APPENDIX A
SEPTEMBER 2008 PORT UPLANDS AREA SUPPLEMENTAL SOIL INVESTIGATION

INTRODUCTION

This appendix presents the results of a supplemental soil investigation completed by the Port of Anacortes (the "Port") in September 2008 at the Port Uplands Area of the Former Scott Paper Mill Site (the "Site") in Anacortes, Washington. The soil investigation supplements previous soil sampling performed at the Port Uplands Area as part of the site-wide remedial investigation (RI). The scope and results of the RI are documented in the RI report (GeoEngineers et al. 2008). The supplemental soil investigation was conducted in accordance with the Supplemental Soil Investigation Sampling and Analysis Plan (SAP) approved by the Washington State Department of Ecology (Ecology) on September 2, 2008 (GeoEngineers 2008).

OBJECTIVES

The supplemental soil investigation had two main objectives:

1. Provide data to refine estimates of the extent of soil contamination and the areas potentially requiring cleanup at the Port Uplands Area. Because of existing data gaps, there was some uncertainty regarding the extent of soil contamination that was identified during the RI.
2. Provide data to evaluate the potential waste designation of lead-impacted soil that may be removed during future cleanup actions. Toxicity characteristic leaching procedure (TCLP) testing was performed on selected soil samples to support the evaluation of soil disposal options and costs during remedial design.

FIELD PROGRAM

Twenty-five soil borings (GEI-1 through GEI-25) were completed at the Port Uplands Area on September 8, 9, and 10, 2008. Twenty-two of these borings were proposed in the SAP. Three borings (GEI-23, GEI-24, and GEI-25) were added to the scope based on conditions encountered in the field (two were step-out borings, and the third was intended to augment a nearby boring that had poor sample recovery). Figure A-1 shows the approximate locations of the soil borings. The boring locations were measured in the field using a portable Trimble® global positioning system instrument.

The soil borings were completed by Cascade Drilling of Woodinville, Washington, using a direct-push drilling rig. A small, mobile attachment to the drilling rig was used to advance boring GEI-22 due to limited access at this location. The borings were advanced to depths between 6 and 14 feet below ground surface (bgs). An attempt was made to collect continuous soil cores at each location for lithologic description and initial field screening; however, subsurface conditions precluded continuous core sampling at some locations. Soil observations and field screening data recorded on boring logs included soil lithology (color, grain size, moisture content, etc.), results of sheen testing, and results of headspace organic vapor screening using a photoionization detector (PID). Field screening procedures are described in the SAP. The boring logs are contained in Attachment 1.

SOIL SAMPLING

Soil sampling was conducted according to the procedures described in the SAP. Soil obtained from each target depth interval was placed in a decontaminated stainless steel bowl and mixed with a stainless steel spoon. Particles of wood, gravel, and other material larger than approximately 2 millimeters in size were removed from the mixed soil sample. A subsample of the mixed soil was placed in a laboratory-supplied glass sample jar, and the filled sample jar was stored in a cooler with ice. Remaining soil in the stainless steel bowl was then field-screened for organic vapors using a PID.

The stainless steel bowl and spoon were decontaminated prior to obtaining each sample by washing with an aqueous solution of Alconox® detergent and rinsing with distilled water. Soil cuttings and decontamination water were placed in two 55-gallon drums. The drums were marked and staged near the southeastern corner of Parcel 1.

WATER SAMPLING

Two water samples were collected for chemical analysis during the supplemental soil investigation. One groundwater grab sample was collected from boring GEI-24 to assess petroleum hydrocarbon concentrations in groundwater near the southeastern corner of the Seafarers' Park Building. This sample was obtained using a peristaltic pump, and was collected in laboratory-supplied sample containers. In addition, one equipment rinsate blank (field quality control sample) was collected to assess the effectiveness of the equipment decontamination procedure. The rinsate blank was obtained by swirling a small amount of distilled water in the decontaminated stainless steel mixing bowl, and then slowly pouring the water into laboratory-supplied sample containers.

ANALYTICAL TESTING

The soil and water samples were submitted for chemical analysis to Analytical Resources, Inc. (ARI) in Tukwila, Washington, using standard chain-of-custody protocols. The soil samples were analyzed for one or more of the following parameters in accordance with the soil sampling and analysis matrix (Table 1) contained in the SAP:

- Diesel- and motor oil-range total petroleum hydrocarbons (TPH) by Ecology Method NWTPH-Dx.
- Total metals (arsenic, copper, lead and/or zinc) by U.S. Environmental Protection Agency (EPA) Method 6020. ARI subcontracted the metal analyses to Fremont Analytical, Inc. (Fremont) in Seattle, Washington.
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270C-SIM. ARI subcontracted some of the cPAH analyses to Fremont.
- Dioxins and furans by EPA Method 8290. ARI subcontracted the dioxin and furan analyses to Pace Analytical Services, Inc. in Minneapolis, Minnesota.
- Lead by TCLP, EPA Method 1311. ARI subcontracted the TCLP lead analyses to Fremont.

The groundwater grab sample (GEI24-W) was analyzed for diesel- and motor oil-range TPH. The rinsate blank sample (RINSATE) was analyzed for TPH, total metals, and cPAHs.

The analytical results for the soil samples collected at Parcels 1, 2, and 3 are summarized in Tables A-1, A-2, and A-3, respectively. The analytical results for the groundwater and rinsate blank samples are summarized in Table A-4. A data quality assessment summary is included in Attachment 2.

RESULTS

This section summarizes the physical characteristics of the soil encountered in the supplemental soil borings and the analytical testing results for soil and water samples.

SOIL PHYSICAL CHARACTERIZATION

Soil samples obtained from each boring were visually inspected and field-screened (sheen and headspace organic vapor screening) to identify potential soil contamination as described in the SAP. Soil descriptions and field screening results are summarized below.

Parcel 1

Three borings (GEI-15, GEI-18, and GEI-20) were advanced to depths of 6 to 10 feet bgs on Parcel 1. Soils generally consisted of approximately 5 to 10 feet of silty sand with gravel, interpreted as fill material. An approximately 1- to 3-foot-thick, dark grey to dark brown silt horizon was encountered between approximately 5 and 8 feet bgs at borings GEI-18 and GEI-20. At GEI-20, wood debris was encountered between approximately 8 and 9 feet bgs. Silty sand and gravelly sand were encountered below the silt horizon and wood debris.

No field screening evidence of potential soil contamination was observed in borings GEI-15, GEI-18, or GEI-20.

Parcel 2

Fifteen borings (GEI-1, GEI-2, GEI-6 through GEI-14, GEI-16, GEI-19, GEI-22, and GEI-23) were advanced to depths of 10 to 14 feet bgs on Parcel 2. Soils generally consisted of approximately 5 to 10 feet of silty sand with gravel (interpreted as fill material), underlain by up to 5 feet of dark brown silt with varying amounts of wood debris. Wood debris consisting of sawdust, wood chips, and shredded wood was encountered at approximately 10 feet bgs and deeper. A white, decomposed, sawdust-like material was noted between 9.5 and 10 feet bgs in borings GEI-8 and GEI-9, and between 2.5 and 6.5 feet bgs in boring GEI-19. At two locations where borings extended through the wood debris layer (borings GEI-7 and GEI-13), silt interpreted as native marine sediment deposits was encountered at a depth of approximately 13 to 14 feet bgs.

Evidence of potential petroleum contamination (petroleum-like odors and moderate to heavy sheens) was observed in borings GEI-5, GEI-6, GEI-14, GEI-21, GEI-23, and GEI-24. In general, the petroleum-like odors and sheens observed in these borings were present at depths ranging from 10 to 13 feet bgs in a sand and silt horizon overlying wood debris. Although three of these borings (GEI-5, GEI-21, and GEI-24) are located on Parcel 3, they are included in this Parcel 2 discussion because the area of petroleum contamination identified during the RI appears to be continuous in the northeastern portion of the Site, which includes parts of Parcels 2 and 3.

The white, decomposed, sawdust-like material encountered at depths between 2.5 and 10 feet bgs in borings GEI-8, GEI-9, and GEI-19 had a rancid odor. Field screening of this material did not yield evidence of potential contamination; no organic vapors or sheens were noted. However, a moderate to heavy sheen and petroleum-like odor were noted at approximately 4.5 to 5.5 feet bgs in GEI-9. This sheen and petroleum-like odor appeared to be associated with a thin (3-inch) horizon of black-stained wood debris.

Parcel 3

Seven borings (GEI-3 through GEI-5, GEI-17, GEI-21, GEI-24, and GEI-25) were advanced to depths of 6 to 14 feet bgs on Parcel 3. Soils on the eastern portion of Parcel 3 generally consisted of sand, silt, and peat to a depth of approximately 7 to 10 feet bgs. Wood debris consisting of sawdust, wood chips, and shredded wood was encountered at approximately 10 feet bgs and deeper. Hydrogen sulfide-like odors were noted within the wood debris. Concrete and brick debris were encountered in boring GEI-3 from just below ground surface to 12.5 feet bgs, and in boring GEI-25 where drilling refusal was met at 5 feet bgs.

Evidence of potential petroleum contamination was noted in borings GEI-5, GEI-21, and GEI-24 as described in the Parcel 2 discussion, above. No field screening evidence of potential soil contamination was observed in borings GEI-3, GEI-4, GEI-17, or GEI-25.

SOIL ANALYTICAL RESULTS

The soil analytical data for the Port Uplands Area were evaluated in the RI report (GeoEngineers et al. 2008) by comparing the detected chemical concentrations directly to the protective soil concentrations that were considered in the development of the preliminary soil cleanup levels presented in Table 1 of the RI report. These protective soil concentrations include concentrations protective of direct human contact and terrestrial ecological receptors. The soil analytical data from the September 2008 supplemental soil investigation were evaluated in the same manner, as discussed below.

Locations at the Port Uplands Area where one or more constituents were detected in soil during the RI at a concentration exceeding the preliminary cleanup levels protective of direct human contact and terrestrial ecological receptors are shown in Figures 13 through 16 of the RI report. These figures have been updated with the September 2008 supplemental soil data, and are included in the Cleanup Action Plan (CAP) as Figures 3 through 6. The locations of preliminary soil cleanup level exceedances are displayed for four different depth intervals in the CAP figures: 0 to 2 feet bgs (Figure 3), 2 to 6 feet bgs (Figure 4), 6 to 10 feet bgs (Figure 5), and 10 to 15 feet bgs (Figure 6).

Parcel 1

The soil analytical results for Parcel 1 are summarized in Table A-1. Copper, lead, and zinc were detected at concentrations above the preliminary cleanup levels in soil between 2 and 6 feet bgs at boring GEI-15 (CAP Figure 4).

TCLP lead was analyzed in the soil sample obtained from 2 to 6 feet bgs at GEI-15; lead was not detected in the TCLP leachate.

Parcel 2

The soil analytical results for Parcel 2 are summarized in Table A-2. Diesel- and motor oil-range TPH were detected at concentrations above the preliminary cleanup levels in soil between 10 and 14 feet bgs at borings GEI-6 and GEI-23 (CAP Figure 6). At boring GEI-6, total cPAHs (toxicity equivalent quotient [TEQ]) also were detected above the preliminary cleanup level in soil between 10 and 14 feet bgs. The TPH detected at borings GEI-6 and GEI-23 appears to be connected with the area of petroleum contamination immediately west of the Seafarers' Park Building.

Total furans (TEQ) were detected at concentrations above the preliminary cleanup level in soil between 6 and 10 feet bgs at borings GEI-10 and GEI-13 (CAP Figure 5). Total dioxins (TEQ) were detected at a

concentration above the preliminary cleanup level in soil between 10 and 14 feet bgs at boring GEI-1 (CAP Figure 6). Copper was detected at a concentration above the preliminary cleanup level in soil between 10 and 14 feet bgs at borings GEI-1 and GEI-13 (CAP Figure 6).

Parcel 3

The soil analytical results for Parcel 3 are summarized in Table A-3. Diesel-range TPH, copper, and zinc were detected at concentrations above the preliminary cleanup levels in soil between 6 and 14 feet bgs at boring GEI-24 (CAP Figures 5 and 6). Motor oil-range TPH also was detected at a concentration above the preliminary cleanup level at boring GEI-24, in soil between 6 and 10 feet bgs (CAP Figure 5). The TPH detected at boring GEI-24 appears to be connected with the area of petroleum contamination immediately west of the Seafarers' Park Building. Total furans (TEQ) were detected at concentrations above the preliminary cleanup level in soil between 6 and 10 feet bgs at boring GEI-5 (CAP Figure 5).

TCLP lead was analyzed in the primary and duplicate soil samples obtained from 10 to 14 feet bgs at GEI-24; lead was not detected in the TCLP leachate for either sample.

WATER ANALYTICAL RESULTS

The analytical results for the groundwater and rinsate blank samples are summarized in Table A-4. Diesel- and motor oil-range TPH were detected at concentrations above the preliminary cleanup levels in the groundwater grab sample obtained from boring GEI-24.

Copper was detected at a concentration equal to the method reporting limit of 0.004 milligrams per liter in the rinsate blank sample. This detection is suspect, as copper had elevated spike recoveries in the laboratory control sample (107%), matrix spike sample (125%), and matrix spike duplicate sample (113%). No other analytes were detected in the rinsate blank sample.

SUMMARY

The September 2008 supplemental investigation was conducted to address data gaps regarding the extent of soil contamination at the Port Uplands Area. The supplemental investigation data are combined with previous RI data in CAP Figures 3 through 6. A summary of constituents detected at concentrations above the RI preliminary cleanup levels in the September 2008 and previous soil samples collected at the Port Uplands Area is presented below.

- **0 to 2 feet bgs (CAP Figure 3).** Arsenic was the only constituent detected at concentrations above the preliminary cleanup levels. Arsenic exceeded the preliminary cleanup level at one location in Seafarers' Memorial Park on Parcel 3.
- **2 to 6 feet bgs (CAP Figure 4).** Metals (arsenic, lead, zinc, copper, and mercury), dioxins/furans, and cPAHs were detected at concentrations above the preliminary cleanup levels. Copper and dioxins/furans exceeded preliminary cleanup levels in the southern portion of Seafarers' Memorial Park on Parcel 3. Metals (arsenic, lead, zinc, and copper) and cPAHs exceeded preliminary cleanup levels at three locations at the southern end of "R" Avenue. On Parcel 2, cPAHs exceeded the preliminary cleanup level at two locations, copper and zinc exceeded preliminary cleanup levels at one location, and mercury exceeded the preliminary cleanup level at one location.
- **6 to 10 feet bgs (CAP Figure 5).** Diesel- and motor oil-range TPH, metals (arsenic, antimony, copper, lead, chromium, nickel, mercury, and zinc), dioxins/furans, polychlorinated biphenyls (PCBs), and cPAHs were detected at concentrations above the preliminary cleanup levels at multiple

locations on Parcels 2 and 3. Arsenic was detected at a concentration above the preliminary cleanup level at one location on Parcel 1.

- **10 to 15 feet bgs (CAP Figure 6).** Diesel- and motor oil-range TPH, metals (copper, lead, and zinc), dioxins/furans, and cPAHs were detected at concentrations above the preliminary cleanup levels at multiple locations on Parcels 2 and 3. TPH impacts are primarily located in an area west and northwest of the Seafarers' Park Building. With one exception (lead at location LSB-5), all of the metal exceedances in the 10 to 15-foot depth interval were south of the Seafarers' Park Building.

One of the objectives of the supplemental soil investigation was to provide data to evaluate the potential waste designation of lead-impacted soil that may be removed during future cleanup actions. TCLP lead analyses were performed on two primary soil samples (GEI15-2-6 and GEI24-10-14) and one field duplicate sample (DUP-2; duplicate of GEI24-10-14). These samples that had total lead concentrations of the order of 100 milligrams per kilogram (mg/kg) or greater. Lead was not detected above method reporting limits (0.4 to 4.0 milligrams per liter) in the TCLP leachate for these samples. These results suggest that soil at the Port Uplands Area with total lead concentrations as high as 680 mg/kg (the concentration reported in sample GEI15-2-6) likely would not exhibit the toxicity characteristic for lead, and thus would not be designated as a dangerous waste under Washington State Dangerous Waste Regulations (Washington Administrative Code Chapter 173-303-090).

REFERENCES

GeoEngineers et al. 2008. Final Remedial Investigation Report – Port Uplands Area, MJB North Area, and Marine Area, Former Scott Paper Company Mill Site, Anacortes, Washington. November 7, 2008.

GeoEngineers. 2008. Final Supplemental Soil Investigation Sampling and Analysis Plan, Former Scott Paper Mill Site, Anacortes, Washington. September 4, 2008.

Tables

Table A-1. Soil Analytical Data Summary, Port Parcel 1 – September 2008
Table A-2. Soil Analytical Data Summary, Port Parcel 2 – September 2008
Table A-3. Soil Analytical Data Summary, Port Parcel 3 – September 2008
Table A-4. Water Analytical Data Summary – September 2008

Figures

Figure A-1. September 2008 Supplemental Sampling Boring Locations

Attachments

Attachment 1 Boring Logs
Attachment 2 Data Quality Assessment Summary

TABLE A-1

SOIL ANALYTICAL DATA SUMMARY, PORT PARCEL 1 - SEPTEMBER 2008

FORMER SCOTT PAPER COMPANY MILL SITE

DRAFT

		Sample Location	GEI-15		GEI-18		GEI-20	
		Sample Name	GEI15-2-6		GEI18-6-10		GEI20-6-10	
	Preliminary Soil	Depth (ft)	2-6		6-10		6-10	
	Cleanup Level*	Sample Date	09-Sep-08		09-Sep-08		09-Sep-08	
Metals (mg/kg)								
Arsenic	20		11		4.9		8.9	
Copper	100		**160**		--		--	
Lead	220		**680**		--		--	
Zinc	270		**630**		--		--	
TCLP Lead (mg/L)	--		< 4.0	U	--		--	
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (ug/kg)								
Benzo(a)anthracene	--		82		--		--	
Benzo(a)pyrene	--		93		--		--	
Benzo(b)fluoranthene	--		100		--		--	
Benzo(k)fluoranthene	--		76		--		--	
Chrysene	--		110		--		--	
Dibenzo(a,h)anthracene	--		18		--		--	
Indeno(1,2,3-cd)pyrene	--		35		--		--	
Total cPAHs TEQ	140		130		--		--	

Notes:

*Preliminary soil cleanup levels are discussed in the Remedial Investigation (RI) report. See Table 1 of RI report.

mg/kg = Milligrams per kilogram

ug/kg = Micrograms per kilogram

TCLP = Toxicity Characteristic Leaching Procedure

TEQ = Toxicity Equivalent Quotient

TEF = Toxicity Equivalency Factor

MTCA = Model Toxics Control Act

cPAH TEQ values for samples with at least one positive cPAH detection were calculated using MTCA TEF values in effect as of January 2008 (see Table 2, Draft Final RI).

Blue text = Value exceeds MTCA terrestrial ecological criteria only (criteria are in Table 1 of RI report).

Red text = Value exceeds MTCA terrestrial ecological and human health criteria, or human health criteria only if no terrestrial ecological criteria established or if terrestrial ecological criteria are greater than the human health criteria (criteria are in Table 1 of RI report).

-- = Not analyzed/site-specific cleanup level not established

U = The constituent was analyzed, but was not detected above the specified method reporting limit.

TABLE A-2
SOIL ANALYTICAL DATA SUMMARY, PORT PARCEL 2 - SEPTEMBER 2008
FORMER SCOTT PAPER COMPANY MILL SITE

DRAFT

	Preliminary Soil Cleanup Level*	Sample Location	GEI-1	GEI-1	GEI-2	GEI-2	GEI-6	GEI-6	GEI-7	GEI-7	GEI-8	GEI-9	GEI-9	GEI-10	GEI-10	GEI-11	GEI-11	GEI-12	GEI-12
		Sample Name	GEI1-2-6	GEI1-10-14	GEI2-6-10	GEI2-10-14	GEI6-6-10	GEI6-10-12	GEI7-6-10	GEI7-10-14	GEI8-6-10	GEI9-2-6	GEI9-6-10	GEI10-2-4	GEI10-6-10	GEI11-2-6	GEI11-6-10	GEI12-2-6	GEI12-6-10
		Depth (ft)	2-6	10-14	6-10	10-14	6-10	10-12	6-10	10-14	6-10	2-6	6-10	2-4	6-10	2-6	6-10	2-6	6-10
		Sample Date	10-Sep-08	10-Sep-08	08-Sep-08	08-Sep-08	08-Sep-08	08-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08	09-Sep-08
Total Petroleum Hydrocarbons (mg/kg)																			
Diesel-range	460		--	--	12	25	200	**5,300**	32	230	--	--	28	--	23	--	29	--	36
Motor oil-range	2,000		--	--	21	96	1,200	**34,000**	85	460	--	--	57	--	70	--	88	--	140
Metals (mg/kg)																			
Arsenic	20		6.6	6.4	**--**	2.2	2.0	2.3	--	--	--	--	--	--	--	--	--	--	--
Copper	100		63	**170**	**--**	43	36	32	--	--	--	--	--	--	--	--	--	--	--
Lead	220		22	65	**--**	11	19	37	--	--	--	--	--	--	--	--	--	--	--
Zinc	270		100	120	**--**	29	24	93	--	--	--	--	--	--	--	--	--	--	--
TCLP Lead (mg/L)	--		--	--	**--**	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (ug/kg)																			
Benzo(a)anthracene	--		--	--	27	36	--	< 190 U	--	38	--	61	--	< 4.8 U	--	10	--	< 4.6 U	--
Benzo(a)pyrene	--		--	--	27	52	--	290	--	60	--	27	--	< 4.8 U	--	14	--	< 4.6 U	--
Benzo(b)fluoranthene	--		--	--	20	38	--	< 190 U	--	40	--	30	--	< 4.8 U	--	16	--	< 4.6 U	--
Benzo(k)fluoranthene	--		--	--	20	59	--	< 190 U	--	48	--	24	--	< 4.8 U	--	12	--	< 4.6 U	--
Chrysene	--		--	--	32	50	--	230	--	50	--	75	--	< 4.8 U	--	12	--	6.0	--
Dibenzo(a,h)anthracene	--		--	--	< 4.8 U	14	--	< 190 U	--	8.7	--	5.6	--	< 4.8 U	--	< 4.6 U	--	< 4.6 U	--
Indeno(1,2,3-cd)pyrene	--		--	--	15	28	--	< 190 U	--	19	--	13	--	< 4.8 U	--	7.4	--	< 4.6 U	--
Total cPAHs TEQ	140		--	--	36	70	--	**340**	--	76	--	41	--	<3.6 U	--	19	--	3.5	--
Dioxins/Furans (ng/kg)																			
1,2,3,4,6,7,8-HpCDD	--		9.3	220	2.8 J	--	5	--	--	--	20	--	--	--	120	--	--	--	13
1,2,3,4,7,8-HxCDD	--		0.26 J	3.6 J	< 0.33 U	--	< 0.54 U	--	--	--	< 0.55 U	--	--	--	1.6 J	--	--	--	< 0.18 UJ
1,2,3,6,7,8-HxCDD	--		0.63 J	10	< 0.33 UJ	--	0.84 J	--	--	--	1.3 J	--	--	--	5.4	--	--	--	0.82 J
1,2,3,7,8,9-HxCDD	--		< 0.069 UJ	4.8 J	< 0.27 U	--	< 0.65 U	--	--	--	1.6 J	--	--	--	2.8 J	--	--	--	< 0.21 UJ
1,2,3,7,8-PeCDD	--		< 0.15 U	< 1.0 UJ	< 0.26 UJ	--	< 0.42 U	--	--	--	< 0.60 UJ	--	--	--	1.5 J	--	--	--	< 0.28 U
2,3,7,8-TCDD	--		< 0.14 U	< 2.1 U	< 0.082 U	--	0.32 J	--	--	--	< 0.28 U	--	--	--	< 0.47 U	--	--	--	< 0.27 U
OCDD	--		77	2,000	21	--	41	--	--	--	220	--	--	--	1,200	--	--	--	110
1,2,3,4,6,7,8-HpCDF	--		2.6 J	< 1.6 UJ	< 0.21 UJ	--	1.6 J	--	--	--	4.8 J	--	--	--	21	--	--	--	4.5
1,2,3,4,7,8,9-HpCDF	--		0.24 J	3.1 J	< 0.31 U	--	< 0.7 U	--	--	--	< 0.48 UJ	--	--	--	1.7 J	--	--	--	0.95 J
1,2,3,4,7,8-HxCDF	--		< 0.12 UJ	< 1.5 UJ	< 0.15 UJ	--	< 0.51 UJ	--	--	--	< 0.51 U	--	--	--	1.9 J	--	--	--	2.0 J
1,2,3,6,7,8-HxCDF	--		< 0.11 UJ	4.9 J	< 0.16 UJ	--	< 0.35 U	--	--	--	< 0.60 U	--	--	--	< 0.43 UJ	--	--	--	0.65 J
1,2,3,7,8,9-HxCDF	--		< 0.11 U	< 2.3 U	< 0.16 U	--	< 0.43 U	--	--	--	< 0.29 U	--	--	--	1.1 J	--	--	--	0.64 J
1,2,3,7,8-PeCDF	--		< 0.15 UJ	< 2.4 U	< 0.072 U	--	0.66 J	--	--	--	< 0.65 U	--	--	--	1.5 J	--	--	--	< 0.29 UJ
2,3,4,6,7,8-HxCDF	--		0.44 J	< 1.9 UJ	0.50 J	--	< 0.43 U	--	--	--	< 0.34 UJ	--	--	--	0.96 J	--	--	--	0.47 J
2,3,4,7,8-PeCDF	--		0.44 J	< 1.3 UJ	< 0.20 UJ	--	< 0.17 UJ	--	--	--	< 0.36 U	--	--	--	2.3 J	--	--	--	1.3 J
2,3,7,8-TCDF	--		0.37 J	< 1.1 UJ	0.95 J	--	< 0.37 UJ	--	--	--	0.47 J	--	--	--	1.5	--	--	--	0.65 J
OCDF	--		5.4 J	62	1.6 J	--	< 4.9	--	--	--	12	--	--	--	48	--	--	--	13
Total Dioxins/Furans TEQ (human health)	11		0.62	7.3	0.45	--	0.91	--	--	--	1.3	--	--	--	5.8	--	--	--	1.4
Total Dioxins TEQ (mammals)	5		0.35	**6.2**	0.25	--	0.74	--	--	--	1.0	--	--	--	4.3	--	--	--	0.54
Total Furans TEQ (mammals)	3		0.26	1.1	0.20	--	0.17	--	--	--	0.25	--	--	--	1.5	--	--	--	0.89
Total Furans TEQ (birds)	3		0.91	2.1	1.1	--	0.44	--	--	--	0.82	--	--	--	**4.6**	--	--	--	2.4

TABLE A-2
SOIL ANALYTICAL DATA SUMMARY, PORT PARCEL 2 - SEPTEMBER 2008
FORMER SCOTT PAPER COMPANY MILL SITE

		Sample Location	GEI-13		GEI-13		GEI-13		GEI-14		GEI-14		GEI-14		GEI-16		GEI-19		GEI-22		GEI-23		GEI-23	
		Sample Name	GEI13-2-6		GEI13-6-10		GEI13-10-14		GEI14-2-4		GEI14-6-8		GEI14-10-14		GEI16-2-6		GEI19-7-10		GEI22-6-9		GEI23-6-10		GEI23-10-14	
	Preliminary Soil	Depth (ft)	2-6		6-10		10-14		2-4		6-8		10-14		2-6		7-10		6-9		6-10		10-14	
	Cleanup Level*	Sample Date	10-Sep-08		10-Sep-08		10-Sep-08		09-Sep-08		09-Sep-08		09-Sep-08		09-Sep-08		08-Sep-08		08-Sep-08		09-Sep-08		09-Sep-08	
Total Petroleum Hydrocarbons (mg/kg)																								
Diesel-range	460		--		41		48		--		< 6.0	U	98		--		--		--		8.9		**1,300**	
Motor oil-range	2,000		--		280		120		--		15		220		--		--		--		25		**7,500**	
Metals (mg/kg)																								
Arsenic	20		7.8		--		11		--		--		8.3		9.6		1.4		--		2.5		1.1	
Copper	100		30		--		**113**		**--**		**--**		56		46		--		--		35		39	
Lead	220		6.2		--		52		--		--		36		32		--		35	J	27		11	
Zinc	270		77		--		240		**--**		**--**		100		99		--		--		45		14	
TCLP Lead (mg/L)	--		--		--		--		--		--		--		--		--		--		--		--	
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (ug/kg)																								
Benzo(a)anthracene	--		< 4.8	U	--		--		< 4.6	U	--		53		56		--		--		< 5.0	R	8.0	J
Benzo(a)pyrene	--		< 4.8	U	--		--		< 4.6	U	--		73		80		--		--		14	J	12	J
Benzo(b)fluoranthene	--		< 4.8	U	--		--		4.6		--		62		97		--		--		30	J	28	J
Benzo(k)fluoranthene	--		< 4.8	U	--		--		< 4.6	U	--		52		80		--		--		14	J	12	J
Chrysene	--		6.3		--		--		6.5		--		100		72		--		--		22	J	17	J
Dibenzo(a,h)anthracene	--		< 4.8	U	--		--		< 4.6	U	--		17		16		--		--		16	J	10	J
Indeno(1,2,3-cd)pyrene	--		< 4.8	U	--		--		< 4.6	U	--		33		27		--		--		26	J	14	UJ
Total cPAHs TEQ	140		3.7		--		--		3.7		--		96		110		--		--		23		19	
Dioxins/Furans (ng/kg)																								
1,2,3,4,6,7,8-HpCDD	--		--		42		--		--		--		--		--		--		--		--		--	
1,2,3,4,7,8-HxCDD	--		--		< 0.28	UJ	--		--		--		--		--		--		--		--		--	
1,2,3,6,7,8-HxCDD	--		--		1.9	J	--		--		--		--		--		--		--		--		--	
1,2,3,7,8,9-HxCDD	--		--		1.7	J	--		--		--		--		--		--		--		--		--	
1,2,3,7,8-PeCDD	--		--		0.65	J	--		--		--		--		--		--		--		--		--	
2,3,7,8-TCDD	--		--		< 0.34	U	--		--		--		--		--		--		--		--		--	
OCDD	--		--		530		--		--		--		--		--		--		--		--		--	
1,2,3,4,6,7,8-HpCDF	--		--		5.8		--		--		--		--		--		--		--		--		--	
1,2,3,4,7,8,9-HpCDF	--		--		< 0.66	U	--		--		--		--		--		--		--		--		--	
1,2,3,4,7,8-HxCDF	--		--		1.3	J	--		--		--		--		--		--		--		--		--	
1,2,3,6,7,8-HxCDF	--		--		1.2	J	--		--		--		--		--		--		--		--		--	
1,2,3,7,8,9-HxCDF	--		--		1.0	J	--		--		--		--		--		--		--		--		--	
1,2,3,7,8-PeCDF	--		--		< 0.40	UJ	--		--		--		--		--		--		--		--		--	
2,3,4,6,7,8-HxCDF	--		--		1.2	J	--		--		--		--		--		--		--		--		--	
2,3,4,7,8-PeCDF	--		--		2.5	J	--		--		--		--		--		--		--		--		--	
2,3,7,8-TCDF	--		--		1.4		--		--		--		--		--		--		--		--		--	
OCDF	--		--		9.7		--		--		--		--		--		--		--		--		--	
Total Dioxins/Furans TEQ (human health)	11		--		3.2		--		--		--		--		--		--		--		--		--	
Total Dioxins TEQ (mammals)	5		--		1.8		--		--		--		--		--		--		--		--		--	
Total Furans TEQ (mammals)	3		--		1.4		--		--		--		--		--		--		--		--		--	
Total Furans TEQ (birds)	3		--		**4.5**		--		--		--		--		--		--		--		--		--	

Notes:

*Preliminary soil cleanup levels are discussed in the Remedial Investigation (RI) report. See Table 1 of RI report.

mg/kg = Milligrams per kilogram

ug/kg = Micrograms per kilogram

ng/kg = Nanograms per kilogram

TCLP = Toxicity Characteristic Leaching Procedure

TEQ = Toxicity Equivalent Quotient

TEF = Toxicity Equivalency Factor

MTCA = Model Toxics Control Act

cPAH and dioxin/furan TEQ values for samples with at least one positive cPAH or dioxin/furan detection were calculated using MTCA TEF values in effect as of January 2008 (see Table 2, Draft Final RI).

Blue text = Value exceeds MTCA terrestrial ecological criteria only (criteria are in Table 1 of RI report).

Red text = Value exceeds MTCA terrestrial ecological and human health criteria, or human health criteria only if no terrestrial ecological criteria established or if terrestrial ecological criteria are greater than the human health criteria (criteria are in Table 1 of RI report).

-- = Not analyzed/site-specific cleanup level not established

U = The constituent was analyzed, but was not detected above the specified method reporting limit.

J = Estimated value reported below method reporting limit, or estimated based on data quality assessment.

R = Data value rejected based on data quality assessment.

TABLE A-3
SOIL ANALYTICAL DATA SUMMARY, PORT PARCEL 3 - SEPTEMBER 2008
FORMER SCOTT PAPER COMPANY MILL SITE

DRAFT

		Sample Location	GEI-3		GEI-3		GEI-3		GEI-4		GEI-5		GEI-5		GEI-17		GEI-21		GEI-21		GEI-24		GEI-24		GEI-24	
		Sample Name	GEI3-0-2		GEI3-6-10		GEI3-10-14		GEI4-6-10		GEI5-6-10		GEI5-11-12		GEI17-2-6		GEI21-6-10		GEI21-10-14		GEI24-6-10		GEI24-10-14		DUP-2 (GEI24-10-14)	
	Preliminary Soil	Depth (ft)	0-2		6-10		10-14		6-10		6-10		11-12		2-6		6-10		10-14		6-10		10-14		10-14	
	Cleanup Level*	Sample Date	08-Sep-08		08-Sep-08		08-Sep-08		08-Sep-08		08-Sep-08		08-Sep-08		09-Sep-08		08-Sep-08		08-Sep-08		10-Sep-08		10-Sep-08		10-Sep-08	
Total Petroleum Hydrocarbons (mg/kg)																										
Diesel-range	460		--		< 5.8	U	6.0		8.6		--		33		--		24		150		**1,800**		**670**		**480**	
Motor oil-range	2,000		--		< 12.0	U	35		26		--		67		--		100		610		**3,900**		1,400		1,200	
Metals (mg/kg)																										
Arsenic	20		6.0		4.1		3.6		5.7		1.6		--		11		4.0		3.6		9.2		11		9.6	
Copper	100		--		21		22		40		20		--		73		48		38		**130**		**160**		**140**	
Lead	220		--		8.7		3.2		28		14		--		37		35		9.0		47		93		160	
Zinc	270		--		55		49		80		36		--		170		63		30		**280**		**340**		**290**	
TCLP Lead (mg/L)	--		--		--		--		--		--		--		--		--		--		--		< 0.4	U	< 0.4	U
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (ug/kg)																										
Benzo(a)anthracene	--		--		5.3		< 4.7	U	--		--		--		34		32		44		35		21		22	
Benzo(a)pyrene	--		--		4.8		< 4.7	U	--		--		--		38		33		72		31		34		38	
Benzo(b)fluoranthene	--		--		7.2		< 4.7	U	--		--		--		37		32		70		42		36		35	
Benzo(k)fluoranthene	--		--		< 4.8	U	< 4.7	U	--		--		--		30		26		70		26		32		41	
Chrysene	--		--		6.7		< 4.7	U	--		--		--		44		53		74		67		37		42	
Dibenzo(a,h)anthracene	--		--		< 4.8	U	< 4.7	U	--		--		--		5.9		5.3		6.5		5.5		9.9		13	
Indeno(1,2,3-cd)pyrene	--		--		< 4.8	U	< 4.7	U	--		--		--		13		15		24		11		17		22	
Total cPAHs TEQ	140		--		6.8		<3.5	U	--		--		--		50		45		94		44		46		52	
Dioxins/Furans (ng/kg)																										
1,2,3,4,6,7,8-HpCDD	--		--		4.4	J	3.5	J	3.7	J	25		--		--		--		--		--		--		--	
1,2,3,4,7,8-HxCDD	--		--		0.59	J	0.18	J	< 0.20	U	3.1	J	--		--		--		--		--		--		--	
1,2,3,6,7,8-HxCDD	--		--		0.85	J	0.36	J	< 0.31	UJ	5.4		--		--		--		--		--		--		--	
1,2,3,7,8,9-HxCDD	--		--		0.68	J	< 0.16	UJ	0.40	J	4.4	J	--		--		--		--		--		--		--	
1,2,3,7,8-PeCDD	--		--		1.1	J	0.13	J	< 0.19	UJ	< 0.47	UJ	--		--		--		--		--		--		--	
2,3,7,8-TCDD	--		--		0.51	J	< 0.032	U	< 0.17	U	< 0.32	UJ	--		--		--		--		--		--		--	
OCDD	--		--		23		36		23		66		--		--		--		--		--		--		--	
1,2,3,4,6,7,8-HpCDF	--		--		2.4	J	< 0.044	UJ	< 0.21	UJ	7.6		--		--		--		--		--		--		--	
1,2,3,4,7,8,9-HpCDF	--		--		< 0.23	U	0.12	J	< 0.23	U	0.87	J	--		--		--		--		--		--		--	
1,2,3,4,7,8-HxCDF	--		--		< 0.25	J	0.20	J	< 0.14	U	< 0.23	UJ	--		--		--		--		--		--		--	
1,2,3,6,7,8-HxCDF	--		--		0.79	J	0.24	J	< 0.13	UJ	1.7	J	--		--		--		--		--		--		--	
1,2,3,7,8,9-HxCDF	--		--		< 0.30	U	< 0.085	U	< 0.10	U	0.58	J	--		--		--		--		--		--		--	
1,2,3,7,8-PeCDF	--		--		3.1	J	< 0.095	UJ	< 0.22	U	1.8	J	--		--		--		--		--		--		--	
2,3,4,6,7,8-HxCDF	--		--		0.46	J	< 0.069	UJ	< 0.10	UJ	2.8	J	--		--		--		--		--		--		--	
2,3,4,7,8-PeCDF	--		--		< 0.25	J	< 0.078	UJ	0.26	J	5.3		--		--		--		--		--		--		--	
2,3,7,8-TCDF	--		--		< 0.13	J	< 0.14	U	0.32	J	4.5		--		--		--		--		--		--		--	
OCDF	--		--		2.1	J	1.2	J	1.5	J	12		--		--		--		--		--		--		--	
Total Dioxins/Furans TEQ (human health)	11		--		2.2		0.33		0.43		4.7		--		--		--		--		--		--		--	
Total Dioxins TEQ (mammals)	5		--		1.9		0.25		0.29		2.0		--		--		--		--		--		--		--	
Total Furans TEQ (mammals)	3		--		0.32		0.074		0.14		2.7		--		--		--		--		--		--		--	
Total Furans TEQ (birds)	3		--		0.68		0.17		0.62		**11**		--		--		--		--		--		--		--	

Notes:

*Preliminary soil cleanup levels are discussed in the Remedial Investigation (RI) report. See Table 1 of RI report.

mg/kg = Milligrams per kilogram

ug/kg = Micrograms per kilogram

ng/kg = Nanograms per kilogram

TCLP = Toxicity Characteristic Leaching Procedure

TEQ = Toxicity Equivalent Quotient

TEF = Toxicity Equivalency Factor

MTCA = Model Toxics Control Act

cPAH and dioxin/furan TEQ values for samples with at least one positive cPAH or dioxin/furan detection were calculated using MTCA TEF values in effect as of January 2008 (see Table 2, Draft Final RI).

Blue text = Value exceeds MTCA terrestrial ecological criteria only (criteria are in Table 1 of RI report).

Red text = Value exceeds MTCA terrestrial ecological and human health criteria, or human health criteria only if no terrestrial ecological criteria established or if terrestrial ecological criteria are greater than the human health criteria (criteria are in Table 1 of RI report).

-- = Not analyzed/site-specific cleanup level not established

U = The constituent was analyzed, but was not detected above the specified method reporting limit.

J = Estimated value reported below method reporting limit, or estimated based on data quality assessment.

TABLE A-4
WATER ANALYTICAL DATA SUMMARY - SEPTEMBER 2008
FORMER SCOTT PAPER COMPANY MILL SITE

DRAFT

		Sample Location	GEI-24 (a)		-- (b)	
	Preliminary Groundwater Cleanup Level*	Sample Name	GEI24-W		RINSATE	
		Sample Date	10-Sep-08		09-Sep-08	
Total Petroleum Hydrocarbons (mg/L)						
Diesel-range	0.5		**1.8**		<0.25	U
Motor oil-range	0.5		**3.2**		<0.50	U
Metals (mg/L)						
Arsenic	--		--		<0.002	U
Copper	--		--		0.004	
Lead	--		--		<0.002	U
Zinc	--		--		<0.01	U
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (ug/L)						
Benzo(a)anthracene	--		--		<0.10	U
Benzo(a)pyrene	--		--		<0.10	U
Benzo(b)fluoranthene	--		--		<0.10	U
Benzo(k)fluoranthene	--		--		<0.10	U
Chrysene	--		--		<0.10	U
Dibenzo(a,h)anthracene	--		--		<0.10	U
Indeno(1,2,3-cd)pyrene	--		--		<0.10	U

Notes:

(a) Groundwater grab sample obtained from direct-push boring

(b) Equipment rinsate blank (field quality control sample)

*Preliminary groundwater cleanup levels are discussed in the Remedial Investigation (RI) report. See Table 4 of RI report.

mg/L = Milligrams per liter

ug/L = Micrograms per liter

MTCA = Model Toxics Control Act

Red text = Value exceeds MTCA human health criteria (criteria are in Table 4 of RI report).

-- = Not analyzed/not applicable

U = The constituent was analyzed, but was not detected above the specified method reporting limit.

P:\15\47007\03\CAD\Report Parts\1547007003Fig.dwg\TAB:Fig | Modified by THICHAUD on Nov 26, 2008 - 14:25

Reference Information

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Source: AutoCAD drawing entitled "ES-4, Port Uplands Area Preliminary Soil Cleanup Level Exceedance Locations (0-2 ft BGS)", dated 9/18/2006, provided by Landau Associates. Base map source: Port of Anacortes, June 2004.

Legend

◑ September 2008 Soil Boring Location

DRAFT

N W E S

0 120 240

Scale in Feet

September 2008 Supplemental Soil Sampling Locations

Scott Paper Mill
Anacortes, Washington

GeoEngineers

Figure A-1

ATTACHMENT 1
BORING LOGS

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE			GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	CC	Cement Concrete
	AC	Asphalt Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Measured free product in well or piezometer

Stratigraphic Contact

Distinct contact between soil strata or geologic units

Gradual change between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

Figure A-1

Date(s) Drilled	09/10/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	10
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	Grass and topsoil	NS	--	
								SP	Medium brown fine sand, poorly sorted (medium dense, moist)			
												Color change to dark gray at possible depth of black geomembrane (membrane not intact; black fibers-fabric present)
								ML/PT	Dark gray and green slightly mottled silt, occasional coarse gravel and trace fine sand (medium stiff, moist)			
		36								NS	--	
5				1					Dark gray to black silt with abundant, fine, decomposed organic material (moist to dry)			
										NS	--	
								GP-GW	Gravel with rock fragments			
10						▼		SM	Black medium to very coarse sand with silt and trace organic matter (medium dense, wet)			
								WD	Black to dark brown wood			
		30								NS	--	
									Becomes brown to light brown	NS	--	
		24		2						SS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

LOG OF BORING GEI-1

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-2
Sheet 1 of 1

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	10
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	3 inches grass and topsoil			
								SP	Gray gravelly fine to coarse sand with fine gravel (medium dense, dry)			
								SM	Dark brown fine to medium sand with silt (loose, moist)			
								WD	Black to brown hard wood			
								RX	Light gray rock			
		36						SM	Black silt with gravel; brick and glass debris and trace sand; some organic matter (peat lenses) (medium dense, dry)	NS	0	
5				1				SM/ML	Black fine to medium silty sand; some organic matter (loose, moist)			
		48								NS	0	
10				2		▼		PT	Black silty peat with some sand (wet)			
		42						SP	Black medium to coarse sand with trace fine gravel; trace organic matter (loose, wet)	NS	0	
								OL	Black to dark brown organic silt (very soft)	NS	0	
15								WD	Dark brown wood pieces and sawdust			
		36								NS	0	
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-2

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-3
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	10
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	4 inches grass and topsoil			
								TS	4 inches black topsoil and organic matter			
				1				CC	Concrete with gravel; brown sand			
									Brick fragments			
		32						SM	Medium brown fine sand with silt; trace gravel (dry)	NS	0	Very easy-soft drilling
5								GP	Dark gray and orange sandy gravel with medium sand			Orange color - possible brick dust
		48							No recovery	NS	0	
10				2		▼		GP	Medium brown and gray sandy gravel, poorly sorted light gray rock fragments (dense, wet)	NS	0	Rock fragments - (graywacke) possible rip-rap (?)
		24							No recovery	NS	0	
								GP	Dark gray medium to coarse rock fragments (2 inches sand lens)			
		36		3				WD	Medium brown solid wood (wet)			
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-3

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-4
Sheet 1 of 1

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	12	Surface Elevation (ft)		Groundwater Level (ft. bgs)	7
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	4 inches grass and topsoil			
								ML	Dark brown silt with fine sand and organic matter (slight plasticity, stiff)			
									Becomes mottled orange and light brown	NS	0	
5		36						SP	Black gravelly sand, coarse to fine, poorly graded, trace silt; some organic matter, shell fragments (medium dense, wet)			
				1		▼				NS	0	
		40						OL	Black silt with fine sand; organic material; some rock fragments and wood chips			
10								WD	Light brown to orange solid wood; thin silt lenses			
		48								NS	0	Slight sulfur odor
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-4

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-5
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	12	Surface Elevation (ft)		Groundwater Level (ft. bgs)	7
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	Asphalt			
								GP	Base course gravel			
								GP/SP	Medium brown fine to medium gravelly sand with coarse gravel and some silt (medium dense, dry)	NS	0	
		30										
5				1						NS	0	
								SP	Black fine to medium sand with gravel with small wood pieces (medium dense, wet)			
		40						SP	Medium brown to dark brown wood pieces with interbedded sand	NS	0	
10								WD	Light brown small (<1/4 to 1/8 inch) wood pieces			Strong sulfur odor and other odor
				2						NS	0	
		36										
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-5

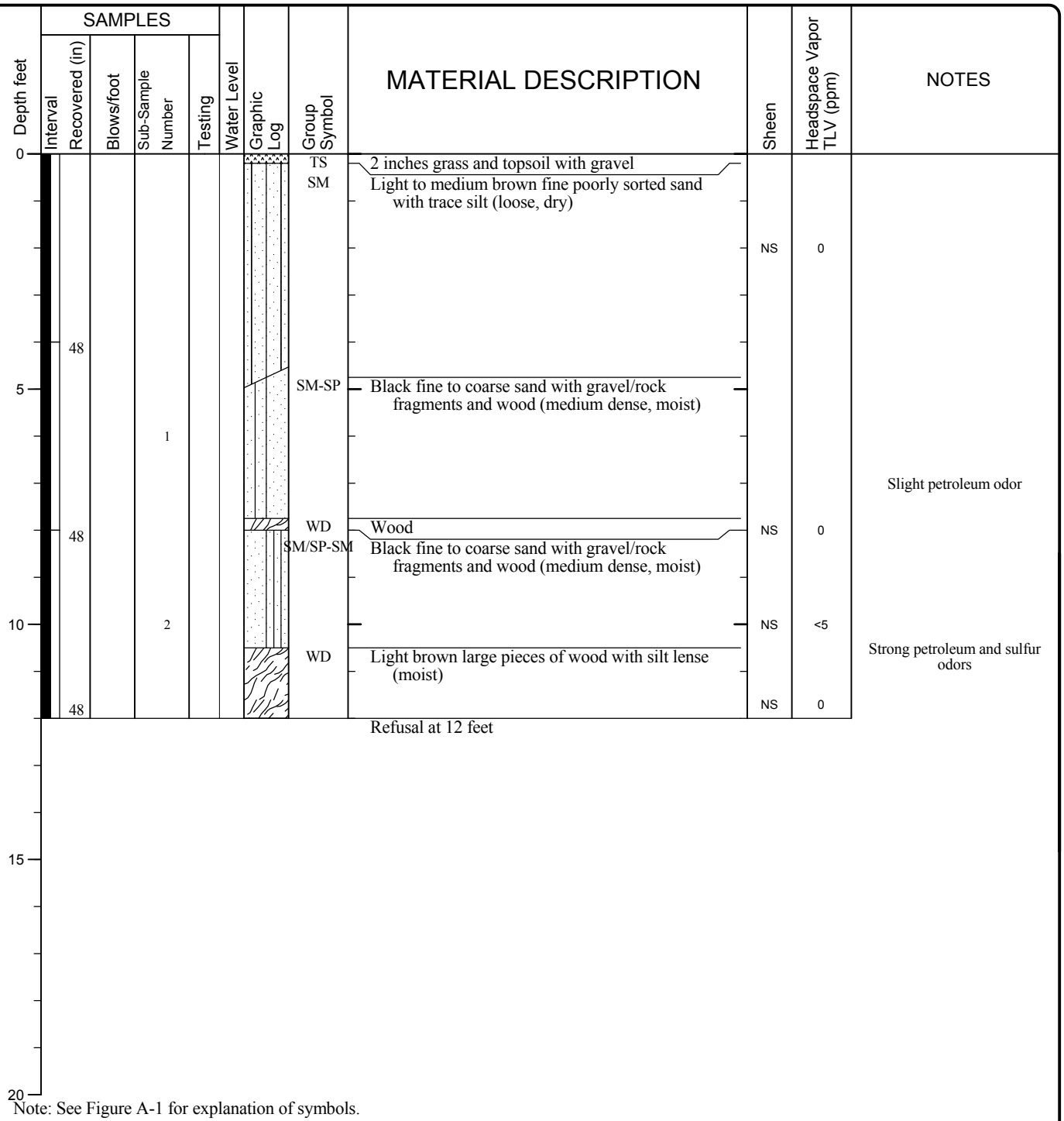
GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-6
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	12	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007O3.GPJ GEIV6_1.GDT 10/24/08

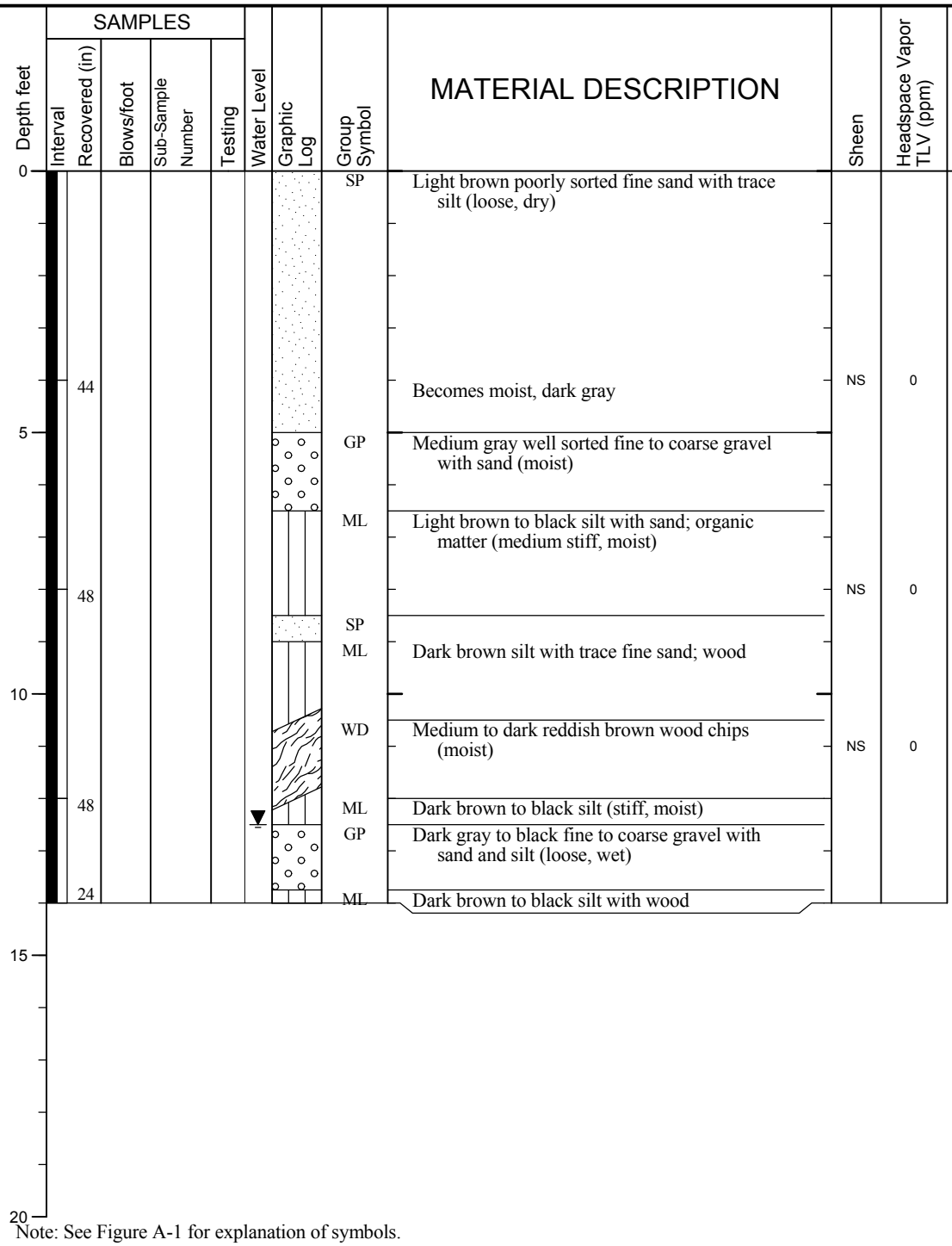
LOG OF BORING GEI-6

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-7
Sheet 1 of 1

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	12.5
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007O3.GPJ GEIV6_1.GDT 10/24/08

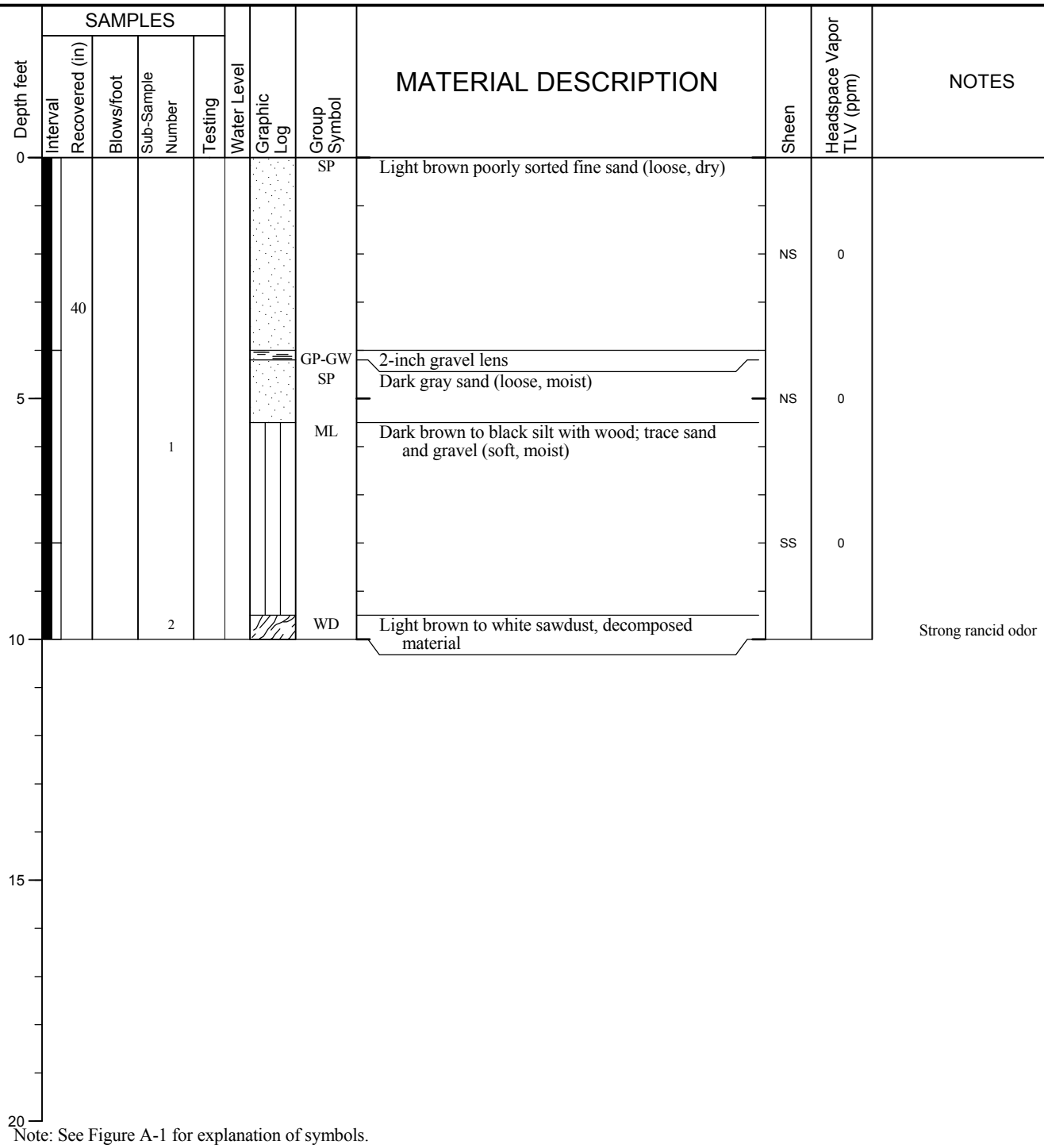
LOG OF BORING GEI-7

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-8
Sheet 1 of 1

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-8

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-9
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	3 inches asphalt			
								GP	Base course gravel			
								SM	Medium brown well sorted silty fine sand and few rootlets (medium dense, dry)			
				1						NS	--	
									Becomes dark gray (moist)			
								SP	Dark gray fine to coarse sand with gravel; trace silt (dense, moist)			
		40								NS	--	
										MS	--	
5												
										HS	--	Strong petroleum odor
								WD	3 inches of wood			
				2				ML	Dark gray to black clayey silt with shell fragments and trace fine sand; occasional organic matter (soft, moist)			
		24								NS	--	
								WD	Light brown to white sawdust (soft, moist)	NS	--	Rancid odor
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-9

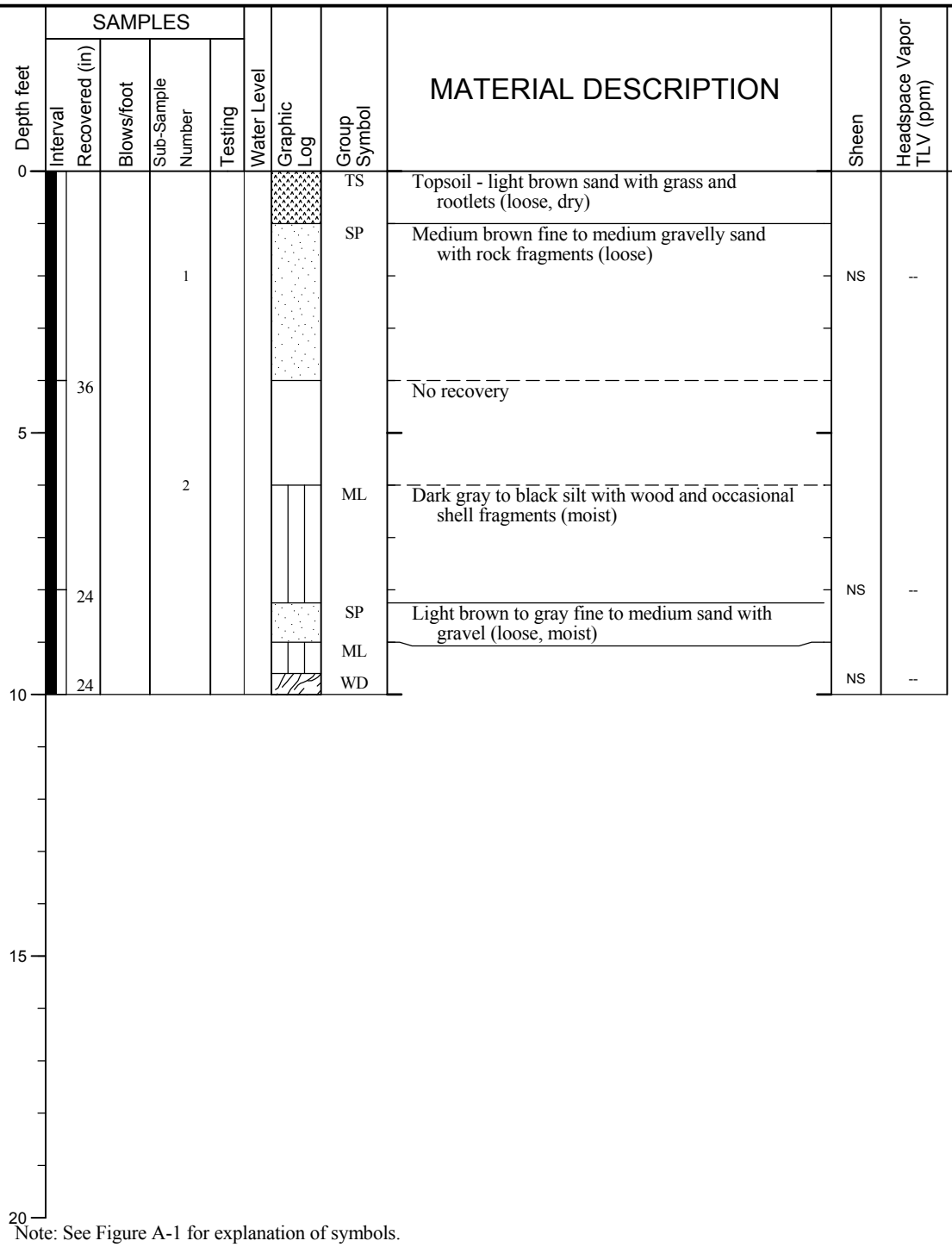
GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-10
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-10

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-11
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	Topsoil and gravel			
								SP/SM	Light to medium brown poorly sorted fine to medium sand with silt (loose, moist)			1 foot recovery loss, likely from compression
				1						NS	--	
		40						SP	Brown to gray fine to coarse sand with gravel (medium dense, moist)	NS	--	
5								SW	Sand with crushed rock and granite			
				2				ML	Black silt	NS	--	
								RX	Light gray rock chips (chert)			
								ML	Black to dark gray silt with wood and trace shell fragments (moist)			
		48										
								WD	Black to dark brown shredded wood (moist)			
10		24								NS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-11

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-12
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	1 to 2 inches of topsoil			
								SM	Medium brown fine to medium sand with silt (medium dense to dense, moist)	NS	--	
				1								
		36							Becomes brownish-gray			
5								SP-GP	Dark gray fine to very coarse sand with gravel and trace silt (dense, moist)			Rock chips (cobbles?)
				2						NS	--	
		48										
10		24								NS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-12

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-13
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007003.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/10/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	14
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	3 inches asphalt			
								GP	1 inch of gravel base course			
								SM	Dark gray fine sand with silt (loose, dry)			
				1						NS	--	
		48							Becomes medium dense, dry			
5								SP-GP	Green-gray fine to very coarse sand with gravel and trace silt (medium dense, dry)	NS	--	
								SM	Silty sand (loose, dry)			
				2				ML	Dark gray to black silt with occasional shells and sawdust (medium dense, dry)			
		48								NS	--	Slight petroleum odors
								SP/SW	Sand interbed			
								ML	Black silt with wood (medium dense, dry)			
10				3						NS	--	
									Becomes harder			
		48							No recovery			
		4				▼		ML	Dark gray to green slightly mottled silt (soft, wet)	NS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-13

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-14
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	6
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	3 inches asphalt			
								GP	1 inch base course gravel			
								SM	Medium brown fine sand with silt (medium dense, dry)	NS	--	
				1					Becomes dark gray (moist)			
								ML	Black to dark gray silt with gravel			
		40						GP/SP	Gray fine to coarse poorly sorted gravelly sand (dense, moist)	NS	--	
5									No recovery			
				2		▼		SP	Dark gray fine to medium sand with trace silt (medium dense, wet)			
		24							No recovery	NS	--	
10				3				ML	Black silt with trace sand and some organic matter (medium stiff, moist)	NS	--	
								SP	Dark gray fine to medium sand with trace gravel (dense, wet)	MS	--	
		24						ML	Black clayey silt with shell fragments and trace sand (soft, moist)			
								SP	Dark gray fine to coarse gravelly sand with gravel (dense, wet)			
		24						WD	Dark brown fine wood with light brown wood pieces at 14 feet	NS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-14

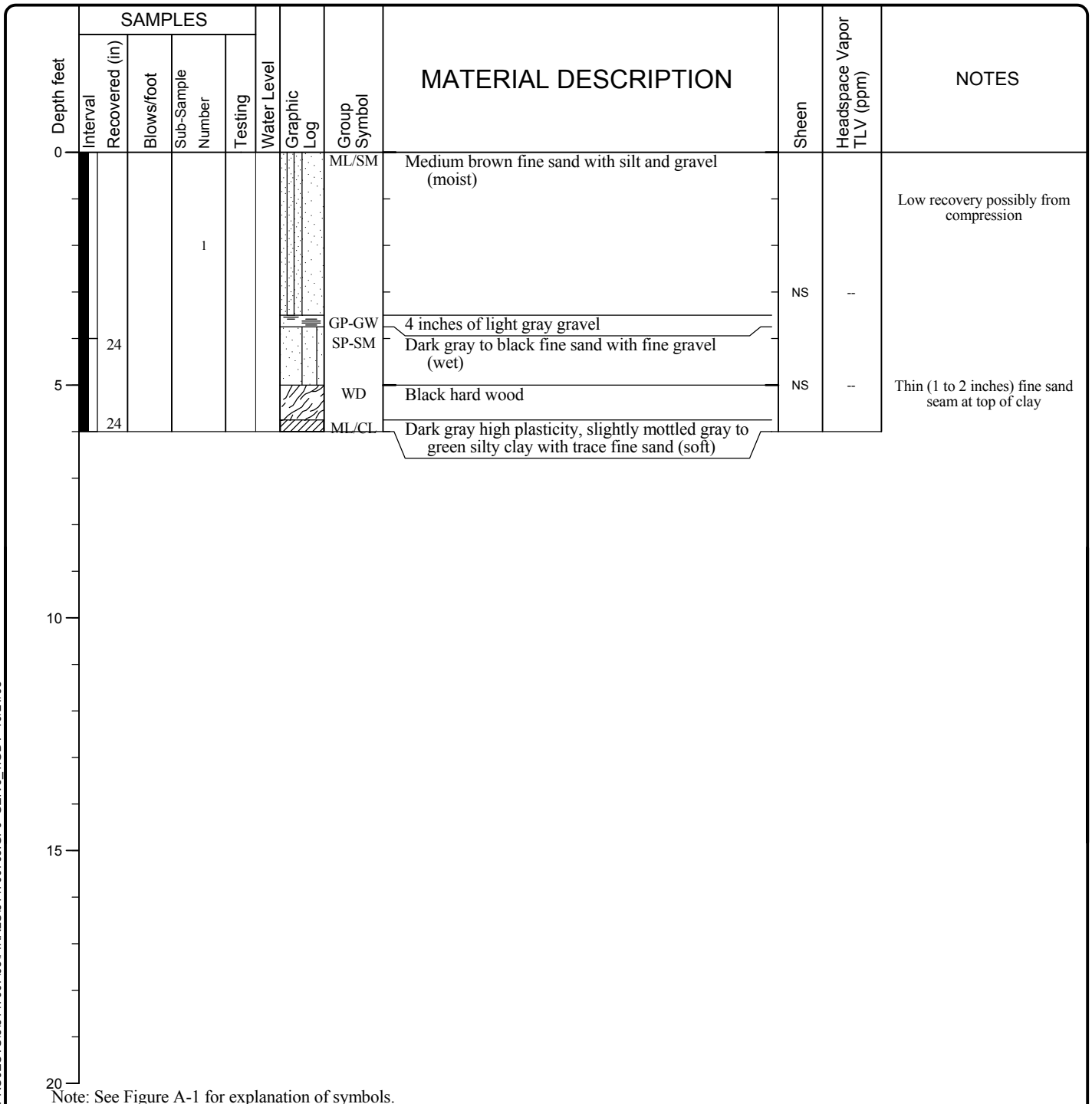
GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-15
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	6	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5147007\03\FINALS\5147007O3.GPJ GEIV6_1.GDT 10/24/08

LOG OF BORING GEI-15

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-16
Sheet 1 of 1

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	6	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	Asphalt			PID not used (not working)
								GP	Gravel base course			
								SM	Medium brown well sorted fine sand with silt (medium dense, dry)			
				1						NS	--	
		48										
5								ML	Dark brown low plasticity silt with occasional wood fragments and gravel (stiff)	NS	--	
		24										
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-16

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-17
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007003.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	6	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	5 inches asphalt			
								GP	Base course gravel			
				1				SM	Medium brown fine to very coarse silty sand with gravel (medium dense, moist)			
									Becomes gray (wet)	NS	--	
		36						ML	Dark gray, slightly mottled gray to green low plasticity silt with trace sand (stiff, moist)			
5									1 to 2 inches dark gray fine to coarse sand interbeds	NS	--	
		24						WD	Dark brown to black wood			
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-17

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-18
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	Grab
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	3 inches grass and topsoil			
								SP	Brownish gray fine to medium sand (loose, dry) (thin layers of orange sand)	NS	--	PID not used (not working)
								RX	Rock fragments			
								SP	Brown and gray gravelly fine to medium sand (dense, dry)	NS	--	
		48										
5									Gray gravelly fine to medium sand with trace silt (medium dense, moist)			
				1						NS	--	
								ML	Dark brown silt with organic matter (loose, moist)			
		48						SP	Brown gravelly sand (loose, moist)			
						▼			Dark brown to black fine to medium gravelly sand (loose, wet)	NS	--	
		24										
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-18

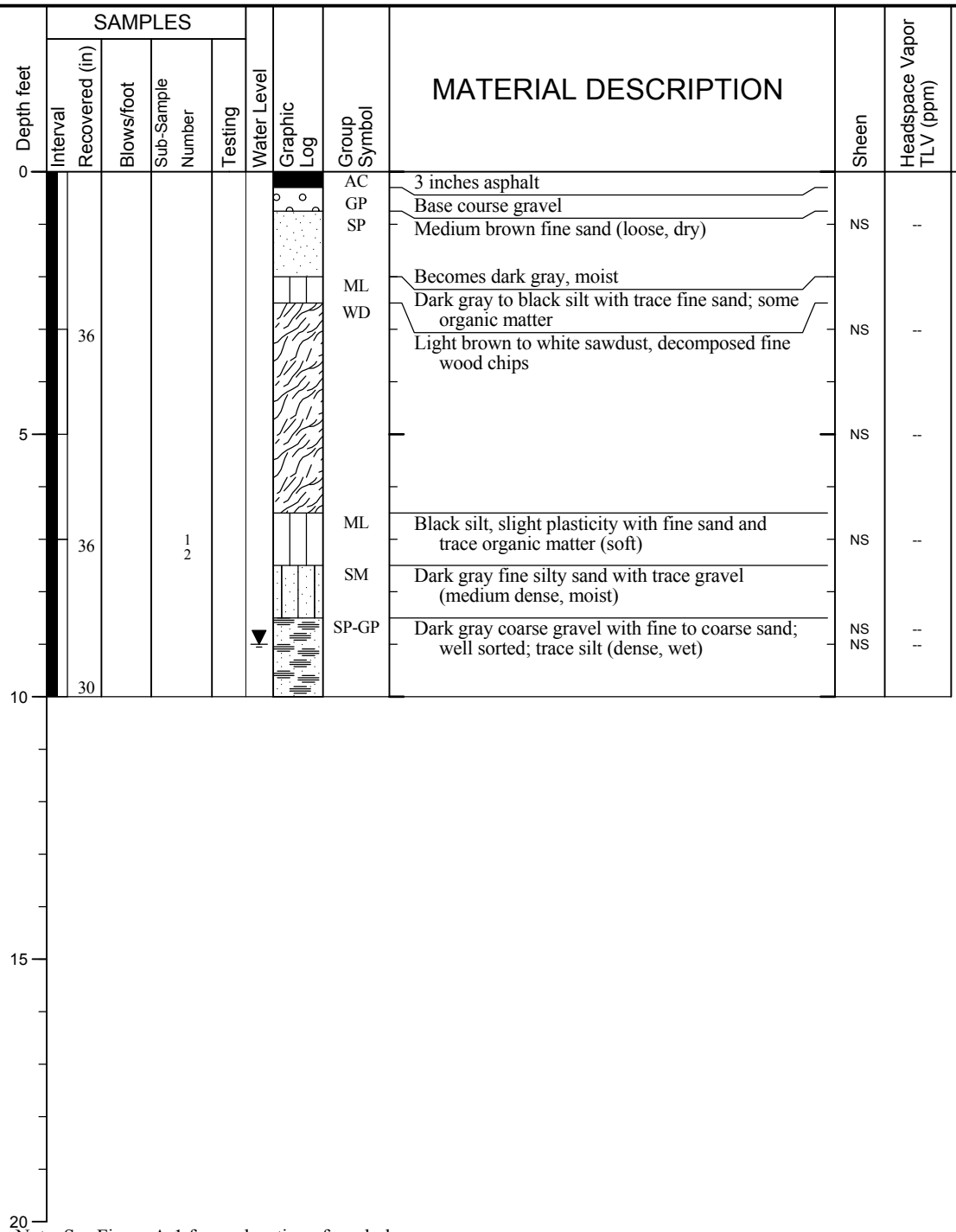
GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-19
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-19

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-20
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	Grab
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	10	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	3 inches grass and topsoil			
								SP	Brownish gray fine to medium sand (loose, dry)	NS	--	PID not used (not working)
								ROCK	Layer of rocks			
								SM	Dark brown silty sand with organic matter, wood fragments (medium dense, dry)	NS	--	
								SP	Gray gravelly fine to medium sand (dense, dry)	SS	--	
		48										
5								ML	Brown silt with roots and occasional gravel (medium stiff, moist)	NS	--	
				1					Gray sandy and gravelly silt (medium stiff, moist)	NS	--	
								WD	Wood layer			
		48						ML	Dark brown to black silt with gravel (medium stiff, moist)	NS	--	
						▼		SP	Dark brown to black fine to medium gravelly sand (loose, wet)			
		24										
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

LOG OF BORING GEI-20

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-21
Sheet 1 of 1

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								AC	Asphalt			
								GP	Base course gravel			
								SP	Dark gray fine to medium sand with silt (loose, dry)			
		36						SP/SM	Grades to silty sand (moist)	NS	0	
5				1				PT	Black peat with silt and wood fragments			
										NS	0	
		48				▼		SM	Gray fine silty sand lens (moist)			
								SM	Black fine to coarse silty sand (medium dense, wet)			
10				2								
								SM	Black coarse to very coarse sand with wood chips (medium dense, wet)	NS	0	
		48								MS		
								WD	Light brown wood fragments with silt with larger (2 to 3 inches) wood pieces			Strong sulfur odor
15												
		48									0	
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-21

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-22
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/08/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	GP 420
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	9	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								TS	4 inches grass and topsoil			
								SP/SM	Dark gray fine to medium sand (loose, moist)			
								SM	Dark gray to black fine silty sand with gravel (loose, moist)			Hard drilling, no pavement
		32							No recovery	NS	0	Rock in shoe
5								SM-SP	Black fine to very coarse silty sand with gravel and organic material; rock fragments (loose, dry)			
		10		1						NS	0	Very easy/soft drilling
								SP-SM	Black fine to very coarse sand with gravel; trace shell fragments, brick fragments and wood pieces (medium dense, moist)			
		16								NS	0	
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-22

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-23
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/09/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	14	Surface Elevation (ft)		Groundwater Level (ft. bgs)	9
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								SP	Light brown poorly sorted fine sand with gravel (loose to medium dense, dry)			
									Becomes dark gray (moist)	NS	--	
		48										
5				1				SM	Dark gray to black fine to coarse silty sand with trace gravel and organic matter; wood (dense)	NS	--	
		48				▼			Becomes wet			
10				2						NS	--	
								WD	Light brown and black solid wood (moist)			
		48								HS	--	
								ML	Silt lens with fine wood	MS	--	
		24						WD	Light brown wood (soft, moist)	NS	--	
15												
20												

Note: See Figure A-1 for explanation of symbols.

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007O3.GPJ GEIV6_1.GDT 10/24/08

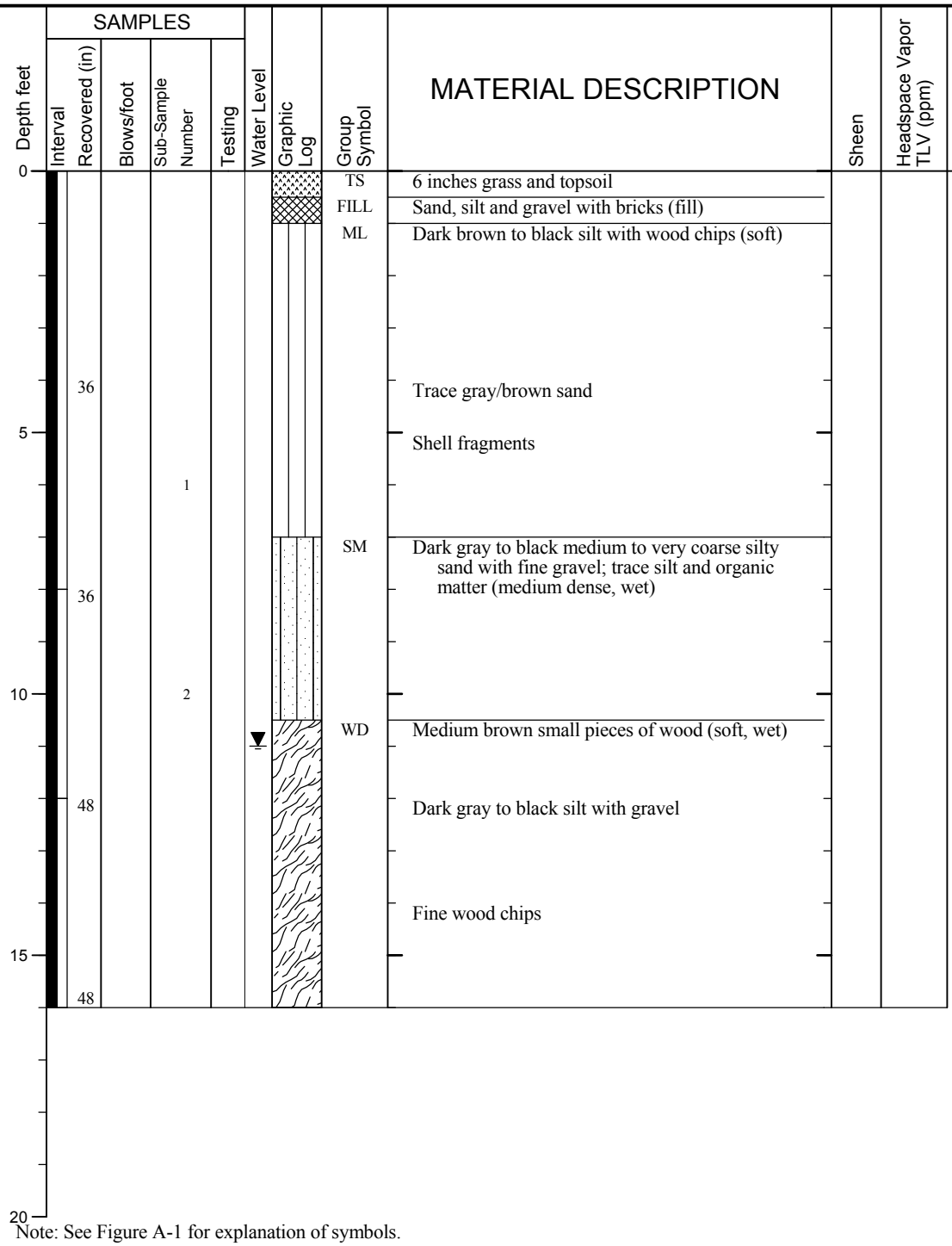
LOG OF BORING GEI-23

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-24
Sheet 1 of 1

Date(s) Drilled	09/10/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	16	Surface Elevation (ft)		Groundwater Level (ft. bgs)	11
Vertical Datum		Datum/ System		Easting(x): Northing(y):	



Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-24

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-25
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5\5147007\03\FINALS\5147007703.GPJ GEIV6_1.GDT 10/24/08

Date(s) Drilled	09/10/08	Logged By		Checked By	CB
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	
Auger Data		Hammer Data		Drilling Equipment	
Total Depth (ft)	5	Surface Elevation (ft)		Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum		Datum/ System		Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor TLV (ppm)	NOTES
0								SOD	4 inches grass			
									No recovery			
								FILL	Sand, silt and gravel mix with brick debris			
		24		1				SP	Light brown fine to coarse gravelly sand with gravel (loose, dry)			
5								CC	Refusal, concrete debris at 5 feet			
10												
15												
20												

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING GEI-25

GeoEngineers

Project: Former Scott Paper Mill
Project Location: Anacortes, Washington
Project Number: 5147-007-03

Figure A-26
Sheet 1 of 1

V6_ENVBORING W:\SEATTLE\PROJECTS\5514700703\FINALS\5147007\03.GPJ GEIV6_1.GDT 10/24/08

ATTACHMENT 2
DATA QUALITY ASSESSMENT SUMMARY

GeoEngineers

1101 Fawcett Avenue, Suite 200, Tacoma, WA 98402, Telephone: (253) 383-4940, Fax: (253) 383-4923 www.geoengineers.com

MEMORANDUM

TO: Cindy Bartlett and Rob Leet

FROM: Tonya Kauhi

DATE: October 29, 2008

FILE: 5147-007-03

SUBJECT: Former Scott Paper Mill Site – Data Quality Assessment Summary

This memorandum presents a summary of the analytical data quality assessment for soil and water samples collected by GeoEngineers, Inc. on September 8-10, 2008, at the Port Uplands Area of the Former Scott Paper Mill Site in Anacortes, Washington. The samples were submitted to Analytical Resources, Inc. (ARI) in Tukwila, Washington. Chemical analyses were performed by ARI and two laboratories subcontracted by ARI: Fremont Analytical (Seattle, Washington) and Pace Analytical (Minneapolis, Minnesota). Thirty-nine (39) soil samples and two (2) water samples were analyzed by one or more of the following analytical methods:

- Total metals by EPA Method 6020
- Lead by EPA Method 1311/6020 (TCLP extraction)
- Petroleum hydrocarbons by Ecology Method NWTPH-D
- Polycyclic aromatic hydrocarbons by EPA Method 8270-SIM
- Dioxin/furans by EPA Method 8290

OBJECTIVE

The objective of the data quality assessment was to review laboratory analytical procedures and quality control (QC) results to evaluate whether:

- The samples were analyzed using well-defined and acceptable methods that provide detection limits below applicable regulatory criteria;
- The precision and accuracy of the data are well defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

DATA ASSESSMENT CRITERIA

The following QC elements were reviewed:

- Chain-of-custody (COC) documentation
- Temperature preservation and holding times
- Method blanks
- Surrogate recoveries

- Matrix spikes/matrix spike duplicates (MS/MSD)
- Laboratory control samples
- Laboratory replicates/duplicates

DATA QUALITY ASSESSMENT SUMMARY

The results for each of the QC elements are summarized below. The data assessment was performed using guidance in *the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2002) and *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999).

Chain-of-Custody Documentation:

COC forms were provided with the laboratory analytical reports. There were no anomalies noted on the COC forms; proper COC protocols appear to have been followed.

Temperature Preservation and Holding Times:

According to the cooler receipt form, the measured cooler temperatures were 20.8 (cooler #1) and 18.6 (cooler #2) degrees Celsius. Guidance suggests that when temperatures exceed the acceptable range, non-detect results should be qualified as unusable ("R" flag) and detected results should be considered estimated values and qualified with a "J" flag, based on the reviewer's professional judgment. The basis for rejection depends on a variety of factors including the duration of elevated temperatures, the magnitude of the temperature exceedance, the matrix being analyzed, the amount of head space in the sample container, and the class of target analytes (i.e., non-volatile or semivolatile compounds versus volatile compounds).

In this instance, the samples were stored on ice from the time the samples were collected until they were delivered to the analytical laboratory. On the afternoon that the samples were delivered to the laboratory, the samples were transferred to different coolers and repacked with ice approximately 2 hours before the coolers were dropped off at the laboratory. The laboratory measured and recorded the ambient cooler temperatures, not the temperature of the samples. Since it can take approximately 6 to 8 hours for ambient cooler temperatures to reach the recommended temperature range of 2 to 6 degrees Celsius after being loaded with ice, the measured cooler temperatures likely did not accurately reflect the temperature of the samples. Accordingly, no data were qualified based on temperature preservation.

Samples GEI23-6-10 and GEI23-10-14 were extracted and analyzed outside of the recommended holding time of 14 days. The samples were extracted within 41 days of sampling. Guidance suggests that if holding times are grossly exceeded (e.g., by greater than two times the recommended holding time), non-detect results should be qualified as unusable ("R" flag) and detected results should be considered estimated values and qualified with a "J" flag. Based on these criteria the following actions were taken:

- The non-detect results for benzo(a)anthracene in sample GEI23-6-10 were qualified as unusable ("R" flag), and the detected results for benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)-fluoranthene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene in sample GEI23-6-10 were qualified as estimated ("J" flag).

- The detected results for benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene in sample GEI23-10-14 were qualified as estimated ("J" flag).

All other samples were analyzed within recommended holding times.

Method Blanks:

Several polychlorodibenzo-p-dioxins/polychlorodibenzofurans (PCDD/PCDF) congeners were detected in an associated method blank sample (Blank-17755). Since the sample results for these congeners were greater than five times the blank result, the sample results were not qualified.

No additional method blank detections were reported.

Surrogate Recoveries:

Surrogates are only evaluated for organic analyses. No surrogate recovery exceedances were reported.

Matrix Spikes/Matrix Spike Duplicates (MS/MSD):

No MS/MSD spike exceedances were reported.

Laboratory Control Samples (LCS):

No laboratory control sample spike exceedances were reported.

Laboratory Replicates/Duplicates:

The relative percent difference (RPD) values for lead exceeded the control limit of 30% in sample GEI22-6-9 due to sample matrix effects. Guidance suggests if the results from a duplicate analysis exceed the control limit, detected results should be qualified as estimated ("J" flag), and the reporting limit for non-detect results should be qualified as estimated ("UJ" flag). Based on these criteria, the detected lead result in sample GEI22-6-9 was qualified as estimated ("J" flag).

No additional laboratory replicate exceedances were reported.

Additional Data Quality Issues:

The laboratory flagged several PCDD and PCDF results with an "I" (interference present) or "E" (polychlorinated diphenyl ether [PCDE] interference) where interfering substances reduced confidence in the sample result. Consequently, we qualified the results for the samples listed below as estimated ("J" flag).

Sample Location	Start Depth (Feet)	End Depth (Feet)	Analyte
GEI-1	2	6	1,2,3,7,8,9-HxCDD
GEI-1	10	14	1,2,3,7,8-PeCDD
GEI-1	10	14	2,3,7,8-TCDF

GEI-1	10	14	2,3,4,7,8-PeCDF
GEI-1	2	6	1,2,3,7,8-PeCDF
GEI-1	2	6	1,2,3,6,7,8-HxCDF
GEI-1	10	14	2,3,4,6,7,8-HxCDF
GEI-1	10	14	1,2,3,4,6,7,8-HpCDF
GEI-1	2	6	1,2,3,4,7,8-HxCDF
GEI-1	10	14	1,2,3,4,7,8-HxCDF
GEI-2	6	10	1,2,3,6,7,8-HxCDF
GEI-2	6	10	2,3,4,7,8-PeCDF
GEI-2	6	10	1,2,3,6,7,8-HxCDD
GEI-2	6	10	1,2,3,7,8-PeCDD
GEI-2	6	10	1,2,3,4,7,8-HxCDF
GEI-2	6	10	1,2,3,4,6,7,8-HpCDF
GEI-3	6	10	1,2,3,4,7,8-HxCDF
GEI-3	6	10	2,3,4,7,8-PeCDF
GEI-3	10	14	2,3,4,7,8-PeCDF
GEI-3	6	10	2,3,7,8-TCDF
GEI-3	10	14	1,2,3,7,8,9-HxCDD
GEI-3	10	14	1,2,3,4,6,7,8-HpCDF
GEI-3	10	14	2,3,4,6,7,8-HxCDF
GEI-3	10	14	1,2,3,7,8-PeCDF
GEI-4	6	10	1,2,3,6,7,8-HxCDF
GEI-4	6	10	2,3,4,6,7,8-HxCDF
GEI-4	6	10	1,2,3,6,7,8-HxCDD
GEI-4	6	10	1,2,3,7,8-PeCDD
GEI-4	6	10	1,2,3,4,6,7,8-HpCDF
GEI-5	6	10	1,2,3,4,7,8-HxCDF
GEI-5	6	10	1,2,3,7,8-PeCDD
GEI-5	6	10	2,3,7,8-TCDD
GEI-6	6	10	2,3,7,8-TCDF
GEI-6	6	10	2,3,4,7,8-PeCDF
GEI-6	6	10	1,2,3,4,7,8-HxCDF
GEI-8	6	10	2,3,4,6,7,8-HxCDF
GEI-8	6	10	1,2,3,4,7,8,9-HpCDF
GEI-10	6	10	1,2,3,6,7,8-HxCDF
GEI-12	6	10	1,2,3,7,8-PeCDF
GEI-12	6	10	1,2,3,7,8,9-HxCDD
GEI-12	6	10	1,2,3,4,7,8-HxCDD
GEI-13	6	10	1,2,3,4,7,8-HxCDD
GEI-13	6	10	1,2,3,7,8-PeCDF

CONCLUSIONS

The analytical data generated during the September 2008 supplemental soil investigation at the Port Uplands Area of the Former Scott Paper Mill Site are useable for decision-making purposes. This data quality assessment was performed by GeoEngineers, Inc. using best professional judgment. Data users may review and re-interpret data quality for specific uses.