Adapt Consulting
617 - 8th Avenue South
Seattle, WA 98104

Tel: (206) 654-7045
AdaptNW.com

February 2, 2024

Adapt Project No. WA24-22605-PH2

High-Tech Building & Design
625 Acorn Court SE
Olympia, Washington 985503

Attention: Chad Schroeder
Senior Vice President

Subject: Limited Arsenic & Lead Soil Sampling Screen
Residential Property
654 Sandra Lee Court SE
Olympia, Washington 98513

Dear Mr. Schroeder:

Adapt Consulting (Adapt) is pleased to provide you with the results of our Limited Arsenic & Lead Sampling Screen for the above-referenced site. This report is provided for High-Tech Building & Design and their agents. If this report is to be reproduced and/or transmitted to a third party, it must be reproduced and/or transmitted in its entirety. Any exceptions will be made only with the written permission of Adapt. This work was authorized by High-Tech Building & Design in the form of a proposal (Adapt Proposal Number P-5833, dated January 15, 2024) and signed on January 16, 2024.

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

Respectfully Submitted,

Adapt Consulting

John T. Bhend

John T. Bhend, L.G.
Environmental Services Manager

JTB/jtb

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1.0 INTRODUCTION

1.1 Subject Property Description

The subject property is located at 654 Sandra Lee Court SE in Olympia, Washington (see Figure 1) and is comprised of one tax parcel (Thurston County tax parcel number 65120000400) with a reported area of 1.08 acres (see Figure 2).

1.2 Project Background

Adapt has been informed by Chad Schroder with High-Tech Building & Design (High-Tech) that the property owners are in the process of having an addition to their house constructed and are currently going through the permitting process. As the subject property is located within the Nisqually Hillside Overlay district (characterized as a special landslide hazard area), High-Tech had to file a Reasonable Use Exception (project number 2023104664). As part of the public comment and response process, the State of Washington Department of Ecology (Ecology) prepared a response that stated the subject property is in an area that may have been contaminated with heavy metals due to the air emissions originating from the old Asarco smelter historically located in north Tacoma. Review of Ecology's Tacoma Smelter Plume Map indicates the subject property is located within an area with a predicted arsenic concentration of 40.1 parts-per-million (ppm) to 100 ppm.

Ecology also stated the following:

> *Ecology recommends Thurston County consider adopting future policies related to the Tacoma Smelter Plume. Ecology also recommends the following actions prior to issuing permits for residential development project that involve the movement or alteration of soil:*
>
> - *Sample the soil and analyze for arsenic and lead adhering to the 2019 Tacoma Smelter Plume Model Remedies Guidance. Please contact Diana Ison with the Southwest Regional Office (SWRO), the Toxics Cleanup Prgram at 360-999-9593 or via email at diana.ison@ecy.wa.gov for guidance about soil sampling within the Tacoma Smleter Plume. The soil sampling results should be sent to Ecology for review.*

1.3 Scope of Work and Authorization

The purpose of the Limited Arsenic & Lead Soil Sampling Screen was to evaluate potential impacts to surface soil associated with heavy metals due to the air emissions originating from the old Asarco smelter historically located in north Tacoma in the area of the subject property where clearing and grading activities are proposed to be completed.

Adapt reviewed Ecology's *Tacoma Smelter Plume Model Remedies Guidance*, Publication Number 19-09-101, dated July 2019 for guidance on assessing potential arsenic and lead impacts to near-surface soil in the subject property where clearing and grading activities are proposed to be completed. Ecology's guidance calls for identification of Decision Units before starting the sampling work. Review of the Notice of Land Use Application (Project Number 2023104664), mailed on October 18, 2023 indicates that the proposed addition construction project will include clearing and grading of approximately 1,114 square feet of area in an area located directly northwest of the existing residence located at the subject property. To fully incorporate the proposed work area, the proposed sampling work was completed in an area

measuring approximately 37 feet (north to south) by 46 feet (east to west) (total of approximately 1,700 square feet). As this is the only portion of the subject property to be disturbed as part of the proposed construction project, this approximately 1,700 square foot area has been designated as the decision unit for the purpose of the completed soil sampling work (see Figure 3).

This work was authorized by High-Tech Building & Design in the form of a proposal (Adapt Proposal Number P-5833, dated January 15, 2024) and signed on January 16, 2024.

2.0 ACTIVITIES

2.1 Fieldwork – Surface Soil Sampling

On January 23, 2024 Adapt collected surface soil samples from five locations at the subject property in the area where clearing and grading is proposed, the decision unit for the subject property (see Figure 3). The sample locations were in an area of the subject property that consists of a grass lawn and a sloped landscaped area (see Appendix B).

Grass, leaves, and/or debris was cleared away prior to starting the initial sampling interval. One sample was collected from within the top 0 to 6 inches of soil at each location and an additional sample was collected from a depth of 6 to 12 inches. Based on Ecology surface soil sampling recommendations (*Tacoma Smelter Plume Model Remedies Guidance)*, every fourth sample location included analysis of the deeper, 6 to 12 inches sample. The remaining deeper soil samples was held as an archive pending the shallow sample analysis results.

The samples were collected from each depth interval with a hand auger. The soil from each individual depth interval was placed in a clean stainless-steel bowl and mixed with a stainless steel spoon. The mixed soil sample was then paced into a laboratory provided 4-ounce gas jar with a Teflon® lined lid and placed in a cooler with ice and delivered to Friedman & Bruya, Inc.'s laboratory located in Seattle, Washington the same day under standard chain-of-custody procedures.

The hand auger, stainless steel bowl and stainless-steel spoon were cleaned with an Alconox solution and rinsed with distilled water between each sampling interval. The rinse water was placed in the lawn area within the limits of the designated decision unit for the subject property where it infiltrated into the ground.

2.2 Laboratory Testing – Surface Soil Sampling

The collected soil samples were analyzed for arsenic and lead by Environmental Protection Agency (EPA) Method 6020B.

3.0 RESULTS

3.1 Subsurface Conditions - Soil

The surface cover within the decision unit for the subject property consisted of a grass covered lawn, with a ground-cover type of vegetation covered slope near the southwest portion of the decision unit. The observed soil from the 0- to 6-inch depth interval generally consisted of moist, dark brown to brown fine sand with trace amounts of silt and small gravel, with grass roots and general organic material observed within the upper 3-inch depth range. The observed soil from the 6 to 12-inch depth interval generally consisted of moist, brown fine sand with variable amounts of rounded gravel, with a general increase in gravel content with an increase in depth.

3.2 Quantitative Analyses

A total of ten soil samples were collected from the five completed sampling locations (22605-SS-01 through 22605-SS-05). Initially, five soil samples from the 0- to 6-inch depth interval and two soil samples from the 6- to 12-inch depth interval were submitted for analytical testing. Based on the initial testing results, one additional soil sample from the 6- to 12-inch depth interval was submitted for analytical testing.

In accordance with the recommended Ecology practices (*Tacoma Smelter Plume Model Remedies Guidance)*, the average arsenic and lead concentrations were calculated for the 0 to 6 inch and 6-to-12-inch depth intervals. The average arsenic concentration for the 0- to 6-inch depth interval was 10.4 parts-per-million (ppm) and for the 6- to 12-inch depth interval is 7.7 ppm. The average lead concentration for the 0- to 6-inch depth interval was 21.0 ppm and for the 6- to 12-inch depth interval was 10.6 ppm.

The maximum detected arsenic concentration was 20.4 ppm and the maximum detected lead concentration was 50.4 ppm.

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

4.0 CONCLUSIONS

The purpose of the Limited Arsenic & Lead Soil Sampling Screen was to evaluate potential impacts to surface soil associated with heavy metals due to the air emissions originating from the old Asarco smelter historically located in north Tacoma in the subject property where clearing and grading activities are proposed to be completed. To fully incorporate the proposed work area, the proposed sampling work was completed in an area measuring approximately 37 feet (north to south) by 46 feet (east to west) (total of approximately 1,700 square feet). As this is the only portion of the subject property to be disturbed as part of the proposed construction project, this approximately 1,700 square foot area has been designated as the decision unit for the purpose of the completed soil sampling work.

Ecology has established criteria for what constitutes "Elevated" average arsenic and average lead concentrations and "Elevated" maximum arsenic and lead concentrations (*Tacoma Smelter Plume Model Remedies Guidance*). The Ecology established "Elevated" average arsenic

concentration is 20 ppm. The average arsenic concentrations for the 0- to 6-inch (10.4 ppm) and 6- to 12-inch (7.7 ppm) depth intervals are both below the Ecology established "Elevated" average arsenic concentration of 20 ppm. The Ecology established "Elevated" maximum arsenic concentration is 40 ppm. The maximum detected arsenic concentration was 20.4 ppm, which is below the Ecology established "Elevated" maximum arsenic concentration of 40 ppm.

The Ecology established "Elevated" average lead concentration is 250 ppm. The average lead concentrations for the 0- to 6-inch (21.0 ppm) and 6- to 12-inch (10.6 ppm) depth intervals are both below the Ecology established "Elevated" average lead concentration of 250 ppm. The Ecology established "Elevated" maximum lead concentration is 500 ppm. The maximum detected lead concentration was 50.4 ppm, which is below the Ecology established "Elevated" maximum arsenic concentration of 500 ppm.

5.0 RECOMMENDATIONS

The results of the Limited Arsenic & Lead Soil Sampling Screen did not document "Elevated" arsenic and lead impacts to soil from the 0- to 6-inch and 6- to 12-inch depth intervals within the limits of the decision unit for the subject property. Review of Ecology's *Tacoma Smelter Plume Model Remedies Guidance* indicates that if none of the decision units is "Elevated", there is no need to conduct a cleanup and that the results of the soil sampling work be compiled and sent to Ecology.

Based on the findings of the completed Limited Arsenic & Lead Soil Sampling Screen, it is Adapt's professional opinion that no further assessment or cleanup is necessary for arsenic and lead impacts to soil within the decision unit where clearing and grading work is proposed. Adapt recommends the completed soil sampling results are sent to Ecology to comply with Ecology's *Tacoma Smelter Plume Model Remedies Guidance.*

6.0 LIMITATIONS

Information contained in this report is based upon site characterization, field observations, and the laboratory analyses completed for this study. Conclusions presented are professional opinions based upon our interpretation of the analytical laboratory test results, as well as our experience and observations during the field activities. The location and depth of the samples, as well as the analytical scope were completed within the subject property and proposal constraints. Adapt's observations and the analytical data are limited to the vicinity of each test probe and do not necessarily reflect conditions across the subject property. No other warranty, express or implied, is made. If additional information regarding either the subject property or surrounding properties becomes known, or changes to existing conditions occurs, the conclusions in this report should be reviewed, and if necessary, revised to reflect the updated information. Project specific limitations are presented in the appropriate sections of this report.

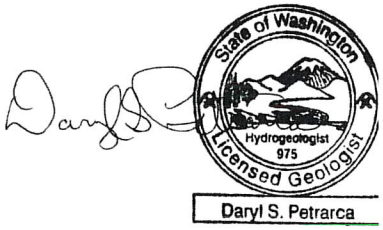
This report has been prepared for the exclusive use of High-Tech Building & Design and their agents for specific application to the subject property. Use or reliance upon this report by a third is at their own risk. Adapt does not make any representation or warranty, express or implied, to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatever, known or unknown, to Adapt.

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

Respectfully Submitted,

Adapt Consulting

John T. Bhend, L. G.
Environmental Services Manager



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

APPENDIX A

FIGURES AND TABLES

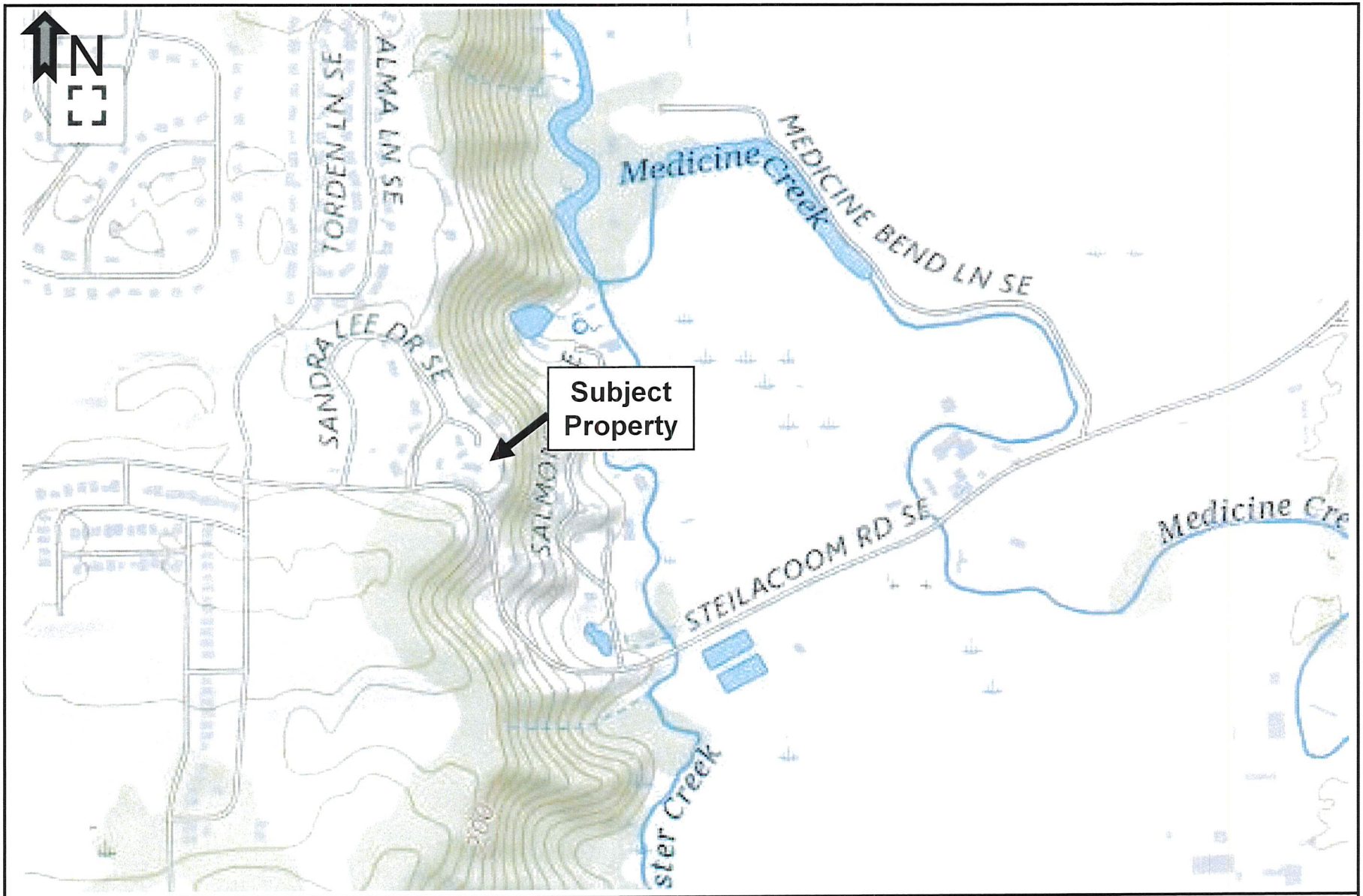


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FIGURE 1 – Location/Topographic Map
Location: Residential Property
654 Sandra Lee Court SE
Olympia, Washington 98513
Client: **High-Tech Building & Design**
Date: February 2, 2024 **Job #:** WA24-22605-PH2

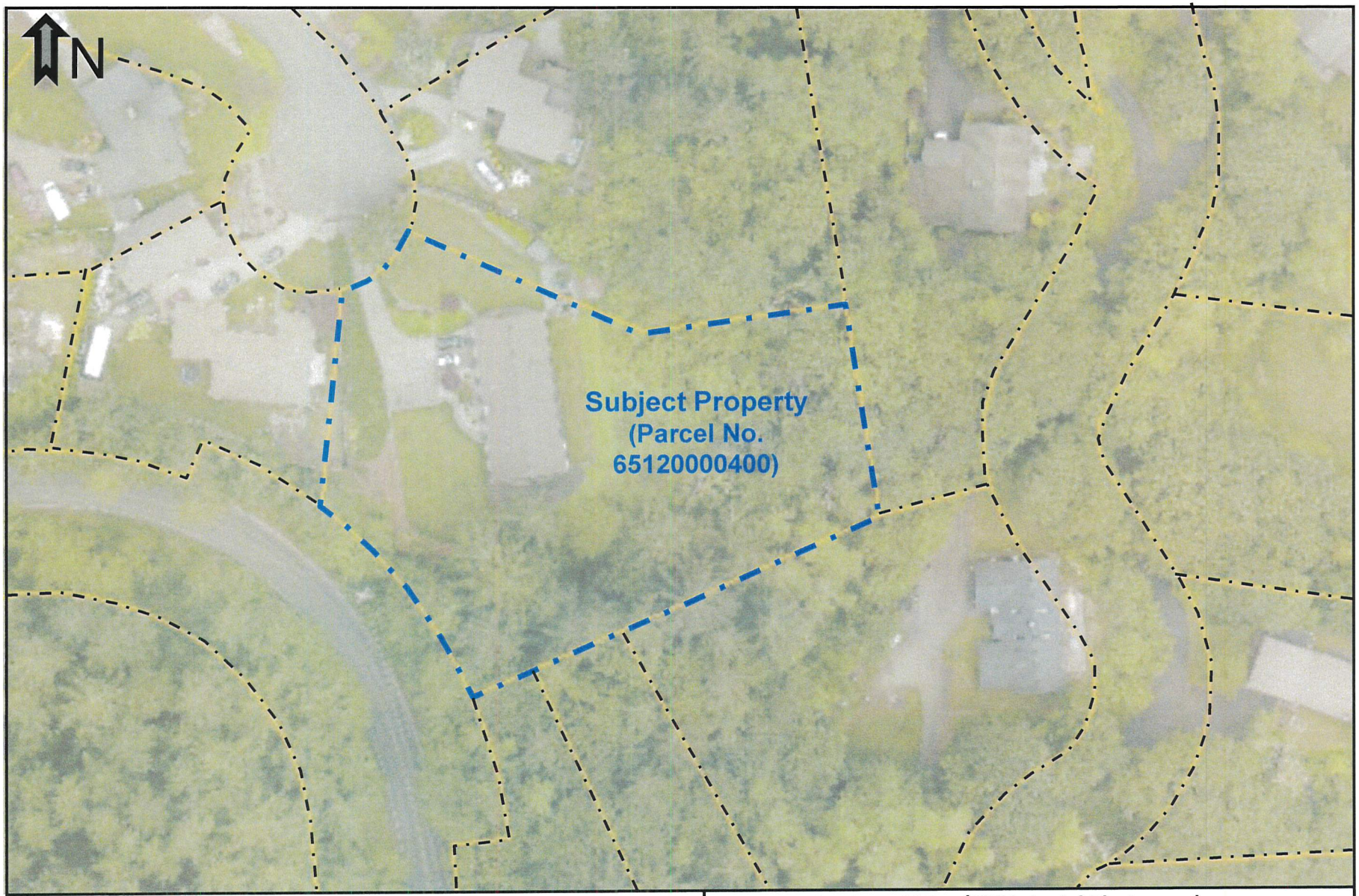

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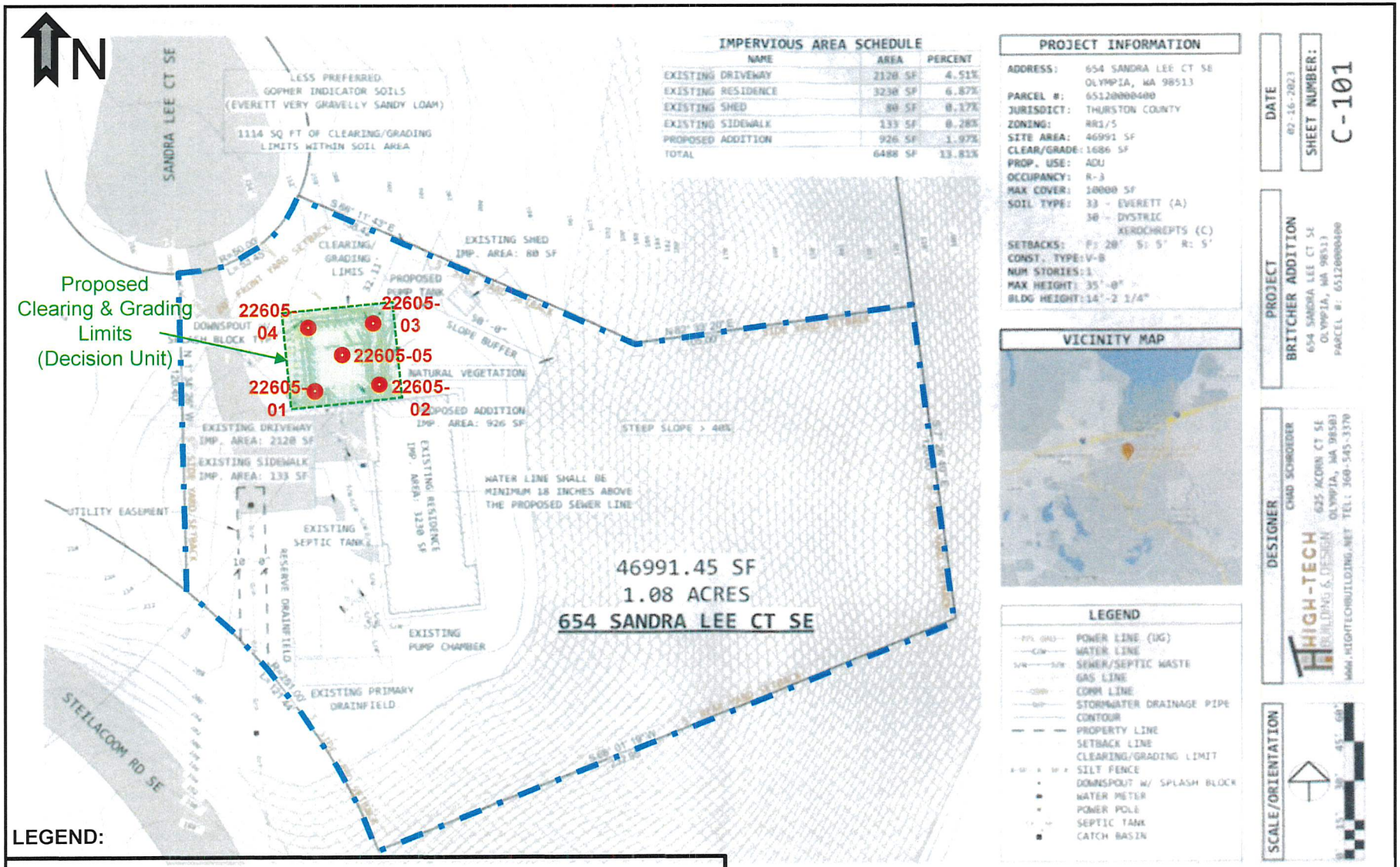
FIGURE 2 – Parcel Map/2021 Aerial Photograph
Location: Residential Property
654 Sandra Lee Court SE
Olympia, Washington 98513
Client: **High-Tech Building & Design**
Date: February 2, 2024 **Job #:** WA24-22605-PH2



LEGEND:

- Soil Sampling ID and Approximate Location

Plan referenced from Sheet Number C-101, prepared by High-Tech Building & Design

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FIGURE 3 – Exploration Plan
Location: Residential Property
654 Sandra Lee Court SE
Olympia, Washington 98513
Client: **High-Tech Building & Design**
Date: February 2, 2024 **Job #:** WA24-22605-PH2

Table 1: Summary of Soil Analytical Results

Date	Sample ID	Depth	Analyte	
			Arsenic	Lead
1/23/2024	22605-01	0-6"	4.56	10.6
	22605-02		10.6	50.4
	22605-03		5.15	6.06
	22605-04		20.4	25.9
	22605-05		11.1	12.1
	Average		**10.4**	**21.0**
	22605-01	6-12"	-	-
	22605-02		-	-
	22605-03		4.93	5.52
	22605-04		8.22	10.3
	22605-05		9.89	16.0
	Average		**7.7**	**10.6**
MTCA Method A Soil Cleanup Level			20	250

All concentrations given in parts per million (ppm), which is equivalent to milligrams per kilogram
MTCA = Model Toxics Control Act (MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses shown)
- = Not tested

APPENDIX B

PHOTOGRAPHS

1. View looing to the southeast at the grass lawn surfaced decision area.

2. View looking to the north at the landscaped slope area near the southwest portion of the decision unit.

3. Hand auger soil sampling at the location of sample 22605-03.

4. Stainless steel bowl and spoon used to mix soil from individual sampling depths.

APPENDIX C

LABORATORY DATA REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

January 26, 2024

John Bhend, Project Manager
Adapt Engineering
617 8th Ave S
Seattle, WA 98104

Dear Mr Bhend:

Included are the results from the testing of material submitted on January 23, 2024 from the Residential Property WA24-22605-PH2, F&BI 401289 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ADP0126R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 23, 2024 by Friedman & Bruya, Inc. from the Adapt Engineering Residential Property WA24-22605-PH2, F&BI 401289 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Adapt Engineering
401289 -01	22605-01:0-6"
401289 -02	22605-01:6-12"
401289 -03	22605-02:0-6"
401289 -04	22605-02:6-12"
401289 -05	22605-03:0-6"
401289 -06	22605-03:6-12"
401289 -07	22605-04:0-6"
401289 -08	22605-04:6-12"
401289 -09	22605-05:0-6"
401289 -10	22605-05:6-12"

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-01:0-6"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-01
Date Analyzed:	01/24/24	Data File:	401289-01.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.56
Lead	10.6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-02:0-6"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-03
Date Analyzed:	01/24/24	Data File:	401289-03.120
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	10.6
Lead	50.4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-03:0-6"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-05
Date Analyzed:	01/24/24	Data File:	401289-05.122
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.15
Lead	6.06

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-03:6-12"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-06
Date Analyzed:	01/24/24	Data File:	401289-06.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.93
Lead	5.52

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-04:0-6"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-07
Date Analyzed:	01/24/24	Data File:	401289-07.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	20.4
Lead	25.9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-05:0-6"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-09
Date Analyzed:	01/24/24	Data File:	401289-09.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	11.1
Lead	12.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-05:6-12"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	401289-10
Date Analyzed:	01/24/24	Data File:	401289-10.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	9.89
Lead	16.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Adapt Engineering
Date Received:	Not Applicable	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/24/24	Lab ID:	I4-59 mb
Date Analyzed:	01/24/24	Data File:	I4-59 mb.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

Date of Report: 01/26/24
Date Received: 01/23/24
Project: Residential Property WA24-22605-PH2, F&BI 401289

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

Laboratory Code: 401289-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	86	90	75-125	5
Lead	mg/kg (ppm)	50	7.98	88	90	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	99	80-120
Lead	mg/kg (ppm)	50	94	80-120

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

j - The analyte concentration is reported below the standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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.

401289

SAMPLE CHAIN OF CUSTODY

01/23/24

M2

Page # 1 of 1

Report To John Bhend

Company Adapt

Address 617-8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email JohnBhend@AdaptNW.com

SAMPLERS (*signature*) John Bhend

PROJECT NAME: Residential Property

PO #: 01A24-22605-PH2

REMARKS

Project specific RLs? - Yes / (No)

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Arsenic & Lead				Notes
22605-01:0-6"	-01	01-23-24	0940	Soil	1								X				
22605-01:6-12"	02		0948														Hold
22605-02:0-6"	03		1000										X				
22605-02:6-12"	04		1005														Hold
22605-03:0-6"	05		1015										X				
22605-03:6-12"	06		1020										X				
22605-04:0-6"	07		1036										X				
22605-04:6-12"	08		1042														Hold
22605-05:0-6"	09		1052										X				
22605-05:6-12"	10	↓	1058	↓	↓								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: John Bhend	John Bhend	Adapt	1-23-24	1343
Received by:	ANHPHAN	F&B	01/23/24	13:43
Relinquished by:				
Received by:		Samples received at 1 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

January 31, 2024

John Bhend, Project Manager
Adapt Engineering
617 8th Ave S
Seattle, WA 98104

Dear Mr Bhend:

Included are the additional results from the testing of material submitted on January 23, 2024 from the Residential Property WA24-22605-PH2, F&BI 401289 project. There are 5 pages included in this report.

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
ADP0131R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 23, 2024 by Friedman & Bruya, Inc. from the Adapt Engineering Residential Property WA24-22605-PH2, F&BI 401289 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Adapt Engineering
401289 -01	22605-01:0-6"
401289 -02	22605-01:6-12"
401289 -03	22605-02:0-6"
401289 -04	22605-02:6-12"
401289 -05	22605-03:0-6"
401289 -06	22605-03:6-12"
401289 -07	22605-04:0-6"
401289 -08	22605-04:6-12"
401289 -09	22605-05:0-6"
401289 -10	22605-05:6-12"

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	22605-04:6-12"	Client:	Adapt Engineering
Date Received:	01/23/24	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/26/24	Lab ID:	401289-08
Date Analyzed:	01/26/24	Data File:	401289-08.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.22
Lead	10.3

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Adapt Engineering
Date Received:	Not Applicable	Project:	WA24-22605-PH2, F&BI 401289
Date Extracted:	01/26/24	Lab ID:	I4-60 mb
Date Analyzed:	01/26/24	Data File:	I4-60 mb.070
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

Date of Report: 01/31/24
Date Received: 01/23/24
Project: Residential Property WA24-22605-PH2, F&BI 401289

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

Laboratory Code: 401289-08 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	6.74	109 b	111 b	75-125	2 b
Lead	mg/kg (ppm)	50	8.99	94	103	75-125	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	100	80-120
Lead	mg/kg (ppm)	50	96	80-120

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

j - The analyte concentration is reported below the standard reporting limit. 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.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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.

401289

SAMPLE CHAIN OF CUSTODY

01/23/24

M2

Page # 1 of 1

Report To John Bhend

Company Adapt

Address 617-8th Ave South

City, State, ZIP Seattle, WA 98104

Phone 206-654-7045 Email JohnBhend@AdaptNW.com

SAMPLERS (*signature*) John Bhend

PROJECT NAME: Residential Property

PO #: WA24-22605-PH2

REMARKS: Project specific RLs? - Yes / (No)

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	Arsenic & Lead				A-per JB 01/26/24 ME Notes
						ANALYSES REQUESTED											
22605-01:0-6"	-01	01-23-24	0940	Soil	1								X				
22605-01:6-12"	02	↓	0948	↓	↓												Hold
22605-02:0-6"	03		1000										X				
22605-02:6-12"	04		1005														Hold
22605-03:0-6"	05		1015										X				
22605-03:6-12"	06		1020										X				
22605-04:0-6"	07		1036										X				
22605-04:6-12"	08		1042										A				~~Hold~~
22605-05:0-6"	09		1052										X				
22605-05:6-12"	10	↓	1058	↓	↓								X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: John Bhend	John Bhend	Adapt	1-23-24	1343
Received by:	ANHPHAN	F&B	01/23/24	13:43
Relinquished by:				
Received by:		Samples received at 1 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282