

## T E C H N I C A L M E M O R A N D U M

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**TO:** Marvin Dykman c/o Clark Davis, Davis Law Office, PLLC

**FROM:** Stuart Brown, Project Scientist  
Jeffrey Kaspar, Principal Geologist

**DATE:** November 1, 2019

**RE:** **GROUNDWATER MONITORING REPORT  
THIRD QUARTER 2019  
SOUND BATTERY PROPERTY  
2310 EAST 11<sup>TH</sup> STREET  
TACOMA, WASHINGTON  
FARALLON PN: 1117-001**

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### INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum to summarize the results of the groundwater monitoring event conducted in third quarter of 2019 at the Sound Battery Property at 2310 East 11<sup>th</sup> Street in Tacoma, Washington (herein referred to as the Site) (Figures 1 and 2). Long-term groundwater monitoring is required by the Washington State Department of Ecology (Ecology) per the Environmental Covenant for Institutional Controls executed pursuant to Chapter 70.105D of the Washington State Model Toxics Control Act (MTCA) and Chapter 64.70 of the Uniform Environmental Covenants Act, between Mr. Marvin Dykman and Ecology dated January 10, 2017, recorded in Pierce County on February 3, 2017. Groundwater monitoring is being conducted at the Site in accordance with the *Long-Term Groundwater Monitoring Plan, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Washington State Department of Ecology, Facility Site No. 1247, Voluntary Cleanup Program No. SW1208* dated June 1, 2016, prepared by Farallon (Long-Term Groundwater Monitoring Plan). The required groundwater monitoring consisted of three events, to be conducted at an 18-month frequency that began in September 28, 2016. The second and third events were conducted on January 16, 2018 and September 16, 2019. This Technical Memorandum presents the results of the third and final groundwater monitoring event conducted on September 16, 2019. The results of the prior events have been reported in prior Technical Memoranda dated November 30, 2017 and March 6, 2018.



## BACKGROUND

A cleanup action was completed at the Site in February 2015, which included demolition of the Site building and removal of sections of the floor slab, excavation of 277 tons of soil containing lead at concentrations exceeding the MTCA Method A cleanup level for industrial land use as established in Chapter 173-340 of the Washington Administrative Code, off-Site stabilization of lead in the excavated soil, and disposal of stabilized soil at a Subtitle D waste disposal facility in accordance with the Ecology-approved *Cleanup Action Plan, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Voluntary Cleanup Program No. SW1208* dated July 24, 2014, prepared by Farallon.

An earlier cleanup action, preceding the 2015 cleanup action, was documented in the *Final Cleanup Action Report* dated July 22, 2002, prepared by GeoSystems Analysis, Inc. This cleanup action included excavation of 880 tons of soil containing lead at concentrations exceeding the MTCA Method A cleanup level for unrestricted land use from around the exterior of the Site building and from adjacent areas of the surrounding three parcels of land. The cleanup action conducted in 2002 also included on-Site stabilization of lead in the excavated soil and disposal of stabilized soil at the Subtitle D Pierce County Recycling, Composting, and Disposal Landfill operated by Land Recovery, Inc.

The completed cleanup action is summarized in the *Closure Report, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Voluntary Cleanup Program No. SW1208* dated July 27, 2015, prepared by Farallon.

A No Further Action determination with restrictions was issued by Ecology under the Voluntary Cleanup Program in the letter regarding No Further Action at the following Site: Sound (Allied) Battery Co. Inc., 2310 East 11<sup>th</sup> Street, Tacoma, Pierce County, WA; Facility/Site No.: 1247; Cleanup Site ID: 3646; VCP Project No.: SW1208 dated October 23, 2017, from Mr. Thomas Middleton of Ecology to Mr. Dykman. Ecology determined that no further remedial action was necessary to clean up contamination at the Site, provided that the results of the three previously cited long-term groundwater monitoring events indicated that lead concentrations in groundwater remained less than the MTCA Method A cleanup level of 15 micrograms per liter ( $\mu\text{g/l}$ ). The Environmental Covenant for Institutional Controls was recorded in Pierce County on February 3, 2017 documenting the need to conduct the long-term groundwater monitoring. The results of the of the September 2016 and January 2018 monitoring events indicated that total and dissolved lead concentrations in groundwater samples collected from monitoring wells MW-1 through MW-4 have been less than the MTCA Method A cleanup level.



## SEPTEMBER 2019 GROUNDWATER MONITORING EVENT

This section summarizes the groundwater sampling protocols and for the September 2019 monitoring event conducted at the Site.

### SAMPLING PROTOCOLS

Groundwater samples were collected at the Site on September 16, 2019 from monitoring wells MW-1 through MW-4 (Figure 2). The monitoring wells were opened, and groundwater levels were permitted to equilibrate with atmospheric pressure before groundwater-level measurements were obtained. The depth to groundwater in each monitoring well was measured to the nearest 0.01 foot using an electronic water-level measuring device. Depth to groundwater measurements are presented in Table 1.

Prior to sampling, groundwater was purged from the monitoring wells in accordance with U.S. Environmental Protection Agency (EPA) low-flow sampling protocols. The well purging and sampling were performed using a peristaltic pump and Teflon tubing at a flow rate of approximately 100 milliliters per minute. The tubing intake was placed at the approximate middle portion of the water column in each monitoring well. Water quality was monitored during purging for pH, temperature, turbidity, specific conductivity, dissolved oxygen, and oxidation-reduction potential (ORP) using a YSI Model ProDSS water-quality analyzer equipped with a flow-through cell. Groundwater samples were collected after the groundwater parameters stabilized. Groundwater parameters at the time of sampling are presented in Table 2.

Following purging, groundwater samples were collected directly from the pump outlet tubing upstream of the flow-through cell and placed into laboratory-prepared sample containers. Care was taken to not handle the container seal or lid when the samples were placed into the containers. The containers were filled to eliminate headspace, and the seal and lid were secured. Groundwater samples analyzed for dissolved lead were field filtered prior to sample collection. The sample containers were placed on ice in a cooler and transported under standard chain-of-custody protocols to OnSite Environmental Inc. of Redmond, Washington (OnSite) for laboratory analysis. Groundwater samples were submitted for laboratory analysis for total and dissolved lead by EPA Method 200.8.

### GROUNDWATER MONITORING RESULTS

This section presents results of the September 2019 monitoring event and the data validation conducted. Table 1 and Figure 3 include the groundwater elevations. The groundwater analytical results for total and dissolved lead are included in Table 3 and on Figure 4. The laboratory analytical report is provided in Appendix A.

Groundwater elevations measured in the Site monitoring wells on September 16, 2019 ranged from approximately 4.77 feet at monitoring well MW-2 to 3.53 feet at monitoring well MW-1 (Table 1). The approximate groundwater flow direction was to the northwest toward Commencement Bay (Figure 3).



Total and dissolved lead concentrations were less than the laboratory practical quantitation limit of 1.1 and 1.0 µg/l, respectively, in groundwater samples collected from monitoring wells MW-1 through MW-4 (Table 3; Figure 4). These results are less than the MTCA Method A cleanup level of 15 µg/l.

Farallon reviewed the analytical data package provided by OnSite for sample delivery group 1909-175, which included the groundwater samples for the September 2019 monitoring event (Attachment A). The groundwater samples were analyzed for total and dissolved lead by EPA Method 200.8, within the prescribed holding times. The quality assurance/quality control testing performed by OnSite included evaluation of duplicates and matrix spikes. Results from the quality assurance/quality control testing were within established laboratory method control limits. Based on Farallon's review of the quality assurance/quality control results, the groundwater analytical data are acceptable for use in characterizing groundwater quality at the Site.

## CONCLUSIONS

The September 2019 groundwater monitoring event marks the third of the Ecology-required long-term groundwater monitoring events conducted at the Site; in which neither total nor dissolved lead were detected at concentrations exceeding the laboratory practical quantitation limits. The overall groundwater monitoring results from 2016 through 2019 indicate that the cleanup activities have successfully eliminated the source of lead affecting groundwater. Since total and dissolved lead concentrations have remained less than the MTCA Method A cleanup level for all three groundwater monitoring events, an unrestricted No Further Action determination should be issued by Ecology that includes removal of the existing Environmental Covenant for Institutional Controls.

Attachments: Figure 1, *Vicinity Map*  
Figure 2, *Site Map*  
Figure 3, *Groundwater Elevations for September 16, 2019*  
Figure 4, *Groundwater Analytical Results for Total and Dissolved Lead*  
Table 1, *Groundwater Elevations*  
Table 2, *Groundwater Quality Data*  
Table 3, *Groundwater Analytical Results*  
Attachment A, *Laboratory Analytical Reports*

SB/JK:cm

## **FIGURES**

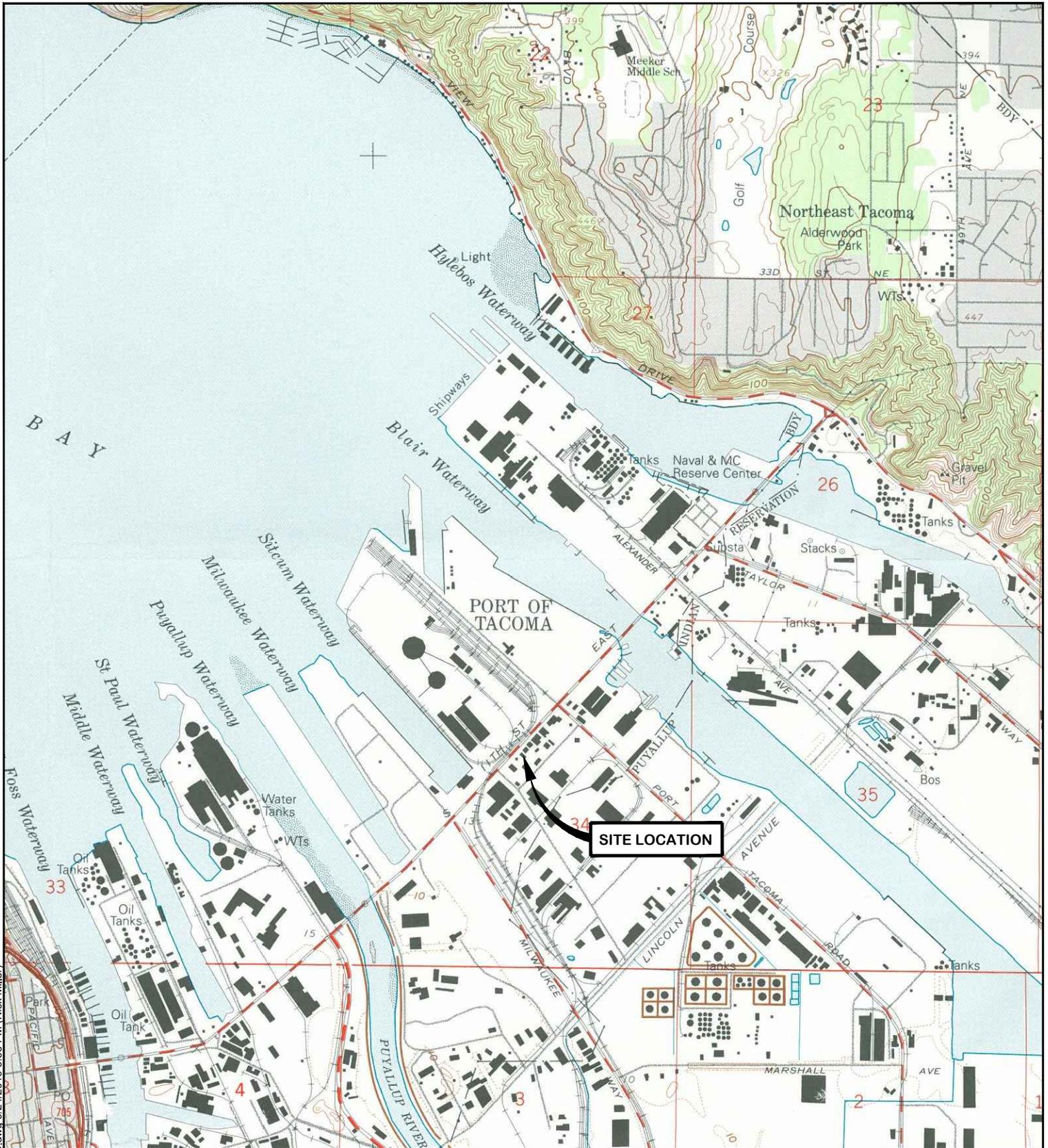
### **GROUNDWATER MONITORING REPORT**

Sound Battery Property

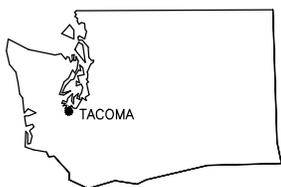
2310 East 11<sup>th</sup> Street

Tacoma, Washington

Farallon PN: 1117-001



REFERENCE: 7.5 MINUTE USGS QUADRANGLE TACOMA NORTH, WASHINGTON. DATED 1953 AND PHOTOREVISED 1981



WASHINGTON



  
 Washington  
 Issaquah | Bellingham | Seattle  
 Oregon  
 Portland | Baker City  
 California  
 Oakland | Sacramento | Irvine  
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Drawn By: SB

Checked By: NM

**FIGURE 1**  
 VICINITY MAP  
 SOUND BATTERY PROPERTY  
 2310 EAST 11TH STREET  
 TACOMA, WASHINGTON

FARALLON PN: 1117-001

Date: 9/24/2019

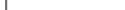
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EAST 11TH STREET

MW-4

FORMER TACOMA FIRE STATION NUMBER 12 PROPERTY

LEGEND

-  PROPERTY LINE
-  FENCE
-  FORMER ABANDONED CONCRETE-FILLED FLOOR DRAIN
-  MW-3 SHALLOW MONITORING WELL
-  APPROXIMATE EXTENT OF 2002 SHALLOW SOIL EXCAVATION
-  APPROXIMATE EXTENT OF 2015 SHALLOW SOIL EXCAVATION

ALL LOCATIONS ARE APPROXIMATE

NOTE:  
SITE BUILDING DEMOLISHED AND REMOVED FROM SITE IN FEBRUARY 2015

MW-1

LOADING DOCK

FORMER LEAD MELTING POTS AREA

CONCRETE FLOORING

PROPERTY BUILDING DEMOLISHED DURING THE CLEANUP

ORIGINAL BUILDING (~1947)

FORMER LEAD MELTING POTS AREA

BRICK CHIMNEY  
BATTERY ASSEMBLY LINE

CONCRETE FLOORING

BATTERY HOIST

FIRST ADDITION (~1960)

BATTERY CHARGE AREA

FORMER ACID TANK AREA

SECOND ADDITION (YEAR UNKNOWN)  
ASPHALT

INLET

ASPHALT

GRAVEL

MW-3

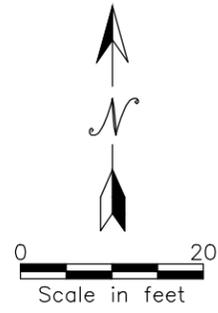
APEX FORGE AND TOOL COMPANY PROPERTY

FASTCO BUILDING PROPERTY

MW-2

PROPANE ABOVE GROUND STORAGE TANK

PREMIER TRANSPORT PARKING AREA




Washington  
Issaquah | Bellingham | Seattle

Oregon  
Portland | Baker City

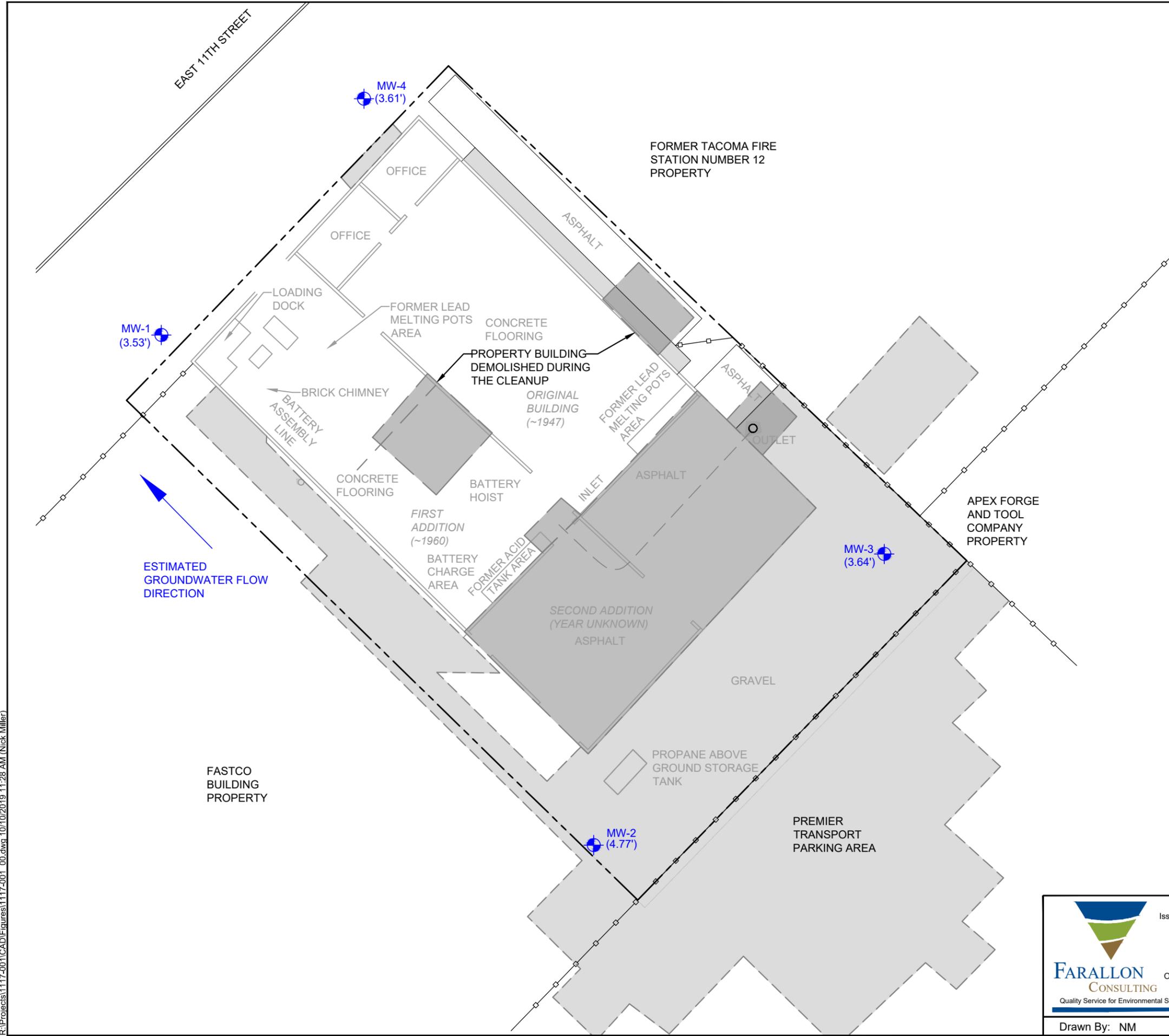
California  
Oakland | Sacramento | Irvine

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**FIGURE 2**  
SITE MAP  
SOUND BATTERY PROPERTY  
2310 EAST 11TH STREET  
TACOMA, WASHINGTON

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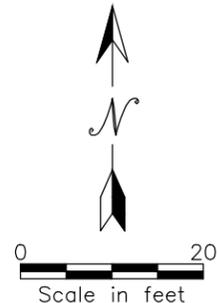


**LEGEND**

- PROPERTY LINE
- FENCE
- - - FORMER ABANDONED CONCRETE-FILLED FLOOR DRAIN
- MW-3 (3.61') SHALLOW MONITORING WELL
- APPROXIMATE EXTENT OF 2002 SHALLOW SOIL EXCAVATION
- APPROXIMATE EXTENT OF 2015 SHALLOW SOIL EXCAVATION
- (3.64') GROUNDWATER ELEVATION IN FEET BASED ON ASSUMED SITE-SPECIFIC DATUM, 9/16/2019
- ESTIMATED GROUNDWATER FLOW DIRECTION

ALL LOCATIONS ARE APPROXIMATE

**NOTE:**  
SITE BUILDING DEMOLISHED AND REMOVED FROM SITE IN FEBRUARY 2015



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Washington  
Issaquah | Bellingham | Seattle

Oregon  
Portland | Baker City

California  
Oakland | Sacramento | Irvine

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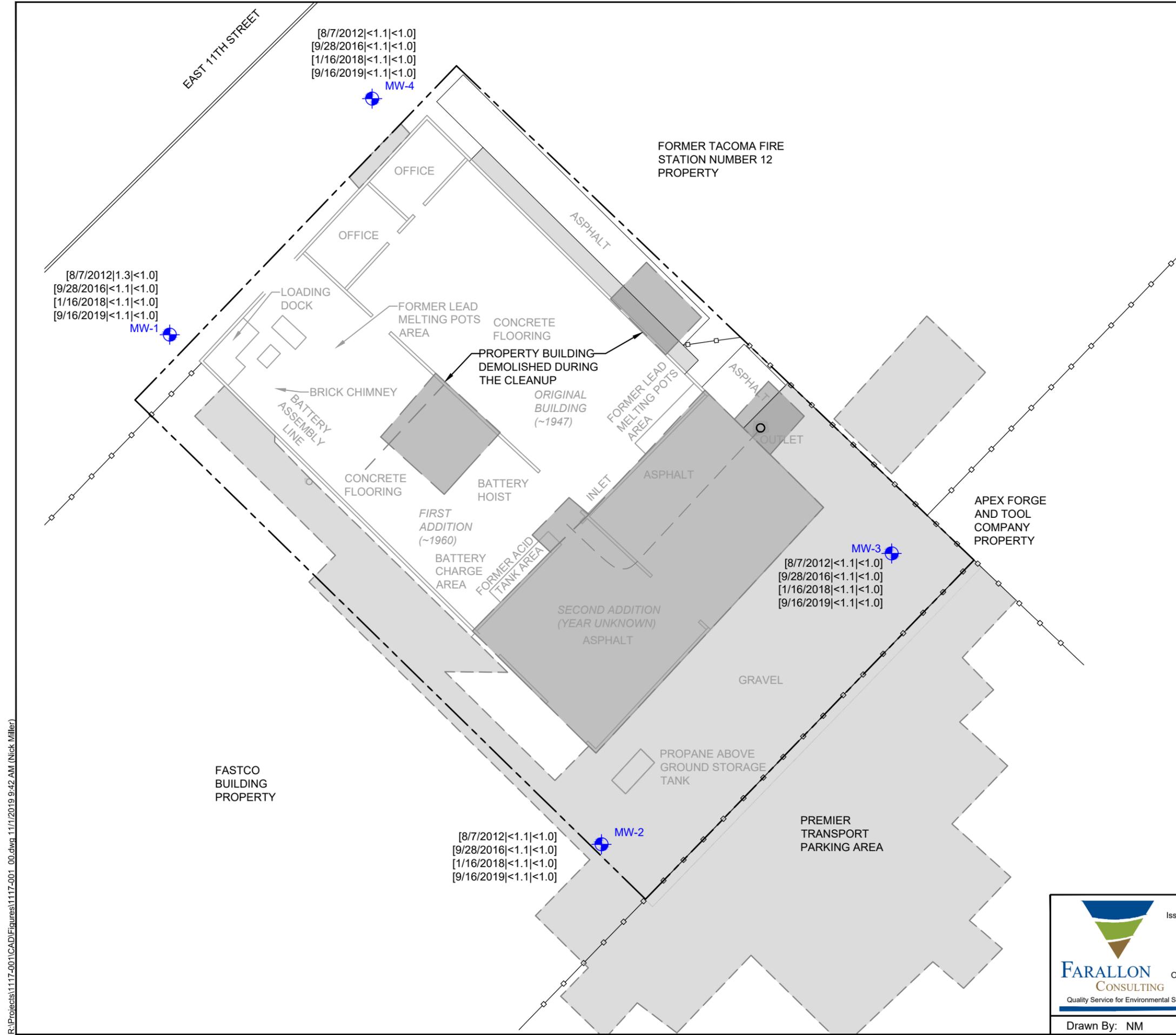
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**FIGURE 3**

GROUNDWATER ELEVATIONS FOR SEPTEMBER 16, 2019  
SOUND BATTERY PROPERTY  
2310 EAST 11TH STREET  
TACOMA, WASHINGTON

FARALLON PN: 1117-001



**LEGEND**

- PROPERTY LINE
- o-o- FENCE
- - - FORMER ABANDONED CONCRETE-FILLED FLOOR DRAIN
- MW-3 SHALLOW MONITORING WELL
- APPROXIMATE EXTENT OF 2002 SHALLOW SOIL EXCAVATION
- APPROXIMATE EXTENT OF 2015 SHALLOW SOIL EXCAVATION

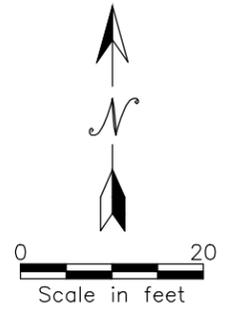
GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/L)

SAMPLE DATA AND CONCENTRATIONS REPORTED AS:  
[SAMPLE DATE | TOTAL LEAD | DISSOLVED LEAD]

< = INDICATES CONCENTRATION NOT DETECTED AT OR EXCEEDING THE STATED LABORATORY PRACTICAL QUANTITATION LIMIT

ALL LOCATIONS ARE APPROXIMATE

**NOTE:**  
SITE BUILDING DEMOLISHED AND REMOVED FROM SITE IN FEBRUARY 2015



Washington  
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Oregon  
Portland | Baker City

California  
Oakland | Sacramento | Irvine

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**FIGURE 4**

GROUNDWATER ANALYTICAL RESULTS FOR TOTAL AND DISSOLVED LEAD  
SOUND BATTERY PROPERTY  
2310 EAST 11TH STREET  
TACOMA, WASHINGTON

FARALLON PN: 1117-001

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## **TABLES**

### **GROUNDWATER MONITORING REPORT**

Sound Battery Property

2310 East 11<sup>th</sup> Street

Tacoma, Washington

Farallon PN: 1117-001

**Table 1**  
**Groundwater Elevations**  
**Sound Battery Property**  
**Tacoma, Washington**  
**Farallon PN: 1117-001**

<b>Monitoring Well</b>	<b>Date Measured</b>	<b>Well Head Elevation (feet)<sup>1</sup></b>	<b>Depth to Water (feet)<sup>2</sup></b>	<b>Groundwater Elevation (feet)<sup>1</sup></b>
MW-1	8/7/2012	10.48	6.34	4.14
	9/28/2016		7.07	3.41
	1/16/2018		5.35	5.13
	9/16/2019		6.95	3.53
MW-2	8/7/2012	15.25	10.66	4.59
	9/28/2016		11.32	3.93
	1/16/2018		9.51	5.74
	9/16/2019		10.48	4.77
MW-3	8/7/2012	13.83	9.50	4.33
	9/28/2016		10.18	3.65
	1/16/2018		8.30	5.53
	9/16/2019		10.19	3.64
MW-4	8/7/2012	10.34	6.21	4.13
	9/28/2016		6.85	3.49
	1/16/2018		5.18	5.16
	9/16/2019		6.73	3.61

**NOTES:**

<sup>1</sup> Elevations based on an arbitrary 100-foot datum established at the Site.

<sup>2</sup> In feet below measuring point on top of well casing.

**Table 2  
Groundwater Quality Data  
Sound Battery Property  
Tacoma, Washington  
Farallon PN: 1117-001**

Sample Location	Sample Date	Temperature (°Celsius)	Specific Conductivity (mS/cm)	pH (Standard Units)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	ORP (mV)
MW-1	8/7/2012	16.28	0.272	6.51	4.45	---	123.2
	9/28/2016	19.1	0.790	6.73	3.35	---	122.5
	1/16/2018	11.4	0.164	6.99	4.14	---	198.5
	9/16/2019	18.4	0.248	6.72	3.89	1.62	-62.2
MW-2	8/7/2012	16.13	0.566	7.15	0.27	---	47.1
	9/28/2016	17.5	0.404	7.36	0.36	---	13.2
	1/16/2018	10.7	0.231	7.26	0.31	---	4.0
	9/16/2019	17.6	0.420	7.46	1.55	0.25	-193.6
MW-3	8/7/2012	17.05	0.724	7.11	3.07	---	82.5
	9/28/2016	18.5	0.508	7.16	0.89	---	43.0
	1/16/2018	12.2	0.560	7.34	2.27	---	178.2
	9/16/2019	17.7	0.620	7.17	2.31	0.24	-112.9
MW-4	8/7/2012	16.84	0.372	6.50	0.35	---	-0.7
	9/28/2016	19.7	0.643	6.62	0.18	---	-50.7
	1/16/2018	13.4	0.500	6.57	0.53	---	101.4
	9/16/2019	19.6	0.557	6.79	1.45	2.17	-280.7

NOTES:

--- denotes the parameter was not measured.

° = degrees

mg/l = milligrams per liter

mS/cm = milliSiemens per centimeter

mV = millivolts

NTU = nephelometric turbidity units

**Table 3**  
**Groundwater Analytical Results**  
**Sound Battery Property**  
**Tacoma, Washington**  
**Farallon PN: 1117-001**

Sample Location	Sample Date	Sample Identification	Analytical Results (micrograms per liter) <sup>1</sup>	
			Total Lead	Dissolved Lead
MW-1	08/07/2012 <sup>2</sup>	MW-1-080712	1.3	< 1.0
	9/28/2016	MW-1-092816	< 1.1	< 1.0
	1/16/2018	MW-1-011618	< 1.1	< 1.0
	9/16/2019	MW-1-091619	< 1.1	< 1.0
MW-2	08/07/2012 <sup>2</sup>	MW-2-080712	< 1.1	< 1.0
	9/28/2016	MW-2-092816	< 1.1	< 1.0
	1/16/2018	MW-2-011618	< 1.1	< 1.0
	9/16/2019	MW-2-091619	< 1.1	< 1.0
MW-3	08/07/2012 <sup>2</sup>	MW-3-080712	< 1.1	< 1.0
	9/28/2016	MW-3-092816	< 1.1	< 1.0
	1/16/2018	MW-3-011618	< 1.1	< 1.0
	9/16/2019	MW-3-091619	< 1.1	< 1.0
MW-4	08/07/2012 <sup>2</sup>	MW-4-080712	< 1.1	< 1.0
	9/28/2016	MW-4-092816	< 1.1	< 1.0
	1/16/2018	MW-4-011618	< 1.1	< 1.0
	9/16/2019	MW-4-091619	< 1.1	< 1.0
<b>MTCA Cleanup Levels for Groundwater<sup>3</sup></b>			<b>15</b>	<b>15</b>

**NOTES:**

< denotes analyte not detected at or exceeding the reporting limit listed.

<sup>1</sup>Analyzed by U.S. Environmental Protection Agency Method 200.8.

<sup>2</sup>*Remedial Investigation and Focused Feasibility Study Report, Sound Battery 2310 East 11th Street, Tacoma, Washington*, dated November 19, 2013, prepared by Farallon.

<sup>3</sup>Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.

**ATTACHMENT A  
LABORATORY ANALYTICAL REPORTS**

**GROUNDWATER MONITORING REPORT**

Sound Battery Property  
2310 East 11<sup>th</sup> Street  
Tacoma, Washington

Farallon PN: 1117-001



14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 • (425) 883-3881

September 20, 2019

Stuart Brown  
Farallon Consulting, LLC  
975 5th Avenue NW  
Issaquah, WA 98027

Re: Analytical Data for Project 1117-001  
Laboratory Reference No. 1909-175

Dear Stuart:

Enclosed are the analytical results and associated quality control data for samples submitted on September 17, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister  
Project Manager

Enclosures



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OnSite Environmental, Inc. 14648 NE 95<sup>th</sup> Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: September 20, 2019  
Samples Submitted: September 17, 2019  
Laboratory Reference: 1909-175  
Project: 1117-001

### Case Narrative

Samples were collected on September 16, 2019 and received by the laboratory on September 17, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: September 20, 2019  
 Samples Submitted: September 17, 2019  
 Laboratory Reference: 1909-175  
 Project: 1117-001

**TOTAL LEAD  
 EPA 200.8**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MW-1-091619</b>					
Laboratory ID:	09-175-01					
Lead	<b>ND</b>	1.1	EPA 200.8	9-18-19	9-18-19	

<b>Client ID:</b>	<b>MW-4-091619</b>					
Laboratory ID:	09-175-02					
Lead	<b>ND</b>	1.1	EPA 200.8	9-18-19	9-18-19	

<b>Client ID:</b>	<b>MW-3-091619</b>					
Laboratory ID:	09-175-03					
Lead	<b>ND</b>	1.1	EPA 200.8	9-18-19	9-18-19	

<b>Client ID:</b>	<b>MW-2-091619</b>					
Laboratory ID:	09-175-04					
Lead	<b>ND</b>	1.1	EPA 200.8	9-18-19	9-18-19	



Date of Report: September 20, 2019  
 Samples Submitted: September 17, 2019  
 Laboratory Reference: 1909-175  
 Project: 1117-001

**TOTAL LEAD  
 EPA 200.8  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0918WM1					
Lead	<b>ND</b>	1.1	EPA 200.8	9-18-19	9-18-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	09-138-01							
	ORIG	DUP						
Lead	<b>ND</b>	<b>ND</b>	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	09-138-01									
	MS	MSD	MS	MSD	MS	MSD				
Lead	<b>108</b>	<b>109</b>	111	111	ND	<b>97</b>	<b>98</b>	75-125	1	20



Date of Report: September 20, 2019  
 Samples Submitted: September 17, 2019  
 Laboratory Reference: 1909-175  
 Project: 1117-001

**DISSOLVED LEAD**  
**EPA 200.8**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>Client ID:</b>	<b>MW-1-091619</b>					
Laboratory ID:	09-175-01					
Lead	<b>ND</b>	1.0	EPA 200.8		9-19-19	

<b>Client ID:</b>	<b>MW-4-091619</b>					
Laboratory ID:	09-175-02					
Lead	<b>ND</b>	1.0	EPA 200.8		9-19-19	

<b>Client ID:</b>	<b>MW-3-091619</b>					
Laboratory ID:	09-175-03					
Lead	<b>ND</b>	1.0	EPA 200.8		9-19-19	

<b>Client ID:</b>	<b>MW-2-091619</b>					
Laboratory ID:	09-175-04					
Lead	<b>ND</b>	1.0	EPA 200.8		9-19-19	



Date of Report: September 20, 2019  
 Samples Submitted: September 17, 2019  
 Laboratory Reference: 1909-175  
 Project: 1117-001

**DISSOLVED LEAD  
 EPA 200.8  
 QUALITY CONTROL**

Matrix: Water  
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
<b>METHOD BLANK</b>						
Laboratory ID:	MB0919D1					
Lead	<b>ND</b>	1.0	EPA 200.8		9-19-19	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
<b>DUPLICATE</b>								
Laboratory ID:	09-175-04							
	ORIG	DUP						
Lead	<b>ND</b>	<b>ND</b>	NA	NA	NA	NA	20	

**MATRIX SPIKES**

Laboratory ID:	09-175-04										
	MS	MSD	MS	MSD		MS	MSD				
Lead	<b>78.0</b>	<b>74.6</b>	80.0	80.0	ND	<b>98</b>	<b>93</b>	75-125	4	20	





### Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
  - B - The analyte indicated was also found in the blank sample.
  - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
  - E - The value reported exceeds the quantitation range and is an estimate.
  - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
  - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
  - I - Compound recovery is outside of the control limits.
  - J - The value reported was below the practical quantitation limit. The value is an estimate.
  - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
  - L - The RPD is outside of the control limits.
  - M - Hydrocarbons in the gasoline range are impacting the diesel range result.
  - M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
  - N - Hydrocarbons in the lube oil range are impacting the diesel range result.
  - N1 - Hydrocarbons in diesel range are impacting lube oil range results.
  - O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
  - P - The RPD of the detected concentrations between the two columns is greater than 40.
  - Q - Surrogate recovery is outside of the control limits.
  - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
  - T - The sample chromatogram is not similar to a typical \_\_\_\_\_.
  - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
  - U1 - The practical quantitation limit is elevated due to interferences present in the sample.
  - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
  - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
  - X - Sample extract treated with a mercury cleanup procedure.
  - X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
  - Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
  - Z -
- ND - Not Detected at PQL  
 PQL - Practical Quantitation Limit  
 RPD - Relative Percent Difference



