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T E C H N I C A L M E M O R A N D U M

TO: Raymond Burdick – Vulcan Inc. (by email)

FROM: Thaddeus Cline, P.E., L.G., L.H.G., Principal Civil Engineer/Hydrogeologist

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

DATE: October 16, 2018

RE: **SUMMARY OF RESULTS FROM SUBSURFACE INVESTIGATIONS**
BLOCK 38 WEST
500 THROUGH 536 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON
FARALLON PN: 397-019

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum on behalf of Lakefront Investors IX LLC (Lakefront Investors) to summarize the results of subsurface investigations completed to date at the property at 500 through 536 Westlake Avenue North in Seattle, Washington (herein referred to as Block 38 West). Block 38 West comprises the western half of the block between Mercer Street to the north, Westlake Avenue North to the west, Republican Street to the South, and a north-south trending block-bisecting alley to the east (Figures 1 and 2).

Farallon conducted two phases of environmental subsurface investigation work at Block 38 West. The first subsurface investigation commenced on July 21, 2014 and entailed installing a 55-foot deep monitoring well, monitoring well FMW-130, outside the existing building in the loading dock area and collecting reconnaissance groundwater and groundwater samples. The second subsurface investigation commenced on August 20, 2018 and entailed drilling at 11 locations in Block 38 West to depths of up to 50 feet below ground surface (bgs) (i.e., below the floor elevation of the lowest level of the existing building or below the pavement outside the lowest level, approximately 10 feet below street level), collecting soil and reconnaissance groundwater samples, installing and sampling five new monitoring wells (monitoring wells FMW-132 through FMW-136), and collecting groundwater samples at existing monitoring well FMW-130. The objective of the subsurface investigations conducted in 2014 and 2018 was to obtain lithologic, hydrologic, and analytical data to support planning for the redevelopment of Block 38 West.

Soil at Block 38 West was observed during the 2014 and 2018 subsurface investigations to consist of a sequence of silt, silty sand, and sandy silt with variable gravel and organic material content in fill and recent natural deposits to depths of up to about 15 feet bgs. Underlying these shallow deposits are dense glacially consolidated outwash deposits of silt, sand, and sandy silt with variable gravel content. At a depth of approximately 30 feet bgs, a dense sand with minor silt was encountered to the maximum depth explored of approximately 60 feet bgs. Shallowest groundwater was encountered between 5 and 9 feet bgs. Groundwater elevations measured in wells screened in the shallowest water-bearing unit during the 2018 subsurface investigation indicate a southerly groundwater flow direction.

No specific uses or features of Block 38 West have been confirmed as potential sources of hazardous substances released to soil or groundwater. However, constituents of potential concern (COPCs) at Block 38 West were identified based on known historical uses of Block 38 West and vicinity. Soil and groundwater samples collected during the Subsurface Investigations were analyzed for the following COPCs:

- Total petroleum hydrocarbons as gasoline-range organics;
- Total petroleum hydrocarbons as diesel-range organics (DRO) and oil-range organics;
- Benzene, toluene, ethylbenzene, and xylenes;
- Volatile organic compounds, including chlorinated volatile organic compounds;
- Polycyclic aromatic hydrocarbons and other semi-volatile organic constituents, including carcinogenic polycyclic aromatic hydrocarbons (cPAHs);
- Napthalenes; and
- Metals (i.e., arsenic, cadmium, chromium, mercury, and lead).

Results of laboratory analysis of soil and groundwater samples collected during the 2014 and 2018 subsurface investigations for COPCs are presented in Tables 1 through 4. A total of 27 soil samples and 11 groundwater samples were analyzed for petroleum constituents. A total of 7 soil samples and 11 groundwater samples were analyzed for volatile organic compounds. A total of 19 soil samples and 7 groundwater samples were analyzed for cPAHs and/or napthalenes. A total of 15 soil samples were analyzed for metals.

At some locations sampled during the 2014 and 2018 subsurface investigations, COPCs were detected in soil or groundwater samples at concentrations exceeding Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A cleanup levels specified in Chapter 173-340 of the Washington Administrative Code and were identified for purposes of the 2014 and 2018 subsurface investigations as constituents of concern (COCs). The COCs identified for soil at Block 38 West are:

- Total petroleum hydrocarbons as oil-range organics;
- Total napthalenes; and

- Total cPAHs.

The COCs identified for groundwater at Block 38 West are:

- Total petroleum hydrocarbons as gasoline-range organics;
- Benzene;
- DRO; and
- Total naphthalenes.

Based on the results of the 2014 and 2018 subsurface investigations, the nature and extent of contamination at Block 38 West is shown on Figure 3 for soil and Figure 4 for groundwater. Soil and groundwater impacted with COCs at concentrations exceeding MTCA cleanup levels occur within the top approximately 10 to 20 feet bgs. Approximately 75,600 tons of soil is estimated to be impacted by COPCs, less than about 10 percent of which is estimated to contain COCs at concentrations exceeding MTCA cleanup levels. Redevelopment construction will entail excavation to approximately 35 feet bgs to the property boundaries. The cleanup action to be conducted concurrently with redevelopment construction excavation will result in the removal of all soil containing COCs at concentrations exceeding MTCA cleanup levels and the removal of the shallow water-bearing zone from Block 38 West. Impacted soil will necessitate management during redevelopment construction and disposal at facilities permitted to receive these types of impacted soil.

Attachments: Figure 1, *Vicinity Map*
Figure 2, *Property Map*
Figure 3, *Soil Sample Analytical Results*
Figure 4, *Groundwater Analytical Results*
Table 1, *Soil Analytical Results for TPH and BTEX*
Table 2, *Soil Analytical Results for PAHs*
Table 3, *Groundwater Analytical Results for TPH and BTEX*
Table 4, *Groundwater Analytical Results for PAHs*

TC/CTS:tlc

FIGURES

SUMMARY OF RESULTS FROM SUBSURFACE INVESTIGATIONS
Block 38 West
500 Through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

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

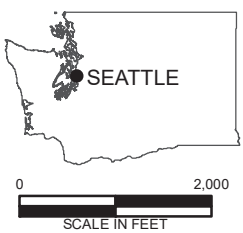

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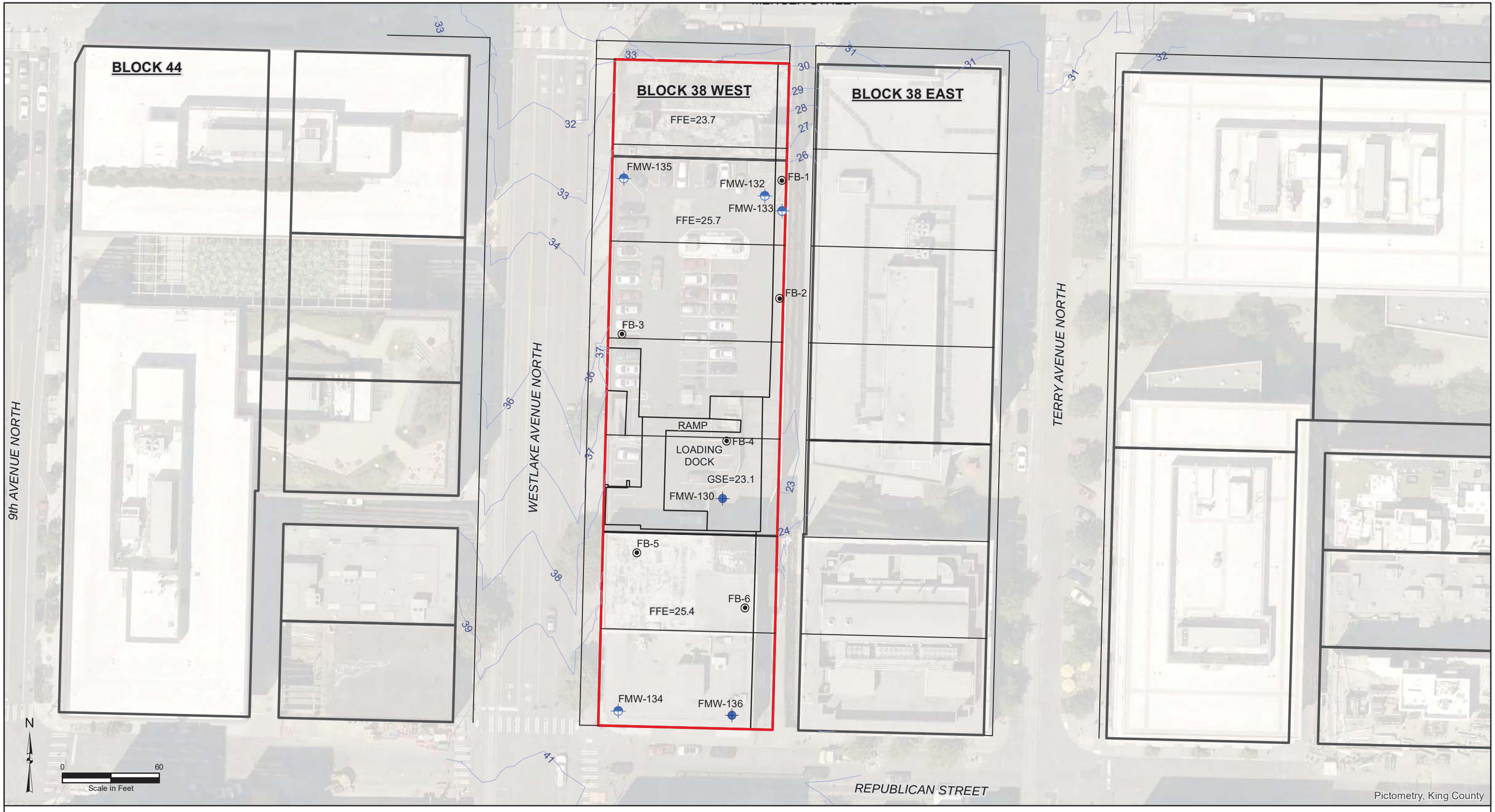
FIGURE 1

VICINITY MAP
BLOCK 38 WEST
SOUTH LAKE UNION AREA
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones | Checked By: BJ | Date: 9/28/2018 | Disc Reference:

Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\004_Reporting\Figure-01_SiteVicinity.mxd



LEGEND

- SHALLOW WATER-BEARING ZONE WELL
- INTERMEDIATE WATER-BEARING ZONE WELL
- SOIL BORING
- PROPERTY BOUNDARY
- KING COUNTY PARCELS

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

FFE = APPROXIMATE FINISH FLOOR ELEVATIONS OF GROUND FLOOR OF EXISTING BUILDING

GSE = APPROXIMATE GROUND SURFACE ELEVATION OF EXISTING LOADING DOCK

ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. - 2014
ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988

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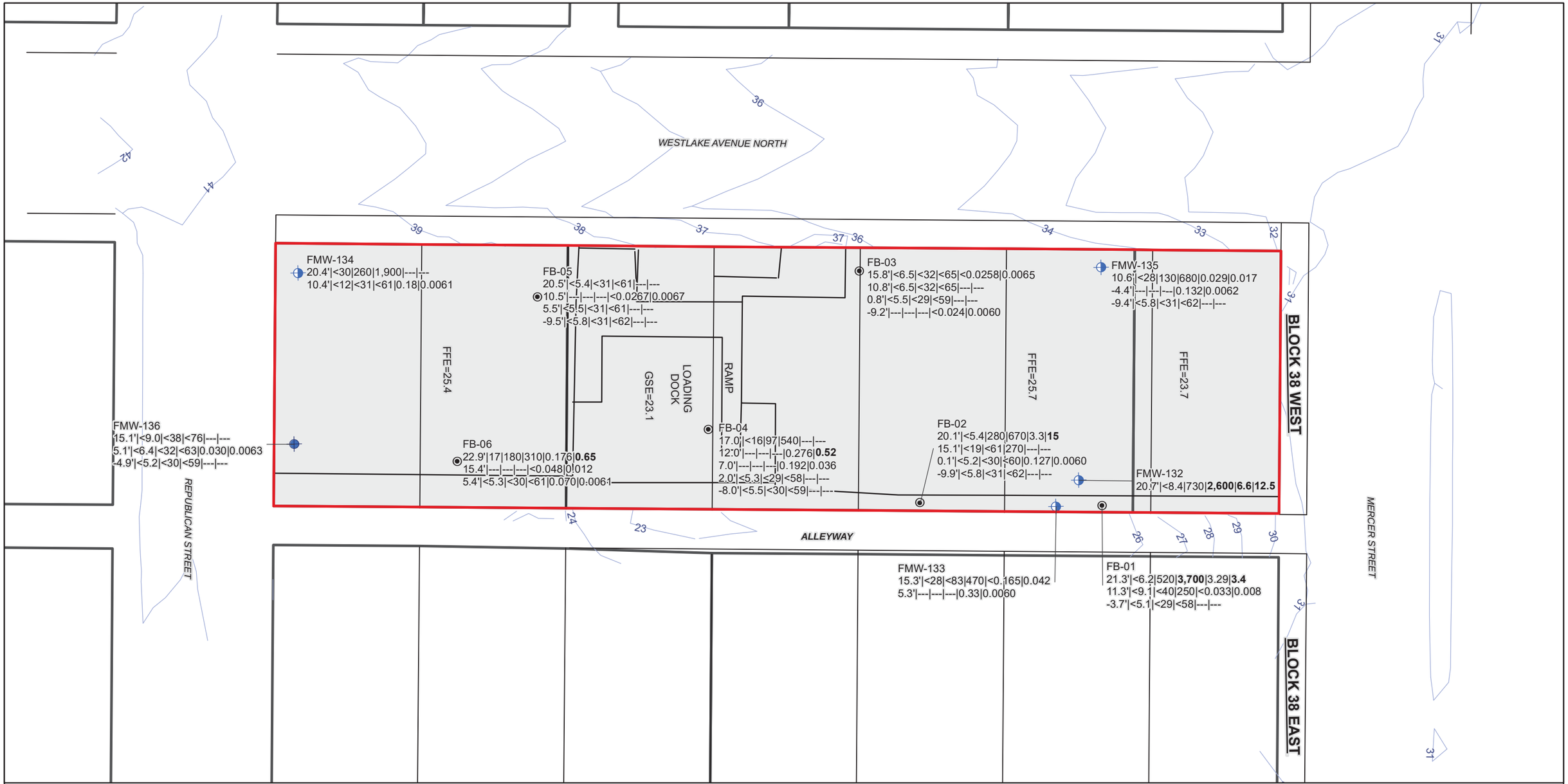
FIGURE 2

PROPERTY MAP
BLOCK 38 WEST
SOUTH LAKE UNION AREA
SEATTLE, WASHINGTON
FARALLON PN: 397-019

Drawn By: sgaynier | Checked By: TC | Date: 10/15/2018 | Disc Reference:

Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\004_Reporting\Figure-02_Propertymap.mxd



LEGEND

- BORING
- SHALLOW WATER-BEARING ZONE WELL
- INTERMEDIATE WATER-BEARING ZONE WELL
- PROPERTY BOUNDARY
- KING COUNTY PARCEL

NOTES:
SOIL DEPTH AND CONCENTRATIONS REPORTED AS:
ELEVATION IN FEET ACCORDING TO MSL |
GRO | DRO | ORO | TOTAL Napthalenes | cPAH TEC
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM

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

cPAH TEC	=	CARCINAGENIC POLYCYCLIC AROMATIC HYDROCARBON TOXIC EQUIVALENT CONCENTRATION
DRO	=	TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
GRO	=	TPH AS GASOLINE-RANGE ORGANICS
ORO	=	TPH AS OIL-RANGE ORGANICS
FFE	=	APPROXIMATE FINISH FLOOR ELEVATIONS OF GROUND FLOOR OF EXISTING BUILDING
GSE	=	APPROXIMATE GROUND SURFACE ELEVATION OF EXISTING LOADING DOCK
BOLD	=	CONCENTRATIONS THAT EXCEED MTCA CLEANUP LEVELS
<	=	ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
---	=	SAMPLE NOT ANALYZED
MTCA	=	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
MSL	=	MEAN SEA LEVEL

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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 3

SOIL SAMPLE ANALYTICAL RESULTS
BLOCK 38 WEST
SOUTH LAKE UNION AREA
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: sgaynier | Checked By: TC | Date: 10/15/2018 | Disc Reference:

Document Path: Q:\Projects\397.VULCAN\019_Block38\Mapfiles\004_Reporting\Figure-03_SoilAnalytical.mxd

WESTLAKE AVENUE NORTH

REPUBLICAN STREET

MERCER STREET

ALLEYWAY

BLOCK 38 WEST

BLOCK 38 EAST

FMW-134
8/30/2018 |**1,100**|**1,000**|<410|**312**|0.0075

FB-05
**8/22/2018 |<100|<260|<410|---|---

FB-03
8/23/2018 |<100|660**|490|<1.3|---

FMW-135
8/30/2018 |<100|<260|<410|1.32|0.0072

FFE=25.4

LOADING DOCK
GSE=23.1

RAMP

FFE=25.7

FFE=23.7

FMW-136
8/30/2018 |<100|<250|<400|0.39|0.0072

FB-06

FB-04

FMW-130
7/21/2014 |2,100**|---|---|---|---
7/24/2014 |<100|---|---|---|---
7/3/2017 |<100|---|---|---|---
8/30/2018 |<100|<250|<410|<0.291|0:0073

FB-02

FMW-132
8/30/2018 |<100|260|<400|<0.288|0.0072

FMW-133
8/30/2018*|<100|270|<410|<0:291|0:0073

LEGEND

- BORING
- SHALLOW WATER-BEARING ZONE WELL
- INTERMEDIATE WATER-BEARING ZONE WELL
- PROPERTY BOUNDARY
- KING COUNTY PARCEL

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | GRO | DRO | ORO | TOTAL Napthalenes | cPAH TEC
ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
**INDICATES RESULTS ARE FROM RECONNAISSANCE GROUNDWATER SAMPLE

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

cPAH TEC = CARCINAGENIC POLYCYCLIC AROMATIC HYDROCARBON TOXIC EQUIVALENT CONCENTRATION
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
FFE = APPROXIMATE FINISH FLOOR ELEVATIONS OF GROUND FLOOR OF EXISTING BUILDING

GSE = APPROXIMATE GROUND SURFACE ELEVATION OF EXISTING LOADING DOCK
BOLD = CONCENTRATIONS THAT EXCEED MTCA CLEANUP LEVELS
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
--- = SAMPLE NOT ANALYZED
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
MSL = MEAN SEA LEVEL
** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE

N

0 40
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 4

GROUNDWATER ANALYTICAL RESULTS
BLOCK 38 WEST
SOUTH LAKE UNION AREA
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: sgaynier | Checked By: TC | Date: 10/15/2018 | Disc Reference:

Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\004_Reporting\Figure-04_GW-Analytical.mxd

TABLES

SUMMARY OF RESULTS FROM SUBSURFACE INVESTIGATIONS
Block 38 West
500 Through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

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

Sample Location	Sample Identification	Sample Depth (feet)[1]	Sample Elevation (feet MSL)[1]	Sample Date	Analytical Results (milligrams per kilogram)								
					NWTPH-Dx[2]		NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[3]	EPA Method 8021B[4]			
					DRO	ORO	DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
FB-01	FB-01-5.0-082118	5.0	21.3	8/21/2018	520	**3,700**	510 N	1,100	< 6.2	< 0.020	< 0.062	< 0.062	< 0.124
	FB-01-15.0-082118	15.0	11.3	8/21/2018	< 40	250	< 40	< 81	< 9.1	< 0.020	< 0.091	< 0.091	< 0.182
	FB-01-30.0-082118	30.0	-3.7	8/21/2018	< 29	< 58	---	---	< 5.1	< 0.020	< 0.051	< 0.051	< 0.102
FB-02	FB-02-5.0-082018	5.0	20.1	8/20/2018	280 N	670	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-02-10.0-082018	10.0	15.1	8/20/2018	< 61	270	---	---	< 19	< 0.037	< 0.19	< 0.19	< 0.38
	FB-02-25.0-082018	25.0	0.1	8/20/2018	< 30	< 60	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	FB-02-35.0-082018	35.0	-9.9	8/20/2018	< 31	< 62	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-03	FB-03-10.0-082318	10.0	15.8	8/23/2018	< 32	< 65	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-15.0-082318	15.0	10.8	8/23/2018	< 32	< 65	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-25.0-082318	25.0	0.8	8/23/2018	< 29	< 59	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-04	FB-04-5.0-082118	5.0	17.0	8/21/2018	97 N	540	---	---	< 16	< 0.033	< 0.16	< 0.16	< 0.32
	FB-04-20.0-082118	20.0	2.0	8/21/2018	< 29	< 58	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
	FB-04-30.0-082118	30.0	-8.0	8/21/2018	< 30	< 59	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-05	FB-05-5.0-082218	5.0	20.5	8/22/2018	< 31	< 61	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-05-20.0-082218	20.0	5.5	8/22/2018	< 31	< 61	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
	FB-05-35.0-082218	35.0	-9.5	8/22/2018	< 31	< 62	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-06	FB-06-2.5-082218	2.5	22.9	8/22/2018	180	310	---	---	17 T	< 0.024	< 0.12	< 0.12	< 0.24
	FB-06-20.0-082218	20.0	5.4	8/22/2018	< 30	< 61	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
FMW-132	FMW-132-5.0-082418	5.0	20.7	8/24/2018	730	**2,600**	---	---	< 8.4	< 0.020	< 0.084	< 0.084	< 0.168
FMW-133	FMW-133-10.0-082418	10.0	15.3	8/24/2018	< 83	470	---	---	< 28	< 0.057	< 0.28	< 0.28	< 0.56
FMW-134	FMW-134-5.0-082318	5.0	20.4	8/23/2018	260	1,900	---	---	< 30	< 0.059	< 0.30	< 0.30	< 0.60
	FMW-134-15.0-082318	15.0	10.4	8/23/2018	< 31	< 61	---	---	< 12	< 0.023	< 0.12	< 0.12	< 0.24
FMW-135	FMW-135-15.0-082418	15.0	10.6	8/24/2018	130	680	---	---	< 28	< 0.055	< 0.28	< 0.28	< 0.56
	FMW-135-35.0-082418	35.0	-9.4	8/24/2018	< 31	< 62	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FMW-136	FMW-136-10.0-082218	10.0	15.1	8/22/2018	< 38	< 76	---	---	< 9.0	< 0.020	< 0.090	< 0.090	< 0.18
	FMW-136-20.0-082218	20.0	5.1	8/22/2018	< 32	< 63	---	---	< 6.4	< 0.020	< 0.064	< 0.064	< 0.128
	FMW-136-30.0-082218	30.0	-4.9	8/22/2018	< 30	< 59	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
MTCA Method A Cleanup Levels for Soil[5]					**2,000**	**2,000**	**2,000**	**2,000**	**30/100[6]**	**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 mean sea level using North American Vertical Datum of 1988.

[2]Analyzed by Northwest Method NWTPH-Dx. 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]Analyzed by Northwest Method NWTPH-Gx.

[4]Analyzed by U.S. Environmental Protection Agency Method 8021B.

[5]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.

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

BTEX = benzene, toluene, ethylbenzene and xylenes

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

GRO = TPH as gasoline-range organics

MSL = mean sea level

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

ORO = TPH as oil-range organics

T = the sample chromatogram is not similar to a typical gas

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

Sample Location	Sample Identification	Sample Depth (feet)[1]	Sample Elevation (feet MSL)[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]
FB-01	FB-01-5.0-082118	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	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	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	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	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	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	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	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	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	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	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	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
FMW-132	FMW-132-5.0-082418	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	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	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	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	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	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	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
MTCA Method A Cleanup Level for Soil[6]								**5**	**4,800[7]**	**NE**	**24,000[7]**	**NE**	**3,200[7]**	**3,200[7]**	**NE**	**2,400[7]**								**0.1**
MTCA Method B Levels for Soil Protective of Groundwater Vadose @ 25 Degrees Celsius[8]					**4.46**	**NE**	**NE**	**NE**	**97.9**	**NE**	**2,270**	**NE**	**631**	**101**	**NE**	**655**								
MTCA Method B Levels for Soil Protective of Groundwater Vadose @ 13 Degrees Celsius[8]					**4.45**	**NE**	**NE**	**NE**	**97.9**	**NE**	**NE**	**NE**	**NE**	**101**	**NE**	**655**								
MTCA Method B Levels for Soil Protective of Groundwater Saturated[8]					**0.236**	**NE**	**NE**	**NE**	**4.98**	**NE**	**114**	**NE**	**31.6**	**5.12**	**NE**	**32.8**								

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.
< denotes analyte not detected at or exceeding the reporting limit listed.

[1]Depth in feet below ground surface. Elevation in feet mean sea level using North American Vertical Datum of 1988.
[2]Analyzed by U.S. Environmental Protection Agency Method 8270D/SIM.
[3]Sum of naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.
[4]Total carcinogenic polycyclic aromatic hydrocarbons 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 the TEC.
[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 Department of Ecology Cleanup Levels and Risk Calculations, under the Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Standard Method B Formula Values for Soil (Unrestricted Land Use) - Direct Contact (Ingestion Only) and Leaching Pathway, https://fortress.wa.gov/ecy/clarc/Reporting/ChemicalQuery.aspx
[8]Washington State Cleanup Levels and Risk Calculations under the Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet updated September 2015, https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx

cPAHs = carcinogenic polycyclic aromatic hydrocarbons
H = sample analyzed outside of holding time
MSL = mean sea level
NE = not established
PAHs = polycyclic aromatic hydrocarbons
TEC = toxic equivalent concentration

Table 3
Groundwater Analytical Results for TPH and BTEX
Block 38 West
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet MSL)[1]	Analytical Results (micrograms per liter)						
				DRO[2]	ORO[2]	GRO[3]	Benzene[4]	Toluene[4]	Ethylbenzene[4]	Xylenes[4]
Reconnaissance Boring Groundwater Samples										
FB-03	8/23/2018	FB-03-082318	8.8 to 3.8	**660**	490	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FB-05	8/22/2018	FB-05-082218	8.5 to 3.5	< 260	< 410	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-130	7/21/2014	F-MW-130-GW1-072114	7.2 to 2.2	---	---	**2,100**	**5.1**	7.5	2.2	6.7
Monitoring Well Groundwater Samples										
FMW-130	7/24/2014	F-MW-130-072414	-22.8 to -32.8	---	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
	7/3/2017	FMW-130-070317		---	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	8/30/2018	FMW-130-083018		< 250	< 410	< 100	< 0.20	< 1.0	< 0.20	< 0.60
FMW-132	8/30/2018	FMW-132-083018	20.7 to 15.7	260	< 400	< 100	< 0.20	< 1.0	< 0.20	< 0.60
FMW-133	8/30/2018	FMW-133-083018	18.8 to 13.8	270	< 410	< 100	< 0.20	< 1.0	< 0.20	< 0.60
FMW-134	8/30/2018	FMW-134-083018	13.4 to 8.4	**1,000** M	< 410	**1,100** Z	< 1.0	< 5.0	< 1.0	< 3.0
FMW-135	8/30/2018	FMW-135-083018	18.6 to 13.6	< 260	< 410	< 100	< 0.20	< 1.0	< 0.20	< 0.60
FMW-136	8/30/2018	FMW-136-083018	-4.9 to -14.9	< 250	< 400	< 100	< 0.20	< 1.0	< 0.20	< 0.60
Potable Water Sample										
Potable Well	8/21/2018	POTABLE-082118	Unknown	**---**	---	**---**	< 0.20	< 1.0	< 0.20	< 0.60
MTCA Method A Cleanup Level for Groundwater[5]				**500**	**500**	**800/1,000[6]**	**5**	**1,000**	**700**	**1,000**

NOTES:

Results in **bold** denote concentrations above applicable cleanup levels.
< denotes analyte not detected at or above the reporting limit listed.
— denotes sample not analyzed.
[1]In feet above mean sea level using North American Vertical Datum of 1988.
[2]Analyzed by Northwest Method NWTPH-Dx.
[3]Analyzed by Northwest Method NWTPH-Gx.
[4]Analyzed by U.S. Environmental Protection Agency Method 8021B.
[5]Washington State Model Toxics Control Act Cleanup Regulation Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013.
[6]Cleanup level is 800 micrograms per liter if benzene is detected and 1,000 micrograms per liter if benzene is not detected.

BTEX = benzene, toluene, ethylbenzene, and xylenes
DRO = total petroleum hydrocarbons (TPH) as diesel-range organics
GRO = TPH as gasoline-range organics
M = hydrocarbons in the gasoline-range are impacting the diesel result
ORO = TPH as oil-range organics
Z = the gasoline result is mainly attributed to a single peak (naphthalene)

Table 4
Groundwater Analytical Results for PAHs
Block 38 West
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet MSL)[1]	Analytical Results (micrograms per liter)[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]
Reconnaissance Boring Groundwater Samples																						
FB-03	8/23/2018	FB-03-082318	8.8 to 3.8	< 1.3	---	---	< 1.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Monitoring Well Groundwater Samples																						
FMW-130	8/30/2018	FMW-130-083018	-22.8 to -32.8	< 0.097	< 0.097	< 0.097	< 0.291	< 0.097	< 0.097	< 0.097	< 0.0097	< 0.097	< 0.097	< 0.097	< 0.097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	0.0073
FMW-132	8/30/2018	FMW-132-083018	20.7 to 15.7	< 0.096	< 0.096	< 0.096	< 0.288	0.40	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	0.0072
FMW-133	8/30/2018	FMW-133-083018	18.8 to 13.8	< 0.097	< 0.097	< 0.097	< 0.291	0.38	< 0.097	< 0.097	< 0.0097	< 0.097	0.098	< 0.097	< 0.097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	0.0073
FMW-134	8/30/2018	FMW-134-083018	13.4 to 8.4	290	10	12	**312**	8.3	0.12	< 0.099	< 0.0099	< 0.099	1.6	0.48	< 0.099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	0.0075
FMW-135	8/30/2018	FMW-135-083018	18.6 to 13.6	0.35	0.68	0.29	1.32	0.39	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	0.0072
FMW-136	8/30/2018	FMW-136-083018	-4.9 to -14.9	0.39	< 0.096	< 0.096	0.39	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	0.0072
Potable Water Sample																						
Potable Well	8/21/2018	POTABLE-082118	Unknown	< 1.0	---	---	< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MTCA Method A Cleanup Level for Groundwater[6]							**160**	**960[7]**	**NE**	**4,800[7]**	**NE**	**640[7]**	**640[7]**	**NE**	**480[7]**								**0.1**

NOTES:
Results in **bold** denote concentrations exceeding applicable cleanup levels.
< denotes analyte not detected at or exceeding the reporting limit listed.
— denotes sample not analyzed.
[1]In feet above mean sea level using North American Vertical Datum of 1988.
[2]Analyzed by U.S. Environmental Protection Agency (EPA) Method 8270D/SIM. FB-03 and Potable Well samples analyzed by EPA Method 8260C.
[3]Sum of naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.
[4]Total carcinogenic polycyclic aromatic hydrocarbons 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 the TEC.
[6]Washington State Model Toxics Control Act Cleanup Regulation Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.
[7]Washington State Model Toxics Control Act Cleanup Regulation Cleanup Levels and Risk Calculations, Standard Method B Values for Groundwater, https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons
NE = not established
PAHs = polycyclic aromatic hydrocarbons
TEC = toxic equivalent concentration