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November 10, 2021

Impact Public Schools
3438 South 148th Street
Tukwila, Washington 98168

Attention: Jen Wickens

Subject: Focused Phase II Environmental Site Assessment
Impact Renton (Former QFC Store Property)
16950 116th Avenue SE
Renton, Washington
GeoEngineers File No. 21565-006-04

INTRODUCTION AND BACKGROUND

This report summarizes GeoEngineers, Inc. (GeoEngineers) Focused Soil and Sub Slab Soil Gas Phase II Environmental Site Assessment (ESA) on behalf of Impact Public Schools (Impact) for the proposed Impact Renton School property located at 16950 116th Avenue SE in Renton, Washington (herein referred to as the "subject property;" Figure 1, Vicinity Map). The approximate 6-acre subject property is the eastern portion of King County Parcel Number 282305-9009 and is a portion of a larger strip-mall type shopping center development owned by MBA Cascade Plaza LLC. The subject property portion of the shopping center property is developed with a former grocery store building (former QFC store) that was built in 1959.

GeoEngineers previously completed a Phase I ESA for the former QFC store/subject property in October 2021. The Phase I ESA research identified that a former dry cleaning business, Cascade Cleaners, operated in the north portion of the strip mall approximately 200 feet north, and upgradient of the subject property based on local groundwater flow to the southeast, from at least 1977 until approximately 2010. Releases of dry cleaning solvents (trichloroethene [TCE] and perchloroethylene [PCE]) have been identified in soil, groundwater and soil vapor at and to the southeast of the former location of the dry cleaning operation. A remedial action, consisting primarily of soil excavation as a source removal measure, was completed within the former dry cleaner's footprint in late 2018 following the demolition of the building. Post-excavation investigation, including the sampling of five downgradient monitoring wells located in the alley southeast of the former dry cleaners area, including two wells installed in 2020 about half-way between the former dry cleaner location and the subject property, identified PCE at concentrations greater than the applicable Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) cleanup level in the groundwater samples from most of the wells, including the new shallow well closest to the subject property. The 2020 groundwater data indicates that the dry cleaner contamination extends well to the southeast and to near the subject property, but no data is available regarding soil, groundwater and soil vapor conditions at the northwestern boundary of the subject property. The presence of PCE-contaminated groundwater poses a potential threat to indoor air within buildings

located above the contaminated groundwater via vapor intrusion. Any impacts to indoor air represent a potential threat to users or occupants of the buildings.

We understand that Impact Public Schools (Impact) in partnership with Washington Charter School Development (WCSD), is planning to lease the subject property and would like to evaluate and document the presence or absence of PCE and dry cleaner solvent contamination at the subject property to support your planning and risk management decisions regarding potential ownership and redevelopment of the subject property.

SCOPE

The focused subsurface assessment was conducted to evaluate and document soil and groundwater conditions at the subject property and potential environmental liabilities associated with the recognized environmental conditions (RECs) identified in the Phase I ESA. The objectives for the focused assessment include evaluation of the following:

- Presence or absence of contamination by hazardous substances in soil, groundwater and soil vapor at the subject property.
- Impact of the upgradient release of dry cleaner solvents on the subsurface in the vicinity of the subject property.
- Potential need for vapor mitigation and soil and groundwater management during property redevelopment.

Our scope of services for the focused assessment included the following drilling and sampling at the locations shown on Figure 2, Site Plan:

- Drilling six (6) direct-push borings (GEI-1 through GEI-6) to a maximum depth of 15 feet below ground surface (bgs) or refusal at locations in and near the alley between the former dry cleaner and the subject property.
- Collecting soil samples during drilling from each boring for soil classification, field screening, and potential laboratory analysis. Field screening of the soil samples was conducted for indications of petroleum hydrocarbon and/or volatile organic compound (VOC)-related contamination using visual, water sheen and headspace vapor screening methods including a photoionization detector (PID). Visually classifying the soil samples in general accordance with ASTM D 2488-00.
- Selecting one or more soil samples from each boring for laboratory chemical analysis for one or more of the following potential contaminants of concern:
  - Gasoline-, diesel- and heavy oil-range total petroleum hydrocarbons (TPH-G, TPH-D, TPH-O) using Northwest Methods NWTPH-Gx and NWTPH-Dx;
  - Resource Conservation and Recovery Act (RCRA) 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) by United States Environmental Protection Agency (EPA) methods;
  - Halogenated VOCs, using EPA Method 8260.

- If groundwater was encountered during drilling, collected a groundwater grab sample from each direct-push boring using low-flow sampling techniques for laboratory chemical analysis. Groundwater was not encountered in the explorations; therefore, no groundwater samples could be collected.
- Installed three vapor pins in the floor at locations inside the building and collect and submit three sub-slab soil vapor samples for chemical analysis for chlorinated solvents by EPA Method TO-15 and helium by ASTM International (ASTM) D 1946.
- Evaluated the subject property subsurface based on the conditions encountered during drilling and sampling, and the laboratory analytical results for the soil and sub-slab soil vapor samples relative to the applicable Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) cleanup levels and Ecology soil end use guidelines.

FINDINGS

The focused assessment included the six (6) direct-push borings (GEI-1 through GEI-6) completed on September 24, 2021 and sub-slab soil vapor sampling on September 28, 2021. A representative of GeoEngineers observed and documented the subsurface conditions encountered during drilling and obtained soil samples for field screening and laboratory chemical analysis. Field procedures and the exploration logs for the borings are presented in Appendix A.

Direct-push borings GEI-1 through GEI-6 were completed to a maximum depth of 15 feet bgs or refusal. Groundwater was not encountered during drilling in any of the borings. The soil conditions encountered during drilling are described below.

Soil Conditions

The soils encountered during drilling at the subject property generally consisted of fill overlying native glacial deposits to the total depths explored (10 to 15 feet bgs). The fill consisted of dark brown sand with varying amounts of gravel and silt, and was observed to range from about 1.5 to 3.5 feet thick in the borings. The source of the fill material is not known. Field screening of soil during drilling identified a slight to no sheen in the borings. The underlying native deposits consisted primarily of loose to medium-dense sand and silty sand with gravel and occasional plant roots, typical of glacial deposits. Field screening of soil during drilling identified a slight to moderate sheen in the native soil in the borings.

Sub-Slab Soil Vapor Sampling

Three locations were sampled for sub-slab soil vapor on September 28, 2021 (Figure 2). Three soil vapor samples (SV-1, SV-2 and SV-3) were collected beneath the west end of the building nearest the alley.

Prior to sampling, a field visit was completed on September 24, 2021 to clear proposed sample locations with the underground utility location service and a subcontracted private utility locate. Soil Vapor Pins™ (Pins) were installed into the concrete flooring and were capped and allowed to equilibrate with the subsurface soil vapor for a minimum of two hours before sampling activities commenced on September 28, 2021. Volatile organic compounds in the soil vapor samples were measured in the field using a handheld PID and disposable tedlar bag; results were less than four parts per million (ppm) for all three samples, which is within the range of background relative to ambient air.

Soil vapor samples were collected into the laboratory-provided 1-liter vacuum Summa canisters. The canisters were labelled with the sample identification number, time and date of collection, project name and number, and site address. The Summa canister samples were submitted on September 28, 2021 to Friedman and Bruya, Inc. in Seattle, Washington for chemical analysis of select halogenated volatile organic compounds by United States EPA Method TO-15.

The sub-slab soil vapor chemical analytical results are summarized in Table 2 and the laboratory analytical report is attached. The laboratory reporting limits and detected analyte concentrations in the soil vapor samples were compared to the conservative soil vapor screening levels identified by Ecology to be protective of indoor air under unrestricted land uses, which includes residential use. Screening levels were based on the lowest Model Toxics Control Act (MTCA) Method B soil vapor screening level included in Ecology's Cleanup Levels and Risk Calculation (CLARC) tables.

Soil Analytical Results

Ten (10) soil samples from the six (6) direct-push borings were submitted for laboratory chemical analysis for one or more of the following: TPH-G, TPH-D, TPH-O, select VOCs, and metals. The soil sample analytical results are summarized below and presented in Table 1. Copies of the laboratory analytical reports are provided in Appendix B. The soil analytical results are as follows:

- TPH-G, TPH-D and TPH-O were not detected at concentrations greater than the laboratory reporting limits in any of the soil samples.
- Metals either were not detected at concentrations greater than the laboratory reporting limits or were detected at concentrations less than applicable MTCA Method A or B cleanup levels.
- Dry cleaning related compounds (TCE, PCE and/or cis-1,2-dichrolorethene) were detected at concentrations greater than the laboratory reporting limits in samples from two (2) soil borings (GEI-3-9.0 and -15.0 [the deeper two samples] and GEI-4-8.0 and -15.0 [PCE only in both samples analyzed]); however, none of the detected concentrations were greater than the MTCA screening levels. Other VOCs were not detected at concentrations greater than the laboratory reporting limits in any of the soil samples.

Sub-Slab Soil Vapor Analytical Results

The analytical results for the three sub-slab soil vapor samples are summarized in Table 2. The only solvent detected at concentrations greater than the laboratory reporting limits was PCE, which was detected in samples SV-1 and SV-2. Both of the detected concentrations were less than the respective MTCA Method B soil vapor screening levels.

Based on the soil vapor sample analytical results and the conservative exposure assumptions included in the soil vapor screening levels, the potential for vapor intrusion at concentrations that pose a concern for users of the subject property building is considered to be low.

CONCLUSIONS AND RECOMMENDATIONS

Based on the focused sampling data, the release(s) from the former upgradient dry cleaner do appear to have impacted the subsurface at the subject property. However, the detected concentrations do not indicate that the current conditions pose the potential for vapor intrusion into the subject property building or warrant action.

The presence of the dry cleaning solvents in the subsurface at the subject property should be considered as part of planning for future use of the building as a school, and the progress of the cleanup at the former dry cleaner should be followed, including the potential for changes (i.e., increases) in the contaminant concentrations at the locations downgradient of source area(s) at the former dry cleaners space.

Depending on the schedule for occupancy of the subject property, and changes related to the cleanup of the former dry cleaner, additional assessment or protective measures may be prudent in planning for use of the property for a school.

LIMITATIONS

We have prepared this letter report for use by Impact Public Schools and their authorized agents as part of their evaluation of and planning for environmental conditions at the subject property. Our work was completed in accordance with our proposal dated September 8, 2021. No other party may rely on the product of our services unless we agree in advance and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Please refer to Appendix C, titled "Report Limitations and Guidelines for Use," for additional information pertaining to use of this report.

REFERENCES

GeoEngineers, Inc., Phase I Environmental Site Assessment, Former QFC Store Property, 16950 116th Avenue SE, Renton, Washington. September 17, 2021.

GHD, 2018 to 2020. Boring logs, site plan, and chemical analytical data for unpublished subsurface investigation at former Cascade cleaners, November 2018 to September 2020.

Partner Engineering and Science, Inc. (Partner), 2015. Phase II Subsurface Investigation Report, Cascade Village, 16950-17060 116th Avenue SE, Renton, Washington. Dated July 6, 2015.

We appreciate the opportunity to continue our work with you on this project. If you have any questions, please contact us.

Sincerely,
GeoEngineers, Inc.

Jessica A. Robertson, LG
Project Manager

Tim Syverson, LHG
Associate

KRA:JAR:TS:tjh

Attachments:
Table 1. Soil Chemical Analytical Data
Table 2. Soil Vapor Chemical Analytical Data
Figure 1. Vicinity Map
Figure 2. Site Plan
Appendix A. Field Procedures and Boring Logs
Appendix B. Laboratory Analytical Data Reports
Appendix C. Report Limitations and Guidelines for Use

Table 1

Soil Chemical Analytical Data

Focused Sampling and Analysis September 2021

17060 - 116th Avenue SE, Renton, Washington

Sample ID[1]	GEI-1-7.0	GEI-2-3.0	GEI-2-10.0	GEI-3-4.0	GEI-3-9.0	GEI-3-15.0	GEI-4-8.0	GEI-4-15.0	GEI-5-15.0	GEI-6-15.0	MTCA Method A and B Cleanup Levels
Depth of Sample (feet bgs)	**7.0**	**3.0**	**10.0**	**4.0**	**9**	**15.0**	**8.0**	**15.0**	**15.0**	**15.0**	
Petroleum Hydrocarbons by NWTPH-Gx or NWTPH-Dx (mg/Kg)											
Gasoline-Range	--	--	--	--	--	5 U	--	--	--	--	100[3]
Diesel-Range	50 U	50 U	--	--	--	50 U	--	--	--	--	2,000
Heavy Oil-Range	250 U	250 U	--	--	--	250 U	--	--	--	--	2,000
Metals by EPA 6020B/7471 (mg/Kg)											
Arsenic	**2.02**	**2.21**	--	--	--	**1.66**	--	--	--	--	20
Barium	**35.6**	**48.6**	--	--	--	**42.7**	--	--	--	--	16,000[4]
Cadmium	1 U	1 U	--	--	--	1 U	--	--	--	--	2
Chromium	**17.2**	**14.8**	--	--	--	**16.5**	--	--	--	--	2,000[2]
Lead	**1.53**	**4.85**	--	--	--	**1.63**	--	--	--	--	250
Mercury	1 U	1 U	--	--	--	1 U	--	--	--	--	2
Selenium	1 U	1 U	--	--	--	1 U	--	--	--	--	400[4]
Silver	1 U	1 U	--	--	--	1 U	--	--	--	--	400[4]
Volatile Organic Compounds (VOCs)[3] by EPA 8260D (mg/Kg)											
cis-1,2-Dichloroethene	--	--	0.001 U	0.001 U	**0.014**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.016[4]
Trichloroethene (TCE)	--	--	0.001 U	0.001 U	**0.015**	**0.0030**	0.001 U	0.001 U	0.001 U	0.001 U	0.03
Tetrachloroethene (PCE)	--	--	0.001 U	0.001 U	**0.023**	**0.0076**	**0.0012**	**0.0016**	0.001 U	0.001 U	0.05

Notes:

[1] Sample locations are shown on Figure 2.

[2] Model Toxics Control Act (MTCA) Method A cleanup level for Chromium III (Trivalent Chromium).

[3] Only detected volatile Organic Compounds (VOCs) shown. Other VOCs were not detected at concentrations greater than the laboratory reporting limits. See attached chemical analytical data report.

[4] MTCA Method B cleanup level. MTCA Method A cleanup level not established.

bgs = below ground surface

EPA = U.S. Environmental Protection Agency

mg/Kg = milligrams per Kilogram

MTCA = Model Toxics Control Act

"--" = Not analyzed

TCLP = Toxic Characteristic Leaching Procedure

TEQ = toxicity equivalency

Bold indicates analyte was detected at a concentration greater than the laboratory reporting limit.

Table 2

Soil Vapor Chemical Analytical Data[1]

Focused Sampling and Analysis September 2021

17060 - 116th Avenue SE, Renton, Washington

Sample Identification[2]	SV-1	SV-2	SV-3	MTCA Method B Soil Vapor Screening Level [3] ($\mu g/m^3$)
Dry-Cleaning Related Solvents ($\mu g/m^3$)				
Vinyl chloride (VC)	1.6 U	1.5 U	1.4 U	9.5
Trichloroethene (TCE)	0.67 U	0.64 U	0.6 U	11
Tetrachloroethene (PCE)	**63**	**72**	38 U	320
1,1-Dichloroethene	2.5 U	2.4 U	2.2 U	3,000
trans-1,2-Dichloroethene	2.5 U	2.4 U	2.2 U	610
cis-1,2-Dichloroethene	2.5 U	2.4 U	2.2 U	NA

Notes:

[1] Chemical analyses performed by Friedman & Bruya, Inc., Seattle, Washington. Soil vapor samples analyzed by U.S. Environmental Protection Agency (EPA) Method TO-15.

[2] All samples collected on September 28, 2021. The approximate sample locations are shown in Figure 2.

[3] Screening levels are the lowest MTCA Method B soil vapor screening level included in Ecology's Cleanup Levels and Risk Calculation (CLARC) tables dated February 2021.

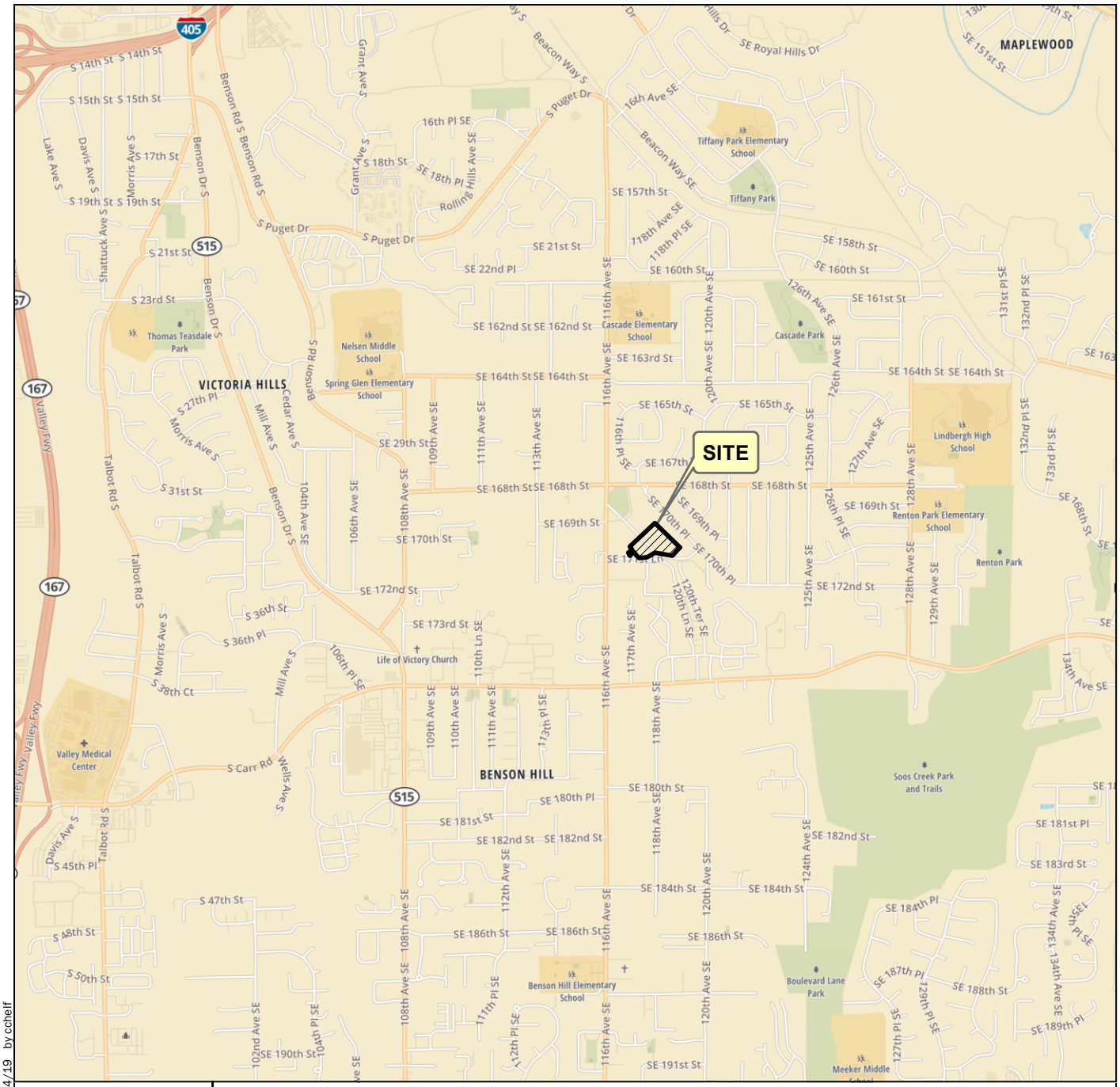
$\mu g/m^3$ = micrograms per cubic meter

MTCA = Model Toxics Control Act

NA = Not applicable

U = Analyte not detected at or greater than the indicated laboratory reporting limit

Bolded value indicates analyte detected



N
W E
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2,000 0 2,000

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

Phase I ESA
Former QFC Property
Renton, Washington

GeoEngineers

Figure 1

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Approximate Subject Property Boundary

Parcel Boundaries

Inferred Groundwater Flow Direction

GEI-1 Direct-Push Boring Location

SV-1 Sub-Slab Sample Location

N W E S

Source: 2017 aerial photograph, King County iMAP

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DRAFT Site Plan

Focused Sampling and Analysis
Former QFC Property
Renton, Washington

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Figure 2

APPENDIX A
Field Procedures and Boring Logs

APPENDIX A
FIELD PROCEDURES AND BORING LOGS

Underground Utility Locate

Prior to drilling activities, an underground utility locate was conducted in the area of the proposed boring locations to identify any subsurface utilities and/or potential underground physical hazards. An underground utility check consisting of contacting a local utility alert service and a private utility locating service was also performed.

Soil Sampling

Subsurface conditions at the Site were evaluated by completing six (6) direct-push soil borings using equipment owned and operated by ESN Drilling of Olympia, a Washington state-licensed drilling company. The direct-push borings extended to a depth of approximately 15 feet below the ground surface (bgs). Soil samples were collected in clean, plastic 1.5-inch-diameter disposable liners.

The remaining portion of each sample was used for field screening. The sampling equipment was decontaminated prior to each use with an Alconox® wash and a clean water rinse. Soil samples were obtained from the direct-push borings' continuous cores for field screening and possible chemical analysis.

A representative from our staff classified the soil encountered in each of the borings. Soil in the explorations was visually classified in general accordance with ASTM International (ASTM) D 2488-00. The boring logs are presented in Figures A-2 through A-7.

The sampling equipment was decontaminated before each sampling attempt with a Liqui-Nox® solution wash and a distilled water rinse. Soil samples were obtained for field screening and possible chemical analysis. Soil samples obtained during the exploration activities were collected from the sampler with a decontaminated stainless-steel knife or new nitrile gloves. A portion of each sample was placed in laboratory-prepared sample jars for possible chemical analysis. The remaining portion of each sample was used for field screening.

Up to two soil samples from each boring were submitted for chemical analysis, based on criteria described in the report above. Samples obtained are shown on the logs. The soil samples were placed in a cooler with ice for transport to Onsite Environmental. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

Field Screening of Soil Samples

Soil samples obtained from the borings were screened in the field for evidence of contamination using: (1) visual examination; (2) sheen screening; and/or (3) or photoionization detector (PID). The results of headspace and sheen screening are included in the boring logs and in Table 1 for soil samples tested by chemical analysis.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

- No Sheen (NS) — No visible sheen on water surface.
- Slight Sheen (SS) — Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.
- Moderate Sheen (MS) — Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface.
- Heavy Sheen (HS) — Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in ppm (parts per million) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm. Field screening results are site-specific and vary with soil type, soil moisture content, temperature and type of contaminant.

Sub-Slab Soil Vapor Probe Installation

Sub-slab soil vapor samples were collected inside the building using Vapor Pin™ sampling devices. The Vapor Pins™ were installed following the manufacturers' standard operating procedures (SOPs) attached to this appendix.

General installation procedures for the sub-slab sampling device were as follows:

- Checked for buried obstacles (pipes, electrical lines, etc.) prior to proceeding. Applied Professional Services, Inc. completed a private utility locate and cleared the sub-slab soil vapor sample locations.
- Set up vacuum to collect drill cuttings.
- Drilled a ⅝-inch-diameter hole through the slab and approximately 1 inch into the underlying soil to form a void.
- Removed the drill bit, brushed the hole with the bottle brush and removed the loose cuttings with the vacuum.
- Placed the lower end of sampling device assembly into the drilled hole. Placed the small hole located in the handle of the extraction/installation tool over the sampling device to protect the barb fitting and cap and tapped the sampling device into place using a dead-blow hammer. Aligned the extraction/installation tool parallel to the sampling device to avoid damaging the barb fitting.
- The silicone sleeve formed a slight bulge between the slab and the sample device shoulder during installation. Placed the protective cap on sampling device to prevent vapor loss prior to sampling.
- Allowed at least 2 hours for the sub-slab soil vapor conditions to equilibrate prior to sampling.

Sub-Slab Soil Vapor Sampling Procedure

The following procedure was followed to collect sub-slab soil vapor samples:

- New fluoropolymer (Teflon®) tubing was connected to the sub-slab soil vapor probe using the barb fitting on the top of the sampling device.

- The tubing (aboveground) was connected to a sampling manifold.
- The sampling manifold was vacuum-tested (shut-in test) by introducing a vacuum to the aboveground portion of the sampling train and checking for loss of vacuum after 5 minutes. If vacuum loss was observed, connections and fittings in the sample train were checked and adjusted followed by another vacuum test. This test was repeated until the sampling train demonstrated that tightness was achieved.
- A tracer gas shroud (clear plastic container) was placed around the entire sample train (that is, the sub-slab soil vapor probe where it enters the ground surface and associated tubing and manifold).
    - The shroud was charged (filled) with a tracer gas (spec-grade 99.995 percent helium gas) and the tracer gas concentration within the shroud was measured using a hand-held monitor (Dielectric MGD-2002 Multi-Gas Leak Detector). The hand-held monitor is capable of measuring helium in air to a concentration of 0.5 percent) prior to, during and after completion of the sampling event. A Teflon tube with a ball valve was inserted under the shroud to connect with the compressed helium bottle to charge the shroud. This same tube was used to monitor the helium concentration within the shroud periodically throughout the sampling process. The purpose of the periodic monitoring is to make sure helium is in contact with the sample train and the ground surface while the sub-slab vapor sample is collected.
- The sampling train (aboveground and belowground components) was purged using a vacuum purge pump or a multi-gas meter. Purge volumes were calculated based on the flow rate of the purge pump and the volume of the soil vapor probe and sample train. The helium concentration within the sampling train was measured and recorded after purging three sampling train volumes. If the helium concentration in the sample train is greater than or equal to 5 percent of the helium concentration in the shroud, the bentonite seal was re-applied, fittings were tightened, and the previous purging and measurement tests was repeated (Cal-EPA/DTSC 2015).
- The soil vapor sample was obtained using a 1-liter evacuated Summa canister (with approximately 30 inches of mercury vacuum set by the laboratory) and tedlar bag (helium analysis) with a regulated flow rate of less than or equal to approximately 150 milliliters per minute (DTSC/Cal-EPA 2015). The canister was filled with soil vapor for approximately 5 minutes or until a vacuum equivalent of approximately 5 inches of mercury remains in the Summa canister, whichever comes first. The initial and final canister vacuums were recorded on a soil vapor sampling field form.
- The canisters were provided by a subcontracted analytical laboratory.

Investigative Waste Disposal

Drill cuttings and decontamination/purge water generated during drilling activities were temporarily stored on site in one labeled 17-gallon drum.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Drilled Start 9/24/2021 End 9/24/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller ESN Northwest	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum Undetermined		Hammer Data NA (lbs) / (in) Drop		Drilling Equipment Truck-mounted GeoProbe	
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0					AC	Approximately 3 inches of asphalt concrete pavement			
		48				SP/SM	Dark brown-red fine to coarse sand with silt and gravel (medium dense, moist) (fill)	NS	<1	
						SP	Gray fine to coarse sand with gravel and orange mottling (medium dense, moist) (native)	SS	<1	
	5	60								
				GEI-1-7.0				NS	<1	
	10	60								
				GEI-1-12.0				NS	<1	
	15						Boring terminated at 15 feet below ground surface			

Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-1

GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 2
Sheet 1 of 1

Drilled Start 9/24/2021 End 9/24/2021	Total Depth (ft) 10	Logged By KRA Checked By	Driller ESN Northwest	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum Undetermined		Hammer Data NA (lbs) / (in) Drop		Drilling Equipment Truck-mounted GeoProbe	
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0					AC	Approximately 6 inches of asphalt concrete pavement			
						SP	Brown fine to coarse sand with gravel (loose, moist) (fill)			
		42								
						GP	Brown-red sandy gravel with orange mottling (medium dense, moist) (fill)			
				GEI-2-3.0				NS	1.1	
						GP	Pea gravel (loose, dry) (fill)			
	5									
		48				SP	Brown-red fine to coarse sand with gravel and orange mottling (medium dense, moist) (native)			
				GEI-2-7.0				SS	3.1	
				GEI-2-10.0			Grades to no orange mottling	SS	3.9	
	10						Refusal at approximately 10 feet due to possible concrete			

Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-2

GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 3
Sheet 1 of 1

Drilled Start 9/24/2021 End 9/24/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller ESN Northwest	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum Undetermined		Hammer Data NA (lbs) / (in) Drop		Drilling Equipment Truck-mounted GeoProbe	
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0					AC	Approximately 6 inches of asphalt concrete pavement			
		42				SP	Brown fine to coarse sand with gravel (medium dense, moist) (fill)	NS	ND	
						SP	Dark brown fine to coarse sand with burnt wood piece (medium dense, moist) (fill)			
				GEI-3-4.0		SP-SM	Dark gray fine to coarse sand and silt with gravel (medium dense, moist) (fill)	SS	5.5	
	5	60				SM	Gray silty fine to coarse sand with orange mottling (loose, moist) (native)	SS	ND	
				GEI-3-9.0		SP	Brown fine to coarse sand with gravel (medium dense, moist) (native)	SS	61.0	
	10	60								
				GEI-3-15.0				SS	140.2	
	15						Boring terminated at approximately 15 feet below ground surface			

Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-3

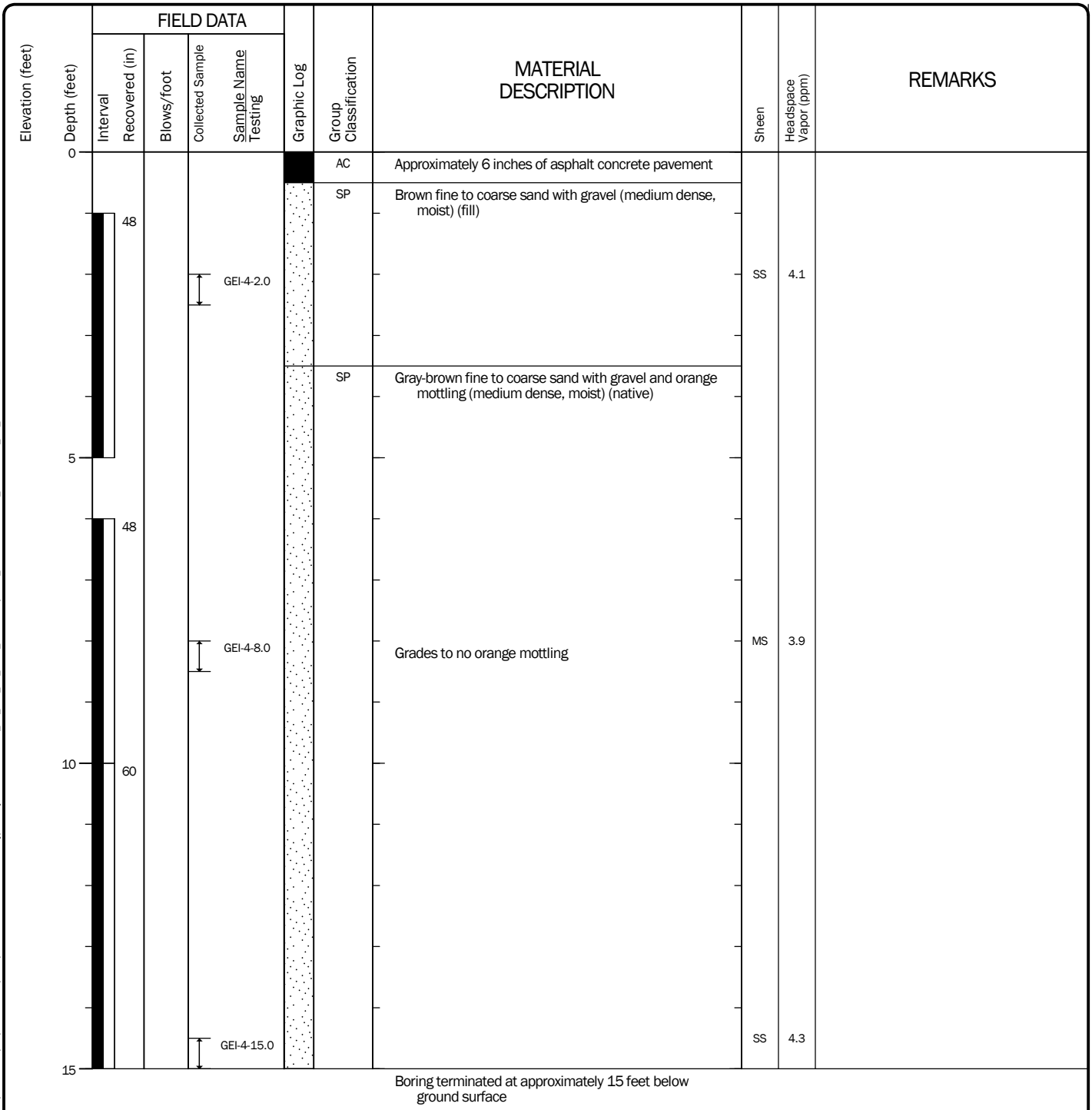
GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 4
Sheet 1 of 1

Drilled	Start 9/24/2021	End 9/24/2021	Total Depth (ft)	15	Logged By / Checked By	KRA	Driller	ESN Northwest	Drilling Method	Direct Push
Surface Elevation (ft) / Vertical Datum	Undetermined				Hammer Data	NA (lbs) / (in) Drop			Drilling Equipment	Truck-mounted GeoProbe
Easting (X) / Northing (Y)					System Datum				Groundwater not observed at time of exploration	

Notes:



Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-4

GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 5
Sheet 1 of 1

Drilled Start 9/24/2021 End 9/24/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller ESN Northwest	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum Undetermined		Hammer Data NA (lbs) / (in) Drop		Drilling Equipment Truck-mounted GeoProbe	
Easting (X) Northing (Y)		System Datum		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0					AC	Approximately 3 inches of asphalt concrete pavement			
		48		GEI-5-2.0		SP-SM	Dark brown fine to coarse sand and silt with gravel (medium dense, moist) (fill)	SS	2.1	
	5	60				SP	Brown-gray fine to coarse sand with gravel and occasional orange mottling (medium dense, moist) (native)			
				GEI-5-8.0		SP	Gray fine to coarse sand with gravel (medium dense, moist) (native)	SS	4.3	
	10	60				GP-GM	Brown sandy/silty gravel (medium dense, dry to moist) (native)			
				GEI-5-15.0				SS	5.9	
	15						Boring terminated at approximately 15 feet below ground surface			

Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-5

GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 6
Sheet 1 of 1

Drilled Start 9/24/2021 End 9/24/2021	Total Depth (ft) 15	Logged By KRA Checked By	Driller ESN Northwest	Drilling Method Direct Push	
Surface Elevation (ft) Vertical Datum Undetermined	Hammer Data NA (lbs) / (in) Drop	Drilling Equipment Truck-mounted GeoProbe			
Easting (X) Northing (Y)	System Datum	Groundwater not observed at time of exploration			
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0					AC	Approximately 9 inches of asphalt concrete pavement			
		48				SP	Brown-red fine to coarse sand with gravel (medium dense, moist) (fill)			
				GEI-6-1.5		SP	Brown fine to coarse sand with gravel (medium dense, moist) (native)	SS	4.7	
	5	60								
				GEI-6-7.0				SS	5.5	
	10	60								
				GEI-6-15.0		SP	Brown fine to coarse sand with gravel (dense, moist) (native)	SS	8.8	
	15						Boring terminated at approximately 15 feet below ground surface			

Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Boring GEI-6

GeoEngineers

Project: Cascade Village
Project Location: Renton, Washington
Project Number: 21565-006-04

Figure 7
Sheet 1 of 1

APPENDIX B
Laboratory Analytical Data Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
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October 4, 2021

Jessica Robertson, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Ms Robertson:

Included are the results from the testing of material submitted on September 24, 2021 from the Cascade Village Env Investigation 21565-006-01, F&BI 109450 project. There are 24 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: JRobertson@geoengineers.com
GNR1004R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 24, 2021 by Friedman & Bruya, Inc. from the GeoEngineers Cascade Village Env Investigation 21565-006-01, F&BI 109450 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
109450 -01	GEI-1-7.0
109450 -02	GEI-2-3.0
109450 -03	GEI-2-10.0
109450 -04	GEI-3-4.0
109450 -05	GEI-3-9.0
109450 -06	GEI-3-15.0
109450 -07	GEI-4-8.0
109450 -08	GEI-4-15.0
109450 -09	GEI-5-15.0
109450 -10	GEI-6-15.0
109450 -11	Trip Blank

The samples were analyzed as follows.

Gasoline (soil) - Analysis Method NWTPH-Gx

All quality control requirements were acceptable.

Diesel Range and Motor Oil Range (soil) - Analysis Method NWTPH-Dx

All quality control requirements were acceptable.

VOCs (soil) - Analysis Method 8260D

The direct sparge tetrachloroethene concentration in sample GEI-3-15.0 exceeded the calibration range of the instrument. The sample was reextracted for tetrachloroethene via methanolic extraction. All quality control requirements were acceptable.

Metals (soil) - Analysis Method 6020B

All quality control requirements were acceptable.

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450
Date Extracted: 09/29/21
Date Analyzed: 09/29/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
GEI-3-15.0 109450-06	<5	99
Method Blank 01-1961 MB	<5	89

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450
Date Extracted: 09/27/21
Date Analyzed: 09/27/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
GEI-1-7.0 109450-01	<50	<250	95
GEI-2-3.0 109450-02	<50	<250	98
GEI-3-15.0 109450-06	<50	<250	98
Method Blank 01-2195 MB	<50	<250	109

Analysis For Total Metals By EPA Method 6020B

Client ID:	GEI-1-7.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/28/21	Lab ID:	109450-01
Date Analyzed:	09/28/21	Data File:	109450-01.161
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.02
Barium	35.6
Cadmium	<1
Chromium	17.2
Lead	1.53
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	GEI-2-3.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/28/21	Lab ID:	109450-02
Date Analyzed:	09/28/21	Data File:	109450-02.181
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.21
Barium	48.6
Cadmium	<1
Chromium	14.8
Lead	4.85
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	GEI-3-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/28/21	Lab ID:	109450-06
Date Analyzed:	09/28/21	Data File:	109450-06.182
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.66
Barium	42.7
Cadmium	<1
Chromium	16.5
Lead	1.63
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	GeoEngineers
Date Received:	NA	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/28/21	Lab ID:	I1-606 mb
Date Analyzed:	09/28/21	Data File:	I1-606 mb.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-2-10.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-03
Date Analyzed:	09/28/21	Data File:	092738.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	86	50	150
Toluene-d8	109	50	150
4-Bromofluorobenzene	109	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-3-4.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-04
Date Analyzed:	09/28/21	Data File:	092739.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	114	50	150
4-Bromofluorobenzene	108	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-3-9.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-05
Date Analyzed:	09/28/21	Data File:	092740.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	110	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	0.014
Trichloroethene	0.015
Tetrachloroethene	0.023

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-3-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-06
Date Analyzed:	09/28/21	Data File:	092741.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	0.0030
Trichloroethene	0.0076

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-4-8.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-07
Date Analyzed:	09/28/21	Data File:	092742.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	116	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	0.0012

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-4-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-08
Date Analyzed:	09/28/21	Data File:	092743.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	107	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	0.0016

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-5-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-09
Date Analyzed:	09/28/21	Data File:	092744.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	111	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	GEI-6-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	109450-10
Date Analyzed:	09/28/21	Data File:	092745.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/27/21	Lab ID:	01-2140 mb
Date Analyzed:	09/28/21	Data File:	092736.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	111	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)
Vinyl chloride	<0.001
1,1-Dichloroethene	<0.001
trans-1,2-Dichloroethene	<0.001
cis-1,2-Dichloroethene	<0.001
Trichloroethene	<0.001
Tetrachloroethene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	GEI-3-15.0	Client:	GeoEngineers
Date Received:	09/24/21	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/29/21	Lab ID:	109450-06
Date Analyzed:	09/29/21	Data File:	092916.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	84	118
Toluene-d8	98	86	117
4-Bromofluorobenzene	99	90	112

Compounds:	Concentration mg/kg (ppm)
Tetrachloroethene	0.032

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	21565-006-01, F&BI 109450
Date Extracted:	09/29/21	Lab ID:	01-2202 mb2
Date Analyzed:	09/29/21	Data File:	092908.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	118
Toluene-d8	97	86	117
4-Bromofluorobenzene	99	90	112

Compounds:	Concentration mg/kg (ppm)
Tetrachloroethene	<0.025

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 109525-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	9.2	7.9	15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	130	71-131

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 109455-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	100	73-135	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	106	74-139

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450

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

Laboratory Code: 109450-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.85	80	80	75-125	0
Barium	mg/kg (ppm)	50	32.8	113	112	75-125	1
Cadmium	mg/kg (ppm)	10	<1	98	99	75-125	1
Chromium	mg/kg (ppm)	50	15.8	105	103	75-125	2
Lead	mg/kg (ppm)	50	1.41	85	86	75-125	1
Mercury	mg/kg (ppm	5	<1	97	96	75-125	1
Selenium	mg/kg (ppm)	5	<1	88	86	75-125	2
Silver	mg/kg (ppm)	10	<1	87	87	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	90	80-120
Barium	mg/kg (ppm)	50	90	80-120
Cadmium	mg/kg (ppm)	10	92	80-120
Chromium	mg/kg (ppm)	50	98	80-120
Lead	mg/kg (ppm)	50	94	80-120
Mercury	mg/kg (ppm)	5	102	80-120
Selenium	mg/kg (ppm)	5	95	80-120
Silver	mg/kg (ppm)	10	90	80-120

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D DIRECT SPARGE

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	mg/kg (ppm)	0.025	116	96	70-130	19
1,1-Dichloroethene	mg/kg (ppm)	0.025	114	98	70-130	15
trans-1,2-Dichloroethene	mg/kg (ppm)	0.025	117	101	70-130	15
cis-1,2-Dichloroethene	mg/kg (ppm)	0.025	119	102	70-130	15
Trichloroethene	mg/kg (ppm)	0.025	113	98	70-130	14
Tetrachloroethene	mg/kg (ppm)	0.025	90	81	70-130	11

Date of Report: 10/04/21
Date Received: 09/24/21
Project: Cascade Village Env Investigation 21565-006-01, F&BI 109450

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 109512-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Tetrachloroethene	mg/kg (ppm)	1	<0.025	104	93	20-133	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Tetrachloroethene	mg/kg (ppm)	1	100	72-114

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.

~~10955~~ 109450

SAMPLE CHAIN OF CUSTODY

ME 09/24/21

Page # 1 of 1

BI3 VS4 VM2

(NP)

Report To Jessica Robertson

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle, WA 98121

Phone _____ Email JRobertson@geoengineers.com

SAMPLERS (*signature*)

PROJECT NAME: Cascade Village Env. Investigation

PO #: 21565-000-01

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [X] 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	RCRA Metals	TCE, PCE, VC, and DCE isomers only			Notes
GEI-1-7.0	01	9/24/21	0830	S	1	X							X				
GEI-2-3.0	02		0910	S	1	X							X				
GEI-2-10.0	03A-E		0920	S	5									X			
GEI-3-4.0	04		0930	S	5									X			
GEI-3-9.0	05		0940	S	5									X			
GEI-3-15.0	06		0950	S	5	X	X						X	X			
GEI-4-8.0	07		1010	S	5									X			
GEI-4-15.0	08		1020	S	5									X			
GEI-5-15.0	09		1100	S	5									X			
GEI-6.15.0	10		1150	S	5									X			
Trip Blank	11AB			W	2												

(NP) 9/24/21

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Katy Atakturk	GeoEngineers	9.24.21	1430
Received by:		Khan Phan	FEBT	9/24/21	1430
Relinquished by:					
Received by:			Samples received at 4 °C		

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 109450 CLIENT GEI INITIALS (WP) DATE: 9/24/21

If custody seals are present on cooler, are they intact? ☑ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
- ☑ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☑ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☑ Yes	☐ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☐ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? (explain "no" answer below) ☑ YES ☐ NO

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

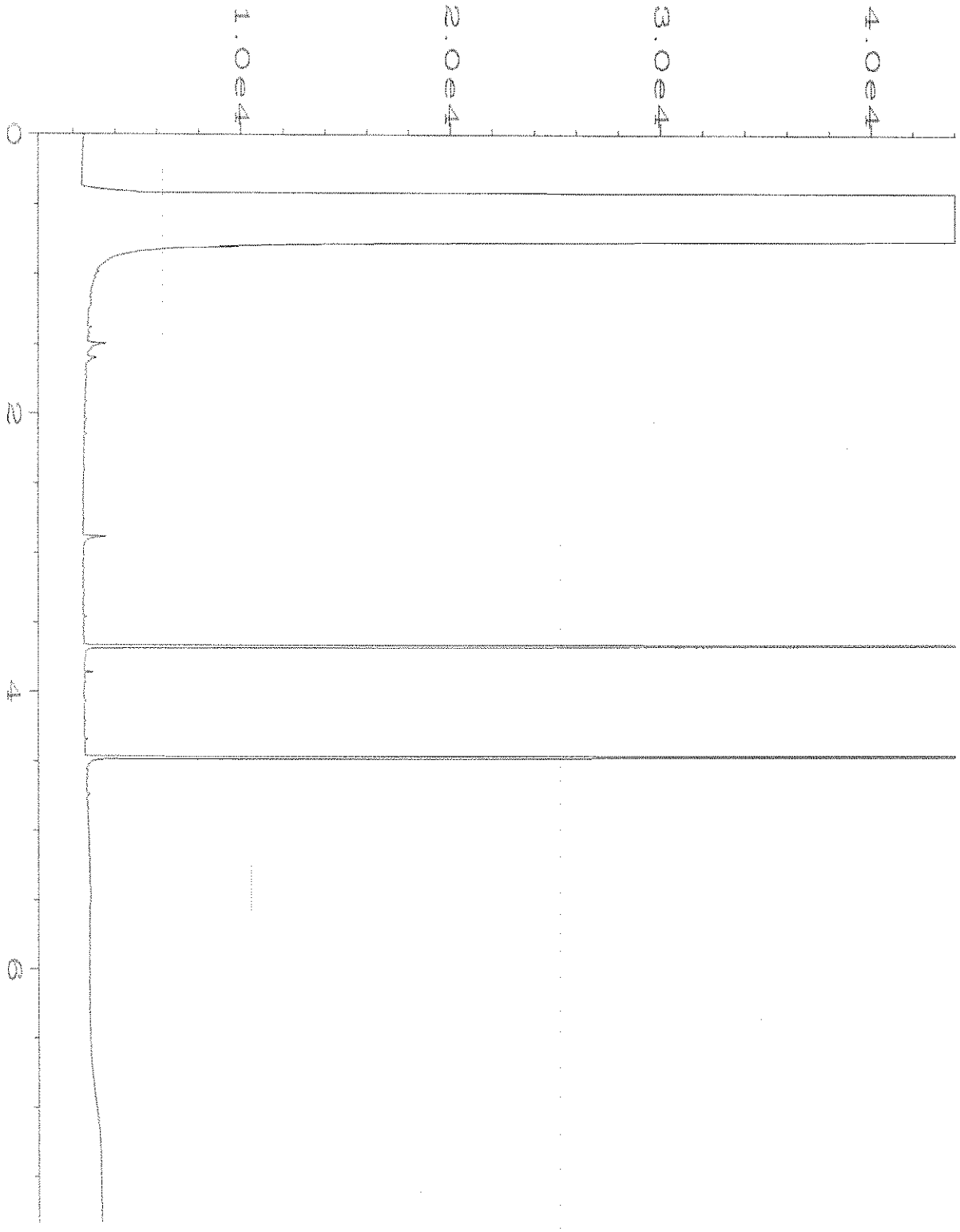
Are samples requiring no headspace, headspace free? ☑ NA ☐ YES ☐ NO

Air Samples: Were any additional canisters received? ☑ NA ☐ YES ☐ NO

If Yes, number of unused 1L canisters _____

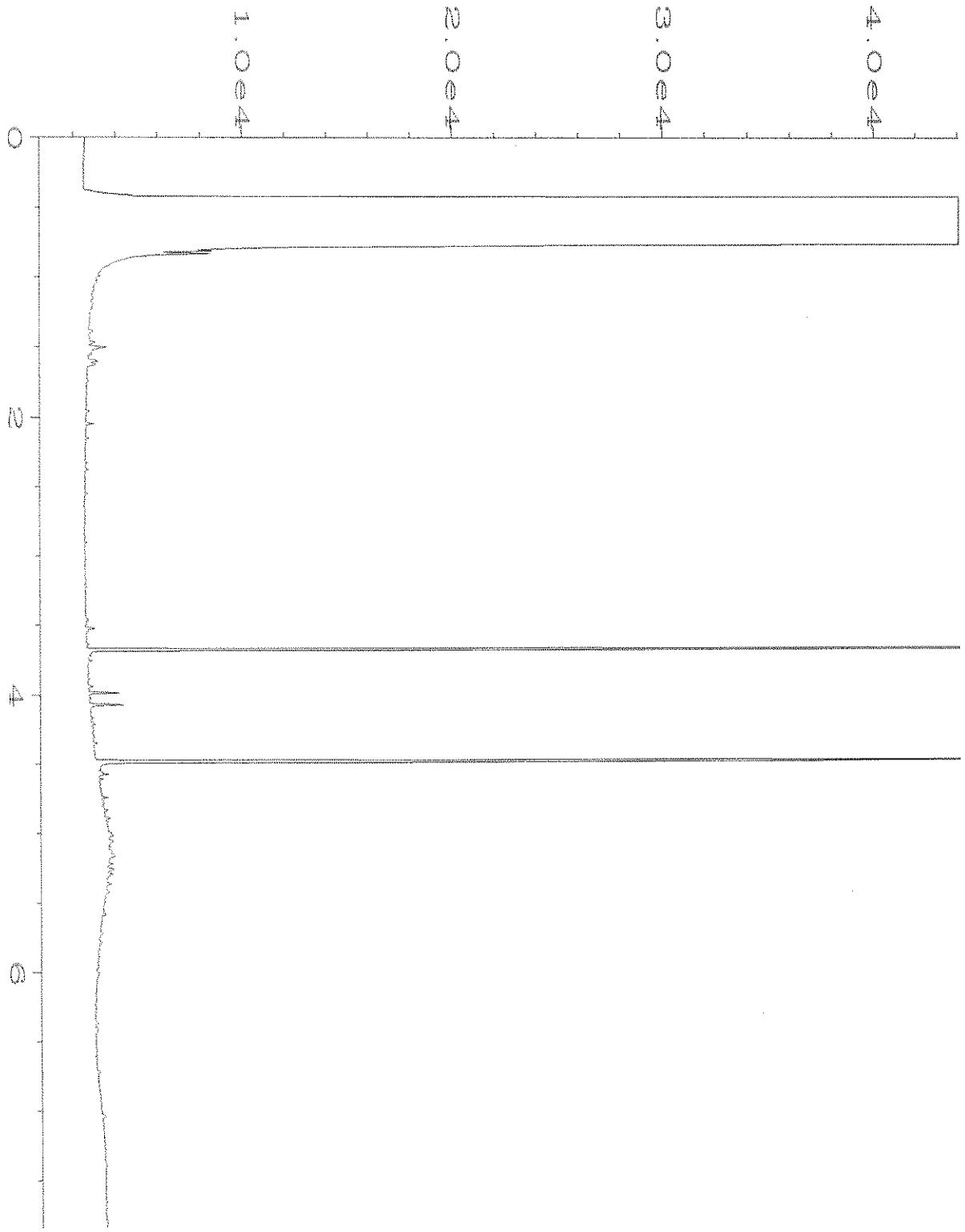
number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)



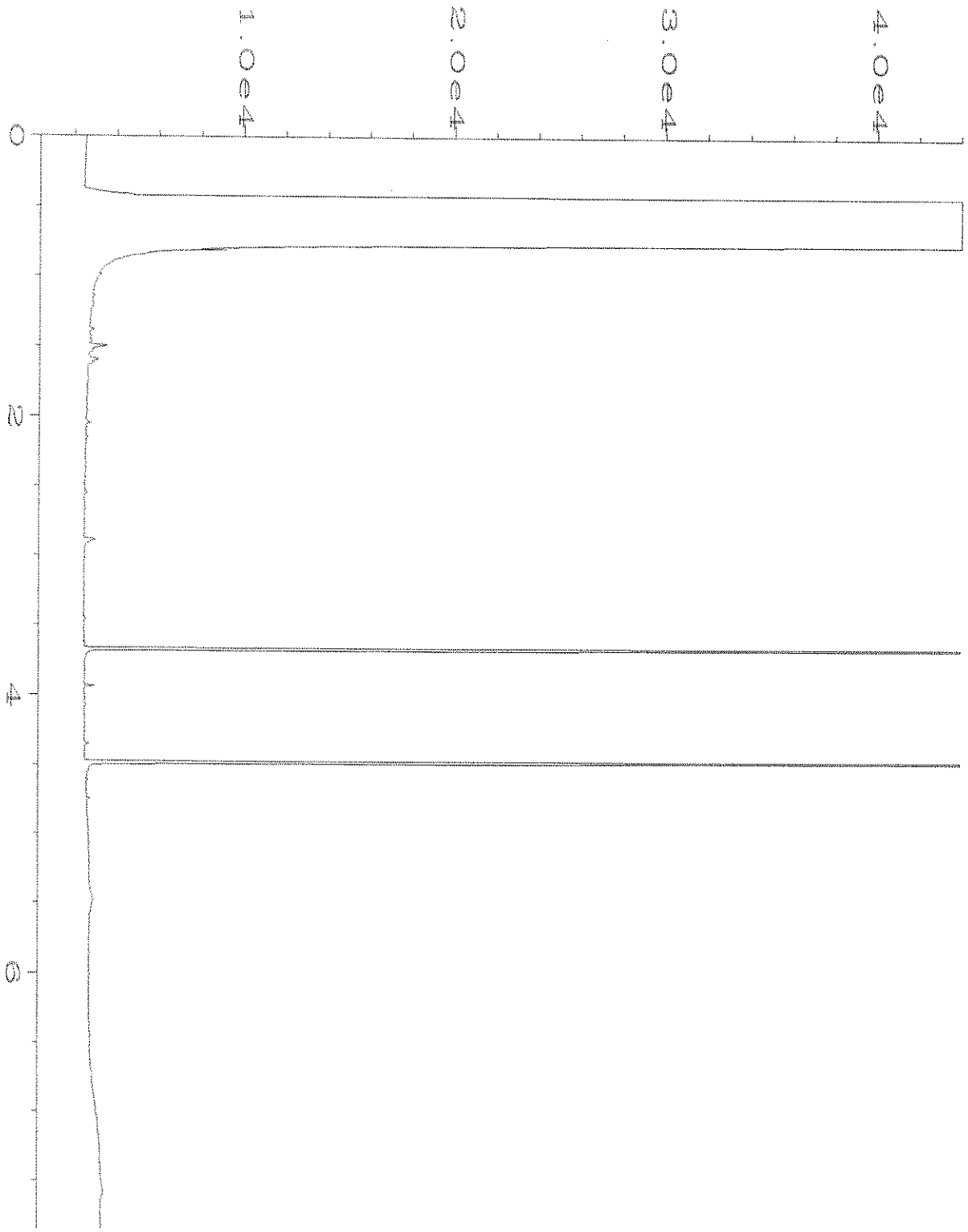
Data File Name : C:\HPCHEM\4\DATA\09-27-21\051F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 109450-01
Run Time Bar Code:
Acquired on : 27 Sep 21 11:25 PM
Report Created on: 28 Sep 21 09:30 AM

Page Number : 1
Vial Number : 51
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



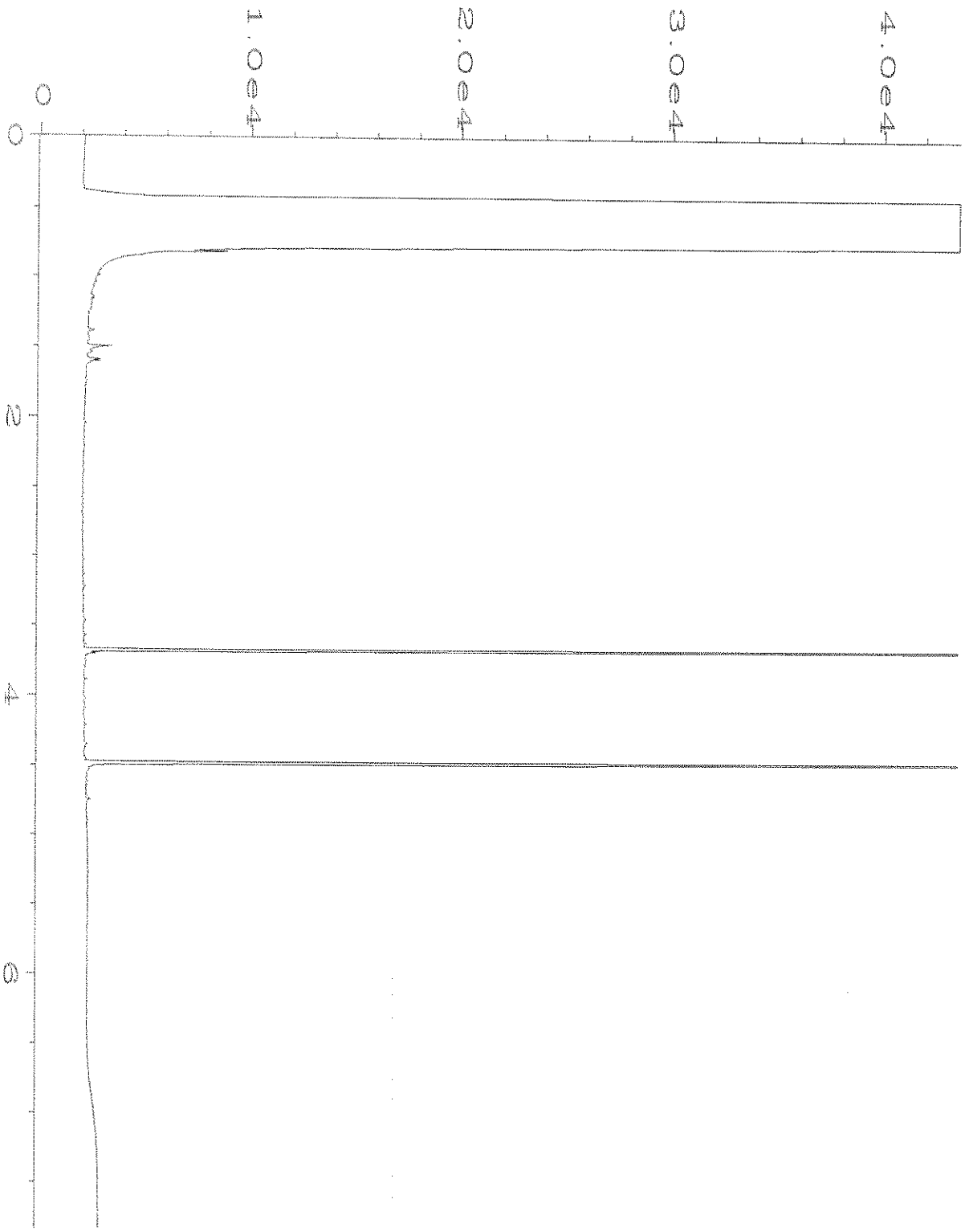
Data File Name : C:\HPCHEM\4\DATA\09-27-21\052F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 109450-02
Run Time Bar Code:
Acquired on : 27 Sep 21 11:37 PM
Report Created on: 28 Sep 21 09:30 AM

Page Number : 1
Vial Number : 52
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



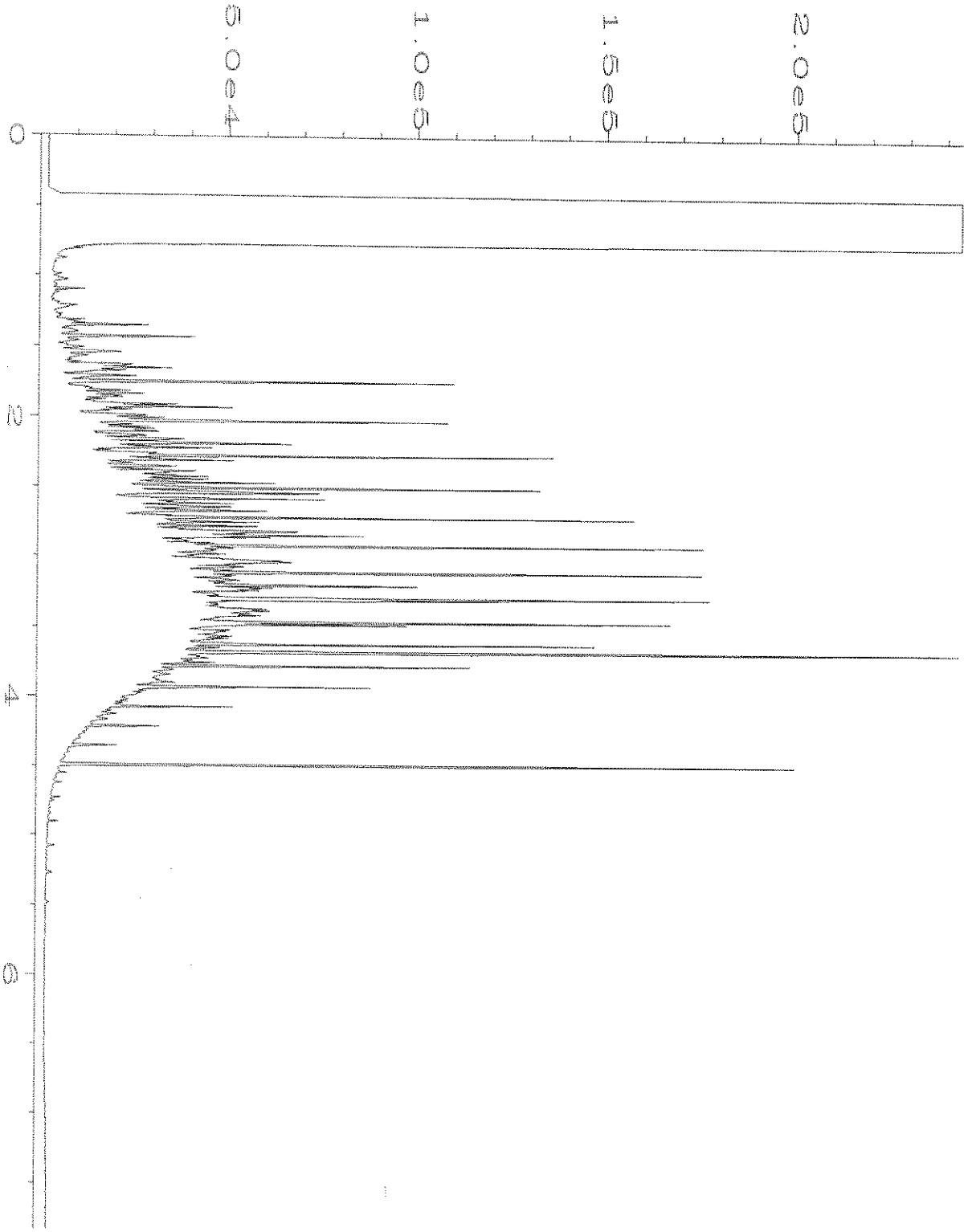
Data File Name : C:\HPCHEM\4\DATA\09-27-21\053F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 190450-06
Run Time Bar Code:
Acquired on : 27 Sep 21 11:50 PM
Report Created on: 28 Sep 21 09:30 AM

Page Number : 1
Vial Number : 53
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\4\DATA\09-27-21\030F0701.D
Operator : TL
Instrument : GC#4
Sample Name : 01-2195 mb
Run Time Bar Code:
Acquired on : 27 Sep 21 06:12 PM
Report Created on: 28 Sep 21 09:29 AM

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\4\DATA\09-27-21\003F0201.D
Operator : TL
Instrument : GC#4
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 27 Sep 21 05:57 AM
Report Created on: 28 Sep 21 09:30 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

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

October 14, 2021

Jessica Robertson, Project Manager
GeoEngineers
2101 4th Avenue, Suite 150
Seattle, WA 98121

Dear Ms Robertson:

Included are the results from the testing of material submitted on September 28, 2021 from the Cascade Village Phase II ESA 21565-006-04, F&BI 109514 project. There are 9 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: jrobertson@geoengineers.com
GNR1014R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 28, 2020 by Friedman & Bruya, Inc. from the GeoEngineers Cascade Village Phase II ESA 21565-006-04, F&BI 109514 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	GeoEngineers
109514 -01	SV-01_092821
109514 -02	SV-02_092821
109514 -03	SV-03_092821

VOCs (air) - Analysis Method TO-15

All quality control requirements were acceptable.

Helium (air) - ASTM D1946

All quality control requirements were acceptable.

Date of Report: 10/14/21
Date Received: 09/28/21
Project: Cascade Village Phase II ESA 21565-006-04, F&BI 109514
Date Extracted: 10/13/21
Date Analyzed: 10/13/21

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
SV-01_092821 109514-01	<0.6
SV-02_092821 109514-02	<0.6
SV-03_092821 109514-03	<0.6
Method Blank 01-2241 MB	<0.6

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-01_092821	Client:	GeoEngineers
Date Received:	09/28/21	Project:	Cascade Village Phase II ESA 21565-006-04
Date Collected:	09/28/21	Lab ID:	109514-01 1/6.2
Date Analyzed:	09/30/21	Data File:	093020.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<1.6	<0.62
Chloroethane	<16	<6.2
1,1-Dichloroethene	<2.5	<0.62
trans-1,2-Dichloroethene	<2.5	<0.62
1,1-Dichloroethane	<2.5	<0.62
cis-1,2-Dichloroethene	<2.5	<0.62
1,2-Dichloroethane (EDC)	<0.25	<0.062
1,1,1-Trichloroethane	<3.4	<0.62
Trichloroethene	<0.67	<0.12
1,1,2-Trichloroethane	<0.34	<0.062
Tetrachloroethene	63	9.3

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-02_092821	Client:	GeoEngineers
Date Received:	09/28/21	Project:	Cascade Village Phase II ESA 21565-006-04
Date Collected:	09/28/21	Lab ID:	109514-02 1/6
Date Analyzed:	09/30/21	Data File:	093021.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<1.5	<0.6
Chloroethane	<16	<6
1,1-Dichloroethene	<2.4	<0.6
trans-1,2-Dichloroethene	<2.4	<0.6
1,1-Dichloroethane	<2.4	<0.6
cis-1,2-Dichloroethene	<2.4	<0.6
1,2-Dichloroethane (EDC)	<0.24	<0.06
1,1,1-Trichloroethane	<3.3	<0.6
Trichloroethene	<0.64	<0.12
1,1,2-Trichloroethane	<0.33	<0.06
Tetrachloroethene	72	11

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SV-03_092821	Client:	GeoEngineers
Date Received:	09/28/21	Project:	Cascade Village Phase II ESA 21565-006-04
Date Collected:	09/28/21	Lab ID:	109514-03 1/5.6
Date Analyzed:	09/30/21	Data File:	093022.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<1.4	<0.56
Chloroethane	<15	<5.6
1,1-Dichloroethene	<2.2	<0.56
trans-1,2-Dichloroethene	<2.2	<0.56
1,1-Dichloroethane	<2.3	<0.56
cis-1,2-Dichloroethene	<2.2	<0.56
1,2-Dichloroethane (EDC)	<0.23	<0.056
1,1,1-Trichloroethane	<3.1	<0.56
Trichloroethene	<0.6	<0.11
1,1,2-Trichloroethane	<0.31	<0.056
Tetrachloroethene	<38	<5.6

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	GeoEngineers
Date Received:	Not Applicable	Project:	Cascade Village Phase II ESA 21565-006-04
Date Collected:	Not Applicable	Lab ID:	01-2143 MB
Date Analyzed:	09/30/21	Data File:	093010.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Date of Report: 10/14/21
Date Received: 09/28/21
Project: Cascade Village Phase II ESA 21565-006-04, F&BI 109514

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 109514-01 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-20

Date of Report: 10/14/21
Date Received: 09/28/21
Project: Cascade Village Phase II ESA 21565-006-04, F&BI 109514

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 109520-01 1/9.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<2.4	<2.4	nm
Chloroethane	ug/m3	<24	<24	nm
1,1-Dichloroethene	ug/m3	<3.6	<3.6	nm
trans-1,2-Dichloroethene	ug/m3	<3.6	<3.6	nm
1,1-Dichloroethane	ug/m3	<3.7	<3.7	nm
cis-1,2-Dichloroethene	ug/m3	270	270	0
1,2-Dichloroethane (EDC)	ug/m3	<0.37	<0.37	nm
1,1,1-Trichloroethane	ug/m3	<5	<5	nm
Trichloroethene	ug/m3	300	300	0
1,1,2-Trichloroethane	ug/m3	<0.5	<0.5	nm
Tetrachloroethene	ug/m3	6,800	6,800	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ug/m3	35	102	70-130
Chloroethane	ug/m3	36	107	70-130
1,1-Dichloroethene	ug/m3	54	103	70-130
trans-1,2-Dichloroethene	ug/m3	54	102	70-130
1,1-Dichloroethane	ug/m3	55	108	70-130
cis-1,2-Dichloroethene	ug/m3	54	100	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	101	70-130
1,1,1-Trichloroethane	ug/m3	74	114	70-130
Trichloroethene	ug/m3	73	109	70-130
1,1,2-Trichloroethane	ug/m3	74	117	70-130
Tetrachloroethene	ug/m3	92	117	70-130

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.

SAMPLE CHAIN OF CUSTODY

109514

Report To Jessica Robertson

Company GEI

Address 2101 4th Ave Suite 950

City, State, ZIP Seattle WA 98121

Phone _____ Email JRobertson@geiconsultants.com

SAMPLERS (signature) [signature] ME 09-28-21

Page # 1 of 1

PROJECT NAME & ADDRESS: Cascade Village Phase II ESA

PO # 21565.000.004

NOTES:

INVOICE TO

TURNAROUND TIME
- [X] Standard
- [ ] RUSH
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- [ ] Default: Clean after 3 days
- [ ] Archive (Fee may apply)

SAMPLE INFORMATION											ANALYSIS REQUESTED						
Sample Name	Lab ID	~~Lab ID~~	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	Chlorinated Solvents only	Notes
SV-01_092821	01	1	8208	01	IA / (SG)	9.28.21	29	1120	5	1125					X	X	
SV-02_092821	02	2	3249	11	IA / (SG)	↓	29	1238	5	1244					X	X	
SV-03_092821	03	3	8385	03	IA / (SG)	↓	29.5	1350	5	1356					X	X	
					~~IA / SG~~												
					IA / SG												
					IA / SG												
					IA / SG												Samples received at 19 °C
					IA / SG												

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Katy Afflerbach	GEI	9/28/21	1500
Received by: [signature]	Liz Webber-Boyer	F:B	9/28/21	1300
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 109514 CLIENT GNR INITIALS/ DATE: EWB 9/28

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 19 °C

Were samples received on ice/cold packs? ☐ YES ☒ NO

How did samples arrive?
- ☒ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☒ Yes	☐ No	# of Containers	☒ Yes	☐ No
Date Sampled	☒ Yes	☐ No	Relinquished	☒ Yes	☐ No
Time Sampled	☒ Yes	☐ No	Requested analysis	☒ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? (explain "no" answer below) ☒ YES ☐ NO

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☐ YES ☐ NO

Air Samples: Were any additional canisters received? ☐ NA ☐ YES ☒ NO

If Yes, number of unused 1L canisters _____

number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)

APPENDIX C
Report Limitations and Guidelines for Use

APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

This appendix provides information to help you manage your risks with respect to the use of this report. Please confer with GeoEngineers if you need to know more about how these "Report Limitations and Guidelines for Use" apply to your project or property.

Read These Provisions Closely

It is important to recognize that environmental engineering and geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce the risk of misunderstandings or unrealistic expectations that lead to disappointments, claims and disputes.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed this Focused Phase II ESA for use by Impact Public Schools for the Impact Renton School property located at 16950 116th avenue SE in Renton, Washington in general accordance with the scope and limitations of our proposal dated September 8, 2021. This report has been prepared for the exclusive use of Impact Public Schools. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures its services to meet the specific needs of its clients. For example, an ESA study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. Use of this report is not recommended for any purpose or project other than as expressly stated in this report.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for Impact Public Schools. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this Project. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your Project,
- not prepared for the specific site explored, or
- completed before Project changes were made.

If changes to the Project or property occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations in the context of such changes. Based on that review, we can provide written modifications or confirmation, as appropriate.

[1] Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the party to whom this report is addressed. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed Project scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations Change and Evolve

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, new information or technology that become available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. GeoEngineers will not assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location, or the reuse of such soil and/or groundwater on-site in any instances that we did not recommend, know of, or control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ significantly from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design documents. Only photographic or electronic reproduction that preserves the entire original boring log is acceptable, but separating logs from the report can create increase the risk of potential misinterpretation.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this Project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.