REPORT

COPY

PHASE II ENVIRONMENTAL SITE INVESTIGATION REPORT

Lakeview Auto Wrecking Property
11528 Pacific Highway SW
Lakewood, Washington

Prepared for
Central Puget Sound Regional Transit Authority
401 South Jackson Street
Seattle, Washington 98104-2826

August 2003

URS

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URS

August 5, 2003

Mr. John McLean
Central Puget Sound Regional Transit Authority
Union Station
401 South Jackson Street
Seattle, Washington 98104

Subject: Phase II Environmental Site Investigation
Lakeview Auto Wrecking Property
11528 Pacific Highway SW, Lakewood, Washington
URS Project No. 33755401

Dear Mr. McLean:

URS is pleased to present two copies of the Phase II Site Investigation report for the above-referenced property located in Lakewood, Washington. This work was conducted in accordance with our Master Services Agreement (contract number RTA-AS-106-2) with Sound Transit (under Purchase Order No. 96541-000-OB) and in accordance with our workplan dated April 16, 2003, and authorized on April 28, 2003.

URS appreciates the opportunity to assist you on this project and trusts this report meets your current requirements. Please do not hesitate to contact us at (206) 438-2700 if you have any questions or require additional assistance.

Very truly yours,
URS CORPORATION

John Rapp, L.G., L.H.G.
Hydrogeologist

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Project Hydrogeologist

cc: Jay Larson, PHAROS Corporation

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1.0 INTRODUCTION

1.1 PROJECT AUTHORIZATION

On behalf of the Central Puget Sound Regional Transit Authority (Sound Transit), URS Corporation (URS) conducted a Phase II investigation of the Lakeview Auto Wrecking property (the Property) located at 11528 Pacific Highway SW in Lakewood, Washington (Figure 1-1). This work was conducted in accordance with our Master Services Agreement (contract number RTA-AS-106-2) with Sound Transit (under Purchase Order No. 96541-000-OB) and in accordance with our scope of work dated April 16, 2003, and authorized on April 28, 2003.

1.2 BACKGROUND

It is URS' understanding that Sound Transit is currently considering purchasing the Property for future construction of a commuter rail station in connection with the Lakewood-Commuter Rail Line Project. Because of the potential property acquisition, Sound Transit retained URS to conduct a Phase I Environmental Site Assessment (ESA) to document the environmental conditions with respect to hazardous materials/wastes and petroleum products (URS, 2003). URS' Phase I ESA identified recognized environmental conditions on the Property including former and current auto wrecking operations conducted on the Property. Based on the nature of operations on the Property and because the ground surface of the Property is unpaved, a Stormwater Pollution Prevention Plan (SWPPP) had been prepared for the auto wrecking operations. The SWPPP identified several potential pollutants of concern on the Property including petroleum products, cleaning solvents, and other automotive fluids (e.g., crankcase oil, battery acid, transmission fluids) (URS, 2003). Based on our observations during the site reconnaissance, agency records, and information contained in the SWPPP, it is likely that incidental spillage of petroleum hydrocarbons and/or automobile fluids has occurred and resulted in surface stains on paved and unpaved surfaces. Therefore, URS concluded that there is a potential for the presence of contaminants in soil at the Property.

1.3 PROJECT OBJECTIVE AND SCOPE OF WORK

The objective of soil and groundwater conducted for the Phase II Investigation was to assess the potential subsurface environmental impacts related to the auto wrecking operations on the Property. To meet this objective, URS collected soil and groundwater samples from 3 soil borings on May 8, 2003. Sampling locations from the investigation are shown in Figure 1-2.

1.4 DEVIATIONS FROM WORKPLAN

The Phase II Investigation was performed in accordance with the Phase II Workplan (URS, 2003) with the exception of a single deviation while performing field activities. The location of soil boring LASB-3 was moved approximately 20 feet east because the planned location was inaccessible due to the presence of fencing.

2.0 SOIL AND GROUNDWATER SAMPLING

On May 8, 2003, a URS geologist completed 3 soil borings (LASB-1 through LASB-3) (Figure 1-2) and a groundwater sample was collected from each of the borings. In addition, URS collected 3 surface soil samples from stained areas adjacent to each soil boring location. Personnel from Cascade Drilling (Cascade) of Woodinville, Washington, operated a hollow stem auger drill rig. Upon completion of work at each soil boring location, the borings were backfilled with hydrated bentonite pellets. Soil cuttings and purge water generated during the investigation were placed into clean, labeled 55-gallon drums and left on-site for future disposal, pending on laboratory analytical results.

2.1 SOIL SAMPLING

Soil sampling was performed by Cascade using hollow stem auger and split spoon sampling technologies. Cascade is a licensed drilling subcontractor whose employees are qualified to work at hazardous waste sites. In addition to drilling, Cascade was responsible for obtaining and submitting well drilling permits and logs as required by the State of Washington. All drilling and sampling operations were supervised or performed by a qualified URS geologist. Drilling and sampling activities proceeded as follows.

Surface composite samples were collected from stained areas adjacent to soil boring locations (LASB-1 through LASB-3). Soil samples were collected from 0.5 to 1 foot below ground surface (bgs). At each surface soil sample location, the field personnel measured an area around the location equal to 100 cubic yards of material based on the assumption that surface staining extends to 1 foot bgs.

Once surface soil sampling was completed, soil borings were advanced to approximately 23 feet bgs to allow for the collection of soil and groundwater samples. At each soil boring sampling location, soil samples were collected and classified to develop a geologic boring log that notes the achieved depth, geologic description of the fill or native material encountered, presence and depth of groundwater, buried debris, and any visual or olfactory indication of contamination. A photo-ionization detector (PID) was used to screen the soil sample and cuttings for the presence of volatile contaminants, and this information was included on the geologic boring logs. The geologic boring logs for each boring are included in Appendix A.

The soil samples were collected from the stainless steel split-spoon sampler and placed directly into 4-ounce jars. Sample jars were labeled with the soil boring designation and the time and date of sampling. The samples were placed in a cooler and stored at 4 degrees Celsius until delivery to the lab for analysis. A chain-of-custody was maintained from the time that the sample containers were obtained from the lab until they were returned filled with sample materials. Recorded sample information included time and date of collection, sample identification number, analyses to be performed, preservative used, and special instructions, as necessary. A description of soil sampling methods was consistent with our Workplan (URS, 2003).

All soil samples were submitted to Onsite Environmental Laboratory of Redmond, Washington. The rational and selected parameter for soil analyses are presented in Table 3-1. Consistent with the Phase II Workplan (URS, 2003) subsurface soil samples from the borings were not analyzed

2.3 FIELD QUALITY ASSURANCE PROCEDURES

All sampling equipment was replaced or decontaminated between use by the following procedure:

1. Disassemble equipment
2. First scrub brush with Liquinox
3. Triple rinse with distilled water
4. Second brush scrub with Liquinox
5. Distilled water rinse
6. Air dry

Samples were obtained in a manner that minimized volatilization (low pumping and a slow sample decant) and left no head space in containers. All containers were labeled with the job name, the sample designation, the date, and the time of sampling.

3.0 SOIL AND GROUNDWATER SAMPLING RESULTS

3.1 SOIL SAMPLING OBSERVATIONS

Stains were apparent in surficial soils in the vicinity of the borings. Each of the soil borings was advanced into native outwash gravel deposits that comprise the Steilacoom gravel unit. This material is characterized by the brown color, medium density, and well-rounded nature of the gravel and cobbles. Fill material encountered in the upper 1 to 2 feet of the borings overlie the native gravel unit. The fill consisted of loose intermixed sandy, gravelly cobbles and silty sand with gravel. The hand-held PID did not detect the presence of any organic vapors, and none of the soil material from the split-spoon sampler or auger cuttings exhibited any visual or olfactory indication of contamination. Boring logs are included in Appendix A.

3.2 GROUNDWATER OBSERVATIONS

Groundwater was encountered in the soil borings at a depth of approximately 21 feet bgs. Samples for laboratory analysis taken from each soil boring did not exhibit any visual or olfactory indication of contamination.

3.3 SOIL ANALYTICAL RESULTS

Following receipt of analytical results from the laboratory, the data was subjected to a Quality Assurance/Quality Control (QA/QC) review by a URS chemist and were found acceptable for use. Laboratory results and the QA/QC review are included in Appendices C and D, respectively. The soil and groundwater data are summarized in Tables 3-1 through 3-8, along with the applicable MTCA Methods A and B Industrial cleanup levels for soil and groundwater (Washington Department of Ecology, 2001).

3.3.1 Surface Soil Samples

Contaminants detected in surface soil samples include oil, diesel and metals. Gasoline, BTEX and glycol compounds were not detected. Samples LASB-2-0.5 and LASB-3-0.5 contained oil-range hydrocarbons at concentrations of 15,000 and 20,000 milligrams per kilogram (mg/kg), respectively, and exceeded the Model Toxics Control Act (MTCA) MTCA Method A Industrial cleanup level. Sample LASB-1-0.5 contained oil-range hydrocarbons at 1,600 mg/kg and was slightly below the MTCA Method A Industrial cleanup level (2,000 mg/kg). Diesel-range hydrocarbons were detected in one of the three soil samples (LASB-3-0.5) at 2,500 mg/kg and exceeded MTCA Method A Industrial cleanup levels (2,000 mg/kg).

Barium, cadmium, chromium and lead were detected in the three soil samples. Soil samples LASB-1-0.5 and LASB-3-0.5 contained cadmium at 5.7 and 5.0 mg/kg, respectively, and exceeded the MTCA Method A Industrial cleanup level (2.0 mg/kg). Sample LASB-2-0.5 contained cadmium at1.3 mg/kg and was slightly below the MTCA Method A Industrial cleanup level. Soil samples LASB-1-0.5 and LASB-3-0.5 contained lead at 1,700 and 1,800 mg/kg, respectively, and exceeded the MTCA Method A Industrial cleanup level (1,000). Detected concentrations of barium and chromium were significantly below the MTCA Method A Industrial cleanup levels.

3.3.2 Soil Borings

There were no observations (e.g. odor, PID readings and sheen) that indicated the presence of contamination at the three borings. Therefore, consistent with the Phase II Workplan (URS, 2003), subsurface soil samples from the three completed borings were not analyzed.

3.4 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples LASB-3-GW and LASB-DUP-GW contained toluene at 0.22 and 0.30 micrograms per liter (µg/L), which was significantly below the MTCA Method A Industrial cleanup level of 1,000µg/L. Groundwater samples LASB-3-GW and LASB-DUP-GW did not contain other VOCs above the laboratory reporting limits. Groundwater samples LASB-1-GW, LASB-2-GW, and LASB-3-GW were analyzed for gasoline-, diesel-, and oil-range hydrocarbons, and PAHs and none of the analytes were detected above the laboratory reporting limits.

4.0 SUMMARY AND CONCLUSIONS

4.1 SUMMARY

Analytical results from the Phase II Investigation indicate that diesel- and oil-range hydrocarbons and metals are the primary contaminants present at the surface soils. Concentrations of oil-range hydrocarbons exceeding MTCA Method A Industrial cleanup levels were detected in two surface soil samples taken from stained areas. Concentrations of diesel-range hydrocarbons exceeding MTCA Method A cleanup levels were detected in one surface soil samples taken from stained areas. Lead and cadmium concentrations exceeding MTCA Method A cleanup levels were detected in two of the three soil samples. Evidence of contaminated soils was not observed in the subsurface soils up to a depth of 23 feet bgs.

One groundwater sample and its field duplicate contained toluene at concentrations significantly below the MTCA Method A Industrial cleanup level (1,000µg/L). Other VOCs, gas, diesel, oil, metals, and PAHs were not detected in the groundwater samples.

4.2 CONCLUSIONS

As part of the site development and earthwork activities in the future, surfacial soils containing oil-range hydrocarbons and exceeding cleanup levels will require proper disposal. Based on the results of the Phase II Site Investigation, the approximate volume of the affected shallow soils is estimated to be from 300 to 600 cubic yards.

5.0 LIMITATIONS

We have performed our services for this project in accordance with our Agreement, and with the Workplan dated May 2, 2003; no guarantees are either expressed or implied. The opinions presented herein apply to the site conditions existing at the time of our investigation. Therefore, our conclusions and opinions may not apply to future conditions that may exist at the site, which we have not had the opportunity to evaluate. Opinions and judgments expressed herein, which are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions. Unless site conditions change, this document and the information contained herein are valid for a period of 180 days, and have been prepared solely for the use of Sound Transit. No third party shall have the right to rely on our opinions rendered in connection with the services or in this document without our written consent and the third party's agreement to be bound to the same conditions and limitations as the client.

The scope of services contracted by Sound Transit and implemented by URS for this project was in general accordance with our Workplan dated May 2, 2003. There is no investigation thorough enough to preclude the presence of materials at the site that currently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable may, in the future, become subject to different regulatory standards and require remediation.

6.0 REFERENCES

URS Corporation. 2003. *Phase II Investigation Workplan, Lakeview Auto Wrecking, 11528 Pacific Highway SW, Lakewood, Washington.* April 16, 2003.

URS Corporation. 2003. *Phase I Environmental Site Assessment, Lakeview Auto Wrecking, 11528 Pacific Highway SW, Lakewood, Washington.* May 19, 2003.

Washington Department of Ecology , 2001. Model Toxics Control Act – Cleanup (Washington Administrative Code Chapter 173-340). February 12, 2001.

Table 3-1
Soil and Groundwater Sampling Rational

Soil Boring Location	Rationale For Boring and Samples	Approximate Depth (ft, bgs)	Analyses Performed	Blind Duplicate
SB-1	To assess soil and groundwater conditions in the location of the auto disassembly shed.	0.5	diesel/oil, metals, ethylene and propylene glycol, gas/BTEX	
		10	-	
		15	-	
		Groundwater	diesel/oil, gas/BTEX, PAHs, metals	
SB-2	To evaluate soil conditions in storage areas and to evaluate the potential for onsite migration of contaminants from adjacent properties to the south.	0.5	diesel/oil, metals, ethylene and propylene glycol, gas/BTEX	
		10	-	
		15	-	
		Groundwater	diesel/oil, gas/BTEX	
SB-3	To evaluate soil conditions in storage areas and to evaluate the potential for onsite migration of contaminants from adjacent properties to the north.	0.5	diesel/oil, metals, gas/BTEX	
		10	-	
		15	-	
		Groundwater	diesel/oil, gas/BTEX, VOCs w/ MTBE	X

Table 3-2
Soil Sample Results for Gasoline/Diesel/Oil/BTEX

Sample ID Sample depth (ft bgs) Sample date	MTCA Industrial Cleanup Level		LASB-1-0.5 0.5 5/9/2003	LASB-2-0.5 0.5 5/8/2003	LASB3-0.5 0.5 5/8/2003
BTEX (mg/kg)	**Method A**	**Method B**			
Benzene	0.03	18.2	0.011 U	0.022 U	0.022 U
Toluene	7	16,000	0.053 U	0.11 U	0.11 U
Ethylbenzene	6	8,000	0.053 U	0.11 U	0.11 U
m,p-xylene	9	160,000	0.053 U	0.11 U	0.11 U
o-xylene	9	160,000	0.053 U	0.11 U	0.11 U
TPH (mg/kg)					
Gasoline	100	NE	5.3 U	11 U	11 U
Diesel	2,000	NE	130 U	130 U	**2,500**
Oil	2,000	NE	1,600	**15,000**	**20,000**

Notes:
ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level

Table 3-3
Soil Sample Results for Metals

Sample ID Sample depth (ft bgs) Sample date	MTCA Industrial Cleanup Level		LASB-1-0.5 0.5 5/9/2003	LASB-2-0.5 0.5 5/8/2003	LASB3-0.5 0.5 5/8/2003
Analyte (mg/kg)	**Method A**	**Method B**			
Arsenic	20	0.667	11 U	11 U	11 U
Barium	NE	5,600	76	47	76
Cadmium	2	80	**5.7**	1.3	**5**
Chromium	2,000 (Cr^{3+}), 19 (Cr^{6+})	120,000 (Cr^{3+})	30	30	38
Lead	1,000	NE	**1,700**	280	**1,800**
Mercury	2	24	0.27 U	0.27 U	0.27 U
Selenium	NE	400	11 U	11 U	11 U
Silver	NE	400	2.5	0.54 U	0.55 U

Notes:
ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level

Table 3-4
Soil Sample Results for Ethylene/Proylene Glycol

Sample ID Sample depth (ft bgs) Sample date	MTCA Cleanup Level		LASB-1-0.5 0.5 5/9/2003	LASB-2-0.5 0.5 5/8/2003
Analyte (mg/kg)	**Method A**	**Method B**		
Propylene glycol	NE	NE	2.02 U	1.95 U
Ethylene glycol	NE	160,000,000	2.02 U	1.95 U

Notes:
ft bgs - feet below ground surface
mg/kg - milligrams per kilogram
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level

Table 3-5
Groundwater Sample Results for Gasoline/Diesel/Oil/BTEX

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-1-GW 5/9/2003	LASB-2-GW 5/9/2003	LABS-3-GW 5/8/2003
BTEX (ug/L)	**Method A**	**Method B**			
Benzene	5	0.795	1 U	1 U	1 U
Toluene	1,000	1,600	1 U	1 U	1 U
Ethylbenzene	700	800	1 U	1 U	1 U
m,p-xylene	1,000	16,000	1 U	1 U	1 U
o-xylene	1,000	16,000	1 U	1 U	1 U
TPH (ug/L)					
Gasoline	800 / 1,000*	NE	100 U	100 U	100 U
Diesel	500	NE	0.25 U	0.26 U	0.26 U
Oil	500	NE	0.41 U	0.42 U	0.42 U

Notes:
ug/L - micrograms per liter
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level
*If beneze is present, cleanup level is 800 ug/L. If there is no detectable benzene, cleanup level is 1,000 ug/L.

Table 3-6
Groundwater Sample Results for VOCs

Sample ID / Sample date	MTCA Industrial Cleanup Level		LASB-3-GW 5/8/2003	LASB-DUP-GW 5/8/2003
Analyte (ug/L)	**Method A**	**Method B**		
1,1,1-Trichloroethane	200	7,200	0.20 U	0.20 U
1,1-Dichloroethane	NE	800	0.20 U	0.20 U
1,1-Dichloroethene	NE	0.0729	0.20 U	0.20 U
Chloroethane	NE	NE	0.20 U	0.20 U
Tetrachloroethene	5	0.858	0.20 U	0.20 U
Trichloroethene	5	3.98	0.20 U	0.20 U
cis-1,2-Dichloroethene	NE	80	0.20 U	0.20 U
trans-1,2-Dichloroethene	NE	160	0.20 U	0.20 U
Vinyl chloride	0.2	0.0292	0.20 U	0.20 U
Acetone	NE	800	5 U	5 U
Benzene	5	0.795	0.20 U	0.20 U
Bromodichloromethane	NE	0.706	0.20 U	0.20 U
Bromobenzene	NE	NE	0.20 U	0.20 U
Bromochloromethane	NE	NE	5 U	5 U
Bromoform	NE	5.54	1 U	1 U
Bromomethane	NE	11.2	0.20 U	0.20 U
2-Butanone	NE	4,800	0.20 U	0.20 U
n-Butylbenzene	NE	NE	0.20 U	0.20 U
sec-Butylbenzene	NE	NE	0.20 U	0.20 U
tert-Butylbenzene	NE	NE	0.20 U	0.20 U
Carbon disulfide	NE	800	0.20 U	0.20 U
Carbon tetrachloride	NE	0.337	0.20 U	0.20 U
Chlorobenzene	NE	160	0.20 U	0.20 U
2-Chloroethylvinyl ether	NE	NE	1 U	1 U
Chloroform	NE	7.17	0.20 U	0.20 U
Chloromethane	NE	3.37	0.20 U	0.20 U
2-Chlorotoluene	NE	NE	0.20 U	0.20 U
4-Chlorotoluene	NE	NE	0.20 U	0.20 U
Dibromochloromethane	NE	0.521	0.20 U	0.20 U
1,2-Dichlorobenzene	NE	720	0.20 U	0.20 U
1,3-Dichlorobenzene	NE	NE	0.20 U	0.20 U
1,4-Dichlorobenzene	NE	1.82	0.20 U	0.20 U
1,3-Dichloropropane	NE	NE	0.20 U	0.20 U
2,2-Dichloropropane	NE	NE	0.20 U	0.20 U
1,1-Dichloropropene	NE	NE	0.20 U	0.20 U
1,2-Dibromo-3-chloropropane	NE		1 U	1 U
1,2-Dibromoethane	NE	NE	0.20 U	0.20 U
Dibromomethane	NE	NE	0.20 U	0.20 U
Dichlorodifluoromethane	NE	1,600	0.20 U	0.20 U
1,2-Dichloroethane	NE	0.481	0.20 U	0.20 U
1,2-Dichloropropane	NE	0.643	0.20 U	0.20 U
cis-1,3-Dichloropropene	NE	0.243	0.20 U	0.20 U
trans-1,3-Dichloropropene	NE	0.243	0.20 U	0.20 U
Ethylbenzene	700	800	0.20 U	0.20 U
Hexachlorobutadiene	NE	1	0.20 U	0.20 U
2-Hexanone	NE	NE	2 U	2 U
Isopropylbenzene	NE	NE	0.20 U	0.20 U
p-Isopropyltoluene	NE	NE	0.20 U	0.20 U
Methylene chloride	5	5.83	1 U	1 U

Table 3-6
Groundwater Sample Results for VOCs

Sample ID Sample date	MTCA Industrial Cleanup Level		LASB-3-GW 5/8/2003	LASB-DUP-GW 5/8/2003
Analyte (ug/L)	**Method A**	**Method B**		
4-methyl-2-pentanone	NE	640	0.20 U	0.20 U
Naphthalene	160	160	7 U	7 U
n-Propylbenzene	NE	NE	0.20 U	0.20 U
Styrene	NE	1.46	0.20 U	0.20 U
1,1,1,2-Tetrachloroethane	NE	1.68	0.20 U	0.20 U
1,1,2,2-Tetrachloroethane	NE	0.219	0.20 U	0.20 U
Toluene	1,000	1,600	0.22	0.3
1,2,3-Trichlorobenzene	NE	1,600	0.20 U	0.20 U
1,2,4-Trichlorobenzene	NE	80	0.20 U	0.20 U
MTBE			0.20 U	0.20 U
1,1,2-Trichloroethane	NE	0.768	0.20 U	0.20 U
Trichlorofluoromethane	NE	2,400	0.20 U	0.20 U
Trichlorotrifluoromethane	NE	NE	0.20 U	0.20 U
1,2,4-Trimethylbenzene	NE	NE	0.20 U	0.20 U
1,3,5-trimethylbenzene	NE	NE	0.20 U	0.20 U
Vinyl acetate	NE	8,000	1 U	1 U
Total Xylenes	1,000	16,000	0.20 U	0.20 U

Notes:
ug/L - micrograms per liter
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level

Table 3-7
Groundwater Sample Results for Dissolved Metals

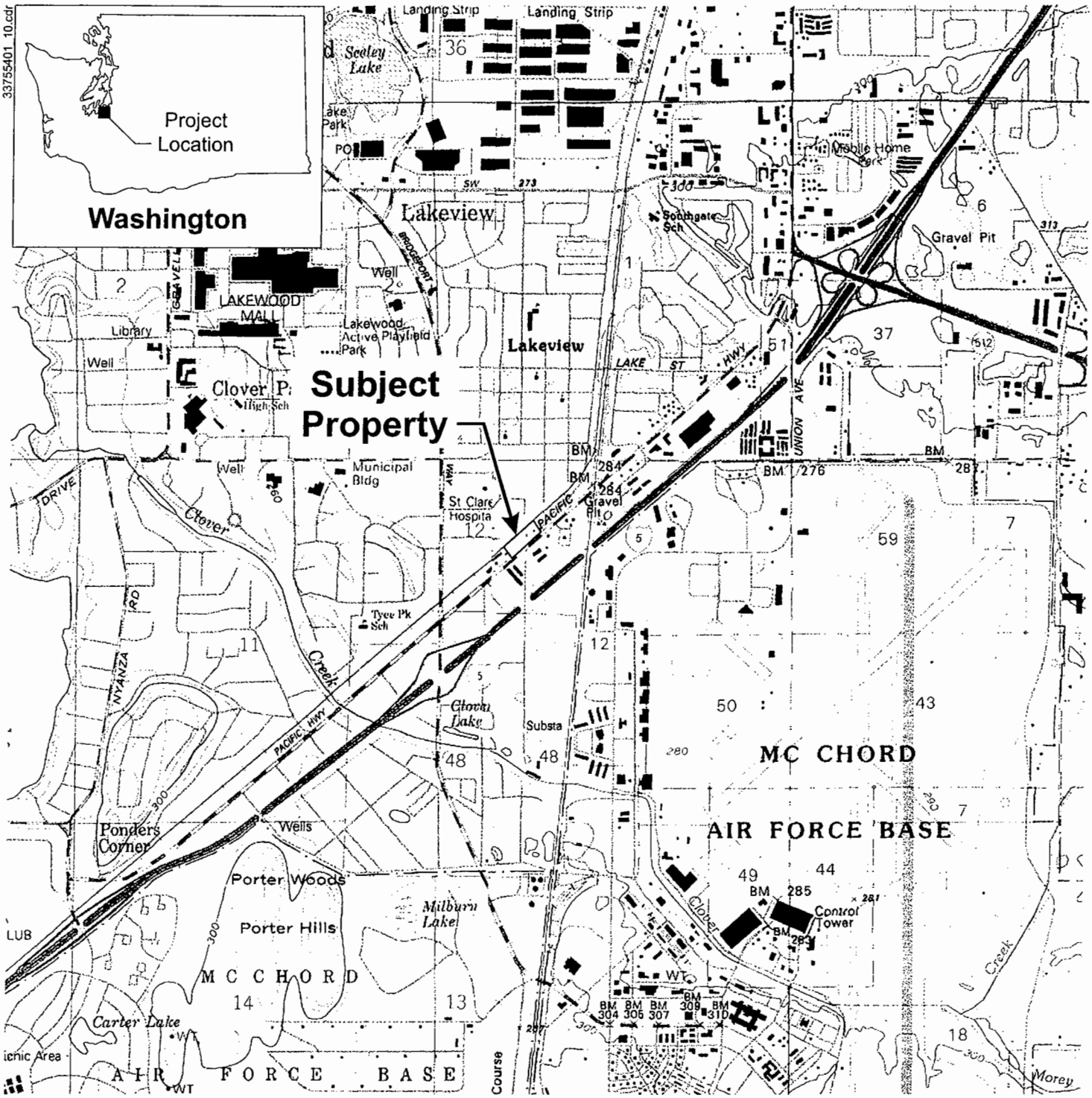
Sample ID **Sample date**	**MTCA Industrial Cleanup Level**		LASB-1-GW 5/9/2003
Analyte (ug/L)	**Level A**	**Level B**	
Arsenic	5	0.0583	3 U
Barium	NE	560	25 U
Cadmium	5	8	4 U
Chromium	50	24,000 (Cr^{3+})	10 U
Lead	15	NE	1 U
Mercury	2	4.8	0.5 U
Selenium	NE	230	5 U
Silver	NE	80	10 U

Notes:
ug/L - micrograms per liter
U- analyte not detected above the reporting limit.
NE- Not Established
Bold- indicates that results is above the MTCA Cleanup Level

Table 3-8
Groundwater Sample Results for PAHs

Sample ID Sample date	MTCA Cleanup Level		LASB-1-GW 5/9/2003
Analyte (mg/kg)	**Method A**	**Method B**	
Naphthalene	160	NE	0.10 U
2-Methylnaphthalene	160	NE	0.10 U
1-Methylnaphthalene	160	NE	0.10 U
Acenaphthylene	NE	NE	0.10 U
Acenaphthene	NE	960	0.10 U
Fluorene	NE	640	0.10 U
Phenanthrene	NE	NE	0.10 U
Anthracene	NE	2,400	0.10 U
Fluoranthene	NE	640	0.10 U
Pyrene	NE	480	0.10 U
Benzo[a]anthracene	*	0.012	0.010 U
Chrysene	*	0.012	0.010 U
Benzo[b]fluoranthene	*	0.012	0.010 U
Benzo[k]fluoranthene	*	0.012	0.010 U
Benzo[a]pyrene	0.1	0.012	0.010 U
Indeno(1,2,3-c,d)pyrene	*	0.012	0.010 U
Dibenz[a,h]anthracene	*	0.012	0.010 U
Benzo[g,h,I]perylene	NE	NE	0.010 U

Notes:
U- analyte not detected above the reporting limit.
NE- Not established
*- Cleanup levels under 2001 MTCA are for total caringoenic PAHs- groundwater 0.1 ug/L.



Map created with TOPO!™ © 1997 Wildflower Productions, www.topo.com, based on USGS topographic maps: Tacoma and Steilacoom, Washington, dated 1994

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Scale in Miles

Job No. 33755401

Figure 1-1

Site Location Map

TRC

Sound Transit

Levesque/Lakeview Auto Wrecking Property – Lakewood, Washington

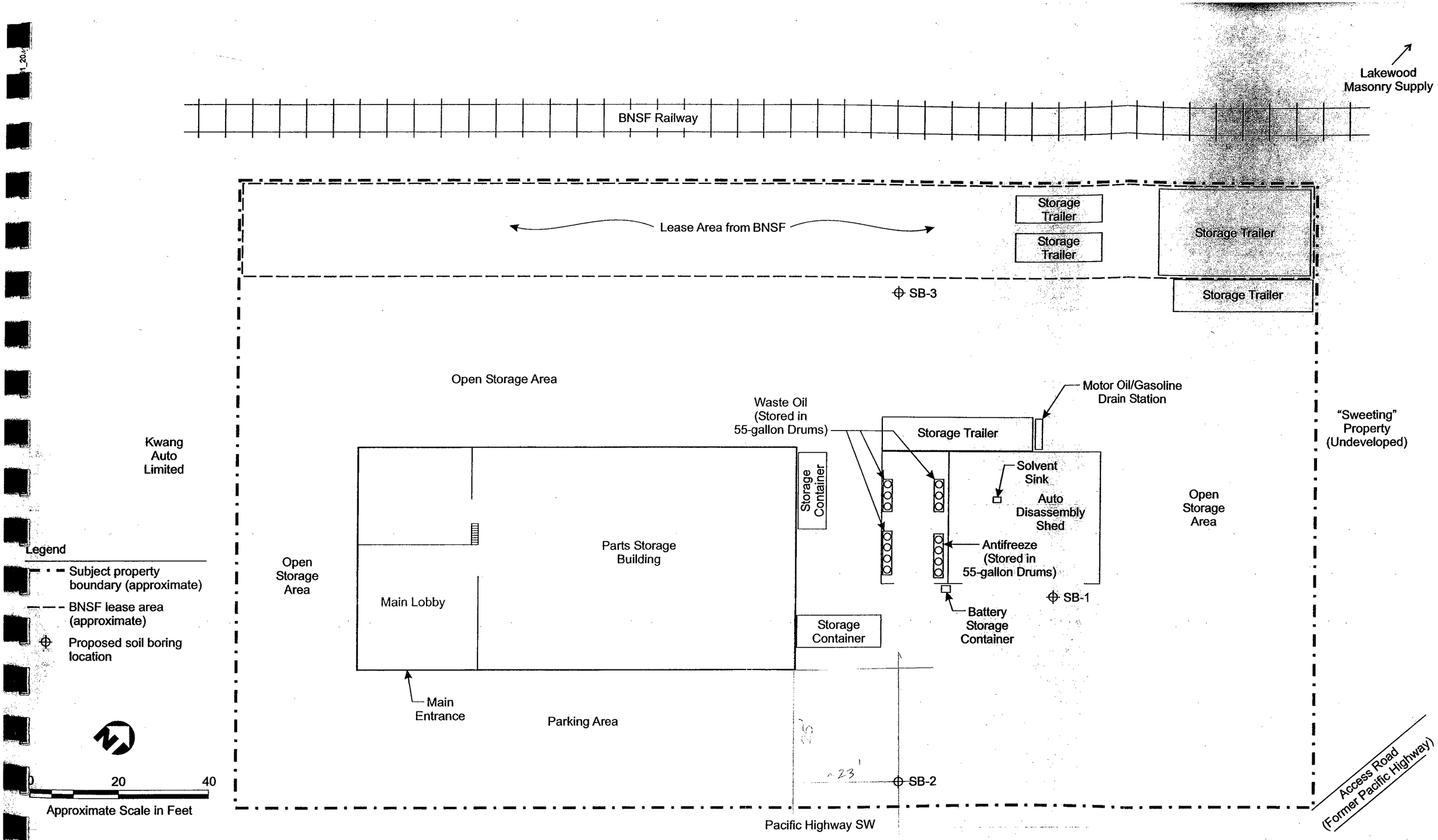
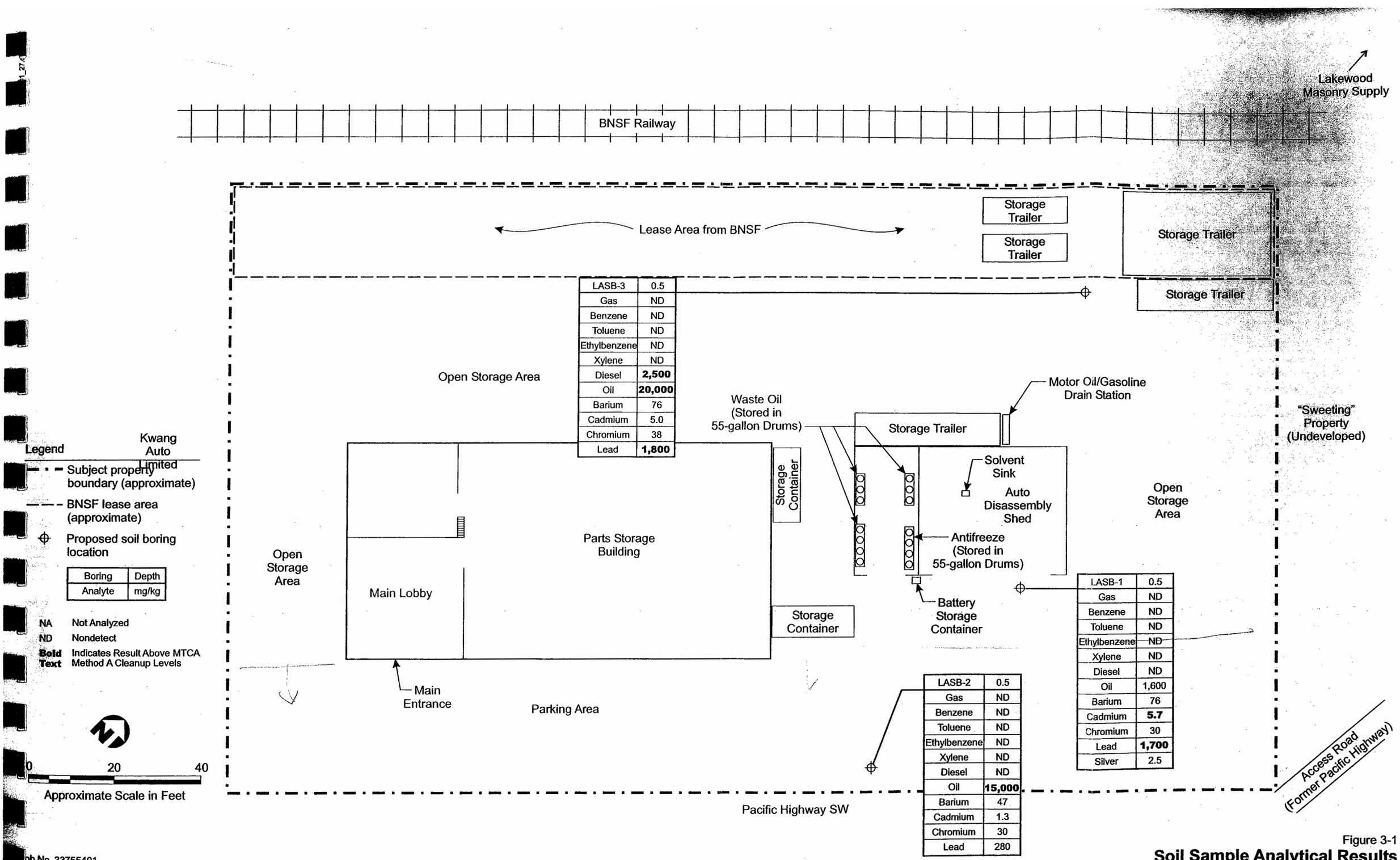


Figure 1-2
Site Plan Soil Boring Locations

Job No. 33755401

URS

Sound Transit
Levesque/Lakeview Auto Wrecking Property – Lakewood, Washington



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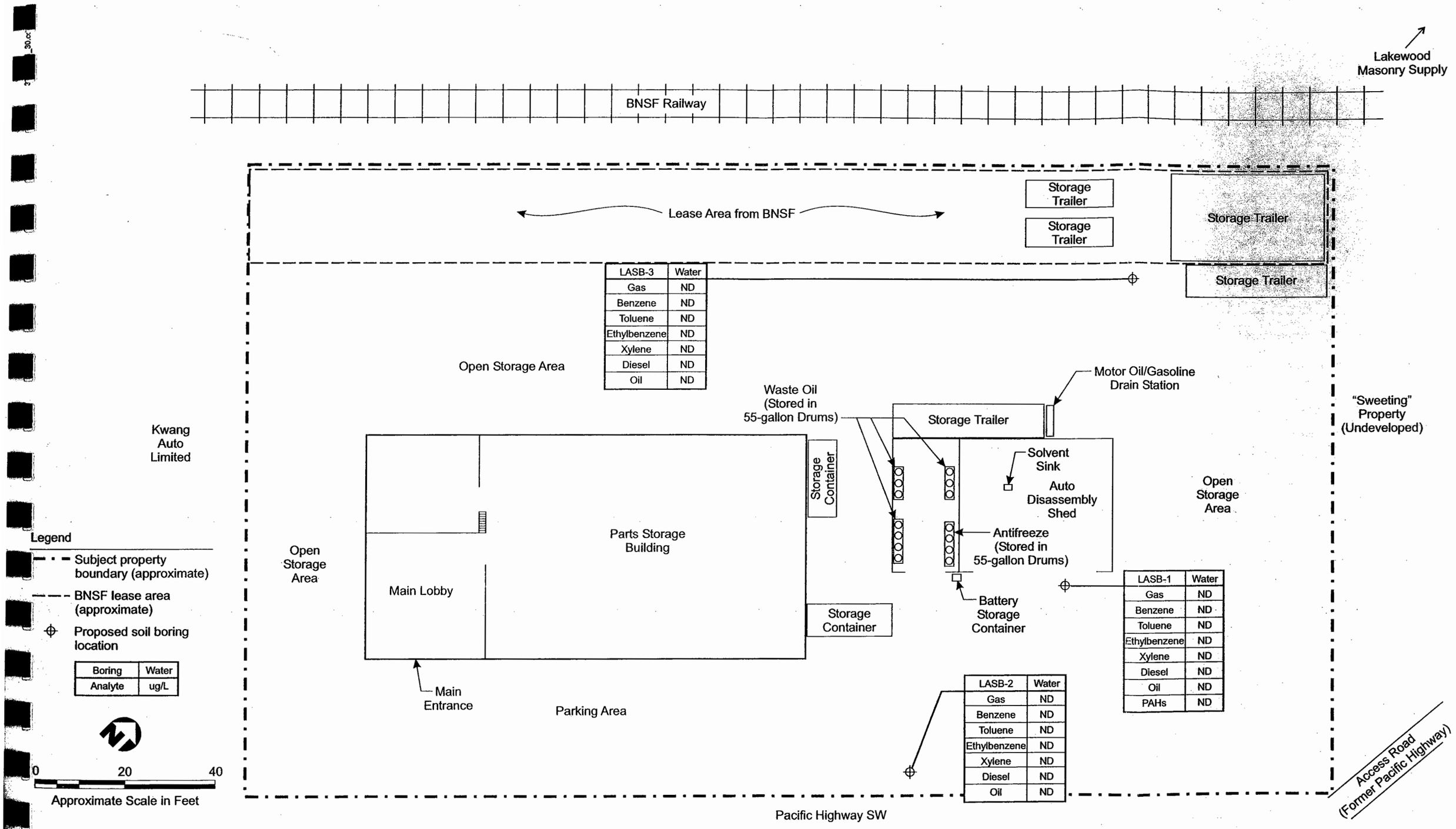
URS

Figure 3-1

Soil Sample Analytical Results

Sound Transit

Levesque/Lakeview Auto Wrecking Property – Lakewood, Washington



Job No. 33755401

Figure 3-2

Groundwater Sample Analytical Results

Sound Transit

Levesque/Lakeview Auto Wrecking Property – Lakewood, Washington

URS

Appendix A
Geologic Boring Logs

Project: Sound Transit - Lakewood Station
Project Location: 11520 Pacific Highway SW
Project Number: 33755401.00550

Log of Boring LASB-1

Sheet 1 of 1

Date(s) Drilled	5-8-03	Logged By	J. Rapp	Checked By	T. Griffith
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc.	Total Depth Drilled (FT BGS)	23.0
Drill Rig Type	CME-75	Sampler Type	Split Spoon	Surface Elevation	
Groundwater Level	21 feet bgs 5-9-03	Drill Bit Size/Type		Top of PVC Elevation	NA
Diameter of Hole (inches)	8"	Diameter of Well (inches)	2"	Type of Well Casing	PVC	Screen Perforation	0.010"
Type of Sand Pack	12-20 filter sand	Type and Depth of Seal(s)	NA		
Comments	Groundwater sample collected from temporary PVC well screen				

Elevation, feet (MSL)	Depth, feet	SAMPLES Type	SAMPLES Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS
	0						Gravel Surface				0900	0-23' No odor, no visual indication of contamination
	5						Medium brown sandy GRAVEL (GP-GW) - dry, dense, mostly coarse gravel, cobbles,Steilacoom Gravel					
	10		LASB-1-10 (0915)	50/6"	1		Same as above		0		0910	
	15		LASB-1-15 (0930)	20,25,40	1				0		0915	
	18											18-23' Temp well screen set
	21						Same as above - wet ▽					21' Groundwater encountered
	23						Boring Terminated at 23 feet bgs at 1505 on 5-8-03					

ENV_23A S:\URAPP\ST_LA.GPJ URSSEA3.GLB WC_CORP1.GDT 6/27/03

Project: Sound Transit - Lakewood Station
Project Location: 11520 Pacific Highway SW
Project Number: 33755401.00550

Log of Boring LASB-2

Sheet 1 of 1

Date(s) Drilled	5-8-03	Logged By	J. Rapp	Checked By	T. Griffith
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc.	Total Depth Drilled (FT BGS)	23.0
Drill Rig Type	CME-75	Sampler Type	Split Spoon	Surface Elevation	
Groundwater Level	21 feet bgs 5-9-03	Drill Bit Size/Type		Top of PVC Elevation	NA
Diameter of Hole (inches)	8"	Diameter of Well (inches)	2"	Type of Well Casing	PVC	Screen Perforation	0.010"
Type of Sand Pack	12-20 filter sand	Type and Depth of Seal(s)	NA		
Comments	Groundwater sample collected from temporary PVC well screen				

Elevation, feet (MSL)	Depth, feet	SAMPLES Type	SAMPLES Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS
	0						Asphalt surface				1230	0-23' No odor, no visual indication of contamination
	1						Brown sandy GRAVEL (GP-GW) - dry, dense, mostly subrounded gravel, some cobbles, some sand					
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10		LASB-2-10 (1240)	7,7,10	0.5		Same as above - yellowish-brown		0		1240	
	11											
	12											
	13											
	14											
	15		LASB-2-15 (1250)	20,30,50	1		Same as above		0		1250	
	16											
	17											
	18											18-23' Temp well screen set
	19											
	20											
	21						Same as above - wet ▽					21' Groundwater encountered
	22											
	23						Boring Terminated at 23 feet bgs at 1300 on 5-8-03					
	24											
	25											

Project: Sound Transit - Lakewood Station
Project Location: 11520 Pacific Highway SW
Project Number: 33755401.00550

Log of Boring LASB-3

Sheet 1 of 1

Date(s) Drilled	5-8-03	Logged By	J. Rapp	Checked By	T. Griffith
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc.	Total Depth Drilled (FT BGS)	23.0
Drill Rig Type	CME-75	Sampler Type	Split Spoon	Surface Elevation	
Groundwater Level	21 feet bgs 5-9-03	Drill Bit Size/Type		Top of PVC Elevation	NA
Diameter of Hole (inches)	8"	Diameter of Well (inches)	2"	Type of Well Casing	PVC	Screen Perforation	0.010"
Type of Sand Pack	12-20 filter sand	Type and Depth of Seal(s)	NA		
Comments	Groundwater sample collected from temporary PVC well screen				

Elevation, feet (MSL)	Depth, feet	SAMPLES Type	SAMPLES Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS
	0						Gravel Surface				1440	0-23' No odor, no visual indication of contamination
	1						Brown sandy GRAVEL (GP-GW) - dry, dense, mostly subrounded gravel, some cobbles, some sand, Steilacoom Gravel					
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10		LASB-3-10 (1500)	100/6"	0.5		Same as above		0		1450	
	11											
	12											
	13											
	14											
	15						Same as above					
	16											
	17											
	18		LASB-2-18 (1515)	22,23,45	1				0		1500	18-23' Temp well screen set
	19											
	20											
	21						Same as above - wet ▽					21' Groundwater encountered
	22											
	23						Boring Terminated at 23 feet bgs at 1505 on 5-8-03					
	24											
	25											

ENV_23A S:\JRAPPIST_LA.GPJ URSSEA3.GLB WC_CORP1.GDT 6/27/03

Appendix B
Groundwater Sampling Data Sheets

GROUNDWATER SAMPLING DATA SHEET

Well Number:	LASB-1	Sample Number:	LASB-1-GW
Project Name:	Sound Transit - Lakeview Auto	Project/Task:	33755401/00550
		Date:	5/8/2003
Well Depth:	23'	Measuring Point (MP):	
Water Depth:	21'		
Feet of Water:		Well Key Number:	
Gallons per Foot:			
		Well Diameter:	2" - PVC
Well Volume:			
Purge Volume:			

Well Diameter	Gallons per casing foot
2 inches	0.16
4 inches	0.65

Purge Method:	Persistaltic pump	pH meter:	4.01 SU 4.00
Sample Method:	Low flow purge	Conductivity Meter:	4.47 ms/cm 4.49
Water Disposal:	Steel drum	D.O. Meter:	NA mg/L NA
Weather:		Turbidity Meter:	0.9 NTUs 0.0
Sampler(s):	J. Rapp	TDS Meter:	NA
		Calibration Date:	5/8/2003

QA/QC Samples

Blind Duplicate

Field Parameters	0	1	2	3	4	5	Sample
Time	1006	1009	1012	1015	1018	1021	1030
Volume purged (gal.)							
Temperature (deg. C)	14.4	13.2	12.9	12.8	12.6	12.5	
pH	6.15	6.38	6.32	6.28	6.25	6.25	
Conductivity (uS/cm)	0.859	0.386	0.339	0.319	0.284	0.255	
Diss. Oxygen (mg/L)	12.79	12.81	12.58	12.32	12.03	11.86	
Turbidity (NTU)	688	71	50	59	48	39	
TDS (ppm)							

BOTTLE REQUIREMENTS

Analysis	Bottle Type	Number	Number MS/MSD	Bottle Type	Bottle Number	Number MS/MSD
NWTPH-Dx	Amber	2				
PAHs	Amber	2				
Gas	VOA	2				
Metals	Poly	1				

GROUNDWATER SAMPLING DATA SHEET

Well Number:	LASB-2	Sample Number:	LASB-2-GW
Project Name:	Sound Transit - Lakeview Auto	Project/Task:	33755401/00550
		Date:	5/8/2003
Well Depth:	23'	Measuring Point (MP):	
Water Depth:	18		
Feet of Water:		Well Key Number:	
Gallons per Foot:			
		Well Diameter:	2" - PVC
Well Volume:			
Purge Volume:			

Well Diameter	Gallons per casing foot
2 inches	0.16
4 inches	0.65

Purge Method:	Persistaltic pump	pH meter:	4.01 SU 4.00
Sample Method:	Low flow purge	Conductivity Meter:	4.47 ms/cm 4.49
Water Disposal:	Steel drum	D.O. Meter:	NA mg/L NA
Weather:		Turbidity Meter:	0.9 NTUs 0.0
Sampler(s):	J. Rapp	TDS Meter:	NA
		Calibration Date:	5/8/2003

QA/QC Samples

Blind Duplicate

Field Parameters	0	1	2	3	4	5	Sample
Time	1338	1341	1344	1347	1352		1400
Volume purged (gal.)							
Temperature (deg. C)	13.5	12.9	12.7	12.8	12.9		
pH	6.19	6.31	6.32	6.31	6.29		
Conductivity (uS/cm)	0.703	0.496	0.426	0.399	0.337		
Diss. Oxygen (mg/L)	13.21	12.79	12.79	12.12	11.83		
Turbidity (NTU)	999	231	109	68	49		
TDS (ppm)							

BOTTLE REQUIREMENTS

Analysis	Bottle Type	Number	Number MS/MSD	Bottle Type	Bottle Number	Number MS/MSD
NWTPH-Dx	Amber	2				
Gas	VOA	2				

GROUNDWATER SAMPLING DATA SHEET

Well Number:	LASB-3	Sample Number:	LASB-3-GW
Project Name:	Sound Transit - Lakeview Auto	Project/Task:	33755401/00550
		Date:	5/8/2003
Well Depth:	23'	Measuring Point (MP):	
Water Depth:	18'		
Feet of Water:		Well Key Number:	
Gallons per Foot:			
		Well Diameter:	2" - PVC
Well Volume:			
Purge Volume:			

Well Diameter	Gallons per casing foot
2 inches	0.16
4 inches	0.65

Purge Method:	Persistaltic pump	pH meter:	4.01 SU 4.00
Sample Method:	Low flow purge	Conductivity Meter:	4.47 ms/cm 4.49
Water Disposal:	Steel drum	D.O. Meter:	NA mg/L NA
Weather:		Turbidity Meter:	0.9 NTUs 0.0
Sampler(s):	J. Rapp	TDS Meter:	NA
		Calibration Date:	5/8/2003

QA/QC Samples

Blind Duplicate

Field Parameters	0	1	2	3	4	5	Sample
Time	1541	1544	1547	1550	1553	1556	1600
Volume purged (gal.)							
Temperature (deg. C)	13.4	12.7	12.6	12.6	12.5	12.4	
pH	6.27	6.27	6.24	6.25	6.2	6.21	
Conductivity (uS/cm)	0.42	0.292	0.272	0.256	0.236	0.236	
Diss. Oxygen (mg/L)	16.81	13.52	13.44	13.13	12.75	12.75	
Turbidity (NTU)	613	53	39	47	37	52	
TDS (ppm)							

BOTTLE REQUIREMENTS

Analysis	Bottle Type	Number	Number MS/MSD	Bottle Type	Bottle Number	Number MS/MSD
NWTPH-Dx	Amber	2				
Gas	VOA	2				
VOCs	VOA	3				

Appendix C
Laboratory Analytical Data

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

May 21, 2003

Ty Griffith
URS, Inc.
1501 Fourth Avenue, Suite 1400
Seattle, WA 98101-1616

Re: Analytical Data for Project 33755401.00550
Laboratory Reference No. 0305-089

Dear Ty:

Enclosed are the analytical results and associated quality control data for samples submitted on May 10, 2003.

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,

David Baumeister
Project Manager

Enclosures

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

Case Narrative

Samples were collected on May 8 and 9, 2003. Samples were maintained at the laboratory at 4°C and followed W846 analysis and extraction methods.

NWTPH Gx/BTEX Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

NWTPH Dx Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Volatiles EPA 8260B Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

PAHs EPA 8270C/SIM Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Total Metals EPA 6010B/7471A Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Dissolved Metals EPA 200.8/7470A Analysis

Any QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX

Date Extracted: 5-13-03
Date Analyzed: 5-13-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	**LASB-2-0.5**			**LASB-3-0.5**		
Lab ID:	05-089-01			05-089-05		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		0.022	**ND**		0.022
Toluene	**ND**		0.11	**ND**		0.11
Ethyl Benzene	**ND**		0.11	**ND**		0.11
m,p-Xylene	**ND**		0.11	**ND**		0.11
o-Xylene	**ND**		0.11	**ND**		0.11
TPH-Gas	**ND**		11	**ND**		11
Surrogate Recovery:						
Fluorobenzene	89%			86%		

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX

Date Extracted: 5-13-03
Date Analyzed: 5-13-03

Matrix: Soil
Units: mg/kg (ppm)

Client ID: **LASB-1-0.5**
Lab ID: ~~05~~-089-09

GS AR 6/5/03

	Result	Flags	PQL
Benzene	**ND**		0.011
Toluene	**ND**		0.053
Ethyl Benzene	**ND**		0.053
m,p-Xylene	**ND**		0.053
o-Xylene	**ND**		0.053
TPH-Gas	**ND**		5.3

Surrogate Recovery:
Fluorobenzene 94%

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-13-03
Date Analyzed: 5-13-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0513S2

	Result	Flags	PQL
Benzene	**ND**		0.010
Toluene	**ND**		0.050
Ethyl Benzene	**ND**		0.050
m,p-Xylene	**ND**		0.050
o-Xylene	**ND**		0.050
TPH-Gas	**ND**		5.0

Surrogate Recovery:
Fluorobenzene 99%

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 5-13-03
Date Analyzed: 5-13-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID:	05-089-09 **Original**	05-089-09 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
TPH-Gas	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	94%	93%		

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 5-13-03
Date Analyzed: 5-13-03

Matrix: Soil
Units: mg/kg (ppm)

Spike Level: 1.00 ppm

Lab ID:	05-084-02 **MS**	Percent Recovery	05-084-02 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**0.741**	**74**	**0.769**	**77**	4	
Toluene	**0.764**	**76**	**0.788**	**79**	3	
Ethyl Benzene	**0.785**	**79**	**0.809**	**81**	3	
m,p-Xylene	**0.777**	**78**	**0.801**	**80**	3	
o-Xylene	**0.779**	**78**	**0.797**	**80**	2	

Surrogate Recovery:			
Fluorobenzene	77%		77%

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX

Date Extracted: 5-12-03
Date Analyzed: 5-12-03

Matrix: Water
Units: ug/L (ppb)

Client ID:	**LASB-2-GW**			**LASB-3-GW**		
Lab ID:	05-089-04			05-089-08		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		1.0	**ND**		1.0
Toluene	**ND**		1.0	**ND**		1.0
Ethyl Benzene	**ND**		1.0	**ND**		1.0
m,p-Xylene	**ND**		1.0	**ND**		1.0
o-Xylene	**ND**		1.0	**ND**		1.0
TPH-Gas	**ND**		100	**ND**		100
Surrogate Recovery:						
Fluorobenzene	107%			106%		

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX

Date Extracted: 5-12-03
Date Analyzed: 5-12-03

Matrix: Water
Units: ug/L (ppb)

Client ID:	**LASB-1-GW**			**LASB-Dup-GW**		
Lab ID:	05-089-12			05-089-13		
	Result	Flags	PQL	**Result**	Flags	PQL
Benzene	**ND**		1.0	**ND**		1.0
Toluene	**ND**		1.0	**ND**		1.0
Ethyl Benzene	**ND**		1.0	**ND**		1.0
m,p-Xylene	**ND**		1.0	**ND**		1.0
o-Xylene	**ND**		1.0	**ND**		1.0
TPH-Gas	**ND**		100	**ND**		100
Surrogate Recovery:						
Fluorobenzene	106%			105%		

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
METHOD BLANK QUALITY CONTROL

Date Extracted: 5-12-03
Date Analyzed: 5-12-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0512W4

	Result	Flags	PQL
Benzene	**ND**		1.0
Toluene	**ND**		1.0
Ethyl Benzene	**ND**		1.0
m,p-Xylene	**ND**		1.0
o-Xylene	**ND**		1.0
TPH-Gas	**ND**		100

Surrogate Recovery:
Fluorobenzene 107%

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
DUPLICATE QUALITY CONTROL

Date Extracted: 5-12-03
Date Analyzed: 5-12-03

Matrix: Water
Units: ug/L (ppb)

Lab ID:	05-089-08 **Original**	05-089-08 **Duplicate**	**RPD**	**Flags**
Benzene	**ND**	**ND**	NA	
Toluene	**ND**	**ND**	NA	
Ethyl Benzene	**ND**	**ND**	NA	
m,p-Xylene	**ND**	**ND**	NA	
o-Xylene	**ND**	**ND**	NA	
TPH-Gas	**ND**	**ND**	NA	
Surrogate Recovery:				
Fluorobenzene	106%	105%		

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Gx/BTEX
MS/MSD QUALITY CONTROL

Date Extracted: 5-12-03
Date Analyzed: 5-12-03

Matrix: Water
Units: ug/L (ppb)

Spike Level: 50.0 ppb

Lab ID:	05-089-08 **MS**	Percent Recovery	05-089-08 **MSD**	Percent Recovery	**RPD**	**Flags**
Benzene	**49.8**	**100**	**50.2**	**100**	0.92	
Toluene	**49.6**	**99**	**49.9**	**100**	0.64	
Ethyl Benzene	**50.5**	**101**	**50.9**	**102**	0.69	
m,p-Xylene	**50.5**	**101**	**50.8**	**102**	0.55	
o-Xylene	**50.2**	**100**	**50.5**	**101**	0.46	

Surrogate Recovery:

Fluorobenzene	109%		109%

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx

Date Extracted:	5-14-03
Date Analyzed:	5-14-03
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID:	LASB-2-0.5	LASB-3-0.5	LASB-1-0.5
Lab ID:	05-089-01	05-089-05	05-089-09
Diesel Range:	ND	2500	ND
PQL:	130	140	130
Identification:	---	Diesel Fuel#2	---
Lube Oil Range:	15000	20000	1600
PQL:	270	270	270
Identification:	Lube Oil	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	59%	103%	103%
Flags:	X	X	X

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-14-03
Date Analyzed:	5-14-03
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0514S1
Diesel Range:	ND
PQL:	25
Identification:	---
Lube Oil Range:	ND
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	119%
Flags:	X

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-14-03
Date Analyzed:	5-14-03
Matrix:	Soil
Units:	mg/kg (ppm)

Lab ID:	05-089-01	05-089-01 DUP
Diesel Range:	ND	ND
PQL:	130	130
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	59%	85%
Flags:	X	X

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx

Date Extracted: 5-16-03
Date Analyzed: 5-16-03

Matrix: Water
Units: mg/L (ppm)

Client ID:	LASB-2-GW	LASB-3-GW	LASB-1-GW
Lab ID:	05-089-04	05-089-08	05-089-12
Diesel Range:	ND	ND	ND
PQL:	0.26	0.26	0.25
Identification:	---	---	---
Lube Oil Range:	ND	ND	ND
PQL:	0.42	0.42	0.41
Identification:	---	---	---
Surrogate Recovery			
o-Terphenyl:	90%	95%	96%

Flags:

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx

Date Extracted:	5-16-03
Date Analyzed:	5-16-03
Matrix:	Water
Units:	mg/L (ppm)
Client ID:	LASB-DUP-GW
Lab ID:	05-089-13
Diesel Range:	ND
PQL:	0.26
Identification:	---
Lube Oil Range:	ND
PQL:	0.41
Identification:	---
Surrogate Recovery	
o-Terphenyl:	90%

Flags:

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-16-03
Date Analyzed:	5-16-03
Matrix:	Water
Units:	mg/L (ppm)
Lab ID:	MB0516W1
Diesel Range:	ND
PQL:	0.25
Identification:	---
Lube Oil Range:	ND
PQL:	0.40
Identification:	---
Surrogate Recovery	
o-Terphenyl:	75%

Flags:

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	5-16-03
Date Analyzed:	5-16-03
Matrix:	Water
Units:	mg/L (ppm)

Lab ID:	05-092-02	05-092-02 DUP
Diesel Range:	ND	ND
PQL:	0.30	0.29
RPD:	N/A	
Surrogate Recovery		
o-Terphenyl:	79%	88%

Flags:

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

PAHs EPA 8270C/SIM

Date Extracted:	5-14-03
Date Analyzed:	5-15-03
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	05-089-12
Client ID:	**LASB-1-GW**

Compound:	**Results**	**Flags**	**PQL**
Naphthalene	ND		0.10
2-Methylnaphthalene	ND		0.10
1-Methylnaphthalene	ND		0.10
Acenaphthylene	ND		0.10
Acenaphthene	ND		0.10
Fluorene	ND		0.10
Phenanthrene	ND		0.10
Anthracene	ND		0.10
Fluoranthene	ND		0.10
Pyrene	ND		0.10
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.010
Indeno[1,2,3-c,d]pyrene	ND		0.010
Dibenz[a,h]anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate :	**Percent Recovery**	**Control Limits**
Nitrobenzene-d5	53	10 - 83
2-Fluorobiphenyl	52	25 - 89
Terphenyl-d14	58	10 - 112

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

PAHs EPA 8270C/SIM
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-14-03
Date Analyzed:	5-15-03
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0514W1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.10
2-Methylnaphthalene	ND		0.10
1-Methylnaphthalene	ND		0.10
Acenaphthylene	ND		0.10
Acenaphthene	ND		0.10
Fluorene	ND		0.10
Phenanthrene	ND		0.10
Anthracene	ND		0.10
Fluoranthene	ND		0.10
Pyrene	ND		0.10
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.010
Indeno[1,2,3-c,d]pyrene	ND		0.010
Dibenz[a,h]anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	56	10 - 83
2-Fluorobiphenyl	54	25 - 89
Terphenyl-d14	64	10 - 112

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

PAHs EPA 8270C/SIM
SB/SBD QUALITY CONTROL

Date Extracted: 5-14-03
Date Analyzed: 5-15-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: SB0514W1

Compound:	MB Amount	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
Acenaphthene	ND	10.0	6.24	62	6.05	61	46-118	
Pyrene	ND	10.0	7.15	72	7.32	73	26-127	

	RPD	RPD Limit	Flags
Acenaphthene	3	31	
Pyrene	2	31	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

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Date Extracted:	5-15-03
Date Analyzed:	5-15-03
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	05-089-08
Client ID:	**LASB-3-GW**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	0.22		0.20
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

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Lab ID: 05-089-08
Client ID: LASB-3-GW

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	127	63-130
Toluene, d8	100	78-113
4-Bromofluorobenzene	104	77-109

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

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Date Extracted:	5-15-03
Date Analyzed:	5-15-03
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	05-089-13
Client ID:	**LASB-DUP-GW**

Compound	**Results**	**Flags**	**PQL**
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	0.30		0.20
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

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Lab ID: 05-089-13
Client ID: LASB-DUP-GW

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	126	63-130
Toluene, d8	101	78-113
4-Bromofluorobenzene	107	77-109

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
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VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Date Extracted:	5-15-03
Date Analyzed:	5-15-03
Matrix:	Water
Units:	ug/L (ppb)
Lab ID:	MB0515W1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.20
Chloromethane	ND		0.20
Vinyl Chloride	ND		0.20
Bromomethane	ND		0.20
Chloroethane	ND		0.20
Trichlorofluoromethane	ND		0.20
1,1-Dichloroethene	ND		0.20
Acetone	ND		5.0
Iodomethane	ND		1.0
Carbon Disulfide	ND		0.20
Methylene Chloride	ND		1.0
(trans) 1,2-Dichloroethene	ND		0.20
Methyl t-Butyl Ether	ND		0.20
1,1-Dichloroethane	ND		0.20
Vinyl Acetate	ND		1.0
2,2-Dichloropropane	ND		0.20
(cis) 1,2-Dichloroethene	ND		0.20
2-Butanone	ND		5.0
Bromochloromethane	ND		0.20
Chloroform	ND		0.20
1,1,1-Trichloroethane	ND		0.20
Carbon Tetrachloride	ND		0.20
1,1-Dichloropropene	ND		0.20
Benzene	ND		0.20
1,2-Dichloroethane	ND		0.20
Trichloroethene	ND		0.20
1,2-Dichloropropane	ND		0.20
Dibromomethane	ND		0.20
Bromodichloromethane	ND		0.20
2-Chloroethyl Vinyl Ether	ND		1.0
(cis) 1,3-Dichloropropene	ND		0.20
Methyl Isobutyl Ketone	ND		2.0
Toluene	ND		0.20
(trans) 1,3-Dichloropropene	ND		0.20

Date of Report: May 21, 2003
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VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
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Lab ID: MB0515W1

Compound	Results	Flags	PQL
1,1,2-Trichloroethane	ND		0.20
Tetrachloroethene	ND		0.20
1,3-Dichloropropane	ND		0.20
2-Hexanone	ND		2.0
Dibromochloromethane	ND		0.20
1,2-Dibromoethane	ND		0.20
Chlorobenzene	ND		0.20
1,1,1,2-Tetrachloroethane	ND		0.20
Ethylbenzene	ND		0.20
m,p-Xylene	ND		0.40
o-Xylene	ND		0.20
Styrene	ND		0.20
Bromoform	ND		1.0
Isopropylbenzene	ND		0.20
Bromobenzene	ND		0.20
1,1,2,2-Tetrachloroethane	ND		0.20
1,2,3-Trichloropropane	ND		0.20
n-Propylbenzene	ND		0.20
2-Chlorotoluene	ND		0.20
4-Chlorotoluene	ND		0.20
1,3,5-Trimethylbenzene	ND		0.20
tert-Butylbenzene	ND		0.20
1,2,4-Trimethylbenzene	ND		0.20
sec-Butylbenzene	ND		0.20
1,3-Dichlorobenzene	ND		0.20
p-Isopropyltoluene	ND		0.20
1,4-Dichlorobenzene	ND		0.20
1,2-Dichlorobenzene	ND		0.20
n-Butylbenzene	ND		0.20
1,2-Dibromo-3-chloropropane	ND		1.0
1,2,4-Trichlorobenzene	ND		0.20
Hexachlorobutadiene	ND		0.20
Naphthalene	ND		1.0
1,2,3-Trichlorobenzene	ND		0.20

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	128	63-130
Toluene, d8	95	78-113
4-Bromofluorobenzene	100	77-109

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 5-15-03
Date Analyzed: 5-15-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-091-04

Compound	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
1,1-Dichloroethene	ND	10.0	11.0	110	10.6	106	69-113	
Benzene	0.284	10.0	12.2	120	12.1	118	71-128	
Trichloroethene	ND	10.0	9.52	95	8.66	87	82-122	
Toluene	0.438	10.0	10.3	99	9.62	92	54-118	
Chlorobenzene	ND	10.0	9.46	95	9.01	90	85-103	

	RPD	RPD Limit	Flags
1,1-Dichloroethene	4.4	15	
Benzene	1.4	9.6	
Trichloroethene	9.4	12	
Toluene	6.9	15	
Chlorobenzene	4.9	5.8	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-13&14-03
Date Analyzed: 5-13,14&15-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-089-01
Client ID: LASB-2-0.5

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**47**	2.7
Cadmium	6010B	**1.3**	0.54
Chromium	6010B	**30**	0.54
Lead	6010B	**280**	5.4
Mercury	7471A	**ND**	0.27
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.54

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-13&14-03
Date Analyzed: 5-13,14&15-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-089-05
Client ID: LASB-3-0.5

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**76**	2.7
Cadmium	6010B	**5.0**	0.55
Chromium	6010B	**38**	0.55
Lead	6010B	**1800**	5.5
Mercury	7471A	**ND**	0.27
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.55

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 5-13&14-03
Date Analyzed: 5-13,14&15-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-089-09
Client ID: LASB-1-0.5

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**76**	2.7
Cadmium	6010B	**5.7**	0.53
Chromium	6010B	**30**	0.53
Lead	6010B	**1700**	5.3
Mercury	7471A	**ND**	0.27
Selenium	6010B	**ND**	11
Silver	6010B	**2.5**	0.53

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted:	5-13&14-03
Date Analyzed:	5-13,14&15-03
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0513S2&MB0514S1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	10
Barium	6010B	**ND**	2.5
Cadmium	6010B	**ND**	0.50
Chromium	6010B	**ND**	0.50
Lead	6010B	**ND**	5.0
Mercury	7471A	**ND**	0.25
Selenium	6010B	**ND**	10
Silver	6010B	**ND**	0.50

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 5-13&14-03
Date Analyzed: 5-13,14&15-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-091-02

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**59.4**	**64.6**	8	2.5	
Cadmium	**ND**	**ND**	NA	0.50	
Chromium	**15.3**	**18.1**	17	0.50	
Lead	**17.9**	**16.8**	6	5.0	
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 5-13&14-03
Date Analyzed: 5-13,14&15-03

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 05-091-02

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**79.7**	80	**86.4**	86	8	
Barium	100	**156**	96	**166**	106	6	
Cadmium	50	**46.6**	93	**48.0**	96	3	
Chromium	100	**119**	103	**115**	100	3	
Lead	250	**241**	89	**250**	93	4	
Mercury	1.0	**0.962**	96	**0.970**	97	1	
Selenium	100	**85.1**	85	**104**	104	20	
Silver	50	**46.4**	93	**45.8**	92	1	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 200.8/7470A

Date Analyzed: 5-13,16&19-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-089-12
Client ID: LASB-1-GW

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Barium	200.8	**ND**	25
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0
Mercury	7470A	**ND**	.50
Selenium	200.8	**ND**	5.0
Silver	200.8	**ND**	10

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 200.8
METHOD BLANK QUALITY CONTROL

Date Analyzed: 5-16&19-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0516D1

Analyte	Method	Result	PQL
Arsenic	200.8	**ND**	3.0
Barium	200.8	**ND**	25
Cadmium	200.8	**ND**	4.0
Chromium	200.8	**ND**	10
Lead	200.8	**ND**	1.0
Selenium	200.8	**ND**	5.0
Silver	200.8	**ND**	10

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 7470A
METHOD BLANK QUALITY CONTROL

Date Analyzed: 5-13-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB0513D1

Analyte	Method	Result	PQL
Mercury	7470A	**ND**	0.50

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 200.8
DUPLICATE QUALITY CONTROL

Date Analyzed: 5-16&19-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-091-04

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	3.0	
Barium	**ND**	**ND**	NA	25	
Cadmium	**ND**	**ND**	NA	4.0	
Chromium	**ND**	**ND**	NA	10	
Lead	**ND**	**ND**	NA	1.0	
Selenium	**ND**	**ND**	NA	5.0	
Silver	**ND**	**ND**	NA	10	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 7470A
DUPLICATE QUALITY CONTROL

Date Analyzed: 5-13-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-081-03

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Mercury	**ND**	**ND**	NA	0.50	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 200.8
MS/MSD QUALITY CONTROL

Date Analyzed: 5-16&19-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-091-04

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**99.5**	99	**99.8**	100	0	
Barium	100	**107**	107	**108**	108	1	
Cadmium	100	**97.8**	98	**98.7**	99	1	
Chromium	100	**102**	102	**102**	102	0	
Lead	100	**99.2**	99	**99.1**	99	0	
Selenium	100	**100**	100	**100**	100	0	
Silver	100	**99.6**	100	**106**	106	6	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

DISSOLVED METALS
EPA 7470A
MS/MSD QUALITY CONTROL

Date Analyzed: 5-13-03

Matrix: Water
Units: ug/L (ppb)

Lab ID: 05-081-03

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Mercury	10.0	**10.5**	105	**10.2**	102	3	

Date of Report: May 21, 2003
Samples Submitted: May 10, 2003
Lab Reference: 05-089
Project: 33755401.00550

% MOISTURE

Date Analyzed: 5-13-03

Client ID	Lab ID	% Moisture
LASB-2-0.5	05-089-01	7.0
LASB-3-0.5	05-089-05	9.0
LASB-1-0.5	05-089-09	6.0

OnSite Environmental Inc.

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.

D - Data from 1:____ dilution.

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.

G - Insufficient sample quantity for duplicate analysis.

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 inhomogeniety. 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 (toluene-napthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample.

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.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD is outside control limits due to sample inhomogeniety.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with a silica gel/acid cleanup procedure.

Z -

ND - Not Detected at PQL
MRL - Method Reporting Limit
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: May 15, 2003

TO: David Baumeister
OnSite Environmental, Inc.
14648 N. E. 95th St.
Redmond, WA 98052

PROJECT: 33755401-00550

REPORT NUMBER: 113578

TOTAL NUMBER OF PAGES: 8

Enclosed are the test results for two samples received at STL Seattle on May 12, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Stan Palmquist
Project Manager

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
113578-1	LASB-2-0.5	05-08-03 *	solid
113578-2	LASB-1-0.5	05-08-03 *	solid

* - Sampling time not specified for this sample

STL Seattle

Client Name	OnSite Environmental, Inc.
Client ID:	LASB-2-0.5
Lab ID:	113578-01
Date Received:	5/12/2003
Date Prepared:	5/13/2003
Date Analyzed:	5/13/2003
% Solids	96.66
Dilution Factor	1

Glycol Analysis by EPA Method 8015 Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
1-propanol	88.2		40	140

Sample results are on a dry weight basis.

Analyte		**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
Propylene Glycol	ND		9.75	1.95	
Ethylene Glycol	ND		9.75	1.95	

STL Seattle

Client Name	OnSite Environmental, Inc.
Client ID:	LASB-1-0.5
Lab ID:	113578-02
Date Received:	5/12/2003
Date Prepared:	5/13/2003
Date Analyzed:	5/13/2003
% Solids	95.65
Dilution Factor	1

Glycol Analysis by EPA Method 8015 Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
1-propanol	85.6		40	140

Sample results are on a dry weight basis.

Analyte		**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
Propylene Glycol	ND		10.1	2.02	
Ethylene Glycol	ND		10.1	2.02	

STL Seattle

Lab ID:	Method Blank - MD0599
Date Received:	-
Date Prepared:	5/13/2003
Date Analyzed:	5/13/2003
% Solids	
Dilution Factor	1

Glycol Analysis by EPA Method 8015 Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
1-propanol	89.9		40	140

Sample results are on an as received basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
Propylene Glycol	ND	10	2	
Ethylene Glycol	ND	10	2	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	MD0599
Date Prepared:	5/13/2003
Date Analyzed:	5/13/2003
QC Batch ID:	MD0599

Glycol Analysis by EPA Method 8015 Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Propylene Glycol	0	100	79.1	79.1	87.5	87.5	10	
Ethylene Glycol	0	100	79.1	79.1	91.6	91.6	15	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	LASB-2-0.5
Lab ID:	113578-01
Date Prepared:	5/13/2003
Date Analyzed:	5/13/2003
QC Batch ID:	MD0599

Glycol Analysis by EPA Method 8015 Modified

Compound Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	MSD Result (mg/kg)	MSD % Rec.	RPD	Flag
Propylene Glycol	0	98.2	81.3	82.8	89.1	88	6.1	
Ethylene Glycol	0	98.2	87.5	89.1	110	108	19	

CHAIN OF CUSTODY RECORD

(FOR SUBCONTRACT LABORATORY)

113578

Lab Reference Number: 05-089

8

OnSite Environmental Inc.

648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

Project Manager: David Baumeister

Project Number: 33755401.0055 0

Project Name:

dash	Sample Number/Name	Date Sampled	Matrix	# Jars	Analysis Requested	Comments
1	LASB-2-0.5	5/8/03	S	1	Ethylene Propylene Glycols	
9	LASB-1-0.5	5/8/03	S	1	"	

Submitted:	[illegible]	date: 5/12/03	Received by:	date:	5/12/03
Firm:	OSE	time: 1120	Firm: STL	time:	1120
Submitted:	[illegible]	date: 5/12/03	Received by: [illegible]	date:	5/12/03
Firm:	STL	time: 1315	Firm:	time:	1:15P

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Page 1 of 2

Laboratory Number: 05-089

Company: URS

Project Number: Sound Transit-Lakeview Auto

Project Name: 33755401.00550

Project Manager: TY GRIFFITH

Sampled by: J. RAPP

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days)
- ☐ _____ (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	ETHYLENE/PROPYLENE GLYCOL				% Moisture
1	LASB-2-0.5	5/8/03	1410	S	3		X	X								X					X				X
2	LASB-2-10		1250	S	3																				
3	LASB-2-20		1300	S	3																				
4	LASB-2-GW		1400	W	~~X~~4 DB		X	X																	
5	LASB-3-0.5		1630	S	3		X	X								X									X
6	LASB-3-10		1500	S	3																				
7	LASB-3-18		1515	S	3																				
8	LASB-3-GW		1600	W	7		X	X	X	MTBE															
9	LASB-1-0.5	5/9/03	1045	S	5		X	X								X					X				X
10	LASB-1-10		0915	S	3																				

	Signature	Company	Date	Time
Relinquished by	John Rapp	URS	5/10/03	1220
Received by		OnSite Env.	5/10/03	12:20
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

HOLD ALL ADDITIONAL SOIL AND GROUNDWATER FOR OPTIONAL ANALYSIS PENDING RESULTS FROM PRIMARY ANALYSIS.

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☒

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Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: URS
Project Number: 3375540I, 00550
Project Name: SOUND TRANSIT - LAKEVIEW AUTO
Project Manager: TY GRIFFITH
Sampled by: J. RAPP

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☒ Standard (7 working days)
- ☐ _____ (other)

Laboratory Number: 05-089

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8) DISSOLVED	TCLP Metals	HEM by 1664	VPH	EPH				% Moisture
1	LASB-1-15	5-9-03	0930	S	2																			
2	LASB-1-GW		1030	W	7		X	X				X				X								
3	LASB-Dup-GW	5-8-03	0800	W	7		X	X	X		(w/MTBE)													

3375540I 00550

DISSOLVED - FIELD FILTERED

	Signature	Company	Date	Time
Relinquished by		URS	3/10/03	1220
Received by		OnSite Env	3/10/03	12:20
Relinquished by				
Received by				
Relinquished by				
Received by				
Reviewed by/Date		Reviewed by/Date		

Comments/Special Instructions:

Chromatograms with final report ☒

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Appendix D
Laboratory Analytical QA/QC Report

URS

Memo

1501 4th Avenue, Suite 1400
Seattle, Washington 98101
206.438.2700 Telephone
206.438.2699 Fax

To: Ty Griffith, Project Manager **Info:** Draft

From: James Keithly, Staff Chemist **Date:** June 6, 2003

SUBJECT: **Summary Data Quality Review**
Sound Transit – Lakeview Auto Wrecking
OnSite Report 0305-089

The summary data quality review of three soil samples and four waters collected May 8 and 9, 2003 is complete. The samples were analyzed at the OnSite Environmental laboratory in Redmond, Washington for one or more of the following parameters: NWTPH-Gx/BTEX, NWTPH-Dx, VOCs, PAHs, Glycols, and total or dissolved metals. Hydrocarbon analyses were performed according to Ecology Methods NWTPH-Gx/BTEX and NWTPH-Dx in general accordance with methods specified in Ecology's *Analytical Methods for Petroleum Hydrocarbons*, June 1997. Other analyses were performed as follows: VOCs by EPA Method 8260B, PAHs by EPA Method 8270 SIMS, Glycols by EPA Method 8015, and metals by EPA 200.8, EPA 6000 series, and EPA 7000 series. The analyses were performed in general accordance with methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*, January 1995. The laboratory provided a summary report containing sample results and associated QA/QC data. The following samples are associated with OnSite work order 0305-089:

Sample ID	OnSite ID	Analyses
LASB-2-0.5	05-089-01	NWTPH-Gx/BTEX, NWTPH-Dx, Total Metals, Glycols
LASB-3-0.5	05-089-05	NWTPH-Gx/BTEX, NWTPH-Dx, Total Metals
LASB-1-0.5	05-089-09	NWTPH-Gx/BTEX, NWTPH-Dx, Total Metals, Glycols
LASB-2-GW	05-089-04	NWTPH-Gx/BTEX, NWTPH-Dx
LASB-3-GW	05-089-08	NWTPH-Gx/BTEX, NWTPH-Dx, VOCs
LASB-1-GW	05-089-12	NWTPH-Gx/BTEX, NWTPH-Dx, PAHs, Diss. Metals
LASB-Dup-GW	05-089-13	NWTPH-Gx/BTEX, NWTPH-Dx, VOCs

Samples were received in good condition at OnSite on May 10, 2003.

Data validation is based on method performance criteria and QC criteria documented in the analytical methods and laboratory standard operating procedures (SOPs). Hold times, method blanks, surrogate recoveries, matrix spike/matrix spike duplicate recoveries, and laboratory duplicate results were reviewed to assess compliance with applicable methods. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the analytical method and the EPA document *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, October 1999 and *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review*, July 2002.

Organic Analyses

1. Holding Times – Acceptable
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. Matrix Spike / Matrix Spike Duplicates (MS/MSD) – Acceptable
5. Laboratory Duplicates - Acceptable

Inorganic Analyses

1. Holding Times – Acceptable
2. Blanks – Acceptable
3. Matrix Spike / Matrix Spike Duplicates (MS/MSD) – Acceptable
4. Laboratory Duplicates - Acceptable

Overall Assessment of Data

The completeness of work order 0305-089 is 100%. The usefulness of this data is based on USEPA guidance documents listed in the introduction to this report. Upon consideration of the information presented above, the data are acceptable and no data were qualified.

Data Qualifier Definitions:

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.