June 30, 2016

Chris and Carrie Thornhill
PGH NW LLC
1891 Garrett Street
Enumclaw, Washington 98022

RE: Monitoring Well Installation and Groundwater Sampling
PGH Excavating
1891 Garrett Street
Enumclaw, Washington 98022
RGI Project No. 2016-049A

Dear Mr. & Mrs. Thornhill:

The Riley Group, Inc. (RGI) is pleased to present the results of the groundwater assessment for the PGH Excavating property located at 1891 Garrett Street in Enumclaw, Washington (tax parcel 236100-0080), hereafter referred to as the Property (Figure 1 and Figure 2).

The scope of work for this project was performed in accordance with our *Groundwater Monitoring Well Installation and Groundwater Sampling Proposal* dated May 5, 2016, which was authorized by Mr. Chris Thornhill of PGH Excavating on May 18, 2016.

RGI's understanding of the project is based on our review of the Property file at the Washington State Department of Ecology (Ecology) which included the Dames and Moore report (dated January 2, 1992) regarding the UST removal and subsequent correspondence between the Property Owner and Ecology.

Based on our Property file review, the following status of the Property on the leaking underground storage tank (LUST) database has been identified:

- The Property is listed on the Ecology LUST list under Facility-Site ID 9872319 and Cleanup Site ID 7859. The LUST report was received by Ecology in December 1991 following the UST removal. The affected media on the Ecology LUST list is petroleum-gasoline in groundwater.
- Ecology sent a letter to the Property owner in February 1992 stating the "UST decommissioning report meets requirements for tank closure and document the cleanup of the release of petroleum under state and federal laws, 70.105D RCW/WAC 173-340, and 40 CFR 280 of the Federal Register September 1988". The February 1992 letter also states "the department of Ecology will assign a limited cleanup status to the Property and will maintain a record of the property due to a groundwater sample result with a benzene level of 126 ppb (Ecology Cleanup level for benzene is 5 ppb) from monitoring well MW-3". Monitoring well MW-3 was installed adjacent to the UST prior to the UST removal and was removed during over-excavation of soil in the UST excavation. Ecology recommended that monitoring well MW-3 be reconstructed to ascertain the current groundwater quality, but stated "there is no requirement to implement the well

reconstruction, but may prevent liabilities should the contamination affect other properties".

- Ecology sent an additional letter to the Property owner in March 1992. The letter states Dames and Moore concludes the cleanup has been successful and Ecology concurs that no further action is necessary. Ecology also states "downgradient groundwater monitoring wells in the area show no signs of contamination, other remediation efforts have proceeded normally, and there is no knowledge of further sources of contamination on the Property". However, the letter reaffirms Ecology assigning a limited cleanup status to the Property and maintaining a record of the Property
- In August 1998, Ecology sent a letter to the Property owner stating "A recent review of Ecology's Leaking Underground Storage Tank database indicates that they had not received a final cleanup report for the Property". Ecology requested the Property owner submit an update of cleanup activities (performed or planned) for review. There is a telephone record in the Ecology file documenting a discussion between Mr. Don Brewer (former owner) and Ecology regarding the 1998 Ecology letter. Mr. Brewer states he is unaware of any UST or cleanup work. Ecology responds by stating they will sent Mr. Brewer the Dames and Moore report documenting the benzene detection above Ecology cleanup levels from monitoring well MW-3.
- The Property owner in 1998 did not provide Ecology with a "final cleanup report", thus the Property has remained on the Ecology LUST database.

SCOPE OF WORK

RGI completed this second phase of work at the Property to further evaluate groundwater conditions. The scope of work for this project included the following tasks:

- Drilled and installed three groundwater monitoring wells (MW-1A, MW-2A, and MW-3A) at the Property using direct push drilling equipment.
- A geologist from RGI was on-site to document soil and groundwater conditions, perform standard field screening on soil samples collected from the borings for the presence of petroleum contamination, and document the completion of monitoring wells MW-1A, MW-2A, and MW-3A.
- Monitoring wells MW-1A, MW-2A, and MW-3A were constructed using ¾ inch diameter PVC and a pre-sand-packed well screens, and completed with traffic-rated flush-grade monuments. The monitoring wells were developed after installation.
- RGI collected one groundwater sample from each well for analysis of gasoline-range total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method NWTPH-Gx/BTEX. The groundwater samples were submitted to Friedman and Bruya, Inc (FBI) located in Seattle, Washington.
- Concentrations, if present, of the gasoline-range TPH and BTEX were compared to the Ecology Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels (WAC 173-340-720).
- Prepared this letter report outlining the monitoring well installation and the results of the groundwater sampling event.

MONITORING WELL INSTALLATION

Subsurface Investigation

On May 27, 2016 RGI observed the installation of three groundwater monitoring wells at the Property. The three monitoring wells were installed to determine existing groundwater quality and groundwater flow direction beneath the Property. The location of the new monitoring wells (MW-1A, MW-2A, and MW-3A) relative to the former UST and former monitoring wells MW-2 and MW-3 are shown on the attached Figure 3. Monitoring well MW-1A was installed west of the metal shop building, and northwest of the former UST location. Monitoring well MW-2A was installed in the vicinity of monitoring well MW-2, which was removed during the UST remedial excavation. Monitoring well MW-3A was installed in the vicinity of monitoring well MW-3, which was removed during the UST remedial excavation.

The monitoring wells were installed using direct-push drilling technology. The wells were constructed with ¾ inch diameter PVC casing and pre-sand-packed well screens. Each well is approximately 18 feet in total depth with the ten-foot well screen extending from 8 feet to 18 feet below ground surface (bgs). The monitoring wells were completed with traffic-rated flush grade steel monuments at the ground surface. The monitoring wells were developed by pumping with a peristaltic pump to remove the turbid development groundwater. Well logs showing the well completion details are attached in Attachment A.

Subsurface Conditions

Soil conditions encountered were described using the Unified Soil Classification System (USCS). Subsurface soils encountered at each monitoring well boring consisted of a 3 to 4 foot surface layer of dense cobbles in a silty sand matrix (fill), underlain by gray/brown silty sand with varying amounts of gravel to the depth of the explorations. Native soils encountered in the monitoring well borings are interpreted to be Osceola Mudflow deposits. Groundwater was encountered during drilling at approximately 8 to 10 feet below existing grade.

Soil Sampling

Soils samples from the monitoring well borings were field screened for the presence of volatile organic compounds (VOCs) using a portable gas photoionization detector (PID) and/or water sheen test. No elevated PID readings or odors, sheens, discolorations, or other evidence of contamination were observed in the soil samples from the monitoring well borings. As such, no soil samples were submitted for laboratory analyses.

Groundwater Sampling

A groundwater sample was collected from each monitoring well on June 1, 2016. Each monitoring well purged dry after approximately one-gallon of water was pumped from the well. This is not uncommon in monitoring wells completed in the silty Osceola Mudflow deposits. RGI has experienced similar circumstances with monitoring wells purging dry at a site several blocks from the Property.

New factory supplied tubing was used for each groundwater sample. Samples were placed in preconditioned, sterilized containers provided by an Ecology-accredited analytical laboratory. Ground water samples were submitted for analysis of gasoline-range TPH and BTEX to FBI. No sheens or orders were observed during the collection of the groundwater samples.

The samples were placed in a chilled cooler throughout the field program, with all subsequent transportation and transfer accomplished in strict accordance with RGI's chain of custody procedures.

Analytical test certificates, including quality control, data, and chain-of-custody documentation for all samples submitted to the analytical testing laboratory are included in Appendix B.

Groundwater Depth and Flow Direction

The top of the well casings of monitoring wells MW-1A, MW-2A, and MW-3A were surveyed to one hundredth of a foot using professional laser level survey equipment. Surveyed elevations are based on an arbitrary benchmark, with an assumed elevation of 100 feet. The top of the well casing elevations and groundwater elevations measured on June 1, 2016 are presented in Table 1.

The depth to groundwater below the top of the well casings in the three monitoring wells on June 1, 2016 was 3.47 (MW-1A), 3.95 (MW-2A), and 3.89 (MW-3A). These depth to groundwater readings correspond to groundwater elevations of 92.29 (MW-1A), 92.47 (MW-2A), and 92.01 (MW-3A). Based on the corresponding groundwater elevations relative to the monitoring well locations the groundwater flow direction is generally to the southwest in the vicinity of the UST excavation as shown on Figure 3.

REGULATORY FRAMEWORK

Washington's chemical release cleanup law, the Model Toxics Control Act (RCW 70.105D), mandates that site cleanups protect human health and the environment. The MTCA Cleanup Regulation (WAC 173-340) defines the approach for establishing cleanup requirements for individual sites, including the establishment of cleanup standards and selection of cleanup actions.

MTCA regulation provides three options for establishing generic and site-specific cleanup levels for soil and groundwater. Method A cleanup levels have been adopted for specific purposes and are intended to provide conservative cleanup levels for sites undergoing routine site characterization or cleanup actions or those sites with relatively few hazardous substances. Method B and C cleanup levels are set using a site risk assessment, which focus on the use of "reasonable maximum exposure" assumptions based on site-specific characteristics and toxicity of the contaminants of concern.

For purposes of comparison, analytical laboratory data for this project were compared to the MTCA Method A Cleanup Levels for Groundwater (considered protective of drinking water).

ANALYTICAL LABORATORY ANALYSIS

The groundwater samples from MW-1A, MW-2A, and MW-3A were submitted to FBI an Ecology-accredited, third-party analytical laboratory for the requested analyses.

The groundwater samples were analyzed for the following potential contaminants of concern:

- Gasoline-range TPH using Northwest Test Method TPH-Gx.
- BETX using EPA Test Method 8021B.

ANALYTICAL RESULTS & FINDINGS

Analytical results for groundwater samples and their respective MTCA Method A cleanup levels are summarized in the attached Table 1, and discussed below. Laboratory results are included in Attachment B.

The laboratory analytical results for the June 1, 2016 groundwater sampling event indicates gasoline-range TPH and BTEX results for the groundwater samples for MW-1A, MW-2A, and MW-3A are all below the laboratory detection limits (non-detect).

CONCLUSIONS

Based on our findings, RGI concludes the following:

- Based on groundwater elevations measured in monitoring wells MW-1A, MW-2A, and MW-3A, groundwater flow is generally from northeast to southwest in the vicinity of the former UST excavation.
- Concentrations for gasoline-range TPH and BTEX for the groundwater samples collected from monitoring wells MW-1A, MW-2A, and MW-3A were all below the laboratory detection limits (non-detect).

PROJECT LIMITATIONS

This report is the property of RGI, PGH Excavating, and their authorized representatives or affiliates and was prepared in a manner consistent with the level of skill and care ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. This report is intended for specific application to the PGH Excavating Property located at 1891 Garrett Street in Enumclaw, Washington**.** No other warranty, expressed or implied, is made.

The analyses presented in this report are based upon data obtained from our review of available information at the time of preparing this report, our observations of the remedial excavation and test pit at the Property, or other noted data sources. Conditional changes may occur through time by natural or human-made process on this or adjacent properties. Additional changes may occur in legislative standards, which may or may not be applicable to this report. These changes, beyond RGI's control, may render this report invalid, partially or wholly. If variations appear evident, RGI should be requested to reevaluate the recommendations in this report.

Please contact the undersigned at (425) 415-0551 should you have any questions or need additional information.

Sincerely,

THE RILEY GROUP, INC.

David Baumgarten LG, LHG
Hydrogeologist

Paul Riley, LG, LHG
Principal

Distribution: Chris and Carrie Thornhill (two bound copies and PDF)

Attachments: *Figure 1, Site Vicinity Map*
Figure 2, Site Representation
Figure 3, Site Representation with 2016 Soil and Groundwater Analytical Data
Table 1, Summary of Groundwater Analytical Laboratory Results

Attachment A, Monitoring Well Logs
Attachment B, Analytical Laboratory Results

USGS, 2014, Enumclaw, Washington
7.5-Minute Quadrangle

Approximate Scale: 1"=1000'

0 500 1000 2000

N

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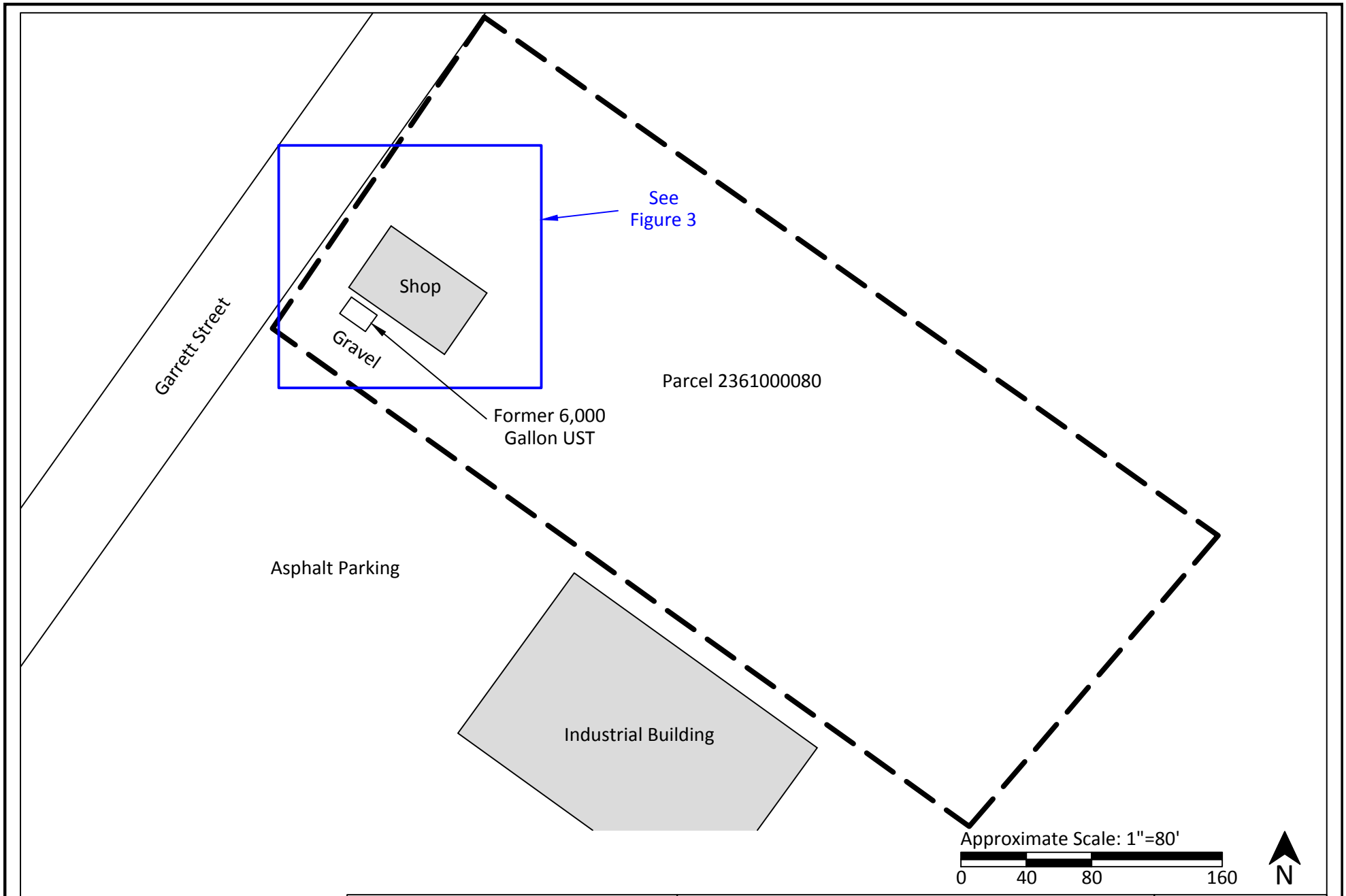
PGH Excavating		Figure 1
RGI Project Number 2016-049A	Site Vicinity Map	Date Drawn: 06/2016
Address: 1891 Garrett Street, Enumclaw, Washington 98022		



= Site Boundary

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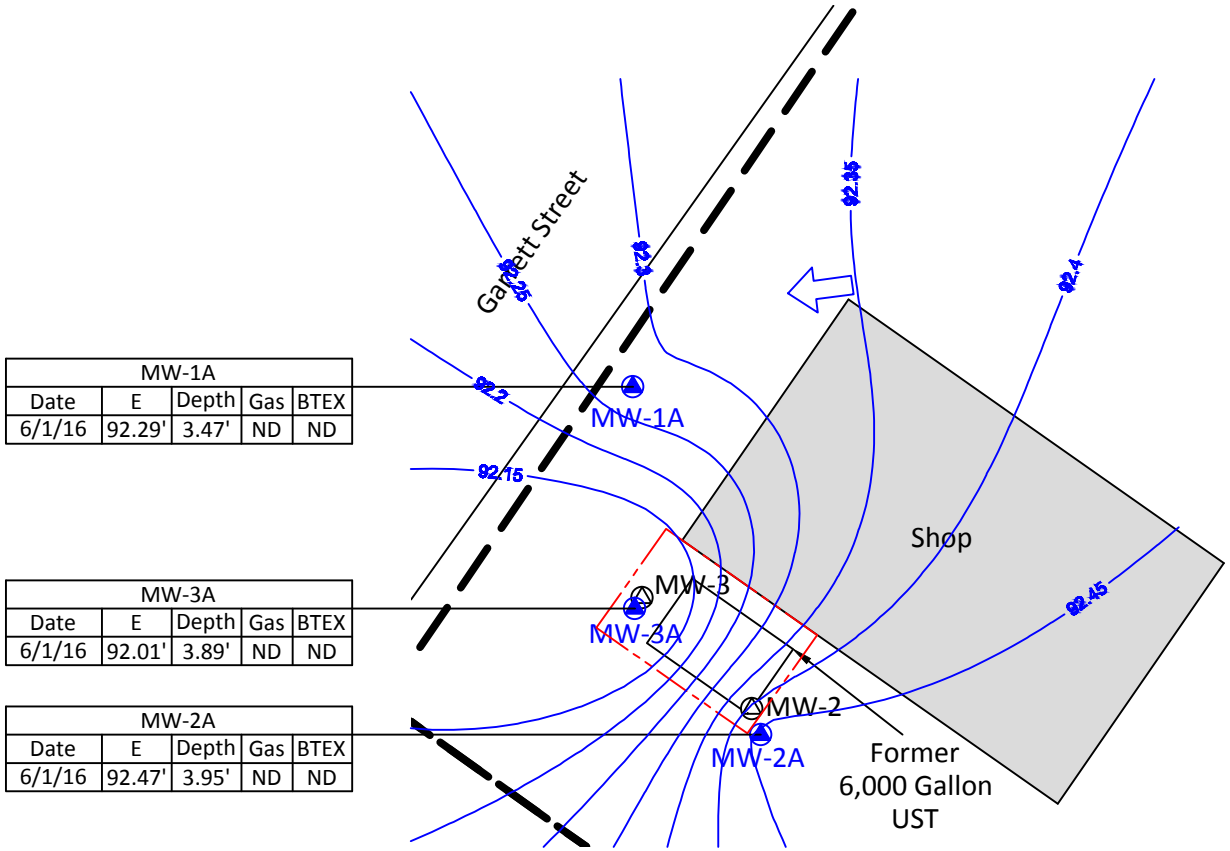
PGH Excavating		Figure 2
RGI Project Number 2016-049A	Site Representation	Date Drawn: 06/2016
Address: 1891 Garrett Street, Enumclaw, Washington 98022		



MW-1A				
Date	E	Depth	Gas	BTEX
6/1/16	92.29'	3.47'	ND	ND

MW-3A				
Date	E	Depth	Gas	BTEX
6/1/16	92.01'	3.89'	ND	ND

MW-2A				
Date	E	Depth	Gas	BTEX
6/1/16	92.47'	3.95'	ND	ND

= Groundwater Analytical Results given in ug/L

Gas = Gasoline Total Petroleum Hydrocarbons
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
E = Groundwater elevation based on arbitrary site datum of 100 feet
Depth = Depth to water from top of casing
ND = Not Detected Above Laboratory Detection Limits
---- = Not Analyzed
Bold and yellow highlighted results, if any, exceed MTCA Cleanup Level.

90.75 = Groundwater contours generated using Surfer Software (based on Kriging method). Contours based on June 1, 2016 water level measurements.

= Groundwater flow direction

= Monitoring well installed by RGI, 5/27/16

= Previous well drilled by Dames & Moore, removed in 1991

= Previous UST excavation limits

= Site Boundary

Approximate Scale: 1"=30'

0 15 30 60

N

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PGH Excavating		Figure 3
RGI Project Number 2016-049A	Site Representation with 2016 Groundwater Analytical Data	Date Drawn: 06/2016
Address: 1891 Garrett Street, Enumclaw, Washington 98022		

Table 1. Summary of Groundwater Grab Sample Analytical Laboratory Results
PGH Excavating
1891 Garrett Street, Enumclaw, Washington 98022
The Riley Group, Inc. Project No. 2016-049A

Sample Number	Sample Date	Groundwater Elevation (Feet)	Depth to Water (bgs)	Gasoline TPH	BTEX			
					B	T	E	X
MW-1A	06/01/16	92.29	3.47	ND<100	ND<1	ND<1	ND<1	ND<3
MW-2A	06/01/16	92.47	3.95	ND<100	ND<1	ND<1	ND<1	ND<3
MW-3A	06/01/16	92.01	3.89	ND<100	ND<1	ND<1	ND<1	ND<3
MTCA Method A Cleanup Levels for Ground Water				**800/1,000[1]**	**5**	**1,000**	**700**	**1,000**

Notes:
Samples collected by RGI field staff using a peristaltic pump.

Unless otherwise noted, all analytical results are given in micrograms per liter (ug/L), equivalent to parts per billion (ppb).

Gasoline TPH (total petroleum hydrocarbons) determined using Northwest Test Method NWTPH-Gx.
BTEX (benzene, toluene, ethylbenzene, and xylenes) determined using EPA Test Method 8021B.
ND = Not detected above the noted analytical detection limit.
Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A Cleanup Levels for Ground Water (WAC 173-340-900, Table 720-1).
[1] The higher cleanup level is applicable if no benzene is detected in groundwater.
Bold results indicated concentrations above laboratory detection limits.
Bold and yellow highlighted results indicate concentrations (if any) that exceed MTCA Method A Cleanup Levels for Ground Water.

Project Name: **PGH Excavating** Project Number: **2016-049A** Client: **PGH Excavating, Inc.**	RILEYGROUP Test Probe/Well No.: **MW-1A** **Sheet 1 of 1**

Date(s) Drilled: **05/27/16**	Logged By: **DJB**	Surface Conditions: **Gravel**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **2.25"**	Total Depth of Borehole: **18 feet bgs**
Drill Rig Type: **Track-Mounted**	Drilling Contractor: **RGI**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **8.5' on 5/27/16, 3.47' on 6/01/16**	Sampling Method(s): **Grab**	Hammer Data : **n/a**
Borehole Backfill:	Location: **1891 Garrett Street, Enumclaw, Washington 98022**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0				0.0		SM		Brown, silty SAND with cobbles, no sheen		Concrete 0 - 1 Blank 3/4" PVC 0 - 8 Bentonite 1 - 7
	5				0.0		SM		Gray, silty, fine to medium SAND with gravel, moist, no sheen		Silica Sand 7 - 18 Prepack 3/4" Slotted PVC 8 - 18
	10				0.0		SM		Gray/brown, silty, fine to coarse SAND with occasional gravel, wet, no sheen		
	15								Boring terminated 18 feet bgs		
	20										
	25										

Project Name: **PGH Excavating** Project Number: **2016-049A** Client: **PGH Excavating, Inc.**	RILEYGROUP Test Probe/Well No.: **MW-2A** **Sheet 1 of 1**

Date(s) Drilled: **05/27/16**	Logged By: **DJB**	Surface Conditions: **Gravel**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **2.25"**	Total Depth of Borehole: **18 feet bgs**
Drill Rig Type: **Track-Mounted**	Drilling Contractor: **RGI**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **9' on 5/27/16, 3.95' on 6/01/16**	Sampling Method(s): **Grab**	Hammer Data : **n/a**
Borehole Backfill:	Location: **1891 Garrett Street, Enumclaw, Washington 98022**	

Elevation (feet)	Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
	0				0.0		SM		Brown, silty SAND with cobbles, no sheen		Concrete 0 -1 Blank 3/4" PVC 0 -8
	5				0.0		SM		Gray, silty, fine to coarse SAND with gravel, moist, no sheen		Bentonite 1 - 7 Silica Sand 7 - 18 Prepack 3/4" Slotted PVC 8 - 18
	10										
	15										
	20								Boring terminated 18 feet bgs		
	25										

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Project Name: **PGH Excavating** Project Number: **2016-049A** Client: **PGH Excavating, Inc.**	Test Probe/Well No.: **MW-3A** **Sheet 1 of 1**

Date(s) Drilled: **05/27/16**	Logged By: **DJB**	Surface Conditions: **Gravel**
Drilling Method(s): **Direct Push**	Drill Bit Size/Type: **2.25"**	Total Depth of Borehole: **18 feet bgs**
Drill Rig Type: **Track-Mounted**	Drilling Contractor: **RGI**	Approximate Surface Elevation (feet amsl): **n/a**
Groundwater Level: **9.5' on 5/27/16, 3.89' on 6/01/16**	Sampling Method(s): **Grab**	Hammer Data : **n/a**
Borehole Backfill:	Location: **1891 Garrett Street, Enumclaw, Washington 98022**	

Depth (feet)	Sample Type	Sample ID	Sampling Resistance, blows/ft	PID Reading, ppm	Recovery (%)	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	Well Log	REMARKS AND OTHER TESTS
0				0.0		SM		Brown, silty SAND with cobbles, no sheen		Concrete 0 - 1 Blank 3/4" PVC 0 - 8 Bentonite 1 - 7
5				0.0		SM		Gray, silty, fine SAND with occasional coarse sand and gravel, moist, no sheen		Silica Sand 7 - 18 Prepack 3/4" Slotted PVC 8 - 18
				0.0						
10										
15										
20								Boring terminated 18 feet bgs		
25										

The Riley Group, Inc.
17522 Bothell Way NE, Bothell, WA 98011

Project Name: **PGH Excavating**

Project Number: **2016-049A**

Client: **PGH Excavating, Inc.**

RILEYGROUP

Boring Log Key

Sheet 1 of 1

1 Elevation (feet)	2 Depth (feet)	3 Sample Type	4 Sample ID	5 Sampling Resistance, blows/ft	6 PID Reading, ppm	7 Recovery (%)	8 USCS Symbol	9 Graphic Log	10 MATERIAL DESCRIPTION	11 Well Log	12 REMARKS AND OTHER TESTS

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample ID: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
7 Recovery (%): Core Recovery Percentage is determined based on a ratio of the length of core sample recovered compared to the cored interval length.
8 USCS Symbol: USCS symbol of the subsurface material.
9 Graphic Log: Graphic depiction of the subsurface material encountered.
10 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
11 Well Log: Graphical representation of well installed upon completion of drilling and sampling.
12 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Bentonite
Portland Cement Concrete
Silty SAND (SM)
Poorly graded SAND (SP)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Continuous
Grab Sample
2.5-inch-OD Modified California w/ brass liners
Pitcher Sample
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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June 8, 2016

David Baumgarten, Project Manager
The Riley Group, Inc.
17522 Bothell Way NE
Bothell, WA 98011

Dear Mr. Baumgarten:

Included are the results from the testing of material submitted on June 2, 2016 from the PGH Excavating 2016-049A, F&BI 606039 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
TRG0608R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 2, 2016 by Friedman & Bruya, Inc. from the The Riley Group PGH Excavating 2016-049A, F&BI 606039 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	The Riley Group
606039 -01	MW-1A
606039 -02	MW-2A
606039 -03	MW-3A

All quality control requirements were acceptable.

Date of Report: 06/08/16
Date Received: 06/02/16
Project: PGH Excavating 2016-049A, F&BI 606039
Date Extracted: 06/06/16
Date Analyzed: 06/06/16

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW-1A 606039-01	<1	<1	<1	<3	<100	94
MW-2A 606039-02	<1	<1	<1	<3	<100	95
MW-3A 606039-03	<1	<1	<1	<3	<100	94
Method Blank 06-1069 MB	<1	<1	<1	<3	<100	96

Date of Report: 06/08/16
Date Received: 06/02/16
Project: PGH Excavating 2016-049A, F&BI 606039

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

Laboratory Code: 606037-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	97	65-118
Toluene	ug/L (ppb)	50	98	72-122
Ethylbenzene	ug/L (ppb)	50	100	73-126
Xylenes	ug/L (ppb)	150	98	74-118
Gasoline	ug/L (ppb)	1,000	97	69-134

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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. Variability is attributed to sample inhomogeneity.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

606039

SAMPLE CHAIN OF CUSTODY ME 6/2/16 E02172

Page # 1 of 1

Report To DAVID BAUMGARTEN

Company RILEY GROUP

Address 17522 BOTHELL WA

City, State, ZIP BOTHELL WA

Phone 425 415-0551 Email

SAMPLERS (signature)

PROJECT NAME: PAH EXCAVATING 2016-049A

PO #

REMARKS

INVOICE TO: DBB

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-1A	02A-E	6/1/16	130	W	5			X	X								
MW-2A	02	"	1130	W	5			X	X								
MW-3A	03	"	1230	W	5			X	X								
													Samples received at 2 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	DAVID BAUMGARTEN	RGI		
Received by:	JASON STALEY	FedEx	6-2-16	8:47
Relinquished by:				
Received by:	Nhan Phan	FEBI	6/2/16	1025

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