DLH Environmental Consulting

November 21, 2013

Vanessa Borden
3841 E. Agate Road
Shelton, WA 98584

RE: Final Cleanup Report
3841 E. Agate Road
Shelton, WA 98584

Ms. Borden,

Enclosed is the report documenting the cleanup of impacted soil at the subject site identified as the Agate Store located at 3841 E. Agate Road in Shelton, Washington.

Hydrocarbon impacted soil was confirmed associated with a former UST system. The impacted soil was found adjacent to an old removed UST and more importantly along old product lines and in the vicinity of an old pump.

Based on site conditions it appears that the contamination was likely due to a leaking pump and leaking product lines. This was indicated when a noticeable sheen and odor of the soils was encountered when an old product line was uncovered (leading to the old tank) and due to significant impacted soils underneath the location of an old pump. According to your information supplied by the previous owner, the UST was removed in 1980's. It is unknown when the pump was removed. As a result approximately 40 tons of impacted soil was removed from the site. The soil was disposed of at the Olympic View Transfer facility in Bremerton, Washington. Two of the three disposal receipts are located in Appendix C;

Water was noticed entering the excavation from underneath the road bed at approximately 2-3 feet below ground level. One previous boring had been developed into a temporary water well to establish water conditions at the site. Based on the data from the temporary well, no hydrocarbon materials were detected in the water sample. However, since water entering the excavation would potentially be in contact with impacted soil, four containers of Oxygen Release Compound (ORC) were placed in the excavations. Each ORC container holds 5 gallons of compound that was mixed with water and poured into the excavations at approximately 3-4 feet below ground level, adjacent to the road. After the ORC was placed in the excavations, they were backfilled with clean material.

VCP Forms have been completed and have been sent to the WDOE along with a copy of this report.

If you have any questions, please contact me at 206-632-3123.

Sincerely,

DLH Environmental Consulting
Donna Hewitt L.G.

Cc: Washington State Department of Ecology Southwest Regional Office
Enclosures: Original Report and 2 report copies, invoice to follow

FINAL CLEANUP REPORT

AGATE STORE
3841 E AGATE ROAD
SHELTON, WASHINGTON 98584

SUBMITTED TO:

VANESSA BORDEN
3841 E AGATE ROAD
SHELTON, WASHINGTON 98584

PREPARED BY:

Donna Hewitt L.G.

DLH ENVIRONMENTAL CONSULTING
2400 NW 80TH STREET
PMB 114
SEATTLE, WASHINGTON 98117

NOVEMBER 21, 2013

TABLE OF CONTENTS

1.0 BACKGROUND

The subject property is currently developed with a convenience store and also sells gasoline. Gasoline is supplied by above ground tanks located northwest of the store and one pump located in front of the store entrance (northwest side of building). A site map, site sketch, and photographs are located in Appendix A.

Based on a Washington State Department of Ecology (WDOE) file dated 1993 a report was made to WDOE that there had been an issue with water in a drainage ditch located within proximity to the store. No sampling was conducted at that time. In 2002 the property owner at that time, Mr. Robert Crawford, was sent a letter inquiring if anything had ever taken place with regards to the report. According to the WDOE files, nothing had been done.

Currently the property is owned by Vanessa and Riley Borden. When they purchased the store from Brandee and David Putvin, they were informed that Brandee's father and previous owner of the property had an underground fuel tank removed from the south side of the store in 1980. No information was supplied with regards to the tank removal operations such as soil sampling, soil removal or tank disposal. Based on site conditions, a pump also had been removed. No information about the pump removal was available.

In 2013, the WDOE came to the store to obtain updated information and to investigate the site. Based on the investigation, the Bordens were told that WDOE recommended collecting soil and water samples around the location of the former UST.

In July of 2013, Vanessa Borden collected soil samples from three borings that were completed on site. In addition, one of the borings was developed with a temporary water well in order to gather water data. Laboratory results from the soil and water collected confirmed that there were no hydrocarbons in the water but there was gasoline above the allowable levels and one soil sample. The soil sample also contained benzene above the allowable levels. Based on the presence of benzene the allowable limit for gasoline is 30 ppm.

In August the Bordens retained DLH Environmental Consulting to assist with the characterization of any additional impacted soil and the removal of gasoline impacted soils.

Approximately 40 tons of impacted soil was disposed of at the Olympic View transfer station in Bremerton, WA under Waste Management profile #108111WA located in Appendix C.

2.0 PROJECT DESCRIPTION/SCOPE OF WORK

The scope of work for this project consisted of the removal of hydrocarbon impacted soil above the allowable WDOE Model Toxics Control Act (MTCA) regulations.

DLH was responsible for taking all soil samples to the project laboratory for analysis. The project laboratory was Friedman & Bruya, Inc. located in Seattle, Washington.

3.0 SITE CONDITIONS

The site consists of a relatively flat parcel developed with a convenience store and surrounded by paved parking on the south and west side of the store. The gasoline pump is located directly in front of the store entrance (northwest corner of store) and the gas pump is fed by 2, 1000 gallon above ground tanks located approximately 50 feet to the northwest of the store.

Adjacent to the pump is a concrete pad where a former pump had been located. The date of the removal of this pump is currently unknown.

3.1 Site Soils

Site soils are basically a mixture of dark brown silty and loamy sand material with old timber and wood debris. A gray clay layer is located approximately 3 to 4 feet below this material and is very dense. This clay layer is at least 3 feet thick. Many logs and wood debris are noted close to the road.

3.2 Groundwater

During soil removal activities in August 2013, water entered the excavation along the road side of the excavation (south side of excavation). It appeared that this water was coming from underneath the adjacent road bed at approximately 2-3 feet below ground level. The water from the road was not continuous in that it only entered the excavation in several places adjacent to the road and no other locations. No sheen was noted on the water entering the excavation.

Since water sampling and analysis had been conducted previously in July 2013 from a temporary water well and found to be clean, no additional water samples were collected for analysis. Water also entered the excavation during soil removal activities in September 2013. Again the water entered the excavation from the road side only and in this excavation only from an area where old timber and logs were pulled out adjacent to the road. It is believed that true perched water may be on site at depths below the impervious gray clay layer noted during soil removal activities.

3.3 Removal Activities

Two adjoining excavations were completed during soil removal activities and on September 25, 2013 approximately 40 tons of hydrocarbon impacted soil was removed and disposed of at the Waste Management Olympic View Transfer facility in Bremerton, Washington for disposal (see Appendix C). After soil removal, Oxygen Release Compound (ORC) was placed in each of the excavations; then the excavated areas were backfilled with clean fill and the site restored.

3.4 Hydrocarbon Sampling and Testing

Initial soil and water sampling and testing was conducted by the property owners in July 2013. Three Geoprobe borings were completed and one of the borings was finished with a temporary water well for sampling. Borings were placed along the south side of the store where the former UST had been located. The soil and water samples were analyzed for gasoline, BTEX, and lead.

Based on the initial sampling and analysis, gasoline and benzene above the allowable WDOE- MTCA Method A cleanup limits were confirmed in the soil only. Gasoline, BTEX and lead were not detected in the water sample.

Additional soil samples for the purpose of site characterization and extent of impacted soil and confirmational soil samples after soil removal were conducted by DLH Environmental Consulting.

All EPA-established sample-handling protocols, including chain of custody procedures, were observed during the course of the project. Tables A and B document the soil sampling and analysis. Refer to the figures located in Appendix A for additional data and sample locations.

Table A
Analytical Results for Samples Collected on 7/2/2013, 8/21/2013, and 9/25/2013

SAMPLE NO.	SAMPLE LOCATION Refer to Figures in Appendix A	ANALYSIS	RESULTS In parts per million (ppm) unless noted
B1-04 Collection date 7/2/13	Approximately 22 feet east of store entrance adjacent to original handicapped parking space and approx. 18 feet south of side of store. 3 ft bgl.	NWTPH-Gx BTEX Pb	ND (none detected) ND ND
B2-04 Collection date 7/2/13	Approximately 18 feet south and 5 feet east of store entrance. 3 ft bgl	NWTPH-Gx BTEX Pb	180 ppm Benzene 0.04 ppm ND
B3-04 Collection date 7/2/13	Between B1 and B2, 8 feet south of store. 3 ft bgl	NWTPH-Gx BTEX Pb	250 ppm ND ND
B1-04 WATER Collection date 7/2/13	Water collected from boring 1 using a temporary well.	NWTPH-Gx BTEX Pb	ND ND ND
82113-01-3-4	Due north of original boring B3, 2 feet from side of building and 3-4 ft bgl	NWTPH-Gx BTEX	< 2 ppm BC
82113-02-3	8 feet west of original boring B2. 3 feet bgl	NWTPH-Gx BTEX	110 ppm BC
82113-03-4	8 feet west of original boring B2. 4 feet bgl	NWTPH-Gx BTEX	63 ppm BC
92513-Bottom confirmational	Bottom of excavation in center of excavation This is the underlying gray clay material.	NWTPH-Gx BTEX	45 ppm BC
92513-NE-Corner confirmational	Adjacent to road, along the south wall of the excavation, on the east end.	NWTPH-Gx BTEX	< 2 ppm BC
92513-NW-Corner confirmational	Adjacent to road, along the south wall of the excavation on the west end.	NWTPH-Gx BTEX	78 ppm BC
92513-SE-Corner confirmational	Adjacent to pump island, on the southeast side of the former pump location.	NWTPH-Gx BTEX Pb	1400 ppm Benzene 0.5 ppm 15.4 ppm

NWTPH = Washington Total Petroleum Hydrocarbon
Gx = Gasoline range hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylene
ND = None Detected above lab detection limits
BC = Below current MTCA clean up levels
Pb = Lead
Bgl = Below ground level
ft = Feet

Table B
Analytical Results for Final Soil Samples Collected on 10/19/13

SAMPLE NO.	SAMPLE LOCATION Refer to Figures located in Appendix A	ANALYSIS	RESULTS In parts per million (ppm) unless noted
C-NW Corner Confirmational Sample	Northwest corner of the final excavation at 4 ft bgl. This is the soil above the underlying grey clay layer.	NWTPH-Gx BTEX	27 ppm BC
C-NE Corner Confirmational Sample	Northeast corner of the final excavation at 4 ft bgl. Gray clay material.	NWTPH-Gx BTEX	< 2 ppm ND
C-B-NW	Impacted soil directly above gray clay in northwest corner of excavation (all of this soil was removed down to the gray clay layer) @ 3 ft bgl.	NWTPH-Gx BTEX	200 ppm Benzene @ 0.08 ppm
C-B-NE Confirmational sample	Impacted soil at bottom of the excavation in the center of the excavation @ 4 ft bgl.	NWTPH-Gx BTEX	2 ppm BC
Pipes	Soil directly underneath product pipe adjacent to old pump. This soil was all removed.	NWTPH-Gx BTEX	950 ppm Benzene @ 0.4 ppm
Gray clay Confirmational sample	Underlying gray clay material located directly underneath sample number C-B-NW. Same gray layer located at site approximately 3-4 ft bgl. Sample collected between 4 and 4.5 ft bgl.	NWTPH-Gx BTEX	< 2 ppm ND

NWTPH = Washington Total Petroleum Hydrocarbon
Gx = Gasoline range hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylene
BC = Below current MTCA clean up levels
ND = None detected above lab detection limits
Bgl = Below ground level
ft = Feet

4.0 CONCLUSIONS

Based on the initial sampling and analysis conducted in July 2013, soil was found to be impacted with gasoline and benzene. Additional soil sampling and analysis to identify the extent of the impacted soil was also conducted in August and September 2013. Based on laboratory data from those samples, approximately 40 tons of gasoline impacted soil was excavated and disposed of at the Waste Management Olympic View Transfer facility in Bremerton, Washington.

In addition to the removed soil, Oxygen Release Compound (ORC) was placed in each of the excavations as an added cleanup activity. A total of four containers of ORC were placed in the excavations. Each ORC container holds 5 gallons of compound that was mixed with water and poured into the excavations at approximately 3 to 4 feet below ground level adjacent to the road, which is where onsite water was noted. After the ORC was placed in the excavations, they were backfilled with clean material.

Based on laboratory analysis of final confirmational soil sampling collected from sidewalls and the bottom of the excavations and the underlying impervious gray clay, it is believed that all impacted soil has been removed.

5.0 RECOMMENDATIONS

Based on the conclusions, no recommendations are made at this time.

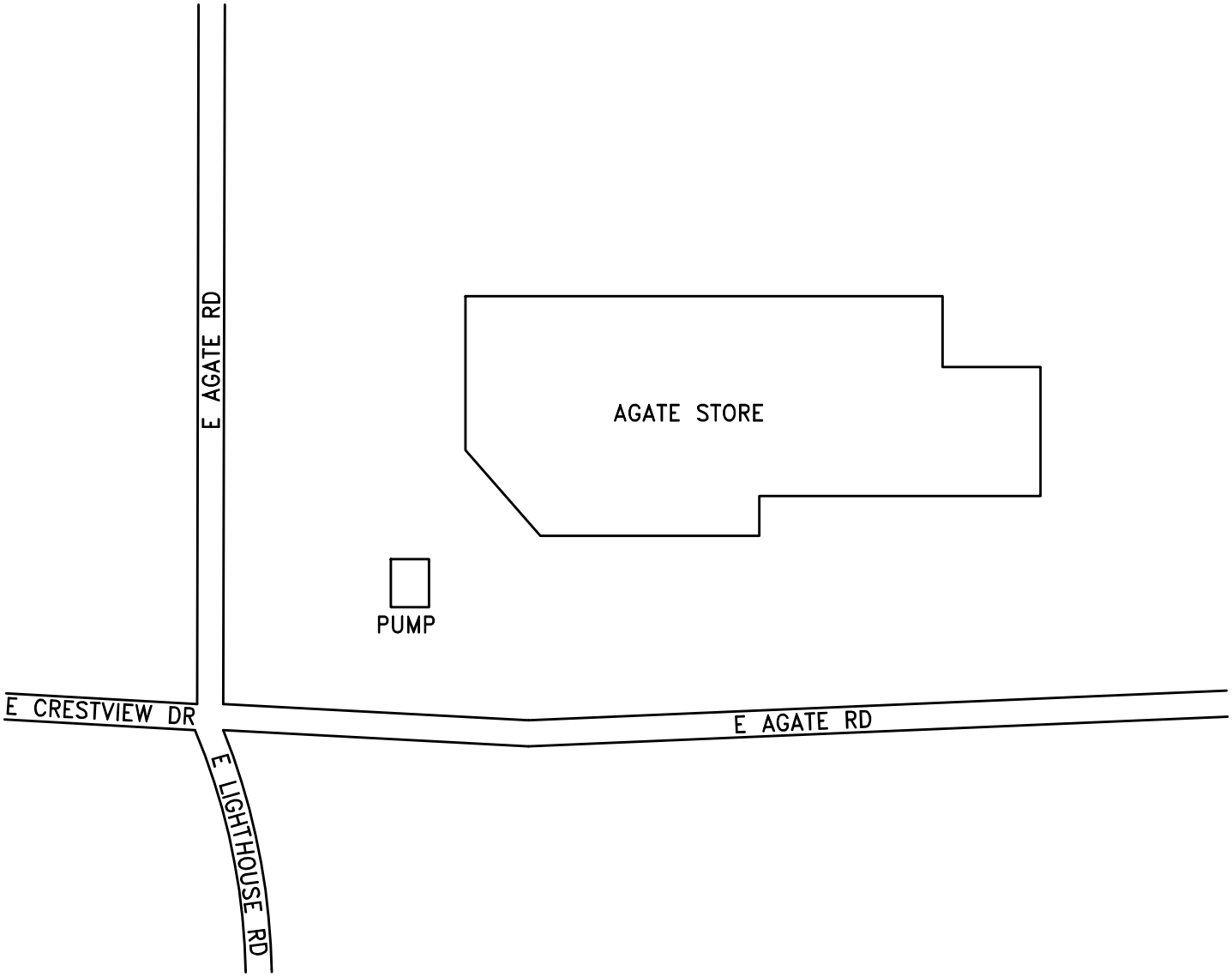
6.0 LIMITATIONS

This report has been prepared for specific application to this project in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. DLH Environmental Consulting shall not be responsible for conditions or consequences arising from relevant facts that were withheld, concealed, or not fully disclosed at the time this evaluation was performed.

Recommendations and conclusions contained in this report are based on the evaluation of technical information made available and reviewed during the course of this survey. The findings, conclusions and recommendations stated in this report apply exclusively to the subject site. This report in no way confirms that the entire site is free of contamination. This report is solely based on field observations, soil sample collection, and analysis of the soil collected. No other warranty, expressed or implied, is made concerning the professional conclusions or recommendations, except as specifically noted in this report.

DLH Environmental Consulting has no control over the accuracy of information provided by outside consultants, contractors, and agencies and, therefore, disclaims responsibility for any inaccuracies incurred. The underlying philosophy in formulating the conclusions and recommendations was to reduce uncertainties regarding the property and pertaining to environmental hazards, to the degree possible. Therefore, the results of this assessment should be viewed as reasonably accurate estimates, given the project limitations of the existing environmental condition of the property.

This report is for the exclusive use of Mr. and Mrs. Borden, their representatives and the Washington State Department of Ecology (WDOE) as necessary. If new information becomes available as a result of future site work, which may include excavations, borings, studies, DLH Environmental Consulting reserves the right to reevaluate the conclusions of this report and to provide amendments as required. This report covers the soil removal activities that took place from August to October 2013.



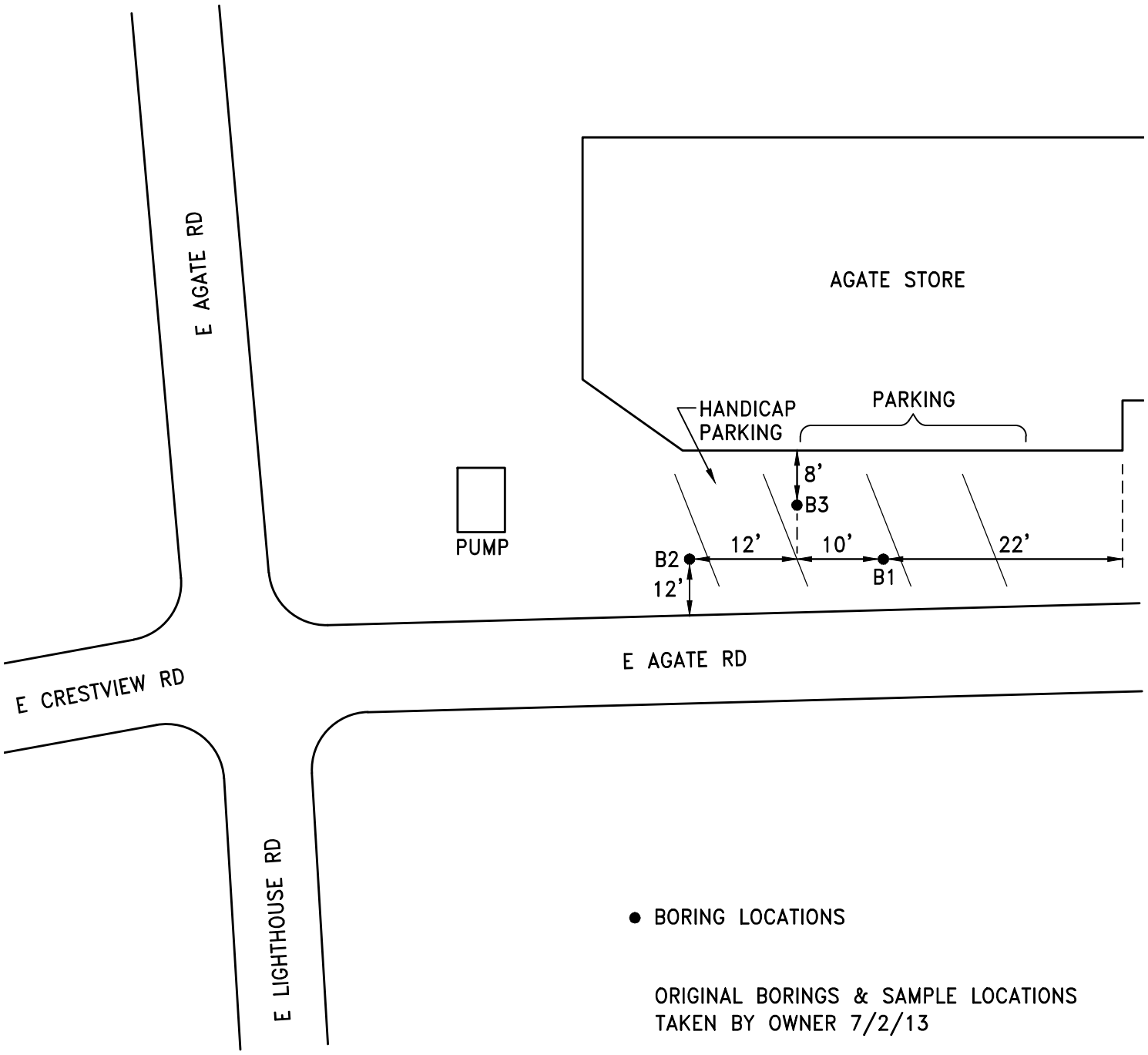
AGATE STORE
3841 EAST AGATE ROAD, SHELTON, WA 98584

DLH Environmental Consulting

FIGURE 1
2013

NOT TO SCALE

North



AGATE STORE
3841 EAST AGATE ROAD, SHELTON, WA 98584

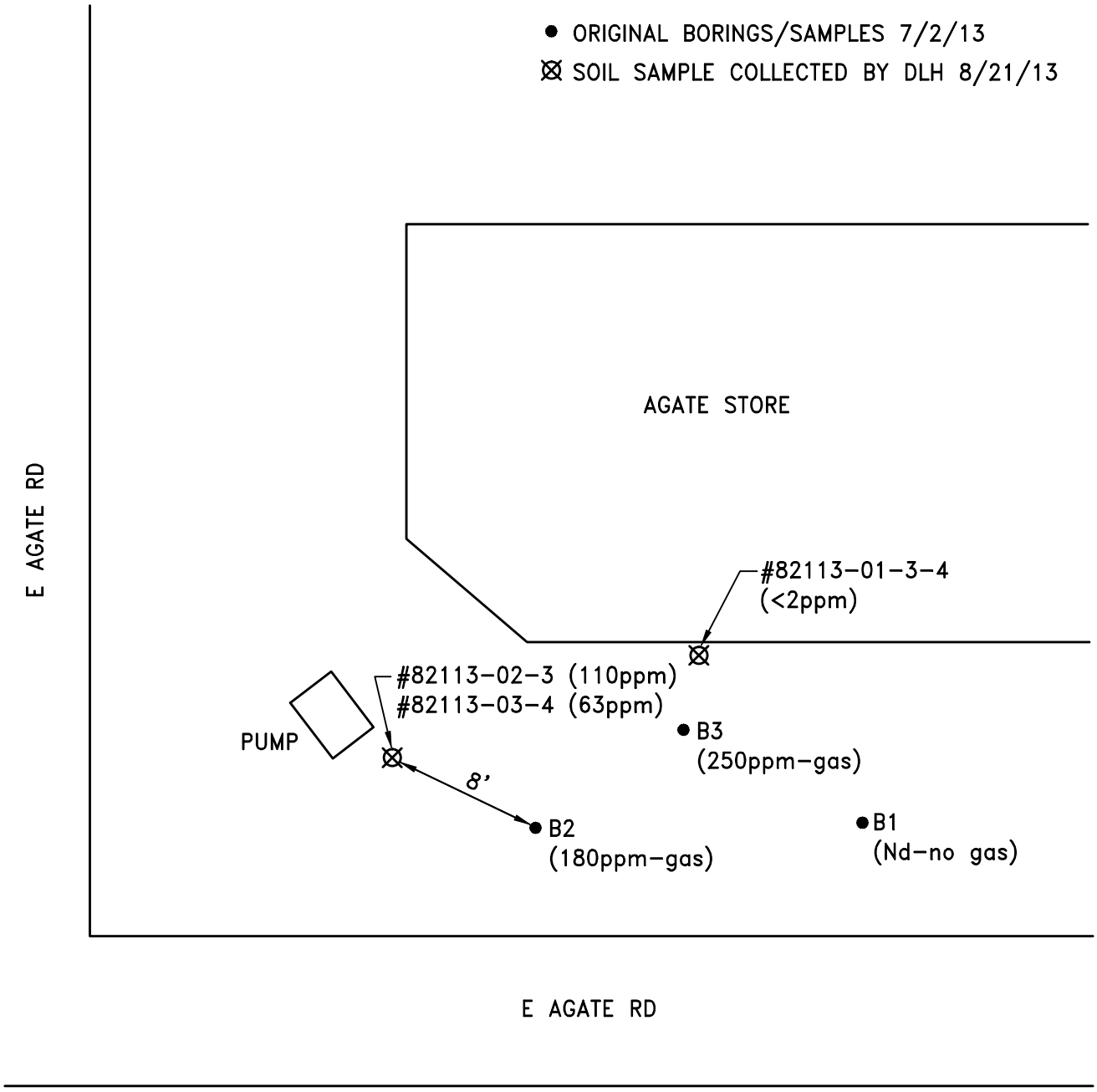
DLH Environmental Consulting

FIGURE 2

NOT TO SCALE

7/2/2013

North



AGATE STORE
3841 EAST AGATE ROAD, SHELTON, WA 98584

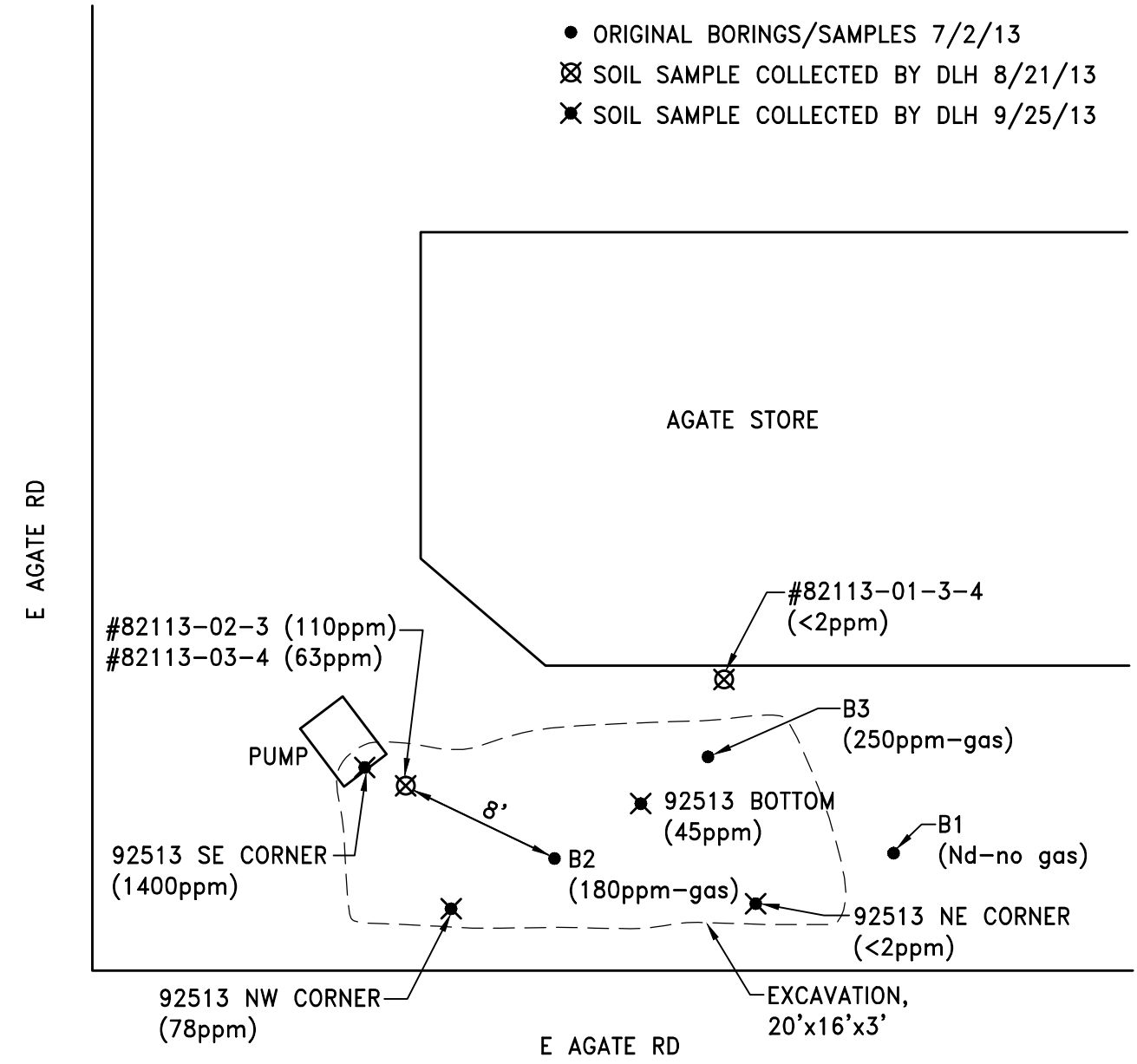
DLH Environmental Consulting

FIGURE 3

NOT TO SCALE

8/21/2013

North



AGATE STORE
3841 EAST AGATE ROAD, SHELTON, WA 98584

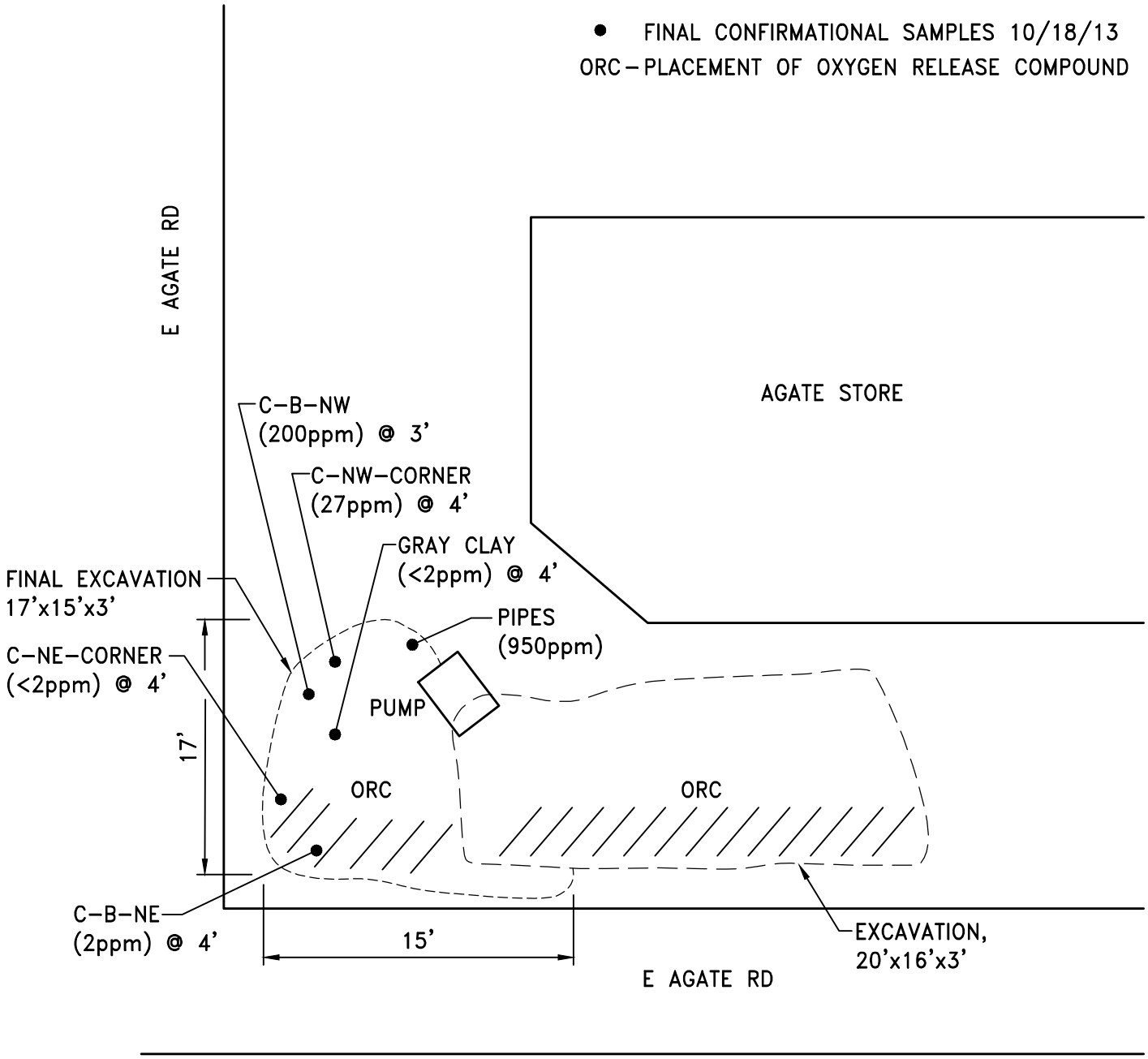
DLH Environmental Consulting

FIGURE 4

NOT TO SCALE

9/25/2013

North



AGATE STORE
3841 EAST AGATE ROAD, SHELTON, WA 98584

DLH Environmental Consulting

FIGURE 5

NOT TO SCALE

10/19/2013

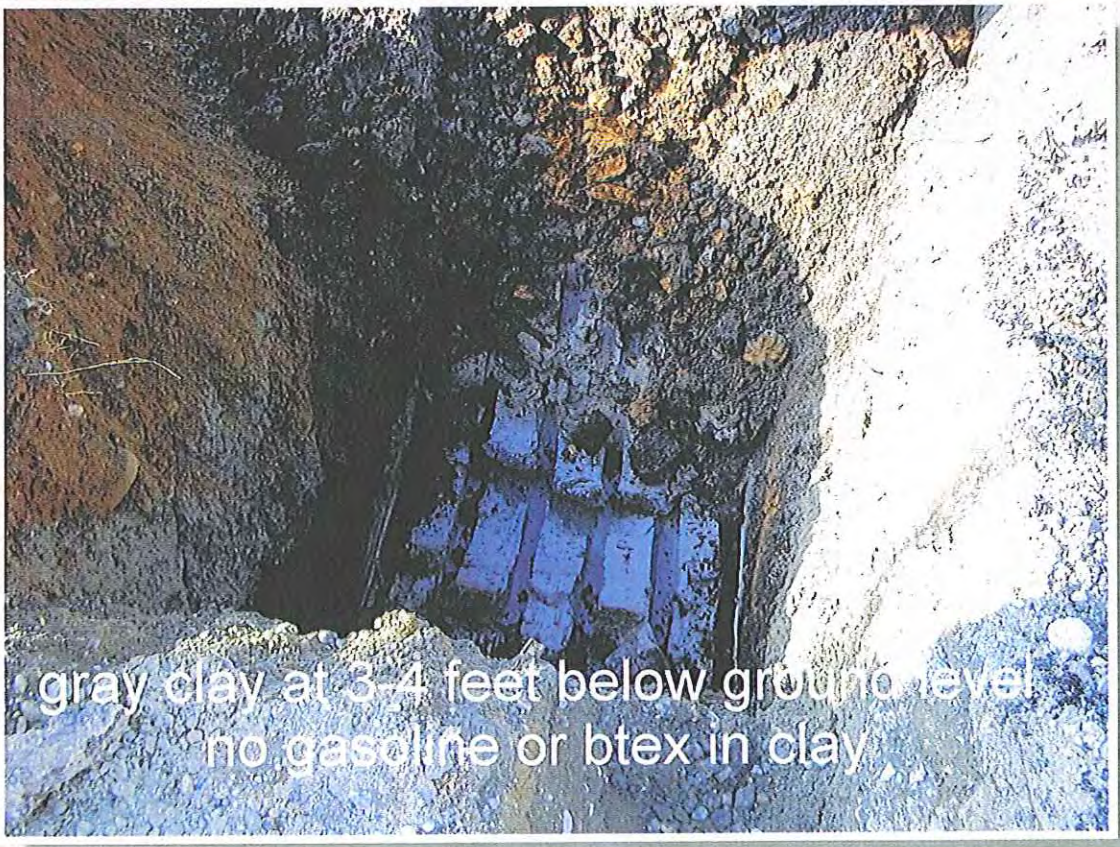
North

second excavation
wrapping around pump island

restored area after first excavation
facing east

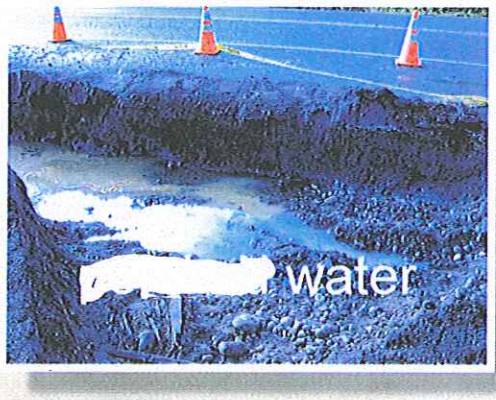
second excavation
old logs used as road bed

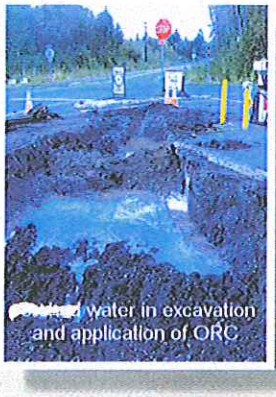
restored area facing west



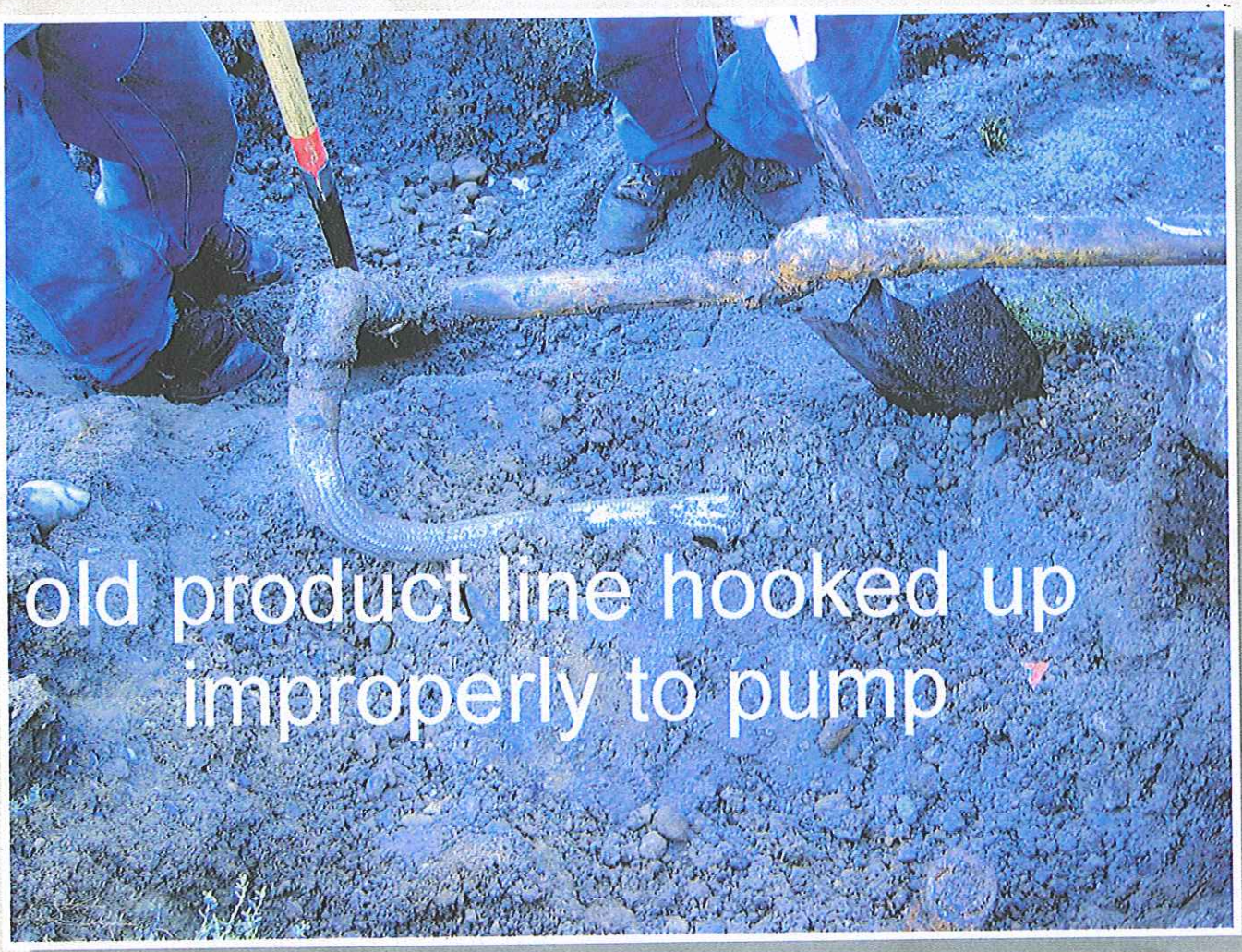
gray clay at 3-4 feet below ground level
no gasoline or btex in clay


STOP


water


water in excavation
and application of ORC


old product line


old product line hooked up
improperly to pump

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 6, 2013

Donna Hewitt, Project Manager
DLH Environmental Consulting
2400 NW 80th St., 114
Seattle, WA 98117-4449

Dear Ms. Hewitt:

Included are the results from the testing of material submitted on August 21, 2013 from the Shelton, F&BI 308338 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
DLH0906R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 21, 2013 by Friedman & Bruya, Inc. from the DLH Environmental Consulting Shelton, F&BI 308338 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	DLH Environmental Consulting
308338 -01	82113-01-3-4
308338 -02	82113-02-3
308338 -03	82113-03-4

All quality control requirements were acceptable.

Date of Report: 09/06/13
Date Received: 08/21/13
Project: Shelton, F&BI 308338
Date Extracted: 08/23/13
Date Analyzed: 08/23/13 and 08/29/13

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
82113-01-3-4 308338-01	<0.02	<0.02	<0.02	<0.06	<2	91
82113-02-3 308338-02	<0.02	0.098	0.53	2.1	110	103
82113-03-4 308338-03	<0.02	0.56	<0.02	3.0	63	90
Method Blank 03-1632 MB	<0.02	<0.02	<0.02	<0.06	<2	91

Date of Report: 09/06/13
Date Received: 08/21/13
Project: Shelton, F&BI 308338

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

Laboratory Code: 308338-03 1/5 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.1	<0.1	nm
Toluene	mg/kg (ppm)	0.16	0.15	3
Ethylbenzene	mg/kg (ppm)	<0.1	<0.1	nm
Xylenes	mg/kg (ppm)	0.91	0.87	5
Gasoline	mg/kg (ppm)	20	19	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	76	69-120
Toluene	mg/kg (ppm)	0.5	79	70-117
Ethylbenzene	mg/kg (ppm)	0.5	82	65-123
Xylenes	mg/kg (ppm)	1.5	84	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Data Qualifiers & Definitions

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

A1 – More than one compound of similar molecule structure was identified with equal probability.

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

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

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

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

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

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

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

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

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

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

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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

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

308338

CHAIN OF CUSTODY

ME 08/21/13

VSI

Send Report To Donna Hewill

Company DLH

Address 2400 NW 80th St #114

City, State, ZIP Seattle, WA 98117

Phone # 206 632-3123 Fax #

SAMPLERS *(signature)*

PROJECT NAME/NO. Shelton

PO # 1

REMARKS

Page # 1 of 1

TURNAROUND TIME
- ☒ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS							Notes
82113-01-3-4	01 A.D	8/21/13	10:26	Soil	4		X	X										
-02-3	02 A.D	"	10:47	"	"		X	X										
-03-4	03 A.D	"	11:20	"	"		X	X										

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

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Donna Hewill	DLH	8/21/13	3:30
Received by:		Nhan Phan	FEBT	8/21/13	V
Relinquished by:					
Received by:					

Samples received at 26 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 4, 2013

Donna Hewitt, Project Manager
DLH Environmental Consulting
2400 NW 80th St., 114
Seattle, WA 98117-4449

Dear Ms. Hewitt:

Included are the results from the testing of material submitted on September 25, 2013 from the Agate Store, F&BI 309447 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
DLH1004R.DOC

CASE NARRATIVE

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309447 -02	92513-NE-Corner
309447 -03	92513-NW-Corner
309447 -04	92513-SE-Corner

All quality control requirements were acceptable.

Date of Report: 10/04/13
Date Received: 09/25/13
Project: Agate Store, F&BI 309447
Date Extracted: 09/26/13
Date Analyzed: 09/26/13

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

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Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
92513-Bottom 309447-01	<0.02	0.16	<0.02	4.9	45	95
92513-NE-Corner 309447-02	<0.02	0.022	<0.02	<0.06	<2	92
92513-NW-Corner 309447-03	<0.02	0.031	0.31	0.92	78	113
92513-SE-Corner 309447-04 1/5	0.05 j	1.3	5.8	34	1,400	135
Method Blank 03-1910 MB	<0.02	<0.02	<0.02	<0.06	<2	97

Analysis For Total Metals By EPA Method 200.8

Client ID:	92513-SE-Corner	Client:	DLH Environmental Consulting
Date Received:	09/25/13	Project:	Agate Store, F&BI 309447
Date Extracted:	09/30/13	Lab ID:	309447-04
Date Analyzed:	09/30/13	Data File:	309447-04.051
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	94	60	125

Analyte:	Concentration mg/kg (ppm)
Lead	15.4

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	DLH Environmental Consulting
Date Received:	NA	Project:	Agate Store, F&BI 309447
Date Extracted:	09/30/13	Lab ID:	I3-620 mb
Date Analyzed:	09/30/13	Data File:	I3-620 mb rr.053
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm) Dry Weight	Operator:	AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Holmium	92	60	125

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

Date of Report: 10/04/13
Date Received: 09/25/13
Project: Agate Store, F&BI 309447

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

Laboratory Code: 309412-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	94	69-120
Toluene	mg/kg (ppm)	0.5	95	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	97	66-120
Gasoline	mg/kg (ppm)	20	95	71-131

Date of Report: 10/04/13
Date Received: 09/25/13
Project: Agate Store, F&BI 309447

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 309515-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	25.1	101 b	103 b	59-148	2 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	100	80-120

Data Qualifiers & Definitions

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

A1 – More than one compound of similar molecule structure was identified with equal probability.

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

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

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

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

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

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

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

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

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

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

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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

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

309447

SAMPLE CHAIN OF CUSTODY

ME 09/25/13 VSI

Page # 1 of 1

Send Report To Donna Hewitt
Company DLH
Address 2400 NW 80th St #114
City, State, ZIP Seattle, WA 98117
Phone # 2064323123 Fax #

SAMPLERS (signature)
PROJECT NAME/NO. Agate Store
PO #
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Pb					Notes
						ANALYSES REQUESTED											
G2513-bottom	01A-D	9/25/13	11:00	Soil	4		X	X									Clay
-NE-Corner	02		11:05				X	X									Sandy / adj to Road
-NW-Corner	03		11:08				X	X									" "
-SE-Corner	04		11:20				X	X				X					adj. to Pump

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Donna Hewitt	DLH	9/25/13	4:03
Received by:	Nhan Phan	FEBT	9/25/13	4:03
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 22 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 24, 2013

Donna Hewitt, Project Manager
DLH Environmental Consulting
2400 NW 80th St., 114
Seattle, WA 98117-4449

Dear Ms. Hewitt:

Included are the results from the testing of material submitted on October 18, 2013 from the Agate, F&BI 310364 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
DLH1024R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 18, 2013 by Friedman & Bruya, Inc. from the DLH Environmental Consulting Agate, F&BI 310364 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	DLH Environmental Consulting
310364-01	Pipes
310364-02	Gray Clay

All quality control requirements were acceptable.

Date of Report: 10/24/13
Date Received: 10/18/13
Project: Agate, F&BI 310364
Date Extracted: 10/18/13
Date Analyzed: 10/18/13 and 10/19/13

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
Pipes 310364-01 1/20	<0.4	3.3	<0.4	81	950	93
Gray Clay 310364-02	<0.02	<0.02	<0.02	<0.06	<2	87
Method Blank 03-2075 MB	<0.02	<0.02	<0.02	<0.06	<2	88

Date of Report: 10/24/13
Date Received: 10/18/13
Project: Agate, F&BI 310364

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

Laboratory Code: 310356-05 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	89	66-121
Toluene	mg/kg (ppm)	0.5	88	72-128
Ethylbenzene	mg/kg (ppm)	0.5	90	69-132
Xylenes	mg/kg (ppm)	1.5	91	69-131
Gasoline	mg/kg (ppm)	20	95	61-153

Data Qualifiers & Definitions

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

A1 – More than one compound of similar molecule structure was identified with equal probability.

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

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

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

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

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

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

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

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

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

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

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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

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

Send Report To [redacted] T7 310364

Company DLH Environmental Consulting

Address 2400 NW 80th St P.H.B #114

City, State, ZIP Seattle, WA 98117

Phone # 206-632-3123 Fax # 206-706-0302

[redacted] ME 10-1843

PROJECT NAME/NO.

Agate

REMARKS

TURNAROUND TIME

☒ Standard (2 Weeks) VSI

☐ RUSH

Rush charges authorized by: [redacted]

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS						Notes
Pipe 5	01A-D	10/17/13	12:55	Soil	4		X	X									
Gray Clay	02A-D	10/17/13	1:30	Soil	4		X	X									

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

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	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Donna Hewitt	DLH	10/18/13	1145
Received by:		Michael Eckhl	FGBru.	↓	↓
Relinquished by:					
Received by:					

Samples received at 13 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 29, 2013

Donna Hewitt, Project Manager
DLH Environmental Consulting
2400 NW 80th St., 114
Seattle, WA 98117-4449

Dear Ms. Hewitt:

Included are the results from the testing of material submitted on October 18, 2013 from the Agate Store, F&BI 310363 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
DLH1029R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 18, 2013 by Friedman & Bruya, Inc. from the DLH Environmental Consulting Agate Store, F&BI 310363 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	DLH Environmental Consulting
310363-01	C-NW Corner
310363-02	C-NE Corner
310363-03	C-B-NW
310363-04	C-B-NE

All quality control requirements were acceptable.

Date of Report: 10/29/13
Date Received: 10/18/13
Project: Agate Store, F&BI 310363
Date Extracted: 10/21/13
Date Analyzed: 10/21/13 and 10/22/13

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
C-NW Corner 310363-01	<0.02	<0.02	0.18	0.13	27	107
C-NE Corner 310363-02	<0.02	<0.02	<0.02	<0.06	<2	94
C-B-NW 310363-03	0.080	0.093	<0.02	95	200	98
C-B-NE 310363-04	<0.02	<0.02	<0.02	0.49	<2	94
Method Blank 03-2122 MB	<0.02	<0.02	<0.02	<0.06	<2	94

Date of Report: 10/29/13
Date Received: 10/18/13
Project: Agate Store, F&BI 310363

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

Laboratory Code: 310366-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	69-120
Toluene	mg/kg (ppm)	0.5	92	70-117
Ethylbenzene	mg/kg (ppm)	0.5	94	65-123
Xylenes	mg/kg (ppm)	1.5	95	66-120
Gasoline	mg/kg (ppm)	20	90	71-131

Data Qualifiers & Definitions

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

A1 – More than one compound of similar molecule structure was identified with equal probability.

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

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

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

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

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

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

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

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

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

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

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

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

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

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

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

Send Report To Donna Hewitt 310363

Company DLH Environmental Consulting

Address 2400 NW 80th St P.H.B #114

City, State, ZIP Seattle, WA 98117

Phone # 206-632-3123 Fax # 206-706-0302

10-18-13

PROJECT NAME/NO.: Agate Store

REMARKS:

Page 1 of 1

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by:

VS1

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	PA					Notes
C-NW corner	01 A-D	10/17/13	1:10	Soil	4		X	X									
C-NE corner	02		1:15				X	X									
C-B-NW	03		1:19				X	X									
C-B-NE	04		1:21				X	X				[illegible]					
[illegible]																	

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

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	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Donna Hewitt	DLH	10/18/13	1145
Received by:		Michelle Hall	FCB	↓	↓
Relinquished by:					
Received by:					

Samples received at 13 °C