Adapt Consulting
615 – 8th Avenue South
Seattle, Washington 98104

Tel (206) 654-7045
Fax (206) 654-7048

October 2, 2020

Adapt Project No. WA20-18238-PH2

Frank Chin
2901 17th Avenue South
Seattle, Washington 98144

Attention: Mr. Frank Chin

Subject: Additional Phase II Screen
Former Gas Station
2901 17th Avenue South
Seattle, Washington 98144

Dear Mr. Chin,

Adapt Consulting (Adapt) is pleased to provide you with the results of our Additional Phase II Screen for the above-referenced site. This report is provided for Frank Chin and his agents. If this report is to be reproduced and/or transmitted to a third party, it must be reproduced and/or transmitted in its entirety. Any exceptions will be made only with the written permission of Adapt. This work was authorized by Frank Chin in the form of a signed proposal (Adapt Proposal Number P-5368), dated August 5, 2020.

Adapt appreciates the opportunity to be of service to you on this project. Should you have any questions concerning this report, or if we can assist you in any way, please feel free to contact us at (206) 654-7045.

Respectfully Submitted,

Adapt Consulting

John T. Bhend, L.G.
Senior Project Manager

JTB/jtb

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Attachments:

Appendix A – Figures and Tables
Appendix B – Subsurface Exploration Procedures and Boring Logs
Appendix B – Laboratory Certification

1.0 INTRODUCTION

1.1 Site Description

The subject site (Site) is located at 2901 17th Avenue South in Seattle, King County, Washington (see Figure 1). According to the tax assessor's information, the Site is located on one tax parcel (parcel number 308600-3356) that encompasses approximately 0.19 acres (see Figure 2). The Site is located within an area of mixed commercial and residential development.

The Site is currently developed with one structure which was reportedly built in 1900. The Site building is a one story structure with an area of approximately 2,254 square feet which is occupied by Dragon Auto Repair and Transmission. The remainder of the Site is covered by asphalt and concrete paved parking lots and landscaping. Access to the Site is from 17th Avenue South to the east and from South Forest Street to the north.

1.2 Project Background

Phase I Environmental Site Assessment

Adapt previously completed a Phase I Environmental Site Assessment (ESA) report, dated March 14, 2013, for the Site (Adapt project number WA13-18238-PH1). The Phase I ESA documented that the Site had supported two historic gasoline stations (see Figure 2). Review of records held by the State of Washington Department of Ecology (Ecology) indicated that two 6,000-gallon and one 8,000-gallon gasoline underground storage tanks (USTs) were reportedly removed from the Site in 1990.

Limited Phase II ESA

Adapt previously completed a Limited Phase II ESA report, dated April 15, 2013, for the Site (Adapt project number WA13-18238-PH2). The Limited Phase II ESA was completed to assess for potential petroleum hydrocarbon impacts to soil and groundwater attendant to the historic operation of two gasoline stations at the Site. The findings of the Limited Phase II ESA documented petroleum hydrocarbon impacts to soil and groundwater from gasoline range TPH and BTEX in the vicinity of the former gasoline USTs and dispenser islands.

1.3 Scope of Work and Authorization

The purpose of the Additional Phase II Screen is to further assess the lateral extent of petroleum hydrocarbon impacts to soil and groundwater to the east, north, west, and south of the inferred location of the former gasoline USTs and dispenser islands associated with the two historic gasoline stations.

It should be understood that the scope of work for this Additional Phase II Screen may not include the work scope required to fully delineate the exact lateral and vertical extent in groundwater of possible contamination at the Site. In the event significant contamination is observed, additional subsurface assessment work may be needed to fully delineate the exact lateral and vertical extent of contamination.

2.0 ACTIVITIES

2.1 Hollow Stem Auger Borings and Soil Sampling

On August 19 & 20, 2020, four borings (B-4 through B-7) were completed through the use of hollow stem auger drilling methods to depths explored varying from approximately 35.5 feet to 36.5 feet bgs. Borings B-4, B-5, and B-7 were located as close as physically possible to the property line chain-link fence to the areas east, north, and west of the inferred location of the former USTs and fuel dispensers. The completed location of boring B-6 had to be moved further north than originally proposed to minimize the potential for damaging underground sanitary sewer lines that reportedly service the onsite buildings and the residence on the west-adjoining property. The boring locations are depicted on Figure 3.

The explorations were completed using a track-mounted limited access drill rig that was owned and operated by Holocene Drilling under subcontract to our firm. The borings were supervised, sampled, and logged by an Adapt licensed geologist. Soil samples were collected at 5-foot intervals from the site explorations through the use of a 2.5-inch outside diameter split-spoon sampler. All sampling equipment was thoroughly cleaned prior to and after each sampling episode. Subsurface exploration logs and soil sampling procedures are described in Appendix B.

Recovered discrete soil samples were collected from each exploration for description, screening, observation for field indications (visual and olfactory) of impact and quantitative laboratory analyses. Discrete soil samples for volatile compounds were collected in compliance with EPA Method 5035A. Samples were collected using a graduated soil core sampler syringe to collect an approximately 5-gram soil sample. The soil samples was then placed in an empty 40mL VOA vial with a polyethylene lid with septum. Discrete soil samples for non-volatile compounds were collected using a gloved hand and transferred to a clean 4-ounce glass jar with a Teflon® lined lid. The jars were filled minimizing headspace. A field split was then allowed to sit in a warm environment for approximately 5 to 10 minutes. The resulting headspace was screened by inserting a Photoionization detector (PID) probe into the sample container. The PID screen provided a qualitative assessment of total volatile organic constituent concentration in the sample headspace and provided a basis for selection of samples to be submitted for quantitative laboratory analyses. The samples were then stored at approximately 4 degrees C and transported as soon as possible to Friedman and Bruya's laboratory in Seattle, Washington for analytical testing under Adapt's chain-of-custody procedures.

2.2 Groundwater Sampling

A temporary monitoring well consisting of a 10-foot section of 2-inch diameter 0.010 slotted PVC well screen was placed in borings B-4 through B-7 at depths which intersected the observed perched groundwater level. Groundwater samples were collected from the temporary well screens installed in borings B-4 through B-7 using disposable polyethylene bailers.

Samples were collected in laboratory prepared glass containers with Teflon® lined lids. Then, as with the soil samples, the groundwater samples were stored at 4 degrees C, and transported as soon as possible to Friedman & Bruya's laboratory in Seattle, Washington for analytical testing under Adapt's chain-of-custody procedures.

2.3 Analytical Testing

The samples collected from the completed borings were analyzed for the following analyses:

- Gasoline range total petroleum hydrocarbons (TPH) by Ecology Method NW-TPH-Gx with benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B (soil and groundwater samples).
- Lead by EPA Method 200.8 (soil samples).

Analytical test results are summarized in Table 1 and the laboratory analytical data report is included in Appendix C.

3.0 RESULTS

3.1 Subsurface Conditions - Soil

The ground surface was observed to be covered by asphalt in the area where borings B-4 through B-7 were completed. Borings B-4, B-5, and B-7 generally disclosed dry to moist, gray silt/clay with trace to little sand and gravel from directly beneath the surface cover to a depth of approximately 8 to 15 feet bgs. Boring B-6 generally disclosed moist, light brown silty sand and gravelly sand from directly beneath the surface cover to a depth of approximately 10 feet bgs. The underlying soils at borings B-4 through B-7 were observed to generally consist of moist, brown to gray silty sand with variable amounts of small gravel to depths varying from approximately 28 to 35 feet bgs. Compact, moist, gray silt to silt/clay was generally observed at depths ranging from 35 to 36.5 feet bgs in boring B-4; 33 to 35.5 feet bgs in boring B-5; 28 to 34 feet bgs in boring B-6; and 35 to 35.5 feet bgs in boring B-7. Wet soils were generally observed starting at approximately 25 feet bgs in borings B-4 through B-7. Cross section diagrams depicting the observed subsurface conditions are presented on Figures 4a and 4b. Complete boring logs can be found in Appendix B.

All recovered soil samples were field screened using a MiniRae Photoionization Detector (PID). Samples collected from borings B-4 through B-7 exhibited signs of contaminant impacts such as petroleum hydrocarbon odors and elevated PID readings.

3.2 Subsurface Conditions - Groundwater

Saturated or wet soils were observed at a depth of approximately 25 feet bgs in borings B-4 through B-7. The saturated conditions are thought to be associated with a perched groundwater zone overlying the observed compact silt and silt/clay soils. Petroleum hydrocarbon odors were observed to the groundwater samples collected from borings B-4 throughB-7.

3.3 Quantitative Analyses - Soil

Selected soil samples collected from borings B-4 through B-7 were analyzed for gasoline range TPH, BTEX, and lead.

Petroleum Hydrocarbons

Gasoline range TPH was detected in soil samples B-4:20' [64 parts-per-million (ppm)], B-5:15' (980 ppm), and B-7:15' (1,300 ppm), all of which are above the State of Washington Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Soil Cleanup Level (CUL) of 30 ppm[1].

Gasoline range TPH was detected in soil samples B-4:36' (19 ppm), B-5:25' (14 ppm), and B-6:20' (15 ppm), but the detected concentrations were below the MTCA Method A Soil CUL of 30 ppm. Gasoline range TPH was not detected at a concentration above the laboratory reporting limits in the remaining soil samples submitted for analytical testing from borings B-4 through B-7.

BTEX

Benzene was detected in soil samples B-4:25' (0.04 ppm), B-4:36' (0.31 ppm), B-5:35' (0.062 ppm), and B-6:20' (0.34 ppm), all of which are above the MTCA Method A Soil CUL of 0.03 ppm. Benzene was not detected at concentrations above the laboratory reporting limits in the remaining submitted soil samples collected from borings SP-4 through SP-7.

Toluene (36 ppm), ethylbenzene (20 ppm), and xylenes (120 ppm) were detected in soil sample B-7:15' at concentrations above their respective MTCA Method A Soil CULs. Xylenes (71 ppm) was detected in soil sample B-5:15' at a concentration above the MTCA Method A Soil CUL of 9 ppm. Toluene, ethylbenzene, and xylenes were generally detected in soil samples B-4:25', B-4:36', B-6:20', B-6:36', and B07:30', but the detected concentrations were below their respective MTCA Method A Soil CULs. Toluene, ethylbenzene, and xylenes were not detected at concentrations above the laboratory reporting limits in the remaining submitted soil samples collected from borings SP-4 through SP-7.

Lead

Lead was detected in samples B-5:17' (1.17 ppm) and B-7:5' (1.12 ppm), but the detected concentrations were below MTCA Method A Soil CUL of 250 ppm. Lead was not detected at concentrations above the laboratory reporting limits in soil samples B-4:15' and B-6:20'.

Soil analytical test results are summarized in Table 1. The analytical laboratory reports are included in Appendix B.

3.4 Quantitative Analyses - Groundwater

Groundwater samples collected from borings B-4 through B-7 were analyzed for gasoline range TPH and BTEX.

Petroleum Hydrocarbons

Gasoline range TPH was detected in groundwater samples B-4:GW [99,000 parts-per-billion (ppb)], B-5:GW (130,000 ppb), B-6:GW (140,000 ppb), and B-7:GW (69,000 ppb), all of which are above the MTCA Method A Groundwater CUL of 800 ppb[2].

[1] Value is 100 ppm for gasoline mixtures without benzene and a total of ethylbenzene, toluene, xylenes are less than 1% of the gasoline mixture; 30 ppm for all other gasoline mixtures

2 Value is 1,000 ppb when benzene is not detected; 800 ppb when benzene is detected

BTEX
Benzene was detected in groundwater samples B-4:GW (3,500 ppb), B-5:GW (1,200 ppb), B-6:GW (4,500 ppb), and B-7:GW (1,300 ppb), all of which are above the MTCA Method A Groundwater CUL of 5 ppb.

Toluene was detected in groundwater samples B-4:GW (4,200 ppb), B-5:GW (2,000 ppb), B-6:GW (5,000 ppb), and B-7:GW (7,100 ppb), all of which are above the MTCA Method A Groundwater CUL of 1,000 ppb.

Ethylbenzene was detected in groundwater samples B-4:GW (4,200 ppb), B-5:GW (4,000 ppb), B-6:GW (3,500 ppb), and B-7:GW (1,800 ppb), all of which are above the MTCA Method A Groundwater CUL of 700 ppb.

Xylenes were detected in groundwater samples B-4:GW (18,000 ppb), B-5:GW (16,000 ppb), B-6:GW (18,000 ppb), and B-7:GW (9,200 ppb), all of which are above the MTCA Method A Groundwater CUL of 1,000 ppb.

Groundwater analytical test results are summarized in Table 2 and analytical laboratory report is included in Appendix C.

4.0 CONCLUSIONS

4.1 Source Areas

A Phase I ESA previously completed by Adapt in 2013 documented that the Site had supported two historic gasoline stations; a Gilmore-branded facility from approximately 1939 to the mid-1950s and a Mobilgas-branded facility from approximately the mid-1950s to the 1980s. While Adapt was not able to find any records indicating the location of USTs associated with the Gilmore-branded gasoline station, the approximate location of the station building and canopy structure have been inferred based on review of historic aerial photographs. The location of the USTs and fuel dispensers for the Mobilgas-branded gasoline station were inferred based on review of archived construction plans sourced from the City of Seattle.

Review of the inferred locations of the historic gasoline station fuel storage and dispensing equipment (i.e., canopy structures, USTs, and fuel dispensers) and review of the available soil and groundwater sampling data, it appears that the source area of the gasoline associated contamination is located near the north-central portion of the Site as depicted on Figure 2.

In addition to the gasoline associated contamination, review of archived construction plans and available soil sampling data indicates a second smaller area of waste oil associated contamination is centered around a closed-in-place UST located beneath the western section of the onsite building as depicted on Figure 2.

4.2 Extent of Contamination in Soil

Gasoline Station Source Area
The available soil sampling data does not fully assess the lateral extent of gasoline associated contamination to soil at the Site as it appears that contaminant impacts likely extend beyond the property boundaries to the north, east, and west of the historic gasoline station source area. The soil sampling data at the location of boring B-6 suggests that the lateral extent of deeper

contaminant impacts to soil (i.e., contamination at depths 20 feet bgs and greater) has not been fully assessed to the area south of the gasoline station source area.

The available soil sampling data indicates the vertical extent of gasoline associated contamination to soil generally appears to be limited to a maximum depth of approximately 35 to 36 feet bgs, which corresponds to the approximately depth at which a relatively impermeable silt and silt/clay soil zone was documented during the drilling activities.

Waste Oil UST Source Area

Limited soil sampling has been completed in the area immediately surrounding the closed-in-place waste oil UST as access to this area for drilling operations is significantly limited by the existing building. However, based on Adapt's professional experience working on other sites with waste oil USTs, it has been our experience that contaminant impacts are usually fairly limited, as compared to gasoline station UST facilities. Adapt estimates that the contaminant impacts to soil are likely limited to an area measuring approximately 15 feet wide by 15 feet long by 15 feet deep at the location of the closed-in-place waste oil UST.

4.3 Extent of Contamination in Groundwater

Gasoline Station Source Area

The available soil sampling data does not fully assess the lateral extent of gasoline associated contamination to groundwater at the Site as it appears that contaminant impacts likely extend beyond the property boundaries to the north, east, and west of the historic gasoline station source area. The groundwater sampling data at the location of boring B-6 suggests that the lateral extent of contaminant impacts to groundwater has not been fully assessed to the area south of the gasoline station source area.

A review of the observed subsurface soil conditions and available field screening results made during the drilling activities suggests that the vertical extent of the observed gasoline associated contamination to the perched groundwater zone is likely limited to a maximum depth of approximately 35 to 36 feet bgs, which corresponds to the approximately depth at which a relatively impermeable silt and silt/clay soil zone was documented during the drilling activities.

Also, while these sampling results appear to indicate relatively high contaminant concentrations in the groundwater samples collected from borings B-1 and B-4 through B-7, it should be noted that the groundwater samples collected from the temporary well screens placed within open borings should only be considered to be a preliminary screening of contaminant levels as groundwater samples collected from open borings generally have higher reported contaminant concentrations due to increased turbidity levels of the sample[3]. It should also be noted that Ecology considers groundwater sampling results from open borings to be preliminary and will generally only use groundwater data for samples collected from monitoring wells to assess compliance with groundwater cleanup levels.

[3] Higher turbidity results from additional suspended sediment present in samples collected from open borings tends to increase the detected contaminant levels as the laboratory instruments detect the contaminants that are adsorbed to the soil particles in addition to the contaminants dissolved in the groundwater.

Waste Oil UST Source Area

No groundwater sampling has been completed in the area immediately surrounding the closed-in-place waste oil UST as access to this area for drilling operations is significantly limited by the existing building. However, based on Adapt's professional experience working on other sites with waste oil USTs, it has been our experience that contaminant impacts are usually fairly limited, as compared to gasoline station UST facilities. Adapt estimates that the contaminant impacts to soil are likely limited to a maximum depth of approximately 15 feet bgs in this area.

4.4 Potential Exposure Pathway and Receptor Assessment

An exposure pathway assessment is necessary for chemicals identified at the Site to pose a risk to potential receptors. A given exposure pathway is considered complete if each of the following criteria is met:

- A source of contamination is present;
- A mechanism for contaminant release and migration from the source exists;
- An exposure point where contact can occur exists; and
- A route by which chemical intake can occur exists.

Gasoline associated contaminant impacts to soil and groundwater have been documented in the northern portion of the Site and waste oil associated contaminant impacts to soil have been documented beneath the western section of the onsite building.

Potential human exposure pathways and receptors for the Site include the following:

Dermal Contact and Ingestion (Direct Contact) of Contaminated Soil

As stated in Section 9.1 of *Ecology's Guidance for Remediation of Petroleum Contaminated Sites*, Publication No. 10-09-057, revised June 2016, Ecology states the following: *for soil cleanup levels based on direct contact, the point of compliance is defined as throughout the site from the ground surface to 15 feet below the ground surface*. Currently the Site is completely paved by the asphalt surfaced parking lot and the concrete slab for the existing onsite building, both of which are currently preventing direct contact with any underlying contaminated soil that is present within 15 feet of the ground surface. If the Site is redeveloped in the future, source removal and engineering controls will likely be needed to eliminate the dermal contact pathway.

Exposure to Groundwater

There appear to be no public drinking water wells located within a 1-mile radius of the Site. Based on the observed depth to groundwater being at least 25 feet bgs and the lack of any drinking water wells in the area immediately surrounding the Site, there appears to be no significant exposure to groundwater.

Exposure to Surface Water

The nearest body of surface water is the western shore of Lake Washington is located approximately 1.3 miles east of the Site. Also, a shipping channel connected to Elliott Bay is located approximately1.5 miles west of the Site. Based on the separation distances to the nearest bodies of surface water, there appears to be no significant exposure to surface water.

5.0 RECOMMENDATIONS

The findings of the subsurface environmental assessment completed at the Site to date have documented gasoline associated contaminant impacts to soil and groundwater in the northern portion of the Site and waste oil associated contaminant impacts to soil beneath the western section of the onsite building. While the lateral extent of contaminant impacts has not been fully assessed, there appear to be no significant exposure risks to either human health or the environment at this time based on the existing development conditions (e.g., asphalt paved parking lot, concrete slab for the existing building, depth to contaminated groundwater).

If the Site is redeveloped in the future, contaminated soils will likely be encountered and need to be segregated and transported offsite for disposal at a properly licensed and permitted facility. Based on review of the current zoning status of the Site and surrounding properties, it is unlikely that potential future redevelopment of the Site would include excavation work that would extend to depths that would encounter the contaminated perched groundwater zone that has been documented beneath the northern portion of the Site, negating the requirement for excavation dewatering and disposal of contaminated groundwater.

Based on Adapt's professional experience, it is unlikely that Ecology would require the property owner or otherwise legally appointed potentially liable party (PLP) to actively clean up the documented contaminant impacts to soil and groundwater. It may be prudent to obtain the advice of a qualified environmental attorney regarding question of law pertaining to determination of PLPs for the documented contamination and whether or not it would be feasible to assign cleanup responsibility to the prior oil companies associated with the documented former onsite gasoline stations.

It is also Adapt's opinion that it would be prudent to obtain the advice of a qualified environmental attorney regarding questions of law pertaining to Washington State reporting requirements for the soil and groundwater revealed by the present Limited Phase II assessment. Establishing a responsible party for the contamination above MTCA Method A cleanup levels is a question of law that is beyond Adapt's expertise and best addressed by a qualified environmental attorney.

6.0 LIMITATIONS

Given that our assessment was limited and peripheral to the potential source areas, it is possible that a release may have occurred that was not discovered during our assessment. If future subsurface work encounters stained, odorous, or otherwise contaminated soil or groundwater, such soil or groundwater should be managed as contaminated material, which may include additional analytical testing and off-site treatment or disposal.

Information contained in this report is based upon site characterization, field observations, and the laboratory analyses completed for this study. Conclusions presented are professional opinions based upon our interpretation of the analytical laboratory test results, as well as our experience and observations during the field activities. The location and depth of the explorations, as well as the analytical scope were completed within the site and proposal constraints. Adapt's observations and the analytical data are limited to the vicinity of each test probe and do not necessarily reflect conditions across the site. No other warranty, express or implied is made. In the event that additional information regarding either the site or surrounding properties becomes known, or changes to existing conditions occurs, the conclusions in this

report should be reviewed, and if necessary, revised to reflect the updated information. Project specific limitations are presented in the appropriate sections of this report.

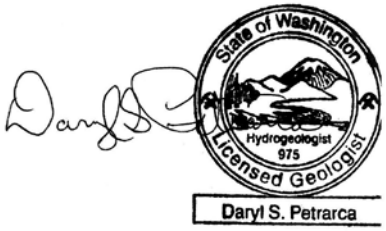
This report has been prepared for the exclusive use of Frank Chin and his agents for specific application to the project site. Use or reliance upon this report by a third is at their own risk. Adapt does not make any representation or warranty, express or implied, to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatever, known or unknown, to Adapt.

Adapt appreciates the opportunity to be of service to you on this project. Should you have any questions concerning this report, or if we can assist you in any way, please contact us at (206) 654-7045.

Respectfully Submitted,

Adapt Consulting

John T. Bhend, L. G.
Senior Project Manager



Daryl S. Petrarca, L.H.G.
Senior Reviewer

JTB/jtb

APPENDIX A

FIGURES AND TABLES

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
Tel: (206) 654-7045 Fax: (206) 654-7048

FIGURE 1 - Location/Topographic Map
Location: Former Gas Station
2901 – 17th Avenue South
Seattle, WA 98144
Client: Frank Chin
Date: 10/02/20 **Job #:** WA20-18238-PH2

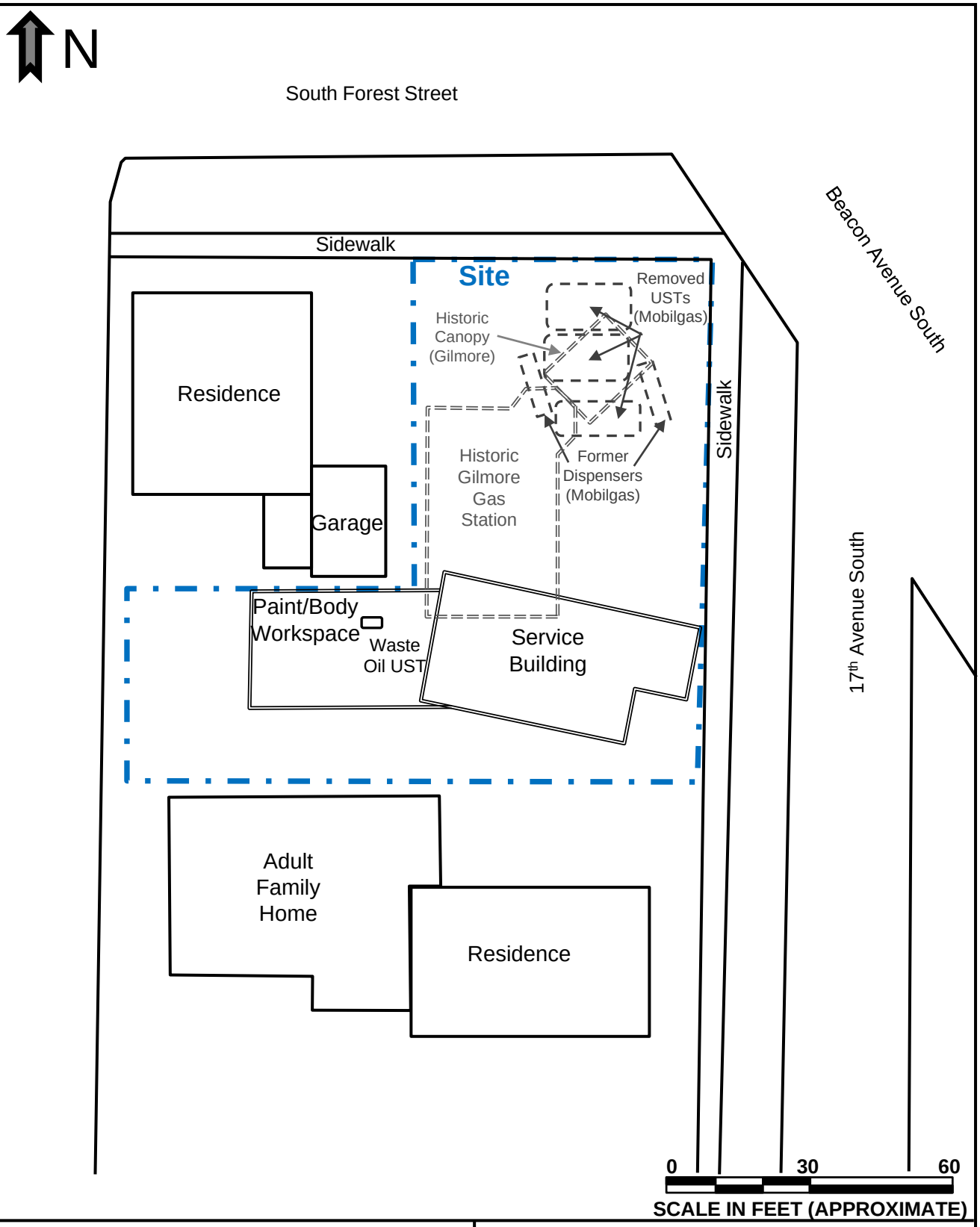


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FIGURE 2 – Site Plan
Location: Former Gas Station
2901 – 17th Avenue South
Seattle, WA 98144
Client: Frank Chin
Date: 10/02/20 **Job #:** WA20-18238-PH2

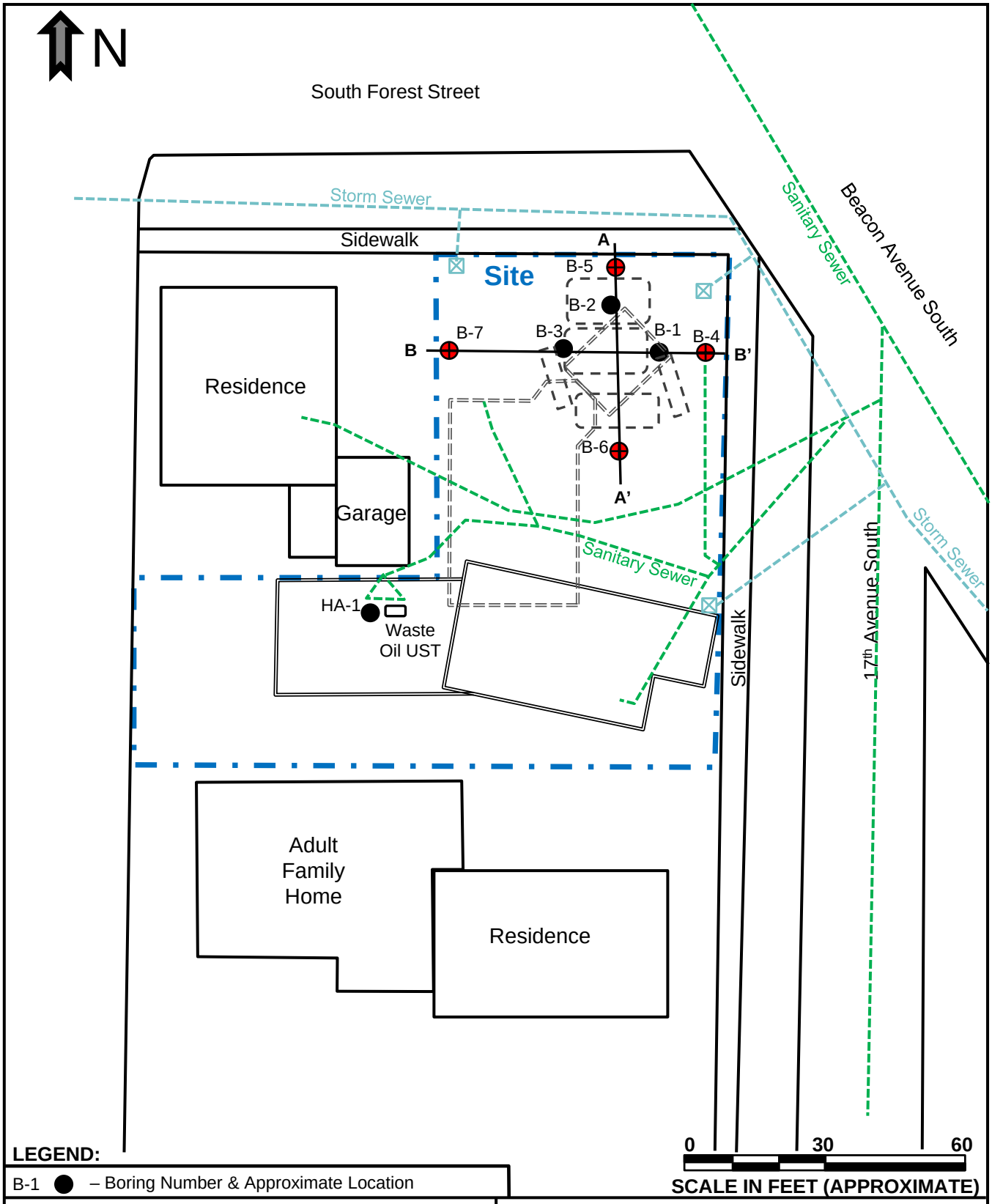

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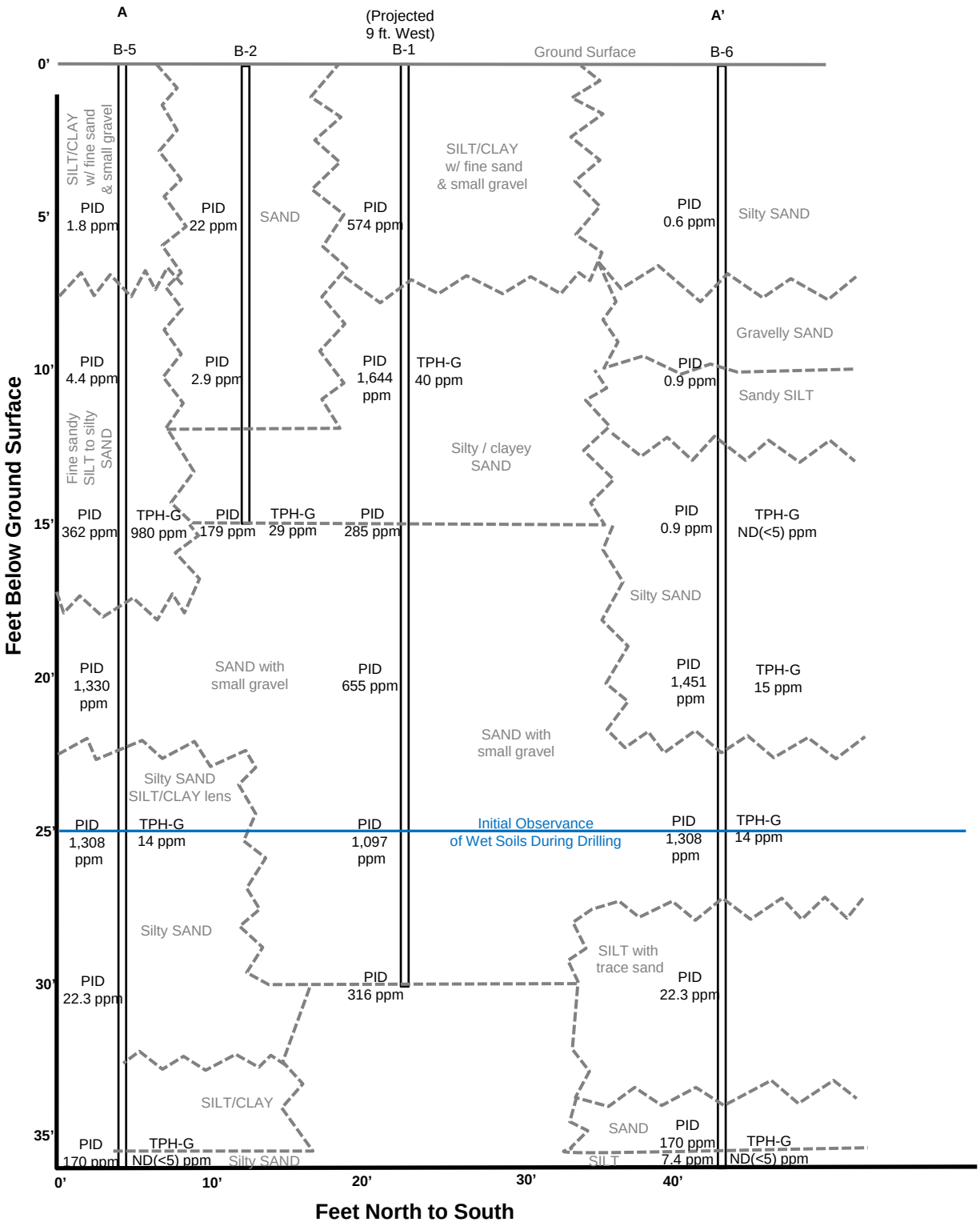
FIGURE 3 – Exploration Plan
Location: Former Gas Station
2901 – 17th Avenue South
Seattle, WA 98144
Client: Frank Chin
Date: 10/02/20 **Job #:** WA20-18238-PH2



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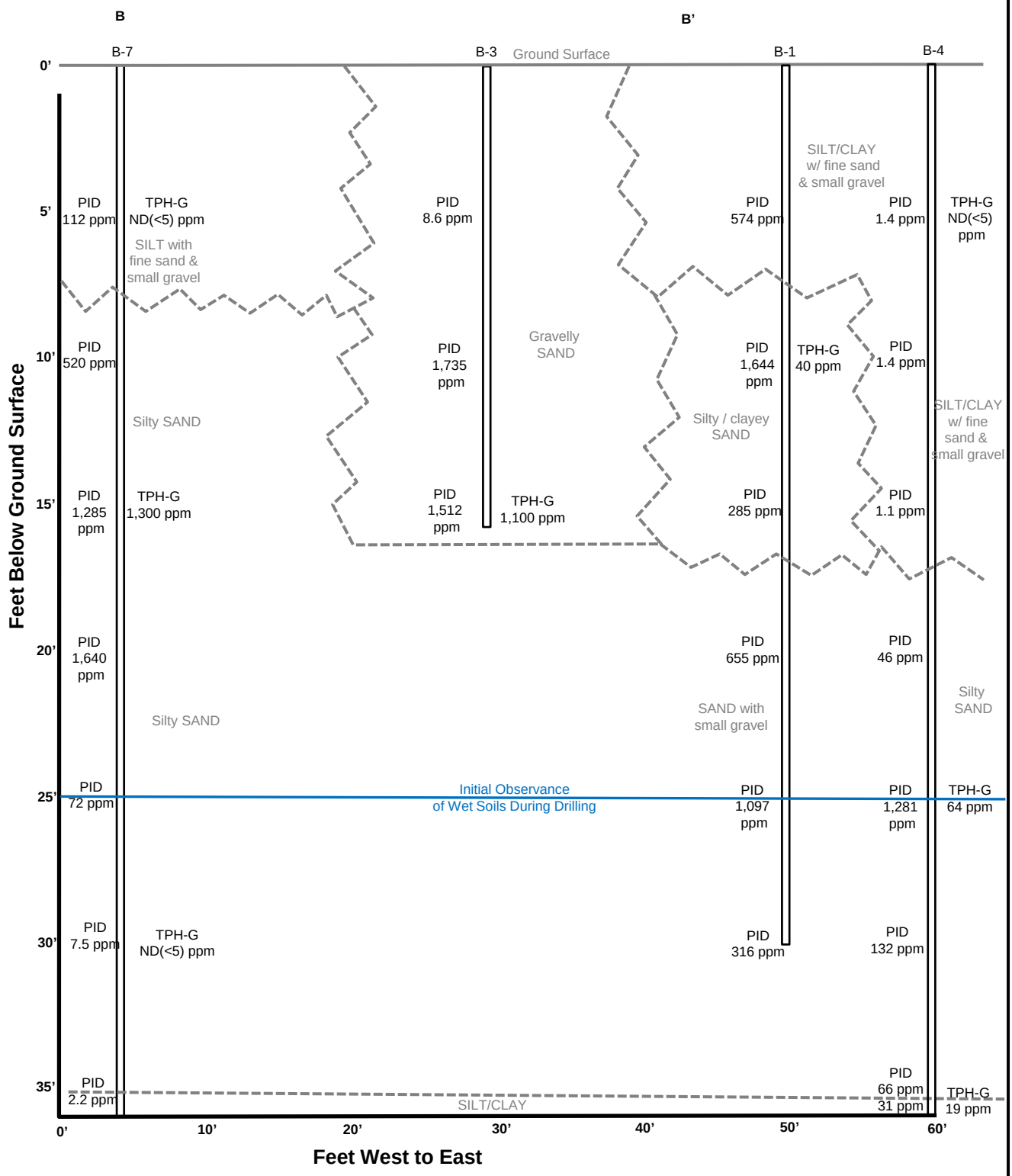
615 8th Avenue South
Seattle, Washington 98104
Tel: (206) 654-7045 Fax: (206) 654-7048

FIGURE 4a – Cross Section – North to South
Location: Former Gas Station
2901 – 17th Avenue South
Seattle, WA 98144
Client: Frank Chin
Date: 10/02/20 **Job #:** WA20-18238-PH2



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615 8th Avenue South
Seattle, Washington 98104
Tel: (206) 654-7045 Fax: (206) 654-7048

FIGURE 4b – Cross Section – West to East
Location: Former Gas Station
2901 – 17th Avenue South
Seattle, WA 98144
Client: Frank Chin
Date: 10/02/20 **Job #:** WA20-18238-PH2

Table 1: Summary of Soil Analytical Results

Sample No.	Depth	Date	PID	TPH-D	TPH-MO	TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
B-1	10	3/27/2013	1,644	-	-	**40**	ND(<0.2)	**0.065**	**0.41**	**0.18**	-
B-2	15		179	-	-	**29**	ND(<0.2)	**0.084**	**0.41**	**1.2**	-
B-3	15		1,512	-	-	**1,100**	ND(<0.2)	**2.1**	**14**	**65**	-
HA-1	2		388	**3,300**	**15,000**	**400**	**0.35**	**4.9**	**3.2**	**23**	**1020**
B-4	5	8/19/2020	1.1	-	-	-	-	-	-	-	-
	10		1.4	-	-	-	-	-	-	-	-
	15		1.1	-	-	ND(<5)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.06)	ND(<1)
	20		46	-	-	-	-	-	-	-	-
	25		1,281	-	-	**64**	**0.04**	**0.73**	**0.88**	**5.1**	-
	30		132	-	-	-	-	**-**	**-**	**-**	-
	36		31	-	-	**19**	**0.31**	**0.25**	**0.58**	**3.1**	-
B-5	5		1.8	-	-	-	-	-	-	-	-
	10		4.4	-	-	-	-	-	-	-	-
	15		362	-	-	**980**	ND(<0.4)	**1.4**	**20**	**71**	**1.17**
	20		1,330	-	-	-	-	**-**	**-**	-	**-**
	25		1,308	-	-	**14**	ND(<0.02)	**0.042**	**0.057**	**0.15**	-
	30		22.3	-	-	-	-	-	-	-	-
	35		170	-	-	ND(<5)	**0.062**	ND(<0.02)	**0.093**	**0.34**	-
B-6	5	8/20/2020	0.6	-	-	-	-	-	-	-	-
	10		0.9	-	-	-	-	-	-	-	-
	15		0.9	-	-	ND(<5)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.06)	ND(<1)
	20		1,451	-	-	**15**	**0.34**	**1.4**	**0.22**	**1.3**	-
	25		495	-	-	-	-	-	-	-	-
	30		95	-	-	-	-	-	-	-	-
	36		7.4	-	-	ND(<5)	ND(<0.02)	**0.055**	**0.039**	**0.21**	-
B-7	5		112	-	-	ND(<5)	ND(<0.02)	ND(<0.02)	ND(<0.02)	ND(<0.06)	**1.12**
	10		520	-	-	-	-	-	-	-	**-**
	15		1,283	-	-	**1,300**	ND(<0.4)	**36**	**20**	**120**	-
	20		1,640	-	-	-	-	-	-	-	-
	25		72	-	-	-	-	-	-	-	-
	30		7.5	-	-	ND(<5)	ND(<0.02)	**0.074**	ND(<0.02)	**0.12**	-
	35		2.2	-	-	-	-	-	-	-	-
MTCA Method A Soil CUL				2,000	2,000	30 / 100 (a)	0.03	7	6	9	250

Shaded values indicates exceedance of the MTCA Method A Cleanup Level
All concentrations given in parts per million (ppm), which is equivalent to milligrams per kilogram
MTCA = Model Toxics Control Act (MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses shown)

(a) = Value is 100 ppm for gasoline mixtures without benzene and total of ethylbenzene, toluene and xylenes are less than 1% of the gasoline mixture; 30 ppm for all other gasoline mixtures

- = Not tested
TPH-G, D, MO = Total petroleum hydrocarbons – gasoline, diesel, motor oil

Table 2: Summary of Groundwater Analytical Results

Sample No.	Date	TPH-G	Benzene	Toluene	Ethylbenzene	Total Xylenes
B-1:GW	3/27/2013	**100,000**	**6,500**	**19,000**	**2,000**	**12,000**
B-4:GW	8/19/2020	**99,000**	**3,500**	**4,200**	**4,200**	**18,000**
B-5:GW		**130,000**	**1,200**	**2,000**	**4,000**	**16,000**
B-6:GW	8/20/2020	**140,000**	**4,500**	**5,000**	**3,500**	**18,000**
B-7:GW		**69,000**	**1,300**	**7,100**	**1,800**	**9,200**
MTCA Method A Groundwater CUL		800 / 1,000 (a)	5	1,000	700	1,000

All samples are grab sample collected from an open borehole and the associated analytical testing result are only preliminary and for screening purposes

Shade values indicates exceedance of either the MTCA Method A Cleanup Level

All concentrations given in parts per billion (ppb), which is equivalent to micrograms per liter

MTCA = Model Toxics Control Act (MTCA Method A Cleanup Levels for Groundwater

(a) = Value is 1,000 ppb when benzene is not detected in groundwater; 800 ppb when benzene is detected in groundwater

TPH-G = Total petroleum hydrocarbons – gasoline

APPENDIX B

SUBSURFACE EXPLORATION PROCEDURES AND BORING LOGS

APPENDIX B

SUBSURFACE EXPLORATION PROCEDURES AND BORING LOGS

Hollow Stem Auger Borings

The field exploration work conducted for this limited subsurface environmental assessment consisted of the advancement of four hollow stem auger borings. The approximate locations for the completed borings are illustrated on Figure 3. This location was obtained through taping from known reference points (i.e., buildings and roads).

The hollow stem auger borings were advanced on August 19 & 20, 2020 by Holocene Drilling, a local exploration drilling company under subcontract to our firm. Each hollow stem auger boring consisted of advancing a 4-inch inside diameter hollow stem auger with a track-mounted drill rig. During the hollow stem auger drilling process, soil samples were collected at 5-foot intervals. The boring was observed and logged in the field by a geologist form our firm.

Prior to the start of drilling and between each boring location, the hollow stem auger flights were pressure-washed with hot water and sampling tools were scrubbed with a stiff brush and a solution of Liquinox (a phosphate free detergent) and water, and then rinsed with potable water and deionized water.

Characterization of Soil

Discrete soil samples were collected at 5-foot intervals by using the Standard Penetration Test Procedure, as described in ASTM: D-1586. This test and sampling method consists of driving a standard 2.5-inch outside diameter split-spoon sampler a distance of 18 inches in the soil with a 140-pound hammer free falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded. The number of blows required to drive the sampler the final 12 inches is considered the Standard Penetration Resistance “N” or blow count. The blow counts are presented in the boring logs in this appendix. If a total of 50 blows are recorded within one 6-inch interval, the blow count is recorded as 50 blows for the actual number of inches of penetration. The blow count or “N” value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils.

All soil samples were field screened using a MiniRae 10.6eV Photoionization detector (PID). Field screen samples were collected from the remaining soil in the sampled interval. A representative soil sample was placed in a re-sealable plastic bag. The sample was allowed to volatilize for approximately 5 to 10 minutes prior to obtaining a reading. The PID tip was inserted in a small hole poked in the bag just prior to obtaining a reading. The highest PID reading observed was recorded on the boring log sheet, as were a subjective olfactory impression of the sample by the on-site geologist.

Borehole Abandonment

All four completed borings were backfilled with bentonite chips from a depth of approximately 1 foot bgs to the maximum depth explored and with concrete from the ground surface to a depth of approximately 1 foot bgs.

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-4**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER		OBSERVATIONS	TESTING
0	Asphalt								
5	Dry to slightly moist, hard, light brown to gray SILT/CLAY with trace fine sand & small gravel			16 34 39	1.1 ppm				
10				50/5"	1.4 ppm				
15				50/3"	1.4 ppm			B-4:15'	
20	Moist, brown, silty SAND (slight to moderate petroleum odor)			50/4"	46 ppm				
25	Becomes wet, gray, silty fine SAND (strong petroleum odor)			36 50/6"	1281 ppm			B-4:25'	

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▽ DATE — Static Water Level at Drilling / Static Water Level / Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/19/20
Drilling Completion Date: 08/19/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-4**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER		OBSERVATIONS	TESTING
30	Wet, gray, silty SAND (moderate petroleum odor)			50/4"	132 ppm	ATD			
35	Dry, gray, hard SILT			16 16 28	31 ppm			B-4: GW B-4:36'	
	Boring terminated at an approximate depth of 36.5-feet bgs. Static groundwater level measured at 30.5 feet bgs at time of drilling. Temporary well screened from 25 to 35 feet bgs and removed after groundwater sampling. Boring was backfilled with bentonite chips.								
40									
45									
50									
55									

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▼ Static Water Level at Drilling
- DATE ▽ Static Water Level
- Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/19/20
Drilling Completion Date: 08/19/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-5**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER		OBSERVATIONS	TESTING
0	Asphalt								
5	Dry to slightly moist, hard, light brown to gray SILT/CLAY with trace fine sand & small gravel			7 18 29	1.8 ppm				
10	Dry to slightly moist, hard, fine sandy SILT to silty SAND			50/6"	4.4 ppm				
15	Moist, gray, silty SAND with trace gravel (moderate to strong petroleum odor)			50/2"	362 ppm			B-5:15'	
20	Moist, gray SAND with little silt and small gravel (strong petroleum odor)			50/6"	1330 ppm				
25	Becomes moist to wet, gray, silty SAND with moist SILT/CLAY lens at 26-26.5' bgs (strong petroleum odor)			28 43 50/6"	1308 ppm	ATD		B-5:25'	

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE — Static Water Level at Drilling
- DATE — Static Water Level
- Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/19/20
Drilling Completion Date: 08/19/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-5**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER	OBSERVATIONS	TESTING
30	Moist, gray, silty SAND (slight to moderate petroleum odor)			50/3"	22.3 ppm			
35	Moist, gray SILT/CLAY Wet, gray, silty SAND			36 50/6"	170 ppm		B-5: GW B-5:35'	
	Boring terminated at an approximate depth of 36.0-feet bgs. Static groundwater level measured at 27 feet bgs at time of drilling. Temporary well screened from 25 to 35 feet bgs and removed after groundwater sampling. Boring was backfilled with bentonite chips.							
40								
45								
50								
55								

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- Static Water Level at Drilling
- Static Water Level
- Perched Groundwater
- Grab Sample
- Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/19/20
Drilling Completion Date: 08/19/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-6**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER	OBSERVATIONS	TESTING
0	Asphalt							
5	Moist, light brown, silty SAND with fine small gravel			0 4 9	0.6 ppm			
10	Wet gravelly SAND (fill material) Moist, gray, sandy SILT			2 1 28	0.9 ppm			
15	Moist, gray, silty SAND with small gravel			50/6"	0.9 ppm		B-6:15'	
20	(Strong petroleum odor)			50/6"	1451 ppm		B-6:20'	
25	Becomes wet (strong petroleum odor)			42 50/5"	495 ppm			

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▽ DATE — Static Water Level at Drilling / Static Water Level / Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery At Time of Drilling
- ATD

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/20/20
Drilling Completion Date: 08/20/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-6**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER		OBSERVATIONS	TESTING
30	Dry to moist SILT with trace fine sand and small gravel			42 50/4"	95 ppm	▼ ATD			
35	Wet, gray, fine SAND with trace silt			27 50/6"	7.4 ppm			B-6: GW B-6:35.5'	
	Moist, gray SILT								
	Boring terminated at an approximate depth of 36.0-feet bgs.								
40	Static groundwater level measured at 30.5 feet bgs at time of drilling.								
	Temporary well screened from 25 to 35 feet bgs and removed after groundwater sampling.								
	Boring was backfilled with bentonite chips.								
45									
50									
55									

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▼ Static Water Level at Drilling
- DATE ▽ Static Water Level
- Perched Groundwater
- WTPH-D Ext 8010 — Grab Sample; Type of Analytical Testing Used
- NR ATD — No Recovery At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/20/20
Drilling Completion Date: 08/20/20

Logged By: JTB

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615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

PROJECT · Former Gas Station
· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-7**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER		OBSERVATIONS	TESTING
0	Asphalt								
5	Dry to moist, light brown to gray SILT with fine sand and trace gravel (slight petroleum odor)			12 19 31	112 ppm			B-7:5'	
10	Dry to moist, gray, silty SAND (moderate petroleum odor)			50/4"	520 ppm				
15	Becomes moist to slightly wet (strong petroleum odor)			50/6"	1283 ppm			B-7:15'	
20				50/6"	1640 ppm				
25	Becomes wet (slight petroleum odor)			50/4"	72 ppm	ATD			

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE — Static Water Level at Drilling
- DATE — Static Water Level
- Perched Groundwater
- WTPH-D Ext 8010 — Grab Sample
- Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/20/20
Drilling Completion Date: 08/20/20

Logged By: JTB

BORING LOG

Adapt Consulting
615 8th Avenue South
Seattle, Washington 98104
TEL:206.654.7045 FAX: 206.654.7048

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· 2901 - 17th Avenue South
Seattle, Washington 98144

Job Number: WA20-18238-PH2 Boring No.: **B-7**

Elevation Reference :
Ground Surface Elevation :

Well Completed : N.A.
Casing Elevation : N.A.

DEPTH (feet)		SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNT	PID Reading	GROUND WATER	OBSERVATIONS	TESTING
30	Wet, gray, silty SAND (no petroleum odor)			32 50/6"	7.5 ppm		B-7:30'	
35	Moist, gray SILT/CLAY			50/6"	2.2 ppm		B-7: GW	
	Boring terminated at an approximate depth of 35.5-feet bgs.							
40	Static groundwater level measured at 27.5 feet bgs at time of drilling.							
	Temporary well screened from 25 to 35 feet bgs and removed after groundwater sampling.							
	Boring was backfilled with bentonite chips.							
45								
50								
55								

LEGEND:

- 2-inch O.D. Split-Spoon Sample
- 2-inch O.D. Geoprobe
- Sample not Recovered
- DATE ▽ DATE — Static Water Level at Drilling; Static Water Level; Perched Groundwater
- Grab Sample
- WTPH-D Ext 8010 — Type of Analytical Testing Used
- NR — No Recovery
- ATD — At Time of Drilling

Drilling Company: Holocene Drilling
Drilling Method: Auger

Drilling Start Date: 08/20/20
Drilling Completion Date: 08/20/20

Logged By: JTB

APPENDIX C

LABORATORY CERTIFICATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 31, 2020

John Bhend, Project Manager
Adapt Engineering
615 8th Avenue South
Seattle, WA 98104

Dear Mr Bhend:

Included are the results from the testing of material submitted on August 20, 2020 from the Former Gas Station PO WA20-18238-PH2, F&BI 008325 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ADP0831R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 20, 2020 by Friedman & Bruya, Inc. from the Adapt Engineering Former Gas Station PO WA20-18238-PH2, F&BI 008325 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Adapt Engineering
008325 -01	B-4:15'
008325 -02	B-4:25'
008325 -03	B-4:36'
008325 -04	B-4:GW
008325 -05	B-5:15'
008325 -06	B-5:25'
008325 -07	B-5:35'
008325 -08	B-5:GW
008325 -09	B-6:15'
008325 -10	B-6:20'
008325 -11	B-6:35.5'
008325 -12	B-6:GW
008325 -13	B-7:5'
008325 -14	B-7:15'
008325 -15	B-7:30'
008325 -16	B-7:GW

All quality control requirements were acceptable.

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325
Date Extracted: 08/24/20
Date Analyzed: 08/25/20, 08/26/20, and 08/27/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B-4:15' 008325-01	<0.02	<0.02	<0.02	<0.06	<5	90
B-4:25' 008325-02	0.04	0.73	0.88	5.1	64	96
B-4:36' 008325-03	0.31	0.25	0.58	3.1	19	92
B-5:15' 008325-05 1/20	<0.4	1.4	20	71	980	97
B-5:25' 008325-06	<0.02	0.042	0.057	0.15	14	93
B-5:35' 008325-07	0.062	<0.02	0.093	0.34	<5	91
B-6:15' 008325-09	<0.02	<0.02	<0.02	<0.06	<5	77
B-6:20' 008325-10	0.34	1.4	0.22	1.3	15	90
B-6:35.5' 008325-11	<0.02	0.055	0.039	0.21	<5	89
B-7:5' 008325-13	<0.02	<0.02	<0.02	<0.06	<5	90

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325
Date Extracted: 08/24/20
Date Analyzed: 08/25/20, 08/26/20, and 08/27/20

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B-7:15' 008325-14 1/20	<0.4	36	20	120	1,300	96
B-7:30' 008325-15	<0.02	0.074	<0.02	0.12	<5	76
Method Blank 00-1802 MB	<0.02	<0.02	<0.02	<0.06	<5	93

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325
Date Extracted: 08/27/20
Date Analyzed: 08/27/20

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
B-4:GW 008325-04 1/80	3,500	4,200	4,200	18,000	99,000	85
B-5:GW 008325-08 1/400	1,200	2,000	4,000	16,000	130,000	79
B-6:GW 008325-12 1/400	4,500	5,000	3,500	18,000	140,000	80
B-7:GW 008325-16 1/80	1,300	7,100	1,800	9,200	69,000	83
Method Blank 00-1807 MB	<1	<1	<1	<3	<100	76

Analysis For Total Metals By EPA Method 6020B

Client ID:	B-4:15'	Client:	Adapt Engineering
Date Received:	08/20/20	Project:	Former Gas Station
Date Extracted:	08/21/20	Lab ID:	008325-01
Date Analyzed:	08/21/20	Data File:	008325-01.079
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B-5:15'	Client:	Adapt Engineering
Date Received:	08/20/20	Project:	Former Gas Station
Date Extracted:	08/21/20	Lab ID:	008325-05
Date Analyzed:	08/21/20	Data File:	008325-05.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	1.17

Analysis For Total Metals By EPA Method 6020B

Client ID:	B-6:15'	Client:	Adapt Engineering
Date Received:	08/20/20	Project:	Former Gas Station
Date Extracted:	08/21/20	Lab ID:	008325-09
Date Analyzed:	08/21/20	Data File:	008325-09.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B-7:15'	Client:	Adapt Engineering
Date Received:	08/20/20	Project:	Former Gas Station
Date Extracted:	08/21/20	Lab ID:	008325-14
Date Analyzed:	08/21/20	Data File:	008325-14.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	1.12

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Adapt Engineering
Date Received:	NA	Project:	Former Gas Station
Date Extracted:	08/21/20	Lab ID:	I0-486 mb2
Date Analyzed:	08/21/20	Data File:	I0-486 mb2.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING METHOD 8021B AND NWTPH-Gx

Laboratory Code: 008345-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	84	69-120
Toluene	mg/kg (ppm)	0.5	84	70-117
Ethylbenzene	mg/kg (ppm)	0.5	86	65-123
Xylenes	mg/kg (ppm)	1.5	87	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 008415-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	107	65-118
Toluene	ug/L (ppb)	50	112	72-122
Ethylbenzene	ug/L (ppb)	50	111	73-126
Xylenes	ug/L (ppb)	150	109	74-118
Gasoline	ug/L (ppb)	1,000	109	69-134

Date of Report: 08/31/20
Date Received: 08/20/20
Project: Former Gas Station PO WA20-18238-PH2, F&BI 008325

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 008266-100 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	1.19	94	95	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	95	80-120

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

008325

SAMPLE CHAIN OF CUSTODY 08-20-20

VS5 / BI1 / VW2

Page # 1 of 2

Report To John Bhend

Company Adapt

Address 615 8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email johnbhend@adaptengr.com

SAMPLERS (signature) [signature]

PROJECT NAME	PO #
Former Gas Station	WA20-18238-PH2
REMARKS	INVOICE TO
Project specific RLs? - Yes / No (circled: No)	

TURNAROUND TIME
- [x] Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days (circled)

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Lead				Notes
B-4: 15'	01 A-E	8-19-20	1000	soil	5		X	X					X				
B-4: 25'	02 A-D	↓	1040	↓	4		↓	↓									
B-4: 36'	03	↓	1100	↓	4		↓	↓									
B-4: GW	04 A-C	↓	1130	water	3		↓	↓									
B-5: 15'	05 A-E	↓	1325	soil	5		↓	↓					X				
B-5: 25'	06 A-D	↓	1340	↓	4		↓	↓									
B-5: 35'	07	↓	1410	↓	4		↓	↓									
B-5: GW	08 A-C	↓	1420	water	3		↓	↓									
B-6: 15'	09 A-E	8-20-20	0950	soil	5		↓	↓					X				
B-6: 20'	10 A-D	↓	0955	↓	4		↓	↓									

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	John Bhend	Adapt	8-20-20	1411
Received by: [signature]	Ann Webber Bruya	F&B	|	|
Relinquished by:				
Received by:				

Samples received at 4 °C

008325

SAMPLE CHAIN OF CUSTODY

MC

08-20-20 VSS / BI / VWZ

Page # 2 of 2

Report To John Bhend

Company Adapt

Address 615 8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email johnbhend@adaptengr.com

SAMPLERS (*signature*)

PROJECT NAME: Former Gas Station

PO #: WA20-18238-PH2

REMARKS: Project specific RLs? - Yes (No)

INVOICE TO

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Lead				Notes
						ANALYSES REQUESTED											
B-6: 35.5'	11 A-D	8-20-20	1020	soil	4		X	X									
B-6: GW	12 A-C	↓	1045	water	3		↓	↓									
B-7: 5'	13 A-D		1120	soil	4												
B-7: 15'	14 A-E		1130	↓	5								X				
B-7: 30'	15 A-D		1155	↓	4												
B-7: GW	16 A-C	↓	1245	water	3		↓	↓									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	John Bhend	Adapt	8-20-20	1411
Received by:	Ann Webber Bruya	F&B		
Relinquished by:				
Received by:				

Samples received at 4 °C

Friedman & Bruya, Inc.
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