ENVIRONMENTAL ASSOCIATES, INC.

# PHASE II ADDITIONAL SITE CHARACTERIZATION

Former Tebb & Sons Lumber (UST / NFA Area) 1906 Marc Street Tacoma, Washington

X2P CAPITAL



# PHASE II ADDITIONAL SITE CHARACTERIZATION

Former Tebb & Sons Lumber (UST / NFA Area) 1906 Marc Street Tacoma, Washington

X2P CAPITAL

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NOV 0 7 2017

WA State Department of Ecology (SWRO)

# ENVIRONMENTAL ASSOCIATES, INC.

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October 25, 2017

JN-33035-1

lxitco@associatedpetroleum.com

Mr. Luke Xitco X2P Capital PO Box 1376 Tacoma, Washington 98402

Subject:

PHASE II - ADDITIONAL SITE CHARACTERIZATION

Former Tebb & Sons Lumber Site (UST / NFA AREA)

1906 East Marc Street Tacoma, Washington

Dear Mr. Xitco:

Environmental Associates, Inc. (EAI), has completed additional environmental assessment of soil and groundwater at seven (7) locations in and around the former underground storage tank remediation area. This report, prepared by EAI in accordance with our proposal PR-33035-1, dated August 22, 2017, summarizes our approach to the project along with results and conclusions.

The contents of this report are confidential and are intended solely for your use and those of your representatives. An electronic copy is being distributed to you. No other distribution or discussion of this report will take place without your prior approval in writing.

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WA State Department of Ecology (SWRO)



We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,

ENVIRONMENTAL ASSOCIATES, INC.

Don W. Spencer, M.Sc., P.G., R.E.A.

Principal

EPA-Certified Asbestos Inspector/Management Planner

I.D. # AM 48151

DOM W. SPENCER

Registered Site Assessor/Licensed UST Supervisor State Certification #0878545-U7

License: 604

(Washington)

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(Oregon)

License: 876

(California)

License: 5195

(Illinois)

License: 0327

(Mississippi)

# PHASE II ADDITIONAL SITE CHARACTERIZATION

Tebb & Son's Lumber (UST / NFA Area)
1906 Marc Street
Tacoma, Washington

Prepared for:

X2P Capital PO Box 1376 Tacoma, Washington 98402

Questions regarding this investigation, the conclusions reached and the recommendations given should be addressed to one of the following undersigned.

Robert B. Roe, M. Sc., P.G.

Hydrogeologist

License: 1125

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October 25, 2013

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ROBERT B. ROE

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# INTRODUCTION/SCOPE OF WORK

### SITE DESCRIPTION

The site is located in the tide flats industrial district of Tacoma, Washington as shown on the Vicinity Map (Plate 1). The subject property consists of a single parcel of land (Pierce County tax parcel 0320036003) which totals 3.22 acres of land, which is depicted on Plate 2 Current Site Layout. The current subject parcel was historically part of a larger parcel owned by Tebb & Sons Lumber. The "parent parcel" was segregated into the subject parcel and the east-adjacent parcel, which is still retained by Tebb & Sons.

The subject parcel is presently leased to Associated Petroleum Products that utilizes the property for their propane business unit. The southern part of the site is also leased to a fueling tanker truck company that uses their area for truck parking.

### BACKGROUND

In April 2013, EAI performed a preliminary Phase-II environmental site assessment on the larger Tebb & Sons Lumber site. As part of that assessment, two (2) direct push borings (B1 and B2) were drilled and sampled proximal to where a former diesel underground storage tank (UST) had historically been removed in the 1990s. A subsequent independent cleanup action had been performed by others (Nowicki & Associates), however the close proximity of an adjacent building resulted in some impacted soil being left in place. Plate 3, Former Site Layout, depicts the former site buildings in relation to the former UST remediation area. The site was granted "no further action" (NFA) status by the Washington State Department of Ecology (WDOE) in 2003, however that determination was predicated upon filing an environmental covenant since additional contamination reportedly remained near / under the nearby building that was present at that time.

EAI's 2013 explorations encountered residual impacts to shallow groundwater, with concentrations of diesel range petroleum exceeding the WDOE target compliance level. Visual and olfactory indicators suggested that a residual "smear zone" of petroleum-impacted soil may remain present in this area. For the potential benefit of future report users who may be unfamiliar with the concept of a "smear zone," the term as applied in this report refers to that vertically measured portion of the site stratigraphy / layering in which the vertical thickness of contamination impact has been enlarged as a function of fluctuations of the water table level resulting from such factors as temporal changes in precipitation infiltration, tidal flux, etc.

Since 2013, the Client acquired the current subject parcel which as previously mentioned, was segregated from the Tebb & Sons' property. The current subject parcel included the above described UST release area. The Client subsequently demolished the adjacent building. Since the prior NFA was predicated on use of an environmental covenant, the WDOE performs a review of the site approximately every five years. During its current review, the WDOE noted that the building which had been preventing further remediation was no longer present and informed the Client that additional site characterization would be necessary to determine if further remediation can now be performed and/or is warranted.

The Client subsequently retained EAI to make an assessment of current environmental conditions, in and around the former UST/NFA study area, with a particular focus on environmental conditions along the eastern side of the area where the former building limited remediation and site assessment access.

### METHODOLOGY/SCOPE OF WORK

Your expressed interests to have EAI perform additional Phase-II environmental assessment of both soil and groundwater in the study area, formed the basis for the following scope of work:

- Complete seven (7) borings across the site at the approximate locations denoted at B3 through B9 on Plate 4, Study Area / Exploration Plan. Borings B1 and B2 were previously made in 2013.
- Analyze select soil and groundwater samples from each boring for diesel and oil range
  petroleum hydrocarbons and select samples for gasoline and associated BTEX compounds
  (benzene, toluene, ethylbenzene, xylene).
- Preparation of this summary report documenting methodology, findings, conclusions, and recommendations.

# SUBSURFACE EXPLORATION

### **GEOPHYSICAL SURVEY**

Acknowledging that the current site layout (Plate 2) is devoid of easily identifiable visual references to locate the former UST study area, a combination of historical aerial photo imagery combined with the performance of a limited geophysical survey was used to relocate the study area.

The general location of the study area was first located by overlaying historic aerial photographs with current aerial images. Then on September 14, EAI's geophysical survey team visited the site and made several north-south and west-east transects through the study area using ground penetrating radar (GPR). The GPR transects located an area that exhibited signs of prior excavation that strongly coincided with aerial photo interpretation as to where the former remediation excavation was suspected to be located. The deduced outline of the former remediation excavation is depicted with a cross-hatch pattern on Plate 4, Study Area / Exploration Plan. Plate 4 utilizes a 2013 aerial image where the outline of the former building foundation is still visible, which further aids in visualizing the location of the former excavation area and subsequent boring locations relative to the former building location.

#### **BORINGS**

#### **Soil Boring Location Selection**

On September 29, 2017, EAI completed seven (7) soil borings at the approximate locations depicted on Plate 4, Study Area / Exploration Plan. Borings B1 and B2 were previously made by EAI in 2013 and their depicted locations on Plate 4 are approximate. Borings B3 through B8 were selected to make an assessment of current soil and groundwater conditions around the perimeter of the former remediation excavation. Borings B5 through B7 in particular were placed along the east side of the former excavation where prior remediation by others reportedly had to leave impacted soil in place due to the presence of the former building and sawdust collection cyclone. Boring B9 was placed through the central area of the former excavation.

### Soil & Groundwater Sample Collection

Under the observation of an EAI Washington licensed staff hydrogeologist, the Geoprobe unit was brought into position over each selected drilling location (B3 through B9) and leveled before drilling. Following set-up preparations, the boring technique consisted of advancing a 2-inch diameter soil sampling tube in 5-foot intervals beginning at the ground surface and extending to the 10-foot maximum depth explored. Each sampling tube was then brought to the surface, where it was opened for examination and sampling.

Upon recovery, in an effort to minimize the loss of volatile organic compounds, soil samples were promptly collected and transferred to laboratory-prepared glassware, in cold-storage, following the sampling methodology of EPA 5035A (WDOE-Memorandum #5). Additionally, a "split" from each recovered sample was collected and temporarily sealed in a dedicated plastic storage bag to be field-screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID).

Following completion of each soil boring, a temporary well screen was inserted by the Geoprobe to the desired depth to facilitate the collection of a groundwater sample. A peristaltic pump was used in an attempt to recover groundwater samples from each boring. Groundwater samples were successfully collected from all seven (7) borings (B3 through B9).

In an effort to preserve sample integrity, all samples were stored on-site in an insulated chest maintained at or below 4 degrees centigrade, and were transported to the project laboratory in this condition. Each sample was clearly identified with respect to project, boring number, date, time, etc. EPA-recommended sample management protocol, including maintenance of chain-of- custody documentation, was observed at each stage of the project.

#### **Subsurface Conditions**

Subsurface soils encountered during this project primarily consisted of an upper 2-feet of sand and gravel fill, that was underlain by black fine to course grain-sized sand (mostly fine sand), characteristic of the Tacoma tide-flats. In several of the borings, a clayey silt was noted in the "tip" of the deepest core, at depths of approximately 9.5 to 9.75 feet below the ground surface. Shallow groundwater was encountered at a depth of approximately 6 feet below the ground surface. The subsurface geology appeared generally consistent at borings B3 through B8. Boring B9, which was made within the former remediation excavation encountered a thicker sequence of sand and gravel interpreted to represent excavation backfill material.

Of the multiple soil samples collected during this current study, only one sample collected between 6 and 7 feet below the ground surface at B4 exhibited a slight petroleum odor and produced a slightly elevated PID reading during field screening. This sample depth corresponds to the approximate depth of the shallow water table and therefore this observation may be indicative of the remnant of a "smear zone" as previously defined in this report. None of the recovered groundwater samples exhibited visual or olfactory indicators to suggest the possible presence of contaminants.

#### Soil and Groundwater Sample Selection

At least two (2) soil samples along with the recovered groundwater sample were selected from each boring for laboratory analysis. Three (3) soil samples were selected from B4, which was the only location that exhibited field screening responses suggestive of the possible presence of contaminants. By this selection criteria, a total of 15 soil samples and 7 groundwater samples were selected for laboratory analysis.

Acknowledging that historically diesel range petroleum was the primary contaminant of interest in the study area, all selected soil and groundwater samples were analyzed for diesel and oil range petroleum hydrocarbons by testing method NWTPH-Dx. Additionally, as an added precaution two (2) soil samples with the highest PID field screening results were also analyzed for gasoline range petroleum and associated BTEX compounds (benzene, toluene, ethylbenzene, xylene) by test methods NWTPH-G and EPA 8260. The groundwater samples from B4 and B9 were also analyzed for gasoline and BTEX by the above methods.

#### LABORATORY ANALYSIS / RESULTS

As summarized in Table 1, for the current study, none of the 15 selected soil samples contained the petroleum hydrocarbons analyzed for at concentrations above the laboratory's minimum detection limits. Table 1 also presents the soil sample analytical results from borings B1 and B2 made in 2013. At that time, low concentrations of petroleum hydrocarbons were detected in those samples, but the concentrations were below (i.e. in compliance with) the WDOE's target Method-A levels for unrestricted land use.

Referencing Table 2, of the seven (7) <u>current</u> groundwater samples, only two (2) were found to contain detectable concentrations of diesel range petroleum hydrocarbons. Those groundwater samples were recovered from B6 and B8 and the detected concentrations of diesel were 160 and 140 parts per billion (ppb), which are both below the WDOE's 500 ppb target compliance level. As with Table 1, the results from the groundwater samples collected from B1 and B2 in 2013 are also included in Table 2. As noted in the table, at that time (2013) the groundwater grab-samples at those locations were found to exceed the WDOE's target compliance level.

Neither gasoline nor BTEX compounds were detected above the laboratory minimum detection limits in the soil and groundwater samples analyzed for these compounds.

A copy of the laboratory report is included in Appendix-A and is summarized below.

## CONCLUSIONS/RECOMMENDATIONS

Relying upon the results of the soil and groundwater sampling and laboratory testing completed to date, the following conclusions and additional summary discussion is offered.

In 2013, EAI provided the Client with the following summary discussion regarding environmental conditions in the UST / NFA study area:

A determination of "no further action (NFA) was granted by Tacoma Pierce County Health District (TPCHD) and the Washington State Department of Ecology (WDOE) in 2003 for the soil and groundwater conditions related to the removed UST. That NFA determination appears to have been based in part, upon the <u>overall</u> compliant quality of the groundwater in the greater vicinity as monitored by the former network of monitoring wells. The 2003 NFA determination was also accompanied with the requirement to file a restrictive covenant on the parcel to account for the impacted soil that had to be left in place to protect the adjacent building foundation.

Future management of this impairment could be (at a minimum) simply to allow natural attenuation continue to occur (with reassessment every few years). Alternatively, if faster response were desired, one could consider a localized application of a remediation product designed to stimulate and enhance the natural attenuation process. Lastly, if the existing structure and other nearby improvements are ever removed, an opportunity may then exist to cost-effectively remove the remaining mass of impacted material. It seems likely the WDOE would require that the existing restrictive covenant remain in effect until such future time that contaminant levels have either naturally declined and/or soil and groundwater compliance has been achieved through some other means.

With removal of the former building along with the preponderance of the findings from this current study, further remedial action such as excavation of additional soil and/or active treatment of groundwater does not appear to be warranted. No remaining significant source of contamination was encountered in the study area during this current assessment, which included completion of seven (7) borings and the laboratory analysis of 15 soil samples and 7 groundwater samples.

#### Recommendations

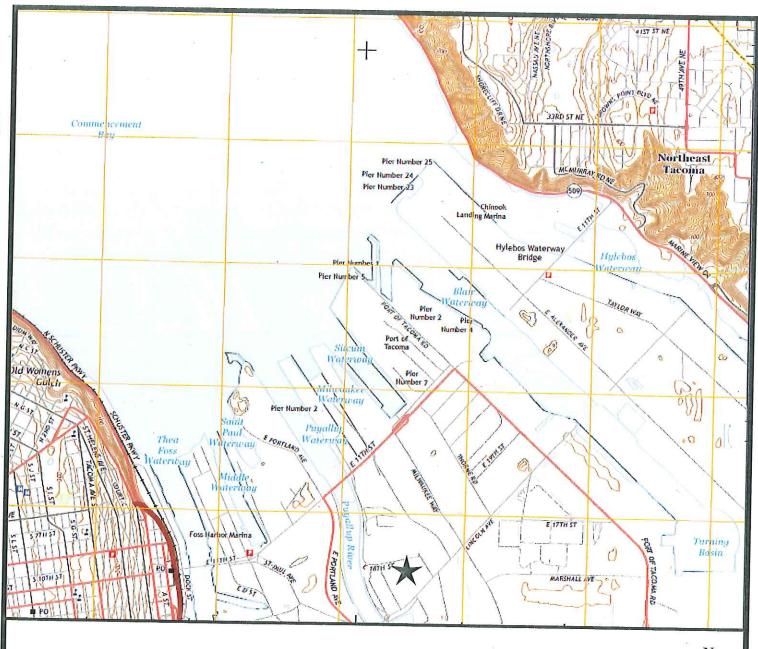
As discussed in the Background section of this report, the WDOE is presently evaluating whether the current determination of "no further action" predicated upon the terms of the environmental covenant remains protective of human health and the environment. EAI simply recommends that a copy of this report be submitted to the WDOE in a timely manner for review and inclusion in their files for this site. Provided that the WDOE concurs with the findings / conclusions of this study, it may also be possible to remove the environmental covenant.

#### LIMITATIONS

This report has been prepared for the exclusive use of X2P Capital., and their several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal, dated August 22, 2017. The opinions expressed in this report are based upon interpretations, observations and testing made at separated sampling locations and conditions may vary between those locations or at other locations, depths, or media. No warranty, expressed or implied, is made. If new information is developed in future site work that may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.

## REFERENCES

- Environmental Associates, Inc. (EAI), November 29, 2012, Phase I Environmental Site Assessment, Lumber Manufacturing Property, 1906 Marc Street, Tacoma, Washington.
- Environmental Associates, Inc. (EAI), April 1, 2013, Phase-II Supplemental Subsurface Exploration, Tebb & Son's Lumber, 1906 Marc Street, Tacoma, Washington.
- WDOE, February 27, 2003, No Further Action Opinion Letter, address to Thomas Tebb, 1906 Marc Street, Tacoma, Washington.







Approximate location of the subject property.



Inferred direction of groundwater flow in vicinity of the subject site, based upon local topographic gradient.



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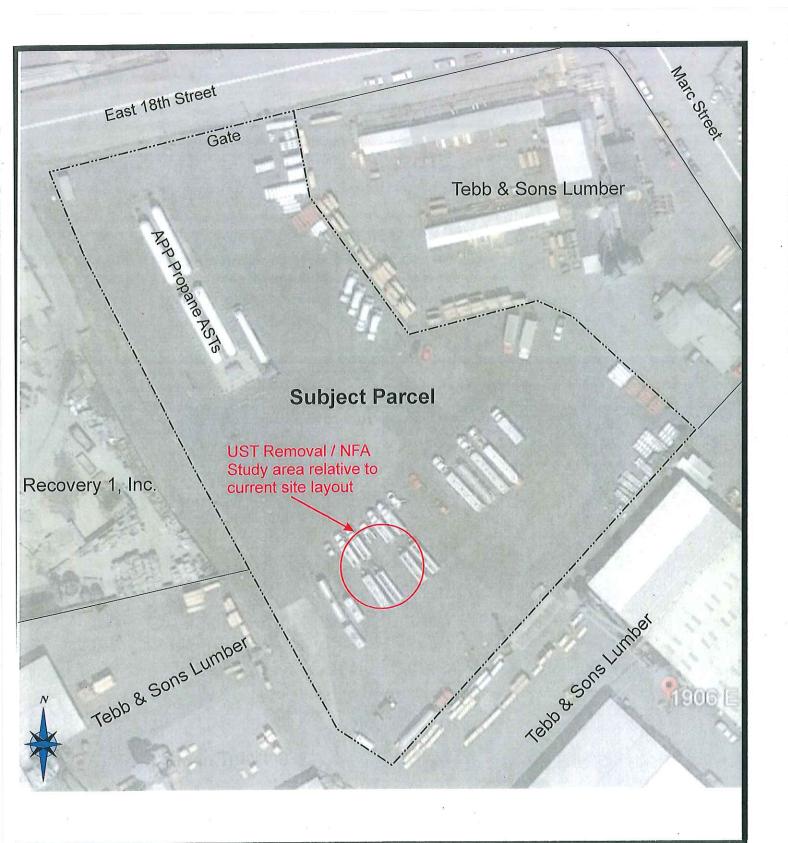
# VICINITY / TOPOGRAPHIC MAP

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number: JN 33035-1

Date: September 2017 Plate:

1





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### **CURRENT SITE LAYOUT**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number:	Date:	Scale:	Plate:
A 2 M S CORP F A 44 A 4 A 5 M S CORP C 5 M S	September 2017		2





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#### FORMER SITE LAYOUT

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington

 Job Number:
 Date:
 Scale:
 Plate:

 JN 33035-1
 September 2017
 3





Borings made by EAI in 2013.



Approximate former excavation limits deduced by ground-penetrating radar and historic aerial images.





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### STUDY AREA / EXPLORATION PLAN

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington

Job Number:

Scale:

Plate:

JN 33035-1 September 2017 1"=30

TABLE 1 - Petroleum Hydrocarbons - Soil Sampling Results All results and limits in parts per million (ppm)											
Boring / Sample Name	Gasoline (TPH)	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes				
2013 Site Assessment Study	Results		8								
B1-10	7.1	420	<250	< 0.02	< 0.02	< 0.02	< 0.06				
B2-8	11	<50	<250	< 0.02	< 0.02	<0.02	< 0.06				
Current 2017 Study Results											
B3-5	NA	<50	<100	NA	NA	NA	NA				
B3-10	NA	<50	<100	NA	NA	NA	NA				
B4-5	NA	<50	<100	NA	NA	NA	NA				
B4-7	<10	<50	<100	< 0.02	<0.05	<0.05	< 0.15				
B4-10	NA	<50	<100	NA	NA	NA .	NA ·				
B5-7	NA	<50	<100	NA	NA	NA	NA				
B5-10	NA	<50	<100	NA	NA	NA	NA				
B6-7	NA	<50	<100	NA	NA	NA	NA				
B6-10	NA	<50	<100	NA	NA	NA	NA				
B7-7	NA	<50	<100	NA	NA	NA	NA				
B7-10	NA	<50	<100	NA	NA	NA	NA				
B8-7	NA	<50	<100	NA	NA	NA	NA				
B8-10	NA	<50	<100	NA	NA	NA	NA				
B9-7	NA	<50	<100	NA	NA	NA	NA				
B9-10	<10	<50	<100	< 0.02	<0.05	<0.05	< 0.15				
Reporting Limit <sup>3</sup>	10	50	100	0.02	0.05	0.05	0.15				
WDOE Target Compliance Level <sup>4</sup>	100 5	2000	2000	0.03	7	6	9				

#### Notes:

- 1 "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2- "---" denotes sample not analyzed for specific analyte.
- 3- "Reporting Limit" represents the laboratory lower quantitation limit.
- 4- Method A soil cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
- 5- The MTCA gasoline TPH cleanup level is 30 ppm for soils with benzene otherwise it is 100 ppm.
- 6- See attached laboratory report for a complete list of compounds tested for along with their individual reporting limits.

Bold and Italics denotes concentrations above MTCA Method A soil cleanup levels.

NA

<1

700

<3

3

1000

NA

<1

1

1000

NA

TABLE 2 - Petroleum Hydrocarbons & cVOCs - Groundwater Sampling Results	
All results and limits in parts per billion (ppb)	

Boring / Sample Name	Gasoline (TPH)	Diesel (TPH)	Heavy Oil (TPH)	Benzene	Toluene	Ethylbenzene	Total Xylenes
2013 Site Assessment S	tudy Results						
B1	. <100	2,100	<250	<1	<1	<1	<3
B2	<100	7,600	420	<1	<1	<1	<3
Current 2017 Study Re	esults				an a		
B3	NA	<100	<250	ŇA	NA	NA	NA
B4	<100	<100	<250	<1	<1	<i .<="" td=""><td>&lt;3</td></i>	<3
B5	NA	- <100	<250	NA	NA	NA	NA
B6	NA	160	<250	NA	NA	NA	NA
B7	NA	<100	<250	NA	NA	NA	NA

<250

<250

250

500

- 1 "ND" denotes analyte not detected at or above listed Reporting Limit.
- "NA" denotes sample not analyzed for specific analyte.

**B8** 

**B9** 

Reporting Limit 3

MTCA-Method-A Cleanup Levels 4

- "Reporting Limit" represents the laboratory lower quantitation limit.
- Method A groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.

NA

<100

100

800 or 1000<sup>5</sup>

The MTCA gasoline TPH cleanup level is 800 ppb for groundwater with benzene. Otherwise, the cleanup level is 1000 ppb.

140

<100

100

500

- The laboratory reports that the sample's chromatographic pattern does not resemble the fuel standard used for quantitation.
- Refer to the attached laboratory report for a complete list of chlorinated volatile organic compounds (cVOC's) tested for.

Bold and Italics denotes concentrations above existing or proposed MTCA Method A groundwater cleanup levels.

APPENDIX A

**Boring Logs** 

Ground Surface Elevation: ~12 ft BORING B1 (2013 Study) WDOE Well Tag: Lat: Long: uscs DESCRIPTION PID Soil Sample Well Moisture/ Water Table Depth/ Design Sample Fill. Sand, gravel fill (old UST removal / (F) remediation excavation). damp X damp Wet Sand, fine to course (mostly fine) sand, minor SP Wet gravel, black, some shell fragments. Hydrocarbon odor at 8 ft. Soil boring terminated at 10 feet. Groundwater encountered at approximately 7 feet below ground surface.

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



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# **BORING B1**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

日		THE RESERVE OF THE PERSON NAMED IN	
Job Number:	Date:	Logged by:	Plate:
JN-33035-1	3/1/2013	RBR	A-1

WDOE Well Tag:

Long:

# BORING B2 (2013 Study)

Ground Surface Elevation: ~12 ft

	Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Soil Sample	PID
0			_ damp		(F)	<u>Fill</u> . Sand, gravel fill underlying asphalt pavement	+	
5			damp :		SP	Sand, fine to course (mostly fine) sand, minor gravel, black, some shell fragments.	x	
						Hydrocarbon odor between 7 & 8 ft.	X .	
			Wet					
10					-	Soil boring terminated at 10 feet. Groundwater encountered at approximately 7 feet below ground surface.		
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15	_							
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Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



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# **BORING B2**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number:

Date:

Logged by:

Plate:

JN-33035-1

03/01/2013

**RBR** 

Ground Surface Elevation: ~12 ft **BORING B3** WDOE Well Tag: Lat: Long: Well Blows / DESCRIPTION Soil Sample PID Depth/ Moisture/ USCS Design Sample Water Table Fill. Sand, gravel fill underlying asphalt pavement. damp Sand, fine to course (mostly fine) sand, minor SP damp X 0.0 gravel, black, some shell fragments. Wet X 0.0 Wet <u>Silt,</u> silt, sandy, some natural ML 10 woody material, brown/black. Soil boring terminated at 10 feet. Groundwater encountered at approximately 6 feet below ground surface. 20 30

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



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# **BORING B3**

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Job Number:

JN-33035-1

Date.

9/29/2017

Logged by:

Plate:

RBR

WDOE Well Tag: Lat:

Long:

# **BORING B4**

Ground Surface Elevation: ~12 ft

	Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Soil Sample	PID
0			_damp		(F)	<u>Fill</u> . Sand, gravel fill underlying asphalt _pavement		
5			damp	!	SP	Sand, fine to course (mostly fine) sand, minor gravel, black, some shell fragments.	X	0.0
Ū	H		Wet			Slight petroleum odor between 6' & 7' BGS	. X	7.2
10			- Wet		·	Silt-Sand, very-fine to fine sand, with silt, black.	- x -	0.0
			111			Soil boring terminated at 10 feet. Groundwater encountered at approximately 6 feet below ground surface.		
15		į	1			*		
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4	0		1	1	1 -			<b></b>

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



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# **BORING B4**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number:

Date:

Logged by:

Plate:

JN-33035-1

9/29/2017

**RBR** 

Ground Surface Elevation: ~12 ft **BORING B5** WDOE Well Tag: Lat: Long: Well Blows / Depth/ Moisture/ DESCRIPTION Soil Sample PID USCS Design Water Table Sample Fill. Sand, gravel fill underlying asphalt (F) pavement. damp Sand, fine to course (mostly fine) sand, minor SP damp X gravel, black, some shell fragments. 0.0 5 X 0.0 Wet X 0.0 Wet Silt-Sand / Sandy-Silt, very-fine to fine sand, SM/ with silt, black/brown. ML Soil boring terminated at 10 feet, Groundwater encountered at approximately 6 feet below ground surface. 15 20 25 30

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig

35



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### **BORING B5**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number:

JN-33035-1

Date:

9/29/2017

Logged by:

Plate:

**RBR** 

**BORING B6** WDOE Well Tag: Ground Surface Elevation: ~12 ft Lat: Long: Well Blows / Depth/ Moisture/ DESCRIPTION Soil Sample USCS Design Sample Water Table Foot Sand, gravel fill underlying asphalt pavement. (F) Concrete encountered at 1 ft. damp Concrete encountered at 4 ft (foundation??) damp 5 Sand, fine to course (mostly fine) sand, minor SP X 0.0 Wet gravel, black, some shell fragments. X 0.0 Wet Silt-Sand / Sandy-Silt, very-fine to fine sand, SM/ with silt, black/brown. ML Soil boring terminated at 10 feet. Groundwater encountered at approximately 6 feet below ground surface. 25 30

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



# ENVIRONMENTAL

ASSOCIATES, INC.

1380 - 112th Avenue NE, Suite 300 Bellevue, Washington 98004

## **BORING B6**

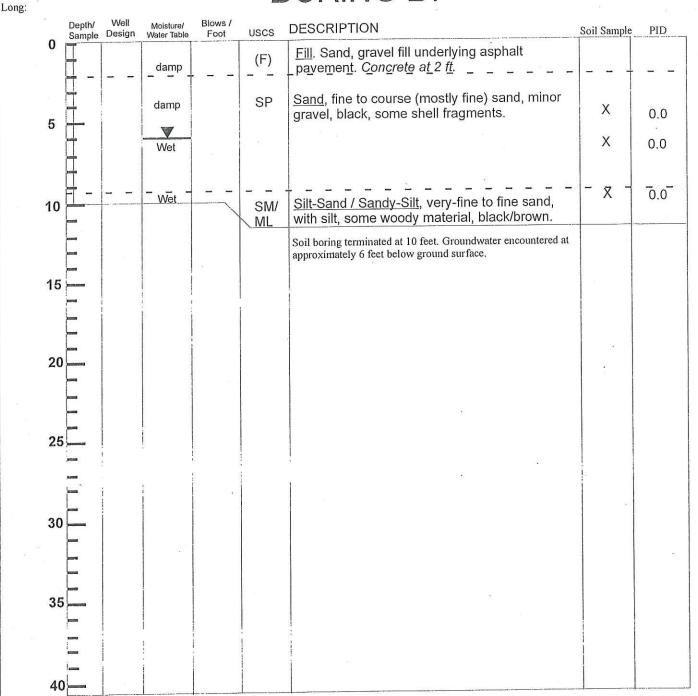
Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

 Job Number:
 Date:
 Logged by:
 Plate:

 JN-33035-1
 9/29/2017
 RBR
 A-6

WDOE Well Tag: Lat: **BORING B7** 

Ground Surface Elevation: ~12 ft



Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



# ENVIRONMENTAL

ASSOCIATES, INC.

1380 - 112th Avenue NE, Suite 300 Bellevue, Washington 98004

# **BORING B7**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number: Date:

Logged by: RBR Plate: A-7

JN-33035-1

9/29/2017

1

**BORING B8** Ground Surface Elevation: ~12 ft Well Depth/ Blows / Moisture/ DESCRIPTION Design USCS Sample Water Table Foot Soil Sample PID Fill. Sand, gravel fill underlying asphalt (F) damp pavement. Sand, fine to course (mostly fine) sand, minor SP damp X gravel, black, some shell fragments. 0.0 Χ Wet 0.0 X 0.1 Wet Silt-Sand / Sandy-Silt, very-fine to fine sand, SM/ with silt, black/brown. ML Soil boring terminated at 10 feet. Groundwater encountered at approximately 6 feet below ground surface. 25 35

Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig

WDOE Well Tag:

Long:



# ENVIRONMENTAL

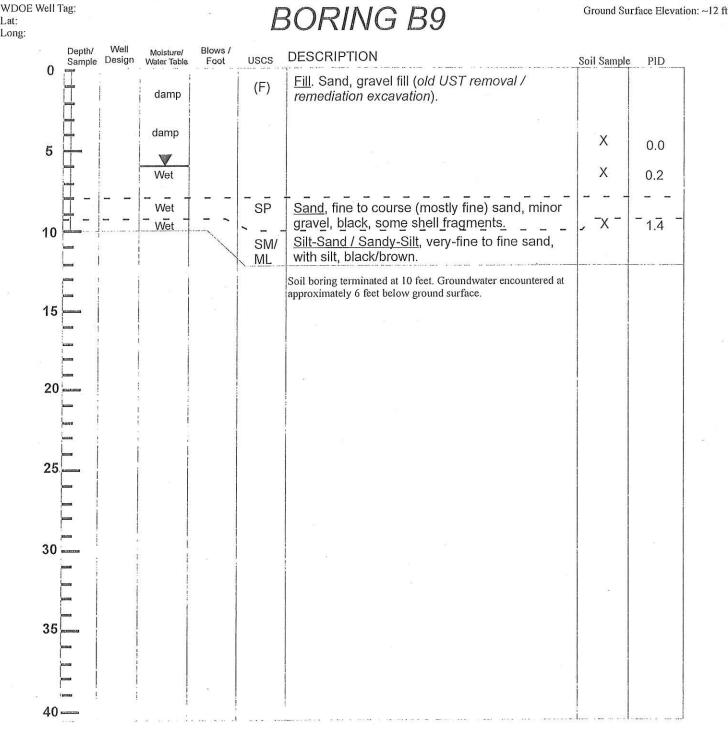
ASSOCIATES, INC.

1380 - 112th Avenue NE, Suite 300 Bellevue, Washington 98004

# **BORING B8**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number: | Date: | Logged by: | Plate: | JN-33035-1 | 9/29/2017 | RBR | A-8



Sampler: Continuous Macro-Core (5ft). Driller: ESN - Geoprobe Rig



# ENVIRONMENTAL

ASSOCIATES, INC.

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# **BORING B9**

Former Tebb & Sons (UST / NFA Area) 1906 East Marc Street Tacoma, Washington 98354

Job Number:	Date:	Logged by:	Plate:
JN-33035-1	9/29/2017	RBR	A-9

APPENDIX B

Laboratory Report

October 6, 2017

Robert Roe Environmental Associates 1380 112th Avenue NE, Suite 300 Bellevue, WA 98004

Dear Mr. Roe:

Please find enclosed the analytical data report for the Former Tebb & Sons Project in Tacoma, Washington. Probe services were conducted on September 29, 2017. Soil and water samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, and BTEX by Method 8260 on October 2-4, 2017.

The results of these analyses are summarized in the attached tables. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to Environmental Associates for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A. Korosec

Michaela Korosea

President

Environmental Associates, Inc PROJECT FORMER TEBB & SONS PROJECT #EAI-33035-1 Tacoma, Washington ESN Northwest 1210 Eastside Street SE Suite 200 Olympia, WA 98501 (360) 459-4670 (360) 459-3432 Fax lab@esnnw.com

# Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample	Date	Date	Surrogate	Diesel Range Organics	Lube Oil Range Organics
Number	Prepared	Analyzed	Recovery (%)	(mg/kg)	(mg/kg)
Method Blank	10/3/2017	10/3/2017	67	nd	nd
LCS	10/3/2017	10/3/2017	79	88%	
B3-5	10/3/2017	10/3/2017	69	nd	nd
B3-10	10/3/2017	10/3/2017	70	nd	nd
B4-5	10/3/2017	10/3/2017	60	nd	nd
B4-7	10/3/2017	10/3/2017	70	nd	nd
B4-10	10/3/2017	10/3/2017	63	nd	nd ·
B5-7	10/3/2017	10/3/2017	61	nd	nd
B5-10	10/3/2017	10/3/2017	61	nd	nd
B5-10 Duplicate	10/3/2017	10/3/2017	65	nd	nd
B6-7	10/3/2017	10/4/2017	76	nd	nd
B6-10	10/3/2017	10/4/2017	81	nd	nd
B7-7	10/3/2017	10/4/2017	74	nd	nd
B <b>7-</b> 10	10/3/2017	10/4/2017	68	nd	nd
38-7	10/3/2017	10/4/2017	94	nd	nd
38-10	10/3/2017	10/4/2017	76	nd	nd
39-7	10/3/2017	10/4/2017	59	nd	nd
39-7 Duplicate	10/3/2017	10/4/2017	84	nd	nd
39-10	10/3/2017	10/4/2017	83	nd	nd
				160	
Reporting Limits				50	100

<sup>&</sup>quot;nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE: 50% TQ 150%

<sup>&</sup>quot;int" Indicates that interference prevents determination.

Environmental Associates, Inc PROJECT FORMER TEBB & SONS PROJECT #EAI-33035-1 Tacoma, Washington ESN Northwest 1210 Eastside Street SE Suite 200 Olympia, WA 98501 (360) 459-4670 (360) 459-3432 Fax lab@esnnw.com

#### Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx Extended

Sample	Date	Date	Surrogate	Diesel Range Organics	Lube Oil Range Organics
Number	Prepared	Analyzed	Recovery (%)	(ug/L)	(ug/L)
Method Blank	10/2/2017	10/2/2017	100	nd	nd
LCS	10/2/2017	10/2/2017	97	98%	
B3	10/2/2017	10/2/2017	60	nd	nd
34	10/2/2017	10/2/2017	63	nd	nd
35	10/2/2017	10/2/2017	64	nd	nd
36	10/2/2017	10/2/2017	64	160	nd
37	10/2/2017	10/2/2017	59	nd	nd
38	10/2/2017	10/2/2017	66	140	nd
39	10/2/2017	10/2/2017	65	nd	nd
Reporting Limits				100	250

<sup>&</sup>quot;nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE: 50% TO 150%

<sup>&</sup>quot;int" Indicates that interference prevents determination.

Environmental Associates, II PROJECT FORMER TEBB & SONS PROJECT #EAI-33035-1 Tacoma, Washington

ESN Northwest 1210 Eastside Street SE Suite 200 Olympia, WA 98501 (360) 459-4670 lab@csnnw.com (360) 459-3432 Fax

### Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number Method Blank	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
	10/2/2017	10/2/2017	nd	nd	nd	nd .	nd	104
LCS	10/2/2017	10/2/2017	101%	101%	98%	102%	125%	
LCSD	10/2/2017	10/2/2017	105%	104%	104%	108%		100
B4-7	9/29/2017	10/2/2017	nd	nđ	nd	nd		99
B9-10	9/29/2017	10/2/2017	brt	nd	nd	nd	nd	107
B9-10 Duplicate	9/29/2017	10/2/2017	nd	nd	nd	nd	nd nd	105 102
Reporting Limits		-	0.02	0.05	0.05	0.15	10	

<sup>&</sup>quot;---" Indicates not tested for component.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

<sup>&</sup>quot;nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

Environmental Associates, Inc PROJECT FORMER TEBB & SONS PROJECT #EAI-33035-1 Tacoma, Washington ESN Northwest 1210 Eastside Street SE Suite 200 Olympia, WA 98501 (360) 459-4670 (360) 459-3432 Fax lab@esnnw.com

#### Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260

Sample	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline Range Organics	Surrogate
Number	Analyzed	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	Recovery (%)
Method Blank	10/3/2017	nd	nd	nd	nd	nd	104
LCS	10/3/2017	98%	100%	98%	102%	116%	99
LCSD	10/3/2017	95%	110%	97%	102%	MAM	96
B4	10/3/2017	nd	nd	nd	nd	nd	103
B4 Duplicate	10/3/2017	nd	nd	nd	nd	nd	105
В9	10/3/2017	nd	nd	nd	nd	nd	103
Trip Blank	10/3/2017	nd	nd	nd	nd	nd	104
Reporting Limits	9	1.0	1.0	1.0	3.0	100	

<sup>&</sup>quot;nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS: 65% TO 135%

<sup>&</sup>quot;int" Indicates that interference prevents determination.

Services Network

NORTHWEST, INC.

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Luke Xitto	Tacoma WA 98402	FAX:	ECT MANAGER:	(%)	Container Court of Solin Container C	8 4 4 8	<b>\</b>	\(\lambda\)	> > < >			>	<b>\</b>	<>>	< >>		>	<>>		×	(×		×	RECEIVED BY (Signature)	و	DECENTEDION (C.	received by (Signature)	•		
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CHAIN-OF-CUSTODY RECORD

Environmental Services Network

NORTHWEST, INC.

## ADDRESS:  ## AD	Website: www.esnnw.com E-Mail: info@esnnw.com	670 32	Phone: 360-459-4670 Fax: 360-459-3432	E	# 19 #
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