



11811 N.E. 1st Street, Suite 201
Bellevue, Washington 98005
tel: 425 453-8383
fax: 425 646-9523

September 6, 2007

Mr. Steve Ritt
LeatherCare, Inc.
901 Elliott Avenue W.
Seattle, Washington 98119

RECEIVED
SEP 06 2007
DEPT. OF ECOLOGY
TCP-NWRO

Subject: Catch Basin, Sump, Drain Cleaning
LeatherCare, Inc.
901 Elliott Avenue W.
Seattle, Washington

Dear Steve:

This letter documents interim remedial actions involving the cleaning of catch basins, sumps and drain lines at the LeatherCare, Inc. (LeatherCare) facility on Elliott Avenue in Seattle. Sludge and water samples collected from these appurtenances were found to contain the dry cleaning solvent tetrachloroethene (PCE) and its degradation products as a result of historical dry cleaning operations that used PCE. LeatherCare no longer uses PCE in its operations, but the PCE had become entrained in the sludge, which required its physical removal. CDM subcontracted with Envirotech Systems, Inc. to perform the work and manage appropriate disposal of the generated waste. CDM oversaw the work, which occurred on March 16, 2007.

Sewage Drainage System Description

The sewer line that services the facility is located in Elliott Ave. W. Because the elevation of Elliott Ave. W. is higher than main floor of the facility, waste water has to be pumped up to the sewer line. Originally because it was an apple processing facility, the building was constructed with a series of concrete trenches, which were used as a fluid-based system of transport for the apples and apple waste products. LeatherCare modified the existing trench and sump system, filling some with pea gravel and concreting them over, and retaining others as needed.

There are two interior sumps; one is located between the spray booth and clothes dryers near the east side of the facility and the second is located near the washer at west end of the facility. Both sumps are concrete, but the second sump contains a metal liner. Water that enters both of these sumps is pumped and conveyed through piping located along the ceilings to the sewer line in Elliott Avenue. Located underneath the dryers near the east end of the building is a vault that contains water which is recirculated through the cooling tower. There is one concrete catch basin located outside the facility next to the natural gas meter.



Mr. Steve Ritt
September 6, 2007
Page 2

Water that enters this catch basin is conveyed to the sump located near the east side of the facility.

The sump on the west end of the facility receives water from a regular household type of washing machine and small floor drains. Based on the condition of the floor drains (i.e., dry, full of lint), they rarely see any water. An open trench extends from the washing machine directly to the sump. The floor drains appear to be connected in series via a pipe — it is believed to have been a modified trench. The pipe then discharges to an open trench that “T”s into the first trench.

The sump at the east side of the facility receives waste water from four sources: 1) the adjacent utility sink, 2) the outside catch basin, 3) a floor drain located next to the washers that are located on the south side of the building, and 4) a partially open trench drain that extends from the boiler room and washers that are on the north/central side of the facility. Except for #4, all of these conveyances appear to be tight-lined. The #4 drain system appears to be part of the original trench drain system, part of which may have been tight-lined and is covered over by the concrete slab flooring. It should be noted that this trench should not have been significantly impacted by PCE because PCE using machines, the still or PCE storage were not located along this line.

The outdoor catch basin captures water from a curtain drain that surrounds an adjacent concrete pad, a roof downspout, two small catch basins in the parking lot next to the store front, and the parking lot itself.

Methods

Envirotech utilized a vactor truck and pressure wash system to conduct the work. The work consisted of vactoring out sludge in the catch basins/sumps/drain lines described above, followed by pressure washing. All wash water generated was also vactored. Photographs taken during the cleaning effort are included as **Attachment A**.

The sumps, cooling water vault, and catch basin were fully cleaned of sludge, soil, and debris. Drain lines on the west side of the facility and the tight-lined drain that extends from the floor drain next to the washers (east side) to the sump were fully pressure washed. At the outdoor catch basin, the upgradient line was cleaned, but the downgradient line encountered an obstruction. The partially open trench drain that extends from the boiler room and washers on the north/central side of the facility was cleaned to the extent practicable. The pressure washer was not able to extend through the portion of the drain line that is covered over by the



Mr. Steve Ritt
September 6, 2007
Page 3

floor slab. Also, the steel plates could not be removed over a portion of the trench drain where the spray booth is located.

The sludge, water, and wash water was disposed of as hazardous waste. A total of 1,928 gallons of sludge and water were generated during this effort. A copy of waste manifest is attached.

Sampling

The volatile organic compound concentrations in the initial water samples collected were not particularly high, containing up to 13 micrograms per liter ($\mu\text{g/L}$) PCE and 14 $\mu\text{g/L}$ vinyl chloride. The initial sample locations were sampled again about a week after the cleaning occurred. The two inside samples contained similarly fairly low concentrations of PCE but the PCE concentration in the outdoor catch basin was an order of magnitude higher. A third sampling conducted in June, showed an undetectable concentration of PCE in the main indoor sump. However, water sampled from the catch basin contained 1,400 $\mu\text{g/L}$ cis-1,2-dichloroethene, indicating that chlorinated solvents were continuing to leach from the catch basin. Table 1 presents the water data from these three sampling rounds and the sample locations are shown on Figure 1. The analytical reports were included in prior groundwater monitoring reports and are therefore not included here.

To remove any further concerns that residual PCE and/or its degradation products may be entrained within the catch basin, all parties involved have decided that the best course of action is to remove the catch basin entirely and replace it. The catch basin removal is scheduled for August 2007.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Pamela J. Morrill'.

Pamela J. Morrill, CHMM, LHG
Project Manager
Camp Dresser & McKee Inc.

Attachments

cc: Ms. Jo Flannery, Ryan, Swanson & Cleveland, PLLC
Mr. Dale Myers, Department of Ecology



Table

Table 1
Sump and Catch Basin Water Analytical Summary

LeatherCare, Inc.
 Seattle, Washington

Sample Location	Sample ID	Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride
			µg/L					
CB1	CB1	2/13/2007	13	<0.2	<0.2	<0.2	<0.2	<0.2
	CB1a	3/22/2007	7.1	<0.2	<0.2	<0.2	<0.2	<0.2
CB2	CB1	2/13/2007	8.1	6.9	52	0.6	<0.2	14
	CB2a	3/22/2007	14	7.4	3.8	<0.2	<0.2	<0.2
	Sump	6/20/2007	<1.0	<1.0	1.4	<1.0	<1.0	<1.0
CB4		2/13/2007	NS	NS	NS	NS	NS	NS
	CB4a	3/22/2007	290	20	27	<2.0	<2.0	<2.0
	Drain	6/20/2007	10	15	1,400	8.2	2.0	10

Notes:

February 13, 2007 data is prior to sump/catch basin cleaning. All other samples collected subsequent to sump/catch basin cleaning.

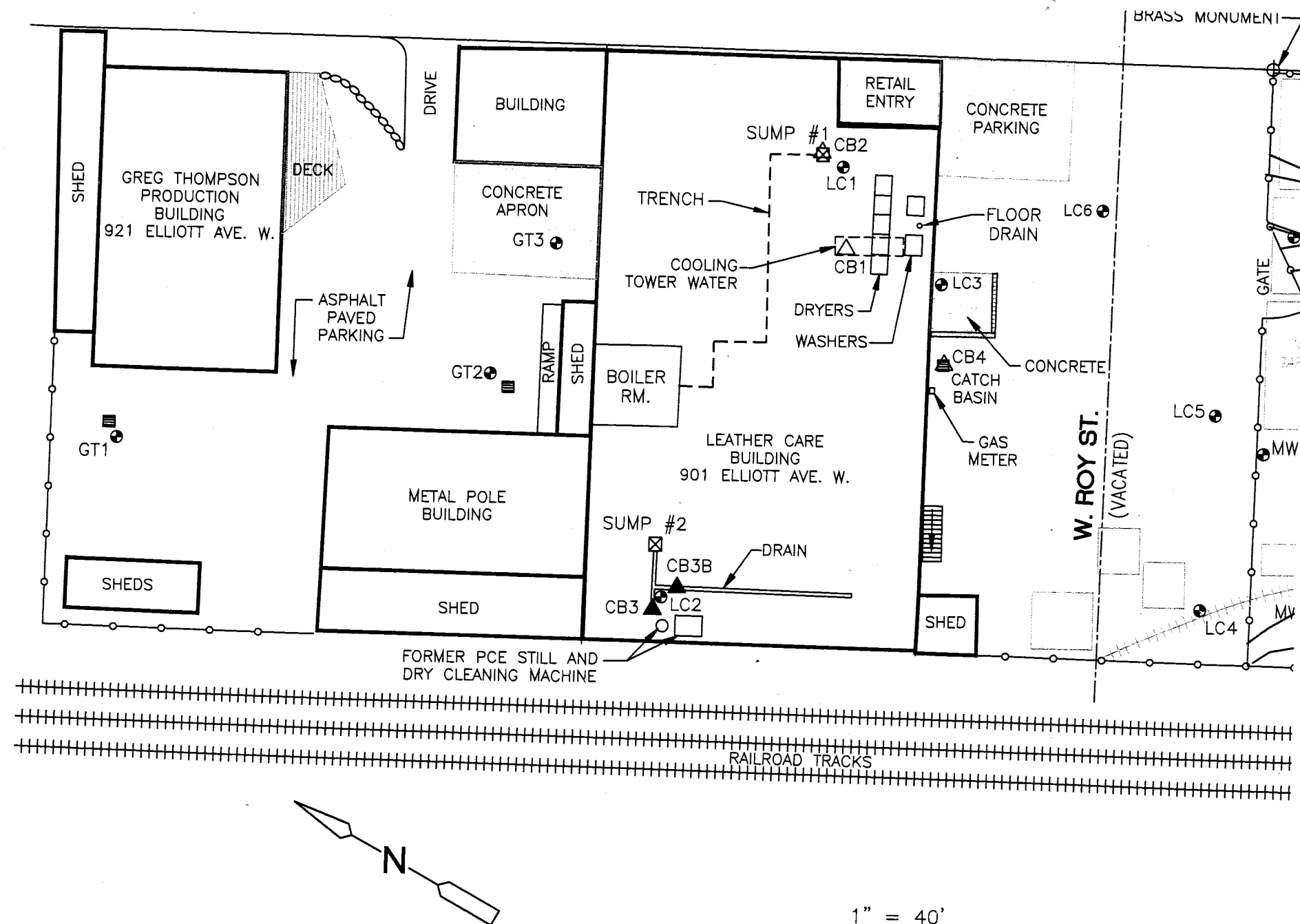
NS - not sampled, insufficient water for sampling.

< - analyte not detected at or greater than the listed concentration.

µg/L - micrograms per liter.

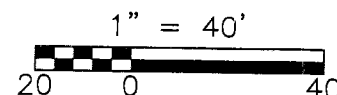


Figure



REFERENCES:

- SURVEY OF MONITORING WELL LOCATIONS BY APEX ENGINEERING ON MAY 10, 2006 USING AN ASSUMED VERTICAL DATUM AND BASIS OF BEARING.
- FIELD MEASUREMENTS OF LEATHERCARE AND GREG THOMPSON PRODUCTION BUILDINGS BY CDM ON MAY 10, 2006.
- ENTRIX, WEST FARM FOODS FIELD INVESTIGATION DATA SUMMARY REPORT, MAY 10, 2001, FIGURE 2.
- ENTRIX ENVIRONMENTAL DATA SUMMARY FROM PREVIOUS STUDIES AND REPORTS, WEST FARM FOODS SITE, MAY 10, 2001, FIGURE-3.
- HISTORICAL AERIAL PHOTOGRAPHS DATED 1936 AND 1946.
- SANBORN MAP DATED 1950.
- POLK DIRECTORIES DATED 1938-1996



LEGEND:

- MW1 ● MONITORING WELL LOCATION AND DESIGNATION AND ELEVATION IN FEET
- FENCE
- ++++ RAILROAD TRACKS
- CB4 △ SUMP/TRENCH/CATCH BASIN SAMPLE LOCATION AND DESIGNATION, SLUDGE AND/OR WATER
- CB3 ▲ SUMP/TRENCH/CATCH BASIN SAMPLE LOCATION AND DESIGNATION, SLUDGE ONLY
- CATCH BASIN
- INDICATES HISTORICAL FEATURES

RYAN SWANSON & CLEVELAND PLLC
LEATHERCARE
SEATTLE, WASHINGTON

Figure No. 1
SUMP/TRENCH/CATCH BASIN
SAMPLE LOCATION MAP



Attachment A
Field Photographs

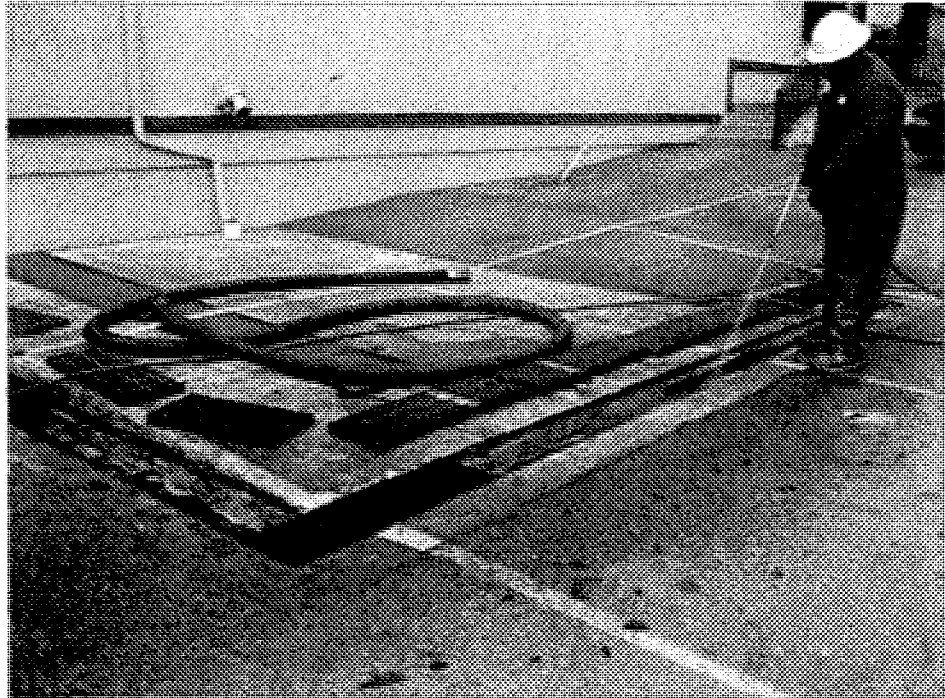
FIELD PHOTOGRAPHY LOG SHEET
Sump/Trench/Catch Basin Cleaning
LeatherCare, Inc.
Seattle, Washington

February 2, 2007

Photograph No. A1

Photographed By:
Pam Morrill

Description: Pressure
washing outside trench to
catch basin.



February 2, 2007

Photograph No. A2

Photographed By:
Pam Morrill

Description: Vactoring
outside catch basin.



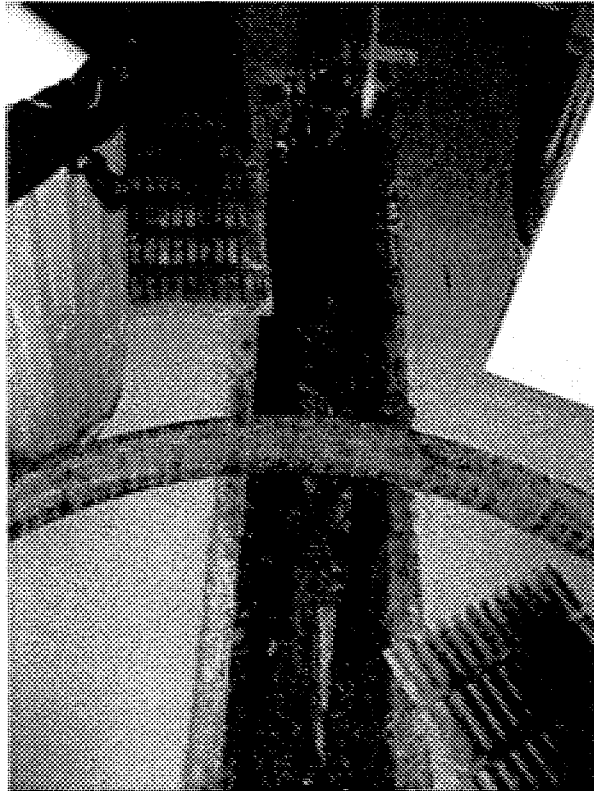
FIELD PHOTOGRAPHY LOG SHEET
Sump/Trench/Catch Basin Cleaning
LeatherCare, Inc.
Seattle, Washington

February 2, 2007

Photograph No. A3

Photographed By:
Pam Morrill

Description: Trench drain at west
end of building before cleaning.



February 2, 2007

Photograph No. A4

Photographed By:
Pam Morrill

Description: Same trench drain at
west end of building after cleaning.



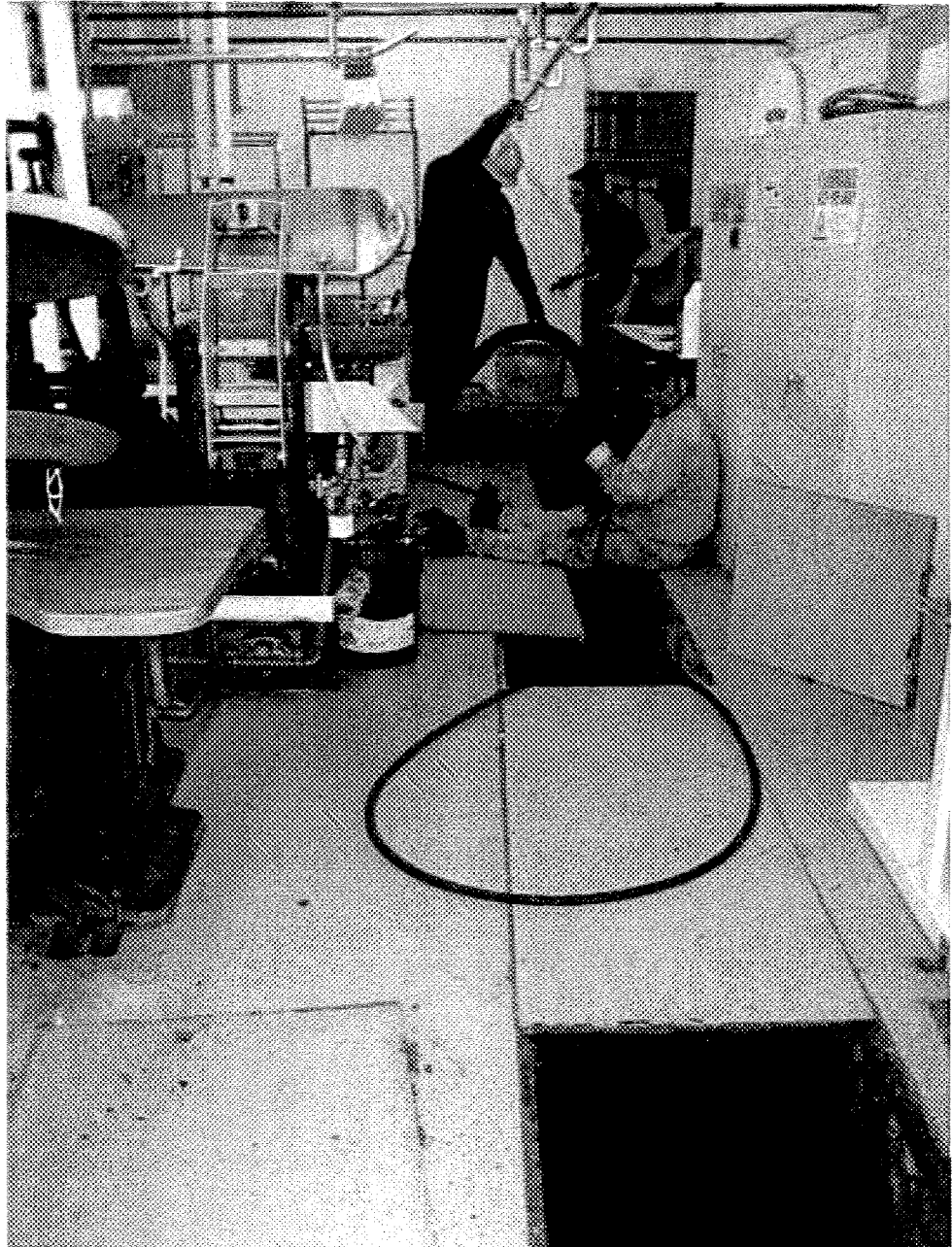
FIELD PHOTOGRAPHY LOG SHEET
Sump/Trench/Catch Basin Cleaning
LeatherCare, Inc.
Seattle, Washington

February 2, 2007

Photograph No. A5

Photographed By:
Pam Morrill

Description: Cleaning the
trench that extends from
the boiler room to the
sump at the east side of the
building.



FIELD PHOTOGRAPHY LOG SHEET
Sump/Trench/Catch Basin Cleaning
LeatherCare, Inc.
Seattle, Washington

February 2, 2007

Photograph No. A6

Photographed By:
Pam Morrill

Description: Cleaning the
vault that contains the
cooling tower water.

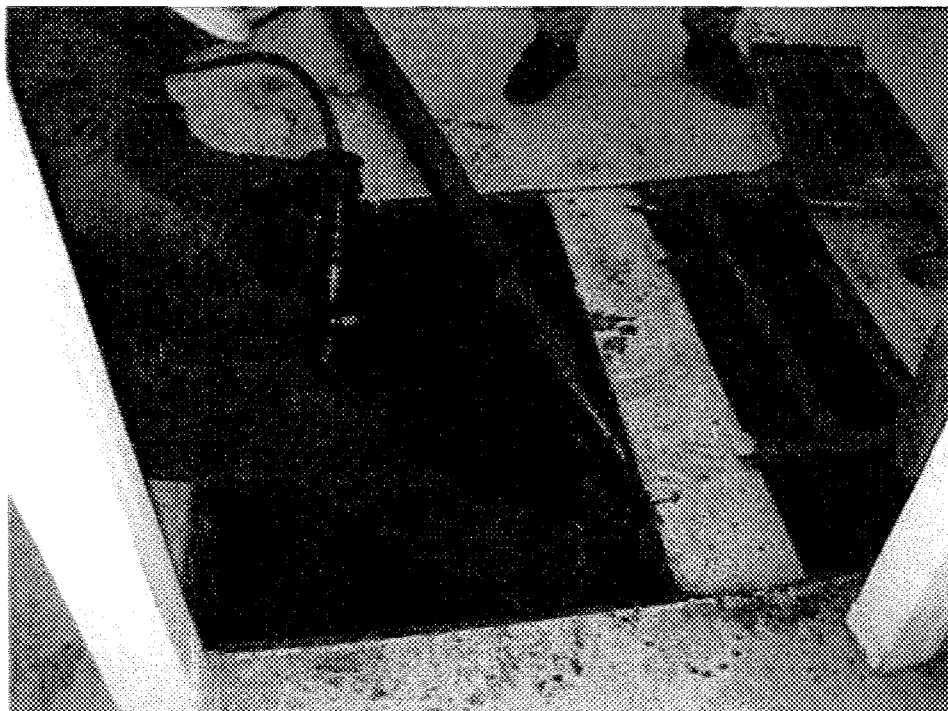


February 2, 2007

Photograph No. A7

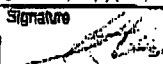
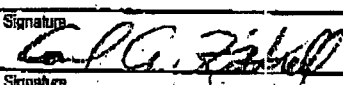
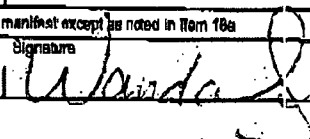
Photographed By:
Pam Morrill

Description: Cleaning the
sump at the east side of the
building.





**Attachment B
Waste Manifest**

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number WA D 9 3 0 9 S 3 6 2 1	2. Page 1 of 1	3. Emergency Response Phone (206) 353-5000	4. Manifest Tracking Number 001323020 JJK	
5. Generator's Name and Mailing Address LEATHER CARE INC./PRESTIGE CLEANERS 901 ELLIOTT AVE W SEATTLE, WA 98119			Generator's Site Address (if different than mailing address) LEATHER CARE INC./PRESTIGE CLEANERS 901 ELLIOTT AVE W SEATTLE, WA 98119			
Generator's Phone: _____						
6. Transporter 1 Company Name EMERALD PETROLEUM SERV			U.S. EPA ID Number WA D 0 5 8 3 6 7 1 5 2			
7. Transporter 2 Company Name: _____			U.S. EPA ID Number: _____			
8. Designated Facility Name and Site Address RECYCLING 1701 ALEXANDER AVE TACOMA, WA 98421			U.S. EPA ID Number WA 0 0 2 0 2 5 7 9 4 5			
Facility's Phone: _____						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt/Vol
	No.	Type				
	1	9 NA3082 H Q F002 F003 F005 (TETRACHLOROETHYLENE, TRICHLOROETHYLENE)	1	TT	1928	G
	2					
	3					
14. Special Handling Instructions and Additional Information NO ADDITIONAL INFO						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name STEVEN KITT			Signature 		Month Day Year 3 16 07	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.			Port of entry/exit: _____ Date leaving U.S.: _____			
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Carl G. Kittrell			Signature 		Month Day Year 3 16 07	
Transporter 2 Printed/Typed Name: _____			Signature: _____		Month Day Year: _____	
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
18b. Alternate Facility (or Generator) _____ Manifest Reference Number: _____ U.S. EPA ID Number: _____						
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. _____		2. _____		3. _____		4. _____
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name Wanda Grondahl			Signature 		Month Day Year 3 19 07	

Tracy Williams

From: RBarrick@entrix.com
Sent: Wednesday, August 29, 2007 3:18 PM
To: damy461@ecy.wa.gov
Cc: Kim Johannessen; Pete Parker; Tracy Williams
Subject: DNAPL potential at Darigold VCP #NW 1267 -- boring logs
Attachments: KleinfelderDarigold 635 Elliott boring logs.pdf

Hi Dale --

Attached are boring logs for the geotechnical work that was completed by Kleinfelder. Those 14 boreholes are shown on Figure 1 as locations K-1 through K-14 attached to the letter in my previous e-mail I sent this morning. In the attached file they are labeled B-1 through B-14. They were relabeled for Figure 1 to avoid duplication of a B-xx series used by ENTRIX.

The attached are the only prepared boring logs for the deep subsurface work conducted at the Darigold property. The other drilling and push-probe work was conducted for exploratory purposes and documented by field notes and laboratory analyses of some soil intervals. Figure 1 of the letter submitted to you summarizes observations and results for chlorinated solvents from that information.

If you have any questions, please do not hesitate to call me. Best regards,

Rob

Robert C. Barrick
Senior Consultant
ENTRIX, Inc.
2701 First Avenue, Suite 500
Seattle, WA 98121

Tel: (206) 269-0104 ext 555
Direct Tel: (206) 418-1260
Direct Fax : (206) 418-1261
Cell: (206) 779-5339
rbarrick@entrix.com
www.entrix.com

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8/30/2007

2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2000REV/GDT 3/20/07

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION	
			LABORATORY			FIELD	NAME				SYMBOL			
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE						OTHER TESTS		PID (ppm)
0													GP SM	Asphalt Concrete
2													SP	Gravel Base
3														Silty Sand, dark gray, moist, medium dense, moist to wet, (Fill)
4														Poorly Graded Sand, gray, wet, loose, fine to medium, with shell fragments, subrounded grains, some gravel (Fill)
5														
6														
7														
8														
9														
10														
11														
12														
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97														
98														
99														
100														

DATE DRILLED: 1-29-07
LOGGED BY:
REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 13.0
TOTAL DEPTH (feet): 68.5
DIAMETER OF BORING (in):

DRILLING METHOD: HSA
DRILLER: Holt
CASING SIZE:



Elliott Ave. Seattle

West Farms

BORING LOG
B-1

- a
PAGE 1 of 3

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2006REV.GDT 3/30/07

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in ** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY				FIELD				NAME	SYMBOL	
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0	Flush surface monument												Gravel base
2								2	X	S-1	SP		Silty Sand with Gravel, dark brown (topsoil)
4								4	X				Sand with fine Gravel, gray, wet, loose (Fill)
5								2					
10								0	X	S-2			Becomes very loose, with some shell fragments and wood fragments.
11								1	X				
12								1					
13													
14													
15	Coarse sand filter pack							1	X	S-3	SM		Silty Sand, gray, wet, loose, fine, with 1-inch silt lens and wood fragments, and shell fragments, fine to coarse sand, fine to coarse subangular gravel (Fill)
16								3	X				
17								3					
18													
19								3	X	S-4	SP		Sand, gray, wet, loose, fine to coarse, with trace silt, gravel, shell fragments, 2-inch layer of gravel and wood at 18.8 feet bgs.
20								3					
21								5					
22													
23								4	X	S-5			
24								5					
25								7			ML		Sandy Silt, light gray, wet, stiff
26													
27													
28													
29								4	X	S-6			With 1-inch medium dense sand lenses
30								7					
31								9			CH		Clay with Silt, gray, wet, very stiff, low to

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 1-30-07
 LOGGED BY:
 REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 13.5
 TOTAL DEPTH (feet): 69.0
 DIAMETER OF BORING (in):

DRILLING METHOD: HSA
 DRILLER: Holt
 CASING SIZE:



KLEINFELDER
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
 SOILS AND MATERIALS TESTING

Elliott Ave. Seattle

BORING LOG
B-2

West Farms

- 2


PAGE 1 of 3

APPROV: BY:

PROJECT NUMBER: 78654

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
		WATER LEVEL	LABORATORY			FIELD				NAME	SYMBOL	
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE						
0												Asphalt Concrete Gravel Base
												Silty Sand with gravel, light brown, moist, medium dense (Fill) Becomes very loose with trace charcoal
2												
1												
2												
5												
4												
10												
4												
10												
10												
1												
1												
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15												
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25												
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4												
6												
10												
12												
18												
30												

DATE DRILLED: 1-31-07	SURFACE ELEVATION (feet): 20.0	DRILLING METHOD: HSA
LOGGED BY:	TOTAL DEPTH (feet): 68.0	DRILLER: Holt
REVIEWED BY: Rolf Hyllseth	DIAMETER OF BORING (in):	CASING SIZE:

 KLEINFELDER GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS SOILS AND MATERIALS TESTING PROJECT NUMBER: 78654	Elliott Ave. Seattle BORING LOG B-3	West Farms - a PAGE 1 of 3
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2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2000REV.GOT 3/30/07

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY				FIELD				NAME	SYMBOL	
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0	Flush Surface Monument												Asphalt Concrete Gravel Base
1													Silty Sand with gravel, organics, dark brown, moist, loose (topsoil)
2													Gravel and cobbles, gray, moist, loose, coarse, rounded
3													Sand with Silt, gray, wet, loose, fine to coarse, with shell fragments
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15	Coarse sand filter pack												
16													
17													
18													
19													
20													
21													
22													
23													
24													
25	Bentonite to bottom of boring.												
26													
27													
28													
29													
30													

DATE DRILLED: 2-1-07

LOGGED BY:

REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 14.5


TOTAL DEPTH (feet): 63.0

DIAMETER OF BORING (in):

DRILLING METHOD: HSA

DRILLER: Holt

CASING SIZE:



KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

Elliott Ave. Seattle

BORING LOG

B-4

West Farms

- a

PAGE 1 of 3

PROJECT NUMBER: 78654

2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2000REV/GDT 3/30/07

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.


DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY				FIELD				NAME	SYMBOL	
			MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0											SP	Asphalt Concrete Gravel Base	
												Sand, light brown, moist, medium dense, fine to medium, with gravel	
												Becomes loose with 2-inch silt lens	
5							2	X	S-1		SM	Silty Sand, dark gray, wet, medium dense, fine to medium, with shell fragments, slight petroleum sheen	
							4	X					
							6	X					
10							0	X	S-2			Becomes very loose with some wood fragments	
							1	X					
							1	X					
15							0	X	S-3			Becomes fine, wood fragments decrease	
							2	X					
							2	X					
20							2	X	S-4		SP-SM	Sand with Silt, gray, wet, very loose, fine to medium, with shell fragments	
							1	X					
							3	X			CH	Clay, gray, wet, stiff, with 2-inch silty sand layer, pocket pen: 2.0 tsf, moderately plastic	
25							3	X	S-5				
							4	X					
							7	X					
30							4	X	S-6			with some sand, low recovery	
							6	X					
							9	X					

+ 4.5

DATE DRILLED: 2-2-07
 LOGGED BY:
 REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 16.5
 TOTAL DEPTH (feet): 58.5
 DIAMETER OF BORING (in):

DRILLING METHOD: HSA
 DRILLER: Holt
 CASING SIZE:


KLEINFELDER
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
 SOILS AND MATERIALS TESTING

Elliott Ave. Seattle

BORING LOG
B-5

West Farms

 - a

 PAGE 1 of 3

PROJECT NUMBER: 78654

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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BY:

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	TESTING PROGRAM						BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
		LABORATORY					FIELD				NAME	SYMBOL	
		WATER LEVEL	MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0											SP	Asphalt Concrete	
											SM	Sand with Gravel, light gray-brown, moist, loose, fine to medium, trace silt	
5								5	X	S-1		Silty Sand, gray-brown, wet, loose, fine to medium, with shell fragments	
								8	X				
								6	X				
10								3	X	S-2	GP	Sandy Gravel, gray, wet, loose, fine, medium to coarse sand, with shell fragments,	
								5	X				
								3	X				
15								3	X	S-3	SM	Silty Sand, gray, wet, medium dense, fine, with occasional gravel	
								3	X				
								8	X				
20								4	X	S-4		with shell fragments	
								5	X				
								6	X				
24								3	X	S-5		with 2-inch silt lens	
								10	X				
								12	X				

Boring completed at 25 feet bgs on 3/19/07.
Boring was abandoned with bentonite and surface concrete plug.

DATE DRILLED: 3-19-07
LOGGED BY:
REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 14.0
TOTAL DEPTH (feet): 24.0
DIAMETER OF BORING (in):

DRILLING METHOD: Holt
DRILLER: Holt
CASING SIZE:



GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 78654

Elliott Ave. Seattle

BORING LOG
B-7

West Farms

PAGE 1 of 1

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APPROV: BY:

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY				FIELD					NAME	SYMBOL	
			MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS							
0												GP	Asphalt Concrete	
												SP	Sandy Gravel, gray, moist, loose, fine to coarse, trace silt	
5								7	X	S-1			Sand with gravel lens, light gray, wet, loose, fine to medium	
								4	X					
								3	X					
10								2	X	S-2				
								2	X					
								2	X					
15								1	X	S-3	SM		Silty Sand, dark gray, wet, loose, fine, with gravel and shell fragments	
								3	X					
								6	X					
20								4	X	S-4			grades to medium dense, no gravel	
								5	X					
								7	X					
24								10	X	S-5			Becomes very dense	
								23	X					
								31						

+ 12.3

Boring completed at 25 feet bgs on 3/19/07.
Boring was abandoned with bentonite and surface concrete plug.

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____
BY: _____

DATE DRILLED: 3-19-07
LOGGED BY:
REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 14.3
TOTAL DEPTH (feet): 24.0
DIAMETER OF BORING (in):

DRILLING METHOD: Holt
DRILLER: Holt
CASING SIZE:



GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 78654

Elliott Ave. Seattle

BORING LOG

B-8

West Farms

PAGE 1 of 1

K98

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY		FIELD							NAME	SYMBOL	
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE	OTHER TESTS							
0												SP	Asphalt Concrete Gravelly Sand, gray, moist, loose, fine to medium, fine subrounded gravel Becomes light gray-brown, wet, with coarse gravel	
7										S-1				
3														
1														
2										S-2			Becomes very loose, with shells, gravel decreases	
1														
1														
2										S-3			Silty Sand with Gravel, light brown, wet, loose, fine sand, coarse rounded gravel	
4														
2														
3										S-4			Becomes gray, gravel decreases	
4														
2														
6										S-5			Becomes medium dense	
7														
9														
2										S-6			Silty Clay with Sand, gray, wet, medium stiff, moderate plasticity	
2														
2														

+ 7' el

DATE DRILLED: 3-21-07
LOGGED BY:
REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 15.0
TOTAL DEPTH (feet): 80.0
DIAMETER OF BORING (in):

DRILLING METHOD: Holt
DRILLER: Holt
CASING SIZE:

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

Elliott Ave. Seattle

BORING LOG

B-9

West Farms

- 2

PAGE 1 of 3

PROJECT NUMBER: 78654

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THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					PID (ppm)	BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY			FIELD	NAME					SYMBOL		
			MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE							OTHER TESTS	
0	Flush Surface Monument											GP-GM	Asphalt Concrete	
													Sandy Gravel with Silt, light gray, moist, medium dense, fine to coarse	
5												SP	Concrete rubble noted from 4.5' to 5.5' based on rig vibrations and auger returns	
													Sand, light gray, moist, loose, fine to medium, trace silt, slight petroleum sheen	
10													Becomes wet at 10 feet bgs	
													Grades to very loose	
15	Coarse sand filter pack											SM	Silty Sand, gray, wet, very loose, fine grained with shell fragments	
20														
25													Grades to loose	

Boring completed at 25 feet bgs on 3/20/07. 2-inch piezometer placed in hole from 0 to 25 feet. Slotted pipe from 15 feet to 25 feet, solid pipe from 0 to 15 feet. Bentonite seal from 0 to 14 feet. Coarse sand from 14 to 25 feet. Flush surface monument.

DATE DRILLED: 3-19-07
 LOGGED BY:
 REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 20.5
 TOTAL DEPTH (feet): 25.0
 DIAMETER OF BORING (in):

DRILLING METHOD: HSA
 DRILLER: Holt
 CASING SIZE:



KLEINFELDER
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
 SOILS AND MATERIALS TESTING

PROJECT NUMBER: 78654

Elliott Ave. Seattle

BORING LOG
B-10D

West Farms

PAGE 1 of 1

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APPROV: BY:


2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2000REV.GDT 3/0007

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY			FIELD	NAME				SYMBOL		
			MOISTURE CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	% PASSING No. 200 SIEVE						OTHER TESTS	
0											GP	ML	Asphalt Concrete Gravel Base Sandy Silt, gray, moist, soft, fine to medium sand, seams of white silty sand
5								1	X	S-1			
6								1	X				
7								2	X				
											SW		Well Graded Sand, gray, wet, loose, fine to coarse, some fine gravel
10								3	X	S-2			
								4	X				
								5	X				
											SM		Poorly Graded Sand, gray, wet, very loose, fine to medium, with shell fragments
15								2	X	S-3			
								1	X				
								1	X				
20								1	X	S-4			with 6-inch sand with silt layer, wood fragments
								2	X				
								6	X				
25											CL		Silty Clay with Sand, dark gray, wet, soft, moderate plasticity
								2	X	S-5			
								2	X				
								3	X				
30								7	X	S-6			Becomes stiff, no recovery, clay on sampler
								5	X				

DATE DRILLED: 3-21-07
LOGGED BY:
REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 18.5
TOTAL DEPTH (feet): 84.0
DIAMETER OF BORING (in):

DRILLING METHOD: Holt
DRILLER: Holt
CASING SIZE:

 KLEINFELDER GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS SOILS AND MATERIALS TESTING	Elliott Ave. Seattle	West Farms
	BORING LOG	- a
	B-11	PAGE 1 of 3

PROJECT NUMBER: 78654

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____ BY: _____

2002 STAN. INPUT/ALL OUTPUT 78654 GINT.GPJ 2000REV/GDT 3/30/07

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY		FIELD						NAME	SYMBOL	
			MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0													GP-GM Asphalt Concrete Gravel Base Sandy Gravel with Silt, gray, moist, loose, fine Becomes coarse, subrounded SP-SM Sand with Silt, light gray, wet, very loose, fine to medium
1								1	X	S-1			
2								2	X				
3								1					
5													
10								0	X	S-2			SM Silty Sand, gray, wet, very loose, fine to medium, with fine subrounded gravel
11								0	X				
12								1					
15								2	X	S-3			Becomes dark gray, fine, no gravel, with very slight petroleum sheen
16								1	X				
17								0					
20								2	X	S-4			Becomes loose
21								2	X				
22								3					
25								3	X	S-5			CL Clay with Sand, dark gray, wet, very soft, moderate plasticity, with occasional fine gravel
26								0	X				
27								1					
30								8	X	S-6			CH Clay with silt, dark gray, wet, very stiff, high plasticity, with trace sand
31								8	X				

DATE DRILLED: 3-22-07
 LOGGED BY:
 REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 14.0
 TOTAL DEPTH (feet): 65.0
 DIAMETER OF BORING (in):

DRILLING METHOD: Holt
 DRILLER: Holt
 CASING SIZE:



KLEINFELDER
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
 SOILS AND MATERIALS TESTING

PROJECT NUMBER: 78654

Elliott Ave. Seattle

BORING LOG
B-12

West Farms

- a

PAGE 1 of 3

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____
 BY: _____

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
		LABORATORY			FIELD	NAME				SYMBOL		
		MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE						OTHER TESTS	
0										SM		Asphalt Concrete Gravel Base
4							4	X	S-1	SP		Silty Sand, dark gray, moist, loose, fine to medium
7							7	X				
4							4	X				
5												
10							1	X	S-2			Becomes very loose, fine to medium, with shell fragments
11							1	X				
13							3	X				
15							1	X	S-3	SM		Silty Sand, dark gray, wet, loose, fine, with peat laminations, occasional fine subrounded gravel
16							1	X				
17							4	X				
20							1	X	S-4	SP-SM		Sand with Silt, gray, wet, loose, fine, with shell fragments, occasional gravel
21							2	X				
22							4	X				
25							2	X	S-5	CL		Clay with Sand, dark gray, wet, medium stiff, moderate plasticity, with shell fragments
26							4	X				
27							5	X				
30							5	X	S-6	CH		Clay with silt, dark gray, wet, very stiff, high plasticity, with traces sand and shell fragments
31							7	X				
32							11	X				

DATE DRILLED: 3-20-07
 LOGGED BY:
 REVIEWED BY: Rolf Hyllseth

SURFACE ELEVATION (feet): 14.2
 TOTAL DEPTH (feet): 63.0
 DIAMETER OF BORING (in):

DRILLING METHOD: Holt
 DRILLER: Holt
 CASING SIZE:

KLEINFELDER
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
 SOILS AND MATERIALS TESTING

Elliott Ave. Seattle

BORING LOG
 B-13

West Farms
 - a
 PAGE 1 of 3

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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BY: _____

DEPTH (feet)	WELL/PIEZO CONSTRUCTION	WATER LEVEL	TESTING PROGRAM					BLOWS/6 in** (uncorrected)	SAMPLER *	SAMPLE NUMBER	U.S.C.S.		SOIL DESCRIPTION
			LABORATORY				FIELD				NAME	SYMBOL	
			MOISTURE CONTENT(%)	PLASTIC LIMIT(%)	LIQUID LIMIT(%)	% PASSING No. 200 SIEVE	OTHER TESTS						
0											GP		Asphalt Concrete
											SM		Sandy Gravel Base
													Asphalt Concrete, earlier layer
													Silty Sand with Gravel, gray, moist, very loose, fine to medium sand, fine gravel
5							1	X	S-1				
							2	X					
							1	X					
											SP		Sand with Gravel, light gray-brown, moist, very loose, fine to medium, fine gravel
10							4	X	S-2				
							5	X					Becomes wet at 9 feet bgs
							6	X					
15							0	X	S-3				
							1	X					
							1	X					
20							0	X	S-4		SM		Silty Sand, dark gray, wet, very loose, fine to medium sand, with brown peat, shells, occasional fine gravel
							0	X					
							2	X					
25							2	X	S-5				Becomes loose, fine, with brown peat laminations with 3-inch, gray, medium-stiff clay layer
							3	X					
							4	X					
30							1	X	S-6		CH		Clay with silt, gray, wet, medium stiff, high plasticity
							1	X					

DATE DRILLED: 3-23-07

SURFACE ELEVATION (feet): 20.3

DRILLING METHOD: Hott

LOGGED BY:

TOTAL DEPTH (feet): 90.0

DRILLER: Hott

REVIEWED BY: Rolf Hyllseth

DIAMETER OF BORING (in):

CASING SIZE:



KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 78654

Elliott Ave. Seattle

BORING LOG
B-14

West Farms

- a

PAGE 1 of 4

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

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