

REMEDIAL INVESTIGATION

BMC ISSAQUAH FACILITY
5210 EAST LAKE SAMMAMISH PARKWAY SOUTHEAST
ISSAQUAH, KING COUNTY, WASHINGTON

ZGA Project No. 1099.22

July 1, 2013

Prepared for:

BMC WEST CORPORATION DBA BMC



Prepared by:

Zipper Geo Associates, LLC
Geotechnical and Environmental Consulting

Zipper Geo Associates, LLC
Geotechnical and Environmental Consulting

July 1, 2013

BMC West Corporation DBA BMC
720 Park Boulevard, #200
Boise, Idaho 83712

Attn: Mr. Paul S. Street, CAO

RE: Remedial Investigation Report
BMC Issaquah Facility
5210 East Lake Sammamish Parkway Southeast
Issaquah, King County, Washington
ZGA Project No. 1099.22

Ecology FS ID #8428648
Ecology CS ID #7791

Dear Mr. Street:

Zipper Geo Associates, LLC (ZGA) is pleased to present this Remedial Investigation report for the BMC Issaquah Facility. The project was completed in general accordance with the scope and limitations set forth in ASTM E1527-05 and our proposal (ZGA Proposal No. P13133, dated March 4, 2013).

If you have questions about the project or if we may be of service in any way please contact us. Thank you for working with us on this project, we look forward to the opportunity of working with you again on future projects.

Sincerely,
Zipper Geo Associates, LLC



Jon Einarsen, L.G.
Principal

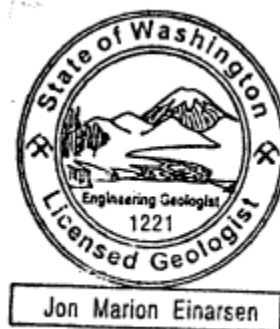


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1.0 INTRODUCTION

1.1 Site Description

The Property is located at 5210 East Lake Sammamish Parkway Southeast in Issaquah and is identified as King County tax parcel #009500-0030, comprising 15.15 acres (Figure 1). The Property is utilized for light manufacturing of lumber products, lumber warehousing, and wholesale and retail lumber sales. The Property contains one large warehouse used for retail showroom space, offices, training, lumber storage, manufacturing of lumber products, and storage of finished products. The Property also contains two open-sided lumber sheds, a smaller building utilized for lumber storage and for pre-finishing manufactured lumber products, and a smaller building formerly utilized as a maintenance shop and currently utilized for storage.

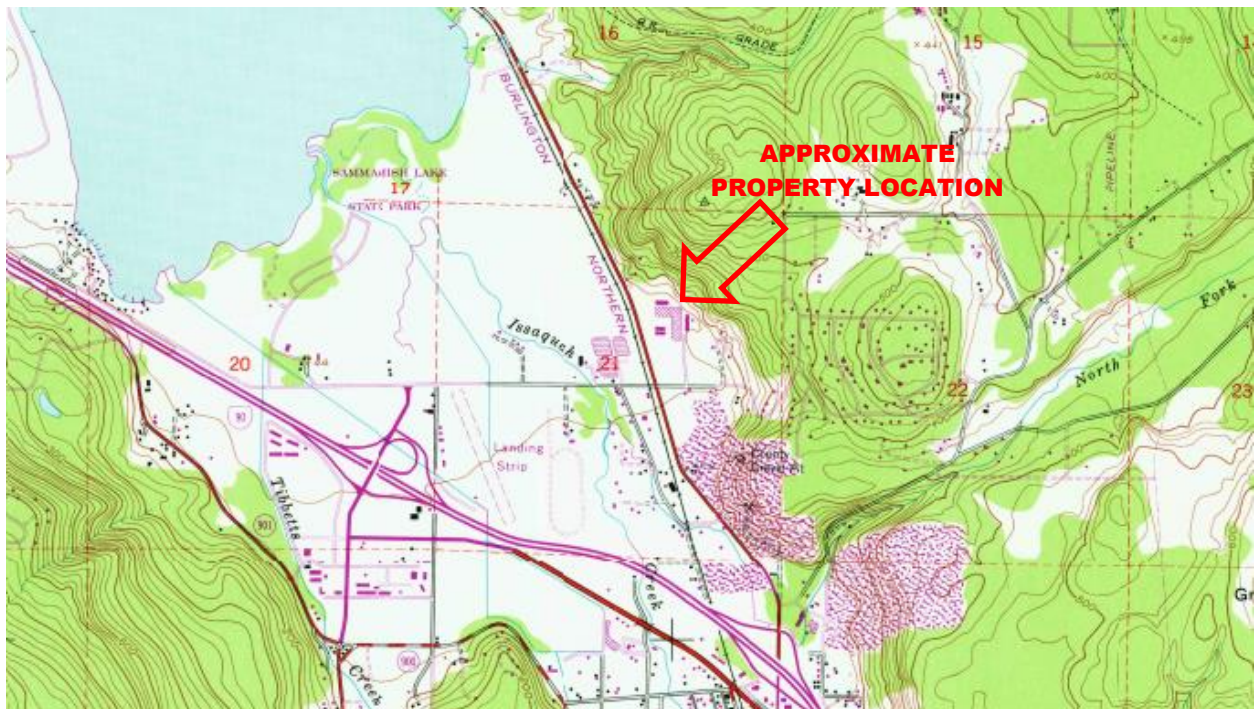


Figure 1. Approximate location of the Property depicted on the Issaquah, Washington 7 1/2-minute Quadrangle.

ZGA completed a Phase I Environmental Site Assessment (ESA) for the Property in March of 2013 (ZGA Project #1099.21). The following indications of RECs associated with current and historical use of the Property were identified:

1. Use of a still and stained pavement immediately west of the pre-finish room on the east part of the Property.
2. Suspect distressed vegetation and stained soil in a drainage swale on the south part of the Property.
3. Suspect pipe discharge from the former maintenance shop to a suspect dry well trench located east of the shop.

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4. Three underground storage tanks were formerly located near the main entrance to the Property. The tanks were reportedly removed in 1989. A subsurface investigation completed by others in the late 1990's revealed that soil and groundwater in this area contain total petroleum hydrocarbons and BTEX (benzene, toluene, ethyl benzene, and xylenes) in concentrations that exceed current Washington State cleanup levels.

1.2 Previous Investigations

As part of our Phase I ESA, ZGA reviewed a report entitled "Environmental Investigation Results" dated April 6, 1997 prepared by TRC Corporation, hereafter referred to as the TRC report. A copy of this report is included in Appendix B.

The TRC report describes two subsurface investigations that were completed near the main entrance to the Property in 1996 and 1997. The purpose of the investigations was to evaluate the nature and extent of petroleum contamination on the west side of the facility suspected to be related to the former presence of three underground storage tanks (USTs) formerly located in this area. The USTs were reportedly removed in 1989.

TRCs initial investigation consisted of advancing ten hollow-stem auger borings in the vicinity of the former USTs. Groundwater samples were collected from the hollow-stem auger (monitoring wells were not constructed). Four composite soil samples and three groundwater samples were submitted for laboratory analysis. Each sample was analyzed for BTEX (benzene, toluene, ethyl benzene, and total xylenes) using EPA Method 8020 and for total petroleum hydrocarbons using EPA Method 418.1. The second investigation consisted of advancing six direct-push explorations in the vicinity of the former USTs. Groundwater samples were collected using well points. Four discrete soil samples and six groundwater samples were submitted for laboratory analysis. Each sample was analyzed for BTEX and volatile petroleum hydrocarbons (gasoline) using EPA Method 8021B and 8015B, respectively. The analytical results for both investigations are summarized below.

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Summarized Analytical Results from the 1996 and 1997 TRC Reports

Sample #	Media	Units	TPH or VPH	B	T	E	X
BH-1	Soil	mg/kg	99	0.010	0.004	0.0069	0.0065
BH-2			ND ¹	ND	ND	ND	ND
BH-5			ND	0.076	0.022	0.100	0.790
BH-6			44	0.028	0.0022	0.008	0.031
BH-A, 2-4'			2,200	11	5.2	24	280
BH-B, 2-4'			2,100	15	8.8	15	110
BH-E, 2-4'			160	1.0	0.29	1.4	4.1
BH-F, 2-4'			0.650	0.0047	0.0019	0.0035	0.0064
Current Cleanup Standard			30/100²	0.03	7	6	9
BH-1	Groundwater	ug/L	2,100	3.0	2.3	2.9	3.8
BH-3			280	ND	ND	ND	6.7
BH-5			3,000	7.3	1.5	10	110
BH-A			5,100	62	96	130	1,300
BH-B			13,000	170	110	350	1,600
BH-C			ND	ND	ND	ND	ND
BH-D			ND	ND	1.0	ND	ND
BH-E			870	25	4.6	26	8.2
BH-F	1,500	73	6.0	75	59		
Current Cleanup Standard			800/1000²	5	1,000	700	1,000

TPH, total petroleum hydrocarbons; VPH, volatile petroleum hydrocarbons; B, benzene; T, toluene; E, ethyl benzene; X, xylenes. ¹ Not detected; ² the lower cleanup level applies if benzene is present. The shaded values exceed current cleanup levels defined in the Model Toxics Control Act (WAC 173-340).

The analytical results for most of the soil and groundwater samples described in the TRC report exceed current cleanup levels defined in the Model Toxics Control Act (WAC 173-340). A copy of the TRC report was provided to the Washington State Department of Ecology (Ecology) on April 6, 1998, and the Property was placed on the Leaking Underground Storage Tank list on April 9, 1998.

1.3 Project Objectives

The objectives of this project were to complete an initial evaluation of subsurface soil and groundwater conditions to determine if a significant releases of potential contaminants has occurred at the site, and to determine if additional subsurface investigation or remedial activities are warranted.

1.4 Standard of Care

The analytical results within this report are based on samples collected from the indicated locations at the time of sample collection, and should not be construed as a warranty of the subsurface conditions throughout the site or at other times. No environmental investigation can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. This environmental investigation is intended to reduce, but not eliminate, uncertainty regarding the existence of recognized environmental conditions. Within the limitations of scope, schedule and budget for our work, we warrant that our work has been done in accordance with our proposal and generally accepted environmental assessment practices followed in this area at the time the report was prepared. No other warranty, express or implied, is made.

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1.5 Reliance

This report has been prepared for the exclusive use of BMC and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of BMC and ZGA.

2.0 METHODOLOGY

Methods used to complete this Remedial Investigation (RI) were developed based on information derived via review of the reports described in Section 1.2 and our experience on similar projects. A conceptual model of hydrogeologic and environmental conditions was developed based the results of our Phase I ESA and work previously completed by others. The conceptual model included the following key elements:

- Probable subsurface conditions would consist of lacustrine and perhaps some alluvial soils, generally consisting of interbedded sand, silt and clay.
- Groundwater is assumed to flow in a northwesterly direction, parallel to the axis of the Issaquah Valley, and discharging to Lake Sammamish.
- The probable location of potential on-site impaired media would be near the previously identified UST cavity and near the other locations identified in our Phase I ESA (see Section 1.1).
- Potential contaminants would consist of total petroleum hydrocarbons (TPH), including gasoline-range organics (GRO), diesel-range organics (DRO), and oil-range organics (ORO); volatile organic compounds (VOC); and metals commonly associated with used motor oil (cadmium, chromium, mercury, and lead).

Based on these conceptual subsurface conditions, it was decided to complete the investigation using geophysical techniques, hand-auger explorations, and direct-push drilling methods. RI activities included completion of the following tasks:

1. Performance of a geophysical investigation in an effort to locate the former UST cavity on the west part of the Property.
2. Subsurface exploration using direct-push methods in the vicinity of the former UST cavity and the vicinity of the still near the per-finish room, and using hand-auger techniques near the drainage swale on the south part of the Property and the suspect dry well trench located near the former maintenance shop.
3. Installation of four groundwater monitoring wells near the former UST cavity.
4. Soil and groundwater sampling.
5. Analytical laboratory testing.

Each of these investigation activities is summarized below.

2.1 Geophysical Investigation

Underground Detection Services, Inc. (UDS) performed the geophysical investigation under subcontract to ZGA. A copy of their report is included in Appendix B. UDS utilized a ground penetrating radar device to locate the former UST cavity. The search was focused in the area of the former UST cavity as identified by TRC Corporation in their 1997 report. UDS identified an approximately 625 square-foot area that appears to have, in their opinion, been excavated. No other large anomalies were identified.

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ZGA advanced a direct-push exploration in the approximate center of the suspect UST cavity identified by UDS. The stratigraphy in this area appears to be very similar to stratigraphy elsewhere on the Property, and obvious fill soils extending to typical UST depths (greater than five feet) were not observed. Although it is possible that an excavation in this area could have been backfilled in such a manner that it would closely resemble undisturbed native soils, it is not likely. Therefore, the area identified by UDS does not appear to have been excavated and is thus not likely the former UST cavity.

2.2 Subsurface Exploration

Direct-push field activities were conducted on April 29 and April 30, 2013 by Mr. James Georgis and Mr. Jon Einarsen, both licensed geologists with ZGA. Hand auger explorations were completed on May 8, 2013 by Mr. Georgis.

A Site and Exploration Plan that indicates the approximate locations of the soil explorations and groundwater monitoring wells in relation to the pertinent structures and general site boundaries is attached as Figure 2 (Appendix A).

Nine direct push soil borings (GP-1 to GP-9) were advanced in the assumed vicinity of the former UST cavity. One direct-push boring (GP-10) was advanced adjacent to the still located outside of the pre-finish room on the east part of the Property. One hand-auger exploration was advanced in the drainage swale on the south part of the Property (HA-1), and two hand-auger explorations were advanced near a suspect dry well trench immediately east of the former maintenance building on the east part of the Property (HA-2 and HA-3).

A direct-push sampling device was supplied and operated by Cascade Drilling. The device utilized a direct-push sampler equipped with disposable PVC sample sleeves. Throughout the drilling operation, soil samples were obtained continuously (to the extent practical) from four-foot long pushes driven into the ground using 550 foot-pound, percussion hammer. The steel sampling tube was extracted from the hole and the liners were removed and split open. All of the direct-push explorations were advanced to depths of approximately 15 feet below the ground surface (bgs). An effort was made to sample soil continuously from the ground surface to the total depth of each exploration, but sample recovery varied in each exploration.

A field log of each exploration was maintained, including the thickness and depth of each soil unit encountered and the depth to the uppermost water table. Soil samples were observed to document soil lithology, color, and moisture content. Soils were logged in general accordance with American Society for Testing and Materials (ASTM) Practice Designation D-2488, *Standard Practice for Description of Soils (Visual-Manual Procedure)*. Exploration logs are included in Appendix C of this report.

2.3 Groundwater Monitoring Well Installation

Dedicated groundwater monitoring wells were completed in GP-1, GP-6, GP-7, and GP-8. These wells are designated as MW-1 through ME-4 (Figure 2). All four wells are screened from 5 feet to 15 feet bgs. Monitoring wells consist of 2-inch inside diameter, schedule 40, flush-threaded PVC. A ten foot section of 0.010-inch slotted screen was mated to an appropriate length section of blank riser, which extended to approximately 0.25 feet below the ground surface. The annular space between the well casing and the borehole wall was filled with #10-20 silica sand extending approximately two feet above the screened interval. A hydrated bentonite seal was placed above this, and the wells were completed at the ground

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surface with lockable, flush-mount monuments that were cemented in place. The monitoring wells were constructed in accordance with the Washington State *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160). Monitoring well construction details are provided along with the exploration logs in Appendix C.

The monitoring wells were subsequently developed by purging with a bailer on May 8, 2013. Approximately 22 gallons of development water was generated during well development activities. Soil cuttings, development groundwater, and equipment cleaning water generated during the field activities were placed in Department of Transportation (DOT) approved, 55-gallon steel drums, closed and appropriately labeled with project-specific information and initial accumulation date.

2.4 Soil and Groundwater Sampling

Two soil samples were retained for analysis from each exploration, except that three were retained from GP-1 and only one was retained from HA-2. Soil samples retained for chemical analysis from the direct-push and hand-auger explorations were collected at depths ranging from approximately 2 feet to 12 feet bgs and 0.2 feet to 2 feet, respectively. The shallow direct-push samples were collected in an effort to identify source areas, the deeper samples were collected in an effort to quantify the vertical distribution of contamination.

All soil samples were extracted by hand from the direct-push sample liner or hand auger sampler using disposable gloves and placed directly into laboratory supplied glassware and preserved in accordance with EPA Method 5035B.

One groundwater sample was collected and analyzed from MW-1 to MW-4 on May 24, 2013. Prior to sample collection, each monitoring well was purged until consistent values (i.e., less than 10% variance between consecutive readings) were obtained for pH, turbidity, temperature and conductivity using a Horiba U-22 multi-parameter water quality meter equipped with a flow through cell.

Groundwater was collected with a peristaltic pump utilizing low flow techniques. The intake of the pump was set approximately one foot below the top of the screened interval in each well. Dedicated polyethylene tubing was used for each monitoring well. Discharge from the pump was directed into sample containers supplied by the laboratory, and preserved as appropriate for specific analyses.

Each sample container was labeled with the site name, date, time, exploration number, sample number, and sampling personnel. Sample containers were placed in a chilled cooler immediately after sampling, and subsequently transported to the analytical laboratory by ZGA under chain-of-custody procedures.

2.5 Analytical Laboratory Testing

Twenty-six soil samples and four groundwater samples were submitted for chemical analysis. All samples were analyzed by ALS Laboratories of Everett, a Washington State accredited laboratory, as described below:

Nineteen soil samples collected in the vicinity of the former UST cavity were analyzed for:

- Total petroleum hydrocarbons (TPH) in the gasoline, diesel and oil range using Northwest Methods NWTPH-GX and NWTPH-DX.
- BTEX (benzene, ethylbenzene, toluene, and xylenes) and MTBE (methyl tertiary-butyl ether) using

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EPA Method 8021.

- Lead using EPA Method 6020.

Two soil samples collected near the still and stained pavement area were analyzed for:

- Volatile organic compounds (VOC) using EPA Method 8260.

Three soil samples collected near the suspect dry well trench were analyzed for:

- TPH in the gasoline, diesel and oil range using Northwest Methods NWTPH-GX and NWTPH-DX.
- VOC using EPA Method 8260.
- Metals (cadmium, chromium, lead, and mercury) using EPA Method 6020/7471.

Two soil samples collected in the stained soil area in the drainage swale were analyzed for:

- TPH in the diesel and oil range using Northwest Method NWTPH-DX.

Groundwater samples were analyzed in the same laboratory for TPH in the gasoline, diesel and oil range using Northwest Methods NWTPH-GX and NWTPH-DX; BTEX and MTBE using EPA Method 8021; and total and dissolved lead using the EPA Method 200.8.

The executed chain-of-custody forms and laboratory analytical certificates are provided in Appendix D. All analyses were completed using standard turnaround times. Data packages were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering holding times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate recovery, and detection limits.

3.0 LIMITED SITE ASSESSMENT RESULTS

3.1 Subsurface Conditions

Detailed lithologic descriptions are presented on the soil boring logs included in Appendix C. In general, subsurface conditions were consistent in each direct-push exploration and generally consisted of about two to four inches of asphalt pavement underlain by about two to four feet of gravelly sand and sandy gravel fill soils, in turn underlain by native silty sand to gravelly sand interbedded with silt.

Groundwater was encountered in each of the direct-push borings at depths ranging from about four to six feet at the time of drilling. The relative location and elevation of the PVC casing for each of the four groundwater monitoring wells were surveyed by PLS, Inc. of Issaquah using an arbitrary datum. Static groundwater levels were subsequently measured in these monitoring wells on May 24, 2013 as summarized in Table 1.

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Table 1. Groundwater Elevations (May 24, 2013)

Monitoring Well	Relative Casing Elevation (Feet)	Depth to Groundwater (Feet)	Relative Groundwater Elevation (Feet)
MW-1	99.99	2.19	97.80
MW-2	99.45	1.84	97.61
MW-3	99.73	2.59	97.14
MW-4	99.96	2.12	97.84

A groundwater contour map is presented in Figure 4 (Appendix A). Based on these results, groundwater in the immediate vicinity of the former UST cavity is estimated to flow in a west-southwesterly direction with a gradient of approximately 0.0235 ft./ft. at that time. It should be noted that the depth to groundwater and groundwater flow directions will likely vary depending upon seasonal variations in rainfall and other factors. The estimated groundwater flow direction on May 24 appears to be inconsistent with the apparent orientation of the contaminant plume, as discussed below.

3.2 Analytical Laboratory Results

Soil and groundwater quality summary results are presented in Table 2 and Table 3, respectively. Analytical results that exceed applicable cleanup levels are highlighted. Complete laboratory reports and chains-of-custody are included in Appendix D. Additional discussion and interpretation of analytical results relative to applicable cleanup levels is included in Section 4. Summarized analytical results are also presented in Figure 2 and Figure 3 (soil) and Figure 4 (groundwater, Appendix A).

Soil Quality

Nineteen soil samples were collected from GP-1 to GP-9 in the assumed vicinity of the former UST cavity. Diesel-range organics (DRO), oil-range organics (ORO) and lead were not detected above laboratory reporting limits, or were detected in concentrations below applicable cleanup levels in all 19 samples. Gasoline-range organics (GRO) and BTEX were not detected above laboratory reporting limits, or were detected in concentrations below applicable cleanup levels in GP-2, GP-3, GP-6, GP-7 and GP-9.

GRO was detected in concentrations above cleanup levels at depths of about five feet in GP-1, GP-4, GP-5, and GP-8. Certain BTEX components also exceeded cleanup levels in GP-1 and GP-5 at a depth of about five feet. GRO and BTEX were not detected above laboratory reporting limits, or were detected in concentrations below applicable cleanup levels in deeper samples collected in these four borings, indicating that the soil contamination is limited to shallow soil. Based on the available information, the estimated extent of soil contaminated above cleanup levels is indicated on Figure 3.

Two soil samples were collected adjacent to the still near the pre-finish room on the east part of the Property (GP-10). Both samples were analyzed for VOC, which was not detected above laboratory reporting limits or were detected in very low concentrations less than the applicable cleanup level.

Two soil samples were collected from the drainage swale located near the south part of the Property, at depth of about 0.2 feet and two feet (HA-1 and HA-2). DRO was not detected in either sample. ORO was detected in both samples, and the reported concentration of the shallow sample exceeds cleanup levels.

Three soil samples were collected adjacent to the suspect dry well trench located immediately east of the

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former maintenance building (HA-2 and HA-3). These samples were analyzed for TPH, VOC, and metals (cadmium, chromium, lead, and mercury). Only ORO and metals were detected, but in concentrations below cleanup levels.

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Table 2. Summarized Analytical Results (Soil)

Sample	Depth (ft.)	Total Petroleum Hydrocarbons (mg/Kg)			Volatile Organic Compounds (mg/Kg)				Metals (mg/Kg)			
		GRO	DRO	ORO	B	T	E	X	Pb	Hg	Cd	Cr
GP1-1	5	530	200	<50	0.20	<0.25	4.4	6.3	7.9			
GP1-2	7	39	<25	<50	<0.03	<0.05	0.40	0.83	3.9			
GP1-3	12	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	2.6			
GP2-1	5	36	<25	<50	<0.03	<0.50	0.11	<0.20	5.4			
GP2-2	8	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	2.8			
GP3-1	5	<3.0	29	50	<0.03	<0.05	<0.05	<0.20	2.2			
GP3-2	10	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	2.7			
GP4-1	5	1,100	70	<50	<0.30	<0.50	<0.50	<2.0	6.6			
GP4-2	9	4.5	<25	<50	<0.03	<0.05	<0.05	<0.20	4.3			
GP5-1	5	2,800	320	<50	2.0	<2.0	41	240	8.7			
GP5-2	10	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	3.7			
GP6-1	5	<3.0	43	250	<0.03	<0.05	<0.05	<0.20	2.0			
GP6-2	10	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	2.3			
GP7-1	4	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	3.4			
GP7-2	9	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	4.0			
GP8-1	5	1,900	85	<50	<0.60	<1.0	<1.0	<4.0	6.7			
GP8-2	8	3.8	<25	<50	0.030	<0.05	<0.05	<0.20	2.4			
GP9-1	4	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	3.1			
GP9-2	10	<3.0	<25	<50	<0.03	<0.05	<0.05	<0.20	2.5			
GP10-1	2				<0.005	<0.01	<0.01	0.134				
GP10-2	6				<0.005	0.026	<0.01	0.029				
HA1-1	0.2		<120	2,100								
HA1-2	2		<25	150								
HA2-1	1.3	<3.0	50	<50	<0.005	<0.01	<0.01	<0.02	3.5	<0.02	<0.05	21
HA3-1	0.5	<3.0	<25	53	<0.005	<0.01	<0.01	<0.02	8.9	0.026	<0.50	21
HA3-2	2	<3.0	<25	76	<0.005	<0.01	<0.01	<0.02	9.7	0.035	<0.50	22
Method A Cleanup Level		100/30*	2,000	2,000	0.03	7	6	9	250	2	2	19*

mg/Kg: milligrams per kilogram (parts-per-million); <: Not detected above indicated laboratory minimum reporting limit. Shaded values exceed MTCA Method A cleanup levels (see Section 4). B, benzene; T, toluene; E, ethylbenzene; X, total xylenes. Please refer to Appendix D for the complete set of analytes and analytical results for VOC. *The higher value applies for gasoline mixtures without benzene and the total of toluene, ethylbenzene, and xylenes are less than 1% of the gasoline mixture.

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Groundwater Quality

Groundwater samples were collected from four wells installed near the assumed location of the former UST cavity (MW-1 to MW-4). TPH, BTEX, and lead were not detected above laboratory reporting limits in MW-2 and MW-3. The reported concentration of GRO and MW-1 equals the cleanup level, and the reported concentration in MW-4 exceeds the cleanup level. BTEX components were also detected in MW-1 and MW-4, but in concentrations below cleanup levels.

Table 3. Summarized Analytical Results (Groundwater)

Monitoring Well	Total Petroleum Hydrocarbons (ug/L)			Volatile Organic Compounds (ug/L)					Metals (ug/L)	
	GRO	DRO	ORO	B	T	E	X	MTBE	Pb (Total)	Pb (Dissolved)
MW-1	1,000	<130	<250	<1.0	<1.0	24	38	<3.0	<1.0	<1.0
MW-2	<50	<130	<250	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0
MW-3	<50	<130	<250	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0
MW-4	2,400	<130	<250	<1.0	1.1	69	200	<3.0	<1.0	<1.0
Method A Cleanup Level	1,000/800*	500	500	5	1,000	700	1,000	20	15	15

ug/L, micrograms per liter (parts-per-billion); GRO, gasoline-range organics; DRO, diesel-range organics; ORO, oil-range organics; B, benzene; T, toluene; E, ethylbenzene; X, total xylenes; MTBE, methyl T-butyl ether; Pb, lead. *The higher value applies if benzene is not present.

Groundwater Geochemistry

An evaluation of groundwater geochemistry was completed in an effort to characterize the oxidation state of groundwater in the vicinity of the former UST cavity. The oxidation state can be estimated by measurement with oxidation-reduction potential (ORP) and dissolved oxygen (DO) field instruments, and can be further refined by laboratory analysis of the concentration of natural electron acceptors (nitrate, manganese, sulfate) and reduction products (ferrous iron).

DO and ORP were measured with a Horiba U-22 equipped with a flow cell. DO ranged from 9.61 to 9.99 mg/L and ORP ranged from 226 to 287 millivolts. We interpret these preliminary results to indicate the uppermost aquifer underlying in the site is in an aerobic condition near the former UST cavity

3.3 Quality Assurance/Quality Control Results

The analytical results for the current investigation were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering hold times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate (MS/MSD) recovery, and detection limits. QA/QC review was completed using guidance described in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (Draft Final, USEPA, 2005). Our evaluation assumes that the QA/QC is correct as reported by the laboratory, and merely provides an interpretation of the QA/QC results.

Hold Times. All analyses were completed within specified hold times.

Surrogate Recoveries. All surrogate recoveries were within laboratory limits.

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Method Blanks. Analytes were not detected in any of the laboratory method blanks.

MS/MSD Results. MS and MSD recoveries were all within laboratory limits, and Relative Percent Differences (RPDs) between MS and MSD recoveries were all within laboratory limits.

Laboratory Reporting Limits. Reporting limits were below relevant MTCA cleanup levels, except as noted below:

- The reporting limit for benzene (0.60 mg/Kg) in sample GP8-1 exceeds the cleanup level (0.03 mg/Kg). The reporting limit for benzene is elevated because the sample had to be diluted due to the high concentration of GRO (1,900 mg/Kg). The elevated reporting limit for benzene has no effect on our interpretation of the data because the sample exceeds the cleanup level for gasoline.

Based upon our interpretation of quality control information provided by the laboratories, it is our opinion that the overall dataset is useable as qualified for the purposes of this Limited Site Investigation.

4.0 DATA EVALUATION

4.1 Prospective Cleanup Levels

The maximum allowable contaminant levels in the State of Washington are defined by applicable cleanup standards set forth in the Model Toxics Control Act (MTCA) Cleanup Regulation (Chapter 173-340 WAC). The regulation provides three options for establishing cleanup levels. These options and their applicability are described below. We anticipate that Method A cleanup levels will be utilized for this project.

Method A: Method A provides tables of cleanup levels that are protective of human health for 25 to 30 of the most common hazardous substances found in soil and ground water at sites. These levels were developed using the procedures in Method B (see below). The Method A cleanup level for a substance must be at least as stringent as the concentration in the Method A table and the concentrations established under applicable state or federal laws. For soil, the Method A cleanup level must also be at least as stringent as a concentration that will not result in significant adverse effects on the protection and propagation of terrestrial ecological receptors (plants and animals), unless it can be demonstrated that such impacts are not a concern at the site.

If neither the Method A table nor the applicable state and federal laws provide a value, then the natural background concentration or the practical quantitation limit (PQL) may be used as the cleanup level. Method A is designed for cleanups that are relatively straightforward or involve only a few hazardous substances. This method is typically used at smaller sites that do not warrant the costs of conducting detailed site studies and site-specific risk assessments.

Method B: Cleanup levels under Method B are established using applicable state and federal laws and the risk assessment equations and other requirements specified for each medium. Method B is divided into two tiers—standard and modified. Standard Method B uses generic default assumptions to calculate cleanup levels. Modified Method B provides for the use of chemical-specific or site-specific information to change selected default assumptions. For both standard and modified Method B, the human health risk level for individual carcinogens may not exceed one-in-a-million. If more than one type of hazardous

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substance is present, the total risk level at the site may not exceed 1 in 100,000. Levels for non-carcinogens cannot exceed the point at which a substance may cause illness in humans (that is, the hazard quotient cannot exceed 1). The natural background concentrations and practical quantitation limits for a substance must also be considered when setting cleanup levels under Method B.

In addition to accounting for human health impacts, Method B cleanup levels must account for any potential terrestrial or aquatic ecological impacts. Unless it can be demonstrated that such impacts are not a concern at the site, the cleanup level for each substance must be below a concentration that could adversely impact ecological receptors (plants and animals). Specific procedures are provided in the rule for assessing the impact of hazardous substances on terrestrial ecological receptors.

Method B may be used at any site and is the most common method for setting cleanup levels when sites are contaminated with substances not listed under Method A.

Method C: Method C is similar to Method B. Like Method B, Method C is divided into two tiers – standard and modified. The main differences are: (1) cleanup levels are based on less stringent exposure assumptions and (2) the lifetime cancer risk is set at 1 in 100,000 for both individual substances and for the total cancer risk caused by all substances on a site.

As under Method B, potential terrestrial and aquatic ecological impacts must be accounted for in addition to human health impacts when establishing Method C cleanup levels. Unlike Method B, though, only the impacts on wildlife must be considered when conducting a terrestrial ecological evaluation. As under Method B, the natural background concentrations and the practical quantitation limits for a substance must also be considered when establishing Method C cleanup levels.

Method C cleanup levels may be used to set soil and air cleanup levels at industrial sites and to set air cleanup levels in manholes and utility vaults. For ground water, surface water, and air cleanup levels, Method C may also be used when Method A or B cleanup levels are lower than technically possible or area background concentrations, or when attainment of those levels may result in a significantly greater overall threat to human health and the environment than attainment of Method C cleanup levels, provided all practicable methods of treatment have been used and institutional controls are in place.

4.2 Potential Contaminants of Concern

Based on the analytical results for soil and groundwater sampled at the locations indicated for this investigation, potential contaminants of concern consist of gasoline and BTEX in soil and groundwater near the former UST cavity and oil-range organics in the drainage swale on the south part of the Property.

The concentration of gasoline in soil samples GP1-1 (530 mg/Kg), GP4-1 (1,100 mg/Kg), GP5-1 (2,800 mg/Kg) and GP8-1 (1,900 mg/Kg) exceeds the Method A cleanup level (100 mg/Kg or 30 mg/Kg in the presence of benzene). The concentration of benzene in GP1-1 (0.20 mg/Kg) and GP5-1 (2.0 mg/Kg) exceeds the Method A cleanup level (0.03 mg/Kg) and equals the cleanup level in GP8-2.

The concentration of oil in soil sample HA1-1 (2,100 mg/Kg) slightly exceeds the Method A cleanup level (2,000 mg/Kg).

The concentration of gasoline exceeds the cleanup level in one well (MW-4) and equals the cleanup level

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in MW-1.

5.0 FINDINGS AND DISCUSSION

ZGA has completed a Remedial Investigation for the BMC Issaquah facility. Ten direct-push and three hand auger explorations were completed. Four of the direct-push explorations were completed with groundwater monitoring wells. The findings of this report are as follows:

- We do not think that we have identified the precise location of the former UST cavity. However, based on our review of the 1997 TRC report and our own data described in this report, we believe that GP-1 to GP-9 were advanced in the vicinity of the former UST cavity.
- Initial results for hydrogeologic conditions indicate that the uppermost water table lies at a depth of two feet, more or less, beneath the ground surface, and flows in a west-southwesterly direction. Groundwater appears to be in an aerobic condition near the former UST cavity, suggesting that biodegradation (which normally consumes oxygen) is not active. The estimated groundwater flow direction (west-southwest) is inconsistent with the apparent orientation of the contaminant plume in groundwater (northeast), and suggests that a groundwater flow directions in the upper-most aquifer may be seasonally variable at the Property.
- The measured concentration of gasoline in four soil samples collected in the vicinity of the former UST cavity exceeds the Method A cleanup level. The concentration of benzene exceeds the cleanup level in two samples, and the concentration of ethylbenzene and xylenes exceed the cleanup level in one sample. Soil contaminated above cleanup levels appears to be limited to the upper-most five to six feet of soil. Gasoline and BTEX were not detected above Method A cleanup levels in ten other samples collected at depths of 7 to 12 feet.
- The measured concentration of gasoline equals the Method A cleanup level in one well (MW-1) and exceeds the Method A cleanup level in MW-4.
- The reported concentration of GRO in the shallow soil sample collected at GP-4 (1,100 mg/kg) suggests that groundwater in that area may be contaminated.
- The drainage swale on the south part of the Property appears to be lightly contaminated with motor oil to depths of less than two feet.
- Indications of contamination were not identified near the still adjacent to the pre-finish room, or adjacent to the suspect dry well trench immediately east of the former maintenance building.

Based on the analytical results for the samples collected at the locations indicated in this report, there appears to have been a release of gasoline related to the former USTs and/or the associated underground distribution piping and the pump island, and a minor release of motor oil in the south drainage swale. This investigation has been partially successful in establishing the extent of the soil and groundwater contamination. Some uncertainty remains regarding the extent of soil contamination east of GP-5 and GP-8 and west of GP-4 and the extent of groundwater contamination west of MW-1 and north of MW-4.

Zipper Geo Associates, LLC

Project #1099.22

July 1, 2013

6.0 RECOMMENDATIONS

Under the assumption that pursuit of a No Further Action (NFA) determination from Ecology is desirable, we recommend that a cleanup of the vicinity of the former UST cavity and the drainage swale on the south part of the Property be initiated. Although additional subsurface soil and groundwater sampling in the vicinity of the former UST cavity may allow us to better predict the extent of soil and groundwater contamination (and the costs to remediate), it is our opinion that we have enough information to start a cleanup now.

We recommend that the cleanup be initiated by excavating contaminated soil in both areas and disposing the soil in a facility licensed to accept such material. Because gasoline floats on water the vertical extent of contaminated soil generally is equivalent to the seasonally high and seasonally low groundwater elevations. Therefore we recommend that excavation of the former UST cavity area be completed during times of seasonally low groundwater which usually occurs in September or early October. If directed to do so, ZGA will prepare a proposal to complete this work. The work would include occasional site visits to measure groundwater elevations during the summer, which will allow us to revise our cost estimates for soil excavation and disposal.

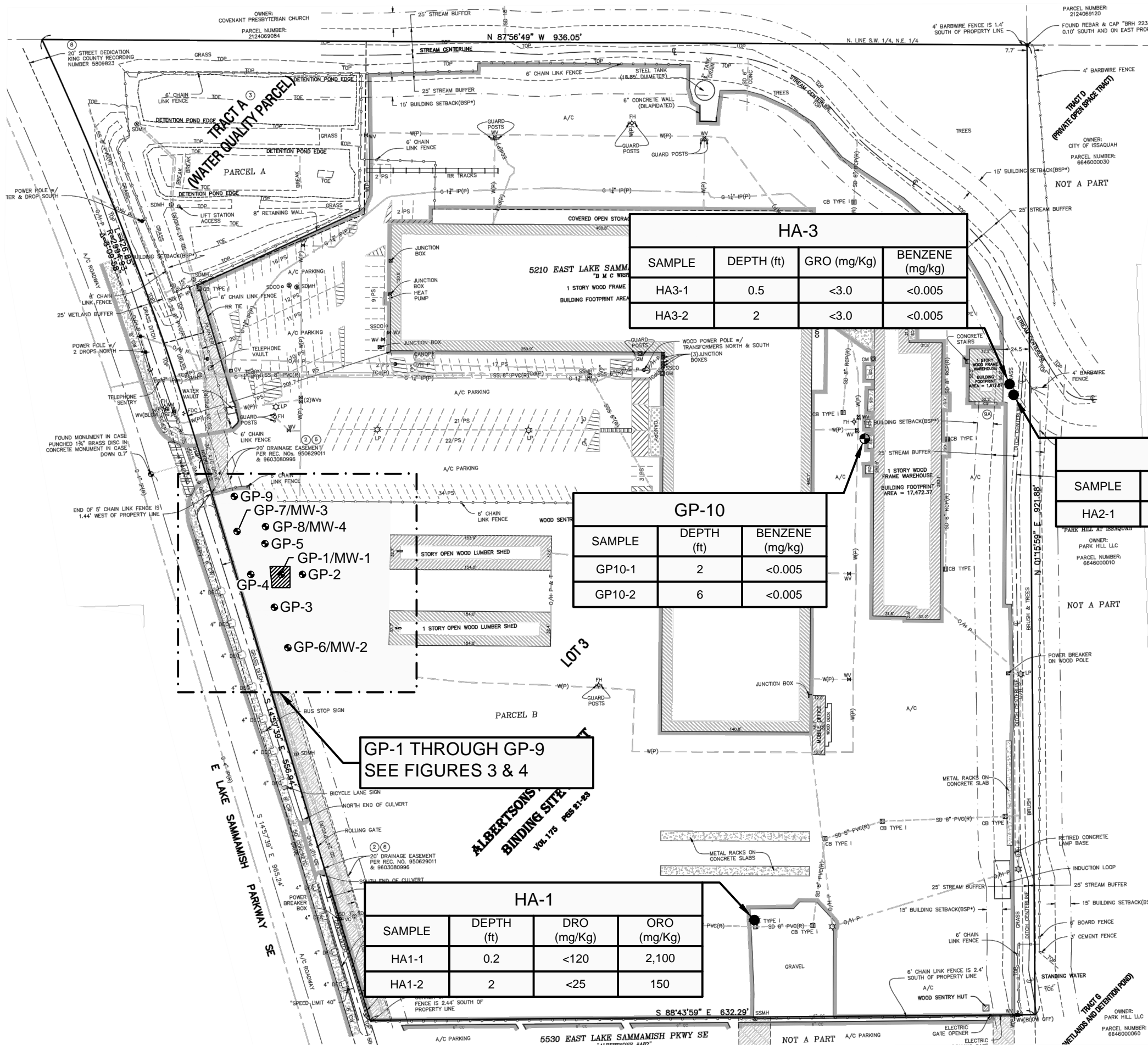
It should be understood that soil excavation will be only the first step in remediating the Property. Residual soil contamination may remain after the work is done, either because we didn't find it or because it is inaccessible (under a building or roadway). Follow-up in-situ remediation may be required, for example the injection of an oxygen-releasing compound to promote bioremediation. At a minimum, it is likely that Ecology will require groundwater monitoring and will not issue a NFA determination until we have demonstrated that the concentration of contaminants in groundwater are below cleanup levels for four consecutive quarters.

We are aware of the letter dated May 7, 2013 from Donna Musa at Ecology regarding a site hazard assessment. As authorized by you we have spoken with Ms. Musa, and she is aware that ZGA is in the process of completing a remedial investigation at the Property. We recommend that a copy of this report be forwarded to her.

Although not required immediately, the Property will need to be enrolled in the Voluntary Cleanup Program if a NFA determination is desired. For a fee, Ecology will review the cleanup reports, comment on the effectiveness of the cleanup, and grant an NFA once they believe the cleanup is complete.

Appendix A

Figures



LEGEND

- GP-1/MW-1 DIRECT PUSH/GROUNDWATER MONITORING WELL NUMBER AND APPROXIMATE LOCATION
- HA-1 HAND AUGER NUMBER AND APPROXIMATE LOCATION
- ▨ APPROXIMATE LOCATION OF UNDERGROUND STORAGE TANK CAVITY IDENTIFIED BY GROUND PENETRATING RADAR SURVEY

HA-3

SAMPLE	DEPTH (ft)	GRO (mg/Kg)	BENZENE (mg/kg)
HA3-1	0.5	<3.0	<0.005
HA3-2	2	<3.0	<0.005

GP-10

SAMPLE	DEPTH (ft)	BENZENE (mg/kg)
GP10-1	2	<0.005
GP10-2	6	<0.005

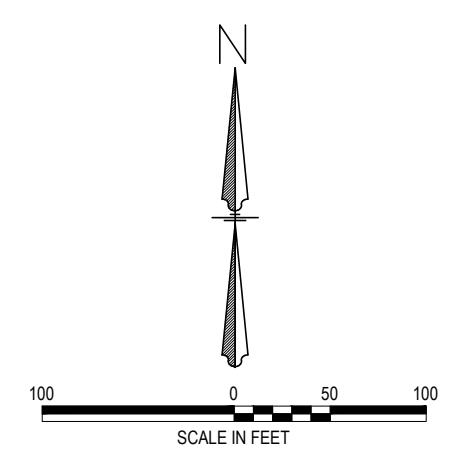
HA-2

SAMPLE	DEPTH (ft)	GRO (mg/Kg)	BENZENE (mg/kg)
HA2-1	1.3	<3.0	<0.005

**GP-1 THROUGH GP-9
SEE FIGURES 3 & 4**

HA-1

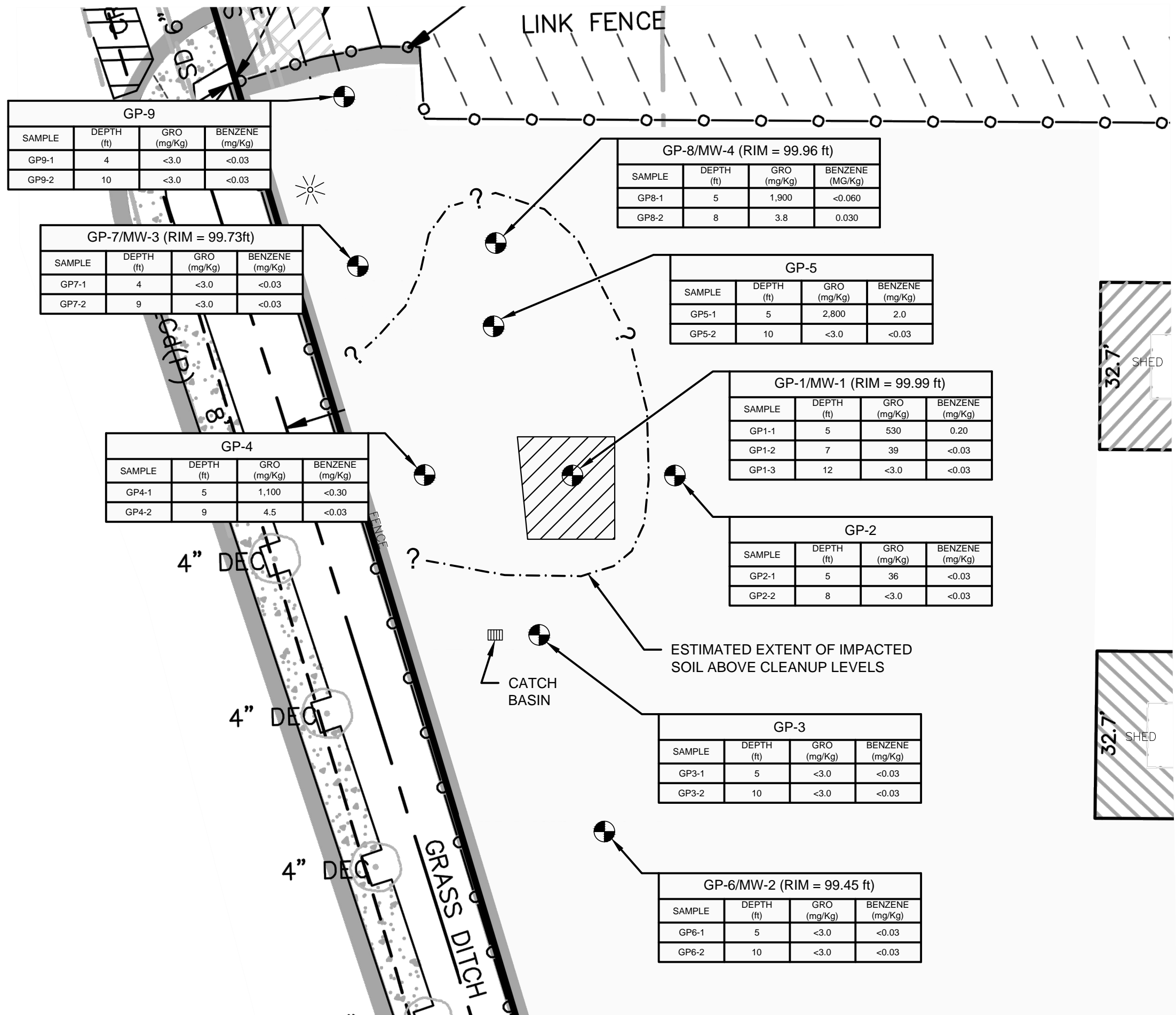
SAMPLE	DEPTH (ft)	DRO (mg/Kg)	ORO (mg/Kg)
HA1-1	0.2	<120	2,100
HA1-2	2	<25	150

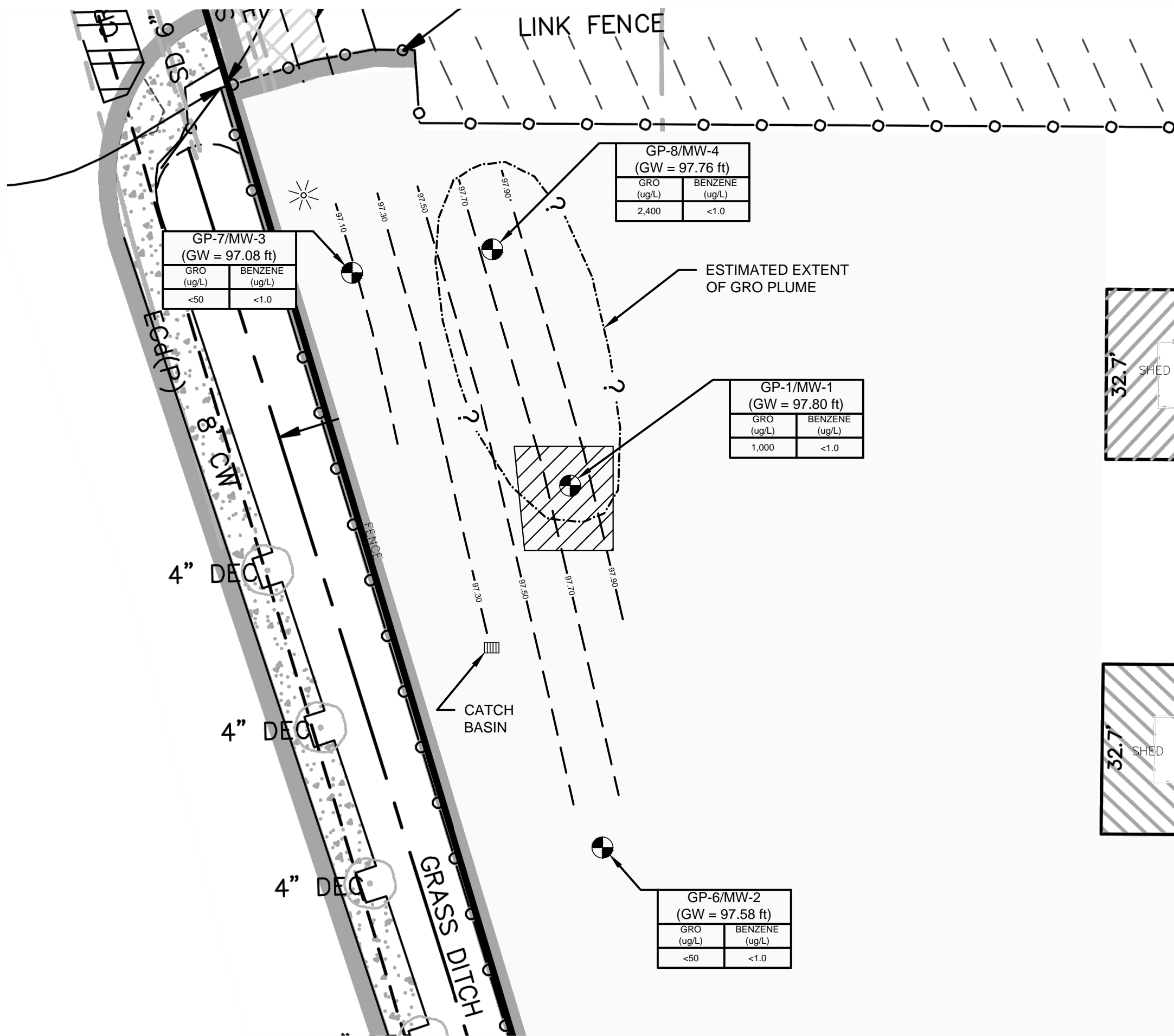


BMC WEST
5210 East Lake Sammamish Parkway SE
Issaquah, Washington

SITE & EXPLORATION PLAN

DATE: JUNE 2013 Job No. 1099.22
Zipper Geo Associates, LLC FIGURE
 19023 36th Ave. W., Suite D
 Lynnwood, WA SHT. 1 of 1





GP-7/MW-3
(GW = 97.08 ft)

GRO (ug/L)	BENZENE (ug/L)
<50	<1.0

GP-8/MW-4
(GW = 97.76 ft)

GRO (ug/L)	BENZENE (ug/L)
2,400	<1.0

GP-1/MW-1
(GW = 97.80 ft)

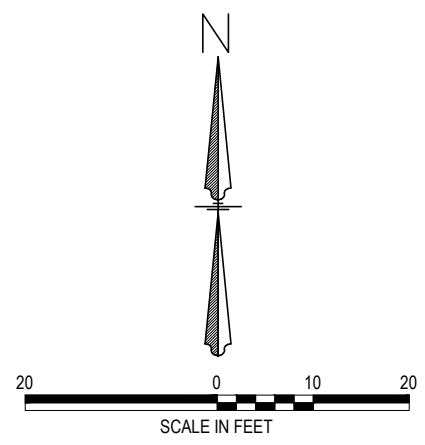
GRO (ug/L)	BENZENE (ug/L)
1,000	<1.0

GP-6/MW-2
(GW = 97.58 ft)

GRO (ug/L)	BENZENE (ug/L)
<50	<1.0

LEGEND

- GP-1/MW-1 (GW = 97.80 ft) DIRECT PUSH/GROUNDWATER MONITORING WELL NUMBER AND APPROXIMATE LOCATION. GROUNDWATER ELEVATION ON 5/8/2013 IN FEET.
- SITE SPECIFIC BENCHMARK PK NAIL WITH WASHER ASSUMED ELEVATION = 100 FEET
- ESTIMATED GROUNDWATER SURFACE CONTOUR WITH ELEVATION IN FEET
- APPROXIMATE LOCATION OF UNDERGROUND STORAGE TANK CAVITY IDENTIFIED BY GROUND PENETRATING RADAR SURVEY



BMC WEST
5210 East Lake Sammamish Parkway SE
Issaquah, Washington

SUMMARY OF
GROUNDWATER ANALYTICAL TEST RESULTS

DATE: JUNE 2013	Job No. 1099.22
Zipper Geo Associates, LLC 19023 36th Ave. W., Suite D Lynnwood, WA	FIGURE 4 SHT.1 of 1

Appendix B

Reports Completed by Others

Box 14

TRC

April 6, 1998

13945

Mr. Joe Hickey
Washington Department of Ecology
Northwest Regional Office
3190 160th Avenue Southeast
Bellevue, WA 98008

Re: Environmental Investigation Results
5210 East Lake Sammamish Parkway Southeast,
Issaquah, Washington

Dear Mr. Hickey:

On behalf of BMC West Corporation (BMC West), TRC Environmental Corporation (TRC) conducted an environmental investigation at the BMC West facility at 5210 East Lake Sammamish Parkway Southeast, Issaquah, Washington (Figure 1). The objective of the investigation was to determine the nature and extent of petroleum contamination on the west side of the facility from an unknown source. During construction of a storm water catchment basin, petroleum contamination was observed in the subsurface soil and groundwater. The contamination may be from three gasoline underground storage tanks (USTs), which were removed in 1989, but initial testing of the tank area showed minimal contamination. BMC West requested TRC to conduct an investigation of the area to determine the source and extent of the petroleum contamination.

The TRC investigation was conducted in two phases. The first phase consisted of a subsurface investigation conducted on June 25, 1996. Results of the investigation were submitted to the Washington Department of Ecology in a letter report dated July 8, 1996. This investigation was designed with three goals; 1) to determine if soil and groundwater petroleum contamination was present, 2) to characterize potential contamination near the storm water basin, and 3) to assess if the petroleum contamination was flowing onto the site from adjacent properties.

The second phase was conducted on December 4, 1997 and consisted of a subsurface investigation to; 1) further evaluate the on-site extent of soil and groundwater petroleum contamination and 2) monitor potential changes in petroleum concentrations.

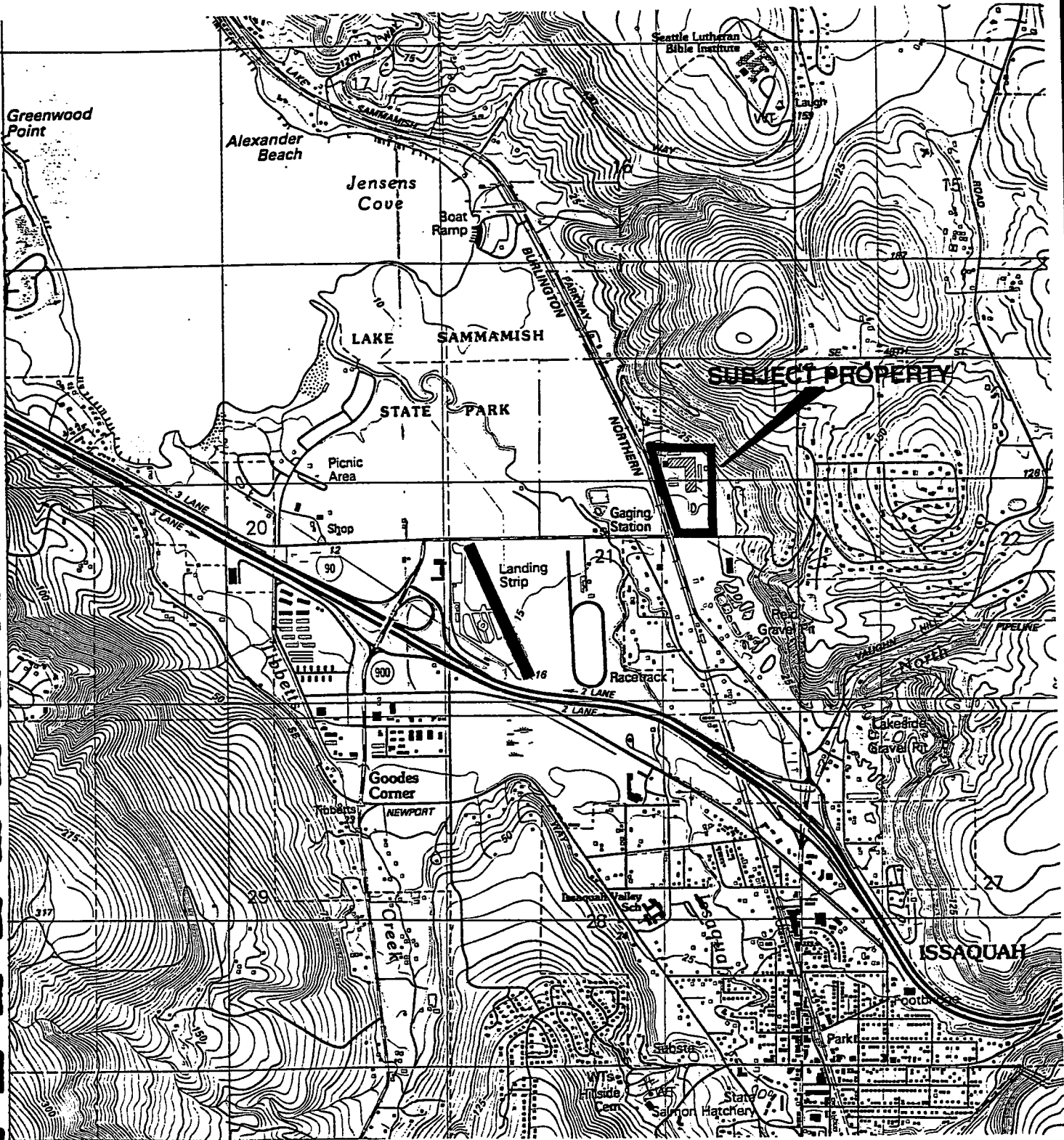
SITE DESCRIPTION

The BMC West facility is currently operated as a retail lumber facility. The site occupies approximately 16 acres, the majority which consists of paved parking lots, paved yard areas, lumber storage, millwork, and office buildings. Asphalt paving or concrete aprons cover the entire yard area. There is one large structure on the site which houses the offices, store, and millworks located on the east side of the site. There are also several storage sheds and a maintenance shop located at the facility.

TRC Environmental Corporation
11 Inverness Drive East • Englewood, Colorado 80112
Telephone 303-792-5555 • Fax 303-792-0122

Customer-Focused Solutions





SCALE 1 Inch = 250,000 FEET

Bellevue South 1:250,000 Map



FIGURE 1
GENERAL SITE LOCATION MAP

BMC WEST
ISSAQUAH, WASHINGTON

TRC	DATE :	PROJECT	FILE ID	REV # :
	1/8/98	13945		1

The St. Regis Corporation constructed the lumber facility in 1966. Henry Bacon Building Materials purchased the facility in 1986 and constructed improvements at the facility. BMC West has been leasing and operating the facility since 1994.

Site Location

The BMC facility is located in the city of Issaquah, King County, Washington, approximately 15 miles east of Seattle, Washington.

Adjacent Properties

The immediate area consists of mixed industrial and commercial uses. Albertson's Grocery Store and McDonald's restaurant are located adjacent to the south side of the property. Immediately north of the subject site are private residences, a church, and a bible institute. Immediately east of the subject property is a farmhouse. The facility abuts the base of the steep hill to the east. Residential developments are present upslope. West of the subject site is East Lake Sammamish Parkway Southeast, Burlington Northern Railroad track, and then some light industrial development. Lake Sammamish State Park is located approximately ¼ mile west of the site.

Hydrology

The facility is 15 feet above mean sea level. Surface water drainage is to the west. Lake Sammamish is located approximately ½ mile northwest of the site. The Issaquah River, which drains into Lake Sammamish, flows from the southeast to the northwest and is located about 1/3-mile southwest of the subject site.

Based on the local topography and location of surface water bodies, the anticipated direction of groundwater flow is to the west-northwest. The depth to groundwater at the site ranges from 4.5 to 6 feet below ground surface (bgs). Subsurface soil types at the site range from clayey sand to sandy clay.

To evaluate if existing water supply wells are located down gradient of the site, TRC contacted the Washington Department of Ecology to obtain a list of permitted water wells. One well was registered in the northwest ¼ of section 21, Township 24 north, range 6 east, which is approximately 1,500 feet northwest of the site. The well is completed in bedrock at a depth of 200 feet. The well is completed with a 20-foot surface seal.

Based on the construction details of the well, it is not completed in the shallow surface aquifer; therefore, it would not be impacted by the site. Well construction records are included as Attachment 2.

DISCOVERY OF PETROLEUM CONTAMINATION

The area of concern is at the storage yard bordering East Lake Sammamish Parkway Southeast. The area is paved with asphalt and surface water runoff is to the west toward a drainage ditch that borders the west side of the site. In this area, BMC West installed a storm

water catchment basin in 1996. During construction of the basin, petroleum contamination was observed in the subsurface soil and groundwater.

POTENTIAL SOURCE OF PETROLEUM CONTAMINATION

A site plan previously provided to TRC by BMC West indicated that a former gasoline pump station was located approximately where BMC West installed the storm water catchment basin. In addition, a Phase I Environmental Site Assessment performed for the property by TRC in September 1994 indicated that three USTs and associated dispensers and piping were removed from this area. These tanks were removed by Chempro Environmental Services (Chempro) in January 1989. A soil sample was collected by Chempro from the excavated soil while removing the tanks. The results were below state cleanup standards (Table 1). Chempro received a closure permit (# M-F88-0721) for removing the USTs from King County.

Table 1
Soil Sampled During Tank Removal
by Chempro Environmental Services
January 1989

Constituent	Concentration (mg/kg)	State Standard (mg/kg)
Total Petroleum Hydrocarbons	31	100
Benzene	< 0.05	0.5
Toluene	22.0	40
Ethylbenzene	< 0.05	20
Xylenes	< 0.05	20

INITIAL TRC SITE INVESTIGATION

At the request of BMC West, TRC conducted a subsurface investigation in response to the petroleum contamination observed while excavating the storm water basin. The investigation was conducted on June 25, 1996 and consisted of soil and groundwater sampling. The investigation was designed with three goals; 1) to determine if soil and groundwater petroleum contamination was present, 2) to characterize potential contamination near the storm water basin, and 3) to assess if the petroleum contamination was flowing onto the site from adjacent properties.

TRC focused the subsurface investigation in the area of the catchment basin and the approximate location of the former USTs. Ten boreholes were drilled using a hollow-stem auger drilling rig operated by Environmental West Exploration. Split spoon soil samples were collected at five-foot depth intervals, logged and then composited for laboratory analysis. Groundwater samples were collected from four of the boreholes. Groundwater samples were collected from each borehole with the augers in place. No monitoring wells were constructed. Hnu Photoionization measurements were collected for each soil sample. The Hnu detects volatile organic vapors and is useful in determining the potential and scale of petroleum

contamination in a sample. Table 2 summarizes the Hnu results for the collected samples. Values greater than zero were encountered in six boreholes 1, 2, 3, 5, 6, and 9.

The highest concentrations were detected in boreholes 1, 5, 6, and 9. These four boreholes are located near the former UST and pumping station. Generally, concentrations were the highest in the 5 to 6.5-foot depth interval and concentrations decreased with depth.

Samples with the highest Hnu readings were submitted. Three groundwater and four soil samples were submitted to Analytica, Inc. and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), by EPA Method 8020 and total petroleum hydrocarbons (TPH) using EPA Method 418.1. Water and soil results are summarized in Tables 3 and 4, respectively. Also included in the tables are the state's cleanup criteria for each of the constituents. Benzene and TPH groundwater concentrations are graphically presented in Figure 2. Laboratory data sheets are included in Attachment 1.

Table 3 shows that BH-5, located near the removed USTs, exceeded the groundwater standards for benzene, xylenes, and TPH. BH-1, located near the storm water catchment basin, exceeded the standard for TPH. All other constituent concentrations in groundwater were below the state standards. Table 4 shows that none of the soil standards were exceeded.

Table 2
Hnu Photoionization Measurements
Initial TRC Site Investigation

Borehole Number	Depth Interval (ft)	Reading (ppm)
BH-1	5 - 6.5	20
BH-1	10 - 11.5	3.5
BH-2	5 - 6.5	0.5
BH-2	10 - 11.5	0.5
BH-3	5 - 6.5	0.5
BH-3	10 - 11.5	0
BH-3	15 - 16.5	1.0
BH-4	5 - 6.5	0
BH-4	10 - 11.5	0
BH-5	5 - 6.5	9
BH-5	10 - 11.5	4
BH-5	15 - 16.5	9
BH-6	5 - 6.5	9
BH-6	10 - 11.5	12
BH-7	5 - 6.5	0
BH-7	10 - 11.5	0
BH-8	5 - 6.5	0
BH-8	10 - 11.5	0
BH-9	5 - 6.5	12
BH-9	10 - 11.5	3
BH-10	5 - 6.5	0
BH-10	10 - 11.5	0

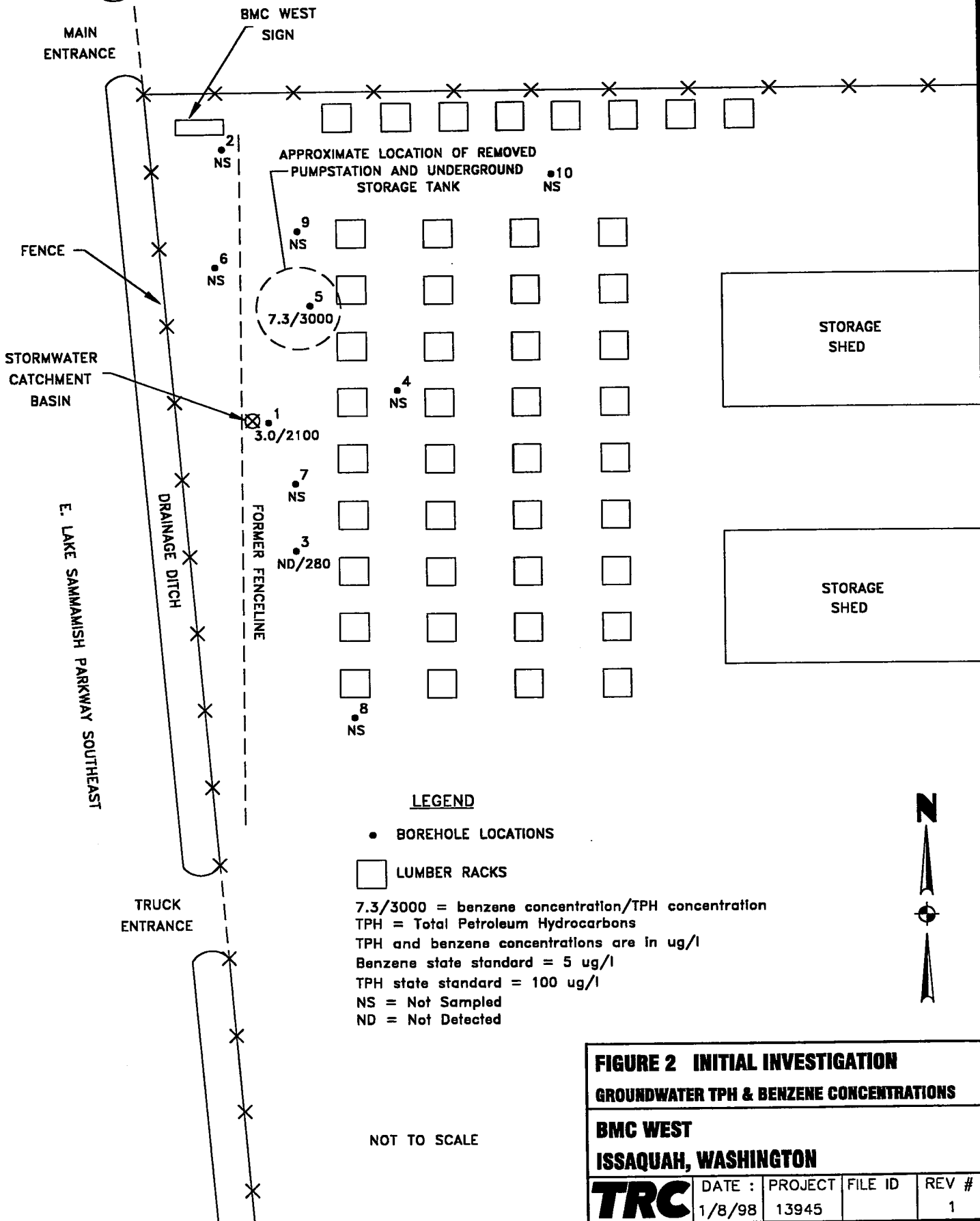


FIGURE 2 INITIAL INVESTIGATION
GROUNDWATER TPH & BENZENE CONCENTRATIONS
BMC WEST
ISSAQUAH, WASHINGTON

TRC	DATE : 1/8/98	PROJECT 13945	FILE ID	REV # : 1
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NOT TO SCALE

Table 3
Groundwater Analytical Results (units: ug/l)
Initial TRC Site Investigation

Constituent	State Standard	BH-1	BH-3	BH-5
Benzene	5	3.0	ND ⁽¹⁾	7.3
Toluene	40	2.3	ND ⁽¹⁾	1.5
Ethylbenzene	30	2.9	ND ⁽¹⁾	10
Total Xylenes	20	3.8	6.7	110
TPH	1000	2100	280	3000

TPH = total petroleum hydrocarbons
 ND⁽¹⁾ = not detected above method detection limit of 1 ug/l.

Table 4
Soil Analytical Results (units: mg/kg)
Initial TRC Site Investigation

Constituent	State Standard	BH-1	BH-2	BH-5	BH-6
Benzene	0.5	0.010	ND	0.076	0.028
Toluene	40	0.004	ND	0.022	0.0022
Ethylbenzene	20	0.0069	ND	0.100	0.008
Total Xylenes	20	0.0065	ND	0.790	0.031
TPH	100/200 ⁽¹⁾	99	31	ND	44

(1) Two standards depending on source, gasoline/diesel.
 TPH = total petroleum hydrocarbons.
 ND = not detected above the method detection limit.

Based on the results, TRC concluded that groundwater at the site had been impacted by petroleum hydrocarbons but the concentrations were relatively low and the extent of contamination is generally limited to the area near the removed USTs. The results did not indicate a potential off-site source of the petroleum contamination.

Results of the investigation were submitted to Mr. Joe Hickey of the Washington Department of Ecology, in a letter-report dated July 8, 1996. TRC contacted Mr. Hickey in October 1997 to

discuss the status of the site and to determine what, if anything, needed to be done at the site. Mr. Hickey said he had no record of the site or the report in his database.

SECOND INVESTIGATION

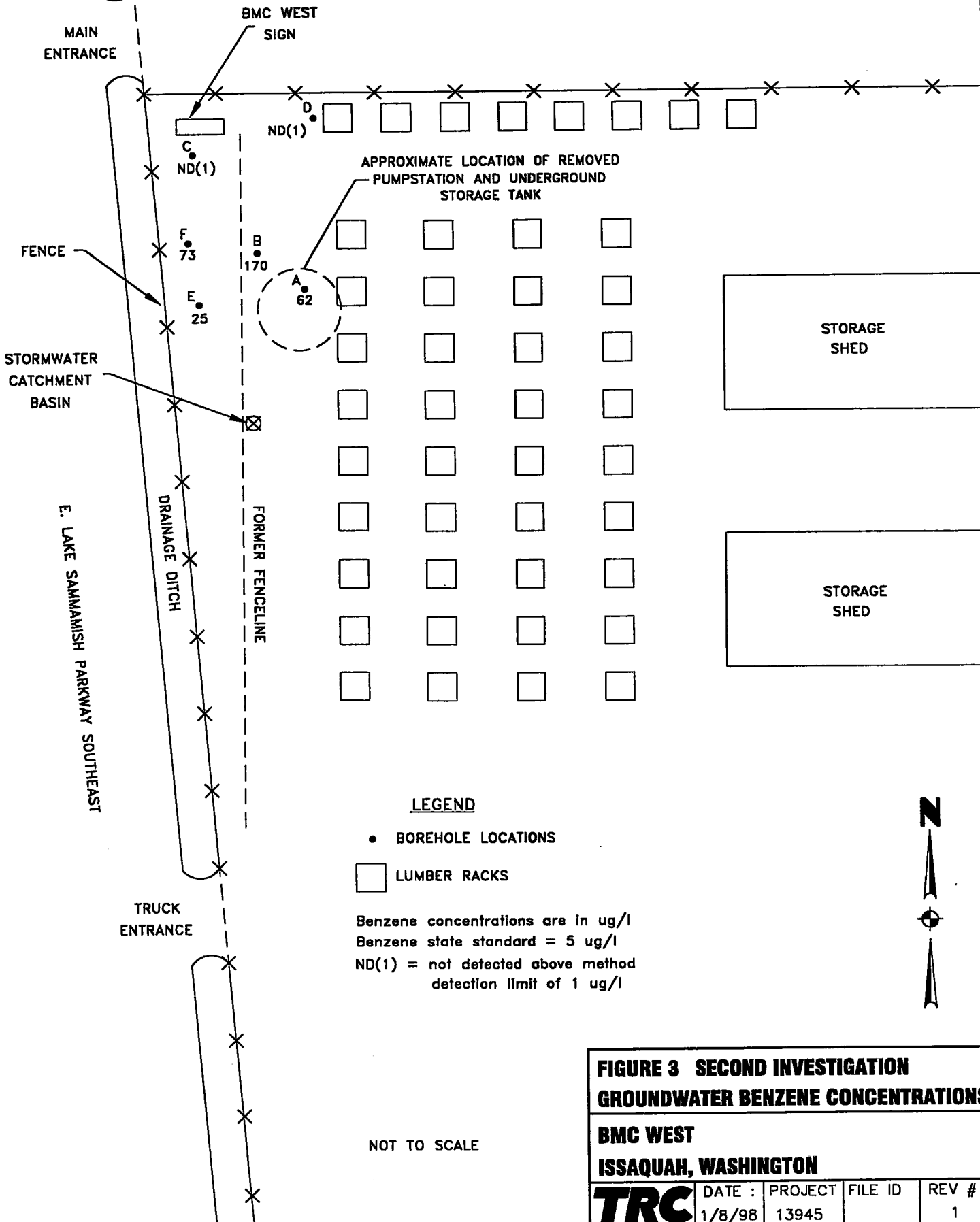
An second subsurface investigation was performed on December 4, 1997 by Geo-Tech Exploration Company of Portland, Oregon at the direction of TRC. The objective of the investigation was to; 1) further evaluate the on-site extent of soil and groundwater petroleum contamination and 2) monitor potential changes in petroleum concentrations.

The investigation consisted of using a Geoprobe drill rig to obtain soil and groundwater samples. The drill rig uses direct push technology to obtain soil and groundwater samples. With this technology, a steel drive probe is mechanically driven into the ground using a hydraulic, truck-mounted drilling rig. A soil sample is obtained using a sampler attached to the end of the probe. After the sample is obtained, the probe is extracted from the ground and the sample retrieved. To obtain a groundwater sample, the probe is driven to the desired depth using a dedicated drive tip. A 4-foot long, steel screened section is then installed inside of the probe rod and the outer rod extracted. Small diameter tubing is lowered inside of the screen and a water sample obtained using an inertia pump.

Six boreholes, labeled A through F and shown on Figure 3, were drilled to obtain soil and groundwater samples. Borehole locations were selected based on the location of the removed USTs and the anticipated direction of groundwater flow (predicted to be westerly). Borehole BH-A is located near the original location of the USTs and the other boreholes are located hydraulically down gradient and cross gradient to evaluate the extent of petroleum contamination. Results of groundwater sampling indicated the depth to groundwater ranged from 4.5 to 6 feet bgs.

Soil samples were obtained approximately every 4 feet from the boreholes. Discrete soil samples were obtained generally from the 2-4 foot and 6-8 foot depth zones. The total depth of the boreholes was approximately 8 feet. Soil types ranged from clayey sand to sandy clay. Soil samples were split with a portion of each sample stored on ice and the remainder put in a plastic bag to perform a headspace analysis. Headspace analyses were performed using an Hnu photoionization detector to estimate volatile petroleum concentrations in the samples. The bag samples were left in the sun for approximately 20 minutes to promote volatilization of the hydrocarbons and then the headspace measured with the Hnu. Concentrations ranged from 0.2 ppm to 340 ppm as shown in Table 5. Laboratory data sheets are included in Attachment 1. The highest concentrations were detected in boreholes BH-A (340 ppm), BH-B (260 ppm), BH-E (100 ppm), and BH-F (30 ppm) all from the 2 to 4 foot depth range.

The four soil samples with the highest headspace concentrations were submitted to Analytica, Inc. in Broomfield, Colorado for laboratory analysis. The samples were analyzed for BTEX by EPA method 8021B and Volatile Petroleum Hydrocarbons (VPH) by EPA Method 8015B/API. The laboratory results and state cleanup standards are summarized in Table 6 and VPH concentrations are graphically presented on Figure 3. Laboratory data sheets are included in Attachment 1. Soil constituent concentrations in boreholes BH-A, BH-B, and BH-E exceeded the state standards. Boreholes BH-A and BH-B generally had the highest concentrations. BH-A is near the previous UST location and BH-B is located to the northwest (down gradient).



**FIGURE 3 SECOND INVESTIGATION
 GROUNDWATER BENZENE CONCENTRATIONS**

**BMC WEST
 ISSAQUAH, WASHINGTON**

TRC	DATE : 1/8/98	PROJECT 13945	FILE ID	REV # : 1
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NOT TO SCALE

Groundwater samples were obtained from all six boreholes and submitted for laboratory analysis of BTEX and VPH. Groundwater concentrations and state standards are listed in Table 7 and benzene concentrations are graphically presented in Figure 4. Groundwater petroleum concentrations exceeded the state standards in boreholes BH-A, BH-B, BH-E, and BH-F. Borehole BH-B generally had the highest petroleum concentrations. The benzene concentration was 170 ug/l; the state standard is 5 ug/l. Borehole BH-A generally had the next highest concentrations.

Table 5
Hnu Photoionization Measurements
Second TRC Site Investigation

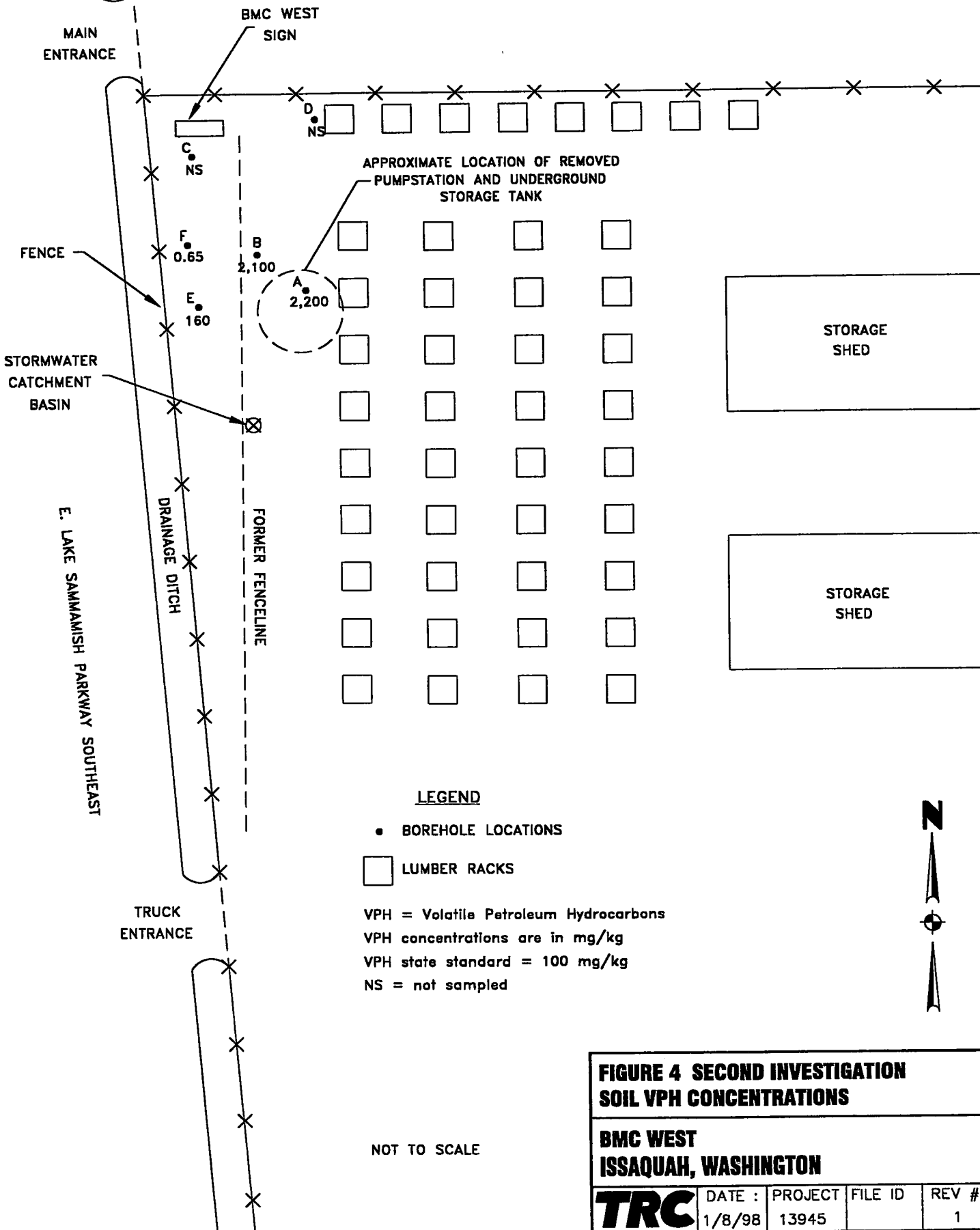
Borehole	Depth Interval (ft)	Reading (ppm)
BH-A	2-4	340
	6-8	3.6
BH-B	2-4	260
BH-C	2-4	0.6
	6-8	0.5
BH-D	2-4	0.2
BH-E	2-4	100
BH-F	2-4	30

ppm = parts per million

Table 6
Soil Analytical Results
Second TRC Site Investigation

	State Standard	BH-A, 2-4'	BH-B, 2-4'	BH-E, 2-4'	BH-F, 2-4'
Benzene	0.5	11	15	1.0	0.0047
Toluene	40	5.2	8.8	0.29	0.0019
Ethylbenzene	20	24	15	1.4	0.0035
Total Xylenes	20	280	110	4.1	0.0064
VPH	100	2200	2100	160	0.650

Units are mg/kg
 VPH = volatile petroleum hydrocarbons



**FIGURE 4 SECOND INVESTIGATION
 SOIL VPH CONCENTRATIONS**

**BMC WEST
 ISSAQUAH, WASHINGTON**

TRC	DATE :	PROJECT	FILE ID	REV # :
	1/8/98	13945		1

Table 7
Groundwater Analytical Results
Second TRC Site Investigation

Constituent	State Standard	BH-A	BH-B	BH-C	BH-D	BH-E	BH-F
Benzene	5	62	170	ND ₍₁₎	ND ₍₁₎	25	73
Toluene	40	96	110	ND ₍₁₎	1.0	4.6	6.0
Ethylbenzene	30	130	350	ND ₍₁₎	ND ₍₁₎	26	75
Total Xylenes	20	1300	1600	ND ₍₂₎	ND ₍₂₎	8.2	59
VPH	1000	5100	13000	ND ₍₁₀₀₎	ND ₍₁₀₀₎	870	1500

Units are ug/l

VPH = volatile petroleum hydrocarbons

ND₍₁₎ = not detected above method detection limit shown in parentheses, e.g., 1 ug/l.

Discussion of Results

Concentrations detected during the second investigation (December 1997) were generally higher than concentrations detected during the June 1996 investigation. A possible explanation of why the current results show higher concentrations is likely due to different sampling methods. The 1996 investigation was intended to "screen" the site to evaluate if there was a potential release whereas the current investigation was intended more to quantify any petroleum contamination.

During the 1996 investigation, 2-foot long soil samples were obtained at 5 foot intervals (e.g., 5-7 feet bgs and 10-12 feet bgs) and composite samples submitted for analysis. During the recent investigation, discrete soil samples were collected from just above the water table and analyzed. This is where soil petroleum concentrations are expected to be the highest.

Groundwater samples during the 1996 investigation were obtained directly from inside hollow-stem augers drilled to the total depth of the boreholes (up to 16.5 feet bgs). This may have averaged the groundwater petroleum concentrations across the borehole intervals. Groundwater samples obtained during the current investigation were obtained from a discrete interval near the top of the groundwater table.

Conclusions

Investigation results indicate petroleum concentrations in the soil and groundwater above state standards are present at the site. However, petroleum contamination appears to be limited to an area near the former tank locations and concentrations are relatively low. There are no down gradient residences or water supply wells that may be impacted. The nearest surface water is the Issaquah River located approximately 1/3 mile away, a relatively large distance. In addition, the clayey soil at the site is expected to restrict the migration of contaminants.

Mr. Joe Hickey
April 6, 1998
Page 13

Recommendations

Based on the site conditions, TRC believes that no further action is warranted at the site based on the following:

- The source of the petroleum contamination (i.e., the USTs) has been removed,
- The extent of soil and groundwater contamination appears to be limited,
- Detected petroleum concentrations are relatively low,
- The on-site soil consists of low permeability sandy clay and clayey sand which is expected to restrict the migration of petroleum contamination, and
- There are no registered water well users downgradient of the site which might be impacted.

If you have any questions or need additional information, please do not hesitate to contact Greg Groene or me at (303) 792-5555.

Sincerely,

TRC ENVIRONMENTAL CORPORATION



Matt Burrows, P.E.
Principal Design Engineer

cc: P. Street
E. Goebel

Attachments

ATTACHMENT 1
LABORATORY RESULTS

Sample: 02A BH5

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		7.3		1.0	ug/L	06/27/96
Toluene		1.5		1.0	ug/L	06/27/96
Ethylbenzene		10		1.0	ug/L	06/27/96
Xylenes, Total		110		2.0	ug/L	06/27/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		96.7		Min: 80	Max: 120	

Sample: 02C BH5

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
Petroleum Hydrocarbons, T/R	EPA 418.1	3.0		0.10	mg/L	06/28/96

Sample: 03A BH1

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		3.0		1.0	ug/L	06/28/96
Toluene		2.3		1.0	ug/L	06/28/96
Ethylbenzene		2.9		1.0	ug/L	06/28/96
Xylenes, Total		3.8		2.0	ug/L	06/28/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min: 80	Max: 120	

Sample: 03C BH1

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
Petroleum Hydrocarbons, T/R	EPA 418.1	2.1		0.10	mg/L	06/28/96

Sample: 04A BH3

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		ND		1.0	ug/L	06/28/96
Toluene		ND		1.0	ug/L	06/28/96
Ethylbenzene		ND		1.0	ug/L	06/28/96
Xylenes, Total		6.7		2.0	ug/L	06/28/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min: 80	Max: 120	

Sample: 04C BH3

Collected: 06/25/96 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
Petroleum Hydrocarbons, T/R	EPA 418.1	0.28		0.10	mg/L	06/28/96

Sample: 05A BH1

Collected: 06/25/96 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		10		1.3	ug/Kg-DRY	06/27/96
Toluene		4.0		1.3	ug/Kg-DRY	06/27/96
Ethylbenzene		6.9		1.3	ug/Kg-DRY	06/27/96
Xylenes, Total		6.5		2.5	ug/Kg-DRY	06/27/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		92.1		Min: 70	Max: 130	
Percent Moisture	ASTM D2216	20.5		0.1	WT%	07/01/96
Petroleum Hydrocarbons, T/R	EPA 418.1M	99		4.2	mg/Kg-DRY	06/28/96

Sample: 06A BH2

Collected: 06/25/96

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		ND		1.3	ug/Kg-DRY	06/27/96
Toluene		ND		1.3	ug/Kg-DRY	06/27/96
Ethylbenzene		ND		1.3	ug/Kg-DRY	06/27/96
Xylenes, Total		ND		2.6	ug/Kg-DRY	06/27/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min:	70	Max: 130
Percent Moisture	ASTM D2216	22.4		0.1	WT%	07/01/96
Petroleum Hydrocarbons, T/R	EPA 418.1M	31		4.3	mg/Kg-DRY	06/28/96

Order # 96-06-138
 ANALYTICA, INC.

TRC Environmental Corporation
 TEST RESULTS by SAMPLE

Sample: 09A BH5

Collected: 06/25/96 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		76	D	6.2	ug/Kg-DRY	06/28/96
Toluene		22	D	6.2	ug/Kg-DRY	06/28/96
Ethylbenzene		100	D	6.2	ug/Kg-DRY	06/28/96
Xylenes, Total		790	D	12	ug/Kg-DRY	06/28/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		89.5		Min: 70	Max: 130	
Percent Moisture	ASTM D2216	19.5		0.1	WT%	07/01/96
Petroleum Hydrocarbons, T/R	EPA 418.1M	ND		4.1	mg/Kg-DRY	06/28/96

Order # 96-06-138
ANALYTICA, INC.

TRC Environmental Corporation
TEST RESULTS by SAMPLE

Sample: 10A BH6

Collected: 06/25/96

Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8020					
Benzene		28		1.3	ug/Kg-DRY	06/28/96
Toluene		2.2		1.3	ug/Kg-DRY	06/28/96
Ethylbenzene		8.0		1.3	ug/Kg-DRY	06/28/96
Xylenes, Total		31		2.6	ug/Kg-DRY	06/28/96
SURROGATES, % Recovery						
p-Bromofluorobenzene		92.3		Min: 70	Max: 130	
Percent Moisture	ASTM D2216	22.2		0.1	WT%	07/01/96
Petroleum Hydrocarbons, T/R	EPA 418.1M	44		4.2	mg/Kg-DRY	06/28/96



an Analytica Group company

TRC Environmental Corporation
11 Inverness Drive East
Englewood, CO 80112

Attn: Matt Burrows

RECEIVED
DEC 23 1997
TRC

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

Order #: 97-12-052
Date: 12/18/97 20:00
Work ID: BMC WEST - Issaquah, WA
Date Received: 12/05/97
Date Completed: 12/18/97

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Client Description</u>	<u>Sample Number</u>	<u>Client Description</u>
01	BH-A	07	BH-A, 4'
02	BH-B	08	BH-B, 4'
03	BH-C	09	BH-E, 4'
04	BH-D	10	BH-F, 4'
05	BH-E	11	TRIP BLANK
06	BH-F		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

Claire Toon
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 3, January 1995.

Problems encountered with the analyses are discussed in the following narrative.

The BTEX analysis on soil samples BH-A,4' and BH-B,4' showed surrogate compound recovery that was above quality control limits. The recovery was biased high due to the presence of late eluting hydrocarbons which interfered with the quantitation of the surrogate. Secondary analyses confirmed this result.

The VPH analysis of soil sample BH-E,4' showed a similarly biased surrogate recovery for the reasons listed above. This result was also confirmed by secondary analysis.

Sample: 01A BH-A

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u> <u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B				
Benzene		62 D	10	ug/L	12/15/97
Toluene		96 D	10	ug/L	12/15/97
Ethylbenzene		130 D	10	ug/L	12/15/97
Xylenes, Total		1300 D	20	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		107	Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API				
VPH		5100 D	1000	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		93.3	Min:	70	Max: 130

Sample: 02A BH-B

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u> <u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B				
Benzene		170 D	10	ug/L	12/15/97
Toluene		110 D	10	ug/L	12/15/97
Ethylbenzene		350 D	10	ug/L	12/15/97
Xylenes, Total		1600 D	20	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		96.7	Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API				
VPH		13000 D	1000	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		117	Min:	70	Max: 130

Sample: 03A BH-C

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u> <u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B				
Benzene		ND	1.0	ug/L	12/15/97
Toluene		ND	1.0	ug/L	12/15/97
Ethylbenzene		ND	1.0	ug/L	12/15/97
Xylenes, Total		ND	2.0	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		107	Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API				
VPH		ND	100	ug/L	12/15/97
SURROGATES, % Recovery					
p-Bromofluorobenzene		100	Min:	70	Max: 130

Sample: 04A BH-D

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B					
Benzene		ND		1.0	ug/L	12/15/97
Toluene		1.0		1.0	ug/L	12/15/97
Ethylbenzene		ND		1.0	ug/L	12/15/97
Xylenes, Total		ND		2.0	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		103		Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API					
VPH		ND		100	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min:	70	Max: 130

Sample: 05A BH-E

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B					
Benzene		25		1.0	ug/L	12/15/97
Toluene		4.6		1.0	ug/L	12/15/97
Ethylbenzene		26		1.0	ug/L	12/15/97
Xylenes, Total		8.2		2.0	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		93.3		Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API					
VPH		870		100	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min:	70	Max: 130

Sample: 06A BH-F

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B					
Benzene		73		1.0	ug/L	12/15/97
Toluene		6.0		1.0	ug/L	12/15/97
Ethylbenzene		75		1.0	ug/L	12/15/97
Xylenes, Total		59		2.0	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		90.0		Min:	76	Max: 112
Volatile Pet Hydrocarbons	8015B/API					
VPH		1500		100	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		103		Min:	70	Max: 130

Sample: 07A BH-A,4'

Collected: 12/04/97 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analyzed
BTEX	EPA 8021B	11000	D	1600	ug/Kg-DRY	12/16/97
Benzene		5200	D	1600	ug/Kg-DRY	12/16/97
Toluene		24000	D	1600	ug/Kg-DRY	12/16/97
Ethylbenzene		280000	D	3200	ug/Kg-DRY	12/16/97
Xylenes, Total						
SURROGATES, % Recovery						
p-Bromofluorobenzene		123	*	Min: 61	Max: 114	
Percent Moisture	ASTM D2216	21.9		0.1	WT%	12/10/97
Volatile Pet Hydrocarbons	8015B/API	2200000	D	160000	ug/Kg-DRY	12/16/97
VPH						
SURROGATES, % Recovery						
p-Bromofluorobenzene		104		Min: 50	Max: 150	

Sample: 08A BH-B,4'

Collected: 12/04/97 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analyzed
BTEX	EPA 8021B	15000	D	1600	ug/Kg-DRY	12/16/97
Benzene		8800	D	1600	ug/Kg-DRY	12/16/97
Toluene		15000	D	1600	ug/Kg-DRY	12/16/97
Ethylbenzene		110000	D	3200	ug/Kg-DRY	12/16/97
Xylenes, Total						
SURROGATES, % Recovery						
p-Bromofluorobenzene		117	*	Min: 61	Max: 114	
Percent Moisture	ASTM D2216	22.0		0.1	WT%	12/10/97
Volatile Pet Hydrocarbons	8015B/API	2100000	D	160000	ug/Kg-DRY	12/16/97
VPH						
SURROGATES, % Recovery						
p-Bromofluorobenzene		104		Min: 50	Max: 150	

Sample: 09A BH-E,4'

Collected: 12/04/97 Matrix: SOIL

Test Description	Method	Result	Q	Limit	Units	Analyzed
BTEX	EPA 8021B	1000	D	130	ug/Kg-DRY	12/16/97
Benzene		290	D	130	ug/Kg-DRY	12/16/97
Toluene		1400	D	130	ug/Kg-DRY	12/16/97
Ethylbenzene		4100	D	270	ug/Kg-DRY	12/16/97
Xylenes, Total						
SURROGATES, % Recovery						
p-Bromofluorobenzene		97.5		Min: 61	Max: 114	
Percent Moisture	ASTM D2216	6.60		0.1	WT%	12/10/97
Volatile Pet Hydrocarbons	8015B/API	160000	D	13000	ug/Kg-DRY	12/16/97
VPH						
SURROGATES, % Recovery						
p-Bromofluorobenzene		175	*	Min: 50	Max: 150	

Sample: 10A BH-F,4'

Collected: 12/04/97 Matrix: SOIL

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B					
Benzene		4.7		1.3	ug/Kg-DRY	12/17/97
Toluene		1.9		1.3	ug/Kg-DRY	12/17/97
Ethylbenzene		3.5		1.3	ug/Kg-DRY	12/17/97
Xylenes, Total		6.4		2.6	ug/Kg-DRY	12/17/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		110		Min: 61	Max: 114	
Percent Moisture	ASTM D2216	24.2		0.1	WT%	12/10/97
Volatile Pet Hydrocarbons	8015B/API					
VPH		650		130	ug/Kg-DRY	12/17/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		113		Min: 50	Max: 150	

Sample: 11A TRIP BLANK

Collected: 12/04/97 Matrix: WATER

<u>Test Description</u>	<u>Method</u>	<u>Result</u>	<u>Q</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>
BTEX	EPA 8021B					
Benzene		ND		1.0	ug/L	12/15/97
Toluene		ND		1.0	ug/L	12/15/97
Ethylbenzene		ND		1.0	ug/L	12/15/97
Xylenes, Total		ND		2.0	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		103		Min: 76	Max: 112	
Volatile Pet Hydrocarbons	8015B/API					
VPH		ND		100	ug/L	12/15/97
SURROGATES, % Recovery						
p-Bromofluorobenzene		100		Min: 70	Max: 130	

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...

- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:

- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:

- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- W = post digestion spike did not meet criteria (80-120%)
- S = reported value determined by the Method of Standard Additions

BTEX_S: BTEX (GCPID) METHOD: 8020

BTEX_W: BTEX (GCPID) METHOD: 8020

VPH_S: VOLATILE PETROLEUM HYDROCARBONS METHOD: mod 8015/API gasoline
Analysis of volatile gasoline components. 5 grams of sample are
sparged per method 5030A and analyzed by GC-FID using chromatographic
conditions outlined in the American Petroleum Institute method for
gasoline and SW846 8015 modified for gasoline. The sample is
quantitated against known concentrations of gasoline standards.

VPH_W: VOLATILE PETROLEUM HYDROCARBONS METHOD: mod 8015/API gasoline
Analysis of volatile gasoline components. 5 mLs of sample are sparged
per method 5030A and analyzed by GC-FID using chromatographic
conditions outlined in the American Petroleum Institute method for
gasoline and SW846 8015 modified for gasoline. The sample is
quantitated against known concentrations of gasoline standards.

PMOIST: PERCENT MOISTURE METHOD: ASTM D2216

Sample: 01A BH-A

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 02A BH-B

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 03A BH-C

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 04A BH-D

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 05A BH-E

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 06A BH-F

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

Sample: 07A BH-A, 4'

Matrix: SOIL

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/16/97
Percent Moisture	ASTM D2216	12/04/97	12/05/97	NA		12/10/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/16/97

Sample: 08A BH-B, 4'

Matrix: SOIL

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/16/97
Percent Moisture	ASTM D2216	12/04/97	12/05/97	NA		12/10/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/16/97

Sample: 09A BH-E,4'

Matrix: SOIL

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/16/97
Percent Moisture	ASTM D2216	12/04/97	12/05/97	NA		12/10/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/16/97

Sample: 10A BH-F,4'

Matrix: SOIL

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/17/97
Percent Moisture	ASTM D2216	12/04/97	12/05/97	NA		12/10/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/17/97

Sample: 11A TRIP BLANK

Matrix: WATER

<u>Analysis</u>	<u>Method</u>	<u>Collected</u>	<u>Received</u>	<u>TCLP date</u>	<u>Extracted</u>	<u>Analyzed</u>
BTEX	EPA 8021B	12/04/97	12/05/97	NA		12/15/97
Volatile Pet Hydrocarbons	8015B/API	12/04/97	12/05/97	NA		12/15/97

**ATTACHMENT 2
CORRESPONDENCE**

24/06-21C

Application No.

Permit No.

File Original and First Copy with Department of Ecology
Second Copy - Owner's Copy
Third Copy - Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

(1) OWNER: Name Daniel T. Anderson Address 24733 S.E. 70th Issaquah Wash. 98027

(2) LOCATION OF WELL: County King NE 1/4 NW 1/4 Sec. 21 T. 24 N. R. 6E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic Industrial Municipal
Irrigation Test Well Other

(4) TYPE OF WORK: Owner's number of well (if more than one) 1
New well Method: Dug Bored
Deepened Cable Driven
Reconditioned Rotary Jetted

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 200 ft. Depth of completed well 200 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8" Diam. from 0 ft. to 200 ft.
Threaded " Diam. from " ft. to " ft.
Welded " Diam. from " ft. to " ft.

Perforations: Yes No
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes No
Manufacturer's Name _____ Model No. _____
Type _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes No Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes No To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: manufacturer's Name JAOUZZI
Type: 284C HP 2

(8) WATER LEVELS: Land-surface elevation _____ ft. above mean sea level.
Static level 130 ft. below top of well Date 5-2-77
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes No If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test 30 gal./min. with 50 ft. drawdown after 1 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes No

(10) WELL LOG:

Formation: Describes by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Brown Silt, Sand, Clay	0	3
Gray Sand	3	6
Brown Silty Clay	6	8
Gray Silty Sand	8	11
Brown Silty Sand	11	13
Gray Silty Sand	13	18
Gray Silt Stone	18	119
Bolder & Rock	119	121
Silt Stone	121	200

RECEIVED

OCT 21 1977

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started 5-2 19 77. Completed 5-2 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Richardson Well Drilling Co.
(Person, firm, or corporation) (Type or print)

Address P.O. Box 44408 Tacoma, Wash.

(Signature) [Signature]
(Well Driller)

License No. 223-02-6500 Date Oct. 7 19 77



**Underground Detection
Services, Inc.**

6809 North 56th Ave.
Glendale, AZ 85301

623/939-4690, tel
602/955-3146, fax
888/822-4999, toll-free

April 19, 2013

James Georgis
Zipper Geo Associates, LLC
19023 36th Ave W, Suite D
Lynnwood, WA 98036

Dear James:

This is a report on the equipment, procedures, and results of the geophysical survey performed at BMC Lumber, 5210 East Lake Sammamish Pkwy SE, Issaquah, WA. The survey was performed on April 17, 2013.

There were several areas that were to have soil borings and one area of a former UST to be surveyed with the GPR.

The equipment that was used for the survey included, but was not limited GSSI Sir 3000 System ground penetrating radar (GPR) with 270 MHz antenna and pipe/cable locators.

The GPR utilizes high frequency radio waves to probe the subsurface. A radio wave is emitted from the antenna and travels through the soil, if there is an anomaly below the antenna; the radio wave is reflected back. The data that is collected is displayed in real time, through a color display.

The data that is produced is a cross section of the geology directly below the antenna. The top of the data represents the ground surface while the bottom of the page is a reading depth of the equipment. The data is collected and displayed from left to right, with left being the beginning and right being the end of the particular survey line. Anomalies typically appear white on a color screen.

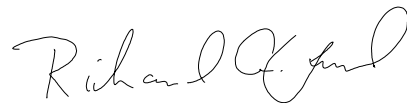
The depth of the signal penetration is dependent upon geological factors beyond the control of the surveyor. Conductive soils, clays, and saturated soils, do not allow the GPR signal to penetrate as deeply as less resistive sandy soil.

The pipe/cable locators were used around each proposed soil boring. Utility lines that were found were marked on the surface with marking paint. A Public gas meter was observed on an east building. The utility company should be informed that the line had not been marked and should be marked before any drilling occurs on site.

The GPR survey was setup on the west side of the lumber yard where the reported UST had been removed. The antenna was pushed across the top of the surface where the soil borings were marked. Data was collected continually and examined on site. The data did show an area approximately 25' X 25' that appears to have been excavated. The area was marked on the surface with marking pain. An area directly north of the excavation was surveyed with the GPR. An unknown anomaly appears in the data. The anomaly could be a pipe associated with the drainage system. The anomaly was marked on the surface with marking paint.

UST's, excavations, and pipes/cables in the survey area may not have been located due to material, depth of pipe, the UST's collapsed and filled with native soil, reinforced concrete, and UST's that were not within the geophysical survey area.

Respectfully,

A handwritten signature in cursive script, appearing to read "Richard A. Lund".

Richard A. Lund



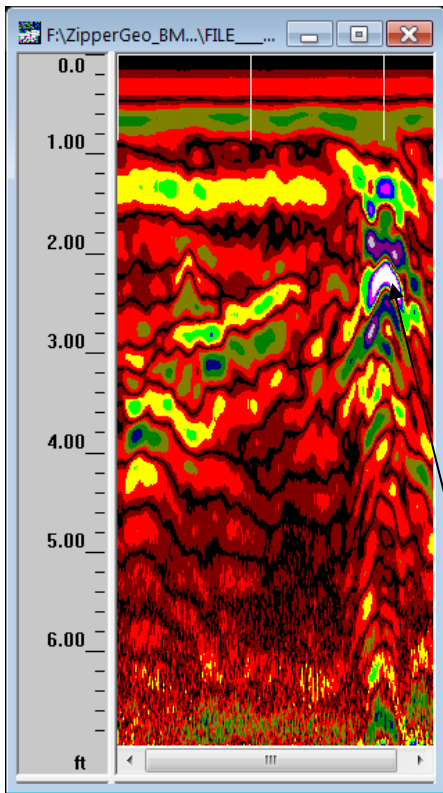
Possible UST pit



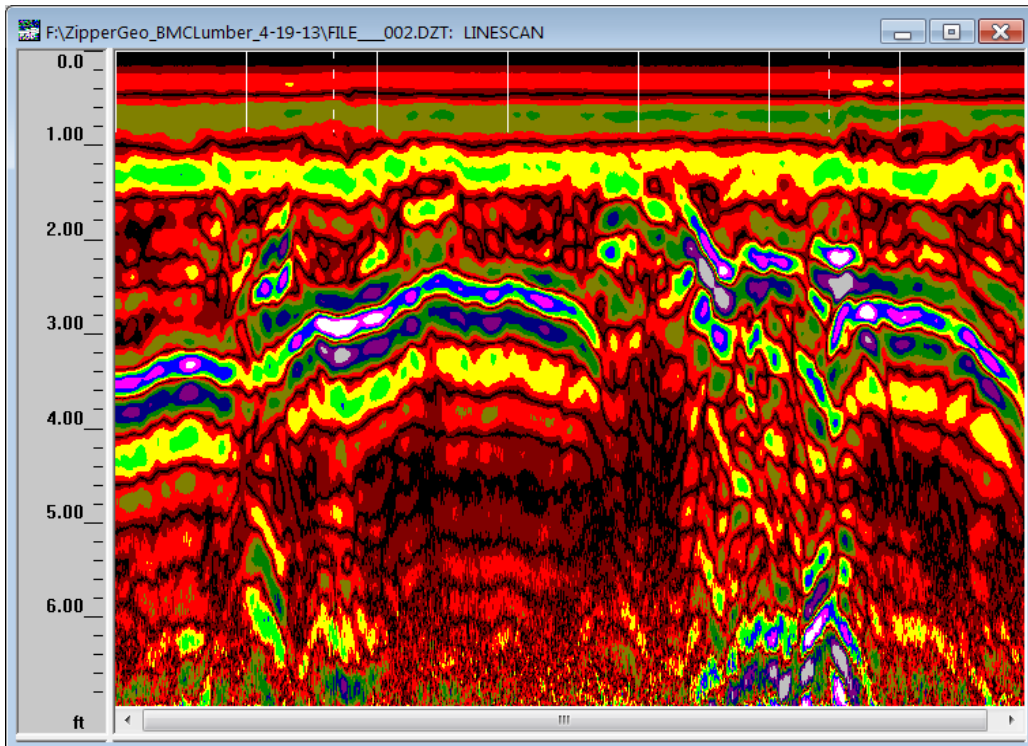
Unknown anomaly north of UST pit



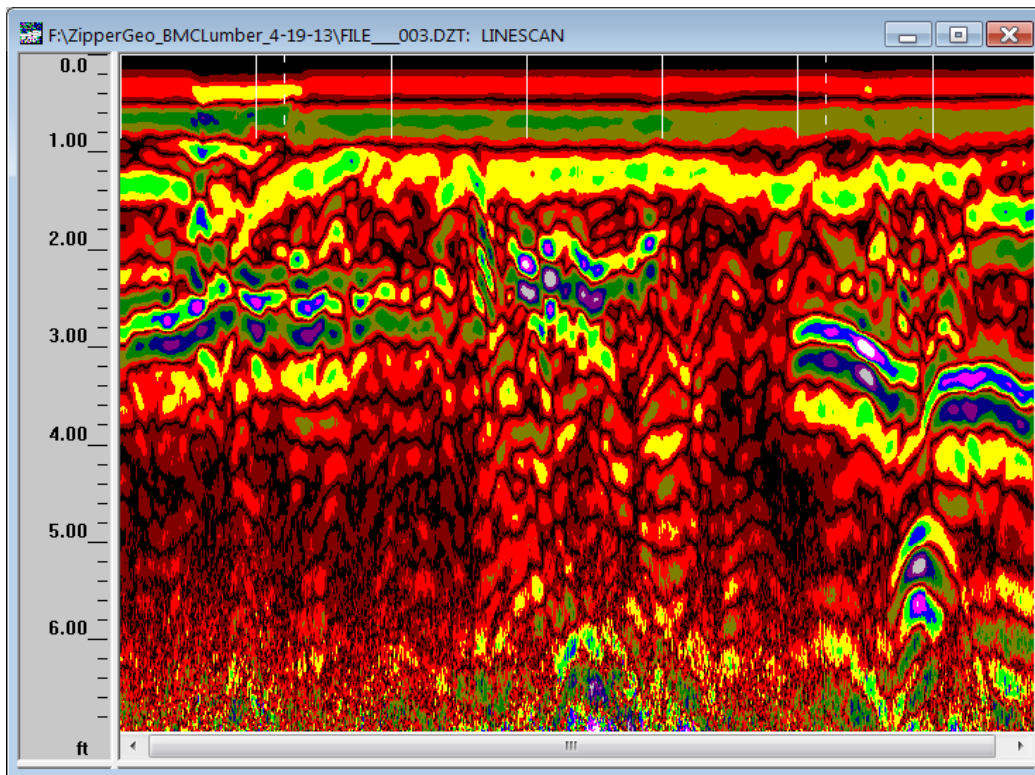
Electrical lines along perimeter fence



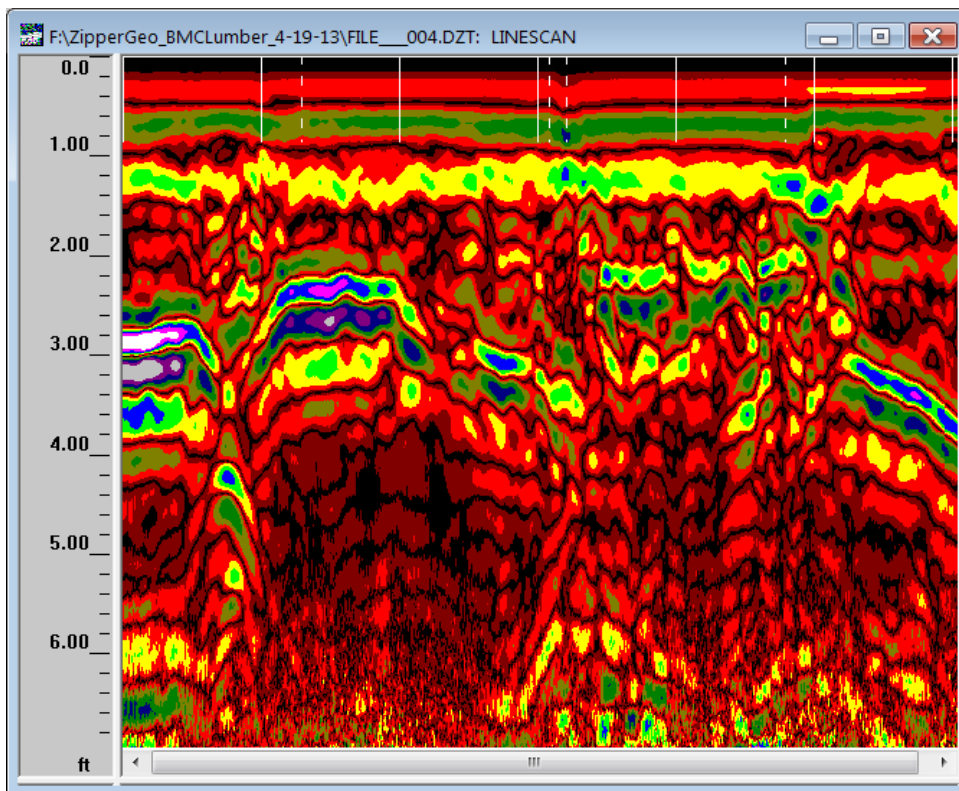
GPR Data; Catch basin, South to North, drain line



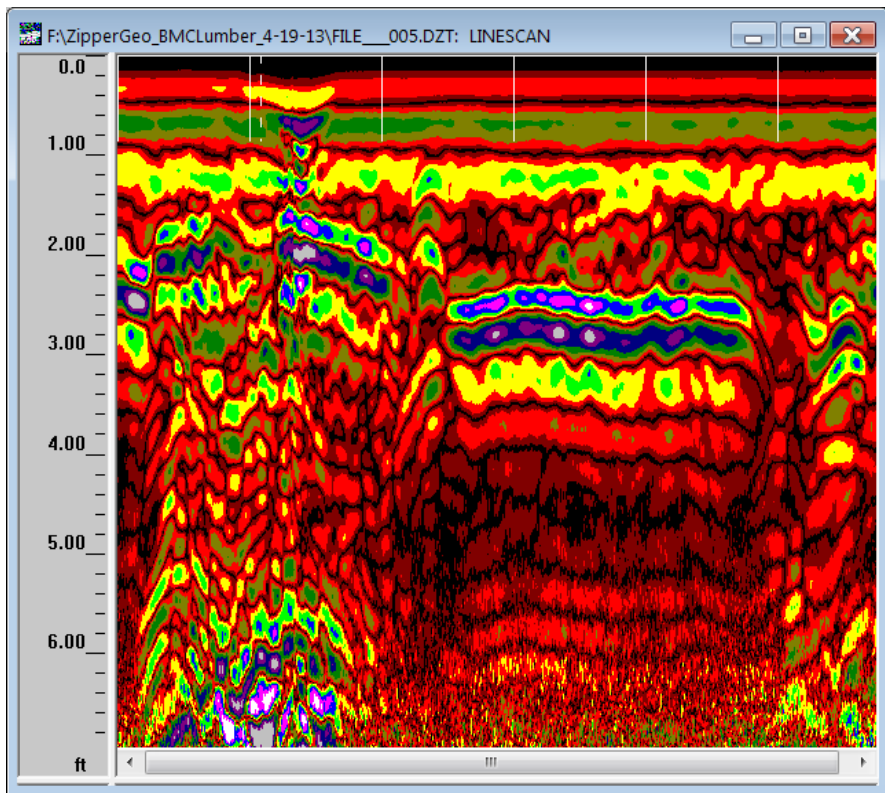
GPR Data; UST pit, East to West



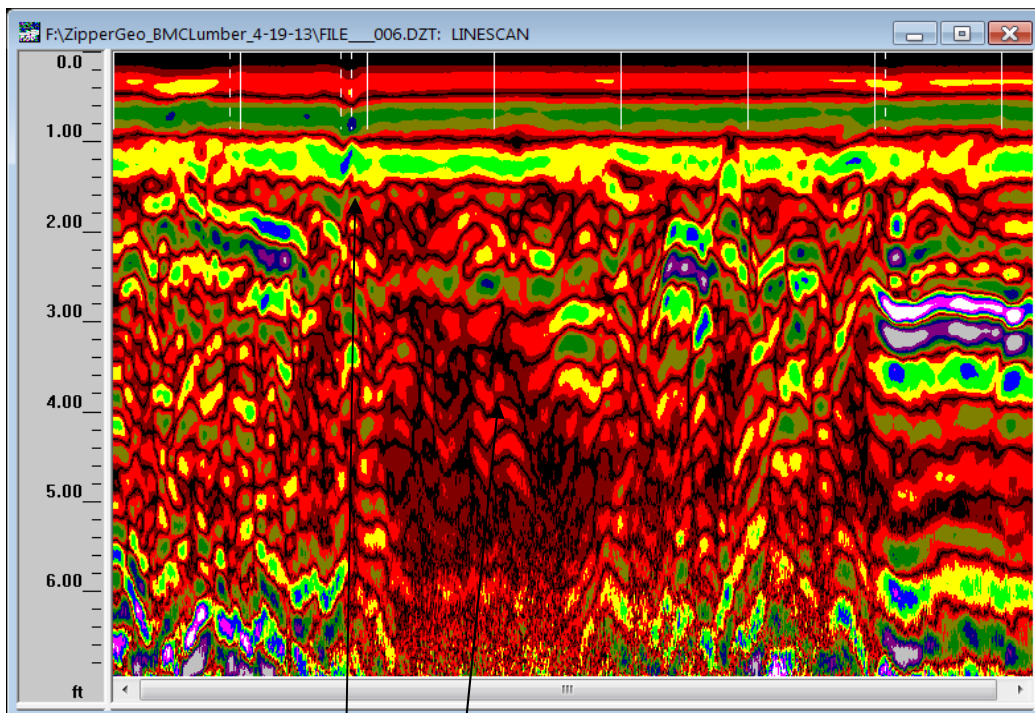
GPR Data; UST pit, W-E



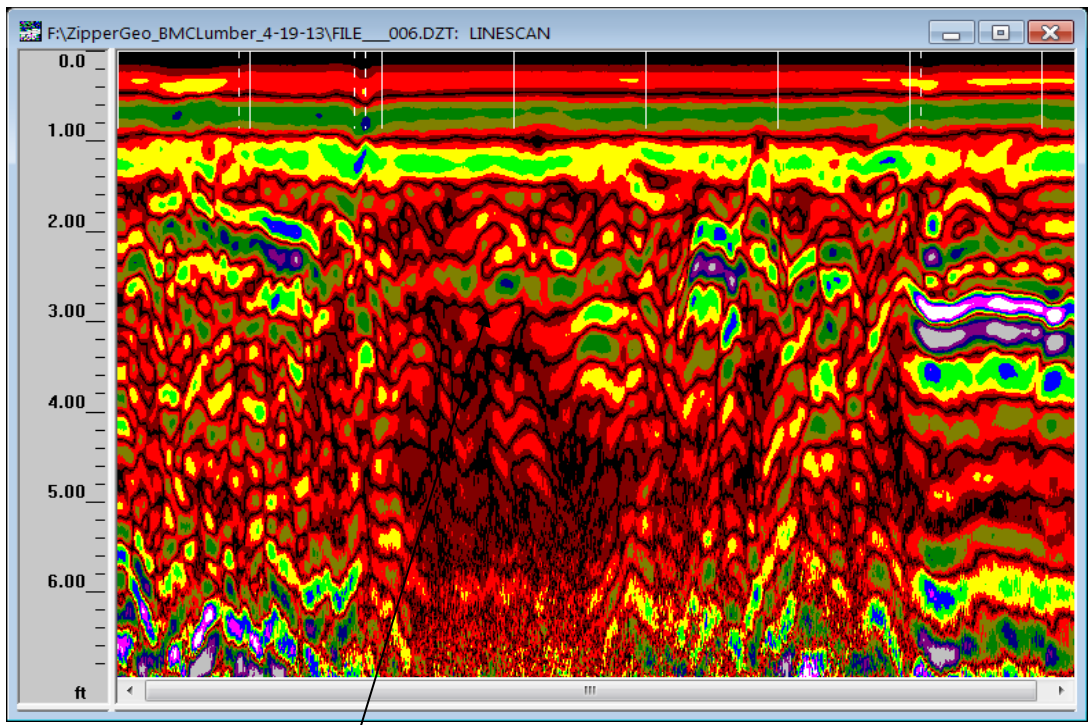
GPR Data; UST pit, S-N



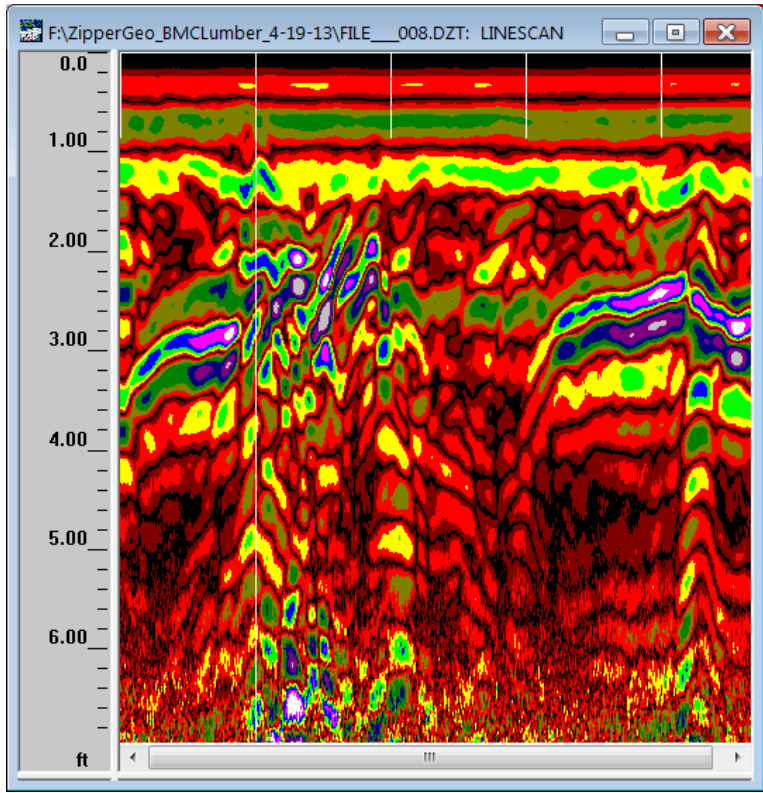
GPR Data; UST pit, N-S



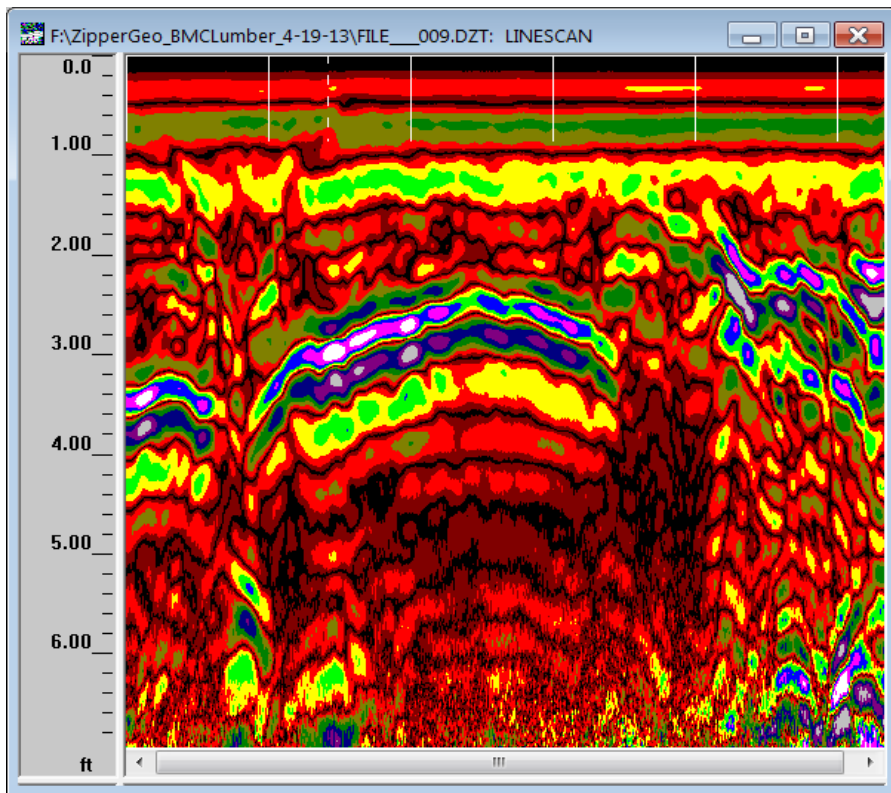
GPR Data; UST pit, S-N, soil boring, excavation



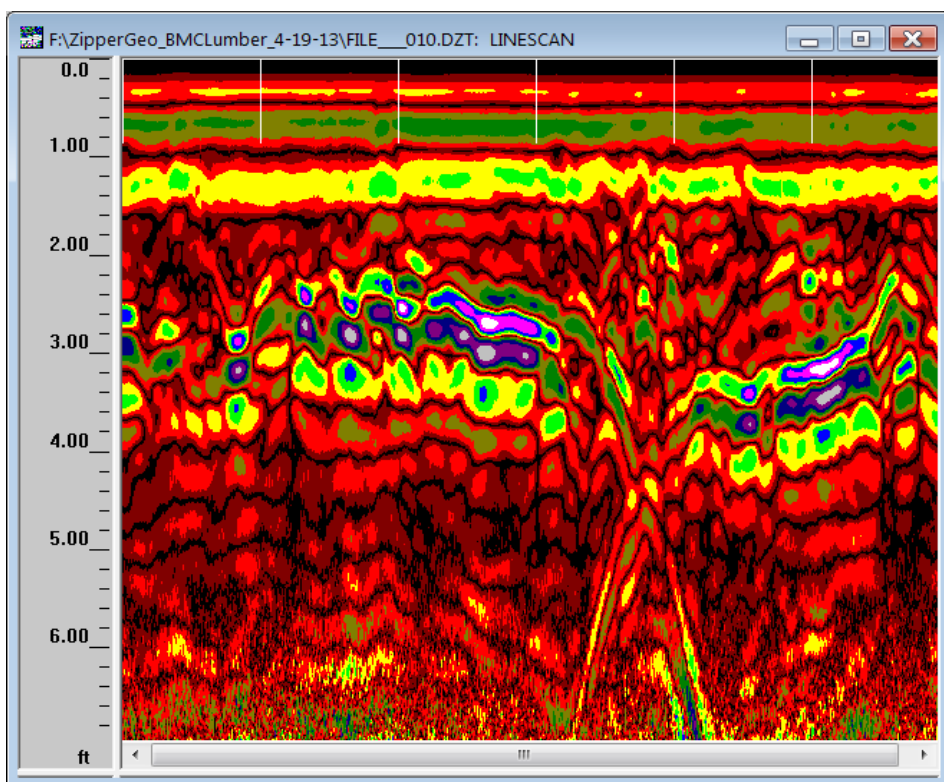
GPR Data; UST pit, S-N, excavation



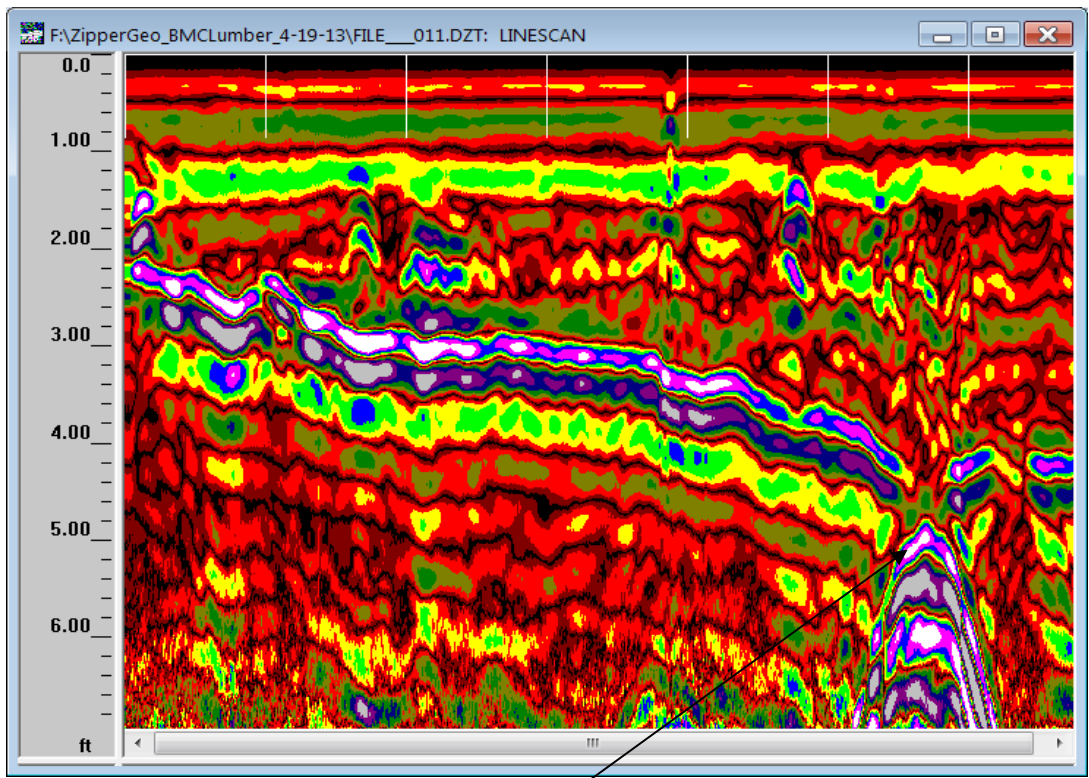
GPR Data; UST pit, W-E



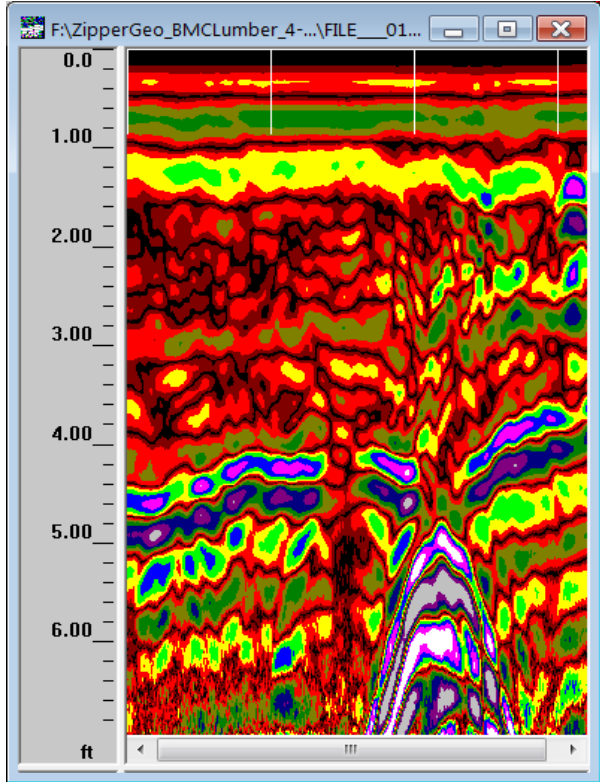
GPR Data; UST pit, E-W



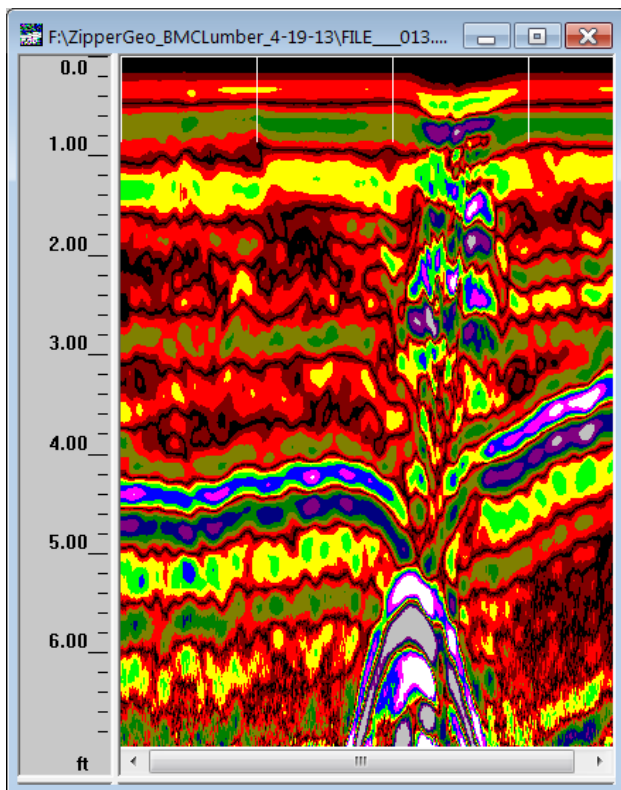
GPR Data; South of UST pit, W-E



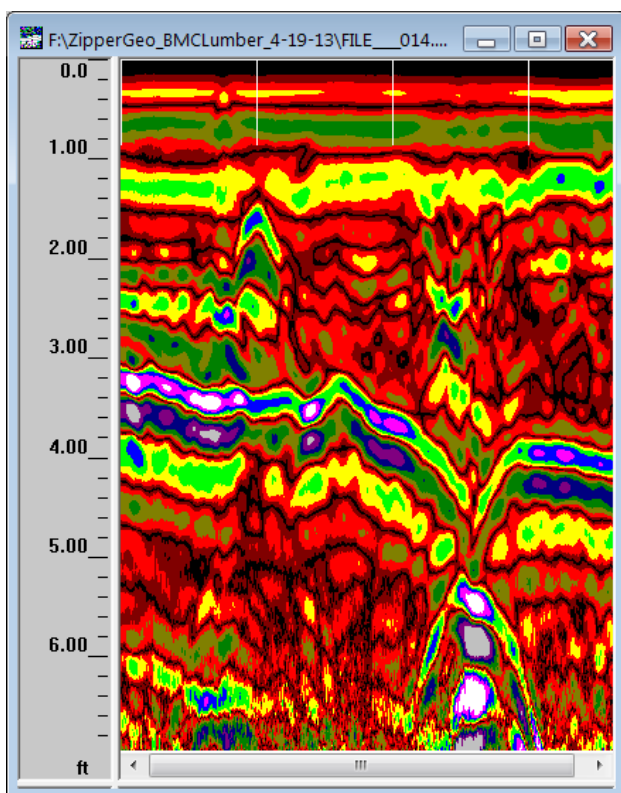
GPR Data; North of UST pit, W-E, unknown anomaly



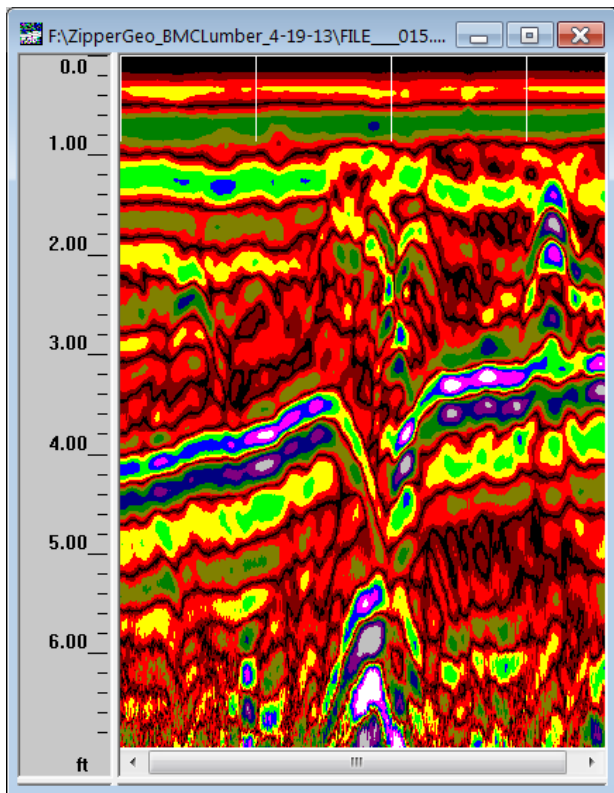
GPR Data; North of UST pit, E-W



GPR Data; North of UST pit, W-E



GPR Data; North of UST pit, E-W



GPR Data; North of UST pit, W-E

Appendix C

Exploration Logs

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA **GP1**
 Date Drilled: 4/25/2013 Drill Rig: Track Logged by: JPG

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist to wet, sandy GRAVEL, some silt. Moderate probe resistance. Slight hydrocarbon odor noted at 2 feet. (Fill)					
5	Dark brown, wet, SILT, some fine sand, trace fine roots. Easily probed. Moderate hydrocarbon odor noted. (Possible Relic Topsoil)	GP 1-1 I 6		PID@5'=660ppm	NT	TPH, BTEX, MTBE, LEAD
	Brown grading to gray, wet grading to saturated, silty fine SAND, trace clay. Easily probed. Moderate hydrocarbon odor noted to about 8 feet. (Alluvium)	GP 1-2 I 6	4/25/13		NT	TPH, BTEX, MTBE, LEAD
10	Gray, saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@9.5'=0ppm	NT	
	Light gray, saturated, SILT. Easily probed. No obvious hydrocarbon odor noted. (Possible Volcanic Ash)	GP 1-3 I 6		PID@12'=0ppm	NT	TPH, BTEX, MTBE, LEAD
15	Exploration completed at 15 feet . Groundwater observed at approximately 6 feet ATD. Well tag # BIC-221.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP1
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan	Drilling Company: Cascade Drilling	Bore Hole Dia.: 2-1/4"	GP2
Top Elevation: -	Drilling Method: Direct Push	Hammer Type: NA	
Date Drilled: 4/25/2013	Drill Rig: Track	Logged by: JPG	

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist to wet, sandy GRAVEL, some silt. Moderate probe resistance. Slight hydrocarbon odor noted at 2 feet. (Fill)					
	Dark brown, wet, SILT, some fine sand, trace fine roots. Easily probed. Slight hydrocarbon odor noted. (Possible Relic Topsoil)	GP 2-1 I 6		PID@5'=0ppm	NT	TPH, BTEX, MTBE, LEAD
5	Gray, saturated, silty fine SAND, trace clay to sand, some silt, trace clay. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)		▼ 4/25/13			
	Gray, saturated, clayey SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 2-2 I 6		PID@7'=0ppm	NT	TPH, BTEX, MTBE, LEAD
10	Gray, saturated, SAND, some silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Light gray, saturated, SILT, some wood. Easily probed. No obvious hydrocarbon odor noted. (Possible Volcanic Ash)					
15	Exploration completed at 15 feet . Groundwater observed at approximately 6 feet ATD.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP2
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA
 Date Drilled: 4/25/2013 Drill Rig: Track Logged by: JPG

GP3

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, wet to saturated, GRAVEL, some sand. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
-5	Gray, saturated, gravely SAND, some silt. Easily probed. Slight hydrocarbon odor noted to about 6 feet. (Alluvium)	GP 3-1 I 6	▼ 4/25/13	PID@5'=0ppm	NT	TPH, BTEX, MTBE, LEAD
				PID@8'=0ppm	NT	
10		GP 3-2 I 6				TPH, BTEX, MTBE, LEAD
	Gray, saturated, fine, sandy SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@13'=0ppm	NT	
15	Gray-brown, saturated, SILT, trace fine sand & wood. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Exploration completed at 15 feet . Groundwater observed at approximately 4 feet ATD.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP3
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan	Drilling Company: Cascade Drilling	Bore Hole Dia.: 2-1/4"	GP4
Top Elevation: -	Drilling Method: Direct Push	Hammer Type: NA	
Date Drilled: 4/25/2013	Drill Rig: Track	Logged by: JPG	

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	2-1/2 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND, some silt to silty, gravelly SAND. Moderate probe resistance. Slight hydrocarbon odor noted. (Fill)					
	Gray-brown, wet, SILT, some fine sand, trace fine roots. Easily probed. Moderate hydrocarbon odor noted. (Possible Relic Topsoil)		▼ 4/25/13			
5	Gray, wet grading to saturated, fine sandy SILT. Easily probed. Moderate hydrocarbon odor noted. (Alluvium)	GP 4-1 I 6		PID@5'=310ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, clayey SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
10	Gray, saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 4-2 I 6		PID@9'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Wood. No obvious hydrocarbon odor noted. (Alluvium)					
	Light gray, saturated, SILT, trace wood. Easily probed. No obvious hydrocarbon odor noted. (Possible Volcanic Ash)			PID@12'=0ppm	NT	
15	Exploration completed at 15 feet . Groundwater observed at approximately 5 feet ATD.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP4
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA
 Date Drilled: 4/25/2013 Drill Rig: Track Logged by: JPG

GP5

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist, silty, gravelly SAND. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
5	Gray-brown, wet, SILT, some fine sand, trace fine roots. Easily probed. Moderate hydrocarbon odor noted. (Possible Relic Topsoil)	GP 5-1 I 6	▼ 4/25/13	PID@5'=720ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, fine sandy SILT to silty fine SAND. Easily probed. Moderate hydrocarbon odor noted. (Alluvium)			PID@7'=95ppm	NT	
	Gray, saturated, clayey SILT to silty CLAY. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
10	Gray, saturated, SAND, some silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 5-2 I 6		PID@12'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Light gray, saturated, SILT, some wood. Easily probed. No obvious hydrocarbon odor noted. (Possible Volcanic Ash)					
15	Exploration completed at 15 feet. Groundwater observed at approximately 5 feet ATD					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.


BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP5
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA
 Date Drilled: 4/25/2013 Drill Rig: Track Logged by: JPG

GP6

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	4 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND, some silt. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
	Gray-brown, wet, clayey SILT, trace fine sand and roots. Easily probed. No obvious hydrocarbon odor noted. (Possible Relic Topsoil)					
5	Gray, saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 6-1	4/25/13	PID@4'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, clayey SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)				NT	
10	Gray, saturated, clayey SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 6-2		PID@10'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, clayey SILT. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Light gray, saturated, SILT. Easily probed. No obvious hydrocarbon odor noted. (Possible Volcanic Ash)					
15	Gray, saturated, well graded SAND, trace silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Exploration completed at 15 feet. Groundwater observed at approximately 4.5 feet ATD. Well tag 3 BIC-222.					
20						
25						







SAMPLE LEGEND

 Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

-  Clean Sand
-  Bentonite
-  Grout/Concrete
-  Screened Casing
-  Blank Casing
-  Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP6
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan
 Top Elevation: -
 Date Drilled: 4/25/2013
 Drilling Company: Cascade Drilling
 Drilling Method: Direct Push
 Drill Rig: Track
 Bore Hole Dia.: 2-1/4"
 Hammer Type: NA
 Logged by: JPG

GP7

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND to sandy GRAVEL, some silt. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
	Gray-brown, wet, clayey SILT, trace fine sand and roots. Easily probed. No obvious hydrocarbon odor noted. (Possible Relic Topsoil)	GP 7-1 I 6	▼ 4/25/13	PID@4'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@6'=0ppm	NT	
	Gray, saturated, SILT, some sand and clay. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@7.5'=0ppm	NT	
	Gray, saturated, sand, some silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Gray, saturated, clayey SILT to silty CLAY. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 7-2 I 6		PID@9'=0ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Interbedded, gray, saturated, silty SAND and fine to medium SAND, some silt. No obvious hydrocarbon odor noted. (Alluvium)			PID@12'=0ppm	NT	
15	Exploration completed at 15 feet. Groundwater observed at approximately 4.5 feet ATD. Well tag 3 BIC-223.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- ▣ Bentonite
- Grout/Concrete
- ▨ Screened Casing
- Blank Casing
- ▼ Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West
 2510 East Lake Samammish Parkway SE
 Issaquah, WA

Date: 4/29/2013 Project No.: 1099.22

Zipper Geo Associates
 19023 36th Ave. W, Suite D
 Lynnwood, WA

BORING LOG: GP7

Page 1 of 1

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA
 Date Drilled: 4/26/2013 Drill Rig: Track Logged by: JPG

GP8

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND to sandy GRAVEL, some silt. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
-5	Brown, wet, clayey SILT, trace fine sand and roots. Easily probed. Moderate hydrocarbon odor noted. (Possible Relic Topsoil)	GP 8-1 I 6	▼ 4/26/13	PID@4.5'=950ppm	NT	TPH, BTEX, MTBE, LEAD
	Gray, saturated, silty SAND to SAND, with silt. Easily probed. Slight hydrocarbon odor noted to depth of about 8 feet. (Alluvium)	GP 8-2 I 6		PID@7.5'=80ppm	NT	TPH, BTEX, MTBE, LEAD
10				PID@10'=0ppm	NT	
	Gray, saturated, fine sandy SILT, trace clay. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@13'=0ppm	NT	
15	Exploration completed at 15 feet. Groundwater observed at approximately 4.5 feet ATD. Well tag # BIC-224					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- ⊗ Bentonite
- Grout/Concrete
- ▬ Screened Casing
- Blank Casing
- ▼ Groundwater level at time of drilling (ATD) or on date of measurement. 11/2/12

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP8
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA
 Date Drilled: 4/26/2013 Drill Rig: Track Logged by: JPG

GP9

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	3 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND, some silt. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)					
	Gray-brown, wet, SILT, some clay, trace fine roots. Easily probed. No obvious hydrocarbon odor noted. (Possible Relic Topsoil)	GP 9-1 I 6	▼ 4/26/13	PID@4'=0ppm	NT	TPH, BTEX, MTBE, LEAD
5	Gray, saturated, silty fine SAND, trace clay. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@6'=0ppm	NT	
	Gray, saturated, SILT, some fine sand, trace clay. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
	Gray, saturated, SAND, with silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 9-2 I 6		PID@10'=0ppm	NT	TPH, BTEX, MTBE, LEAD
10				PID@12'=0ppm	NT	
15	Exploration completed at 15 feet. Groundwater observed at approximately 4 feet ATD.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP9
Page 1 of 1	

Boring Location: See Figure 2, Site and Exploration Plan Drilling Company: Cascade Drilling Bore Hole Dia.: 2-1/4"
 Top Elevation: - Drilling Method: Direct Push Hammer Type: NA **GP10**
 Date Drilled: 4/26/2013 Drill Rig: Track Logged by: JPG

Depth (ft)	SOIL DESCRIPTION	Sample Number SAMPLES Recovery	Ground Water	Field Head Space	Sheen	Laboratory Analysis
	<i>The stratification lines represent the approximate boundaries between soil types. The transition may be gradual. Refer to report text and appendices for additional information.</i>					
0	2 to 3 Inches of ASPHALT (Fill)					
	Gray-brown, moist, gravelly SAND, trace silt. Moderate probe resistance. No obvious hydrocarbon odor noted. (Fill)	GP 10-1 I 6		PID@2'=10ppm	NT	VOC
	Brown, wet, clayey SILT, trace gravel. Easily probed. No obvious hydrocarbon odor noted. (Possible Fill)					
	Gray, moist, gravelly SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@4'=4ppm	NT	VOC
	Brown, moist, clayey SILT, trace sand. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)	GP 10-2 I 6	▼ 4/26/13			
	Gray to gray-brown, wet grading to saturated, silty SAND. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)					
10	Gray, saturated, gravelly SAND, trace silt. Easily probed. No obvious hydrocarbon odor noted. (Alluvium)			PID@12'=0ppm	NT	
15	Exploration completed at 15 feet. Groundwater observed at approximately 7 feet ATD. Ambient air PID background reading approximately 4 ppm.					
20						
25						

SAMPLE LEGEND

I Retained portion of 2-inch direct push sample

NOTES

PID = Photoionization detector readings in parts/million
 NT = Not tested

GROUNDWATER LEGEND

- Clean Sand
- Bentonite
- Grout/Concrete
- Screened Casing
- Blank Casing
- Groundwater level at time of drilling (ATD) or on date of measurement.

BMC West 2510 East Lake Samammish Parkway SE Issaquah, WA	
Date: 4/29/2013	Project No.: 1099.22
Zipper Geo Associates 19023 36th Ave. W, Suite D Lynnwood, WA	BORING LOG: GP10
Page 1 of 1	

ZIPPER GEO ASSOCIATES, LLC

19023 36th Avenue West, Suite D, Lynnwood, Washington 98036

<u>Hand Auger Boring HA-1</u>		Project: BMC West Project No: J-1099.22 Date Drilled: 5/8/13		
Location: See Figure 1, Site And Exploration Plan Approximate Ground Elevation: NA				
Depth (ft)	Material Description	Sample	Field Head Space	Laboratory Testing
	0.4 feet of very loose, moist, dark brown, silty SAND, some sand, fine organic material, and roots. (Fill)	HA1-1@0.2'		TPH
1	Medium dense, gray QUARRY SPALLS with interstitial matrix of dark brown, moist, silty sand, some fine organic material. (Fill)			
2	Very loose, wet, mottled gray-brown, silty SAND, some gravel. (Fill)			
		HA1-2@2'		TPH
3	Very loose, wet grading to saturated at 2.7 feet, gray, sandy GRAVEL (Probable Fill)			
4	Hand auger completed at 3.2 feet. Groundwater observed at about 2.7 feet at time of exploration. Moderate to severe caving observed below 2.5 feet. No obvious hydrocarbon odor noted during exploration.			
5				
6				
7				
8				
9				

ZIPPER GEO ASSOCIATES, LLC

19023 36th Avenue West, Suite D, Lynnwood, Washington 98036

	<u>Hand Auger Boring HA-2</u>			
	Location: See Figure 1, Site And Exploration Plan Approximate Ground Elevation: NA	Project: BMC West Project No: J-1099.22 Date Drilled: 5/8/13		
Depth (ft)	Material Description	Sample	Field Head Space	Laboratory Testing
	0.1 feet grass sod. (Fill)			
1	Dense, moist, gray-brown, sandy GRAVEL, trace to some silt. (Fill)			
		HA2-1@1.3'		TPH, VOC, & Metals
2	Very loose, wet grading to saturate at 1.8 feet, 1-inch washed rock. (Fill)			
3	Hand auger completed at 2 feet. Groundwater observed at about 1.8 feet at time of exploration. Severe caving observed below 1.5 feet. No obvious hydrocarbon odor noted during exploration.			
4				
5				
6				
7				
8				
9				

ZIPPER GEO ASSOCIATES, LLC

19023 36th Avenue West, Suite D, Lynnwood, Washington 98036

<u>Hand Auger Boring HA-3</u>		Project: BMC West Project No: J-1099.22 Date Drilled: 5/8/13			
Location: See Figure 1, Site And Exploration Plan Approximate Ground Elevation: NA		Sample	Field Head Space	Laboratory Testing	
Depth (ft)	Material Description				
	0.1 feet grass sod. (Fill)				
1	Dense, wet, mottled gray-brown, sandy GRAVEL, some silt to silty, sandy GRAVEL. (Fill)	HA3-1@0.5'		TPH, VOC, & Metals	
2	Dense, gray-brown QUARRY SPALLS with interstitial matrix of mottled gray-brown, wet to saturated, silty, gravelly SAND. (Fill)	HA3-2@2'		TPH, VOC, & Metals	
3	Hand auger completed at 2.2 feet with refusal. Groundwater observed at about 2 feet at time of exploration. No obvious hydrocarbon odor noted during exploration.				
4					
5					
6					
7					
8					
9					

Appendix D

Analytical Laboratory Certificates



May 6, 2013

Mr. Jon Einarsen
Zipper Geo Associates
19023 - 36th Ave W., Suite D
Lynnwood, WA 98036-

Dear Mr. Einarsen,

On April 26th, 21 samples were received by our laboratory and assigned our laboratory project number EV13040174. The project was identified as your BMC. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: BMC
 CLIENT SAMPLE ID: GP 1-1

DATE: 5/6/2013
 ALS JOB#: EV13040174
 ALS SAMPLE#: -01
 DATE RECEIVED: 4/26/2013
 COLLECTION DATE: 4/25/2013 8:00:00 AM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	530	30	10	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	0.20	0.15	5	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.25	5	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	4.4	0.25	5	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	6.3	1.0	5	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	200	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	7.9	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT 10X Dilution	NWTPH-GX	8.77 GS2	04/30/2013	DLC
TFT 5X Dilution	EPA-8021	107	04/30/2013	DLC
C25	NWTPH-DX	92.8	04/29/2013	EBS

GS2 - Surrogate outside of control limits due to dilution.
 U - Analyte analyzed for but not detected at level above reporting limit.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline and weathered diesel.
 Gasoline range product results biased high due to semivolatile range product overlap.
 Diesel range product results biased high due to gasoline range product overlap.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-02
CLIENT SAMPLE ID	GP 1-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	39	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	0.40	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	0.83	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	3.9	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	98.1	04/29/2013	DLC
TFT	EPA-8021	98.8	04/29/2013	DLC
C25	NWTPH-DX	76.6	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains highly weathered gasoline.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-03
CLIENT SAMPLE ID	GP 1-3	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.6	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	80.5	04/29/2013	DLC
TFT	EPA-8021	79.7	04/29/2013	DLC
C25	NWTPH-DX	86.2	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-04
CLIENT SAMPLE ID	GP 2-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	36	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	0.11	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	5.4	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	85.1	04/29/2013	DLC
TFT	EPA-8021	86.1	04/29/2013	DLC
C25	NWTPH-DX	87.3	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains an unidentified gasoline range product.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-05
CLIENT SAMPLE ID	GP 2-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS ANALYSIS	
						DATE	BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.8	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS	
			DATE	BY
TFT	NWTPH-GX	83.1	04/29/2013	DLC
TFT	EPA-8021	89.1	04/29/2013	DLC
C25	NWTPH-DX	80.2	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-06
CLIENT SAMPLE ID	GP 3-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	29	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	50	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.2	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	74.0	04/29/2013	DLC
TFT	EPA-8021	79.5	04/29/2013	DLC
C25	NWTPH-DX	92.6	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel and lube oil.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-07
CLIENT SAMPLE ID	GP 3-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/29/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.7	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	80.4	04/29/2013	DLC
TFT	EPA-8021	79.8	04/29/2013	DLC
C25	NWTPH-DX	83.9	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-08
CLIENT SAMPLE ID	GP 4-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	1100	60	20	MG/KG	05/01/2013	DLC
Benzene	EPA-8021	U	0.30	10	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.50	10	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	7.7	0.50	10	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	8.2	2.0	10	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	70	45	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	6.6	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT 20X Dilution	NWTPH-GX	23.9 GS2	05/01/2013	DLC
TFT 10X Dilution	EPA-8021	40.7 GS2	04/30/2013	DLC
C25	NWTPH-DX	86.3	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
 GS2 - Surrogate outside of control limits due to dilution.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline.
 Diesel range product reporting limits raised due to volatile range product overlap.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-09
CLIENT SAMPLE ID	GP 4-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	4.5	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	4.3	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	82.9	04/30/2013	DLC
TFT	EPA-8021	83.2	04/30/2013	DLC
C25	NWTPH-DX	64.9	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains highly weathered gasoline.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-10
CLIENT SAMPLE ID	GP 5-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	2800	120	40	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	2.0	1.2	40	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	2.0	40	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	41	2.0	40	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	240	8.0	40	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	320	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	8.7	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT 40X Dilution	NWTPH-GX	12.2 GS2	04/30/2013	DLC
TFT 40X Dilution	EPA-8021	14.0 GS2	04/30/2013	DLC
C25	NWTPH-DX	79.6	04/29/2013	EBS

GS2 - Surrogate outside of control limits due to dilution.
 U - Analyte analyzed for but not detected at level above reporting limit.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline and diesel.
 Diesel range product results biased high due to gasoline range product overlap.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-11
CLIENT SAMPLE ID	GP 5-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	3.7	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	73.9	04/30/2013	DLC
TFT	EPA-8021	76.8	04/30/2013	DLC
C25	NWTPH-DX	82.7	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-12
CLIENT SAMPLE ID	GP 6-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS ANALYSIS	
						DATE	BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	43	25	1	MG/KG	05/01/2013	EBS
TPH-Oil Range	NWTPH-DX	250	50	1	MG/KG	05/01/2013	EBS
Lead	EPA-6020	2.0	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS	
			DATE	BY
TFT	NWTPH-GX	75.0	04/30/2013	DLC
TFT	EPA-8021	76.6	04/30/2013	DLC
C25	NWTPH-DX	85.2	05/01/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains weathered diesel and lube oil.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-13
CLIENT SAMPLE ID	GP 6-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.3	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	80.8	04/30/2013	DLC
TFT	EPA-8021	85.3	04/30/2013	DLC
C25	NWTPH-DX	84.7	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-14
CLIENT SAMPLE ID	GP 7-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	3.4	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	81.0	04/30/2013	DLC
TFT	EPA-8021	81.0	04/30/2013	DLC
C25	NWTPH-DX	91.4	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-15
CLIENT SAMPLE ID	GP 7-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/25/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	4.0	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	73.3	04/30/2013	DLC
TFT	EPA-8021	72.8	04/30/2013	DLC
C25	NWTPH-DX	86.7	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-16
CLIENT SAMPLE ID	GP 8-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	1900	60	20	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.60	20	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	1.0	20	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	19	1.0	20	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	72	4.0	20	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	85	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	6.7	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT 20X Dilution	NWTPH-GX	24.0	04/30/2013	DLC
TFT 20X Dilution	EPA-8021	25.4	04/30/2013	DLC
C25	NWTPH-DX	85.4	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline and diesel.
 Diesel range product results biased high due to gasoline range product overlap.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-17
CLIENT SAMPLE ID	GP 8-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	3.8	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	0.030	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.4	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	91.4	04/30/2013	DLC
TFT	EPA-8021	93.3	04/30/2013	DLC
C25	NWTPH-DX	84.0	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains highly weathered gasoline.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-18
CLIENT SAMPLE ID	GP 9-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	3.1	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	73.7	04/30/2013	DLC
TFT	EPA-8021	76.7	04/30/2013	DLC
C25	NWTPH-DX	89.2	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-19
CLIENT SAMPLE ID	GP 9-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/30/2013	DLC
Benzene	EPA-8021	U	0.030	1	MG/KG	04/30/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/30/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/30/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS
Lead	EPA-6020	2.5	0.50	5	MG/KG	04/30/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	76.4	04/30/2013	DLC
TFT	EPA-8021	78.5	04/30/2013	DLC
C25	NWTPH-DX	81.0	04/29/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-20
CLIENT SAMPLE ID	GP 10-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/02/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Chloroform	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/02/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/02/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-20
CLIENT SAMPLE ID	GP 10-1	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
m,p-Xylene	EPA-8260	110	20	1	UG/KG	05/02/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
o-Xylene	EPA-8260	24	10	1	UG/KG	05/02/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP

SURROGATE	METHOD	%REC	ANALYSIS	ANALYSIS
			DATE	BY
1,2-Dichloroethane-d4	EPA-8260	104	05/02/2013	GAP
Toluene-d8	EPA-8260	96.5	05/02/2013	GAP
4-Bromofluorobenzene	EPA-8260	112	05/02/2013	GAP

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-21
CLIENT SAMPLE ID	GP 10-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/03/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Chloroform	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/03/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
Toluene	EPA-8260	26	10	1	UG/KG	05/03/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/03/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13040174
CLIENT PROJECT:	BMC	ALS SAMPLE#:	-21
CLIENT SAMPLE ID	GP 10-2	DATE RECEIVED:	4/26/2013
		COLLECTION DATE:	4/26/2013 8:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
m,p-Xylene	EPA-8260	29	20	1	UG/KG	05/03/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/03/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/03/2013	GAP

SURROGATE	METHOD	%REC	ANALYSIS	ANALYSIS
			DATE	BY
1,2-Dichloroethane-d4	EPA-8260	106	05/03/2013	GAP
Toluene-d8	EPA-8260	96.0	05/03/2013	GAP
4-Bromofluorobenzene	EPA-8260	104	05/03/2013	GAP

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS SDG#:	EV13040174
CLIENT PROJECT:	BMC	WDOE ACCREDITATION:	C601

LABORATORY BLANK RESULTS

MBG-042913S - Batch 3690 - Soil by NWTPH-GX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	04/29/2013	DLC

MB-042913S - Batch 3690 - Soil by EPA-8021

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Benzene	EPA-8021	U	0.030	1	MG/KG	04/29/2013	DLC
Toluene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Ethylbenzene	EPA-8021	U	0.050	1	MG/KG	04/29/2013	DLC
Xylenes	EPA-8021	U	0.20	1	MG/KG	04/29/2013	DLC

MB-042913S - Batch 3688 - Soil by NWTPH-DX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	04/29/2013	EBS
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	04/29/2013	EBS

MB-050213S - Batch 3699 - Soil by EPA-8260

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/02/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: BMC

DATE: 5/6/2013
 ALS SDG#: EV13040174
 WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-050213S - Batch 3699 - Soil by EPA-8260

Chloroform	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/02/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/02/2013	GAP
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/02/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP

CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-

DATE: 5/6/2013
ALS SDG#: EV13040174
WDOE ACCREDITATION: C601

CLIENT CONTACT: Jon Einarsen
CLIENT PROJECT: BMC

LABORATORY BLANK RESULTS
MB-050213S - Batch 3699 - Soil by EPA-8260

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/02/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/02/2013	GAP

MB-042913S - Batch 3702 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Lead	EPA-6020	U	0.10	1	MG/KG	04/30/2013	RAL



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/6/2013
CLIENT CONTACT:	Jon Einarsen	ALS SDG#:	EV13040174
CLIENT PROJECT:	BMC	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 3690 - Soil by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	99.1			04/29/2013	DLC
TPH-Volatile Range - BSD	NWTPH-GX	102	3		04/29/2013	DLC

ALS Test Batch ID: 3690 - Soil by EPA-8021

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Benzene - BS	EPA-8021	90.8			04/29/2013	DLC
Benzene - BSD	EPA-8021	90.1	1		04/29/2013	DLC
Toluene - BS	EPA-8021	93.0			04/29/2013	DLC
Toluene - BSD	EPA-8021	92.4	1		04/29/2013	DLC
Ethylbenzene - BS	EPA-8021	91.0			04/29/2013	DLC
Ethylbenzene - BSD	EPA-8021	90.3	1		04/29/2013	DLC
Xylenes - BS	EPA-8021	93.2			04/29/2013	DLC
Xylenes - BSD	EPA-8021	92.5	1		04/29/2013	DLC

ALS Test Batch ID: 3688 - Soil by NWTPH-DX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	86.0			04/29/2013	EBS
TPH-Diesel Range - BSD	NWTPH-DX	88.5	3		04/29/2013	EBS

ALS Test Batch ID: 3699 - Soil by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
1,1-Dichloroethene - BS	EPA-8260	109			05/02/2013	GAP
1,1-Dichloroethene - BSD	EPA-8260	108	1		05/02/2013	GAP
Benzene - BS	EPA-8260	123			05/02/2013	GAP
Benzene - BSD	EPA-8260	120	3		05/02/2013	GAP
Trichloroethene - BS	EPA-8260	120			05/02/2013	GAP
Trichloroethene - BSD	EPA-8260	117	2		05/02/2013	GAP
Toluene - BS	EPA-8260	121			05/02/2013	GAP
Toluene - BSD	EPA-8260	115	5		05/02/2013	GAP
Chlorobenzene - BS	EPA-8260	101			05/02/2013	GAP
Chlorobenzene - BSD	EPA-8260	104	2		05/02/2013	GAP

CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
19023 - 36th Ave W., Suite D
Lynnwood, WA 98036-
DATE: 5/6/2013
ALS SDG#: EV13040174
WDOE ACCREDITATION: C601

CLIENT CONTACT: Jon Einarsen
CLIENT PROJECT: BMC

LABORATORY CONTROL SAMPLE RESULTS**ALS Test Batch ID: 3702 - Soil by EPA-6020**

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Lead - BS	EPA-6020	99.5			04/30/2013	RAL
Lead - BSD	EPA-6020	100	0		04/30/2013	RAL

APPROVED BY



Laboratory Director



Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
 http://www.alsglobal.com

Laboratory Analysis Request

EV13040174

Date 4/26/13 Page 1 Of 2

ANALYSIS REQUESTED				OTHER (Specify)																
PROJECT ID:	REPORT TO COMPANY:	PROJECT MANAGER:	ADDRESS:	MTBE by EPA-8021 <input type="checkbox"/>	Halogenated Volatiles by EPA 8260 <input type="checkbox"/>	Volatile Organic Compounds by EPA 8260 <input type="checkbox"/>	EDB / EDC by EPA 8260 SIM (water) <input type="checkbox"/>	EDB / EDC by EPA 8260 (soil) <input type="checkbox"/>	Semi-volatile Organic Compounds by EPA 8270 <input type="checkbox"/>	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>	PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082 <input type="checkbox"/>	Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> P1 Pol <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?				
SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 <input type="checkbox"/>	Halogenated Volatiles by EPA 8260 <input type="checkbox"/>	Volatile Organic Compounds by EPA 8260 <input type="checkbox"/>	EDB / EDC by EPA 8260 SIM (water) <input type="checkbox"/>	EDB / EDC by EPA 8260 (soil) <input type="checkbox"/>	Semi-volatile Organic Compounds by EPA 8270 <input type="checkbox"/>	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM <input type="checkbox"/>	PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082 <input type="checkbox"/>	Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> P1 Pol <input type="checkbox"/> TAL <input type="checkbox"/>	Metals Other (Specify)	TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/>	
1. GP 1-1	4/25/13		WATER	1	X	X	X													
2. GP 1-2			SOIL	2																
3. GP 1-3				3																
4. GP 2-1				4																
5. GP 2-2				5																
6. GP 3-1				6																
7. GP 3-2				7																
8. GP 4-1				8																
9. GP 4-2				9																
10. GP 5-1				10																

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

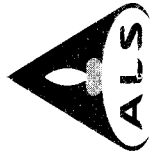
1. Relinquished By: Jon Einarsen / ZGA / 4-26-13 / 15:30
 Received By: Shawn Polun / ACS / 4/26/13 / 15:30

2. Relinquished By: _____
 Received By: _____

TURNAROUND REQUESTED in Business Days*
 Organic, Metals & Inorganic Analysis
 Standard 5 3 2 1 SAME DAY
 Fuels & Hydrocarbon Analysis
 Standard 3 1 SAME DAY

Specify: _____
 OTHER: _____

* Turnaround request less than standard may incur Rush Charges



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
 http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EV13040174

Date 4/26/13 Page 2 of 2

PROJECT ID: **BMC**
 REPORT TO COMPANY: **ZGA**
 PROJECT MANAGER: **Jon Einarsen**
 ADDRESS: _____
 PHONE: _____ FAX: _____
 P.O. #: **1099.22** E-MAIL: _____
 INVOICE TO COMPANY: **ZGA**
 ATTENTION: **Jon Einarsen**
 ADDRESS: _____

ANALYSIS REQUESTED		OTHER (Specify)	
<input type="checkbox"/> MTBE by EPA-8021 <input type="checkbox"/> EPA-8260	<input type="checkbox"/> Halogenated Volatiles by EPA 8260	<input type="checkbox"/> Volatile Organic Compounds by EPA 8260	<input type="checkbox"/> EDB / EDC by EPA 8260 SIM (water)
<input type="checkbox"/> BTEX by EPA-8021	<input type="checkbox"/> EDB / EDC by EPA 8260 (soil)	<input type="checkbox"/> Semivolatile Organic Compounds by EPA 8270	<input type="checkbox"/> Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM
<input type="checkbox"/> NWTPH-GX	<input type="checkbox"/> PCB <input type="checkbox"/> Pesticides <input type="checkbox"/> by EPA 8081/8082	<input type="checkbox"/> Metals-MTCA-5 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> Pb <input type="checkbox"/> TAL	<input type="checkbox"/> Metals Other (Specify)
<input type="checkbox"/> NWTPH-DX	<input type="checkbox"/> TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs		
<input type="checkbox"/> NWTPH-HCID			

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	RECEIVED IN GOOD CONDITION?
1. GP 5-2	4/25/13		soil	11	
2. GP 6-1				12	
3. GP 6-2				13	
4. GP 7-1				14	
5. GP 7-2				15	
6. GP 8-1	4/26/13			16	
7. GP 8-2				17	
8. GP 9-1				18	
9. GP 9-2				19	
10. GP 10-1				20	
GP 10-2				21	

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):
 1. Relinquished By: Shawn Robinson / ZGA / 4-26-13 / 15:30
 Received By: Shawn Robinson / ALS / 4/26/13 / 15:30

TURNAROUND REQUESTED in Business Days*
 Organic, Metals & Inorganic Analysis
 1 2 3 5 10

Specify: _____

2. Relinquished By: _____
 Received By: _____

Fuels & Hydrocarbon Analysis
 1 2 3 5 10

* Turnaround request less than standard may incur Rush Charges



May 16, 2013

Mr. Jon Einarsen
Zipper Geo Associates
19023 - 36th Ave W., Suite D
Lynnwood, WA 98036-

Dear Mr. Einarsen,

On May 9th, 5 samples were received by our laboratory and assigned our laboratory project number EV13050055. The project was identified as your 1099.22. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-01
CLIENT SAMPLE ID	HA1-1	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 11:30:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	120	5	MG/KG	05/13/2013	DLC
TPH-Oil Range	NWTPH-DX	2100	250	5	MG/KG	05/13/2013	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25 5X Dilution	NWTPH-DX	91.2	05/13/2013	DLC

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains lube oil.

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-02
CLIENT SAMPLE ID	HA1-2	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 11:30:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	05/11/2013	DLC
TPH-Oil Range	NWTPH-DX	150	50	1	MG/KG	05/11/2013	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
C25	NWTPH-DX	91.4	05/11/2013	DLC

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains lube oil.



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID HA2-1

DATE: 5/16/2013
 ALS JOB#: EV13050055
 ALS SAMPLE#: -03
 DATE RECEIVED: 5/9/2013
 COLLECTION DATE: 5/8/2013 2:00:00 PM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	05/10/2013	DLC
TPH-Diesel Range	NWTPH-DX	50	25	1	MG/KG	05/11/2013	DLC
TPH-Oil Range	NWTPH-DX	U	50	1	MG/KG	05/11/2013	DLC
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID HA2-1

DATE: 5/16/2013
 ALS JOB#: EV13050055
 ALS SAMPLE#: -03
 DATE RECEIVED: 5/9/2013
 COLLECTION DATE: 5/8/2013 2:00:00 PM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS ANALYSIS	
						DATE	BY
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Mercury	EPA-7471	U	0.020	1	MG/KG	05/10/2013	RAL
Cadmium	EPA-6020	U	0.50	5	MG/KG	05/13/2013	RAL
Chromium	EPA-6020	21	0.50	5	MG/KG	05/13/2013	RAL
Lead	EPA-6020	3.5	0.50	5	MG/KG	05/13/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS	
			DATE	BY

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-03
CLIENT SAMPLE ID	HA2-1	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 2:00:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

SURROGATE	METHOD	%REC	ANALYSIS	ANALYSIS
			DATE	BY
TFT	NWTPH-GX	93.9	05/10/2013	DLC
C25	NWTPH-DX	92.9	05/11/2013	DLC
1,2-Dichloroethane-d4	EPA-8260	117	05/14/2013	GAP
Toluene-d8	EPA-8260	95.1	05/14/2013	GAP
4-Bromofluorobenzene	EPA-8260	105	05/14/2013	GAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains highly weathered diesel.



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID HA3-1

DATE: 5/16/2013
 ALS JOB#: EV13050055
 ALS SAMPLE#: -04
 DATE RECEIVED: 5/9/2013
 COLLECTION DATE: 5/8/2013 3:00:00 PM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	05/10/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	05/10/2013	DLC
TPH-Oil Range	NWTPH-DX	53	50	1	MG/KG	05/10/2013	DLC
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID HA3-1

DATE: 5/16/2013
 ALS JOB#: EV13050055
 ALS SAMPLE#: -04
 DATE RECEIVED: 5/9/2013
 COLLECTION DATE: 5/8/2013 3:00:00 PM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Mercury	EPA-7471	0.026	0.020	1	MG/KG	05/10/2013	RAL
Cadmium	EPA-6020	U	0.50	5	MG/KG	05/13/2013	RAL
Chromium	EPA-6020	21	0.50	5	MG/KG	05/13/2013	RAL
Lead	EPA-6020	8.9	0.50	5	MG/KG	05/13/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS	ANALYSIS
			DATE	BY

CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-04
CLIENT SAMPLE ID	HA3-1	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 3:00:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

SURROGATE	METHOD	%REC	ANALYSIS ANALYSIS	
			DATE	BY
TFT	NWTPH-GX	75.5	05/10/2013	DLC
C25	NWTPH-DX	97.5	05/10/2013	DLC
1,2-Dichloroethane-d4	EPA-8260	114	05/14/2013	GAP
Toluene-d8	EPA-8260	97.8	05/14/2013	GAP
4-Bromofluorobenzene	EPA-8260	109	05/14/2013	GAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains lube oil.



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID HA3-2

DATE: 5/16/2013
 ALS JOB#: EV13050055
 ALS SAMPLE#: -05
 DATE RECEIVED: 5/9/2013
 COLLECTION DATE: 5/8/2013 3:00:00 PM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	05/10/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	25	1	MG/KG	05/10/2013	DLC
TPH-Oil Range	NWTPH-DX	76	50	1	MG/KG	05/10/2013	DLC
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Acetone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Butanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Chloroform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Benzene	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-05
CLIENT SAMPLE ID	HA3-2	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 3:00:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Mercury	EPA-7471	0.035	0.020	1	MG/KG	05/10/2013	RAL
Cadmium	EPA-6020	U	0.50	5	MG/KG	05/13/2013	RAL
Chromium	EPA-6020	22	0.55	5	MG/KG	05/13/2013	RAL
Lead	EPA-6020	9.7	0.50	5	MG/KG	05/13/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
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CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050055
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-05
CLIENT SAMPLE ID	HA3-2	DATE RECEIVED:	5/9/2013
		COLLECTION DATE:	5/8/2013 3:00:00 PM
		WDOE ACCREDITATION:	C601

DATA RESULTS

SURROGATE	METHOD	%REC	ANALYSIS	ANALYSIS
			DATE	BY
TFT	NWTPH-GX	75.4	05/10/2013	DLC
C25	NWTPH-DX	94.9	05/10/2013	DLC
1,2-Dichloroethane-d4	EPA-8260	109	05/14/2013	GAP
Toluene-d8	EPA-8260	101	05/14/2013	GAP
4-Bromofluorobenzene	EPA-8260	116	05/14/2013	GAP

U - Analyte analyzed for but not detected at level above reporting limit.
Chromatogram indicates that it is likely that sample contains lube oil.



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
19023 - 36th Ave W., Suite D
Lynnwood, WA 98036-
CLIENT CONTACT: Jon Einarsen
CLIENT PROJECT: 1099.22

DATE: 5/16/2013
ALS SDG#: EV13050055
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-051413S - Batch 3739 - Soil by EPA-8260

Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
Toluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/14/2013	GAP
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/14/2013	GAP
Styrene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
o-Xylene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromoform	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,3 Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/14/2013	GAP
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
Naphthalene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/14/2013	GAP



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates DATE: 5/16/2013
19023 - 36th Ave W., Suite D ALS SDG#: EV13050055
Lynnwood, WA 98036 WDOE ACCREDITATION: C601
CLIENT CONTACT: Jon Einarsen
CLIENT PROJECT: 1099.22

LABORATORY BLANK RESULTS

MBLK-5102013 - Batch R81372 - Soil by EPA-7471

Table with 9 columns: ANALYTE, METHOD, RESULTS, REPORTING LIMITS, DILUTION FACTOR, UNITS, ANALYSIS DATE, ANALYSIS BY. Row 1: Mercury, EPA-7471, U, 0.020, 1, MG/KG, 05/10/2013, RAL

MB-051013S - Batch 3726 - Soil by EPA-6020

Table with 9 columns: ANALYTE, METHOD, RESULTS, REPORTING LIMITS, DILUTION FACTOR, UNITS, ANALYSIS DATE, ANALYSIS BY. Rows: Cadmium, Chromium, Lead



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/16/2013
CLIENT CONTACT:	Jon Einarsen	ALS SDG#:	EV13050055
CLIENT PROJECT:	1099.22	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 3729 - Soil by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	75.7			05/10/2013	DLC
TPH-Volatile Range - BSD	NWTPH-GX	73.6	3		05/10/2013	DLC

ALS Test Batch ID: 3722 - Soil by NWTPH-DX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	95.9			05/10/2013	DLC
TPH-Diesel Range - BSD	NWTPH-DX	99.6	4		05/10/2013	DLC

ALS Test Batch ID: 3739 - Soil by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
1,1-Dichloroethene - BS	EPA-8260	108			05/14/2013	GAP
1,1-Dichloroethene - BSD	EPA-8260	111	2		05/14/2013	GAP
Benzene - BS	EPA-8260	108			05/14/2013	GAP
Benzene - BSD	EPA-8260	106	2		05/14/2013	GAP
Trichloroethene - BS	EPA-8260	106			05/14/2013	GAP
Trichloroethene - BSD	EPA-8260	104	2		05/14/2013	GAP
Toluene - BS	EPA-8260	102			05/14/2013	GAP
Toluene - BSD	EPA-8260	96.4	6		05/14/2013	GAP
Chlorobenzene - BS	EPA-8260	91.3			05/14/2013	GAP
Chlorobenzene - BSD	EPA-8260	90.7	1		05/14/2013	GAP

ALS Test Batch ID: R81372 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	107			05/10/2013	RAL
Mercury - BSD	EPA-7471	108	1		05/10/2013	RAL

ALS Test Batch ID: 3726 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Cadmium - BS	EPA-6020	105			05/13/2013	RAL
Cadmium - BSD	EPA-6020	104	2		05/13/2013	RAL
Chromium - BS	EPA-6020	104			05/13/2013	RAL



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
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Chain of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EV13050055

Date _____ Page _____ Of _____

PROJECT ID: 1099.22	ANALYSIS REQUESTED				OTHER (Specify)											
	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semi-volatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM	PCB Pesticides by EPA 8081/8082	Metals-MTCA-5 RCRA-8	Metals Other (Specify)	TCLP-Metals VOA Semi-Vol Pest Herbs	
1. HAI-1	✓															Cadmium, Chromium, Lead, and mercury using EPA Method 6020/7471
2. HAI-2	✓															
3. HA2-1	✓	✓					✓									
4. HA3-1	✓	✓					✓									
5. HA3-2	✓	✓					✓									
6.																
7.																
8.																
9.																
10.																

REPORT TO COMPANY: zipper geo Associates
 PROJECT MANAGER: Jon Einarsen
 ADDRESS: 19023 36th Ave W, Suite D
 Lynnwood, WA 98036
 PHONE: 425-582-9928 FAX: 425-582-9930
 P.O. #: 1099.22 E-MAIL: jein@zippergeo.com
 INVOICE TO COMPANY: Zipper Geo Associates
 ATTENTION: Mrs. Jon Einarsen
 ADDRESS: same as above

SAMPLE I.D.	DATE	TIME	TYPE	LAB#
1. HAI-1	5-8-13	11:30 AM	soil	1
2. HAI-2	5-8-13	11:30 AM	soil	2
3. HA2-1	5-8-13	2 pm	soil	3
4. HA3-1	5-8-13	3 pm	soil	4
5. HA3-2	5-8-13	3 pm	soil	5
6.				
7.				
8.				
9.				
10.				

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Jon P. Boyer 5-9-13 2:10 pm
 Received By: Jon P. Boyer 5-9-13 2:10 PM ALS

2. Relinquished By: _____
 Received By: _____

TURNAROUND REQUESTED in Business Days*
 OTHER: _____

Specify: _____

Organic, Metals & Inorganic Analysis
 1 2 3 4 5 6 7 8 9 10

Fuels & Hydrocarbon Analysis
 1 2 3 4 5 6 7 8 9 10

* Turnaround request less than standard may incur Rush Charges



May 31, 2013

Mr. Jon Einarsen
Zipper Geo Associates
19023 - 36th Ave W., Suite D
Lynnwood, WA 98036-

Dear Mr. Einarsen,

On May 24th, 4 samples were received by our laboratory and assigned our laboratory project number EV13050142. The project was identified as your 1099.22. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rick Bagan
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22
 CLIENT SAMPLE ID MW-1

DATE: 5/31/2013
 ALS JOB#: EV13050142
 ALS SAMPLE#: -01
 DATE RECEIVED: 5/24/2013
 COLLECTION DATE: 5/24/2013 10:05:00 AM
 WDOE ACCREDITATION: C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	1000	50	1	UG/L	05/24/2013	DLC
Methyl T-Butyl Ether	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
Benzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Toluene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Ethylbenzene	EPA-8021	24	1.0	1	UG/L	05/24/2013	DLC
Xylenes	EPA-8021	38	3.0	1	UG/L	05/24/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	05/28/2013	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	05/28/2013	EBS
Lead	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL
Lead (Dissolved)	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	113	05/24/2013	DLC
TFT	EPA-8021	130	05/24/2013	DLC
C25	NWTPH-DX	85.4	05/28/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/31/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050142
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-02
CLIENT SAMPLE ID	MW-2	DATE RECEIVED:	5/24/2013
		COLLECTION DATE:	5/24/2013 11:00:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	50	1	UG/L	05/24/2013	DLC
Methyl T-Butyl Ether	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
Benzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Toluene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Ethylbenzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Xylenes	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	05/28/2013	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	05/28/2013	EBS
Lead	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL
Lead (Dissolved)	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	89.8	05/24/2013	DLC
TFT	EPA-8021	107	05/24/2013	DLC
C25	NWTPH-DX	87.5	05/28/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/31/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050142
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-03
CLIENT SAMPLE ID	MW-3	DATE RECEIVED:	5/24/2013
		COLLECTION DATE:	5/24/2013 8:25:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	50	1	UG/L	05/24/2013	DLC
Methyl T-Butyl Ether	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
Benzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Toluene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Ethylbenzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Xylenes	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	05/28/2013	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	05/28/2013	EBS
Lead	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL
Lead (Dissolved)	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	89.8	05/24/2013	DLC
TFT	EPA-8021	104	05/24/2013	DLC
C25	NWTPH-DX	87.2	05/28/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	Zipper Geo Associates 19023 - 36th Ave W., Suite D Lynnwood, WA 98036-	DATE:	5/31/2013
CLIENT CONTACT:	Jon Einarsen	ALS JOB#:	EV13050142
CLIENT PROJECT:	1099.22	ALS SAMPLE#:	-04
CLIENT SAMPLE ID	MW-4	DATE RECEIVED:	5/24/2013
		COLLECTION DATE:	5/24/2013 9:15:00 AM
		WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	2400	250	5	UG/L	05/28/2013	DLC
Methyl T-Butyl Ether	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
Benzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Toluene	EPA-8021	1.1	1.0	1	UG/L	05/24/2013	DLC
Ethylbenzene	EPA-8021	69	1.0	1	UG/L	05/24/2013	DLC
Xylenes	EPA-8021	200	3.0	1	UG/L	05/24/2013	DLC
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	05/28/2013	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	05/28/2013	EBS
Lead	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL
Lead (Dissolved)	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT 5X Dilution	NWTPH-GX	98.4	05/28/2013	DLC
TFT	EPA-8021	155 GS3	05/24/2013	DLC
C25	NWTPH-DX	82.7	05/28/2013	EBS

U - Analyte analyzed for but not detected at level above reporting limit.
 GS3 - Surrogate outside of control limits due to coeluting compounds.
 Chromatogram indicates that it is likely that sample contains highly weathered gasoline.

CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-

DATE: 5/31/2013
ALS SDG#: EV13050142
WDOE ACCREDITATION: C601

CLIENT CONTACT: Jon Einarsen
CLIENT PROJECT: 1099.22

LABORATORY BLANK RESULTS
MBG-052413W - Batch 3769 - Water by NWTPH-GX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	50	1	UG/L	05/24/2013	DLC

MB-052413W - Batch 3769 - Water by EPA-8021

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Methyl T-Butyl Ether	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC
Benzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Toluene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Ethylbenzene	EPA-8021	U	1.0	1	UG/L	05/24/2013	DLC
Xylenes	EPA-8021	U	3.0	1	UG/L	05/24/2013	DLC

MB-052813W - Batch 3773 - Water by NWTPH-DX

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	130	1	UG/L	05/28/2013	EBS
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	05/28/2013	EBS

MB-052813W - Batch 3771 - Water by EPA-200.8

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Lead	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL

MB-052813W - Batch 3772 - Water by EPA-200.8

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Lead (Dissolved)	EPA-200.8	U	1.0	1	UG/L	05/29/2013	RAL



CERTIFICATE OF ANALYSIS

CLIENT: Zipper Geo Associates
 19023 - 36th Ave W., Suite D
 Lynnwood, WA 98036-
 CLIENT CONTACT: Jon Einarsen
 CLIENT PROJECT: 1099.22

DATE: 5/31/2013
 ALS SDG#: EV13050142
 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 3769 - Water by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	83.9			05/24/2013	DLC
TPH-Volatile Range - BSD	NWTPH-GX	77.1	8		05/24/2013	DLC

ALS Test Batch ID: 3769 - Water by EPA-8021

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Methyl T-Butyl Ether - BS	EPA-8021	104			05/24/2013	DLC
Methyl T-Butyl Ether - BSD	EPA-8021	111	6		05/24/2013	DLC
Benzene - BS	EPA-8021	107			05/24/2013	DLC
Benzene - BSD	EPA-8021	112	5		05/24/2013	DLC
Toluene - BS	EPA-8021	105			05/24/2013	DLC
Toluene - BSD	EPA-8021	110	4		05/24/2013	DLC
Ethylbenzene - BS	EPA-8021	102			05/24/2013	DLC
Ethylbenzene - BSD	EPA-8021	107	5		05/24/2013	DLC
Xylenes - BS	EPA-8021	104			05/24/2013	DLC
Xylenes - BSD	EPA-8021	110	6		05/24/2013	DLC

ALS Test Batch ID: 3773 - Water by NWTPH-DX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	89.1			05/28/2013	EBS
TPH-Diesel Range - BSD	NWTPH-DX	84.6	5		05/28/2013	EBS

ALS Test Batch ID: 3771 - Water by EPA-200.8

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Lead - BS	EPA-200.8	92.0			05/29/2013	RAL
Lead - BSD	EPA-200.8	93.7	2		05/29/2013	RAL

ALS Test Batch ID: 3772 - Water by EPA-200.8

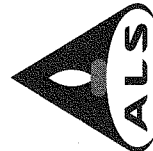
SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	ANALYSIS DATE	ANALYSIS BY
Lead (Dissolved) - BS	EPA-200.8	92.0			05/29/2013	RAL
Lead (Dissolved) - BSD	EPA-200.8	93.7	2		05/29/2013	RAL

CERTIFICATE OF ANALYSIS

APPROVED BY



Laboratory Director



ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
<http://www.alsglobal.com>

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EV13050142

Date _____ Page _____ Of _____

PROJECT INFORMATION				ANALYSIS REQUESTED												OTHER (Specify)		RECEIVED IN GOOD CONDITION?			
PROJECT ID:	REPORT TO COMPANY:	PROJECT MANAGER:	ADDRESS:	MTBE by EPA-8021	BTEX by EPA-8021	NWTPH-GX	NWTPH-DX	NWTPH-HCID	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semi-volatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM	PCB Pesticides by EPA 8081/8082	Metals-MTCA-5 RCR-8 TAL	Metals Other (Specify)	TCLP-Metals VOA Semi-Vol Pest Herbs	NUMBER OF CONTAINERS		
1099.22	Zipper Geo Associates	Jon Einerson	19023-36th Ave W, Suite D Lynnwood, WA 98036	X	X	X	X														
				X	X	X	X														
				X	X	X	X														
				X	X	X	X														

Total a dissolved lead using EPA 200.8 not field filtered

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: *Jon P. Einerson* 5-24-13 1:40 pm
 Received By: *Shawn Robinson ALS* 5/24/13 1:40

2. Relinquished By: _____

Received By: _____

TURNAROUND REQUESTED in Business Days*
 Organic, Metals & Inorganic Analysis
 OTHER: _____

Specify: _____

Standard

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 SAME DAY

* Turnaround request less than standard may incur Rush Charges