAHs							
									Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Total Naphthalenes[3]	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[4,5]
Block 38 East Property																												
EX-19-W5	EX-19-W5 (EL20)	W Sidewall	Confirmation	In Place	Soil	5.0	20.0	7/3/2008	0.07	---	---	0.07	0.42	0.11	0.98	2.0	2.9	0.30	2.3	3.6	1.7	0.97	1.3	0.55	0.88	0.50	0.78	**2.1**
EX-20-W1.5	EX-20-W1.5 (EL19.5)	W Sidewall	Confirmation	In Place	Soil	5.5	19.0	7/3/2008	0.13	---	---	0.13	0.63	0.12	1.5	3.0	4.4	0.42	4.2	5.5	0.75	1.2	2.1	0.75	1.2	0.76	1.2	**1.4**
EX-27-EL16	EX-27-EL16	W Sidewall	Confirmation	In Place	Soil	17.5	16.0	7/14/2008	< 0.05	---	---	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EX-36-EL23	EX-36-EL23	W Sidewall	Confirmation	In Place	Soil	1.5	23.0	7/18/2008	< 0.05	---	---	< 0.05	< 0.05	< 0.05	0.28	0.34	0.56	< 0.05	0.28	0.56	0.16	0.47	0.33	0.24	0.16	< 0.01	0.17	**0.28**
EX-37-EL23	EX-37-EL23	W Sidewall	Confirmation	In Place	Soil	1.5	23.0	7/18/2008	< 0.05	---	---	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
EX-38-EL23	EX-38-EL23	W Sidewall	Confirmation	In Place	Soil	1.0	23.0	7/18/2008	< 0.05	---	---	< 0.05	< 0.05	0.14	1.7	2.9	6.3	0.43	1.7	7.8	2.9	2.7	1.6	1.7	1.4	1.0	1.1	**3.7**
EX-39-EL23	EX-39-EL23	W Sidewall	Confirmation	In Place	Soil	1.0	23.0	7/18/2008	< 0.05	---	---	< 0.05	0.13	< 0.05	0.27	0.39	0.51	0.13	0.27	0.0	0.32	0.73	0.23	0.31	0.21	< 0.01	0.18	**0.47**
EX-40-EL22	EX-40-EL22	W Sidewall	Confirmation	In Place	Soil	2.0	22.0	7/18/2008	6	---	---	**6**	0.61	7.2	40	12	43	4.9	53	53	19	17	17	20	9.4	1.4	5.7	**25**
EX-41-EL22	EX-41-EL22	W Sidewall	Confirmation	In Place	Soil	3.0	22.0	7/18/2008	0.56	---	---	0.56	0.16	0.49	1.4	1.7	4.1	0.31	3.3	4.7	2.3	2.9	1.3	1.1	2.1	0.62	0.69	**2.98**
P-4	P-4-3.5	W Sidewall	Performance	Removed	Soil/Wood	3.5	21.2	6/12/2002	0.52	0.21	0.36	1.09	0.39	0.39	0.60	1.1	2.4	0.39	3.4	3.5	1.6	1.1	1.1	1.0	1.4	0.34	0.95	**2.1**
	P-4-5.5	W Sidewall	Performance	Removed	Soil/Wood	5.5	19.2	6/12/2002	0.055	< 0.025	< 0.025	0.055	0.047	< 0.025	0.067	0.17	0.36	0.042	0.33	0.24	0.21	0.090	0.56	0.48	0.18	0.026	0.12	**0.34**
Screening Levels[6]												**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.
--- denotes sample not analyzed.
< denotes analyte not detected at or exceeding the reporting limit listed.
[1]Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).
[2]Analyzed by U.S. Environmental Protection Agency Method 8270D/SIM or 8270E/SIM.
[3]Sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
[4]Total cPAHs derived using the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.
[5]For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate total. If all constituent concentrations are non-detect, calculated total is indicated non-detect.
[6]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.
[7]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet updated August 2020, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

cPAHs = carcinogenic polycyclic aromatic hydrocarbons
H = sample analyzed outside of holding time
J = result is an estimate
ND = not detected and reporting limit is not available.
NE = not established
PAHs = polycyclic aromatic hydrocarbons
TEC = toxic equivalent concentration

Table 3
Soil Analytical Results for Metals
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet) [1]	Sample Elevation (feet NAVD88) [1]	Sample Date	Analytical Results (milligrams per kilogram)[2]							
								Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Block 38 West Property															
FB-01	FB-01-15.0-082118	Interior	Confirmation	Removed	15.0	11.3	8/21/2018	< 16	110	< 0.81	60	< 8.1	< 0.40	< 16	< 1.6
FB-02	FB-02-10.0-082018	Interior	Confirmation	Removed	10.0	15.1	8/20/2018	< 12	190	< 1.2	36	24	1.2	< 12	< 2.5
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	10.0	15.8	8/23/2018	< 13	230	< 0.65	100	8.9	< 0.32	< 13	< 1.3
	FB-03-35.0-082318	Interior	Confirmation	In Place	35.0	-9.2	8/23/2018	< 12	44	< 0.60	42	< 6.0	< 0.30	< 12	< 1.2
FB-04	FB-04-5.0-082118	Interior	Confirmation	Removed	5.0	17.0	8/21/2018	< 11	290	< 1.1	53	56	< 0.55	< 11	< 2.2
FB-05	FB-05-35.0-082218	Interior	Confirmation	In Place	35.0	-9.5	8/22/2018	< 12	58	< 0.62	38	< 6.2	< 0.31	< 12	< 1.2
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	10.0	15.3	8/24/2018	< 17	200	< 1.7	29	18	< 0.83	< 17	< 3.3
	FMW-133-20.0-082418	Interior	Confirmation	Removed	20.0	5.3	8/24/2018	< 12	50	< 0.60	27	< 6.0	< 0.30	< 12	< 1.2
FMW-134	FMW-134-5.0-082318	Interior	Confirmation	Removed	5.0	20.4	8/23/2018	< 17	110	< 1.7	19	< 17	< 0.83	< 17	< 3.3
	FMW-134-15.0-082318	Interior	Confirmation	Removed	15.0	10.4	8/23/2018	< 12	48	< 0.61	42	< 6.1	< 0.30	< 12	< 1.2
FMW-135	FMW-135-5.0-082418	Interior	Confirmation	Removed	5.0	20.6	8/24/2018	< 12	120	< 0.61	48	16	< 0.31	< 12	< 1.2
	FMW-135-25.0-082418	Interior	Confirmation	Removed	25.0	0.6	8/24/2018	< 14	120	< 0.69	60	< 6.9	< 0.35	< 14	< 1.4
	FMW-135-30.0-082418	Interior	Confirmation	Removed	30.0	-4.4	8/24/2018	< 12	66	< 0.62	44	< 6.2	< 0.31	< 12	< 1.2
FMW-136	FMW-136-20.0-082218	Interior	Confirmation	Removed	20.0	5.1	8/22/2018	< 13	46	< 0.63	42	< 6.3	< 0.32	< 13	< 1.3
	FMW-136-30.0-082218	Interior	Confirmation	Removed	30.0	-4.9	8/22/2018	< 12	45	< 0.59	41	< 5.9	< 0.30	< 12	< 1.2
M1-WSW	M1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	2/10/2020	---	---	---	---	18	---	---	---
N1-WSW	N1-WSW-17.0	Interior	Confirmation	Removed	---	17.0	2/10/2020	---	---	---	---	80	---	---	---
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	12/23/2019	---	---	---	---	33	---	---	---
Alley															
FB-12	FB-12-21.5	Alley	Confirmation	In Place	---	21.5	9/13/2020	---	---	---	---	25	---	---	---
FB-13	FB-13-22.5	Alley	Confirmation	In Place	---	22.5	9/12/2020	< 11	490	0.73	23	130	< 0.29	< 11	< 1.1
	FB-13-20.0	Alley	Confirmation	In Place	---	20.0	9/12/2020	---	---	< 1.4	---	96	---	---	---
FB-14	FB-14-22.5	Alley	Confirmation	In Place	---	22.5	9/12/2020	13	68	< 0.55	17	31	< 0.27	< 11	< 1.1
	FB-14-20.0	Alley	Confirmation	In Place	---	20.0	9/12/2020	---	---	< 0.58	---	50	---	---	---
FB-15	FB-15-22.5	Alley	Confirmation	In Place	---	22.5	9/13/2020	< 11	81	< 0.54	15	120	< 0.27	< 11	< 1.1
	FB-15-20.0	Alley	Confirmation	In Place	---	20.0	9/13/2020	---	---	< 0.59	---	56	---	---	---
	FB-15-17.5	Alley	Confirmation	In Place	---	17.5	9/13/2020	---	---	< 0.56	---	< 5.6	---	---	---
TP-10-4	TP-10-4	Alley	Confirmation	In Place	4.0	20.5	5/5/2008	---	---	**2.4**	---	**1,900**	---	---	---
Screening Levels[3]								**20**	**16,000[4]**	**2**	**2,000**	**250**	**2**	**400[4]**	**400[4]**

Table 3
Soil Analytical Results for Metals
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet) [1]	Sample Elevation (feet NAVD88) [1]	Sample Date	Analytical Results (milligrams per kilogram)[2]							
								Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Block 38 East Property															
EX-19-W5 (EL20)	EX-19-W5 (EL20)	W Sidewall	Confirmation	In Place	5.0	20.0	7/3/2008	---	---	< 2.0	---	64	---	---	---
EX-20-W1.5 (EL19.5)	EX-20-W1.5 (EL19.5)	W Sidewall	Confirmation	In Place	5.5	19.5	7/3/2008	---	---	< 2.0	---	120	---	---	---
EX-39-EL23	EX-39-EL23	W Sidewall	Confirmation	In Place	1.0	23.0	7/18/2008	---	---	< 2.0	---	86	---	---	---
EX-40-EL22	EX-40-EL22	W Sidewall	Confirmation	In Place	2.0	22.0	7/18/2008	---	---	< 2.0	---	**1,800**	---	---	---
EX-41-EL22	EX-41-EL22	W Sidewall	Confirmation	In Place	3.0	22.0	7/18/2008	---	---	< 2.0	---	**1,200**	---	---	---
P-4	P-4-3.5	W Sidewall	Performance	Removed	3.5	21.2	6/12/2002	---	---	**2.1**	---	**1,500**	---	---	---
	P-4-5.5	W Sidewall	Performance	Removed	5.5	19.2	6/12/2002	---	---	< 1.5	---	200	---	---	---
W-3	W-3	W Sidewall	Performance	Removed	10.0	10.5	10/11/1993	---	---	---	---	18	---	---	---
W-4	W-4	W Sidewall	Performance	Removed	11.0	9.5	10/11/1993	---	---	---	---	2.4	---	---	---
Screening Levels[3]								**20**	**16,000[4]**	**2**	**2,000**	**250**	**2**	**400[4]**	**400[4]**

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

< denotes analyte not detected at or exceeding the laboratory reporting limit listed.

— denotes sample not analyzed.

[1]Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2]Analyzed by U.S. Environmental Protection Agency Methods 6010D/6020B/7471B.

[3]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013, unless otherwise noted.

[4]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet updated August 2020, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Table 4
Groundwater Elevations
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-130	Intermediate	45.0 to 55.0	-22.8 to -32.8	21.86	8/30/2018	5.14	16.72
					12/28/2018	4.98	16.88
					3/26/2019	4.42	17.44
FMW-132	Shallow	5.0 to 10.0	20.7 to 15.7	25.48	8/30/2018	7.44	18.04
					12/28/2018	6.80	18.68
					3/26/2019	7.01	18.47
FMW-133	Shallow	6.5 to 11.5	18.8 to 13.8	24.87	8/30/2018	6.86	18.01
					12/28/2018	6.21	18.66
					3/26/2019	6.41	18.46
FMW-134	Shallow	12.0 to 17.0	13.4 to 8.4	24.98	8/30/2018	8.66	16.32
					12/28/2018	7.80	17.18
					3/26/2019	7.51	17.47
FMW-135	Shallow	7.0 to 12.0	18.6 to 13.6	25.29	8/30/2018	7.14	18.15
					12/28/2018	6.78	18.51
					3/26/2019	6.81	18.48
FMW-136	Intermediate	30.0 to 40.0	-4.9 to -14.9	24.79	8/30/2018	8.10	16.69
					12/28/2018	7.74	17.05
					3/26/2019	7.41	17.38
FMW-137	Deep Outwash Aquifer	72.0 to 85.0	-41.9 to -54.9	30.09	11/20/2018	13.02	17.07
					12/28/2018	12.74	17.35
					3/14/2019	12.56	17.53
					5/6/2019	12.08	18.01
					7/8/2019	12.25	17.84
FMW-138	Deep Outwash Aquifer	90.0 to 100.0	-49.96 to -59.96	40.44	11/20/2018	24.50	15.94
					12/28/2018	24.38	16.06
					3/14/2019	24.14	16.30
					5/6/2019	23.80	16.64
					7/8/2019	23.84	16.60

Table 4
Groundwater Elevations
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-144	Intermediate	38.0 to 43.0	-8.0 to -13.0	29.41	12/23/2019	12.42	16.99
					12/26/2019	12.26	17.15
					12/30/2019	12.33	17.08
					12/30/2019	12.34	17.07
					12/31/2019	12.44	16.97
					12/31/2019	12.27	17.14
FMW-145	Intermediate	31.0 to 36.0	-8.0 to -13.0	22.90	12/23/2019	5.58	17.32
					12/26/2019	5.65	17.25
					12/30/2019	5.80	17.10
					12/30/2019	5.83	17.07
					12/31/2019	5.42	17.48
					12/31/2019	5.63	17.27
FMW-146	Intermediate	31.0 to 36.0	-8.0 to -13.0	23.19	12/23/2019	6.38	16.81
					12/26/2019	6.14	17.05
					12/30/2019	6.18	17.01
					12/30/2019	6.24	16.95
					12/31/2019	6.00	17.19
					12/31/2019	5.89	17.30
FMW-147	Intermediate	31.0 to 36.0	-8.0 to -13.0	22.82	12/23/2019	5.78	17.04
					12/26/2019	5.75	17.07
					12/30/2019	5.88	16.94
					12/30/2019	5.82	17.00
					12/31/2019	5.98	16.84
					12/31/2019	5.70	17.12
FMW-149	Intermediate	44.0 to 49.0	-8.0 to -13.0	36.21	12/23/2019	19.01	17.20
					12/26/2019	19.14	17.07
					12/30/2019	19.18	17.03
					12/30/2019	19.13	17.08
					12/31/2019	18.94	17.27
					12/31/2019	18.92	17.29

NOTES:

[1]Depth in feet below ground surface.

[2]In feet referenced to North American Vertical Datum of 1988 (NAVD88).

[3]In feet below top of well casing.

bgs = below ground surface

APPENDIX A
BORING LOGS

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

FARALLON CONSULTING

Log of Boring: FB-10

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/12/20 @ 1015
Date/Time Completed: 9/12/20 @ 1230
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-2.5': Poorly-graded SAND (90% sand, 5% gravel, 5% silt), fine sand, dark brown, moist, no odor. Concrete, wood and metal debris (Fill)	SP							
		2.5-5.0': SILT (80% silt, 10% sand, 10% organics), fine sand, dark brown, moist, no odor. Concrete, wood and metal debris. (FIll)	ML				0.0	FB-10-22.5	X	
5		5.0-6.0': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, no odor. (FIll)	SM		66		0.0	FB-10-20.0	X	Bentonite
		6.0-8.3': SILT (90% silt, 10% sand), fine sand, light brown to dark brown, moist, no odor. Charcoal debris at 8.0' bgs. (Fill)	ML				0.0	FB-10-17.5	X	
		8.3-10.0': No recovery.								
10		10.0-116': SILT (90% silt, 10% sand), fine sand, gray, moist, no odor.	ML		80		0.0	FB-10-15.0		
		11.6-14.0': Silty SAND (85% sand, 15% silt), fine sand, grayish brown, moist, no odor.	SM							
		14.0-15.0': No recovery.					0.0	FB-10-10.0		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 24.86
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-11

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/12/20 @ 1240
Date/Time Completed: 9/12/20 @ 1430
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.5': Well-graded SAND with silt (80% sand, 10% silt, 10% gravel), fine to coarse sand, dark brown, moist, no odor, wood, concrete, metal debris. (FIll)	SW-SM							
		1.5-5.0': ORGANIC SOIL (70% organics, 30% silt), dark brown, soft, moist, hydrocarbon-like odor. (Fill)	OL				0.0	FB-11-22.5		
5		5.0-10.0': SILT (100% silt), light brown, soft, moist, organic odor. Charcoal debris at 8.5' bgs. (Fill)	ML		100		64.2	FB-11-20.0	X	Bentonite
							0.0	FB-11-17.5	X	
10		10.0-12.0': SILT (90% silt, 10% sand), fine sand, gray, moist, no odor.	ML		100		0.1	FB-11-15.0		
		12.0-15.0': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM				0.3	FB-11-10.0		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 23.88
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-12

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/13/20 @ 0930
Date/Time Completed: 9/13/20 @ 1030
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Concrete. Air knife to clear for utilities.	CO							Concrete
		1.0-1.5': Poorly-graded SAND (90% sand, 10% gravel), fine sand, brown, moist, no odor. (Fill)	SP							
		1.5-5.0': ORGANIC SOIL (100% organic soil), dark brown, soft, organic odor. Wood chips, root debris, trace charcoal. (Fill)	OL				0.0	FB-12-21.5	X	
5		5.0-7.0': SILT (60% silt, 40% organics), dark brown, soft, moist, organic odor. Wood debris. (Fill)	ML		100		0.6	FB-12-20.0	X	Bentonite
		7.0-10.0': SILT (80% silt, 20% organics), light to dark brown, soft, moist, organic odor. Trace charcoal at 8.5' bgs. (Fill)	ML				1.0	FB-12-17.5	X	
10		10.0-12.0': SILT (100% silt), gray, moist, no odor.	ML		100		0.0	FB-12-15.0	X	
		12.0-15.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, gray, moist, no odor.	SP-SM				0.0	FB-12-10.0		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 22.79
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-13

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/12/20 @ 1220
Date/Time Completed: 9/12/20 @ 1600
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Concrete. Air knife to clear for utilities.	CO							Concrete
		1.0-1.5': Well-graded SAND with gravel (70% sand, 25% gravel, 5% silt), fine to coarse sand, fine gravel, dark gray, moist, no odor. (Fill)	SW							
		1.5-5.0': ORGANIC SOIL (80% organics, 20% silt), dark brown, moist, organic odor. Wood debris. (Fill)	OL				0.1	FB-13-22.5	X	
5		5.0-10': SILT (60% silt, 40% organics), dark brown, soft, moist, organic odor. Wood debris. (Fill)	ML		100		2.7	FB-13-20.0	X	Bentonite
							1.1	FB-13-17.5	X	
10		10.0-15.0': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM		100		0.3	FB-13-15.0	X	
							0.0	FB-13-10.0		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 23.00
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-14

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/12/20 @ 1500
Date/Time Completed: 9/13/20 @ 1045
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.45': Concrete. Air knife to clear for utilities.	CO							Concrete
		0.45-1.5': Poorly-graded SAND with silt (80% sand, 10% silt, 10% gravel), fine sand, gray, moist, no odor. (Fill)	SP-SM							
		1.5-5.0': SIlty SAND (70% sand, 30% silt), fine sand, gray, moist, no odor. (Fill)	SM				1.1	FB-14-22.5	X	
5		5.0-6.2': SILT (70% silt, 30% organics), brown, soft, moist, organic odor. Wood debris. (Fill)	ML		100		0.5	FB-14-20.0	X	Bentonite
		6.2-10.0': No recovery.					1.5	FB-14-17.5	X	
10		10.0-11.0': SILT (80% silt, 20% organics), dark brown, soft, moist, organic odor. Wood debris.	ML		100			FB-14-15.0		
		11.0-12.4': SILT (100% silt), gray, stiff, moist, no odor.	ML							
		12.4-14.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, gray, moist, no odor.	SP-SM				0.0	FB-14-10.0		
		14.0-15.0': No recovery.								
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 23.81
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-15

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/13/20 @ 1045
Date/Time Completed: 9/13/20 @ 1105
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 15.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.25': Concrete. Air knife to clear for utilities.	CO							Concrete
		0.25-2.0': Poorly-graded SAND with gravel (80% sand, 20% gravel), fine to medium sand, fine gravel, dark gray, no odor. (Fill)	SP							
		2.0-5.0': Poorly-graded SAND (90% sand, 10% gravel), fine sand, grayish brown, moist, no odor. (Fill)	SP				1.5	FB-15-22.5	X	
5		5.0-7.0': Silty SAND (80% sand, 20% silt), fine sand, grayish brown, moist, no odor. (Fill)	SM		60		0.1	FB-15-20.0	X	Bentonite
		7.0-8.0': ORGANIC SOIL (90% organics, 20% silt), dark brown, moist, organic odor, strong petroleum-like odor. Wood debris. (Fill)	OL				1.0	FB-15-17.5	X	
		8.0-10.0': No recovery.								
10		10.0-14.0': SILT (60% silt, 40% organics), dark brown, soft, moist, organic odor.	ML		80		43.6	FB-15-15.0	X	
		14.0-15.0': No recovery.					0.1	FB-15-10.0		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 24.91
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

Log of Boring: FB-16

Client: City Investors IX
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 9/13/20 @ 1120
Date/Time Completed: 9/13/20 @ 1150
Equipment: Geoprobe
Drilling Company: AEC
Drilling Foreman: Levi
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 20.0
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.25': Concrete. Air knife to clear for utilities.	CO							Concrete
		0.5-5.0': Poorly-graded SAND (90% sand, 10% gravel), fine sand, brown, moist, no odor. (Fill)	SP				0.2	FB-16-22.5	X	
5		5.0-8.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, brown, moist, no odor. (Fill)	SP-SM		60		0.0	FB-16-20.0	X	Bentonite
							2.7	FB-16-17.5	X	
		8.0-10.0': No recovery.								
10		10.0-13.0': OGRANIC SOIL (90% organics, 10% silt), dark brown, moist, organic odor,.Wood debris. (Fill)	OL		100		2.0	FB-16-15.0		
		13.0-15.0': No recovery.								
15		15.0-18.5': ORGANIC SOIL (70% organics, 30% silt), dark brown, soft, moist, organic odor. Trace charcoal. (Fill)	OL				0.0	FB-16-10.0		
		18.5-20.0': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM							
20										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

Ground Surface Elevation (ft): 27.50
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 1145	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/17/2018 @ 1400	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	90.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	85.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Boring/Well Construction Details
0	0.0-0.5': Concrete cored. Air knife to 5.0' bgs to clear for utilities.	CO					Monument
	0.4-5.0': Silty SAND with gravel (60% sand, 30% gravel, 10% silt), medium to coarse sand, fine gravel, brown, moist, no odor. Brick, wood and metal debris.	FILL					
5	5.0-9.0': Silty SAND (75% sand, 20% silt, 5% gravel), fine to medium sand, fine gravel, moist, no odor. Some debris.	FILL			0.1	Soil Screened @ 5.0' bgs	Bentonite
	9.0-10.0': No Recovery.						
10	10.0-10.6': Wood debris	FILL	80				
	10.6-15.0': No Recovery.						Water level
15	15.0-18.0': Silty SAND (60% sand, 40% silt), fine to medium sand, brown, moist to wet, no odor. Wood debris at 16.0 ft bgs.	FILL					
	18.0-20.0': No Recovery.						
20	20.0-22.0': Sandy SILT (70% silt, 30% sand), fine sand, dark brown, moist to wet, organic odor. Wood debris throughout.	FILL	60		6.5	Soil Screened @ 20.0' bgs	Casing
	22.0-25.0': Silty SAND (80% sand, 20% silt), medium sand, gray, moist to wet, no odor. Wood debris throughout.	SM					
25							

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	72.0-85.0	**Boring Abandonment:**	NA		**Y:** NA

FARALLON CONSULTING

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 1145	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/17/2018 @ 1400	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	90.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	85.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Boring/Well Construction Details
25	25.0-27.0': Silty SAND (60% sand, 40% silt), fine sand, gray, moist to wet, no odor.	SM	100				
	27.0-29.0': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, moist to wet, no odor.	SM					
	29.0-30.0': No Recovery.						
30	30.0-35.0': Silty SAND (70% sand, 30% silt), fine sand, gray, wet, no odor.	SM	100		0.3	Soil Screened @ 30.0' bgs	Bentonite
35	35.0-40.0': Silty SAND (60% sand, 40% silt), fine sand, gray, moist, no odor.	SM	100				
40	40.0-42.0': Poorly graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist, no odor.	SP-SM	100		0.3	Soil Screened @ 40.0' bgs	Casing
	42.0-45.0': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, no odor.	SM					
45	45.0-50.0': Silty SAND (85% sand, 15% silt), fine sand, grayish brown, moist, no odor.	SM					
50							

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	72.0-85.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 1145	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/17/2018 @ 1400	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	90.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	85.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
50		50.0-55.0': Silty SAND (80% sand, 20% silt), fine to medium sand, grayish brown, moist to wet, no odor.	SM		100		3.2	Soil Screened @ 50.0' bgs		Casing
55		55.0-60.0': Silty SAND (80% sand, 20% silt), fine to medium sand, grayish brown, moist to wet, no odor.	SM							
60		60.0-70.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grauish brown, moist, no odor.	SP-SM		100		1.3	Soil Screened @ 60.0' bgs		
65										
70		70.0-72.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grayish brown, moist.	SP-SM		100		0.3	Soil Screened @ 70.0' bgs		Bentonite
		72.0-75.0': Poorly graded SAND with silt (80% sand, 10% silt, 10% gravel), medium sand, fine gravel, grayish brown, moist no odor.	SP-SM							Screen (Pre-packed)
75										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	72.0-85.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 1145	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/17/2018 @ 1400	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	90.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	85.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
75		75.0-80.0': Poorly graded SAND (95% sand, 5% silt), medium sand, gray, moist to wet, no odor.	SP							Screen (Pre-Packed)
80		80.0-85.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, gray, moist to wet, no odor.	SP		100		0.5	Soil Screened @ 80.0' bgs		
85		85.0-90.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, gray, moist to wet, no odor.	SP							Sand Pack
90					100		0.2	Soil Screened @ 90.0' bgs		
95										
100										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	72.0-85.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.4': Concrete cored. Air knife to 5.0' bgs to clear for utilities.	CO							Monument
		0.4-5.0': Silty SAND with gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine gravel, brown, moist, no odor. concrete sub layer at 2.5' bgs. Brick, wood and metal debris.	FILL							
5		5.0-8.0': Silty SAND with gravel (60% sand, 20% gravel, 20% silt), fine to coarse sand, fine gravel, brown moist, no odor. Wood debris throught core.	FILL				0.0	Soil Screened @ 5.0' bgs		Bentonite
		8.0-10.0': No Recovery.								
10		10.0-12.0': Silty SAND (60% sand, 30% silt, 10% gravel), fine sand, fine gravel, gray, moist, no odor. Wood debris at 12.0' bgs.	FILL		60		0.0	Soil Screened @ 10.0' bgs		
		12.0-15.0.': Silty SAND with gravel (70% sand, 15% silt, 15% gravel), fine sand, fine gravel, gray, moist, no odor. Wood debris.	FILL							
15		15.0-20.0.': Silty SAND (70% sand, 30% silt), fine sand, fine gravel, grayish brown, moist, organic like odor. Wood debris.	FILL				0.0	Soil Screened @ 15.0' bgs		Casing
20		20.0-25.0': Sandy SILT (80% silt, 20% sand), fine sand, dark brown, moist to wet, organic like odor. organic matter and some wood debris present.	FILL		100		17.3	Soil Screened @ 20.0' bgs		

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 90.0 - 100.0

Filter Pack: 12/20 Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: X: NA
Y: NA

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Boring/Well Construction Details
25	25.0-25.6': Sandy SILT (80% silt, 20% sand), medium sand, gray, moist, no odor.	ML	100		19.3	Soil Screened @ 25.0' bgs	Water level
	25.6-27.6': Sandy SILT (90% silt, 10% sand), fine sand, gray, moist, no odor.	ML					
	27.6-30.0': Silty SAND (70% sand, 30% silt), fine sand, gray moist, no odor.	SM					
30	30.0-31.0': Silty SAND (70% sand, 30% silt), fine sand, gray moist, no odor.	SM	70		3.6	Soil Screened @ 30.0' bgs	Bentonite
	31.0-33.5': Poorly graded SAND (90% sand, 5% silt, 5% gravel), medium sand, grayish brown, moist, no odor.	SP					
	33.5-35.0': No Recovery.						
35	35.0-39.0': Poorly graded SAND (90% sand, 10% silt), medium sand, grayish brown, moist, no odor.	SP	80				
	39.0-40.0': No Recovery.				1.0	Soil Screened @ 39.0' bgs	
40	40.0-45.0': Poorly graded SAND (90% sand, 5% silt, 5% gravel), medium sand, grayish brown, moist, no odor.	SP	100				Casing

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	90.0 - 100.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Boring/Well Construction Details
45	45.0-50.0': Poorly graded SAND (85% sand, 10% gravel, 5% silt), medium sand, grayish brown, moist, no odor.	SP					Casing
50	50.0-52.0': Silty SAND with gravel (60% sand, 20% gravel, 20% silt), medium to coarse sand, fine to coarse gravel, cobbles present, brown, wet, no odor.	SM	100		0.4	Soil Screened @ 50.0' bgs	
	52.0-55.0': Sandy SILT with gravel (60% silt, 25% sand, 15% gravel), fine to coarse sand, fine gravel, cobbles present, brown, moist to wet, no odor.	ML					
55	55.0-60.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, wet, no odor.	ML			0.5	Soil Screened @ 55.0' bgs	Bentonite
60	60.0-64.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, wet, no odor.	ML	100		1.0	Soil Screened @ 60.0' bgs	Casing
	64.0-65.0': Gravely SILT with sand (50% silt, 30% gravel, 20% sand), fine to coarse sand, fine to coarse gravel, cobbles present, moist no odor.	ML					
65		ML			0.2	Soil Screened @ 65.0' bgs	

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	90.0 - 100.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
		65.0-65.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, moist, no odor.								
		68.0-70.0': Sandy SILT (70% silt, 20% sand, 10% gravel), fine sand, gray, moist, no odor.	ML							
70		70.0-80.0': Poorly graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist to wet, no odor.	SP-SM		100		0.1	Soil Screened @ 70.0' bgs		Casing
75										Bentonite
80		80.0-90.0': Poorly graded SAND (98% sand, 2% silt), medium sand, gray, moist to wet, no odor.	SP		100		0.3	Soil Screened @ 80.0' bgs		
85										Casing

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	90.0 - 100.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
90		90.0-100.0': Poorly graded SAND (98% sand, 2% silt), medium sand, gray, wet, no odor.	SP		100		0.4	Soil Screened @ 90.0' bgs		Sand Pack
95										Screen (Pre-Packed)
100					100		0.4	Soil Screened @ 100.0' bgs		
105										
110										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	90.0 - 100.0	**Boring Abandonment:**	NA		**Y:** NA

FARALLON CONSULTING

Log of Test Pit: NGas-1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 1100
Date/Time Completed: 1/26/19 @ 1140
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.0
Total Excavation Depth (ft bgs): 3.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.7': Concrete.	CO				
		0.7-1.8': Well-graded SAND with silt and gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine gravel, brown, moist, no odor. Geotextile fabric at 1.5' bgs.	SW-SM				
		1.8-3.0': Silty SAND with gravel (60% sand, 25% silt, 15% gravel), fine to coarse sand, fine gravel, dark brown, moist, wet at 3.0' bgs, no odor. Gas line encountered at 3.0' bgs. Water fills test pit.	SM				
5							

FARALLON CONSULTING

Log of Test Pit: NGas-2

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 0900
Date/Time Completed: 1/26/19 @ 1100
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.5
Total Excavation Depth (ft bgs): 5.1

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.5': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% sand), fine to coarse sand, fine and coarse gravel, dark brown, moist, no odor, trace brick fragments.	SW-SM				
		4.5-5.0': Poorly graded gravel (100% gravel), fine fravel, gray, wet, utilities backfill.	GP				
5		5.0-5.1': Rotting wood. Water fills testpit.	WD				

FARALLON CONSULTING

Log of Test Pit: PH-1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 0925
Date/Time Completed: 1/26/19 @ 1000
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.5
Total Excavation Depth (ft bgs): 4.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.6': Concrete.	CO				
		0.6-4.0': Poorly graded SAND (95% sand, 5% gravel), fine and medium sand, fine gravel, grayish brown, moist, wet at 3.5' bgs, no odor. Water fills test pit, unable to log below water.	SP				
					0.0	PH-1-4.0-012619	
5							

FARALLON CONSULTING

Log of Test Pit: PH-2

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started:	1/26/19 @ 0900	**Sampler Type:**	Hand Auger
Date/Time Completed:	1/26/19 @ 1100	**Depth of Water (ft bgs):**	4.5
Equipment:	Airknife	**Total Excavation Depth (ft bgs):**	5.1
Excavation Company:	APS		
Excavation Foreman:	NA		
Excavating Method:	Airknife		

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.5': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% sand), fine to coarse sand, fine and coarse gravel, dark brown, moist, wet at 4.5' bgs, no odor, trace brick fragments. Gas line found at 4.5' bgs.	SW-SM				
		4.5-5.0': Poorly graded GRAVEL (100% gravel), fine gravel, gray, wet, utilitiy backfill.	GP				
5		5.0-5.1': Rotting wood.	WD				

FARALLON CONSULTING

Log of Test Pit: PH-4

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 1115
Date/Time Completed: 1/26/19 @ 1200
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 5.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-3.0': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% silt), fine to coarse sand, fine and coarse gravel, drk brown, moist, trace concrete blocks, brick, wood, plastic and metal debris.	SW-SM				
		3.0-4.0': Fill (100% gravel), fine gravel, gray, moist. Gas line at 3.5' bgs,	FILL				
		4.0-5.0': SILT with sand and gravel (70% silt, 15% sand, 15% gravel) fine and medium sand, fine gravel, dark brown, moist, no odor.	ML		12.3	PH-4-4.5-012619	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-11

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started:	1/26/19 @ 1230	**Sampler Type:**	Hand Auger
Date/Time Completed:	1/26/19 @ 1320	**Depth of Water (ft bgs):**	4.2
Equipment:	Airknife	**Total Excavation Depth (ft bgs):**	4.2
Excavation Company:	APS		
Excavation Foreman:	NA		
Excavating Method:	Airknife		

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO				
		0.9-3.8': Well-graded SAND with silt and gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine and coarse gravel, dark brown, moist, trace rocks, brick, wood, and metal debris.	SW-SM				
		3.7-4.2': Utility Conduits.					
		4.2-4.4': Wood, wet. Unable to advance further.	WD				
5							

FARALLON CONSULTING

Log of Test Pit: PH-11A

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 1240
Date/Time Completed: 1/19/19 @ 1310
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.5
Total Excavation Depth (ft bgs): 4.5

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.0': Silty SAND with gravel (50% sand, 35% silt, 15% gravel), fine and medium sand, fine gravel, dark brown, moist, no odor.	SM				
		4.0-4.5': Sandy SILT (60% silt, 40% sand), fill, wood fragements, dark brown, wet, no odor.	ML		4.1	PH-11A-4.0-091919	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-12

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 0930
Date/Time Completed: 1/19/19 @ 1015
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.0
Total Excavation Depth (ft bgs): 4.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO				
		0.9-1.5': Well-graded GRAVEL with silt and sand (70% gravel, 20% sand, 10% silt), fine to coarse sand, fine and coarse gravel, brown, dry, no odor. Geotextile fabric at 1.5' bgs.	GW-GM				
		1.5-3.0': Concrete/rock blocks.	CO				
		3.0-4.0': Sandy SILT (60% silt, 40% sand), fine and medium sand, dark brown, moist, wet at 4.0 bgs, petroleum-like odor, trace organic plant matter. Water fills pothole at 4.0' bgs.	ML				
					127.5	PH-12-4.0-011919	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-13

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/12/19 @ 0840
Date/Time Completed: 1/12/19 @ 1015
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Pothole Digger
Depth of Water (ft bgs): 3.0
Total Excavation Depth (ft bgs): 5.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.7': Concrete.	CO				
		0.7-1.5': Fill (70% sand, 30% gravel), fine and medium sand, fine and coarse gravel, grayish brown, dry to moist, no odor.	FILL				
		1.5-4.0': Poorly graded SAND (90% sand, 10% gravel), fine and medium sand, fine gravel, dry, wet at 3.0' bgs, no odor, well cemented. Well-graded gravel in hole to 3.0'bgs. 4.0-5.0' bgs not logged due to water.	SP		0.0	PH-13-3.0-011218	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-13A

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 0845
Date/Time Completed: 1/19/19 @ 0910
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.5
Total Excavation Depth (ft bgs): 3.5

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO				
		0.9-1.3': Well-graded GRAVEL with silt and sand (75% gravel, 15% sand, 10% silt), fine to coarse sand, fine and coarse gravel, brown, dry, no odor, road base. Geotextile fabric at 1.3' bgs.	GW-GM				
		1.3-3.5': Poorly graded SAND with gravel (85% sand, 15% gravel), medium and coarse sand, fine gravel. (Airknife operator says CDF). 3.0-5.0' bgs water fills test pit.	SP				
5							

APPENDIX B
LABORATORY ANALYTICAL REPORTS

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Folsom | Irvine

DATA VALIDATION REPORT

ALLEY AREA OF BLOCK 38 WEST SITE
BETWEEN REPUBLICAN STREET AND MERCER STREET
SEATTLE, WASHINGTON

Agreed Order No. DE 17963
Facility Site Identification No. 62773
Cleanup Site Identification No. 15008

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 397-019

For:
City Investors IX LLC
505 5th Avenue South
Seattle, Washington 98104

February 3, 2021

Prepared by:

Jeanette Mullin, L.G.
Environmental Data Manager

Reviewed by:

Suzy Stumpf, P.E.
Principal Engineer

TABLE OF CONTENTS

TABLES

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Data Validation Report to provide a summary of quality assurance (QA) data validation findings for samples that were collected during the supplemental subsurface investigation in the east-adjacent alley at the Block 38 West Site. Data validation was performed for the following environmental samples:

This review of project data was performed using the *Alley Supplemental Subsurface Investigation Sampling and Analysis Plan (SAP)* dated June 15, 2020, prepared by Farallon; and the *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA-540-R-2017-002), dated January 2017, and the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA-540-R-2017-001) dated January 2017, both prepared by the U.S. Environmental Protection Agency (EPA).

This report includes a review of holding times, method blanks, matrix spike and spike blank recoveries, matrix spike duplicate and spike blank duplicate data, duplicates, surrogates, and chain-of-custody records. As shown on Table 1, select soil samples were analyzed for total petroleum hydrocarbons (TPH) as diesel- and oil-range organics by Northwest Method NWTPH-Dx, TPH as the gasoline-range organics by Northwest Method NWTPH-Gx, volatile organic compounds by EPA Method 8021B, semivolatile organic compounds by EPA Method 8270E/Selective Ion Monitoring (SIM) mode, metals by EPA Method 6010D, and mercury by EPA Method 7471B.

Project Name:	Alley Area of Block 38 West Site
Project No.:	397-019
Lab Name:	OnSite Environmental Inc. (OnSite), Redmond, Washington
Lab Reference No.:	2002-032 and -032B
	2002-069
	2002-223
	2002-275
	2002-293
	2002-303
	2009-116 and -116B
Matrix:	Soil

Table 1 identifies the soil samples analyzed by OnSite, the analytical methods used to analyze each sample, and the Sample Delivery Group (SDG) within which each sample was analyzed. Data qualified during this validation effort is summarized in Table 2 and discussed in the sections below. All data are of known quality and are acceptable for use. No results were rejected as a result of this data assessment.

1.1 DATA QUALIFIER DEFINITIONS

Following are definitions of data qualifiers used during data validation:

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however, the reporting limit is estimated due to non-conformances identified during data validation.

1.2 CHAIN-OF-CUSTODY

Field chain-of-custody forms were complete. All chain-of-custody forms were signed and dated. No issues with sample receipt conditions were indicated in the Case Narrative section of the laboratory reports except as noted below. All samples listed on the chain-of-custody forms were analyzed as indicated.

SDG 2002-223: Soil samples I3-B-15.0, I3-B-20.0, N2-B-10.0, and N2-B-15.0 were received by the laboratory 2 hours outside the 48-hour holding time specified for preservation of samples to be analyzed by Northwest Method NWTPH-Gx and EPA Method 8021B. The non-detect results for these samples are qualified as non-detected estimated (UJ) as shown in Table 2.

SDG 2002-116: Low sample weight was provided in the VOA vial containers for soil samples FB-13-20.0, FB-13-17.5, FB-12-20.0 and FB-12-17.5 for analysis by Northwest Method NWTPH-Gx and EPA Method 8021B. As a result, the reporting limits for these analyses are elevated. No qualification of results is needed.

1.3 COMPLETENESS

Completeness is expressed as the ratio of valid results to the amount of data expected to be obtained under normal conditions. Completeness is determined by assessing the number of samples for which valid results were obtained versus the number of samples that were submitted to the laboratory for analysis. Valid results are results that are determined to be usable during the data validation review process.

The completeness goal specified in the SAP is 95 percent. The completeness of this data set is 100 percent.

2.0 PETROLEUM HYDROCARBON NWTPH-DX QA REVIEW

2.1 TIMELINESS AND PRESERVATION

The recommended holding time for Northwest Method NWTPH-Dx soil samples is 14 days to extract and 40 days to analyze after extraction. All samples were extracted and analyzed within holding times.

2.2 LABORATORY QUALITY CONTROL SAMPLES

2.2.1 Quality Control Analysis Frequency

Method blanks were analyzed at a minimum frequency of 5 percent (or one per batch). Duplicates were analyzed at one duplicate per set of 10 or fewer samples. These criteria were met for all delivery groups.

2.2.2 Method Blanks

No target analytes were detected in the soil method blanks at or above the reporting limits for all delivery groups.

2.2.3 Laboratory Duplicates

Relative percent differences (RPDs) of all analytes were within the SAP's and laboratory's quality control (QC) limit of 20 percent for all delivery groups except as noted below:

SDG 2002-032: The RPD for lab duplicate number 02-013-02 exceeded the 20 percent control limit; however, the duplicate was performed on a non-project sample where heterogeneity and matrix impacts may be present. No qualification of project samples needed.

SDG 2002-069: The RPD for lab duplicate number 02-081-08 exceeded the 20 percent control limit; however, the duplicate was performed on a non-project sample where heterogeneity and matrix impacts may be present. No qualification of project samples needed.

2.2.4 Surrogate Recoveries

The laboratory used one surrogate spike compound for Method NWTPH-Dx for the soil samples. All surrogate recoveries were within the laboratory's QC limits for all delivery groups.

3.0 PETROLEUM HYDROCARBON NWTPH-GX QA REVIEW

3.1 TIMELINESS AND PRESERVATION

The recommended holding time for Northwest Method NWTPH-Gx preserved soil samples is 14 days. All samples were extracted and analyzed within this period except as noted below:

SDG 2002-032B: Samples H4-ESW-20.0 and H4-ESW2-20.0 were analyzed 7 days outside of holding time. The non-detected gasoline results for these two samples are qualified as non-detected estimated (UJ) as shown in Table 2.

SDG 2002-223: Soil samples I3-B-15.0, I3-B-20.0, N2-B-10.0, and N2-B-15.0 were received by the laboratory 2 hours outside the 48-hour holding time specified for preservation of samples to be analyzed by Northwest Method NWTPH-Gx as noted in Section 1.3. The non-detect results for these samples are qualified as non-detected estimated (UJ) as shown in Table 2.

3.2 LABORATORY QUALITY CONTROL SAMPLES

3.2.1 Quality Control Analysis Frequency

Method blanks and duplicates were analyzed at a frequency of one method blank and one sample duplicate per 10 samples. These criteria were met for all delivery groups.

3.2.2 Method Blanks

No target analytes were detected at or exceeding the reporting limits in the method blanks for all delivery groups.

3.2.3 Laboratory Duplicates

RPDs of all analytes were within the SAP's and laboratory's QC limit of 20 percent for all delivery groups.

3.2.4 Surrogate Recoveries

The laboratory used one surrogate spike compound for Method NWTPH-Gx. All surrogate recoveries were within the laboratory's QC limits for all delivery groups.

4.0 VOLATILE ORGANIC COMPOUND QA REVIEW

4.1 TIMELINESS

The recommended holding time for EPA Method 8021B is 14 days for preserved soil samples. All samples were extracted and analyzed within this period except as noted below:

SDG 2002-223: Soil sample I3-B-20.0 was received by the laboratory 2 hours outside the 48-hour holding time specified for preservation of samples to be analyzed by EPA Method 8021B as noted in Section 1.3. The non-detect results for this sample are qualified as non-detected estimated (UJ) as shown in Table 2.

4.2 LABORATORY QUALITY CONTROL SAMPLES

4.2.1 Quality Control Analysis Frequency

Method blanks, spike blanks/spike blank duplicates, and duplicates were analyzed at a frequency of 5 percent (or one per batch). These criteria were met for all delivery groups.

4.2.2 Method Blanks

No target analytes were detected at or exceeding the reporting limits in the method blanks for all delivery groups.

4.2.3 Laboratory Control Samples (Spike Blanks/Spike Blank Duplicates)

Recoveries and RPDs of all analytes were within the laboratory's QC limits for all delivery groups.

4.2.4 Laboratory Duplicates

RPDs of all analytes were within the SAP's and laboratory's QC limit of 20 percent for all delivery groups.

4.2.5 Surrogate Recoveries

The laboratory used one surrogate spike compound for EPA Method 8021B. All surrogate recoveries were within the laboratory's QC limits for all delivery groups

5.0 SEMIVOLATILE ORGANIC COMPOUND QA REVIEW

5.1 TIMELINESS

The recommended holding time for EPA Method 8270E/SIM soil samples is 14 days to extract and 40 days to analyze after extraction. All samples were extracted and analyzed within this period.

5.2 LABORATORY QUALITY CONTROL SAMPLES

5.2.1 Quality Control Analysis Frequency

Method blanks and spike blanks/spike blank duplicates (or matrix spikes/matrix spike duplicates) were analyzed at a minimum frequency of 5 percent (or one per batch). These criteria were met for all delivery groups.

5.2.2 Method Blanks

No target analytes were detected at or exceeding the reporting limits in the method blanks for all delivery groups.

5.2.3 Spike Blanks/Spike Blank Duplicates and/or Matrix Spikes/Matrix Spike Duplicates

Recoveries and RPDs of all analytes were within the SAP's and laboratory's QC limits for all delivery groups.

5.2.4 Surrogate Recoveries

The laboratory used three surrogate spike compounds for EPA Method 8270E/SIM for soil samples. Surrogate recoveries were within the laboratory's QC limits for all delivery groups except as noted below:

SDG 2002-032: No surrogate recovery could be obtained for sample I4-ESW-20.0 due to the necessary dilution of the sample to allow the instrument to measure elevated concentrations of the target analytes. No qualifications of the sample results are needed.

6.0 METALS QA REVIEW

6.1 TIMELINESS

The recommended holding time for EPA Method 6010D is 6 months for soil samples. The recommended holding time for EPA Method 7471B (mercury in soil) is 28 days. All samples were extracted and analyzed within holding times.

6.2 LABORATORY QUALITY CONTROL SAMPLES

6.2.1 Quality Control Analysis Frequency

Method blanks, spike blanks/spike blank duplicates, and duplicates were analyzed at a frequency of 5 percent (or one per batch). These criteria were met for all delivery groups.

6.2.2 Method Blanks

No target analytes were detected in the soil method blanks at or exceeding the reporting limits.

6.2.3 Matrix Spikes/Matrix Spike Duplicates

Recoveries and RPDs of all analytes were within the laboratory's QC limits for all delivery groups.

6.2.4 Laboratory Duplicates

RPDs of all analytes were within the SAP's and laboratory's QC limit of 20 percent for all delivery groups.

7.0 REFERENCES

Farallon Consulting, L.L.C. 2020. *Sampling and Analysis Plan, Alley Supplemental Subsurface Investigation, Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington.* Prepared for City Investors IX LLC. June 15.

U.S. Environmental Protection Agency (EPA). 2017a. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* OLEM 9355.0-135, EPA-540-R-2017-001. January.

———. 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review.* OLEM 9355.0-136, EPA-540-R-2017-002. January.

TABLES

DATA VALIDATION REPORT
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

Table 1
Overview of Soil Sample Analyses
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Identification	Matrix	Sample Date	Analytical Method				
			NWTPH-Dx	NWTPH-Gx	EPA 8021B	EPA 8270E/SIM	EPA 6010D/7471B
Sample Delivery Group 2002-032/032B							
K1-WSW-20.0	Soil	2/4/2020	X				
TP-11-20.0	Soil	2/4/2020	X				
TP-11-15.0	Soil	2/4/2020	X			X	
TP-11-10.0	Soil	2/4/2020	X			X	
K4-ESW-20.0	Soil	2/4/2020	X			X	
H4-ESW-20.0	Soil	2/4/2020	X	X		X	
H4-ESW2-20.0	Soil	2/4/2020	X	X		X	
J4-ESW-20.0	Soil	2/4/2020	X			X	
I4-ESW-20.0	Soil	2/4/2020	X			X	
Sample Delivery Group 2002-069							
N4-ESW-20.0	Soil	2/6/2020	X			X	
M4-ESW-20.0	Soil	2/6/2020	X			X	
N4-NSW-20.0	Soil	2/6/2020	X			X	
N2-B-20.0	Soil	2/6/2020	X			X	
M2-B-20.0	Soil	2/6/2020				X	
L2-B-20.0	Soil	2/6/2020				X	
K2-B-20.0	Soil	2/6/2020	X		X	X	
Sample Delivery Group 2002-223							
H1-SSW-20.0	Soil	2/22/2020				X	
M4-B-12.0	Soil	2/22/2020	X				
I3-B-10.0	Soil	2/22/2020				X	
J4-ESW-15.0	Soil	2/22/2020	X			X	
K4-ESW-15.0	Soil	2/22/2020	X			X	
L4-ESW-15.0	Soil	2/22/2020	X			X	
I4-ESW-15.0	Soil	2/22/2020	X			X	
H1-ESW-20.0	Soil	2/22/2020				X	
N1-ESW-15.0	Soil	2/22/2020	X				
N1-B-15.0	Soil	2/22/2020	X				
I3-B-20.0	Soil	2/23/2020	X	X	X	X	
I3-B-15.0	Soil	2/23/2020	X	X		X	
N2-B-15.0	Soil	2/23/2020		X		X	
N2-B-10.0	Soil	2/23/2020	X	X		X	

Table 1
Overview of Soil Sample Analyses
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Identification	Matrix	Sample Date	Analytical Method				
			NWTPH-Dx	NWTPH-Gx	EPA 8021B	EPA 8270E/SIM	EPA 6010D/7471B
Sample Delivery Group 2002-275							
M1-ESW-10.0	Soil	2/26/2020				X	
L3-B-10.0	Soil	2/26/2020				X	
K4-B-15.0	Soil	2/26/2020	X			X	
K4-B-10.0	Soil	2/26/2020	X			X	
J2-B-15.0	Soil	2/26/2020				X	
G2-B-15.0	Soil	2/26/2020				X	
F2-B-15.0	Soil	2/26/2020				X	
D2-B-15.0	Soil	2/26/2020				X	
B2-B-15.0	Soil	2/26/2020				X	
C2-B-15.0	Soil	2/26/2020				X	
G3-B-15.0	Soil	2/26/2020				X	
E4-ESW-15.0	Soil	2/26/2020				X	
G4-ESW-15.0	Soil	2/26/2020				X	
H4-ESW-15.0	Soil	2/26/2020	X	X		X	
F4-ESW-15.0	Soil	2/26/2020				X	
Sample Delivery Group 2002-293							
H4-SSW-15.0	Soil	2/27/2020	X	X		X	
H1-B-15.0	Soil	2/27/2020				X	
H1-SSW-15.0	Soil	2/27/2020				X	
H1-ESW-15.0	Soil	2/27/2020				X	
D3-B-15	Soil	2/27/2020				X	
C3-B-15	Soil	2/27/2020				X	
D4-ESW-15	Soil	2/27/2020				X	
C4-ESW-15	Soil	2/27/2020				X	
B3-B-15	Soil	2/27/2020				X	

Table 1
Overview of Soil Sample Analyses
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Identification	Matrix	Sample Date	Analytical Method				
			NWTPH-Dx	NWTPH-Gx	EPA 8021B	EPA 8270E/SIM	EPA 6010D/7471B
Sample Delivery Group 2002-303							
D4-ESW-19.0	Soil	2/28/2020				X	
C4-ESW-19.0	Soil	2/28/2020				X	
G3-B-10.0	Soil	2/28/2020				X	
H3-B-10.0	Soil	2/28/2020				X	
K3-B-10.0	Soil	2/28/2020				X	
L4-SSW-10.0	Soil	2/28/2020				X	
L2-B-10.0	Soil	2/28/2020				X	
J2-B-10.0	Soil	2/28/2020				X	
I2-B-10.0	Soil	2/28/2020				X	
Sample Delivery Group 2009-116/116B							
FB-12-15.0	Soil	9/13/2020				X	
FB-12-21.5	Soil	9/13/2020					X
FB-13-15.0	Soil	9/12/2020	X			X	
FB-13-20.0	Soil	9/12/2020					X
FB-13-22.5	Soil	9/12/2020				X	X
FB-14-20.0	Soil	9/12/2020					X
FB-14-22.5	Soil	9/12/2020					X
FB-15-15.0	Soil	9/13/2020				X	
FB-15-17.5	Soil	9/13/2020					X
FB-15-20.0	Soil	9/13/2020					X
FB-15-22.5	Soil	9/13/2020					X

NOTES:

An "X" indicates the sample was analyzed by the method specified in that column.

Table 2
Summary of Qualified Data
Block 38 Alley
Seattle, Washington
Farallon PN: 397-019

Sample Identification	SDG	Matrix	Method	Analyte	Qualifier	Reason
H4-ESW-20.0	2002-032B	Soil	NWTPH-Gx	Gasoline	UJ	Sample analyzed outside of holding time
H4-ESW2-20.0	2002-032B	Soil	NWTPH-Gx	Gasoline	UJ	Sample analyzed outside of holding time
I3-B-15.0	2002-223	Soil	NWTPH-Gx	Gasoline	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	NWTPH-Gx	Gasoline	UJ	Sample received outside of preservation holding time
N2-B-10.0	2002-223	Soil	NWTPH-Gx	Gasoline	UJ	Sample received outside of preservation holding time
N2-B-15.0	2002-223	Soil	NWTPH-Gx	Gasoline	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	EPA 8021B	Benzene	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	EPA 8021B	Toluene	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	EPA 8021B	Ethylbenzene	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	EPA 8021B	m,p-Xylene	UJ	Sample received outside of preservation holding time
I3-B-20.0	2002-223	Soil	EPA 8021B	o-Xylene	UJ	Sample received outside of preservation holding time

NOTES:
SDG = sample delivery group
UJ = analyte not detected above the laboratory reporting limit and reporting limit is an estimate

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

September 16, 2020

Suzy Stumpf
Farallon Consulting
1809 7th Avenue, Suite 1111
Seattle, WA 98101

Re: Analytical Data for Project 397-019
Laboratory Reference No. 2009-116

Dear Suzy:

Enclosed are the analytical results and associated quality control data for samples submitted on September 14, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

Case Narrative

Samples were collected on September 12 and 13, 2020 and received by the laboratory on September 14, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

NWTPH-Gx/BTEX Analysis

The MTCA Method A cleanup level of 0.030 ppm for Benzene and the MTCA Method A cleanup level of 30.0 ppm for fresh gasoline are not achievable for samples FB-13-20.0, FB-13-17.5, FB-12-20.0 and FB-12-17.5 due to the low dry weight of the samples in addition to the low sample weight in the provided VOA vials

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

GASOLINE RANGE ORGANICS/BTEX
NWTPH-Gx/EPA 8021B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-20.0**					
Laboratory ID:	09-116-07					
Benzene	**ND**	0.070	EPA 8021B	9-15-20	9-15-20	
Toluene	**ND**	0.35	EPA 8021B	9-15-20	9-15-20	
Ethyl Benzene	**ND**	0.35	EPA 8021B	9-15-20	9-15-20	
m,p-Xylene	**ND**	0.35	EPA 8021B	9-15-20	9-15-20	
o-Xylene	**ND**	0.35	EPA 8021B	9-15-20	9-15-20	
Gasoline	**ND**	35	NWTPH-Gx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*58-129*				
Client ID:	**FB-13-17.5**					
Laboratory ID:	09-116-08					
Benzene	**ND**	0.10	EPA 8021B	9-15-20	9-15-20	
Toluene	**ND**	0.51	EPA 8021B	9-15-20	9-15-20	
Ethyl Benzene	**ND**	0.51	EPA 8021B	9-15-20	9-15-20	
m,p-Xylene	**ND**	0.51	EPA 8021B	9-15-20	9-15-20	
o-Xylene	**ND**	0.51	EPA 8021B	9-15-20	9-15-20	
Gasoline	**ND**	51	NWTPH-Gx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*97*	*58-129*				
Client ID:	**FB-12-20.0**					
Laboratory ID:	09-116-19					
Benzene	**ND**	0.083	EPA 8021B	9-15-20	9-15-20	
Toluene	**ND**	0.41	EPA 8021B	9-15-20	9-15-20	
Ethyl Benzene	**ND**	0.41	EPA 8021B	9-15-20	9-15-20	
m,p-Xylene	**ND**	0.41	EPA 8021B	9-15-20	9-15-20	
o-Xylene	**ND**	0.41	EPA 8021B	9-15-20	9-15-20	
Gasoline	**ND**	41	NWTPH-Gx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*58-129*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

GASOLINE RANGE ORGANICS/BTEX
NWTPH-Gx/EPA 8021B

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-17.5**					
Laboratory ID:	09-116-20					
Benzene	**ND**	0.075	EPA 8021B	9-15-20	9-15-20	
Toluene	**ND**	0.38	EPA 8021B	9-15-20	9-15-20	
Ethyl Benzene	**ND**	0.38	EPA 8021B	9-15-20	9-15-20	
m,p-Xylene	**ND**	0.38	EPA 8021B	9-15-20	9-15-20	
o-Xylene	**ND**	0.38	EPA 8021B	9-15-20	9-15-20	
Gasoline	**ND**	38	NWTPH-Gx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*106*	*58-129*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

GASOLINE RANGE ORGANICS/BTEX
NWTPH-Gx/EPA 8021B
QUALITY CONTROL

Matrix: Soil
Units: mg/kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Benzene	**ND**	0.020	EPA 8021B	9-15-20	9-15-20	
Toluene	**ND**	0.050	EPA 8021B	9-15-20	9-15-20	
Ethyl Benzene	**ND**	0.050	EPA 8021B	9-15-20	9-15-20	
m,p-Xylene	**ND**	0.050	EPA 8021B	9-15-20	9-15-20	
o-Xylene	**ND**	0.050	EPA 8021B	9-15-20	9-15-20	
Gasoline	**ND**	5.0	NWTPH-Gx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*99*	*58-129*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-116-07										
	ORIG	DUP									
Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*97*	*95*	*58-129*			
SPIKE BLANKS											
Laboratory ID:	SB0915S1										
	SB	SBD	SB	SBD		SB	SBD				
Benzene	**0.823**	**0.830**	1.00	1.00		**82**	**83**	68-112	1	10	
Toluene	**0.863**	**0.873**	1.00	1.00		**86**	**87**	70-114	1	10	
Ethyl Benzene	**0.866**	**0.881**	1.00	1.00		**87**	**88**	70-115	2	10	
m,p-Xylene	**0.866**	**0.877**	1.00	1.00		**87**	**88**	69-117	1	11	
o-Xylene	**0.884**	**0.893**	1.00	1.00		**88**	**89**	71-115	1	11	
Surrogate:											
Fluorobenzene						*100*	*100*	*58-129*			

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-20.0**					
Laboratory ID:	09-116-07					
Diesel Range Organics	**86**	70	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**1400**	140	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*55*	*50-150*				
Client ID:	**FB-13-17.5**					
Laboratory ID:	09-116-08					
Diesel Range Organics	**160**	100	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**2700**	200	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*52*	*50-150*				
Client ID:	**FB-11-20.0**					
Laboratory ID:	09-116-10					
Diesel Range Organics	**72**	45	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**470**	91	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*75*	*50-150*				
Client ID:	**FB-11-17.5**					
Laboratory ID:	09-116-11					
Diesel Range Organics	**ND**	59	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**ND**	120	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*72*	*50-150*				
Client ID:	**FB-14-20.0**					
Laboratory ID:	09-116-17					
Diesel Range Organics	**32**	29	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**150**	58	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*75*	*50-150*				
Client ID:	**FB-12-20.0**					
Laboratory ID:	09-116-19					
Diesel Range Organics	**170**	93	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**1600**	190	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*60*	*50-150*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-17.5**					
Laboratory ID:	09-116-20					
Diesel Range Organics	**ND**	94	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**1300**	190	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*68*	*50-150*				
Client ID:	**FB-14-17.5**					
Laboratory ID:	09-116-23					
Diesel Range Organics	**ND**	65	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**510**	130	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*70*	*50-150*				
Client ID:	**FB-15-22.5**					
Laboratory ID:	09-116-25					
Diesel Range Organics	**ND**	140	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**1500**	270	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*78*	*50-150*				
Client ID:	**FB-15-20.0**					
Laboratory ID:	09-116-26					
Diesel Range Organics	**ND**	30	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**160**	59	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*77*	*50-150*				
Client ID:	**FB-15-17.5**					
Laboratory ID:	09-116-27					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*74*	*50-150*				
Client ID:	**FB-16-22.5**					
Laboratory ID:	09-116-30					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**110**	57	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*74*	*50-150*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-16-20.0**					
Laboratory ID:	09-116-31					
Diesel Range Organics	**ND**	28	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**ND**	56	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*74*	*50-150*				
Client ID:	**FB-16-17.5**					
Laboratory ID:	09-116-32					
Diesel Range Organics	**130**	110	NWTPH-Dx	9-15-20	9-15-20	N
Lube Oil Range Organics	**1000**	210	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*52*	*50-150*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-15-20	9-15-20	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*90*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-116-31										
	ORIG	DUP									
Diesel Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*74*	*73*	*50-150*			
Laboratory ID:	SB0915S1										
	ORIG	DUP									
Diesel Fuel #2	**94.2**	**92.6**	NA	NA		NA		NA	2	NA	
Lube Oil Range	**ND**	**ND**	NA	NA		NA		NA	NA	NA	
Surrogate:											
o-Terphenyl						*88*	*87*	*50-150*			

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-10-22.5**					
Laboratory ID:	09-116-01					
Benzo[a]anthracene	**0.58**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**0.68**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**0.71**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.17**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**0.61**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**0.37**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.065**	0.045	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*78*	*46 - 113*				
Pyrene-d10	*83*	*45 - 114*				
Terphenyl-d14	*86*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-10-20.0**					
Laboratory ID:	09-116-02					
Benzo[a]anthracene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.0097	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*71*	*46 - 113*				
Pyrene-d10	*67*	*45 - 114*				
Terphenyl-d14	*67*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-10-17.5**					
Laboratory ID:	09-116-03					
Benzo[a]anthracene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.016	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*47*	*46 - 113*				
Pyrene-d10	*46*	*45 - 114*				
Terphenyl-d14	*49*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

SEMIVOLATILE ORGANICS EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-22.5**					
Laboratory ID:	09-116-06					
Naphthalene	**4.1**	0.077	EPA 8270E/SIM	9-15-20	9-16-20	
2-Methylnaphthalene	**4.1**	0.077	EPA 8270E/SIM	9-15-20	9-16-20	
1-Methylnaphthalene	**3.4**	0.077	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*63*	*46 - 113*				
Pyrene-d10	*72*	*45 - 114*				
Terphenyl-d14	*76*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
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Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-20.0**					
Laboratory ID:	09-116-07					
Naphthalene	**0.40**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
2-Methylnaphthalene	**0.11**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
1-Methylnaphthalene	**0.084**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]anthracene	**0.55**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.50**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.53**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**0.16**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.55**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.30**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**0.046**	0.019	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*64*	*46 - 113*				
Pyrene-d10	*59*	*45 - 114*				
Terphenyl-d14	*55*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-17.5**					
Laboratory ID:	09-116-08					
Benzo[a]anthracene	**1.9**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**1.6**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**1.8**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.46**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**1.8**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**1.0**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.15**	0.027	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*70*	*46 - 113*				
Pyrene-d10	*65*	*45 - 114*				
Terphenyl-d14	*62*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-11-20.0**					
Laboratory ID:	09-116-10					
Benzo[a]anthracene	**0.50**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.52**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.62**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**0.17**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.54**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.37**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**0.058**	0.012	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*57*	*46 - 113*				
Pyrene-d10	*58*	*45 - 114*				
Terphenyl-d14	*53*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-11-17.5**					
Laboratory ID:	09-116-11					
Benzo[a]anthracene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Chrysene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[b]fluoranthene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo(j,k)fluoranthene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[a]pyrene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Dibenz[a,h]anthracene	**ND**	0.016	EPA 8270E/SIM	9-16-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*69*	*46 - 113*				
Pyrene-d10	*67*	*45 - 114*				
Terphenyl-d14	*72*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-14-22.5**					
Laboratory ID:	09-116-16					
Naphthalene	**0.18**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
2-Methylnaphthalene	**0.21**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
1-Methylnaphthalene	**0.15**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]anthracene	**2.8**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**2.6**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**2.4**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.78**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**2.4**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**1.4**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.24**	0.073	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*46 - 113*				
Pyrene-d10	*93*	*45 - 114*				
Terphenyl-d14	*100*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-14-20.0**					
Laboratory ID:	09-116-17					
Naphthalene	**0.14**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
2-Methylnaphthalene	**0.14**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
1-Methylnaphthalene	**0.13**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]anthracene	**1.7**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**1.6**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**1.6**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.47**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**1.8**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**0.97**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.16**	0.039	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*66*	*46 - 113*				
Pyrene-d10	*72*	*45 - 114*				
Terphenyl-d14	*80*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

SEMIVOLATILE ORGANICS EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-21.5**					
Laboratory ID:	09-116-18					
Naphthalene	**ND**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
2-Methylnaphthalene	**ND**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
1-Methylnaphthalene	**ND**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*62*	*46 - 113*				
Pyrene-d10	*80*	*45 - 114*				
Terphenyl-d14	*76*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-20.0**					
Laboratory ID:	09-116-19					
Benzo[a]anthracene	**0.084**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.085**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.089**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.081**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.058**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*71*	*46 - 113*				
Pyrene-d10	*70*	*45 - 114*				
Terphenyl-d14	*60*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-17.5**					
Laboratory ID:	09-116-20					
Benzo[a]anthracene	**0.21**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.19**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.22**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**0.083**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.25**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.16**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.025	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*76*	*46 - 113*				
Pyrene-d10	*80*	*45 - 114*				
Terphenyl-d14	*75*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-14-17.5**					
Laboratory ID:	09-116-23					
Benzo[a]anthracene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.017	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*54*	*46 - 113*				
Pyrene-d10	*56*	*45 - 114*				
Terphenyl-d14	*50*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-15-22.5**					
Laboratory ID:	09-116-25					
Naphthalene	**0.40**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
2-Methylnaphthalene	**0.32**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
1-Methylnaphthalene	**0.26**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]anthracene	**2.4**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**2.0**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**2.2**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.78**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**2.3**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**1.3**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.24**	0.15	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*60*	*46 - 113*				
Pyrene-d10	*73*	*45 - 114*				
Terphenyl-d14	*72*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-15-20.0**					
Laboratory ID:	09-116-26					
Naphthalene	**0.25**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
2-Methylnaphthalene	**0.34**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
1-Methylnaphthalene	**0.29**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]anthracene	**0.21**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.20**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.20**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**0.064**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.20**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.11**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**0.020**	0.0079	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*67*	*46 - 113*				
Pyrene-d10	*64*	*45 - 114*				
Terphenyl-d14	*65*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-15-17.5**					
Laboratory ID:	09-116-27					
Naphthalene	**0.10**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
2-Methylnaphthalene	**0.040**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
1-Methylnaphthalene	**0.033**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]anthracene	**0.26**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**0.25**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**0.27**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**0.098**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**0.31**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**0.18**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**0.025**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*79*	*46 - 113*				
Pyrene-d10	*86*	*45 - 114*				
Terphenyl-d14	*83*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-16-22.5**					
Laboratory ID:	09-116-30					
Benzo[a]anthracene	**0.45**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Chrysene	**0.45**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[b]fluoranthene	**0.47**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo(j,k)fluoranthene	**0.13**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Benzo[a]pyrene	**0.49**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**0.29**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Dibenz[a,h]anthracene	**0.051**	0.0075	EPA 8270E/SIM	9-15-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*72*	*46 - 113*				
Pyrene-d10	*84*	*45 - 114*				
Terphenyl-d14	*81*	*49 - 121*				

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-16-20.0**					
Laboratory ID:	09-116-31					
Benzo[a]anthracene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.0074	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*74*	*46 - 113*				
Pyrene-d10	*78*	*45 - 114*				
Terphenyl-d14	*80*	*49 - 121*				

Date of Report: September 16, 2020
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Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-16-17.5**					
Laboratory ID:	09-116-32					
Benzo[a]anthracene	**0.032**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Chrysene	**0.055**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[b]fluoranthene	**0.029**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo(j,k)fluoranthene	**ND**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[a]pyrene	**ND**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Dibenz[a,h]anthracene	**ND**	0.029	EPA 8270E/SIM	9-16-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*77*	*46 - 113*				
Pyrene-d10	*81*	*45 - 114*				
Terphenyl-d14	*75*	*49 - 121*				

Date of Report: September 16, 2020
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Project: 397-019

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Naphthalene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*78*	*46 - 113*				
Pyrene-d10	*88*	*45 - 114*				
Terphenyl-d14	*92*	*49 - 121*				

Date of Report: September 16, 2020
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SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916S1					
Naphthalene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
2-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
1-Methylnaphthalene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-16-20	9-16-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*86*	*46 - 113*				
Pyrene-d10	*87*	*45 - 114*				
Terphenyl-d14	*91*	*49 - 121*				

Date of Report: September 16, 2020
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Project: 397-019

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0915S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0675**	**0.0646**	0.0833	0.0833	81	78	60 - 116	4	16	
Acenaphthylene	**0.0674**	**0.0694**	0.0833	0.0833	81	83	60 - 125	3	15	
Acenaphthene	**0.0703**	**0.0724**	0.0833	0.0833	84	87	60 - 121	3	15	
Fluorene	**0.0684**	**0.0724**	0.0833	0.0833	82	87	65 - 126	6	15	
Phenanthrene	**0.0700**	**0.0736**	0.0833	0.0833	84	88	65 - 120	5	15	
Anthracene	**0.0711**	**0.0748**	0.0833	0.0833	85	90	67 - 125	5	15	
Fluoranthene	**0.0714**	**0.0784**	0.0833	0.0833	86	94	66 - 125	9	15	
Pyrene	**0.0755**	**0.0799**	0.0833	0.0833	91	96	62 - 125	6	15	
Benzo[a]anthracene	**0.0790**	**0.0847**	0.0833	0.0833	95	102	72 - 129	7	15	
Chrysene	**0.0764**	**0.0786**	0.0833	0.0833	92	94	66 - 123	3	15	
Benzo[b]fluoranthene	**0.0744**	**0.0816**	0.0833	0.0833	89	98	68 - 128	9	15	
Benzo(j,k)fluoranthene	**0.0718**	**0.0763**	0.0833	0.0833	86	92	63 - 128	6	16	
Benzo[a]pyrene	**0.0772**	**0.0809**	0.0833	0.0833	93	97	66 - 130	5	15	
Indeno(1,2,3-c,d)pyrene	**0.0685**	**0.0751**	0.0833	0.0833	82	90	63 - 135	9	15	
Dibenz[a,h]anthracene	**0.0710**	**0.0803**	0.0833	0.0833	85	96	65 - 130	12	15	
Benzo[g,h,i]perylene	**0.0708**	**0.0798**	0.0833	0.0833	85	96	66 - 127	12	15	
Surrogate:										
2-Fluorobiphenyl					*78*	*82*	*46 - 113*			
Pyrene-d10					*85*	*89*	*45 - 114*			
Terphenyl-d14					*86*	*90*	*49 - 121*			

Date of Report: September 16, 2020
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Laboratory Reference: 2009-116
Project: 397-019

SEMIVOLATILE ORGANICS EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0916S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0720**	**0.0689**	0.0833	0.0833	86	83	60 - 116	4	16	
Acenaphthylene	**0.0751**	**0.0731**	0.0833	0.0833	90	88	60 - 125	3	15	
Acenaphthene	**0.0771**	**0.0752**	0.0833	0.0833	93	90	60 - 121	2	15	
Fluorene	**0.0725**	**0.0706**	0.0833	0.0833	87	85	65 - 126	3	15	
Phenanthrene	**0.0735**	**0.0691**	0.0833	0.0833	88	83	65 - 120	6	15	
Anthracene	**0.0741**	**0.0718**	0.0833	0.0833	89	86	67 - 125	3	15	
Fluoranthene	**0.0704**	**0.0767**	0.0833	0.0833	85	92	66 - 125	9	15	
Pyrene	**0.0751**	**0.0781**	0.0833	0.0833	90	94	62 - 125	4	15	
Benzo[a]anthracene	**0.0789**	**0.0738**	0.0833	0.0833	95	89	72 - 129	7	15	
Chrysene	**0.0740**	**0.0717**	0.0833	0.0833	89	86	66 - 123	3	15	
Benzo[b]fluoranthene	**0.0767**	**0.0690**	0.0833	0.0833	92	83	68 - 128	11	15	
Benzo(j,k)fluoranthene	**0.0722**	**0.0702**	0.0833	0.0833	87	84	63 - 128	3	16	
Benzo[a]pyrene	**0.0768**	**0.0731**	0.0833	0.0833	92	88	66 - 130	5	15	
Indeno(1,2,3-c,d)pyrene	**0.0749**	**0.0716**	0.0833	0.0833	90	86	63 - 135	5	15	
Dibenz[a,h]anthracene	**0.0765**	**0.0726**	0.0833	0.0833	92	87	65 - 130	5	15	
Benzo[g,h,i]perylene	**0.0759**	**0.0723**	0.0833	0.0833	91	87	66 - 127	5	15	
Surrogate:										
2-Fluorobiphenyl					*85*	*84*	*46 - 113*			
Pyrene-d10					*85*	*84*	*45 - 114*			
Terphenyl-d14					*88*	*83*	*49 - 121*			

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-22.5**					
Laboratory ID:	09-116-06					
Arsenic	**ND**	11	EPA 6010D	9-16-20	9-16-20	
Barium	**490**	2.9	EPA 6010D	9-16-20	9-16-20	
Cadmium	**0.73**	0.57	EPA 6010D	9-16-20	9-16-20	
Chromium	**23**	0.57	EPA 6010D	9-16-20	9-16-20	
Lead	**130**	5.7	EPA 6010D	9-16-20	9-16-20	
Mercury	**ND**	0.29	EPA 7471B	9-16-20	9-16-20	
Selenium	**ND**	11	EPA 6010D	9-16-20	9-16-20	
Silver	**ND**	1.1	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-13-20.0**					
Laboratory ID:	09-116-07					
Cadmium	**ND**	1.4	EPA 6010D	9-16-20	9-16-20	
Lead	**96**	14	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-14-22.5**					
Laboratory ID:	09-116-16					
Arsenic	**13**	11	EPA 6010D	9-16-20	9-16-20	
Barium	**68**	2.7	EPA 6010D	9-16-20	9-16-20	
Cadmium	**ND**	0.55	EPA 6010D	9-16-20	9-16-20	
Chromium	**17**	0.55	EPA 6010D	9-16-20	9-16-20	
Lead	**31**	5.5	EPA 6010D	9-16-20	9-16-20	
Mercury	**ND**	0.27	EPA 7471B	9-16-20	9-16-20	
Selenium	**ND**	11	EPA 6010D	9-16-20	9-16-20	
Silver	**ND**	1.1	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-14-20.0**					
Laboratory ID:	09-116-17					
Cadmium	**ND**	0.58	EPA 6010D	9-16-20	9-16-20	
Lead	**50**	5.8	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-12-21.5**					
Laboratory ID:	09-116-18					
Lead	**25**	5.6	EPA 6010D	9-16-20	9-16-20	

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

TOTAL METALS
EPA 6010D/7471B

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-15-22.5**					
Laboratory ID:	09-116-25					
Arsenic	**ND**	11	EPA 6010D	9-16-20	9-16-20	
Barium	**81**	2.7	EPA 6010D	9-16-20	9-16-20	
Cadmium	**ND**	0.54	EPA 6010D	9-16-20	9-16-20	
Chromium	**15**	0.54	EPA 6010D	9-16-20	9-16-20	
Lead	**120**	5.4	EPA 6010D	9-16-20	9-16-20	
Mercury	**ND**	0.27	EPA 7471B	9-16-20	9-16-20	
Selenium	**ND**	11	EPA 6010D	9-16-20	9-16-20	
Silver	**ND**	1.1	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-15-20.0**					
Laboratory ID:	09-116-26					
Cadmium	**ND**	0.59	EPA 6010D	9-16-20	9-16-20	
Lead	**56**	5.9	EPA 6010D	9-16-20	9-16-20	
Client ID:	**FB-15-17.5**					
Laboratory ID:	09-116-27					
Cadmium	**ND**	0.56	EPA 6010D	9-16-20	9-16-20	
Lead	**ND**	5.6	EPA 6010D	9-16-20	9-16-20	

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0916SM1					
Arsenic	**ND**	10	EPA 6010D	9-16-20	9-16-20	
Cadmium	**ND**	0.50	EPA 6010D	9-16-20	9-16-20	
Lead	**ND**	5.0	EPA 6010D	9-16-20	9-16-20	
Selenium	**ND**	10	EPA 6010D	9-16-20	9-16-20	
Silver	**ND**	1.0	EPA 6010D	9-16-20	9-16-20	
Laboratory ID:	MB0916S1					
Mercury	**ND**	0.25	EPA 7471B	9-16-20	9-16-20	
Laboratory ID:	MB0916SM2					
Barium	**ND**	2.5	EPA 6010D	9-16-20	9-16-20	
Chromium	**ND**	0.50	EPA 6010D	9-16-20	9-16-20	

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

TOTAL METALS
EPA 6010D/7471B
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	09-116-18										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Cadmium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Lead	**21.9**	**22.5**	NA	NA		NA		NA	3	20	
Selenium	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Silver	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-116-16										
Mercury	**ND**	**ND**	NA	NA		NA		NA	NA	20	
Laboratory ID:	09-116-18										
	ORIG	DUP									
Barium	**69.2**	**62.4**	NA	NA		NA		NA	10	20	
Chromium	**20.5**	**24.2**	NA	NA		NA		NA	17	20	
MATRIX SPIKES											
Laboratory ID:	09-116-18										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**94.7**	**94.6**	100	100	ND	**95**	**95**	75-125	0	20	
Cadmium	**40.0**	**40.7**	50.0	50.0	ND	**80**	**81**	75-125	2	20	
Lead	**234**	**233**	250	250	21.9	**85**	**84**	75-125	1	20	
Selenium	**85.9**	**85.7**	100	100	ND	**86**	**86**	75-125	0	20	
Silver	**20.0**	**20.2**	25.0	25.0	ND	**80**	**81**	75-125	1	20	
Laboratory ID:	09-116-16										
Mercury	**0.596**	**0.612**	0.500	0.500	0.0673	**106**	**109**	80-120	3	20	
Laboratory ID:	09-116-18										
	MS	MSD	MS	MSD		MS	MSD				
Barium	**146**	**144**	100	100	69.2	**77**	**75**	75-125	1	20	
Chromium	**104**	**103**	100	100	20.5	**84**	**83**	75-125	1	20	

Date of Report: September 16, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116
Project: 397-019

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
FB-10-22.5	09-116-01	**25**	9-15-20
FB-10-20.0	09-116-02	**31**	9-15-20
FB-10-17.5	09-116-03	**58**	9-15-20
FB-13-22.5	09-116-06	**13**	9-15-20
FB-13-20.0	09-116-07	**64**	9-15-20
FB-13-17.5	09-116-08	**75**	9-15-20
FB-11-20.0	09-116-10	**45**	9-15-20
FB-11-17.5	09-116-11	**58**	9-15-20
FB-14-22.5	09-116-16	**9**	9-15-20
FB-14-20.0	09-116-17	**14**	9-15-20
FB-12-21.5	09-116-18	**11**	9-15-20
FB-12-20.0	09-116-19	**73**	9-15-20
FB-12-17.5	09-116-20	**73**	9-15-20
FB-14-17.5	09-116-23	**61**	9-15-20
FB-15-22.5	09-116-25	**8**	9-15-20
FB-15-20.0	09-116-26	**16**	9-15-20
FB-15-17.5	09-116-27	**10**	9-15-20
FB-16-22.5	09-116-30	**12**	9-15-20
FB-16-20.0	09-116-31	**10**	9-15-20
FB-16-17.5	09-116-32	**77**	9-15-20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Stacy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/~~BTEX~~ BTEX by 8260	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~NTCA~~ Metals lead + cadmium	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	FB-10-22.5	9/12/20	1020	Soil	5									X													X
2	FB-10-20.0		1127											X													X
3	FB-10-17.5		1154											X													X
4	FB-10-15.0		1210																								
5	FB-10-10.0		1215																								
6	FB-13-22.5		1230										X						X								X
7	FB-13-20.0		1240				X		X				X	X						X							X
8	FB-13-17.5		1250				X		X					X													X
9	FB-11-22.5		1350																								
10	FB-11-20.0		1405						X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1108
Received			9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Project Manager will confirm sample analyses and turnaround time.
X-added 9-15-20 KL (1 day TAT)

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX ~~by 8260~~	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals lead + cadmium RCRA	Total ~~HCRA~~ Metals lead + cadmium	TCLP Metals	HEM (oil and grease) 1664A	lead only				% Moisture
11	FB-11-17.5	9/12/20	1415	Soil	5				X					X													X
12	FB-11-15.0		1420																								
13	FB-11-10.0		1430																								
14	FB-13-15.0		1555																								
15	FB-13-10.0		1600																								
16	FB-14-22.5		1555										X	X					X								X
17	FB-14-20.0		1600						X				X	X						X							X
18	FB-12-21.5	9/13/20	0930										X										X				X
19	FB-12-20.0		0937				X		X					X													X
20	FB-12-17.5		1011				X		X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1108
Received			9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
See pg. 1

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX ~~or 8260~~	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~TTO~~ Metals lead + cadmium	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
21	FB-12-15.0	9/13/20	1020	S	S																						
22	FB-12-10.0		1030																								
23	FB-14-17.5		1038						X					X													X
24	FB-14-10.0		1045																								
25	FB-~~15~~ 14-22.5		1050						X				X	X					X								X
26	FB-15-20.0		1100						X				X	X						X							X
27	FB-15-17.5		1103						X				X	X						X							X
28	FB-15-15.0		1105																								
29	FB-15-10.0		1106																								
30	FB-~~16~~ 14-22.5		1125						X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		speedy	9-14-20	1108
Received		OSE	9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
See pg. 1

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX 8260	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~RCRA~~ Metals lead + Cadmium	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
31	FB-16-20.0	9/13/20	1130	Soil	5				X					X													X
32	FB-16-17.5		1135						X					X													X
33	FB-16-15.0		1140																								
34	FB-16-10.0		1150																								

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1110
Received		OSC	9/14/20	1110
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

See PG. 1

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

September 22, 2020

Suzy Stumpf
Farallon Consulting
1809 7th Avenue, Suite 1111
Seattle, WA 98101

Re: Analytical Data for Project 397-019
Laboratory Reference No. 2009-116B

Dear Suzy:

Enclosed are the analytical results and associated quality control data for samples submitted on September 14, 2020.

Please note that the data for the standard turn around analyses will follow in the final report.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

Case Narrative

Samples were collected on September 12 and 13, 2020 and received by the laboratory on September 14, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-15.0**					
Laboratory ID:	09-116-14					
Diesel Range Organics	**ND**	130	NWTPH-Dx	9-21-20	9-21-20	
Lube Oil Range Organics	**1200**	260	NWTPH-Dx	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*82*	*50-150*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0921S1					
Diesel Range Organics	**ND**	25	NWTPH-Dx	9-21-20	9-21-20	
Lube Oil Range Organics	**ND**	50	NWTPH-Dx	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*101*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	SB0921S1										
	ORIG	DUP									
Diesel Fuel #2	**90.3**	**88.6**	NA	NA		NA		NA	2	NA	
Surrogate:											
o-Terphenyl						*86*	*85*	*50-150*			

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-15.0**					
Laboratory ID:	09-116-14					
Benzo[a]anthracene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Chrysene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[b]fluoranthene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo(j,k)fluoranthene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[a]pyrene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Dibenz[a,h]anthracene	**ND**	0.035	EPA 8270E/SIM	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*59*	*46 - 113*				
Pyrene-d10	*63*	*45 - 114*				
Terphenyl-d14	*71*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-12-15.0**					
Laboratory ID:	09-116-21					
Benzo[a]anthracene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Chrysene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[b]fluoranthene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo(j,k)fluoranthene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[a]pyrene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Dibenz[a,h]anthracene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*62*	*46 - 113*				
Pyrene-d10	*67*	*45 - 114*				
Terphenyl-d14	*65*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-15-15.0**					
Laboratory ID:	09-116-28					
Benzo[a]anthracene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Chrysene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[b]fluoranthene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo(j,k)fluoranthene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[a]pyrene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Dibenz[a,h]anthracene	**ND**	0.022	EPA 8270E/SIM	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*70*	*46 - 113*				
Pyrene-d10	*69*	*45 - 114*				
Terphenyl-d14	*65*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0921S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-21-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*77*	*46 - 113*				
Pyrene-d10	*83*	*45 - 114*				
Terphenyl-d14	*91*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0921S1									
	SB	SBD	SB	SBD	SB	SBD				
Benzo[a]anthracene	**0.0670**	**0.0707**	0.0833	0.0833	80	85	72 - 129	5	15	
Chrysene	**0.0663**	**0.0714**	0.0833	0.0833	80	86	66 - 123	7	15	
Benzo[b]fluoranthene	**0.0674**	**0.0692**	0.0833	0.0833	81	83	68 - 128	3	15	
Benzo(j,k)fluoranthene	**0.0662**	**0.0701**	0.0833	0.0833	79	84	63 - 128	6	16	
Benzo[a]pyrene	**0.0644**	**0.0691**	0.0833	0.0833	77	83	66 - 130	7	15	
Indeno(1,2,3-c,d)pyrene	**0.0620**	**0.0661**	0.0833	0.0833	74	79	63 - 135	6	15	
Dibenz[a,h]anthracene	**0.0589**	**0.0622**	0.0833	0.0833	71	75	65 - 130	5	15	
Surrogate:										
2-Fluorobiphenyl					*73*	*71*	*46 - 113*			
Pyrene-d10					*82*	*85*	*45 - 114*			
Terphenyl-d14					*81*	*85*	*49 - 121*			

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**FB-13-22.5**					
Laboratory ID:	09-116-06					
Benzo[a]anthracene	**24**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Chrysene	**24**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Benzo[b]fluoranthene	**24**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Benzo(j,k)fluoranthene	**7.7**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Benzo[a]pyrene	**25**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Indeno(1,2,3-c,d)pyrene	**12**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Dibenz[a,h]anthracene	**2.1**	0.77	EPA 8270E/SIM	9-15-20	9-21-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*63*	*46 - 113*				
Pyrene-d10	*72*	*45 - 114*				
Terphenyl-d14	*76*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0915S1					
Benzo[a]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Chrysene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[b]fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo(j,k)fluoranthene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Benzo[a]pyrene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Indeno(1,2,3-c,d)pyrene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Dibenz[a,h]anthracene	**ND**	0.0067	EPA 8270E/SIM	9-15-20	9-15-20	
Surrogate:	*Percent Recovery*	*Control Limits*				
2-Fluorobiphenyl	*78*	*46 - 113*				
Pyrene-d10	*88*	*45 - 114*				
Terphenyl-d14	*92*	*49 - 121*				

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

PAHs EPA 8270E/SIM
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0915S1									
	SB	SBD	SB	SBD	SB	SBD				
Naphthalene	**0.0675**	**0.0646**	0.0833	0.0833	81	78	60 - 116	4	16	
Acenaphthylene	**0.0674**	**0.0694**	0.0833	0.0833	81	83	60 - 125	3	15	
Acenaphthene	**0.0703**	**0.0724**	0.0833	0.0833	84	87	60 - 121	3	15	
Fluorene	**0.0684**	**0.0724**	0.0833	0.0833	82	87	65 - 126	6	15	
Phenanthrene	**0.0700**	**0.0736**	0.0833	0.0833	84	88	65 - 120	5	15	
Anthracene	**0.0711**	**0.0748**	0.0833	0.0833	85	90	67 - 125	5	15	
Fluoranthene	**0.0714**	**0.0784**	0.0833	0.0833	86	94	66 - 125	9	15	
Pyrene	**0.0755**	**0.0799**	0.0833	0.0833	91	96	62 - 125	6	15	
Benzo[a]anthracene	**0.0790**	**0.0847**	0.0833	0.0833	95	102	72 - 129	7	15	
Chrysene	**0.0764**	**0.0786**	0.0833	0.0833	92	94	66 - 123	3	15	
Benzo[b]fluoranthene	**0.0744**	**0.0816**	0.0833	0.0833	89	98	68 - 128	9	15	
Benzo(j,k)fluoranthene	**0.0718**	**0.0763**	0.0833	0.0833	86	92	63 - 128	6	16	
Benzo[a]pyrene	**0.0772**	**0.0809**	0.0833	0.0833	93	97	66 - 130	5	15	
Indeno(1,2,3-c,d)pyrene	**0.0685**	**0.0751**	0.0833	0.0833	82	90	63 - 135	9	15	
Dibenz[a,h]anthracene	**0.0710**	**0.0803**	0.0833	0.0833	85	96	65 - 130	12	15	
Benzo[g,h,i]perylene	**0.0708**	**0.0798**	0.0833	0.0833	85	96	66 - 127	12	15	
Surrogate:										
2-Fluorobiphenyl					*78*	*82*	*46 - 113*			
Pyrene-d10					*85*	*89*	*45 - 114*			
Terphenyl-d14					*86*	*90*	*49 - 121*			

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

TCLP LEAD
EPA 1311/6010D

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

TCLP LEAD
EPA 1311/6010D
QUALITY CONTROL

Date of Report: September 22, 2020
Samples Submitted: September 14, 2020
Laboratory Reference: 2009-116B
Project: 397-019

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
FB-13-15.0	09-116-14	**81**	9-18-20
FB-12-15.0	09-116-21	**70**	9-18-20
FB-15-15.0	09-116-28	**70**	9-18-20

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Retka

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/~~BTEX~~ BTEX by 8260	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~MTCA~~ Metals lead + cadmium	TCLP ~~Metals~~ Lead	HEM (oil and grease) 1664A					% Moisture
1	FB-10-22.5	9/12/20	1020	Soil	5									X													X
2	FB-10-20.0		1127											X													X
3	FB-10-17.5		1154											X													X
4	FB-10-15.0		1210																								
5	FB-10-10.0		1215																								
6	FB-13-22.5		1230										X						X		O						X
7	FB-13-20.0		1240				X		X				X	X						X							X
8	FB-13-17.5		1250				X		X					X													X
9	FB-11-22.5		1350																								
10	FB-11-20.0	↓	1405	↓	↓				X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1108
Received			9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
Project Manager will confirm sample analyses and turnaround time.
X-added 9-15-20 KL (1 day TAT)
⊗ Added 9/15/20 BK 1 day TAT

Data Package: Standard ☐ Level III ☒ Level IV ☐ STA
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX ~~by 8260~~	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total ~~RCRA~~ Metals lead + cadmium	Total ~~RCRA~~ Metals lead + cadmium	TCLP Metals	HEM (oil and grease) 1664A	lead only				% Moisture
11	FB-11-17.5	9/12/20	1415	Soil	5				X					X													X
12	FB-11-15.0		1420																								
13	FB-11-10.0		1430																								
14	FB-13-15.0		0955						(X)					(X)													(X)
15	FB-13-10.0		1600																								
16	FB-14-22.5		1555										X	X					X								X
17	FB-14-20.0		1600						X				X	X						X							X
18	FB-12-21.5	9/13/20	0930										X										X				X
19	FB-12-20.0		~~0937~~				X		X					X													X
20	FB-12-17.5	↓	1011		↓		X		X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1108
Received			9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

See pg. 1

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Peters

Turnaround Request (in working days)
(Check One)
☐ Same Day ☒ 1 Day
☐ 2 Days ☐ 3 Days
☐ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX ~~by 8260~~	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) c PAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~MTCA~~ Metals lead + cadmium	TCLP ~~Metals~~ Lead	HEM (oil and grease) 1664A					% Moisture
21	FB-12-15.0	9/13/20	1020	S	5									X													X
22	FB-12-10.0		1030																								
23	FB-14-17.5		1038						X					X													X
24	FB-14-10.0		1045																								
25	FB-~~15~~ 14-22.5		1050						X				X	X					X		0						X
26	FB-15-20.0		1100						X				X	X						X							X
27	FB-15-17.5		1103						X				X	X						X							X
28	FB-15-15.0		1105											X													X
29	FB-15-10.0		1106																								
30	FB-~~16~~ 14-22.5		1125						X					X													X

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		speedy	9-14-20	1108
Received			9/14/20	1108
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
See pg 1

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Farallon
Project Number: 397-019
Project Name: Block 38 West
Project Manager: Suzy Stumpf
Sampled by: Greg Pokes

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☒ 1 Day
- ☐ 2 Days
- ☐ 3 Days
- ☐ Standard (7 Days) (TPH analysis 5 Days)
- ☐ _____ (other)

Laboratory Number: 09-116

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers
31	FB-16-20.0	9/13/20	1130	Soil	5
32	FB-16-17.5		1135		
33	FB-16-15.0		1140		
34	FB-16-10.0		1150		

Lab ID	NWTPH-HCID	NWTPH-Gx/BTEX by 8260C	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs) Naphthalenes	PAHs 8270D/SIM (low-level) cPAHs	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total ~~MTCA~~ Metals lead + Cadmium	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
31				X					X													X
32				X					X													X
33																						
34																						

	Signature	Company	Date	Time
Relinquished		Farallon	9/13/20	1430
Received		Speedy	9-14-20	1030
Relinquished		Speedy	9-14-20	1110
Received		OSE	9/14/20	1110
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

See Pg. 1

Data Package: Standard ☐ Level III ☐ Level IV ☐

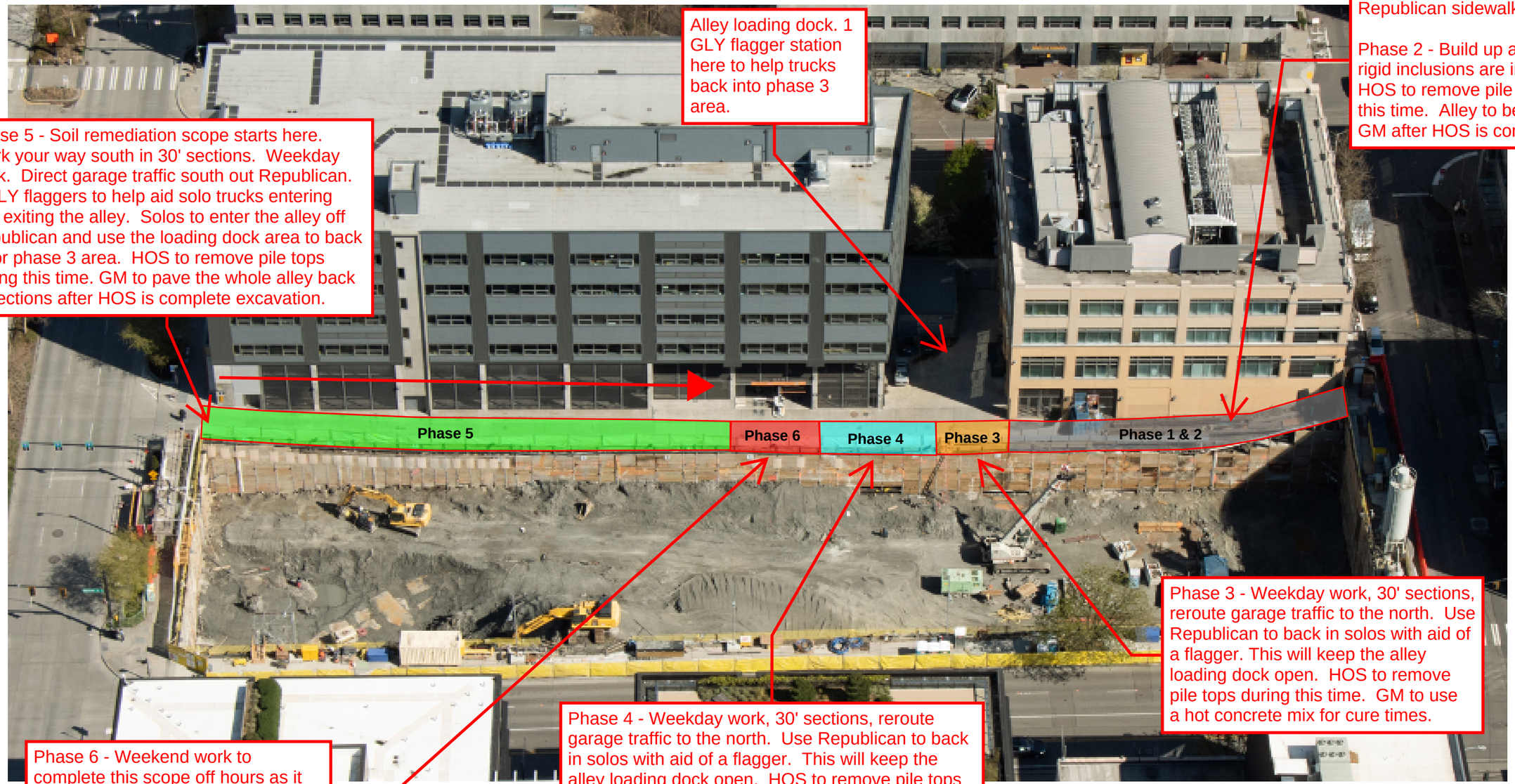
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

APPENDIX C
CONSTRUCTION DOCUMENTS – ALLEY IMPROVEMENTS

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

Block 38 - Alley Soil Remediation



Phase 5 - Soil remediation scope starts here. Work your way south in 30' sections. Weekday work. Direct garage traffic south out Republican. 3 GLY flaggers to help aid solo trucks entering and exiting the alley. Solos to enter the alley off Republican and use the loading dock area to back in for phase 3 area. HOS to remove pile tops during this time. GM to pave the whole alley back in sections after HOS is complete excavation.

Alley loading dock. 1 GLY flagger station here to help trucks back into phase 3 area.

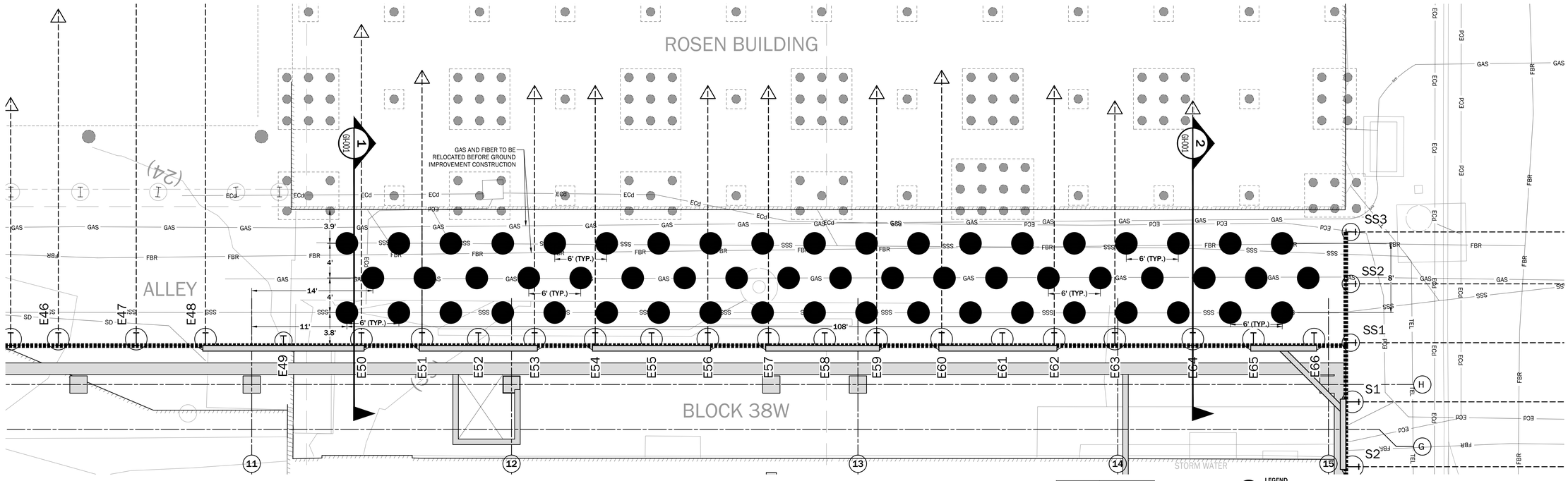
Phase 1 - Bracing of the Republican sidewalk.

Phase 2 - Build up alley after the rigid inclusions are installed. HOS to remove pile tops during this time. Alley to be paved by GM after HOS is complete.

Phase 3 - Weekday work, 30' sections, reroute garage traffic to the north. Use Republican to back in solos with aid of a flagger. This will keep the alley loading dock open. HOS to remove pile tops during this time. GM to use a hot concrete mix for cure times.

Phase 4 - Weekday work, 30' sections, reroute garage traffic to the north. Use Republican to back in solos with aid of a flagger. This will keep the alley loading dock open. HOS to remove pile tops during this time. GM to use a hot concrete mix for cure times.

Phase 6 - Weekend work to complete this scope off hours as it closes down access to the garage. 2 Weekends worth of work for this scope. HOS to remove pile tops during this time. GM to use a hot concrete mix for cure times.



GROUND IMPROVEMENT PLAN VIEW

SCALE: 0 5 10 SCALE IN FEET

GI-001

GRID LINE	MIN. TIP ELEVATION (FT)*
11 - 13	2
13- 15	4

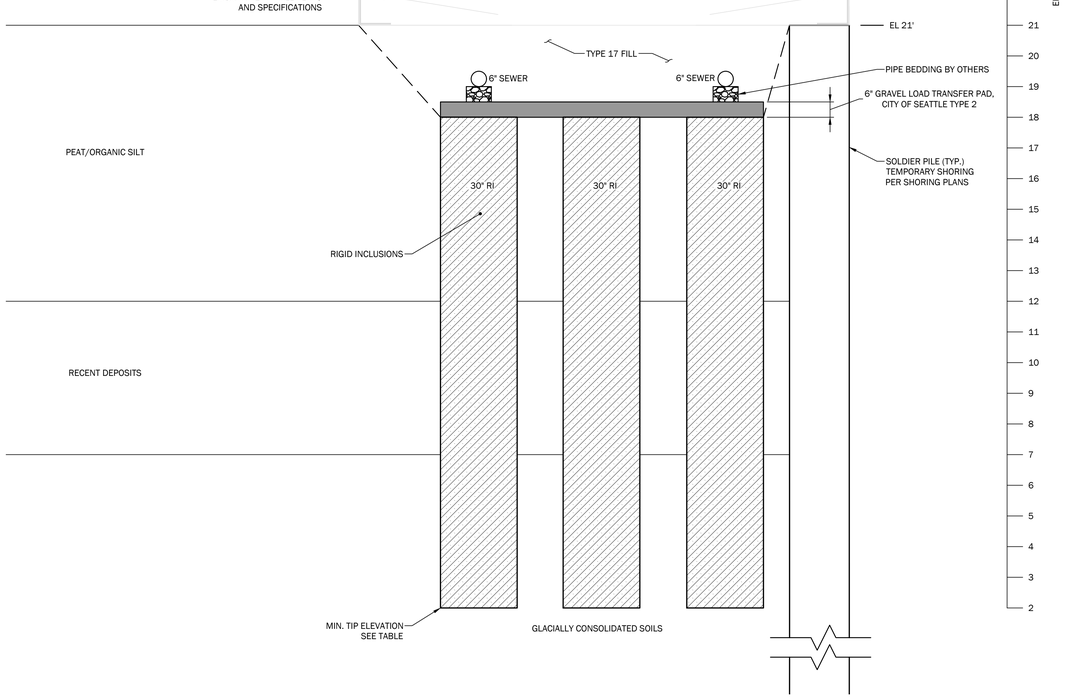
NOTE: *ALL RIGID INCLUSIONS SHALL EXTEND AT LEAST 3 FT INTO GLACIALLY CONSOLIDATED SOILS, AS DETERMINED IN THE FIELD BY THE ENGINEER.

LEGEND

30-INCH RIGID INCLUSION (TYP. 6' O.C. TRIANGULAR SPACING) (QTY - 57)

NOTE

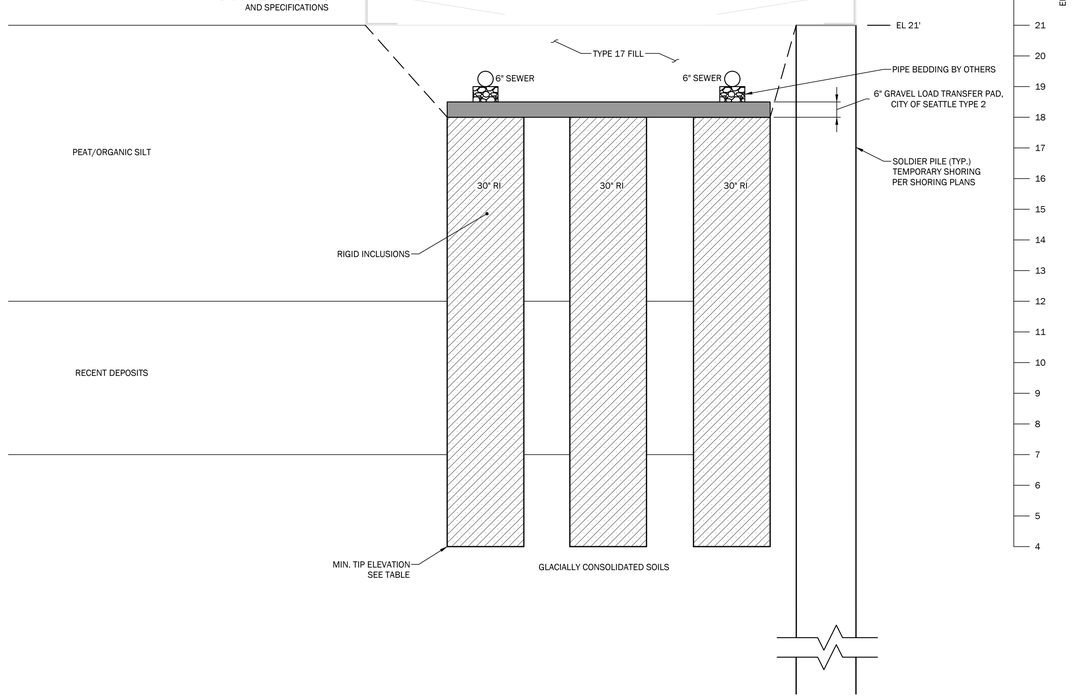
1. A WORKING PAD IS ANTICIPATED TO SUPPORT GROUND IMPROVEMENT EQUIPMENT ON THE SOFT ORGANIC SOILS. MEANS AND METHODS SHALL BE PROVIDED BY THE CONTRACTOR.



GROUND IMPROVEMENT SECTION 1

SCALE: 0 2 4 SCALE IN FEET

GI-001



GROUND IMPROVEMENT SECTION 2

SCALE: 0 2 4 SCALE IN FEET

GI-001

nbbj
223 YALE AVENUE NORTH
SEATTLE, WASHINGTON 98109
PHONE 206 223 5555
www.nbbj.com

CONSTRUCTION MANAGER: GLY

CIVIL ENGINEER: CPL

SHORING DESIGNER: GROUND SUPPORT

STRUCTURAL ENGINEER: DCI ENGINEERS

GEOTECHNICAL ENGINEER: GEOENGINEERS, INC.

MATTHEW W. SMITH
STATE OF WASHINGTON
35217
REGISTERED
PROFESSIONAL ENGINEER
4/5/19

BLOCK 38

50 % CD - IGMP

REVISIONS

MARK	DATE	DESCRIPTION

SCALE	PROJECT ARCHITECT: Designer
PROJECT NUMBER	101292.00
DATE	04/19/19

SHEET NAME

GROUND IMPROVEMENT PLAN AND SECTIONS

SHEET NUMBER

GI-001

SHEET OF 250

RIGID INCLUSIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. THE WORK SHALL CONSIST OF CONSTRUCTING RIGID INCLUSIONS AS SPECIFIED HEREIN AND AS SHOWN ON THE PLANS. THE WORK SHALL INCLUDE DRILLING AND CONSTRUCTING THE RIGID INCLUSIONS AT THE SPECIFIED LOCATION AND TO THE SPECIFIED DEPTH AND DIAMETER INDICATED ON THE PLANS.

B. THE CONTRACTOR AND SPECIALTY SUBCONTRACTORS (HEREAFTER REFERRED TO COLLECTIVELY AS THE CONTRACTOR UNLESS INDICATED OTHERWISE) ARE RESPONSIBLE FOR THE CONSTRUCTION MEANS AND METHODS AND CONTROL OF THE PROCESS OF THE WORK. THIS INCLUDES THE CONSTRUCTION SEQUENCE, THE SAFETY OF THE WORKERS, TEMPORARY HANDRAILS, EXCAVATION ACCESS, BARRIERS, LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF FORMWORK, WORKING PAD CONSTRUCTION, THE STABILITY OF ALL TEMPORARY CUT SLOPES AND OTHER METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

1.2 PRECONSTRUCTION MEETING

A. A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE OWNER'S REPRESENTATIVES, THE GROUND IMPROVEMENT DESIGNER (HEREIN REFERRED TO AS ENGINEER) AND/OR THE GEOTECHNICAL SPECIAL INSPECTOR, THE PRIME CONTRACTOR, THE EXCAVATION CONTRACTOR, THE GROUND IMPROVEMENT SPECIALTY SUBCONTRACTOR AND THE CITY REPRESENTATIVE. THE PRECONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE CONSTRUCTION REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

1.3 EXISTING SITE CONDITIONS AND UTILITIES

A. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO ANY CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF OBSERVING AND DOCUMENTING THE PRECONSTRUCTION CONDITION OF ALL STRUCTURES, INFRASTRUCTURE, SIDEWALKS, ROADWAYS, AND ALL OTHER FACILITIES ADJACENT TO THE SITE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE ENGINEER IF SIGNS OF MOVEMENT SUCH AS NEW CRACKS, INCREASED SIZE OF OLD CRACKS OR SEPARATION OF JOINTS IN STRUCTURES, FOUNDATIONS, STREETS OR PAVED AND UNPAVED SURFACES ARE OBSERVED. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WRITTEN DOCUMENTATION OF THE OBSERVED CONDITIONS WITHIN 24 HOURS OF INITIAL OBSERVATION.

B. RIGID INCLUSION LAYOUT AND ELEVATIONS ARE BASED ON TOPOGRAPHIC AND OTHER PROJECT INFORMATION PRESENTED IN THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

C. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY AND ALL EXISTING AND PROPOSED UTILITIES. ANY CONFLICTS BETWEEN UTILITY LOCATIONS AND RIGID INCLUSION LOCATIONS WILL BE RESOLVED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL SEEK APPROVAL OF THE ENGINEER TO SHIFT RIGID INCLUSION LOCATIONS TO AVOID CONFLICTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIR/REPLACEMENT TO DAMAGED UTILITY LINES DURING CONSTRUCTION.

D. THE CONTRACTOR IS RESPONSIBLE FOR ANY REMOVAL OF ABANDONED UTILITIES, FOUNDATION ELEMENTS, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE RIGID INCLUSIONS.

1.4 SPECIAL INSPECTION

A. IN ACCORDANCE WITH THE LOCAL BUILDING CODE, SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER FOR ALL RIGID INCLUSION INSTALLATION AND TESTING.

B. THE OWNER'S REPRESENTATIVE WHO IS PROVIDING THE GEOTECHNICAL SPECIAL INSPECTION SHALL BE A QUALIFIED FIELD REPRESENTATIVE APPOINTED BY THE ENGINEER WITH EXPERIENCE MONITORING GROUND IMPROVEMENT CONSTRUCTION. ACCURATE RECORDS DOCUMENTING THE RIGID INCLUSION CONSTRUCTION SHALL BE MAINTAINED BY THE GEOTECHNICAL SPECIAL INSPECTOR. THE CONTRACTOR SHALL ASSIST THE GEOTECHNICAL SPECIAL INSPECTOR AS NECESSARY TO OBTAIN THE AS-BUILT RIGID INCLUSION LOCATIONS, ELEVATIONS, AND ALL OTHER INFORMATION AS REQUIRED BY THE OWNER AND ENGINEER. SPECIAL INSPECTION AND TESTING OF THE CONCRETE SHALL BE PROVIDED BY A QUALIFIED MATERIALS TESTING AGENCY APPROVED BY THE ENGINEER.

1.5 QUALITY ASSURANCE

A. THE CONTRACTOR SHALL SUBMIT A REFERENCE LIST INDICATING THE SUCCESSFUL COMPLETION OF AT LEAST FIVE AUGERCAST PILE OR RIGID INCLUSION PROJECTS COMPLETED DURING THE LAST 3 YEARS. A BRIEF DESCRIPTION OF EACH PROJECT WITH THE OWNER'S NAME AND CURRENT PHONE NUMBER SHALL BE INCLUDED.

B. THE CONTRACTOR'S SUPERINTENDENT SHALL HAVE A MINIMUM OF 3 YEARS EXPERIENCE SUPERVISING AUGERCAST PILE OR RIGID INCLUSION INSTALLATION USING DRILLING METHODS, AND THE DRILL OPERATORS AND ON-SITE SUPERVISORS SHALL HAVE A MINIMUM OF 1-YEAR EXPERIENCE INSTALLING AUGERCAST PILES OR RIGID INCLUSIONS. PRIOR TO STARTING THE WORK, THE CONTRACTOR SHALL SUBMIT A LIST TO THE ENGINEER IDENTIFYING THE SUPERINTENDENT, DRILL RIG OPERATORS, AND ON-SITE SUPERVISORS ASSIGNED TO THE PROJECT. THE LIST SHALL CONTAIN A SUMMARY OF EACH INDIVIDUAL'S EXPERIENCE AND SHALL BE SUFFICIENTLY COMPLETE FOR THE ENGINEER TO EVALUATE THE INDIVIDUAL'S QUALIFICATIONS. WORK SHALL NOT BE STARTED UNTIL WRITTEN APPROVAL OF THE CONTRACTOR'S QUALIFICATIONS IS GIVEN.

C. THE OWNER'S REPRESENTATIVE MAY SUSPEND THE WORK IF THE CONTRACTOR SUBSTITUTES NON-APPROVED PERSONNEL FOR APPROVED PERSONNEL.

1.6 SUBMITTALS

1.6.1 GENERAL

A. SUBMITTALS SHALL BE PROVIDED BY THE CONTRACTOR FOR THE ENGINEER'S REVIEW AND APPROVAL. THE CONTRACTOR WILL NOT BE ALLOWED TO BEGIN CONSTRUCTION UNTIL ALL SUBMITTAL REQUIREMENTS ARE SATISFIED AND FOUND ACCEPTABLE TO THE ENGINEER. ALL SUBMITTALS SHALL BE PROVIDED AT LEAST 15 DAYS PRIOR TO INITIATING WORK.

1.6.2 CONSTRUCTION WORK PLAN AND DOCUMENTS

A. A DETAILED CONSTRUCTION SEQUENCE AND PLANNED START OF WORK DATE.

B. DRILLING METHODS AND EQUIPMENT.

C. CONCRETE MIX DESIGNS FOR EACH CONCRETE MIXTURE. SUBMIT ALTERNATIVE DESIGN MIXTURES WHEN CHARACTERISTICS OF MATERIALS, PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS.

1. INDICATE AMOUNTS OF MIXING WATER TO BE WITHHELD FOR LATER ADDITION AT PROJECT SITE.

2. SUBMIT COMPRESSIVE STRENGTH TEST RESULTS FROM THE SUPPLIER NO OLDER THAN 6 MONTHS VERIFYING THE MINIMUM 7-DAY AND 28-DAY COMPRESSIVE STRENGTHS.

D. RIGID INCLUSION PLACEMENT PROCEDURES.

PART 2 - WORK PLAN

2.1 DESCRIPTION OF WORK

A. THE WORK SHALL CONSIST OF ADVANCING HOLLOW-STEM, CONTINUOUS-FLIGHT AUGERS OF DESIGN DIAMETERS TO THE DEPTHS SPECIFIED ON THE PROJECT PLANS. THE CONTRACTOR SHALL COMPLETE A QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROGRAM THROUGHOUT THE COURSE OF THE WORK TO DEMONSTRATE THAT THE RIGID INCLUSION INSTALLATION IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS STATED HEREIN.

2.2 SITE CONDITIONS

A. THE OWNER HAS COMPLETED SUBSURFACE INVESTIGATIONS FOR THE PROJECT SITE. THE INFORMATION IS AVAILABLE FOR REVIEW AS DESCRIBED IN THE PROJECT GEOTECHNICAL REPORT.

B. TEMPORARY DEWATERING WILL LIKELY BE NECESSARY TO INSTALL THE RIGID INCLUSIONS. REFER TO THE PROJECT GEOTECHNICAL REPORT FOR THE ANTICIPATED GROUNDWATER CONDITIONS. THE CONTRACTOR SHOULD BE PREPARED TO COMPLETE INSTALLATION OF THE RIGID INCLUSIONS WITH THE PRESENCE OF GROUNDWATER.

C. A WORKING PAD IS ANTICIPATED TO SUPPORT GROUND IMPROVEMENT EQUIPMENT ON THE SOFT ORGANIC SOILS. MEANS AND METHODS SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO THE PROJECT GEOTECHNICAL REPORT FOR A DESCRIPTION OF THE ANTICIPATED SOIL CONDITIONS.

D. THE CONTRACTOR SHALL VISIT THE SITE AND INDEPENDENTLY VERIFY ANY ACCESS- OR WORK-RELATED RESTRICTIONS.

2.3 SUBMITTALS

A. THE FOLLOWING SUBMITTALS WILL BE REQUIRED.

2.3.1 WORK PLAN FOR ENGINEER'S APPROVAL PRIOR TO BEGINNING WORK

A. A WRITTEN WORK PLAN FOR ACCOMPLISHING THE WORK DESCRIBED IN THIS SECTION AND SHOWN ON THE PLANS. THE WRITTEN PROCEDURE SHALL INCLUDE:

1. EQUIPMENT, PROCEDURES, AND MATERIALS TO BE USED FOR INSTALLATION OF RIGID INCLUSIONS. HOLLOW-STEM AUGER EQUIPMENT WITH DIMENSIONS AND CAPACITIES OF EQUIPMENT AND COMPONENTS; INSTRUMENTATION USED TO MEASURE AND PROCEDURES TO DETERMINE CONCRETE QUANTITY PUMPED AND PUMPING RATE; AND HOSES AND PUMPS.

2. PROPOSED CONCRETE VOLUME AND CALCULATIONS TO DEMONSTRATE THAT THE REQUIRED VOLUME OF CONCRETE WILL BE ACHIEVED IN THE SITE SOILS WITHIN THE TREATMENT DEPTHS.

B. MIX DESIGN AND MIX PROCEDURES OF CEMENT CONCRETE USED FOR RIGID INCLUSIONS INCLUDING CONCRETE MATERIAL SOURCES, INCLUDING GRAIN SIZE DISTRIBUTION AND PLASTICITY INDEX OR HYDROMETER TESTS RESULTS OF THE AGGREGATE TO BE USED, CEMENT TYPE, WATER-CEMENT-AGGREGATE RATIO BY WEIGHT, AND ESTIMATED MINIMUM 7-DAY AND 28-DAY COMPRESSIVE STRENGTH.

C. A WRITTEN SCHEDULE FOR COMPLETING THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE PLANS. THE SCHEDULE SHALL SHOW THE CONTRACTOR'S PLANNED NUMBER OF MACHINES, NUMBER OF SHIFTS, AND WORKING HOURS.

2.3.2 A QA/QC PROGRAM FOR RIGID INCLUSIONS FOR THE ENGINEER'S APPROVAL PRIOR TO STARTING WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

A. A DETAILED DESCRIPTION OF THE QA/QC PROGRAM TO BE UNDERTAKEN EACH DAY DURING PRODUCTION TO CONFIRM LOCATION OVER THE DEPTHS AND LIMITS SHOWN ON THE PLANS, HORIZONTAL AND VERTICAL ALIGNMENT TOLERANCES, AND REQUIRED VOLUME AND COMPRESSIVE STRENGTHS SPECIFIED HEREIN.

B. DETAILS OF THE PROCEDURES TO OBTAIN CONCRETE SAMPLES. CATALOG CUTS OR SHOP FABRICATION DRAWINGS OF THE CONCRETE SAMPLING DEVICE AND CURING BOXES.

C. MEASURES TO BE IMPLEMENTED EACH DAY DURING RIGID INCLUSION INSTALLATION TO CONTINUOUSLY MONITOR, MODIFY AND CONTROL CONCRETE VOLUME, MONITORING EQUIPMENT CAPABLE OF MEASURING AUGER DEPTH, PENETRATION RATE, AND CONCRETE VOLUME PUMPED PER UNIT DEPTH INCREMENT AND OF PRINTING RESULTS, HORIZONTAL AND VERTICAL ALIGNMENTS, AND OTHER RELATED ASPECTS OF THE RIGID INCLUSION INSTALLATION PROCESS.

D. GENERAL PLAN AND DESCRIPTION OF THE PROPOSED MONITORING OPERATIONS, INCLUDING METHODS TO OBTAIN AND RECORD MONITORING DATA AND COPIES OF PROPOSED MONITORING DATA FORMS OR REPORT FORMAT

E. EXAMPLE FORMAT OF DAILY PRODUCTION REPORTS CONFORMING TO THE REQUIREMENTS STATED HEREIN.

2.3.3 WITHIN ONE BUSINESS DAY AFTER THE END OF A WORK SHIFT, SUBMIT DAILY PRODUCTION REPORTS FOR EACH WORK SHIFT TO THE ENGINEER. DAILY PRODUCTION REPORTS SHALL BE FILLED OUT, CHECKED FOR CORRECTNESS, AND SIGNED BY THE CONTRACTORS FIELD SUPERINTENDENT, AND THE GEOTECHNICAL SPECIAL INSPECTOR AT THE END OF EVERY WORK SHIFT. THE REPORTS SHALL CONTAIN, BUT NOT BE LIMITED TO, THE FOLLOWING INFORMATION:

A. DAY, MONTH, YEAR, TIME OF THE BEGINNING AND END OF THE WORK SHIFT; NAMES OF EACH SUPERINTENDENT IN-CHARGE OF THE WORK FOR THE RIGID INCLUSION INSTALLATION; AND A SUMMARY OF EQUIPMENT USED DURING THE SHIFT.

B. THE LOCATION AND LIMITS OF EACH COMPLETED RIGID INCLUSION INSTALLED DURING THE WORK SHIFT AND ALL RIGID INCLUSIONS COMPLETED TO-DATE ON A PLAN OF SUITABLE SCALE TO CLEARLY DETAIL THE LOCATIONS OF THE RIGID INCLUSIONS.

C. TIME OF BEGINNING AND COMPLETION OF EACH RIGID INCLUSION INSTALLED DURING THE WORK SHIFT.

D. WATER-CEMENT-AGGREGATE RATIOS, CEMENT TYPE, BRAND AND COMPOUND COMPOSITION, A RECORD OF CEMENT CONCRETE VOLUMES AND RATES, OTHER PERTINENT CEMENT CONCRETE MIX DATA, TOTAL INSTALLED DEPTH AND TIP ELEVATION FOR THE RIGID INCLUSION AND INSTALLATION SEQUENCE FOR EVERY RIGID INCLUSION.

E. OTHER PERTINENT OBSERVATIONS INCLUDING, BUT NOT LIMITED TO CEMENT CONCRETE ESCAPES, GROUND SETTLEMENT OR HEAVE, COLLAPSE(S) OF THE CONCRETE RIGID INCLUSION, ANY UNUSUAL BEHAVIOR OF ANY EQUIPMENT DURING THE RIGID INCLUSIONS PROCESS, AND OTHER NOTEWORTHY EVENTS. IN THE EVENT OF A CONTRACTOR CLAIM, THE DAILY PRODUCTION REPORTS SHALL BE THE PRIMARY DOCUMENTS TO SUBSTANTIATE THE REASONS AND BASIS FOR THE CLAIM.

F. DATE, TIME, PLAN LOCATION, SAMPLE DESIGNATION AND ELEVATION, AND OTHER DETAILS OF CONCRETE SAMPLING.

G. MONITORING DATA FORMS OR REPORT.

H. SUMMARY OF ANY DOWNTIME OR UNPRODUCTIVE TIME, INCLUDING START AND END TIME, DURATION, AND REASON.

2.4 QUALITY ASSURANCE

A. TESTING

1. THE OWNER WILL EMPLOY THE SERVICES OF AN INDEPENDENT TESTING LABORATORY TO PROVIDE THE CONCRETE TESTING, AS DESCRIBED BELOW IN THIS SPECIFICATION.

B. QA/QC PROGRAM

1. THE CONTRACTOR SHALL IMPLEMENT A QA/QC PROGRAM TO VERIFY THAT THE INSTALLED RIGID INCLUSIONS CONFORM TO THE REQUIREMENTS STATED HEREIN. THE QA/QC PROGRAM SHALL BE IMPLEMENTED AS PART OF THE WORK, AT NO ADDITIONAL COST TO THE OWNER.

2. THE CONTRACTOR SHALL OBTAIN CONCRETE SAMPLES AND PROVIDE THEM TO THE TESTING LABORATORY REPRESENTATIVE. THE REPRESENTATIVE WILL FORM, PRESERVE, CURE, TRANSPORT AND TEST THE CONCRETE SAMPLES, AND REPORT THE TEST RESULTS. THE CONTRACTOR SHALL COOPERATE WITH TESTING LABORATORY AND COORDINATE SAMPLING ACTIVITIES WITH THE TESTING LABORATORY. THE CONTRACTOR SHALL SUPPLY INCIDENTAL ITEMS, ACCESS, INSIDE STORAGE SPACE, AND ELECTRICAL POWER TO THE CURING BOXES. THE TESTING LABORATORY WILL SUPPLY CURING BOXES, AND MOLDS FOR USE IN FORMING THE SAMPLES.

3. THE QA/QC PROGRAM SHALL INCLUDE DOCUMENTATION OF ALL OBSTRUCTIONS AND THE DISPOSITION OF HOW EACH OBSTRUCTION WAS OVERCOME.

4. CONCRETE SAMPLES - TESTING OF SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C172/C172M SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:

a. FLOW RATE - ASTM C939 AND ASTM C109/C109M USING A FLOW CONE WITH 0.75-INCH (19-MM) OPENING.

b. COMPRESSIVE STRENGTH - ASTM C39/C39M WITH CUBE SPECIMENS RESTRAINED FROM EXPANSION ACCORDING TO ASTM C942.

c. TESTING FREQUENCY - OBTAIN SIX 6-INCH (152.4-MM) CUBES FOR EACH 50 CUBIC YARD (38 CUBIC METER) OR FRACTION THEREOF OF CONCRETE PLACED, BUT NOT LESS THAN ONE SET FOR EACH WORK SHIFT.

d. TEST TWO CUBES AT 7 DAYS, TWO CUBES AT 28 DAYS, AND HOLD TWO CUBES IN RESERVE.

e. STRENGTH OF EACH CONCRETE MIXTURE IS SATISFACTORY IF EVERY AVERAGE OF ANY THREE CONSECUTIVE COMPRESSIVE-STRENGTH TESTS EQUALS OR EXCEEDS SPECIFIED COMPRESSIVE STRENGTH AND NO MORE THAN 15% OF THE COMPRESSIVE-STRENGTH TEST VALUE FALLS BELOW THE SPECIFIED COMPRESSIVE STRENGTH OF 1,000 PSI (6.9 MPA).

5. THE TESTING LABORATORY SHALL REPORT TEST RESULTS IN WRITING TO THE ENGINEER, CONCRETE MANUFACTURER AND CONTRACTOR WITHIN 48 HOURS OF TESTING. LIST PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF PLACEMENT, NAME OF TESTING AND INSPECTION AGENCY, LOCATION OF CONCRETE BATCH IN WORK, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIXTURE PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH AND TYPE OF BREAK FOR BOTH 7- AND 28-DAY TESTS IN REPORTS OF COMPRESSIVE-STRENGTH TESTS.

6. THE TESTING LABORATORY SHALL MAKE ADDITIONAL TESTS OF CONCRETE IF TEST RESULTS INDICATE THAT COMPRESSIVE STRENGTHS OR OTHER REQUIREMENTS HAVE NOT BEEN MET, AS DIRECTED BY THE ENGINEER.

7. ADDITIONAL TESTING AND INSPECTION WILL BE PERFORMED, AT CONTRACTOR'S EXPENSE, TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

8. THE CONTRACTOR SHALL CORRECT DEFICIENCIES IN THE WORK THAT TEST REPORTS AND INSPECTIONS INDICATE DO NOT COMPLY WITH THE CONTRACT DOCUMENTS.

9. CONCRETE VOLUME

a. FOR EACH WORK SHIFT AND FOR EACH CHANGE IN CONCRETE PUMPING EQUIPMENT, THE CONTRACTOR SHALL PROVIDE THE PUMPING RATE AND CALCULATION TO VERIFY THAT THE REQUIRED CONCRETE VOLUME IS ACHIEVED USING THE RIGID INCLUSION EQUIPMENT AND PROCEDURE.

PART 3 - PRODUCTS

3.1 MATERIALS

A. CONCRETE MIXTURES

1. PREPARE DESIGN MIXTURES FOR EACH TYPE AND STRENGTH OF CONCRETE, PROPORTIONED ON THE BASIS OF LABORATORY TRIAL MIXTURE, FIELD TEST DATA, OR BOTH.

a. USE A QUALIFIED INDEPENDENT TESTING AGENCY FOR PREPARING AND REPORTING PROPOSED MIXTURE DESIGNS BASED ON LABORATORY TRIAL MIXTURES.

2. PROPORTION CONCRETE MIXTURE AS FOLLOWS:

a. DESIGN COMPRESSIVE STRENGTH - 1,000 PSI AT 28 DAYS; ASTM C109/C109M WITH CUBE SPECIMENS RESTRAINED FROM EXPANSION ACCORDING TO ASTM C942.

b. MAXIMUM WATER-CEMENTITIOUS MATERIALS RATIO: 0.50.

c. CONCRETE FLOW - 10 TO 25 SECONDS; ASTM C939 AND ASTM C109/C109M USING A FLOW CONE WITH 0.75-INCH (19-MM) OPENING.

B. CRUSHED ROCK LOAD TRANSFER PAD

1. THE CRUSHED ROCK LOAD TRANSFER PAD SHALL CONSIST OF CITY OF SEATTLE TYPE 2 (1-1/4" CRUSHED ROCK), PER THE GROUND IMPROVEMENT PLANS.

3.2 EQUIPMENT

A. DRILLING AND PUMPING EQUIPMENT:

1. DRILL RIG - CAPABLE OF ADVANCING HOLLOW-STEM AUGER, CONTINUOUS-FLIGHT AUGERS OF DESIGN DIAMETERS TO DESIGN DEPTHS; WITH STABILIZING ARM AT BOTTOM OF LEADS TO PREVENT ROTATION, AND MIDDLE GUIDE FOR AUGERS GREATER THAN 40 FEET (12 M) IN LENGTH.

a. MARK LEADS AT MAXIMUM 60-INCH (1500-MM) INTERVALS TO FACILITATE MEASUREMENT OF PENETRATION.

2. HOLLOW-STEM AUGER - CONTINUOUS AUGER FLIGHTING WITHOUT GAPS OR BREAKS, OF DIAMETER NO MORE THAN 3 PERCENT LESS THAN RIGID INCLUSION DIAMETER; WITH CONCRETE PUMPING HOLE AT BOTTOM OF AUGER HEAD BELOW CUTTING TEETH. SEAL CONCRETE-PUMPING HOLE WITH TEMPORARY TIP PLUG TO BE FULLY OPENED BY CONCRETE PRESSURE DURING CONCRETE INSTALLATION.

a. HOLLOW SHAFT DIAMETER - MINIMUM 1-1/4-INCH (32-MM) CLEAR ID.

3. CONCRETE PUMP - POSITIVE DISPLACEMENT PUMP WITH A KNOWN VOLUME PER STROKE. MINIMUM DISPLACEMENT PRESSURE AT PUMP OF 350 LBF/SQ. IN (240 MPA).

4. AUTOMATED MONITORING EQUIPMENT - CAPABLE OF MEASURING AUGER DEPTH, PENETRATION RATE, AND CONCRETE VOLUME PUMPED PER UNIT DEPTH INCREMENT AND OF PRINTING RESULTS.

PART 4 - EXECUTION

4.1 PREPARATION

A. PROTECT STRUCTURES, UTILITIES, AND OTHER ADJACENT CONSTRUCTION TO AVOID DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, AND OTHER HAZARDS CREATED BY DRILLING OPERATIONS.

B. ROUGH GRADE GROUND ELEVATION AT RIGID INCLUSION LOCATIONS TO MINIMUM OF 12 INCHES ABOVE REQUIRED CUTOFF ELEVATION.

C. THE ELEVATION OF THE TOP OF THE RIGID INCLUSION SHALL NOT BE LESS THAN THE BOTTOM OF CRUSHED ROCK LOAD TRANSFER PAD ELEVATION AND SHALL BE NO MORE THAN 6 INCHES ABOVE THE BOTTOM OF THE CRUSHED ROCK LOAD TRANSFER PAD.

4.2 INSTALLATION

A. PREVENT SURFACE WATER FROM ENTERING EXCAVATED SHAFTS. CONDUCT WATER TO SITE DRAINAGE FACILITIES.

B. RIGID INCLUSIONS SHALL BE PLACED BY ROTATING A CONTINUOUS FLIGHT HOLLOW-STEM AUGER INTO THE GROUND TO THE DEPTHS INDICATED ON THE PROJECT PLANS. ADVANCE AUGER AT A CONTINUOUS RATE DURING INSERTION THAT PREVENTS THE REMOVAL OF EXCESS SOIL.

C. EXCAVATE RIGID INCLUSIONS TO DEPTHS/ELEVATIONS INDICATED ON PROJECT PLANS.

D. MAINTAIN POSITIVE (CLOCKWISE) ROTATION OF AUGER DURING WITHDRAWAL. PROMPTLY REMOVE EXCAVATED SPOILS TO PREVENT ACCUMULATION.

E. CONCRETE PLACEMENT

1. CONCRETE SHALL BE PUMPED WITH SUFFICIENT PRESSURE THROUGH THE AUGER SHAFT AS THE AUGER IS WITHDRAWN TO FILL THE AUGERED HOLE PREVENTING HOLE COLLAPSE AND ANY INFILTRATION OF SOIL INTO THE HOLE AND TO CAUSE THE LATERAL PENETRATION OF THE CONCRETE INTO SOFT OR POROUS ZONES OF THE ADJACENT SOIL. CONCRETE SHALL BE PLACED IN A CONTINUOUS OPERATION.

2. LIFT AUGER 6 TO 12 INCHES AT START OF CONCRETE PUMPING TO FACILITATE TIP PLUG REMOVAL, THEN RETURN TO PREVIOUSLY ESTABLISHED TIP ELEVATION.

3. A MINIMUM CONCRETE LINE PRESSURE OF AT LEAST 100 PSI SHOULD BE MAINTAINED.

4. DEVELOP AN INITIAL CONCRETE HEAD OF 10 FEET BEFORE START OF AUGER WITHDRAWAL AND MAINTAIN DURING EXTRACTION.

5. MONITOR PUMPED CONCRETE VOLUMES USING CALIBRATED MONITORING EQUIPMENT.

6. VOLUME OF PLACED CONCRETE SHALL BE AT LEAST 100 PERCENT OF THEORETICAL VOLUME MEASURED AT 60-INCH SEGMENTS. IF LESS THAN REQUIRED VOLUME IS PLACED FOR ANY GIVEN 60-INCH SEGMENT, LOWER AUGER MINIMUM OF 60 INCHES, OR TO BOTTOM OF RIGID INCLUSION IF LESS THAN 60 INCHES AVAILABLE, AND RESTART WITHDRAWAL.

7. IF CONCRETE PUMPING IS INTERRUPTED DURING PLACEMENT, LOWER AUGER A MINIMUM OF 60 INCHES, OR THE BOTTOM OF THE RIGID INCLUSION IF LESS THAN 60 INCHES AVAILABLE, AND RESTART WITHDRAWAL.

8. A HEAD OF CONCRETE AT LEAST 5 FEET ABOVE THE POINT OF INJECTION SHALL BE MAINTAINED AT ALL TIMES DURING THE PUMPING PROCESS SO THAT THE CONCRETE HAS A DISPLACING ACTION REMOVING ANY LOOSE MATERIAL AND MAINTAINING THE SHAPE OF THE HOLE.

9. ADJACENT RIGID INCLUSIONS - DO NOT INSTALL RIGID INCLUSIONS WITHIN 8 FEET OF RIGID INCLUSIONS GROUTED WITHIN THE PREVIOUS 12 HOURS.

4.3 HORIZONTAL AND VERTICAL ALIGNMENT TOLERANCES

A. THE MAXIMUM HORIZONTAL DEVIATION OF THE AS-INSTALLED CENTER OF ANY RIGID INCLUSION PROJECTED AT THE TOP OF THE RIGID INCLUSION SHALL NOT EXCEED 3 IN. FROM THE LAYOUT CENTER COORDINATE, UNLESS APPROVED BY THE ENGINEER.

B. THE VERTICAL ALIGNMENT OF RIGID INCLUSIONS SHALL NOT DEVIATE IN ANY DIRECTION BY MORE THAN 2% FROM VERTICAL.

C. IF LOCATION OR OUT-OF-PLUMB TOLERANCES ARE EXCEEDED, PROVIDE CORRECTIVE CONSTRUCTION PROPOSALS. SUBMIT CORRECTIVE CONSTRUCTION PROPOSALS TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE PROCEEDING.

4.4 OBSTRUCTIONS

A. SUBSURFACE STRATA MAY CONTAIN RUBBLE, CONCRETE, METAL, BRICKS, GRANITE, STONE AND BLOCKS, WOOD DEBRIS, ABANDONED UTILITIES, FOUNDATION ELEMENTS AND OTHER MATERIALS THAT CAN OBSTRUCT RIGID INCLUSION INSTALLATION OPERATIONS.

B. NATURALLY OCCURRING MATERIALS, SUCH AS COBBLES, DENSE WELL-BONDED OR OTHER COMPETENT IN-SITU SOILS, AND SAND AND GRAVEL LAYERS WILL NOT BE CONSIDERED AS OBSTRUCTIONS. BOULDERS MAY BE ENCOUNTERED WITHIN THE SUBSURFACE SOILS, AND WILL BE CONSIDERED AS UNKNOWN OBSTRUCTIONS.

C. WHERE UNKNOWN OBSTRUCTIONS ARE ENCOUNTERED DURING RIGID INCLUSION INSTALLATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL RIGID INCLUSIONS TO AVOID THE OBSTRUCTION, AT THE DIRECTION OF THE ENGINEER. EACH SITUATION SHALL BE RESOLVED AND PAID ON A CASE-BY-CASE BASIS. IF SUCH CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING, AND PROVIDE ALL PERTINENT INFORMATION RELATING TO THE NATURE, DEPTH, PLAN LOCATION COORDINATES, EXPECTED EXTENT OF THE OBSTRUCTION, AND PROPOSED NEW LOCATION TO OVERCOME THE OBSTRUCTION.

D. IF DIFFICULT DRILLING IS ENCOUNTERED DUE TO THE PRESENCE OF NATURALLY OCCURRING COBBLES, OR DENSE WELL-BONDED IN-SITU SOILS, OR OTHER CHARACTERISTICS OF THE IN-SITU SOILS, THE CONTRACTOR MAY ELECT TO REMOVE THE OBJECT OR SUBMIT AN ALTERNATE LOCATION TO AVOID THE OBJECT, SUBJECT TO THE ACCEPTANCE OF THE ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER. SUCH NATURALLY OCCURRING CONDITIONS SHALL NOT BE THE BASIS FOR ADDITIONAL MEASUREMENT OR COMPENSATION.

4.5 SITE MAINTENANCE

A. AT ALL TIMES DURING RIGID INCLUSION INSTALLATION OPERATIONS, THE SITE SHALL BE MAINTAINED CLEARED OF ALL DEBRIS AND WATER. THE CONTRACTOR SHALL REGULARLY DISPOSE OF ALL WASTE MATERIALS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND INCORPORATE ALL SEDIMENTATION AND TURBIDITY CONTROL MEASURES REQUIRED BY APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

C. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND IMPLEMENT MEASURES TO PREVENT ANY SPOIL MATERIAL, OR STOCKPILED MATERIALS FROM ENTERING STORM DRAIN STRUCTURES, DRAINAGE COURSES, AND OTHER UTILITY LINES, OR FROM LEAVING THE SITE VIA SURFACE RUNOFF. THE CONTRACTOR SHALL PREVENT THE MIGRATION OF SPOIL RETURN, SPOIL MATERIAL, OR STOCKPILED MATERIALS INTO ANY SURFACE WATER BODY, BEYOND THE IMMEDIATE LIMITS OF CONCRETE MIXING OPERATIONS.

4.6 ACCEPTANCE TESTING

A. CONCRETE VOLUME

1. THE ACCEPTANCE OF THE RIGID INCLUSION INSTALLATION WILL BE BASED ON THE DIAMETER AND DESIGN DEPTHS SPECIFIED IN THE PROJECT PLANS OR DETERMINED BY THE ENGINEER.

B. CONCRETE COMPRESSIVE STRENGTH

1. THE RIGID INCLUSION CONSTRUCTED SHALL ACHIEVE AN AVERAGE COMPRESSIVE STRENGTH OF AT LEAST 1,000 PSI WITH NO MORE THAN 15% OF THE 28-DAY UNCONFINED COMPRESSIVE STRENGTH RESULTS SHALL FALL BELOW THE TARGETED UNCONFINED COMPRESSIVE STRENGTH OF 1,000 PSI.

nbbj
223 YALE AVENUE NORTH
SEATTLE, WASHINGTON 98109
PHONE 206 223 5555
www.nbbj.com

CONSTRUCTION MANAGER: GLY

CIVIL ENGINEER: CPL

SHORING DESIGNER: GROUND SUPPORT

STRUCTURAL ENGINEER: DCI ENGINEERS

GEOTECHNICAL ENGINEER: GEOENGINEERS, INC.

MATTHEW W. SMITH
35217
4/5/19

BLOCK 38

50 % CD -
IGMP

REVISIONS

MARK	DATE	DESCRIPTION

SCALE
PROJECT ARCHITECT Designer
PROJECT NUMBER 101292.00
DATE 04/19/19
SHEET NAME
GROUND IMPROVEMENT SPECIFICATIONS
SHEET NUMBER
GI-002
SHEET OF 250

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CONSTRUCTION MANAGER:

CIVIL ENGINEER:

LANDSCAPE ARCHITECT:

STRUCTURAL ENGINEER:

MEP:

LEGEND

- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
- ASPHALT PAVEMENT (GRIND AND OVERLAY)
- CONCRETE WALK
- LANDSCAPING
- EXISTING CENTER LINE
- EXISTING FLOWLINE
- PROPOSED FLOWLINE
- PROPOSED TOP OF CURB
- PROPOSED BACK OF WALK

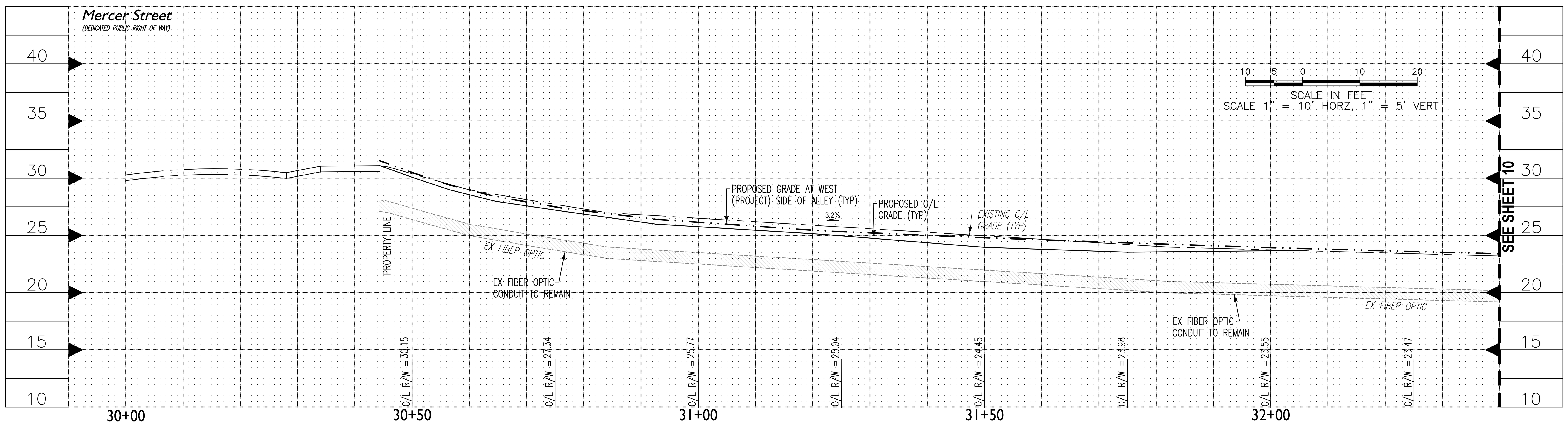
SEE SHEET 12 FOR ALLEY PROFILE

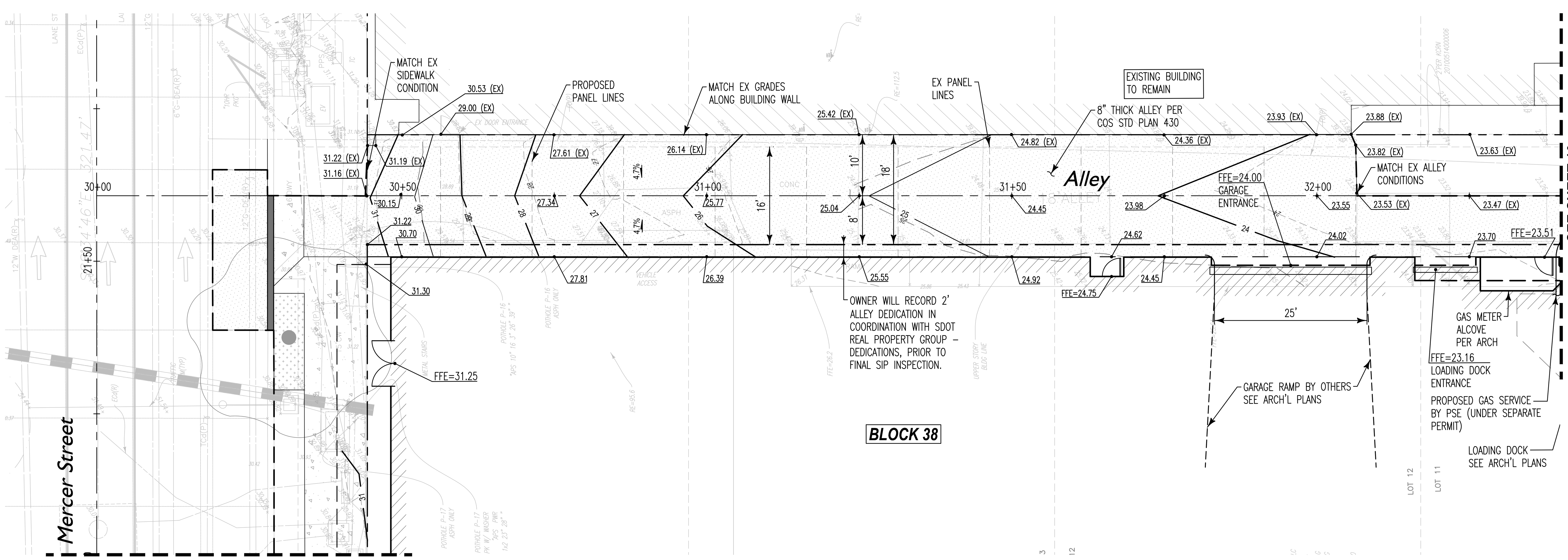
COORDINATE STREET/PARKING SIGNAGE REMOVAL AND INSTALLATION IN THE RIGHT-OF-WAY WITH ROBERT BURNS, SDOT STREET SIGNAGE, AT 206-684-5370. SEE GENERAL NOTE #27 FOR PAY STATION/SIGN REMOVAL/RELOCATION.

THE CONTRACTOR SHALL COORDINATE SIDEWALK CLOSURES, STREET CLOSURES AND ROW USE PERMITS WITH THE CITY OF SEATTLE DEPARTMENT OF TRANSPORTATION (SDOT).

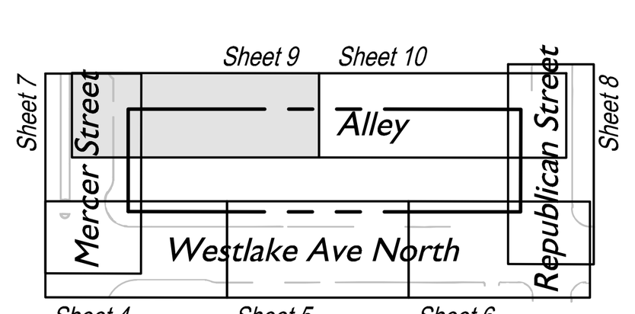
CONTRACTOR SHALL MAINTAIN SAFE PEDESTRIAN ACCESS ACROSS THE FRONTAGE OF THE PROJECT AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR WORK PERFORMED WITHIN THE CITY OF SEATTLE RIGHT-OF-WAY, UNLESS CONTRACTOR HAS RECEIVED APPROVAL OR OTHERWISE FROM SDOT ON SIDEWALK CLOSURES.

PROTECT TREES & VEGETATION PER STANDARD SPECIFICATIONS 1-07.16(2) & 8-01.3(2)B. CONTACT SDOT URBAN FORESTER 206-684-5693 FOR FIELD REVIEW OF TREE, VEGETATION AND SOIL PROTECTION PLAN PRIOR TO CONSTRUCTION.





SCALE IN FEET
SCALE 1" = 10'



KEYMAP

SEE SHEET 7

90% STREET IMPROVEMENT PLAN - NOT FOR CONSTRUCTION

BLOCK 38

SDCI PROJECT 3017466

COUGHLIN PORTER LUNDEEN
STRUCTURAL CIVIL SEISMIC ENGINEERING
801 SECOND AVENUE, SUITE 900
SEATTLE, WA 98104
(206) 343-0460
www.cplinc.com

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

REVIEWED BY SPU/WATER ENGINEERING	20.....
REVIEWED BY SPU/DRAINAGE	20.....
APPROVED BY SDOT STREET IMPROVEMENT PERMITTING	20.....

NAME OR INITIALS AND DATE			INITIALS AND DATE
DESIGNED	AJF	04/17/2019	REVIEWED:
CHECKED	JNP	04/17/2019	
DRAWN	PCD	04/17/2019	
CHECKED	MSJ	04/17/2019	PROJECT MANAGER
DESIGN REVIEW			REVISED AS-BUILT

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

City of Seattle
Seattle Department of Transportation

SCALE: H. V. INSPECTORS'S BOOK

520 Westlake Ave North

CURB, CW, LANDSCAPE, PAVING ETC
ALLEY

SDOT PROJECT NO. 242349
VAULT PLAN NO. XXX-XXX
VAULT SERIAL NO. XXX-XXX
SHEET 9 OF 25

COUGHLIN PORTER LUNDEEN
801 SECOND AVENUE, SUITE 900
SEATTLE, WA 98104
(206) 343-0460 www.cplinc.com

BLOCK 38

100% CD

Issue Date

REVISIONS

MARK	DATE	DESCRIPTION
6	08/21/2019	Phase 1 Rev 2
5	04/24/2019	Phase 1 Rev 1
3	12/07/2018	MUP Rev 3
2	3/17/2017	MUP Rev 2
1	3/31/2016	Revision 1

SCALE	PROJECT ARCHITECT
As indicated	NBBJ
PROJECT NUMBER	C140025-02
DATE	08/23/2019

SHEET NAME
ALLEY S.I.P.

SHEET NUMBER
C-509

SHEET OF 250

nbbj
223 YALE AVENUE NORTH
SEATTLE, WASHINGTON 98109
PHONE 206 223 5555
www.nbbj.com

CONSTRUCTION MANAGER:

CIVIL ENGINEER:

LANDSCAPE ARCHITECT:

STRUCTURAL ENGINEER:

MEP:

LEGEND

- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
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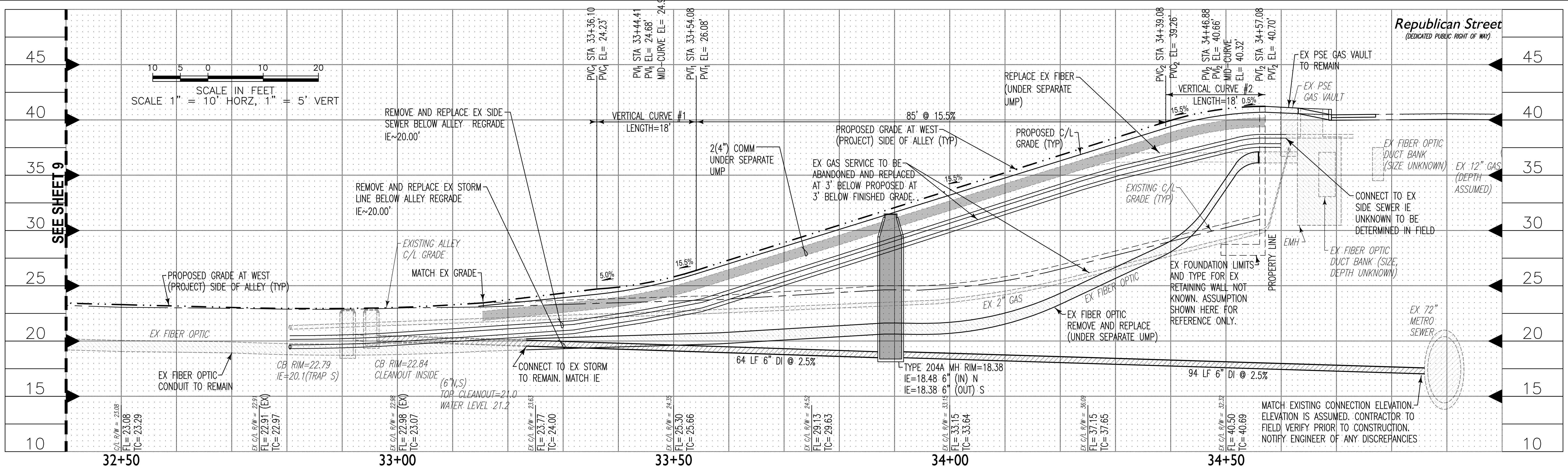

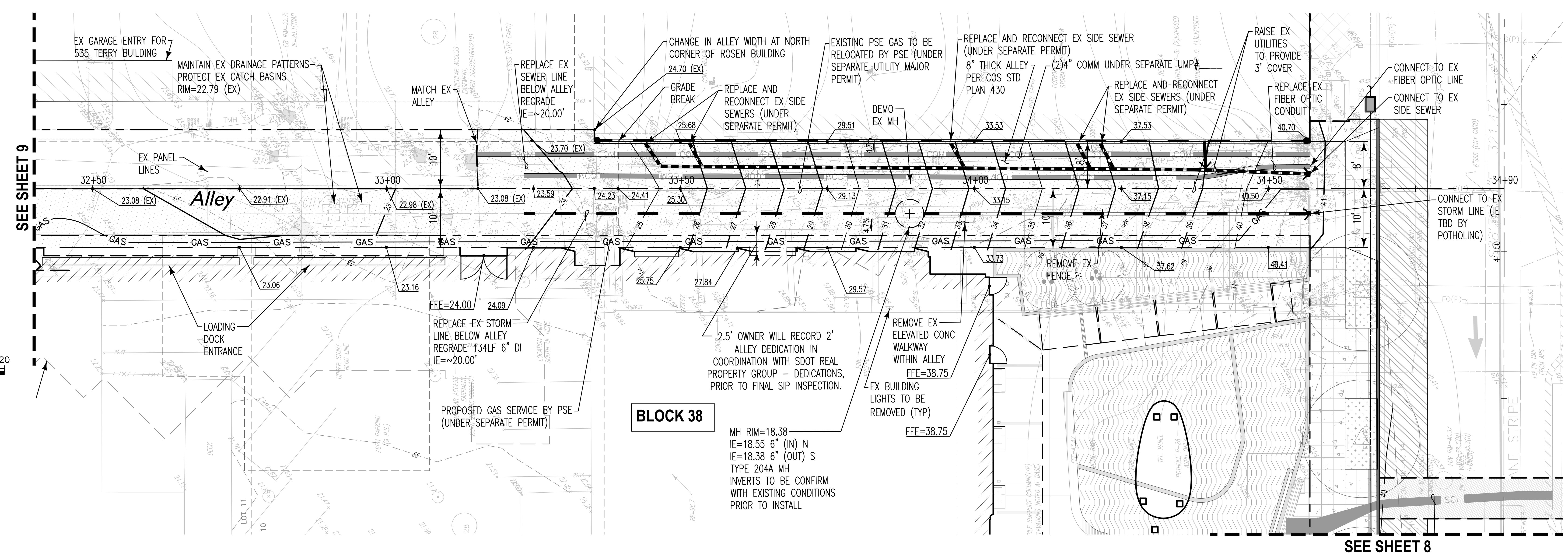

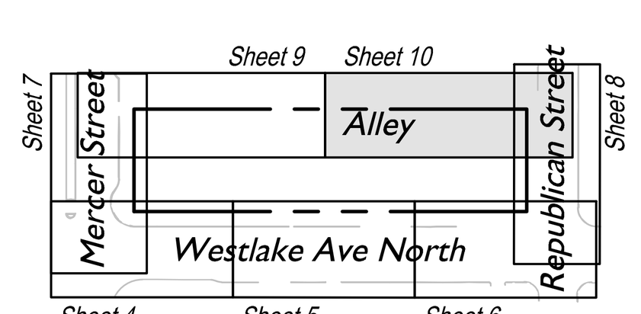

KEYMAP

90% STREET IMPROVEMENT PLAN - NOT FOR CONSTRUCTION

COUGHLIN PORTER LUNDEEN
STRUCTURAL CIVIL SEISMIC ENGINEERING
801 SECOND AVENUE, SUITE 900
SEATTLE, WA 98104
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DESIGN REVIEW			REVISED AS-BUILT

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City of Seattle
Seattle Department of Transportation

SCALE: H. V. INSPECTORS'S BOOK

BLOCK 38

SDCI PROJECT 3017466

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CURB, CW, LANDSCAPE, PAVING ETC
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SDOT PROJECT NO. 242349
VAULT PLAN NO. XXX-XXX
VAULT SERIAL NO. XXX-XXX
SHEET 10 OF 25

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SCALE	As indicated
PROJECT ARCHITECT	NBBJ
PROJECT NUMBER	C140025-02
DATE	08/23/2019

SHEET NAME
ALLEY S.I.P.

SHEET NUMBER
C-510
SHEET OF 250

Call Before You Dig. 8-1-1 or 1-800-424-5555 Underground Service (USA)

APPENDIX D
MONITORING AND INADVERTENT DISCOVERY PLAN

INTERIM ACTION WORK PLAN
Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

Monitoring and Inadvertent Discovery Plan

Prepared for
EA Engineering, Science, and Technology

October 24, 2018

South Lake Union Block 38 Project

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INTRODUCTION

A cultural resources overview and archaeological monitoring of geotechnical boreholes for the Block 38 Development project area recommended archaeological monitoring during construction due to the potential for buried pre-contact and historical archaeological sites (Piper and Heideman 2015; Earley 2018). This document establishes specific policies and protocols to follow if potentially significant archaeological resources or human remains are discovered during project activities and facilitates compliance with state laws in the treatment of any such discoveries.

Project Location and Description

The project is in the South Lake Union neighborhood in Section 30 of Township 25 North, Range 4 East, Willamette Meridian (Figure 1). The Block 38 site is a half-block area bounded by Westlake Avenue N of the west, Mercer Street on the north, a mid-block alley on the east, and Republican Street on the south (Figure 2). Project plans include construction of a 12-story office/retail building with four levels of below-grade parking. The existing structures on the parcel will be demolished. Geotechnical investigations were completed within the existing buildings and in the alley (Figure 3).

Regulatory Setting

The project is subject to the City of Seattle Director's Rule 2-98 (Chapter 25.05.675 H, SMC), which clarifies the Washington State Environmental Policy Act (RCW 43.21C) and its implementation. Director's rule 2-98 requires that the archaeological significance of a project site be assessed for any proposal involving excavation within 200 feet of the US Government Meander line and locations where information suggests the probability of potentially archaeologically significant resources. The Meander Line was established in the mid-1800s and approximates historical shorelines of that era. The project area is located within the area designated by the City of Seattle as the US Government Meander Line buffer.

As noted in the rule, many of Seattle's existing and former shoreline areas may be sites of potential archaeological significance due to settlement patterns of Native Americans and early European Americans. SEPA and its implementing rules require project proponents to identify any places or objects on or adjacent to the project that are listed in, or eligible for, national, state, or local preservation registers, and to identify sites of archaeological, scientific, or cultural importance on or adjacent to the project. Project proponents are required to describe proposed measures to reduce or control impacts to those places, objects, and sites.

Additional Washington state laws address archaeological sites and Native American burials. The Archaeological Sites and Resources Act (RCW 27.53) prohibits knowingly excavating or disturbing prehistoric and historic archaeological sites on public or private land. The Indian Graves and Records Act (RCW 27.44) prohibits knowingly destroying American Indian graves. In the event of inadvertent disturbance through construction or other activities, human remains and artifacts from American Indian graves must be reinterred under supervision of the appropriate Indian Tribe. Additionally, RCW 42.56.300 exempts all records, maps, or other information identifying the location of archaeological sites, historic sites, artifacts, or sites of traditional, ceremonial, or social uses and activities of Indian Tribes from disclosure in order to prevent the looting or depredation of sites.

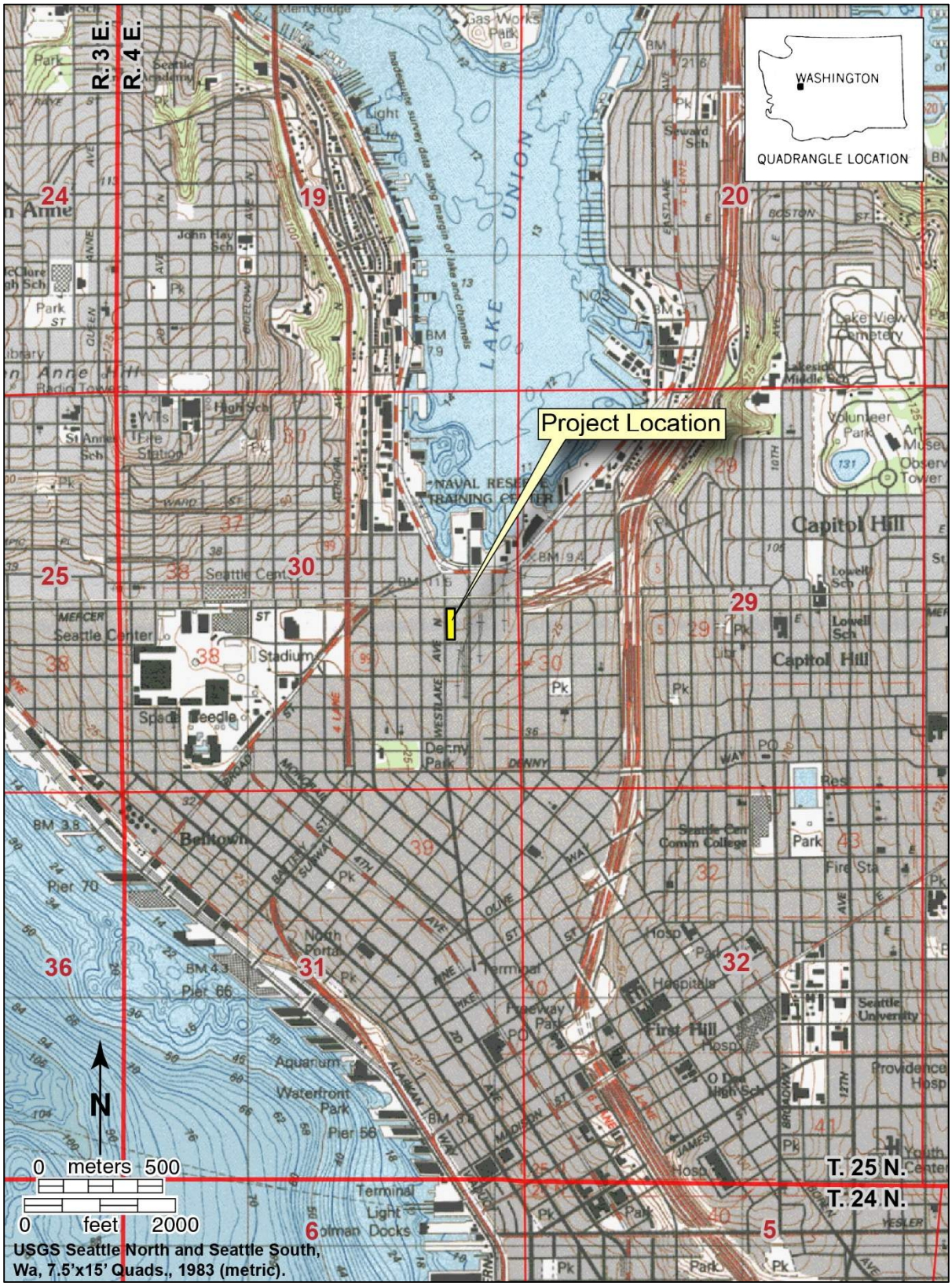

Figure 1. Project location.

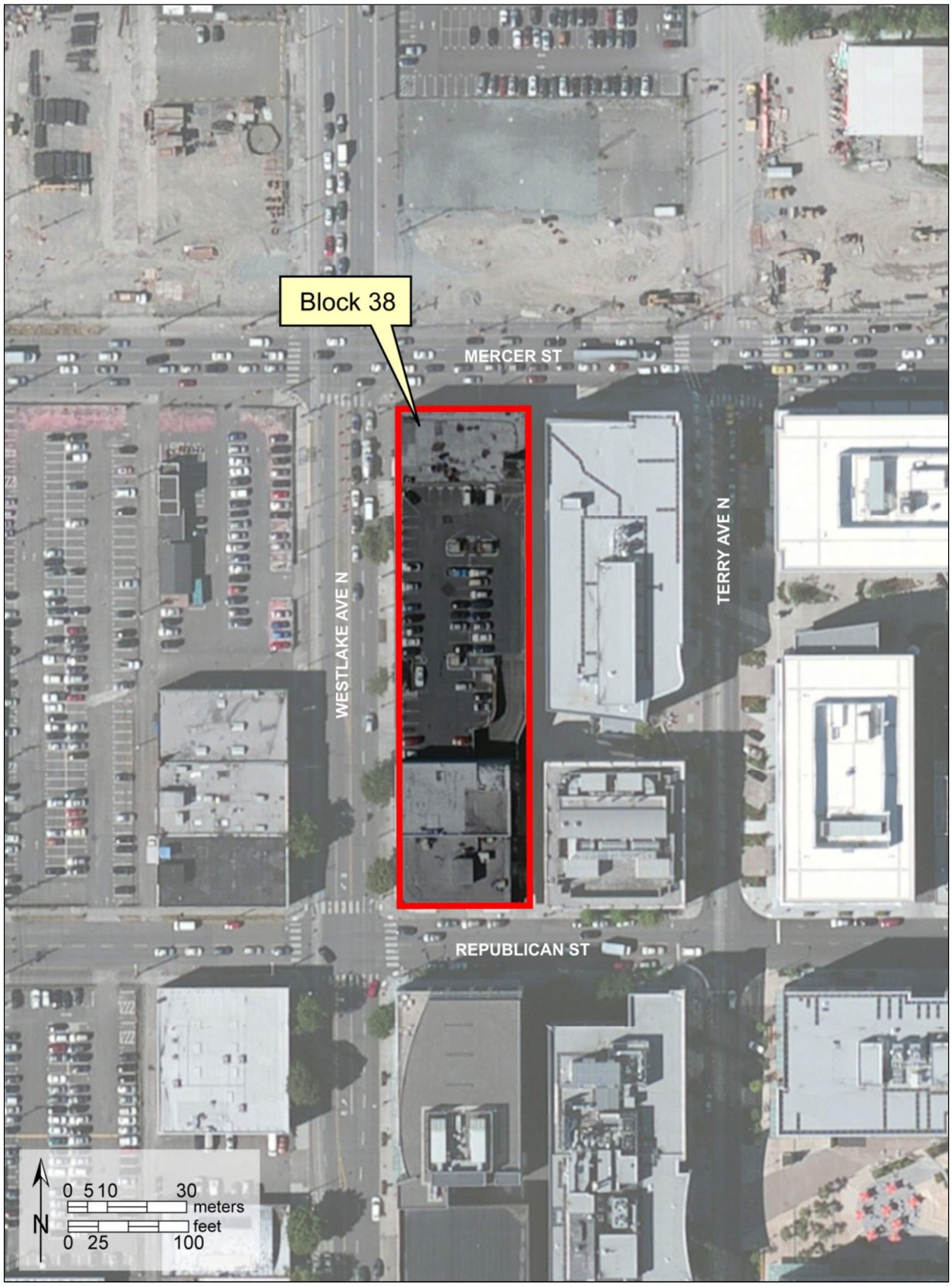

Figure 2. Aerial photograph showing project area.

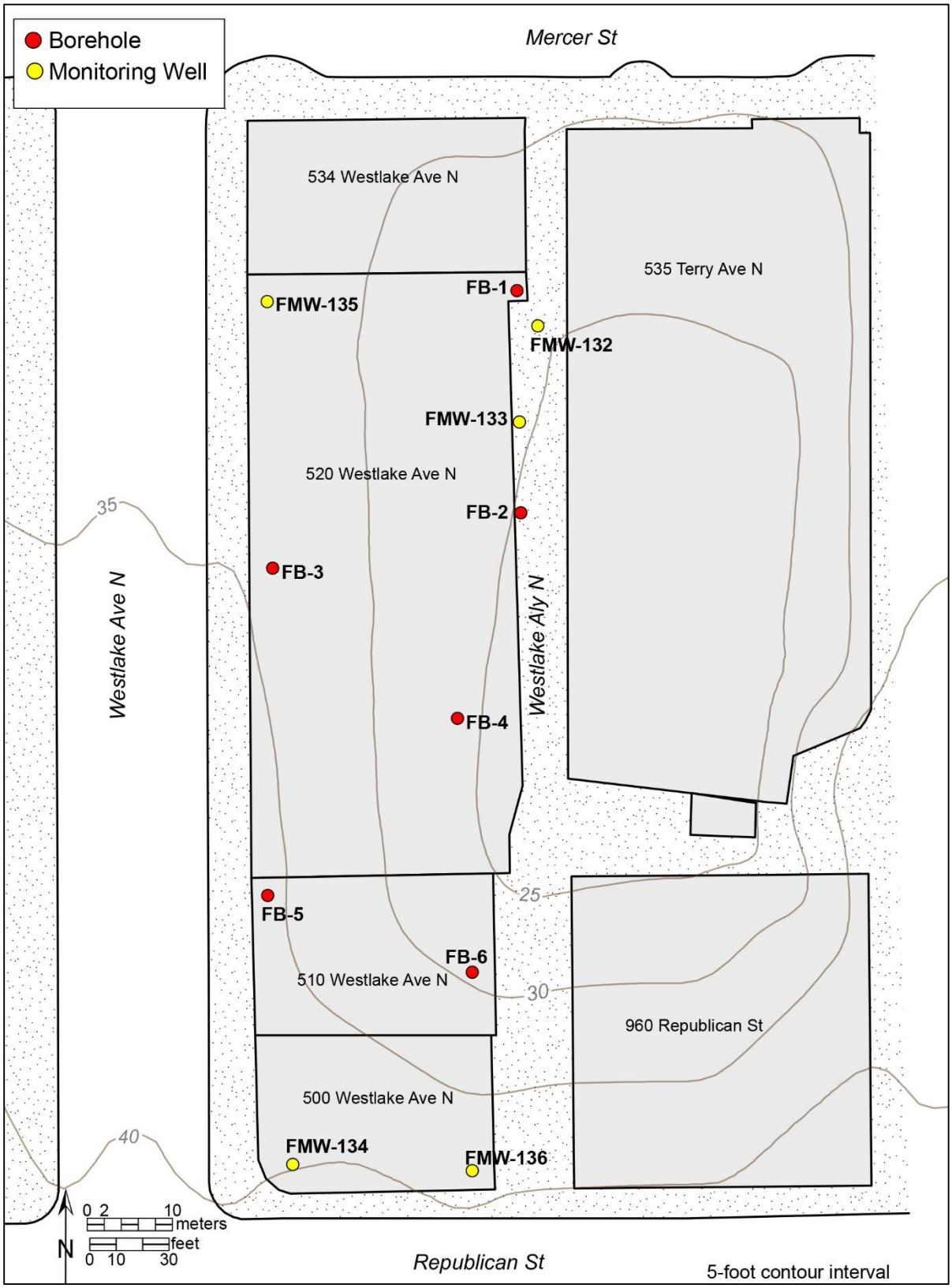

Figure 3. Locations of monitored boreholes and monitoring wells.

NATURAL AND CULTURAL SETTING

The surficial geology of the project vicinity reflects the project area's glacial formation history. The project is on a glacial upland where Vashon till and ice-contact deposits are mapped (Troost and Booth 2008; Troost et al. 2005; Washington Division of Geology and Earth Resources 2016). Vashon Stade ice-contact deposits typically consist of poorly sorted silty sand and gravel with a locally hummocky topography suggestive of dead-ice terrain, with lenses of glacial till and outwash. Older pre-Fraser deposits are exposed in the project area as well. The pre-Fraser units are non-glacial older deposits marked by organic layers and laminated silt deposits. Sandy glacial outwash and glaciolacustrine sediment are also mapped nearby (Troost et al. 2005).

At present the project area is approximately 630 feet south of the Lake Union shoreline but prior to extensive Euroamerican development, Block 38 was partially within the lake (Figure 4). Excavation of the Fremont and Montlake cuts for the ship canal and filling activities altered the Lake Union shoreline at the turn of the 20th century (Figure 5). Filling activities have also changed the topography within the project area. Elevation on historical maps shows that the project area once sloped more steeply down to the north toward the lake. Geotechnical boreholes excavated within the project area reflect this topography with deeper fill up to 16 feet below surface (fbs) in the northern part of the project, and shallow fill in the southern part of the project.

Several significant precontact archaeological sites identified in Seattle provide evidence of occupation over the last five thousand years. Significant sites are commonly located in littoral, riverine, and estuarine locations and are often buried under deep fill (Hudson et al. 2005). Investigations of middens at the West Point Site Complex yielded a rich assemblage of stone and bone tools and demonstrated continuous use from 4300 to 200 B.P. (Larson and Lewarch 1995). Other significant sites, including the Duwamish No. 1 site and shell middens in south and west Seattle, have provided evidence of occupation between 1700 B.P and the historic contact period (Hudson et al. 2005). Ethnographic evidence shows that this area was significant to local Native American residents. Several places in the project vicinity have specific Lushootseed names highlighting their importance including an open prairie called *Baba'kwob* that provided vital resources like camas, wild onions, and birds. The marshy land south of the lake was called *Spa'Lxad* and was close to a camp on the southwest shoreline of the lake (Piper and Heideman 2015).

Historical development of the project vicinity began by 1856 with the Denny and Mercer residences and the construction of a road between the lake and Elliott Bay. Historical development on Block 38 was in place by 1893 when it was in use as a lumber yard with a large frame building and a smaller attached shed along Republican at the south end of the Block. In 1905, that structure had either been expanded or a new larger one constructed at the southeast corner of the block. A small stable and blacksmith shop was on the southwest corner of the block as well. By 1917, the southern three-quarters of the block had been developed with a blacksmith shop, wagon shop, and an auto-repair facility with its main floor six feet below street grade and a veterinary stable on the second floor accessible by an incline. The block also housed a three to four story building with a basement stable and two blacksmiths. By 1950, none of those buildings were present, and a warehouse with a basement was at the northern edge of the block and another warehouse at the southern edge. A Northern Pacific Railroad belt line was also present in the southeast part of the block by 1920 (Piper and Heideman 2015).

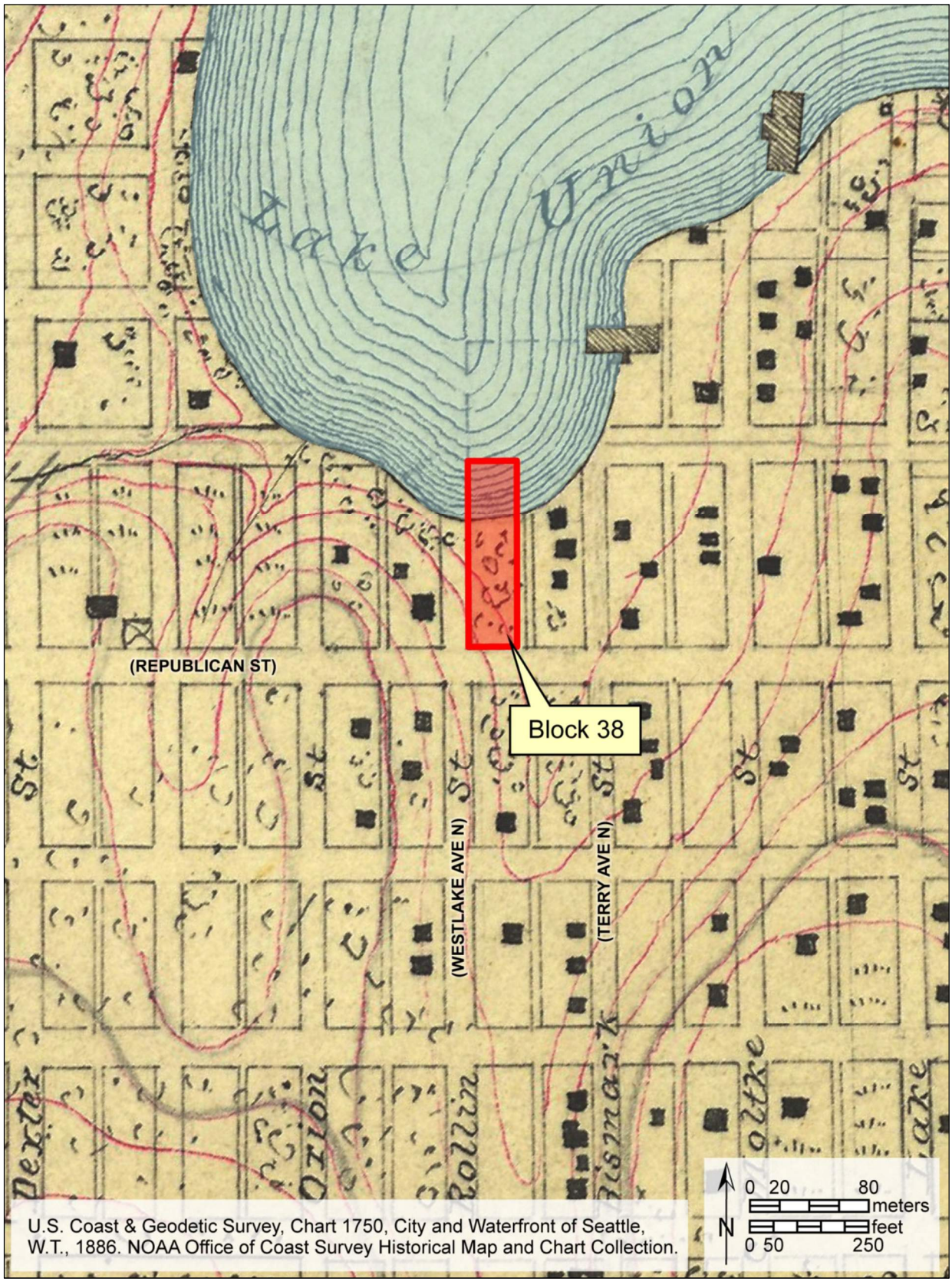

Figure 4. Project area and Lake Union Shoreline in 1886.

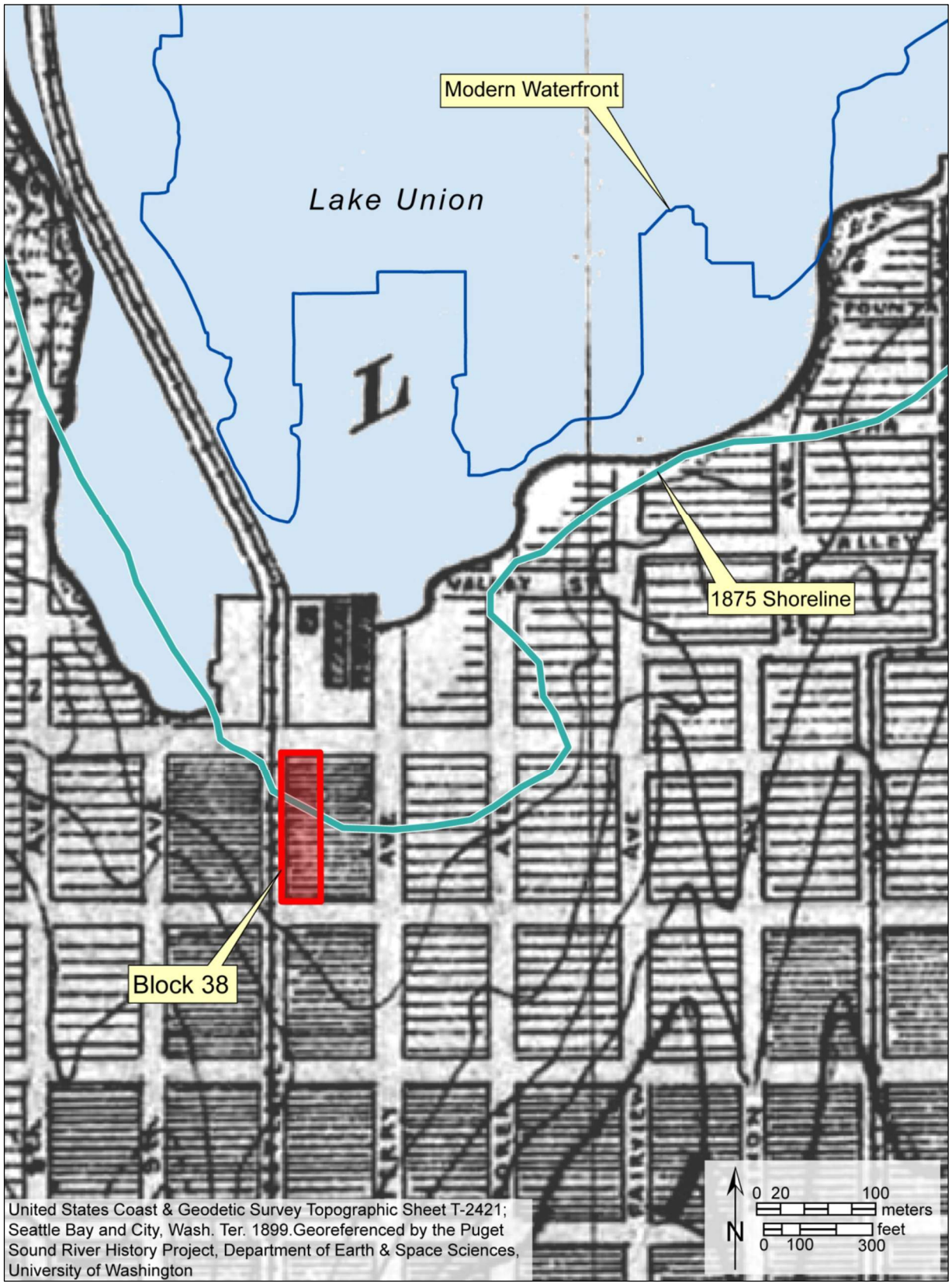

Figure 5. Lake Union Shoreline after filling, 1889.

POTENTIAL FOR DISCOVERY

The project is on a glacial upland landform where there is typically relatively low potential for encountering intact, significant pre-contact or ethnographic period archaeological resources. But there is heightened archaeological sensitivity around creeks, lakes, and other water features, such as Lake Union, and around prairie habitats. *Baba'kwob*, the prairie that occupied much of the area now occupied by Seattle Center, was of major significance to local Native American groups. Prairies often provided habitat for resources that were important, and the open spaces were often used as meeting and gathering spots. If present, potentially significant evidence of pre-contact or ethnographic-period human activity might include FMR, animal bone, concentrations of shell, ground and flaked stone tools, flaked stone tool-making debris, burned earth, cordage or fiber, organically stained sediments, charcoal, ash, and exotic rocks and minerals.

Additionally, significant historical cultural material associated with the early industrial development of the area may be present. Most of the boreholes excavated on the project parcel noted non-significant glass, wood, and bricks within the fill. Additional historical cultural material will likely be encountered during excavation in the project area. Historical cultural materials including glass, ceramics, metal, bricks, nails, and other building materials are frequently found dispersed within fill along South Lake Union. Such materials are typically not considered significant, but fill could contain potentially significant historical deposits representing discreet dumping episodes with the potential to yield information about domestic life in the early twentieth century. Futhermore, significant deposits such as privies could be encountered at the base of fill.

Archaeological monitoring of geotechnical boreholes provided the opportunity to identify specific areas with the potential for buried archaeological material. Although no significant historical material was identified in the borings, the presence of glass, brick, and wood within the fill in most borings suggest that historical archaeological material may yet be present. Borings FB-1, FB-2, FB-3, FMW 133, and FMW-135 in the northern half of the project area had the deepest fill, thus the north half of the project area harbors the highest likelihood for encountering significant material within the fill. Often, boundaries between fill and native sediments have stable surfaces that may have been available for human settlement. In particular, a buried surface identified at about 16 fbs in FMW-135 suggests that prior to historical filling of the lake, a stable surface may have been available for Native American or early historical settlement. Given the sampling methods of the borings, the precise depths of that boundary were not identified across the project but may yet be present within the project area.

Furthermore, the presence of peat and wetland deposits in several boreholes indicate that the marshy area south of the lake was present within the project area. This would have been an attractive location for Native groups to collect a variety of resources and had the name *Spa'Lxad* in the native language. Piper and Heideman report that "A cedar structure existed in the late nineteenth century at [the southwest shoreline of the lake], and local Duwamish were engaged there in traditional activities such as fish and clam smoking, basket making, and berry drying" (2015:10). Evidence of these and earlier Native American activities may be present within the Holocene lacustrine sediments. The boundary between Holocene and Pleistocene deposits may also harbor buried surfaces on which the earliest inhabitants of the region could have lived.

Based on the information summarized here, the following locations and depths within the project area should be monitored by a professional archaeologist:

- The historical fill in northern half of the project area (north of FB 2 and FB 3, at depths from 6 to 16 fbs);
- The boundary between historical fill and native Holocene lacustrine sediments throughout the project area (at variying depths between 3 and 16 fbs);
- The area near FMW-135 at 16 fbs where a potential buried surface was identified;

- All Holocene-age deposits, particularly in the south half of the project where the pre-fill historical shoreline is mapped; and
- The boundary between Holocene and Pleistocene deposits throughout the project area (at depths from 11 to 26.5 fbs).

Once project excavations have begun and the specific depths of the fill/Holocene and Holocene/Pleistocene interfaces are better known, the monitor can communicate with the contractor to determine at what locations and depths the monitor should be present. The monitor may not need to be present during all project excavations.

MONITORING PROCEDURES

Personnel

Monitoring will be performed by a professional archaeologist, who meets the Secretary of the Interior's Professional Qualifications Standards for Archaeology (48 FR 44738). The Monitor will have current HAZWOPER certification, if required. Perteet requires 2 weeks' notice prior to the start of ground disturbing work in the project area to schedule an archaeological monitor and to allow adequate time to notify affected Tribes of the project schedule. The Project Manager will notify Perteet 48 hours in advance of schedule changes during project construction.

Briefing

The Monitoring Supervisor or Project Archaeologist will brief key project project-specific cultural resource issues prior to construction. The briefing will include information on the legal context of cultural resources protection and on the pre-contact, ethnographic, and historical cultural resources that may be present in the construction area. The primary goal of the pre-construction briefing is to familiarize construction personnel with the procedures to be followed in the event that potentially significant cultural resources are discovered during construction. The briefing also provides an opportunity to discuss the construction schedule and to update and exchange contact information.

Monitoring Methods

The Archaeological Monitor will be present during ground-disturbing investigations and construction activities in areas and at depths with potential for cultural materials to be encountered. Initially, the Archaeological Monitor will observe excavation to the depth of undisturbed glacial deposits to ground-truth expectations about subsurface sediments. After identifying depth to culturally sterile sediments, the Archaeological Monitor may then use discretion to decide where archaeological monitoring is needed. The level of monitoring effort may be reduced in areas where thick fill is present and does not include significant archaeological material. These conditions are most likely to be encountered in the northeast portion of the project area, which was inundated as recently as the mid-1800s.

If it can be done safely, the Monitor will examine spoils and excavation side-walls to identify and record cultural material that may be exposed during excavation. The Archaeological Monitor will be responsible for maintaining daily work records and documenting any discoveries. Coordinates of any discoveries will be recorded with a handheld global positioning system (GPS) unit. The Archaeological Monitor will ensure that every reasonable effort is made to fully document any pre-contact and historical archaeological resources discovered during construction. The Archaeological Monitor will be allowed to carry out this documentation.

In the event that potentially significant archaeological resources are identified during archaeological monitoring of construction, the Archaeological Monitor will request a pause in excavation in the area of discovery. The

Archaeological Monitor may request that equipment operators modify excavation procedures to expose subsurface stratigraphy in thin lifts in an effort to better document cultural resources. Safety permitting, the Archaeological Monitor may enter excavations to examine exposed sidewalls and surfaces more closely. Initial evaluation efforts will focus on determining the vertical and horizontal extent of any potentially significant archaeological deposit within the excavation limits. Excavation shoring will be the responsibility of the general contractor. Collection of archaeological materials by any employee, construction personnel, or other staff with access to the project who is not a professional archaeologist is prohibited by state law (RCW 27.53).

Discovery of Potentially Significant Cultural Resources

If potentially significant archaeological resources are identified during archaeological monitoring of construction, the Archaeological Monitor will request a pause in excavation around the discovery. The Archaeological Monitor may request that equipment operators modify excavation procedures to expose subsurface stratigraphy in thin lifts to better document cultural resources. Collection of archaeological materials by any employee, construction personnel, or other staff with access to the project who is not a professional archaeologist is prohibited by state law (RCW 27.53).

In the event of an archaeological discovery, the Monitor will request a pause in construction at the spot where the cultural resources are identified and the following steps will be taken:

1. The Monitor will a) identify the nature of the discovery, and b) conduct a preliminary evaluation. Safety permitting, the Archaeological Monitor may enter excavations to examine exposed sidewalls and surfaces more closely. Initial evaluation efforts will focus on determining the vertical and horizontal extent of any potentially significant archaeological deposits within the excavation limits. Excavation shoring will be the responsibility of the general contractor.
2. If the discovery is related to Native American activities, or involves concentrations of historic materials, work will halt around the discovery, and the Monitoring Supervisor will request that the Project Manager notify affected Tribes, the City of Seattle Department of Construction and Inspections (SDCI), and the Department of Archaeology and Historic Preservation (DAHP).
3. The Monitor will fully document, on standard forms, all pre-contact and historical cultural material. Initial efforts will focus on establishing the nature, provenience, and integrity of any discovery. Documentation methods may include photographs, sketches, scaled drawings, and written descriptions. Samples may be taken for identification or analysis by a specialist. Sufficient time will be granted to evaluate the discovery. Artifacts will not be collected.
4. The Monitoring Supervisor will ensure that the Project Manager is fully briefed on the discovery. Documentation of the discovery will be assembled and forwarded to the Project Manager who will consult with the affected Tribes, SDCI, and DAHP. Project activity will be prohibited within 30 feet of the discovery and may not proceed until the consulting parties have concluded that further activities will not adversely affect the discovery.
5. A report will be submitted to EA at the conclusion of the project reporting the results of the monitoring. EA will forward the report to all consulting parties for review. Once review is complete, Perteet will submit the report to DAHP.

Discovery of Human Remains

Preserved human skeletal material and the material evidence of burials have been identified elsewhere in Seattle. Although there is a low probability for discovering human remains during construction, their presence is possible. If suspected human remains are encountered all construction activity will cease in the vicinity and the Archaeological Monitor will conduct a preliminary evaluation to determine if they are human.

In accordance with RCW 27.44, RCW 68.60, and RCW 68.50, if ground disturbing activities encounter human skeletal remains during the course of construction, then all activities that may cause further disturbance to those remains will cease and the following steps will be taken:

1. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed.
2. The finding of human skeletal remains will be reported to the King County Medical Examiner and Seattle Police in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed.
3. The King County Medical Examiner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic.
4. If the King County Medical Examiner determines the remains are non-forensic, then they will report the finding to the DAHP who will then take jurisdiction over the remains. DAHP will notify any appropriate cemeteries and all affected Tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes.
5. DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Suspected human remains will be treated with respect and will not be handled by anyone other than Tribal representatives, archaeologists, or law enforcement. With the exception of archaeological or law enforcement documentation, photographing the remains is prohibited.

INADVERTENT DISCOVERY

If cultural resources are identified during construction when the archaeological monitor is not present, it will be the responsibility of the Construction Superintendent, or their designated representative, to contact the Project Manager and Perteet to evaluate the discovery. The Project Manager will contact the affected Tribes, and DAHP if the discovery is significant. If the discovery involves human remains, the Construction Supervisor will halt construction activity within 30 feet of the discovery and follow the steps described in the Discovery of Human Remains section above.

CONFIDENTIALITY

Archaeological properties are of a sensitive nature, and sites where cultural resources are discovered can become targets of vandalism and illegal removal activities. All parties shall keep and maintain as confidential all information regarding any discovered cultural resources, particularly the location of known or suspected archaeological properties. This information is exempt from public disclosure consistent with state law (RCW 42.56.300). Project personnel and contractors should especially keep the discovery of any found or suspected human remains confidential, including refraining from contacting the media or sharing information regarding the discovery with the public. Any reports prepared as a result of a cultural resources discovery during construction are confidential.

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APPENDIX A
Contacts

Perteet
Amber Earley, Monitoring Supervisor ..... (206) 436-0528
Emily Peterson, Archeological Monitor ..... (206) 818-9765

Project Manager
TBD ..... (XXX) XXX-XXXX

Construction Contractor
TBD ..... (XXX) XXX-XXXX

Local Government
Seattle Police Non-emergency ..... (206) 684-5550
King County Medical Examiner ..... (206) 731-3232

Seattle Department of Construction and Inspections
TBD ..... (XXX) XXX-XXXX

Department of Archaeology and Historic Preservation
Stephanie Jolivette, Local Government Archaeologist ..... (360) 586-3088
Dr. Allyson Brooks, State Historic Preservation Officer ..... (360) 586-3066
Dr. Rob Whitlam, State Archaeologist ..... (360) 586-3080
Dr. Guy Tasa, State Physical Anthropologist ..... (360) 586-3534

Duwamish Tribe
Cecile Hansen, Duwamish Tribe Chairperson ..... (206) 431-1582

Muckleshoot Indian Tribe
Virginia Cross, Muckleshoot Indian Tribe Chairperson ..... (253) 939-3311
Laura Murphy, Muckleshoot Indian Tribal Archaeologist ..... (253) 876-3272

Snoqualmie Tribe
Robert de los Angeles, Snoqualmie Indian Tribe Chairperson ..... (425) 888-6551
Steven Mullen Moses, Director of Archaeology and Historic Preservation ..... (425) 495-6097
Adam Osbekoff, Assistant Director of Archaeology and Historic Preservation ..... (425) 292-0249

Stillaguamish Tribe of Indians
Shawn Yanity, Stillaguamish Tribe Chairperson ..... (360) 652-7362 x228
Kerry Lyste, Stillaguamish Tribe Cultural Resources ..... (360) 652-7362 x226

Suquamish Tribe
Leonard Forsman, Suquamish Tribe Chairperson ..... (360) 394-8401
Dennis Lewarch, Suquamish Tribal Historic Preservation Officer ..... (360) 394-8529

APPENDIX E
HEALTH AND SAFETY PLAN

Alley Area of Block 38 West Site
Between Republican Street and Mercer Street
Seattle, Washington

Farallon PN: 397-019

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Folsom | Irvine

HEALTH AND SAFETY PLAN

CONSTRUCTION SUPPORT AND SOIL EXCAVATION
SOUTH LAKE UNION BLOCK 38 WEST PROPERTY
500 THROUGH 536 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 397-019

For:
City Investors IX LLC
c/o Vulcan Inc.
505 5th Avenue South, Suite 900
Seattle, Washington 98104

April 7, 2020

HEALTH AND SAFETY PLAN
REVIEW AND APPROVAL

Client: City Investors IX, LLC

Facility Name: South Lake Union Block 38 West Property

Type of Work: Construction support, soil excavation, subsurface investigation

Project No.: 397-019

Start Date: April 14, 2020

End Date: August 14, 2020

Plan Expiration Date: October 14, 2020 (Last day of expected field work or no longer than 6 months)

APPROVED BY:

Suzy Stumpf
Project Manager

_____ _____
Signature ***Date***

Jennifer L. Moore
Health and Safety Coordinator

_____ _____
Signature ***Date***

Clifford T. Schmitt
Principal-in-Charge

_____ _____
Signature ***Date***

This Health and Safety Plan (HASP) was written for the use of Farallon Consulting, L.L.C. (Farallon) and its employees. It may be used also by trained and experienced Farallon subcontractors as a guidance document. However, Farallon does not guarantee the health or safety of any person entering this site.

Due to the potentially hazardous nature of the site and the activities occurring thereon, it is not possible to discover, evaluate, or provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but does not eliminate, the potential for injury. The health and safety guidelines in this HASP were prepared specifically for this site, its conditions, purposes, dates of field work, and personnel, and must be amended if conditions change.

Farallon claims no responsibility for the use of this HASP by others. This HASP will provide useful information to subcontractors and will assist them in developing their own HASP, but it should not be construed as a substitute for their own HASP. Subcontractors should sign this HASP (see Attachment 1, *Health and Safety Plan Acknowledgment and Agreement Form*) as an acknowledgement of hazard information and as notice that this HASP does not satisfy their requirement to develop their own HASP.

CONTENTS

ATTACHMENTS

1.0 SITE-SPECIFIC INFORMATION

Information specifically pertaining to the project site, the scope of work for the project, and related safety concerns are discussed in this section.

1.1 BACKGROUND INFORMATION

Farallon Consulting, L.L.C. (Farallon) has prepared this Health and Safety Plan (HASP) for the property at 500 through 536 Westlake Avenue North in the South Lake Union area of Seattle, Washington comprising the western half of the block between Mercer Street to the north, an alley bisecting Block 38 to the east, Republican Street to the south, and Westlake Avenue North to the west, which is commonly known as the Block 38 West Property (herein referred to as the Site). The Site consists of King County Parcel Nos. 1983200196, 1983200180, and 1983200170, totaling 1.05 acres of land formerly occupied by an office building, a retail store, and a restaurant, all of which have been demolished.

The Site is being redeveloped with a building (Building) that includes four levels of underground parking with a finished floor elevation of -3.25 feet North American Vertical Datum of 1988 (NAVD88) and a mass excavation to an elevation of approximately -6.5 feet NAVD88 depending on geotechnical conditions. Construction of the Building will require mass excavation across the entirety of the Site. The excavation sidewalls will be retained using soldier pile and lagging shoring methods in conjunction with four rows of tiebacks. Excavation for elevator cores likely will extend below the mass excavation subgrade. The elevator core excavation sidewalls will be retained using soldier pile and lagging shoring methods in conjunction with four rows of tiebacks.

Hazardous substances were detected at concentrations exceeding Method A cleanup levels specified in the Washington State Model Toxics Control Act Cleanup Regulation (MTCA), as established in Chapter 173-340 of the Washington Administrative Code, in soil and groundwater samples collected from several locations at the Site during subsurface investigations. Construction of the Building will require managing soil and groundwater impacted with hazardous substances. Cleanup of impacted soil and groundwater will be conducted in conjunction with construction of the Building as an independent action in accordance with MTCA without direct oversight or approval by the Washington State Department of Ecology.

Farallon's role is to provide stockpile segregation recommendations to the excavation contractor, to observe and collect soil and groundwater samples from borings and wells at the Site, and conduct subsurface investigations to support preparation of the draft Remedial Investigation Work Plan.

1.2 SCOPE OF WORK

This HASP was prepared for the use of Farallon personnel while performing the following tasks at the Site in accordance with the following documents (collectively referred to as the Scope of Work):

- South Lake Union Block 38 West Property, Recommended Work Elements – Addendum No. 5 dated September 6, 2019, prepared by Farallon.

- South Lake Union Block 38 West Property, Recommended Work Elements – Addendum No. 6 dated December 26, 2019, prepared by Farallon.
- South Lake Union Block 38 West Property, Recommended Work Elements – Addendum No. 7 dated April 14, 2020, prepared by Farallon.
- Future scope elements to be included in the draft Remedial Investigation Work Plan.

The Scope of Work includes the following tasks pertinent to this HASP:

- Subtask 13A: Construction Support. Farallon will provide technical support regarding construction dewatering system operations, maintenance, and overall performance. The activities for Subtask 13A include the following:
    - Collecting up to three air discharge samples weekly from the north and west conveyance line water treatment system air treatment system to monitor for media breakthrough, evaluate the treatment system performance, and calculate monthly emission rates. Samples will be analyzed on a 24-hour turnaround time to allow for timely decision-making.
    - Providing technical support and an approach for shutting down the construction dewatering system to mitigate the distribution of chlorinated volatile organic compounds.
- Subtask 14B: Mass Excavation Field Support. Farallon will continue to provide construction support and planning at the Site during the mass excavation phase. The activities for Subtask 14B will include the following:
    - Observation of the mass excavation of impacted soil and transition into clean soil.
    - Collection of performance and confirmation soil samples during the mass excavation phase.
- Subtask 14E: UST Decommissioning. Farallon coordinated the removal of two unidentified underground storage tanks (USTs) discovered at the Site during mass excavation activities. The activities for Subtask 14E included the following:
    - Collected product samples from each UST for product identification to determine regulatory status of the USTs and to support waste disposal characterization;
    - Collected soil samples adjacent to the USTs to evaluate a potential release from each UST prior to removal;
    - Observed and documented the UST decommissioning and removal by subcontractor; and
    - Completed the UST site assessment and collected compliance soil samples.
- Subtask 14F: East-Adjacent Alleyway Investigation and Excavation Scoping. Farallon will conduct a subsurface investigation to evaluate the vertical extent of impacted soil in the east-adjacent alleyway of the Site. The activities for this subtask include the following:
    - Performing work under existing permits for the Block 38 West Property;

- Conducting public and private utility locates to clear the proposed boring locations prior to advancing borings and excavation activities;
- Advancing up to six borings to depths of 15 feet NAVD88 using a limited-access direct-push Geoprobe drill rig;
- Documenting the soil types encountered and visual and olfactory indications of soil contamination, and measuring volatile organic vapors present in each sampled interval using a photoionization detector during the advancement of borings; and
- Collecting soil samples from elevations of 20, 15, and 10 feet NAVD88 for laboratory analysis for one or more of the following: benzene; toluene; ethylbenzene; xylenes; total petroleum hydrocarbons as gasoline-range, diesel-range, oil-range organics; carcinogenic polycyclic aromatic hydrocarbons; total naphthalenes (1-methyl-naphthalene, 2-methyl-naphthalene, and naphthalenes); and Resource Conservation and Recovery Act metals.

- Subtask 17D: Remedial Investigation Work Plan. Farallon will prepare and provide a Remedial Investigation Work Plan for the upcoming post-mass excavation remedial investigation activities at the Site. The activities for this subtask include the following:
  - Installing monitoring wells inside and outside the footprint of the Building during construction activities at the Site;
  - Documenting lithology continuously during monitoring well installations and field-screening for signs of contamination; and
  - Collecting groundwater samples from wells installed using low-flow purging and sampling methods.

The tasks will be conducted in a manner consistent with the methods and assumptions outlined in the Scope of Work.

1.3 SITE-SPECIFIC SAFETY CONCERNS

This phase of the project involves mass excavation of impacted soil, advancing borings, drilling and well installation, excavation dewatering, and the potential for monitoring well abandonment or UST decommissioning and removal. Specific hazards that the field employee(s) will encounter on this project include, but are not limited to:

- Working around heavy equipment;
- Working with hand tools and small mechanical equipment;
- Working in an open excavation with major redevelopment work;
- Working in an area where crane use is ongoing;
- Pedestrian traffic;
- Truck traffic;

- Pinch points;
- Work exclusion zone safety;
- Slips, trips, and falls;
- Loud noise;
- USTs, which are considered confined spaces that Farallon personnel should not enter;
- Chemical exposure related to impacted soil, groundwater, and windblown dust; and
- Environmental hazards, including exposure to sun, heat, and cold.

2.0 DRUG AND ALCOHOL POLICY

It is Farallon's policy to maintain a drug-free workplace. Farallon has a responsibility to all of its staff members to provide a safe and inoffensive work environment, and a responsibility to its clients to provide accurate and consistent service. For these reasons, Farallon prohibits the following behavior by staff members in the field:

- Use of tobacco in any form by any person at any time in sensitive or hazardous areas that may pose a health and safety or environmental risk. The Site Health and Safety Officer (SHSO) may designate an area away from hazards that is safe for tobacco use.
- Possession or consumption of alcohol and/or marijuana, or being under the influence of alcohol and/or marijuana during field activities.
- Abuse of prescription and/or over-the-counter drugs in such a manner as to negatively impact performance or field safety.
- Possession, use, sale, or being under the influence of illicit drugs while in the field or during any work hours.

Violation of any of the above codes of conduct is grounds for immediate removal from the project Site and discipline in accordance with Farallon company policy. If an incident occurs as a result of an employee's actions, drug and alcohol testing will be performed in accordance with Farallon company policy.

3.0 WEAPONS POLICY

Farallon employees, contractors, subcontractors, and their employees working at the Site are to ensure that they do not bring weapons onto the work site. Weapons include but are not limited to guns, knives, and explosives. Tools that are used during the course of field events, including but not limited to box knives, are exempt from this weapons policy. All vehicles and persons can be subjected to search while working at the property.

Failure to comply with the weapons policy can result in disciplinary action for the individual(s) involved in accordance with Farallon company policy.

4.0 INCIDENT PREPAREDNESS AND RESPONSE

Farallon employees and subcontractors working at the Site must be prepared to respond appropriately to an incident involving injury, illness, death, spills, or utility breaches. This section outlines the degree of preparedness required for employees at a work site, and describes the actions to be taken in the event of a health and safety incident.

4.1 HEALTH AND SAFETY PREPAREDNESS

All individuals working at the Site are required to be familiar with the contents of this HASP. Additionally, the items on the following health and safety preparedness list should be reviewed prior to the commencement of work and during daily health and safety meetings:

- The directions to the hospital (provided in Attachment 2);
- The locations of first aid kits, personal eye washes, and fire extinguishers (located in Site vehicles);
- The locations of the keys to Site vehicles; and
- Hand sign language providing for the immediate stoppage of work (such as a horizontal hand movement in front of the neck).

Additional topics for daily health and safety meetings are included in Attachment 3, Potential Topics for Daily Health and Safety Meeting. Participation in daily health and safety meetings should be documented in Attachment 4, Daily Health and Safety Briefing Log.

4.2 INJURY OR ILLNESS

If an injury or illness occurs, the following actions should be taken, regardless of the severity of the injury or illness:

- Stop work.
- Determine whether emergency response staff (e.g., fire, ambulance) are necessary. If so, dial 911 on a cell phone or the closest available telephone. Describe the location of the injured person and provide other details as requested. If an individual requires non-emergency medical care at a hospital, follow the directions to the nearest hospital, which are provided in Attachment 2. IF EMERGENCY MEDICAL CARE IS NEEDED, CALL 911.
- Administer first aid to the individual immediately, using the first aid kit provided in the Site vehicle. Use the bloodborne pathogens kit and personal eyewash, as needed.
- Notify the SHSO immediately. The SHSO is responsible for preparing and submitting an Incident Report form to Farallon's Health and Safety Coordinator (HSC) within 24 hours of the incident, and for notifying the employee's supervisor and the Principal-in-Charge. The Incident Report form is provided in Attachment 5.

- ***All incidents must be reported to the HSC within 24 hours; however, the actual investigation need not be completed within 24 hours***. **A telephone message that includes the date, time, and general incident circumstances should be left at one of the following numbers if the HSC cannot be reached directly**:
    - HSC work phone: (425) 295-0800
    - HSC cell phone: (206) 484-2748
    - If the HSC cannot be located, contact the Principal-in-Charge
- The SHSO will assume responsibility during a medical emergency until emergency response personnel arrive at the Site.

4.3 REPORTING PROCEDURES FOR MINOR CUTS, SCRATCHES, BRUISES, ETC.

Every occupational illness or injury is to be reported immediately by the employee to the SHSO. The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC.

4.4 NEAR MISSES

A near miss is defined as an incident in which no personal injury is sustained and no property damage is incurred, but in which injury and/or property damage could have occurred under slightly different timing or location.

In the event of a near miss, the following actions are to be taken:

- Stop work if there is immediate danger of injury or property damage;
- Report the near miss to the SHSO as soon as practicable;
- Resume work upon satisfactory resolution of the near-miss condition, if work was stopped, and document the corrective action(s) taken by the SHSO; and
- Complete and submit the Near Miss Report and Safety Observation Report form in Attachment 6 to the HSC within 2 business days.

4.5 MEDICAL INCIDENTS NOT REQUIRING AMBULANCE SERVICE

Medical incidents not requiring ambulance services include injuries and conditions such as minor lacerations and sprains. In the event of an injury, an illness, or a condition that does not require ambulance service, the following actions are to be taken:

- Stop work.
- Administer first aid as necessary to stabilize the individual for transport to the hospital.
- The SHSO is to facilitate prompt transportation of the individual to the hospital. Directions to the nearest hospital are provided in Attachment 2.

- A representative of Farallon or the subcontractor is to drive the individual to the medical facility and remain at the facility until the individual is able to return to the work site, or arrangements for further care have been established.
- If the driver is not familiar with the route to the hospital, a second person who is familiar with the route is to accompany the driver and the injured employee to the hospital.
- If it is necessary for the SHSO to accompany the injured employee to a medical facility, provisions must be made for another employee who is trained and certified in first aid to act as the temporary SHSO before work at the work site can resume.
- If the injured employee is able to return to the work site the same day, he/she is to bring a statement from the doctor that provides the following information:
    - Date of incident
    - Employee's name
    - Diagnosis
    - Date he/she is able to return to work, and whether regular or light duty
    - Date he/she is to return to the doctor for a follow-up appointment, if necessary
    - Signature and address of doctor
- The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC.
- If the injured employee is unable to return to the work site the same day, the employee who transported him/her should bring the statement from the doctor back to the work site. The information on this statement should be reported to the HSC immediately.

4.6 EMERGENCY CASES REQUIRING AMBULANCE SERVICE

In the event of an injury or illness that requires emergency response and transport to a hospital by ambulance the following actions should be taken:

- **Dial 911** to request ambulance service;
- Notify the SHSO;
- Administer first aid until the ambulance service arrives;
- One designated company representative should accompany the injured employee to the medical facility and remain there until final diagnosis, treatment plan, and other relevant information has been obtained; and
- The SHSO is to complete the Incident Report form provided in Attachment 5, and report the incident to the HSC immediately.

4.7 EMPLOYEE DEATH, OR HOSPITALIZATION OF ONE OR MORE EMPLOYEES

The procedures outlined in Section 6.2 should be followed in the event of an employee injury or illness. If an employee fatality occurs, the HSC, local emergency personnel, and the coroner must be notified **immediately**. **The HSC will initiate the required State of Washington Department of Labor and Industries and Occupational Safety and Health Administration (OSHA) notifications within 8 hours of a fatality or the hospitalization of one or more employees.**

4.8 RESPONSE TO SPILLS OR UTILITY BREACHES

The location of underground utilities (e.g., product, sewer, telephone, fiber optic) and facilities (e.g., underground storage tanks, septic tanks, utility vaults) is to be noted prior to commencement of intrusive subsurface work activities. Use the public and private locate services as required and complete the Utility Clearance Log (Attachment 7). If a utility line or tank is breached or a spill or release occurs, the event is to be documented on the Incident Report form provided in Attachment 5 as soon as possible. The date, time, name of the person(s) involved, actions taken, and discussions with other affected parties are to be included. The SHSO, Project Manager (PM), and client are to be notified immediately. The PM is to notify the regulatory authority and/or utility company, as necessary.

In the event of a spill or release, the following actions should be taken:

- Stay upwind of the spill or release.
- Don appropriate personal protective equipment (PPE).
- Turn off equipment and other sources of ignition.
- Turn off pumps and shut valves to stop the flow or leak.
- Plug the leak or collect drippings, if possible.
- Use sorbent pads to collect the product and impede its flow, if possible.
- Dial 911 or telephone the local fire department immediately if a fire or another emergency situation develops.
- Inform the Farallon PM of the situation.
- Determine whether the client would like Farallon to repair the damage or would rather use an emergency repair contractor.
- Advise the client of spill discharge notification requirements, and establish who will complete and submit the required forms. ***Do not report or submit information to an agency without the client's consent.*** Document each interaction with the client and regulators, and note in writing names, titles, authorizations, refusals, decisions, and commitments to any action.

- Do not transport or approve transportation of contaminated soils or product until proper manifests have been completed and approved. Be aware that soil and/or product may meet criteria for hazardous waste.
- Do not sign manifests as a generator of wastes. Contact the PM to discuss waste transportation.

4.9 NOTIFICATIONS

A spill or release requires completion of an Incident Report form (provided in Attachment 5) per Farallon's Health and Safety program. **The PM must involve the client and/or generator in the incident reporting process. The client and/or generator is under obligation to report the incident to the appropriate government agency(ies). If the spill extends into waterways, the Coast Guard and the National Response Center must be notified immediately by the client or with client permission (1-800-424-8802).**

4.10 SHUTOFF VALVES AND/OR SWITCHES FOR UTILITIES AND PRODUCTS

Before starting work, locate, discuss, and list on the Daily Health and Safety Briefing Log the locations of utility and product line shutoff valves and switches on the work site. Review the location of shutoff valves and switches with other field personnel before beginning work.

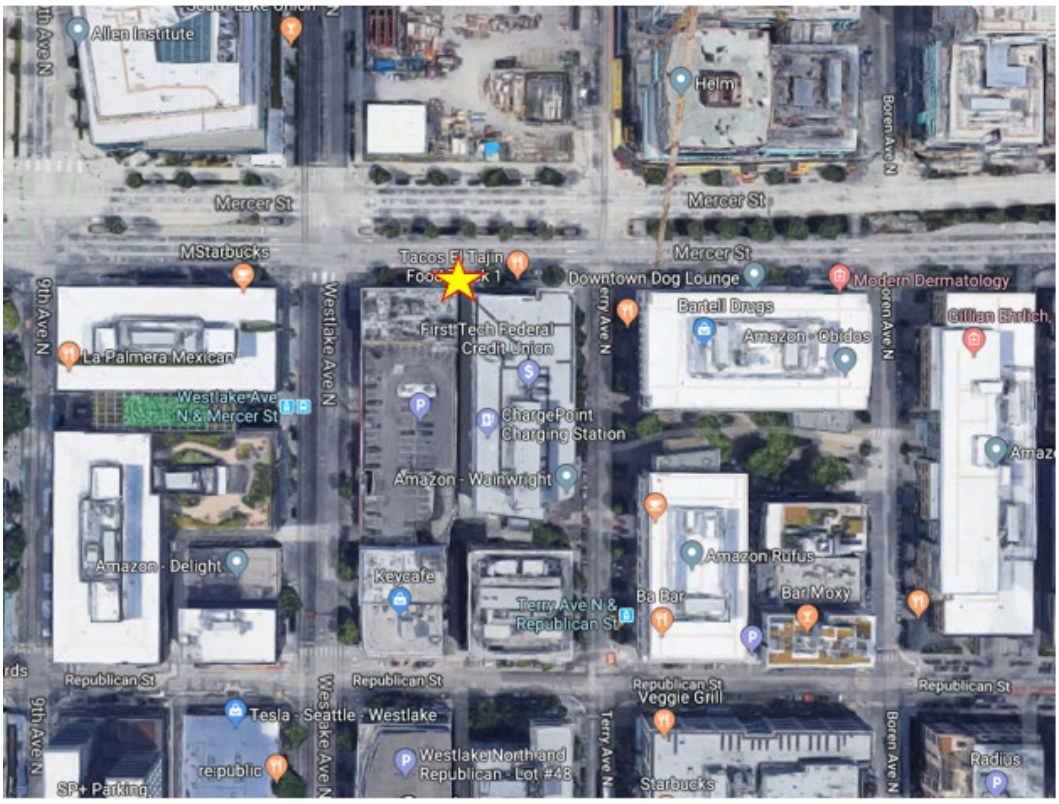
5.0 EMERGENCY RESPONSE AND EVACUATION PLAN

Farallon personnel and subcontractors working on the Site are to be aware of Site-specific emergency and evacuation procedures, including alarm systems and evacuation plans and routes. If an incident occurs that requires emergency response, such as a fire or spill, **CALL 911 and request assistance**. Farallon staff, subcontractors, and/or others working in an area where an emergency occurs are to evacuate to a safe location away from the incident area, preferably upwind, and take attendance.

For this project, the emergency evacuation gathering location is at the northeastern corner of the Block 38 West Property.

If the emergency causes the route to be obstructed, Farallon personnel and subcontractors are to move to an open area upwind of the hazard area, and remain there until instructed by emergency response personnel (e.g., police, fire, ambulance personnel, paramedics) to do otherwise.

Subcontractors have the responsibility to account for their own employees and provide requested information to emergency response personnel immediately upon request. Farallon staff, subcontractors, and/or contractors may not reenter the scene of the emergency without specific approval from emergency response personnel.



Emergency Meeting Location

6.0 LOCAL EMERGENCY CONTACT NAMES AND TELEPHONE NUMBERS

Local emergency response personnel can be contacted at the following numbers. Directions and a map to the hospital are included in Attachment 2.

Emergency Contact	Name and Location	Telephone No.
Hospital	Virginia Mason Hospital and Seattle Medical Center 1100 9th Avenue Seattle, Washington	(206) 223-6600
Police	Seattle Police Department – West Precinct 810 Virginia Street Seattle, Washington	**911** or (206) 625-5011
Fire	Seattle Fire Station 2 2320 4th Avenue Seattle, Washington	**911** or (206) 386-1400
National Response Center		**1-800-424-8802**
Washington State Department of Ecology		**(360) 407-6300**
Poison Control		**1-800-222-1222**

7.0 PROJECT PERSONNEL AND RELEVANT INFORMATION

The following section provides contact information for the project and the HSC and client-specific health and safety requirements. Farallon field personnel training and medical surveillance dates are included in Attachment 8.

7.1 PROJECT PERSONNEL CONTACT INFORMATION

Questions about this project that are posed by neighbors, the press, or other interested parties should be directed to the Principal-in-Charge at Farallon: (425) 295-0800.

PERSONNEL TITLE PERSONNEL NAME PERSONNEL CONTACT INFORMATION	GENERAL PROJECT RESPONSIBILITIES
Health and Safety Coordinator Jennifer L. Moore Office: (425) 394-4148 Cell: (425) 420-0014	Provide support in implementing HASP. Provide immediate support upon notice of any incident.
Principal-in-Charge Clifford T. Schmitt Office: (425) 295-0801 Cell: (425) 765-3365	Provide immediate support upon notice of any incident.
Project Manager Suzy Stumpf Office: (425) 394-4442 Cell: (303) 489-1032	Provide immediate support upon notice of any incident.
Client Contact Sean Biehl Office: (206) 342-2614	Provide known analytical data from work performed by others. Provide notice of Site hazards. Provide access to Site. Provide information regarding available emergency supplies at the Site.

8.0 POTENTIAL CHEMICAL EXPOSURE

Farallon employees working at the Site may become exposed to the chemicals listed in the table below. These chemicals are present either due to current Site activities or due to the presence of contamination. This table should be reviewed prior to the start of work and questions directed to the SHSO. Air monitoring may be required at the Site based on the scope of work for the project. The Farallon Project Manager and SHSO will let the Farallon Field Scientists know if air monitoring will be required for the scope of work.

The air monitoring table and forms are included in Attachment 9.

POTENTIAL AIRBORNE CHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTION						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Tetrachloroethene (perchloroethylene)	PEL – 100 ppm TLV – 25 ppm	PEL C – 200 ppm TLV STEL – 100 ppm IDLH – 150 ppm NIOSH considers this compound to be a carcinogen.	Colorless liquid with a mild, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin, nose, throat, respiratory system; nausea; flushed face, neck; vertigo (an illusion of movement); dizziness; lack of coordination; headache; skin erythema (redness).	Somnolence (sleepiness, unnatural drowsiness); liver damage; potential occupational liver carcinogen. **Target Organs:** Eyes, skin, respiratory system, liver, kidneys, CNS.
Toluene	PEL – 200 ppm TLV – 50 ppm	NIOSH REL – 100 ppm TWA; 150 ppm STEL ILDH – 500 ppm	Sweet, pungent, benzene-like odor.	Eye contact.	Skin (dermatitis); eye, respiratory tract irritant; headache; dizziness; weakness; fatigue.	CNS; liver; kidneys; skin.
Acetone	PEL – 1000 ppm TLV – 500 ppm	NIOSH REL – 250 ppm TLV STEL – 750 ppm IDLH – 2,500 ppm	Fragrant, mint-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, nose, throat; headache; dizziness; dermatitis.	CNS depressant; depression; liver, kidney damage.
Benzene	PEL – 1 ppm TLV – 0.5 ppm (skin)	PEL STEL – 5 ppm IDLH – 500 ppm	Characteristic benzene odor.	Inhalation; dermal; ingestion; eye contact.	Skin (dermatitis); eye, respiratory tract irritant; headache; dizziness; nausea.	Carcinogen; CNS; eye damage; bone marrow; blood; skin; leukemia.

POTENTIAL AIRBORNE CHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTION						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Naphthalene	PEL – 10 ppm TLV – 10 ppm	TLV STEL – 15 ppm NIOSH REL – 10 ppm REL STEL – 15 ppm IDLH – 250 ppm	Mothball-like odor.	Inhalation; dermal; ingestion; eye contact.	Skin, eye, mucous membrane irritant, nausea.	Eyes, blood, skin, liver, kidney, RBC; CNS.
Xylenes	PEL – 100 ppm TLV – 100 ppm	TLV STEL – 500 ppm NIOSH REL – 100 ppm NIOSH REL STEL – 100 ppm IDLH – 900 ppm	Aromatic odor.	Inhalation; dermal; ingestion; eye contact.	Throat, skin irritant (dermatitis); headache; nausea; drowsiness; fatigue.	CNS, liver, kidneys, skin, gastrointestinal damage; eye damage.
Ethylbenzene	PEL – 100 ppm TLV – 100 ppm	PEL STEL – 125 ppm TLV STEL – 125 ppm NIOSH REL – 100 ppm REL STEL – 125 ppm IDLH – 800 ppm	Pungent, aromatic odor.	Inhalation; dermal; ingestion; eye contact.	Skin, eye, mucous membrane irritant; headache; dizziness; drowsiness.	Eyes; respiratory tract; skin; CNS; blood; kidneys; liver.
2-Butanone (methyl ethyl ketone)	PEL – 200 ppm TLV – 200 ppm	NIOSH REL – 200 ppm REL STEL – 300 ppm TLV STEL – 300 ppm	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin, nose; headache; dizziness; vomiting; dermatitis.	Eyes; skin; respiratory system; CNS.

POTENTIAL AIRBORNE CHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTION						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Lead	PEL – 0.05 mg/m^3 TLV – 0.05 mg/m^3	IDLH – 100 mg/m^3	A heavy, flexible, soft, gray solid.	Inhalation; dermal; ingestion; eye contact.	Lassitude (weakness, exhaustion); abdominal pain; gingival lead line; tremor; irritation to eyes; hypotension.	Insomnia; facial pallor; anorexia; weight loss; malnutrition; constipation; colic; anemia; paralysis of wrist, ankles; kidney disease; encephalopathy; potential for damage to eyes, gastrointestinal tract, CNS, kidneys, blood, gingival tissue.
Asbestos	Per Part 1910.1001 of Title 29 of the Code of Federal Regulations and NIOSH: PEL and REL – 0.1 fiber per cubic centimeter of air (0.1 fiber/cm^3)	OSHA considers asbestos to be a carcinogen.	White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.	Inhalation; ingestion; skin, eye contact.	Eye irritation; breathing difficulty; gastrointestinal issues.	Eye irritation; asbestosis; mesothelioma; lung cancer; dyspnea; cancer of the gastrointestinal tract. **Target Organs**: Respiratory system, eyes.
Vinyl chloride	PEL – 1 ppm TLV – 1 ppm	NIOSH considers this material to be a carcinogen.	Liquid with a pleasant odor at high concentrations.	Inhalation; dermal; eye contact.	Weakness; abdominal pain; pallor or cyanosis of extremities; liquid frostbite.	Gastrointestinal bleeding; enlarged liver; potential occupational liver carcinogen; damage to CNS, blood, respiratory system, lymphatic system.
Methylene chloride	PEL – 25 ppm TLV – 50 ppm	NIOSH considers methylene chloride to be a carcinogen.	Colorless liquid with a chloroform-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; fatigue; weakness; somnolence (sleepiness, unnatural drowsiness); lightheadedness; numbness; tingling limbs; nausea.	Potential occupational carcinogen. **Target Organs:** Eyes, skin, CVS, CNS.

POTENTIAL AIRBORNE CHEMICALS ON SITE FOR THIS PROJECT REVIEW THIS TABLE AND CONTACT THE SHSO WITH ANY QUESTION						
Chemical (or Class)	**OSHA PEL ACGIH TLV**	**Other Pertinent Limits**	**Properties**	**Routes of Exposure or Irritation**	**Acute Health Effects**	**Chronic Health Effects/ Target Organs**
Trichloroethene (trichloroethylene)	PEL – 100 ppm TLV – 50 ppm	PEL C – 200 ppm NIOSH considers trichloroethylene to be a carcinogen.	Colorless liquid (unless dyed blue) with a chloroform-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; headache; vertigo (an illusion of movement); visual disturbance; fatigue; giddiness; tremor; nausea; somnolence (sleepiness, unnatural drowsiness); vomiting; dermatitis.	Cardiac arrhythmias; paresthesia; liver injury; potential occupational carcinogen of liver, kidney.

NOTES:
°F = degrees Fahrenheit
ACGIH = American Conference of Governmental Industrial Hygienists
AIHA = American Industrial Hygiene Association
AIHA WEEL = AIHA-set workplace environmental exposure limits
C = ceiling limit
CNS = central nervous system
CVS = cardiovascular system
IDLH = immediately dangerous to life or health
mg/m3 = milligrams per cubic meter
NIOSH = National Institute for Occupation Safety and Health
OSHA = Occupation Safety and Health Administration
PEL = permissible exposure limit
ppm = parts per million
RBC = red blood cells
REL = recommended exposure limit set by NIOSH
Skin = skin absorption
STEL = short-term exposure limit
TLV = threshold limit value set by ACGIH
TWA = time-weighted average

9.0 POTENTIAL SITE HAZARDS AND APPROPRIATE PRECAUTIONS

Activities listed may be associated with work performed by others. The information contained in this section is for the use of Farallon personnel and not intended for use by others. The following tables list potential hazards and appropriate precautions associated with planned field work.

The following are a few basic guidelines to remember while performing field work at the Site:

- No eating, drinking, or smoking on the Site;
- No wearing contact lenses on the Site;
- No facial hair that will interfere with proper respirator fit when respirators are required; and
- A safety meeting will be held every day, even if only one person is working on the project on a given day.

9.1 ENVIRONMENTAL DRILLING

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Clear drilling locations.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Traffic hazards. Overhead or underground installations. Product releases. Property damage. Occupant inconvenience.	• Refer to Utility Clearance Log (**Attachment 7**). • Coordinate with Site Manger (or designee) to minimize potential conflicts. • Review proposed locations against available construction drawings and known utilities, tanks, product lines, etc. • Mark out the proposed borehole locations. • Call underground utility locating service for public line location clearance and obtain a list of utilities being contacted. If necessary, coordinate private line locator for private property. • Maintain minimum distance of 5 feet from marked utilities. • Develop a traffic control plan with the client and local agencies, as applicable, which may include use of cones, barrier tape, jersey barriers, etc.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Mobilize with equipment/supplies suitable for drilling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Vehicle accident. Lifting hazards. Delay or improper performance of work due to improper equipment on Site.	• Begin each work day with tailgate safety meeting. • Follow safe driving procedures. • Employ safe lifting procedures. • Verify that subcontractors are aware of their responsibilities for labor, equipment, and supplies. • Review permit conditions.
Visually clear proposed drilling locations.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Underground or overhead installations.	• Complete Utilities and Structures checklist on the Utility Clearance Log (provided in **Attachment 7**) and adjust drilling locations as necessary. • If drilling within 3 feet of marked utilities, must daylight utility to verify location.
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Struck by vehicle during placement. Vehicle accident resulting from improper placement of traffic control equipment.	• Use buddy system for implementing traffic control plan, such as setting out cones and tape to define the safety area.
Assist with setup of rig.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Vehicle accident during rig movement. Damage caused by rig while accessing set-up location. Contact with overhead installations. Soft terrain. Unexpected rig movement.	• All staff should know the location of the kill switch for the drilling rig. • Verify a clear pathway to the drilling location and clearance for raising mast. • Provide hand signals and guidance to the driver, as needed, to place rig. • Visually inspect rig (e.g., fire extinguisher on board, no oil or other fluid leaks, cabling and associated equipment in good condition, pressurized hoses secured with whip-checks or adequate substitute, jacks in good condition). • Use wooden blocks under jacks to spread load, if necessary. Chock wheels.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Set up exclusion zone(s) and work stations (drilling and logging and/or sample collection).	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, and work gloves.	Struck by vehicle during setup. Slip or fall hazards.	• Implement exclusion zone setup. Set up work stations with clear walking paths to and from rig. Use safety tape and cone(s).
Clear upper 5 feet of drilling location using post-hole digger or hand auger.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, and work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, and chemical-resistant apron as required.	Back strain. Exposure to chemical hazards. Hitting an underground utility. Repetitive motion.	• Keep full-face respirator with organic vapor cartridges readily accessible. • Initiate air quality monitoring in accordance with the air monitoring protocol presented in **Attachment 9**. • Stand upwind to avoid exposure when possible. • Use the organic vapor monitor aggressively to track the airborne concentration of contaminants close to potential sources such as the core when it is raised from the hole, the core when opened, etc. • Evaluate any soil samples inside a resealable plastic bag at arm's length. DO NOT EVALUATE THE SAMPLE IN THE OPEN, IN ORDER TO AVOID UNNECESSARY EXPOSURE. • Use correct lifting techniques and tools. • Complete the Pre-Drilling section of the Borehole Clearance Review form.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Drilling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Manage cuttings.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Heat or cold. Eye injury. Noise. Exposure to chemical hazards. Breaching an underground utility. Trip or fall. Equipment failure.	• Stand clear of operating equipment. • Use correct lifting techniques. • Monitor air quality in accordance with the air monitoring protocol presented in **Attachment 9**. • Monitor drilling progress. • Keep work area clear of tripping or slipping hazards. • Perform periodic visual inspections of drill rig.
Backfill borehole.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Trip hazards. Eye injury from splashing or release of pressurized grout.	• Mix grout to specification and completely fill the hole. • Use proper lifting techniques. • Keep work area clear of tripping hazards. • Verify presence of and/or authorization by required grouting inspectors.
Develop well.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Physical injury from mechanical failure, drill rig, or air compressor. Trip hazards. Exposure to contaminants. Electric shock.	• Verify that equipment is in good working order and that pressurized hoses are whip-checked. • Keep full-face respirator with organic cartridges readily accessible. • Keep work area orderly. • Any generators must be equipped with a ground fault circuit interrupter.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Gauge water levels and product thickness in wells, where applicable.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation or dermal exposure to chemical hazards. Repetitive motion.	• Have full-face respirator with organic cartridges readily accessible. • Conduct air quality monitoring in accordance with the protocol presented in **Attachment 9.** • Maintain a safe distance from the well head. • Bend at knees rather than at the waist.
Purge well(s) and collect purge water.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation or dermal exposure to chemical hazards. Slip or fall. Contaminated water spill.	• Use proper lifting techniques. • Use PPE, and adhere to air monitoring guidelines as presented in **Attachment 9**. • Keep work area clear of tripping or slipping hazards. • Store purge water in appropriate containers.
Collect groundwater samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation or dermal exposure to chemical hazards. Slip or fall. Improper labeling or storage of samples. Injury from broken sample bottle (cuts or acid burns).	• Decontaminate sampling equipment between each well (unless disposable). • Use proper lifting techniques. • Have full-face respirator with organic cartridges within 3 to 5 feet of working location, and readily accessible. • Label samples in accordance with sampling plan. • Keep samples stored in appropriate containers, at correct temperature, and away from work area. • Handle bottles carefully.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Dispose of or store any purge water on the Site.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Exposure to contaminants.	• Use suitable equipment to transport water (e.g., pumps, drum dollies). • Have full-face respirator with organic cartridges within 3 to 5 feet of working location, and readily accessible. • Label storage containers properly, and locate in an isolated area away from traffic and other Site functions. • Coordinate off-Site disposal (where applicable).
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Traffic. Lifting hazards.	• Use buddy system to remove traffic control, as necessary. • Leave the Site clear of refuse and debris. • Clearly mark or barricade any borings that need topping off or curing at a later time. • Notify Site personnel of departure, final well locations, and any cuttings and/or purge water left on the Site. • Use proper lifting techniques.
Package and deliver samples to laboratory.		Back strain. Traffic accidents.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques. • Apply safe driving practices.
Typical work.	Steel-toed and -shank shoes, hard hat, safety glasses with side shields, hearing protection, reflective safety vest, leather gloves for non-chemical aspects of work. Chemical-resistant gloves and apron if chemical exposure is suspected.	Weather-related incidents: automobile accidents, slips or falls.	• Check weather reports daily. Project visits are not to be performed during inclement weather. Sampling may be performed during light rain mist. Wear raincoats. • Drive at speed limit or less, as needed, to keep a safe distance from vehicle in front. Avoid short stops.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
Typical work.		Cold stress.	• For temperatures below 40°F, adequate insulating clothing must be worn. If the temperature is below 20°F, workers will be allowed to enter a heated shelter at regular intervals. Warm, sweet drinks should be available. Coffee intake should be limited. • No one should begin work or return to work from a heated shelter with wet clothes. • Workers should be aware of signs of cold stress, such as heavy shivering, pain in fingers or toes, drowsiness, or irritability. Onset of any of these signs is an indication that immediate return to a heated shelter is needed. • Refer to ACGIH TLV Booklet for the section on Cold Stress.
Typical work.		Heat stress.	• Discuss health effects and symptoms during daily health and safety meetings. • Drink water regularly (at least one cup every 20 to 30 minutes, depending upon level of effort and the PPE worn). • Refer to ACGIH TLV booklet for heat stress guidance, especially regarding PPE, type of work, and frequency of breaks. • Breaks should be taken in an area cooler than the work area. • Monitor temperature and relative humidity using a wetbulb globe temperature meter.

Job Steps	Personal Protective Equipment	Potential Hazards	Critical Actions
A safety meeting will be held every day, even if only one person is working on the project on a given day.			• Topics are to always include the work scheduled for the day and restatement of hazards and the means to avoid them. Other topics may include sampling in general, and advances in technology and how they may be applied to the project. • Use the *Daily Health and Safety Briefing Log* in **Attachment 4** to log the topics discussed.

9.2 EXCAVATION ACTIVITIES

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Clear excavation locations.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Traffic hazards. Overhead and underground installations. Product releases. Property damage. Dealer inconvenience.	• Refer to Utility Clearance Log. • Coordinate with facility contact (or designee) to minimize potential conflicts. • Review proposed locations against available construction drawings and known utilities, tanks, product lines, etc. • Mark out the proposed excavation locations. • Call the underground utility locating service for public line location clearance. Obtain a list of utilities being contacted. If necessary, coordinate private line locator for private property. • Maintain minimum distance of 5 feet from marked utilities.
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Being struck by vehicle during placement. Vehicle accident as a result of improper traffic control equipment placement.	• Use buddy system to place traffic control. • Implement traffic control plan as required.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Set up exclusion zone(s) and stockpile area and establish work areas/heavy equipment pathways.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Injury or exposure to public or other Site personnel. Slip or fall hazards. On-Site vehicular accident with heavy equipment.	• Implement exclusion zone set-up instructions. • Establish clear walking paths between work stations.
Hand digging/post-holing where necessary to expose and protect underground installations as needed.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Damage to lines and associated physical hazards or property damage. Back strain. Injury or vehicle damage from falling into a hole.	• Use hand tools whenever possible. • Use proper lifting techniques. • Barricade or cover holes until job has been completed.
Assist with set up of heavy equipment.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Damage caused by heavy equipment while accessing set-up location. Being struck by equipment.	• Verify a clear pathway to excavation and stockpiling locations. • Provide hand signals and guidance to driver as needed to place rig. • Visually inspect equipment (e.g., fire extinguisher on board, no oil or other fluid leaks, cabling and associated equipment in good condition, pressurized hoses secured with whip-checks or adequate substitute, jacks in good condition). • Maintain eye contact with operator.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Commence excavation.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Heat or cold exposure. Exposure to chemical hazards. Hitting an underground or overhead utility. Flammable or oxygen-deficient atmosphere from accumulated vapors. Trip or fall. Side wall cave-in. Equipment failure. Noise.	• Monitor weather conditions and take breaks as needed for cold or hot weather. • Conduct air monitoring as presented in **Attachment 9.** Include Lower Explosive Limit (LEL) and oxygen (O_2) monitoring. If >10% LEL or O_2 <19.5%, discontinue work or ventilate area with explosion-proof equipment. • Maintain required excavation set-backs for workers and equipment. • Monitor condition of side walls and surrounding ground conditions. • Keep work area clear of tripping or slipping hazards. Perform periodic visual inspections of heavy equipment and keep equipment a minimum of 5 feet from excavation edge, or 1 foot away from the edge for every foot of depth, if greater than 5 feet deep. • Perform necessary soil classification. Slope or bench walls, or shore excavation to prevent cave-in. Keep all spoils more than 2 feet from excavation edge. Keep excavation entry controlled and equipped with required ladders and crosswalks.
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cave-in of side wall if entering excavation. Injury from heavy equipment. Exposure to Site contaminants.	• Stay out of excavation whenever possible (collect samples from backhoe bucket). • Use agreed-upon hand signals with heavy equipment operators. • Monitor air around excavation in accordance with the protocol presented in **Attachment 9**.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Store excavated materials according to Site-specific requirements.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Exposure to public. Traffic hazard, obstruction, or inconvenience to business operation. Improper storage or disposal.	• Have necessary storage containment and labeling available on the Site. • Place materials in isolated location away from traffic and other Site functions. • Stockpile excavated materials on suitable plastic or in appropriately designed container. Cover with plastic, and barricade access to waste in accordance with local regulations. • Coordinate proper disposal off the Site, where applicable.
Backfill excavation.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Being struck by heavy equipment. Side wall collapse. Damage or accidents resulting from subsequent subsidence.	• Use agreed-upon hand signals with heavy equipment operators. • Compact soils to meet specifications. • Maintain eye contact with equipment operators.
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Traffic. Safety hazard left on the Site. Lifting hazards.	• Use buddy system to remove traffic control, as necessary. • Leave Site clear of refuse and debris. • Notify business personnel of departure. • Use proper lifting techniques or use mechanical assistance.
Package and deliver samples to laboratory.		Back strain. Traffic accidents.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques. • Apply safe driving practices.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
General			
Typical work.	Steel-toed and -shank shoes, hard hat, safety glasses with side shields, hearing protection, reflective safety vest, and leather gloves for non-chemical aspects of the work. If equipment contamination is suspected, wear chemical-resistant gloves during decontamination of equipment.	Weather-related incidents: automobile accidents, slips or falls.	• Check weather reports daily. Project visits are not to be performed during inclement weather. Sampling may be performed during light rain mist. Wear raincoats. • Drive at the speed limit or less as needed to keep safe distance from vehicle in front. Avoid short stops.
A safety meeting will be held each day, even if only one person is working on the project on any given day.			• Topics are always to include the work scheduled for that day, and restatement of hazards and the means to avoid them. Other topics may include sampling in general, and advances in technology and how they may be applied to the project. • Use the *Daily Health and Safety Briefing Log* provided in **Attachment 4** to log the topics discussed.

9.3 UNDERGROUND STORAGE TANK DECOMMISSIONING

Refer to Excavation Activities *for steps, hazards, and critical actions associated with excavation activities. This includes underground utility clearance, setting up traffic control and exclusion zones, and heavy equipment inspection and placement.*			
Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Eliminate all potential sources of ignition.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire.	• Ban smoking. • Shut down all open-flame and spark-producing equipment within vapor hazard. • Use only explosion-proof equipment in hazard area. • Ground heavy equipment that will or may touch underground storage tank (UST).

Refer to Excavation Activities *for steps, hazards, and critical actions associated with excavation activities. This includes underground utility clearance, setting up traffic control and exclusion zones, and heavy equipment inspection and placement.*			
Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Clear overburden (e.g., concrete, pavement, rebar).	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire. Release of product. Injury from heavy equipment. Back strain. Hand, eye, or foot injury from hand tools. Trip or fall. Noise. Traffic hazards.	• Watch for underground utilities and product piping. • Keep clear of heavy equipment. • Use agreed-upon hand signals. • Keep area as clear of loose debris and other trip hazards, as possible. • Heed vehicle backup alarm. Establish eye contact with operator.
Disconnect and drain product lines and vent lines.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire. Product spill. Chemical exposure.	• Use non-sparking tools. • Place containment (e.g., bucket) under points where lines will be disconnected or cut. • Cap or remove lines. • Conduct air monitoring for previous contents in accordance with **Attachment 9**.
Remove product and residues from UST.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire. Product spill. Chemical exposure.	• Locate vacuum truck and other vehicles upwind of UST and outside probable path of vapor dispersion. • Keep area vapor-free. • Discharge vacuum pump exhaust through a hose directed downwind of the tank area. • Use explosion-proof or air-driven pumps. Bond (or otherwise ground) pump motors and suction hoses to the tank. Avoid using plastic (PVC) or other non-conductive pick-up tubes on vacuum trucks to minimize static charge build-up.

Refer to Excavation Activities *for steps, hazards, and critical actions associated with excavation activities. This includes underground utility clearance, setting up traffic control and exclusion zones, and heavy equipment inspection and placement.*			
Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Purge UST vapors rather than inerting them.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire. Inhalation of vapors (for both workers and the public).	• Frequently test the percentage of the Lower Explosion Limit (LEL) in the bottom, middle, and top of tank. O_2 must be <10% in tank. • Bond drop tube (if not already connected) to UST. • Use hot water spray rather than steam to clean UST to minimize static build up. If using steam, bond or ground all isolated conductors and objects, including discharge hose, that are subject to impingement or condensation. • Vent purged UST fumes a minimum of 12 feet above ground and/or 3 feet above adjacent rooflines.
Inert UST vapors rather than purging them.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Explosion. Fire. Inhalation of vapors (for both workers and the public). Skin burns from dry ice. Injury from compressed gas (nitrogen) cylinder failure. Bottled carbon dioxide (CO_2) condensation causing static electricity and associated explosion and/or fire hazard. Slip, trip, or fall when accessing tank. Risks from climbing ladder to access UST.	• Frequently test the percentage of O_2 in the bottom, middle, and top of tank. O_2 must be <10% in UST. • Carbon dioxide (dry ice): Avoid skin contact. Wear resistant gloves and long sleeves. • Nitrogen gas: Keep compressed gas cylinders secured; use correct regulators and cylinder caps. Introduce nitrogen, which is lighter than air, near bottom of UST to get effective purge. Bond or ground cylinder nozzle. • CO_2 (bottled gas): Not recommended because of condensation formation. If CO_2 is used, follow the precautions for nitrogen gas bottles. • Vent exhaust vapors a minimum of 12 feet above ground and/or 3 feet above adjacent rooflines.

Refer to Excavation Activities *for steps, hazards, and critical actions associated with excavation activities. This includes underground utility clearance, setting up traffic control and exclusion zones, and heavy equipment inspection and placement.*			
Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Prepare UST for removal from excavation.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Product spill. Slip or fall from top of UST.	• Plug or cap all accessible holes. One plug should have a 0.125-inch vent hole to allow for pressure changes.
Excavate around UST.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Injury from heavy equipment. Cave in of excavation walls. Explosion. Fire. Slip or fall due to uneven work surfaces. Struck by excavator.	• Maintain safe distance from equipment and excavation—a minimum of 1 foot away from the edge of the excavation for each foot of depth. • Stay in sight lines of operators. Use agreed-upon hand signals. Heed equipment backup alarm. Establish eye contact with operator. • Monitor air for LEL conditions and wind direction. Ventilate as needed.
Remove UST.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Snapping cables/straps. Injury from heavy equipment. Explosion. Fire. Product spill. Exposure to vapors.	• Inspect cables and strapping. • Stay clear of equipment and tank removal pathway. • Monitor air for LEL conditions, personnel exposure, and wind direction. Ventilate as needed. • Stay away from UST ends in particular, the weakest point in the event of an explosion. • Have spill containment available.

Refer to Excavation Activities *for steps, hazards, and critical actions associated with excavation activities. This includes underground utility clearance, setting up traffic control and exclusion zones, and heavy equipment inspection and placement.*			
Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Collect samples according to sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Collapse of side walls. Injury from heavy equipment. Slip or fall due to uneven terrain.	• Stay out of excavation. Collect samples from backhoe bucket at safe distance from edge of excavation. • Keep footing secure.
Load and transport UST and associated piping.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Material falling from truck. Explosion. Fire. Risks from equipment backing up.	• Verify that all material is secured to truck. • Recheck vapor concentrations in UST and vent as needed. • Heed backup alarms on vehicles.

9.4 MONITORING WELL SAMPLING/GAUGING

Job Steps	**Personal Protective Equipment**	**Potential Hazard**	**Critical Actions**
Mobilize with equipment/supplies suitable for sampling.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Vehicle accident. Lifting hazards. Delay or unsafe performance of work due to lack of necessary equipment on Site. Cross-contamination of wells.	• Follow safe driving procedures. • Use proper lifting techniques. • Review work plan to determine equipment/supply needs. • Verify that all sampling/gauging equipment has been decontaminated. • Bring ice for sample storage. • Review the HASP. • Gather the necessary PPE.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Struck by vehicle during placement. Vehicle accident as a result of improper traffic-control equipment placement.	• Use buddy system for placing traffic control. Refer to the traffic control plan section of the HASP (which may include specific requirements based on encroachment permit).
Set up exclusion zone(s).	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Struck by vehicle. Slip or fall hazards to workers.	• Face incoming traffic. • Implement exclusion zone setup instructions of the HASP (e.g., barricades, caution tape, cones). • Set up work area free of trip hazards.
Gauge water levels and product thickness (where applicable) in wells.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Inhalation of, or dermal exposure to, chemical hazards. Repetitive motion.	• Wear required PPE. • Initiate air quality monitoring in accordance with the HASP. • Maintain a safe distance from wellhead. • Bend at knees rather than at waist.
Purge well(s) and collect purge water.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation of, or dermal exposure to, chemical hazards. Slip or fall. Contaminated water spill.	• Decontaminate purging equipment between each sampling location. • Use proper lifting techniques. • Use PPE and conduct monitoring in accordance with the HASP. • Keep work area clear of tripping or slipping hazards. • Store purge water in appropriate containers.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Cross-contamination. Back strain. Inhalation of, or dermal exposure to, chemical hazards. Slip or fall. Improper labeling or storage. Injury from broken sample bottle (e.g., cut or acid burn).	• Decontaminate sampling equipment between each well (unless disposable equipment). • Use proper lifting techniques. • Use PPE in accordance with the HASP. • Label samples in accordance with sampling plan. • Keep samples stored in suitable containers, at correct temperature, and away from work area. • Handle bottles carefully.
Dispose of or store purge water on the Site.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves. Respirator with organic vapor cartridges, chemical-resistant gloves, chemical-resistant apron as required.	Back strain. Exposure to contaminants. Damage or injury from improper use of on-Site treatment system equipment. Improper storage or disposal.	• Use suitable equipment to transport water (e.g., pumps, drum dollies). • Wear PPE in accordance with the HASP. • Review any necessary instructions for use of on-Site treatment systems. • Label storage containers properly and locate in an isolated area away from traffic and other Site functions. • Coordinate off-Site disposal, where applicable.
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Traffic. Safety hazard left on the Site. Lifting hazard.	• Use buddy system to remove traffic control, as necessary. • Leave the Site clear of refuse and debris. • Notify business personnel of departure, and of any purge water left on the Site. • Use proper lifting techniques.
Package and deliver samples to laboratory.		Bottle breakage. Back strain.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques.

9.5 AIR SPARGE, GROUNDWATER EXTRACTION, AND/OR SOIL VAPOR EXTRACTION PILOT TESTING

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Mobilize with equipment/supplies suitable for testing.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Vehicle accident. Lifting hazards. Delay or unsafe performance of work due to lack of necessary equipment on Site.	• Follow safe driving procedures. • Employ safe lifting procedures. • Verify that subcontractors are aware of their responsibilities for labor, equipment, and supplies. • Review the HASP and permit conditions. • Gather the necessary PPE.
Set up necessary traffic control.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Being struck by vehicle during placement. Vehicle accident resulting from improper placement of traffic control equipment.	• Use buddy system to place traffic control. Refer to traffic control plan section of the HASP, which may include specific requirements based on permits.
Unload and set up test equipment.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Being struck by vehicle. Tripping hazards. Accident when maneuvering equipment. Lifting hazards. Electrical hazards. Adverse impacts to business operations.	• Place equipment away from pump islands or other high traffic areas. • Store hoses and electrical cords neatly and protect with traffic control equipment (e.g., cones, barricades). • Provide hand signals and guidance to driver as needed when placing test equipment trailers or other large equipment. • Visually inspect equipment (e.g., fire extinguisher on board/available on the Site, no damaged hoses or electrical lines, pressurized hoses secured with whip-checks or adequate substitute, all vapor and/or water hoses firmly connected, equipment grounded). • Use proper lifting techniques. • Use ground fault circuit interrupter on generators or other electrical equipment. • Inspect cords.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Set up exclusion zone(s) and work station.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Being struck by vehicle during set up. Slip or fall hazards.	• Implement exclusion zone setup instructions of the HASP. • Set up work station with clear walking paths to all testing locations. • Face oncoming traffic.
Gauge water levels and product thickness, where applicable.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Back strain. Inhalation of, or dermal exposure to, chemical hazards. Repetitive motion. Traffic hazards.	• Wear any additional PPE needed. • Initiate air quality monitoring in accordance with the HASP. • Maintain a safe distance from wellheads. • Bend at knees rather than at waist. • Decontaminate equipment between each measurement. • Face oncoming traffic.
Commence testing.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Explosion. Fire. Tripping hazards. Unauthorized release of contaminants. Exposure to contaminants (e.g., inhalation, dermal contact). Noise. Electrical hazards.	• Follow equipment-specific operation instructions. Monitor influent vapor and oxygen concentrations, if applicable. • Keep work area tidy and free of loose equipment. • Monitor treatment system and collect data to ensure discharge is within permit parameters and capacity of any storage containers (concentrations and flow rates). • Wear PPE, including ear protection as necessary, in accordance with the HASP. • Use ground fault circuit interrupter on generators and other electrical equipment. • Inspect cords.

Job Steps	Personal Protective Equipment	Potential Hazard	Critical Actions
Collect samples in accordance with sampling plan.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Cross-contamination. Improper sample labeling or storage. Exposure to Site contaminants. Repetitive motion. Body position.	• Label samples in accordance with sampling plan. Keep samples stored in suitable containers, at correct temperature, and away from work area. • Perform air monitoring. • Wear suitable PPE.
Store waste (e.g., water, carbon canisters) according to Site-specific requirements.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Back strain. Traffic hazards. Improper storage or disposal. Damage or injury from improper use of on-Site treatment system equipment.	• Use suitable equipment to transport waste containers (e.g., pumps, drum dollies). • Have appropriate storage containment and labeling available on the Site. • Place materials in an isolated location away from traffic and other Site functions. • Label waste. • Coordinate proper disposal off the Site, where applicable. • Review instructions for use of on-Site treatment systems.
Clean the Site; demobilize.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Traffic hazard. Lifting hazards. Safety hazard left on the Site.	• Use buddy system to remove traffic control, as necessary. • Use proper lifting techniques. • Leave the Site clear of refuse and debris. • Notify business personnel of location of any stored waste and of departure.
Package and deliver samples to laboratory.	Reflective vest, steel-toed and -shank shoes, hard hat, safety glasses with side shields, ear plugs or muffs, work gloves.	Bottle breakage. Back strain.	• Handle and pack bottles carefully (e.g., bubble wrap bags). • Use proper lifting techniques.

10.0 WASTE CHARACTERISTICS

Waste anticipated to be generated on the Site:

Type(s): ☒ Liquid ☒ Solid ☐ Sludge ☐ Other_____

The approximate volume for each anticipated waste stream:

Waste: Contaminated soil Approximate Volume: Unknown

Waste: Groundwater Approximate Volume: Unknown

Characteristics:

☐ Corrosive ☐ Flammable/Ignitable ☐ Radioactive ☒ Toxic

☐ Reactive ☐ Unknown ☐ Other *(specify)*_____

11.0 TRAFFIC CONTROL

Work on the Site will be conducted in areas where access is primarily controlled. An exclusion zone will be placed around the work area to prevent undesirable interface between pedestrian traffic and project workers and equipment. These devices may include:

- Cones;
- Tubular markers; and
- Barricade tape.

Cones/tubular markers and barricade tape will be used to inhibit access to the work area in locations where pedestrians will be encountered.

ATTACHMENT 1
HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT AND AGREEMENT FORM

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM

(All Farallon and subcontractor personnel must sign on a daily basis.)

This Health and Safety Plan (HASP) has been developed for the purpose of informing Farallon employees of the hazards they are likely to encounter on the project site, and the precautions they should take to avoid those hazards. Subcontractors and other parties at the site must develop their own HASP to address the hazards faced by their own employees. Farallon will make a copy of this HASP available to subcontractors and other interested parties to fully disclose hazards we may be aware of, and to satisfy Farallon's responsibilities under the Occupational Safety and Health Administration (OSHA) Hazard Communication standard. Similarly, subcontractors and others on site are required to inform Farallon of any hazards they are aware of or that their work on site might possibly pose to Farallon employees, including but not limited to Material Safety Data Sheets for chemicals brought on site. This plan should NOT be understood by contractors to provide information pertaining to all of the hazards that a contractor's employees may be exposed to as a result of their work.

All parties conducting site activities are required to coordinate their activities and practices with the project Site Health and Safety Officer (SHSO). Your signature below affirms that you have read and understand the hazards discussed in this HASP, and that you understand that subcontractors and other parties working on site must develop their own HASP for their employees. Your signature also affirms that you understand that you could be prohibited by the SHSO or other Farallon personnel from working on this project for not complying with any aspect of this HASP. The SHSO will be noted on the sheet below on a daily basis.

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM					
Check for SHSO	**Name**	**Title**	**Signature**	**Company**	**Date**

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM					
Check for SHSO	**Name**	**Title**	**Signature**	**Company**	**Date**

ATTACHMENT 2
DIRECTIONS TO HOSPITAL

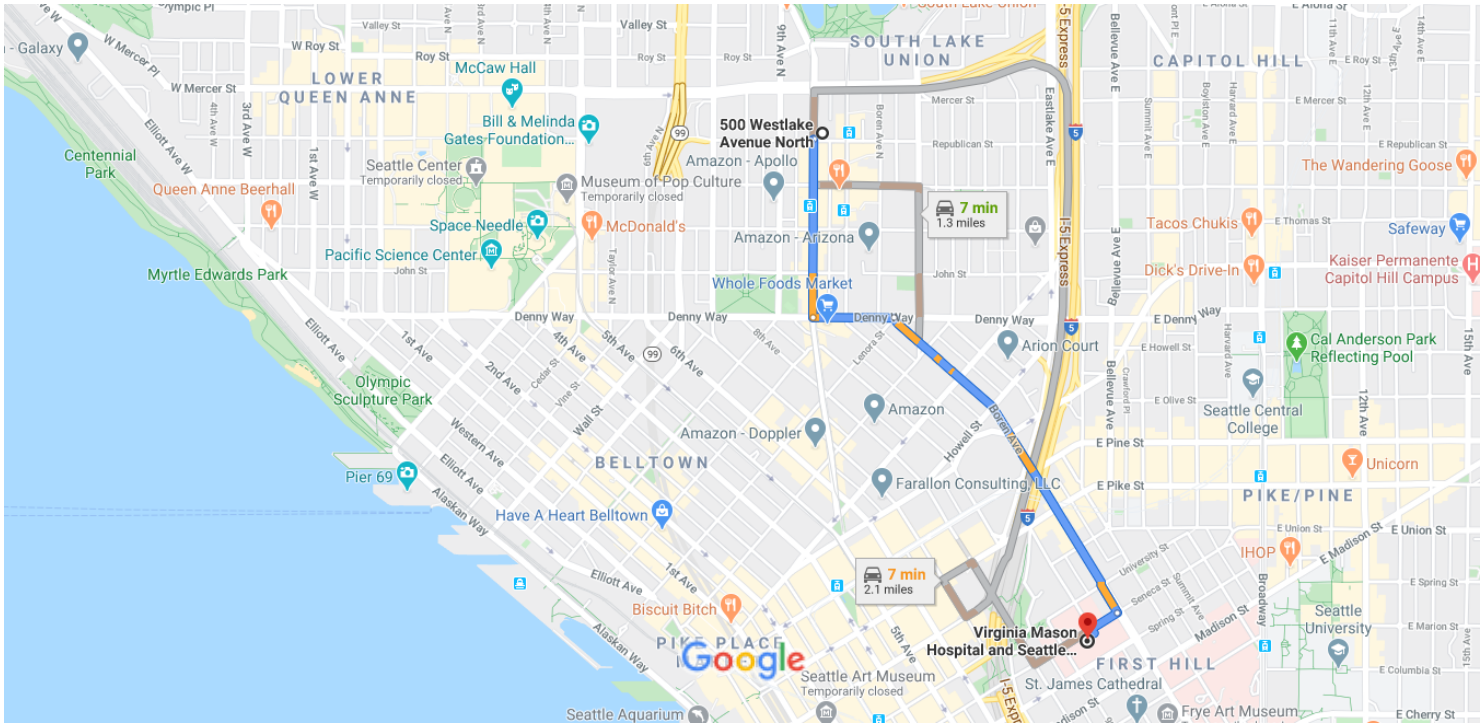
HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Google Maps

500 Westlake Avenue North, Seattle, WA to Virginia Mason Hospital and Seattle Medical Center

Drive 1.2 miles, 6 min



Map data ©2020 Google 1000 ft

500 Westlake Ave N

Seattle, WA 98109

1. Head south on Westlake Ave N toward Republican St
   - Pass by Tesla - Seattle - Westlake (on the right)

   0.3 mi
2. Turn left onto Denny Way

   0.1 mi
3. Turn right onto Boren Ave

   0.7 mi
4. Turn right onto Seneca St

   322 ft
5. Turn left
   - Destination will be on the right

   72 ft

Virginia Mason Hospital and Seattle Medical Center

1100 9th Ave, Seattle, WA 98101

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to

ATTACHMENT 3
POTENTIAL TOPICS FOR DAILY HEALTH AND SAFETY MEETING

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

POTENTIAL TOPICS FOR DAILY HEALTH AND SAFETY MEETING

- ☐ Emergency response plan, emergency vehicle (full of fuel) and muster point
- ☐ Route to medical aid (hospital or other facility)
- ☐ Work hours. Is night work planned?
- ☐ Hand signals around heavy equipment
- ☐ Traffic control
- ☐ Pertinent legislation and regulations
- ☐ Above- and below-ground utilities (energized or de-energized)
- ☐ Material Safety Data Sheets
- ☐ Reporting an incident: to whom, what, why, and when to report
- ☐ Fire extinguisher and first aid kit locations
- ☐ Excavations, trenching, sloping, and shoring
- ☐ Personal protective equipment and training
- ☐ Safety equipment and training
- ☐ Emergency telephone location(s) and telephone numbers (in addition to 911)
- ☐ Eye wash stations and washroom locations
- ☐ Energy lock-out/tag-out procedures. Location of “kill switches,” etc.
- ☐ Weather restrictions
- ☐ Site security. Site hazards. Is special waste present?
- ☐ Traffic and people movement
- ☐ Working around machinery (both static and mobile)
- ☐ Sources of ignition, static electricity, etc.
- ☐ Stings, bites, large animals, and other nature-related injuries and conditions
- ☐ Working above grade
- ☐ Working at isolated sites
- ☐ Decontamination procedures (for both personnel and equipment)
- ☐ How to prevent falls, trips, sprains, and lifting injuries
- ☐ Right to refuse unsafe work
- ☐ Adjacent property issues (e.g., residence, business, school, daycare center)

ATTACHMENT 4
DAILY HEALTH AND SAFETY BRIEFING LOG

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

DAILY HEALTH AND SAFETY BRIEFING LOG

PROJECT INFORMATION	
Farallon PN:	Project Name:
Site Address:	City/State:
MEETING INFORMATION	
Conducted By:	Weather:
Major Job Task:	Date:

DAILY EQUIPMENT CHECKLIST

☐ Site Check In	☐ First Aid Kit Location(s)	☐ Ear Plugs (if required)
☐ Proper ID/Safety Credentials	☐ Fire Extinguisher Location(s)	☐ Hand Protection (if required)
☐ Hard Hat	☐ Eye Wash Station	☐ Face Shield (if required)
☐ Safety Glasses	☐ Traffic Control (if needed)	☐ Respirator (if required)
☐ Orange Reflective Vest (H or X back BNSF)		☐ _____
☐ Safety Toe Boots (lace up and leather BNSF)		☐ _____

HEALTH AND SAFETY BRIEFING

☐ Head Count (No. of employees:)	☐ Chemical/Contaminant Hazards
☐ Emergency Response	☐ Health Hazards
☐ Who will...? (Provide names below.)	☐ Environmental Hazards
Call 911:	☐ Physical Hazards
Alternate to call 911:	☐ Slips, Trips, and Falls
Provide First Aid/CPR:	☐ Utility Locates
☐ Emergency Exits/Rally Points/Hospital Route	☐ Utility/Product Shut-Off Valves/Switches
☐ Site Security and Exclusion Zone	☐ Near Miss Reporting (reminder to look)
☐ Vehicle/Equipment-Specific Safety Practices	☐ Incident Reporting (procedures and forms)
☐ Stop Work Authority	☐ Traffic Control
☐ Excavation Safety (if applicable)	☐ HASP Reviewed and Signed

OTHER SITE-SPECIFIC HEALTH AND SAFETY ISSUES DISCUSSED

1)
2)
3)
4)
5)

DAILY HEALTH AND SAFETY BRIEFING ATTENDEES

NAME	COMPANY	SIGNATURE

ATTACHMENT 5
INCIDENT REPORT FORM

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Folsom | Irvine

INCIDENT REPORT FORM

This report must be completed by the employee or Health and Safety Coordinator (HSC) immediately upon learning of the incident. The completed report must be reviewed and signed by Project Principal, within 24 hours of the incident, even if the employee is not available to review and sign. The employee or employee's doctor must submit a copy of the doctor's report to Joe Rounds within 24 hours of the initial exam and any subsequent exams. After hours or weekends, please call Joe Rounds: Mobile (206) 484-2748. Document the incident with photographs if possible. For environmental releases, discuss possible regulatory spill reporting with the Project Principal.

EMPLOYEE INFORMATION

Employee Name:	Employee Title:
Employment Status: ☐ Full-Time ☐ Part-Time ☐ Hourly-As-Needed	Years Employed at Farallon Consulting, L.L.C. (Farallon)?

INCIDENT TYPE

☐ Fatality	☐ Industrial Non-Recordable	☐ Spill/Leak	☐ General Liability
☐ Lost Workday (LW)	☐ Non-Industrial	☐ Product Integrity	☐ Vandalism/Criminal Activity
☐ Restricted Duty	☐ Off-the-Job Injury	☐ Equipment	☐ Notice of Violation
☐ OSHA Medical or Illness w/o LW	☐ Motor Vehicle Accident	☐ Business Interruption	☐ Other
☐ First Aid	☐ Fire		

INCIDENT DESCRIPTION

Date of incident, injury, or onset of illness: Click or tap to enter a date.	Time of incident, injury or onset of illness: ☐AM ☐ PM
Brief description of incident. Provide full incident details on Page 2.	
Describe the equipment, materials, or chemicals that directly harmed the party (e.g., the machine employee struck against or which struck employee; the vapor inhaled, or material swallowed; what the employee was lifting, pulling, etc.):	
Date employer notified: Click or tap to enter a date.	Time employer notified: ☐ AM ☐ PM
To whom reported?	

INJURY OR ILLNESS INFORMATION

Exact Location of Incident (address, geographical location, floor, building, etc.):	
County:	On Employer's premises? ☐ Yes ☐ No
Describe the specific injury or illness (e.g., puncture, cut, contusion, strain, fracture, skin rash, etc.):	
Body part(s) affected (e.g., back, left wrist, right eye, etc.):	
Name and address of Health Care Provider:	Phone No.:
Treated in Emergency Room: ☐ Yes ☐ No	Hospitalized Overnight as Inpatient: ☐ Yes ☐ No

Injury/Illness Severity	**Time Loss (Check all that apply.)**	**Workday Phase**
☐ No treatment required.	☐ No time loss.	☐ Performing normal work duties.
	☐ Return to work the next day.	☐ During meal period.
☐ First aid only.	☐ Restricted activity.	☐ During rest period.
	Begin date:	☐ Entering/leaving work area or site.
☐ Professional medical treatment.	Return date:	☐ Chronic exposure.
	☐ Lost workday, not at work.	☐ Other, specify:
☐ Fatality. Enter date: Click or tap to enter a date.	Begin date:	
	Return date:	

MOTOR VEHICLE ACCIDENT (MVA)			
Professional Driver? ☐ Yes ☐ No	Total Years Driving:		Company Vehicle? ☐ Yes ☐ No
Vehicle Type:	Vehicle Owner (not Farallon):		Vehicle License Plate:
No. of Vehicles Towed:	No. of Injuries:	No. of Fatalities:	
Insurance information for other driver(s):			
Witness Name:	Address:	Phone No.:	
Witness Name:	Address:	Phone No.:	

THIRD PARTY PROPERTY DAMAGE (INCLUDING UTILITIES – PLEASE PROVIDE PHOTOS)		
Owner Name for Damaged Property:	Address:	Phone No.:
Description of Damage:		
Property Owner Insurance information:		
Witness Name:	Address:	Phone No.:
Witness Name:	Address:	Phone No.:

Detailed Description of Events
(Use space below to provide full detailed description of incident. Include Specific Activity During Incident (Lifting, Pushing, Walking, etc.)

SIGNATURES OF EMPLOYEE AND REVIEWERS			
Name (print):	**Signature:**	**Title:**	**Date:**
Employee:			
Employee's Group Manager:			
Regional Operations Manager:			
Farallon Corporate Health and Safety Coordinator:			
Entered into Database By:		**Date:**	

ATTACHMENT 6
NEAR MISS AND SAFETY OBSERVATION REPORT

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

NEAR MISS AND SAFETY OBSERVATION REPORT

This report is to be filled out by any employee involved in or witnessing a near miss, or making a safety observation. A near miss is an occurrence that did not result in any personal injury, property damage, environmental release, or production interruption, but could have under slightly different circumstances. A safety observation is witnessing any activity that places a person or property at risk of injury, accident, or damage but does not fit the definition of a near miss. These are very important indicators of potentially harmful future accidents, and provide valuable insights to preventing personal injury and/or property damage.

PROJECT INFORMATION	
Farallon PN:	Project Name:
Site Address:	City/State:
NEAR MISS/SAFETY OBSERVATION INFORMATION	
Employee Completing Report:	
Date: Click or tap to enter a date.	Time: ☐AM ☐ PM
Near Miss Category: Choose an item.	
Exact Location:	
Description of Potential Incident or Hazard:	
Corrective Action Taken:	
Lessons Learned:	
SIGNATURES AND NOTIFICATIONS	
Date employer notified: Click or tap to enter a date.	Time employer notified: ☐ AM ☐ PM
To whom reported?	
Employee Signature:	Date:
HSC Signature:	Date:
Entered into Database By:	Date:

ATTACHMENT 7
UTILITY CLEARANCE LOGS

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

UTILITY CLEARANCE LOG

Project Name: _____ **Project Number:** _____

Location: _____ **Date of Work:** _____

Instructions. This log must be completed by a Farallon staff member **before** any Farallon-directed excavation (e.g., test pit excavation) or drilling operation.

DRILLING OR EXCAVATION WORK MAY NOT COMMENCE UNTIL UTILITY LOCATES HAVE BEEN COMPLETED (see the One-Call Utility Locate Request Procedure on the following page)

Farallon is responsible for having underground utilities and structures located and marked when drilling or directing test pit excavation operations. Drilling locations should be a minimum of 5 feet from marked utilities if possible. Any excavation within 3 feet of a marked utility must be done with hand tools. Any drilling within 3 feet of marked utilities must include exposing the utility to confirm its location.

Owners of underground utilities are required by law to mark underground facilities on public and private property. Owners of underground utilities are **not required** to mark existing service laterals or appurtenances. Utility owners in Washington are required to subscribe to the One-Call service.

Private utility locate services must be hired to locate service laterals and other buried utilities (e.g., on-Site electric distribution lines, irrigation pipes) on private property.

Re-mark after 10 days or maintain as appropriate.

Utility Locate Checklist

☐ Attach map showing drilling and/or excavation sites and known utilities

☐ Attach copy of One-Call Utility Notification Ticket (http://www.searchandstatus.com/)

One-Call Utility Notification Ticket Number: _____

☐ Attach copy of Side Sewer Card (available for City of Seattle; check municipality for availability)

☐ Attach copy of Private Locate Receipt

☐ Photograph all excavation and/or drilling locations and download to project file

☐ Review utilities with Site Contact:

Name:_____ Phone: _____

Utilities and Structures

Utility Type	Utility Name	Public Utilities Marked (Y/N)	Private Utilities/Laterals Marked (Y/N)	Marking Method (flags, wooden stakes, paint on pavement, etc.)
Petroleum product lines				
Natural gas line				
Water line				
Sewer line				
Storm drain				
Telephone cable				
Electric power line				
Product tank				
Septic tank/drain field				
Other				

Farallon Consulting, L.L.C.

Field Team Leader: _____ Date: _____

Electric = **RED**	*Gas-Oil-Steam =* **YELLOW**	*Comm-CATV =* **ORANGE**	*Water =* **BLUE/PURPLE**	*Sewer =* **GREEN**	*Temp Survey =* **PINK**

ONE-CALL UTILITY LOCATE REQUEST PROCEDURE

THE ONE-CALL UTILITY NOTIFICATION CENTER REQUIRES 48 HOURS NOTICE TO MARK UTILITIES BEFORE YOU CAN DIG OR DRILL

Washington: 1-800-424-5555

Washington state law states that "before commencing **any** excavation," the excavator or driller must provide notice to all owners of underground utilities by use of the One-Call locator service, and that the excavator or driller shall not dig or drill until all known utilities are marked. To fully comply with the law, you **must** take the following steps:

1. **Call before you dig or drill:** Notify the One-Call Utility Notification Center (OCUNC) a minimum of 48 hours (2 full business days) before digging or drilling. Provide the following **required** information:
    a. Your name and phone number, company name and mailing address, and Farallon Account Number 25999.
    b. The type of work being done.
    c. Who the work is being done for.
    d. The county and city where the work is being done.
    e. The address or street where the work is being done.
    f. Marking Instructions: "Generally locate entire site including rights-of-way and easements."

    Provide the following information <u>if applicable or requested</u>:
    a. The name and phone number of an alternate contact person.
    b. If the work is being done within 10 feet of any overhead power lines.
    c. The nearest cross street.
    d. The distance and direction of the work site from the intersection.
    e. Township, range, section, and quarter section of the work site.
2. **Record the utilities that will be notified:** OCUNC will tell you the utilities that are on or adjacent to the work site, based on their database. Record the name(s) of the utility on the reverse side of this form.
3. **After the 48-hour waiting period, confirm that the utility locations have been marked:** Before digging or drilling, walk the work site and confirm that the utility companies have marked the utility locations in the field.
4. **If a locate appears to be missing:** If a utility locate appears to be missing and the utility company has not notified you that there are no utilities in the area, call OCUNC and:
    a. Provide the OCUNC locate number.
    b. Clearly state which utility has not been marked. The call is being recorded.
    c. Ask for a contact person at that utility.
    d. Call the contact person for the missing utility locate: Determine why there is no utility locate in the field.

Electric = **RED**	*Gas-Oil-Steam =* **YELLOW**	*Comm-CATV =* **ORANGE**	*Water =* **BLUE/PURPLE**	*Sewer =* **GREEN**	*Temp Survey =* **PINK**

e. **Record the reason(s) for the missing locate(s):** There are valid reasons that locates do not appear in the field (e.g., there are no utilities located on the work site or the utility has been abandoned). However, IF THEY ARE LATE, **YOU MUST WAIT** TO DRILL OR DIG. If the utility fails to mark a locate within the required 48 hours (2 full business days), the utility is liable for delay costs.

5. **Hand dig within 3 feet of a marked utility:** When digging or drilling within 3 feet of any marked utility, the utility must be exposed first by using hand tools.

6. **Record reason(s) for missing locate(s)**: There may be reasons that locates do not appear in the field (e.g., no utilities are located on the site, utility has been abandoned). Record the reason given. IF THEY ARE LATE – YOU WAIT TO DRILL OR DIG. If the utility failed to mark within the required two days, they are liable for delay costs.

Electric = **RED**	*Gas-Oil-Steam* = **YELLOW**	*Comm-CATV* = **ORANGE**	*Water* = **BLUE/PURPLE**	*Sewer* = **GREEN**	*Temp Survey* = **PINK**

FARALLON CONSULTING, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington
98027

TELEPHONE CONVERSATION
Date: _____ **Time:** _____
Project Name: _____
Job No.: _____
Phone No.: 1-800-424-5555
Prepared By/Initials: _____
Call: ☐ **Placed** ☐ **Received**

Contact/Title: _____

Agency/Region: One-Call Utility Notification Center

PROJECT: _____

1. Your name and the Farallon Account No. #25999: _____

2. What is the type of work being conducted (e.g., environmental drilling, test pit excavation)?

_____

3. Who is the property owner? _____

4. County and city were work is being done? _____

5. Address or street where work is taking place? _____

_____

6. Nearest cross street? _____

7. Distance and direction of the work site from the intersection? _____

8. Marking Instructions (generally locate on entire Site, including rights-of-way and easements): _____

_____

_____

9. What time and date will the locate be completed? _____

10. Utility Locate Request Number? _____

11. Utilities that will be notified? _____

_____

12. Any Overhead Concerns? _____

_____

_____

cc:_____**Page**_____**of**_____

Note: Bold indicates required information.

ATTACHMENT 8
FARALLON FIELD PERSONNEL TRAINING DATES

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Health and Safety
Certifications and Training

Name	Medical Monitoring		Annual/Biennial	Resp. Clearance	Respirator Fit Test	CPR	First Aid	Fire Extinguisher Training	Expiration Dates		Harassment Training	GHS Training		8 Hour Supervisor	40 Hour Training Taken (Initial)	8 Hour Refresher
	Date of Last Exam	Next Exam Due							BNSF E-Railsafe (Bi-annual)	BNSF Contractor Orientation (Annual)			Lead Awareness			
Bailey, Amber	04/08/19	04/08/21	B	04/19/17		11/02/18	11/02/18	06/16/16	01/07/22	10/08/20	06/04/18		02/07/19	10/30/17	11/22/13	02/14/20
Bakouros, Apostolis	06/19/19	06/18/21	B	06/19/19				07/01/19							24h 6/27/19	
Banfield, Chantal	10/15/18	10/15/20	B	10/15/18		11/02/18	11/02/18	06/14/17	08/21/21	10/09/20	10/16/18		01/25/19		10/11/18	02/18/20
Bowser, Matthew	04/05/19	04/05/21	B	04/12/17	07/25/19	11/02/18	11/02/18	05/16/16	07/21/19	12/10/20	05/11/18		01/29/19	10/30/17	06/11/15	02/14/20
Brand, Tegan	10/02/19	10/01/21	B	10/02/19				10/15/19	01/13/22	01/10/21	07/16/19				09/20/19	02/14/20
Burns, Anastasia	04/26/18	04/25/20	B	04/26/18		11/02/18	11/02/18	05/16/16	12/09/21	08/13/20	05/08/18		04/19/19	10/30/17	09/15/14	04/19/19
Cannon, George	09/19/19	09/19/21	B	09/19/19				09/30/19			09/30/19				09/26/19	
Charney, Ryan	02/12/19	02/12/21	B	02/12/19				02/11/19			02/11/19		02/22/19	02/06/18	01/03/15	02/14/20
Emahiser, Parker	04/30/19	04/30/21	B	04/18/17		12/21/17	12/21/17	05/16/16			06/07/18		01/25/19		02/17/13	02/14/20
Ferreira, Gabriela	03/19/18	03/18/20	B	03/19/18		01/04/18	01/04/18	03/26/18	05/02/20	05/21/19	05/10/18		01/31/19		09/18/15	02/14/20
Fisco, Gavin	08/08/18	08/07/20	B	08/08/18		09/26/16	09/26/16	05/18/16			05/17/18		01/25/19	12/12/14	05/04/07	02/14/20
Gehring, Megan	07/10/19	07/10/21	B	07/10/19	07/15/19			06/05/18	06/05/20	08/09/20	07/12/19				07/19/19	02/14/20
Loeb, Steffany	07/10/19	07/10/21	B	07/10/19				06/24/19			07/12/19				07/12/19	02/14/20
Ostrom, Ryan	04/15/19	04/15/21	B	04/11/17		11/02/18	11/02/18	06/06/16	11/15/19	07/31/18	05/07/18		01/25/19	10/30/17	05/09/13	02/14/20
Pehlivan, Yusuf	04/26/19	04/26/21	B	05/13/17		10/19/17	10/19/17	05/04/17			06/29/18		01/25/19	02/02/13	10/17/09	02/14/20
Peters, Greg	05/28/19	05/28/21	B	06/07/19		11/02/18	11/02/18	06/12/17	01/31/20	01/30/19	05/08/18		01/25/19		03/12/17	01/25/19
Rayl, Katie	10/02/19	10/01/21	B	10/02/19		10/10/16	10/10/16	10/26/17			05/08/18		01/25/19		11/19/14	02/14/20
Roskamp, Melissa	12/20/18	12/19/20	B	12/20/18				04/18/19			01/02/19		01/25/19		07/26/13	02/14/20
Scott, Ken	01/18/18	01/18/20	B	01/18/18		11/02/18	11/02/18	09/02/16	08/07/21	05/22/20	05/09/18		01/25/19	02/17/05	09/01/95	02/14/20
Taylor, Brenden	04/24/18	04/23/20	B	04/24/18		03/01/18	03/01/18	08/23/16			05/22/18		01/25/19	04/17/09	07/18/06	02/14/20
Thompson, Lisa	11/30/18	11/29/20	B	11/30/18		10/07/18	10/07/18	11/29/18	12/11/20	12/12/19	11/28/18		02/05/19		12/07/18	02/05/19
Train, Brittany	06/19/19	06/19/21	B	06/19/19				06/14/19			06/14/19				07/03/19	02/14/20
van Stolk, Courtney	12/24/19	12/23/21	B						02/09/22	03/02/21	12/24/19				12/20/19	

ATTACHMENT 9
AIR MONITORING TABLE AND FORMS

HEALTH AND SAFETY PLAN
South Lake Union Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

ACTION LEVEL TABLE FOR AIR MONITORING

The Air Monitoring table (following page) presents protocol for monitoring ambient air for constituents of concern and other parameters that may affect worker safety. Please note the following with respect to use of this table:

- The Level for Respirator Use indicates the concentration at which a respirator must be donned. It does not require that the job stop. The respirator is a piece of equipment that is to be used while determining why a concentration has reached that level. Implement engineering controls such as water mist, spray foam, plastic cover, etc. to reduce the concentration.
- The Level for Work Stoppage indicates the concentration at which work on the job must stop. Determine why a concentration has reached that level, and how it can be decreased. Site evacuation is not necessary at this level. Stopping work does not imply that the concentration level will decrease. Implement engineering controls to reduce the concentration; resume work when it is safe to do so.
- These values can be modified under particular Site conditions and with specific knowledge of the contaminant(s). Should such conditions arise, contact Farallon's Health and Safety Officer at (425) 295-0800.

AIR MONITORING

Chemical (or Class)	Monitoring Equipment	Task	Monitoring Frequency and Location	Level for Respirator Use	Level for Work Stoppage
Volatile Organic Vapors	Flame ionization detector (FID)/photoionization detector (PID) as appropriate for chemicals of concern. Read manual to determine. Draeger Tube for vinyl chloride (Model 1/a; Part Number 67 28031). Draeger Tube for benzene (Model 0.5/a).	From start of mobilization to completion and demobilization.	Sampling should be continuous during the project while disturbing potentially contaminated soil, uncovering and/or removing tanks and piping, or drilling —at least every 15 minutes in the breathing zone. Sample at the exclusion zone boundaries every 30 minutes. Continuously sample during each soil and groundwater sampling interval. If 10 parts per million (ppm) in breathing zone, collect a Draeger Tube for benzene and/or vinyl chloride (depending upon contaminants of concern).	20 ppm above background sustained in breathing zone for 2 minutes, and no benzene and/or vinyl chloride tube discoloration. If a color change appears on the tube for benzene or vinyl chloride at 10 ppm on FID/PID, don respirator. If no Draeger Tube is available, the level for respirator use is to be 5 ppm.	50 ppm above background in breathing zone and no vinyl chloride or benzene tube discoloration. Stop work if tube indicates > 1 ppm for benzene or vinyl chloride. If no Draeger Tube is available, stop work at 25 ppm.
Metals (Dust and Particulates)	XRF Spectrometer as appropriate for metals of concerns. Read manual to determine. Laboratory analysis for specific metals known to potentially be at levels exceeding respiratory protection requirements.	From start of mobilization to completion and demobilization.	Sampling should be continuous during the project while disturbing potentially contaminated soil at least every 15 minutes in the breathing zone. Sample at the exclusion zone boundaries every 30 minutes. Continuously during each sampling interval or excavation lift (as possible).	1 mg/m3 for mercury. Any detectable concentration of cadmium less than the PEL of 0.005 mg/m3. 0.5 mg/m3 for lead.	2.5 mg/m3 for mercury. Any concentration exceeding 0.005 mg/m3 for cadmium. 50 mg/m3 for lead.

AIR MONITORING EQUIPMENT CALIBRATION/CHECK LOG

Date	Instrument/ Model No.	Serial No.	Battery Check OK?	Zero Adjust OK?	Calibration Gas (ppm)	Reading (ppm)	Leak Check	Performed By	Comments

AIR MONITORING LOG

Date	Time	Location	Source/Area/ Breathing Zone	Instrument	Concentration/Units	Sampled by