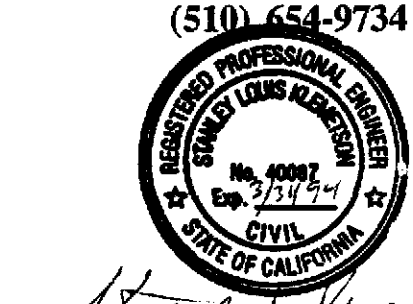
SITE INVESTIGATION

PROJECT SITE

6045 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

PREPARED FOR

MR. LEON BRECKENRIDGE
BRECKENRIDGE AUTO REPAIR
6045 SAN PABLO AVENUE
OAKLAND, CA 94608
(510) 654-9734



PREPARED BY

CERTIFIED ENVIRONMENTAL CORPORATION
536 STONE ROAD, SUITE J
BENICIA, CALIFORNIA 94510-1016
(707) 745-0171

CEC PROJECT NO. 93-370-1238

SEPTEMBER 1993

TABLE OF CONTENTS

INTRODUCTION **1**
Site Location 1
Statement of Scope of Work 1
Background 1
Site Geology 1

SITE WORK **4**
Investigation 4

DISCUSSION **8**

CONCLUSION **9**

TABLES

TABLE 1 SOIL AND WATER SAMPLES 4

TABLE 2 SOIL AND WATER SAMPLES 7

FIGURES

FIGURE 1 SITE LOCATION MAP 2

FIGURE 2 SITE AND BORING LOCATION MAP 3

FIGURE 3 WELL BORING NO. 6 6

INTRODUCTION

Site Location

Breckenridge Auto Repair, 6045 San Pablo Avenue, Oakland, California. The site location is shown on Figure 1.

Statement of Scope of Work

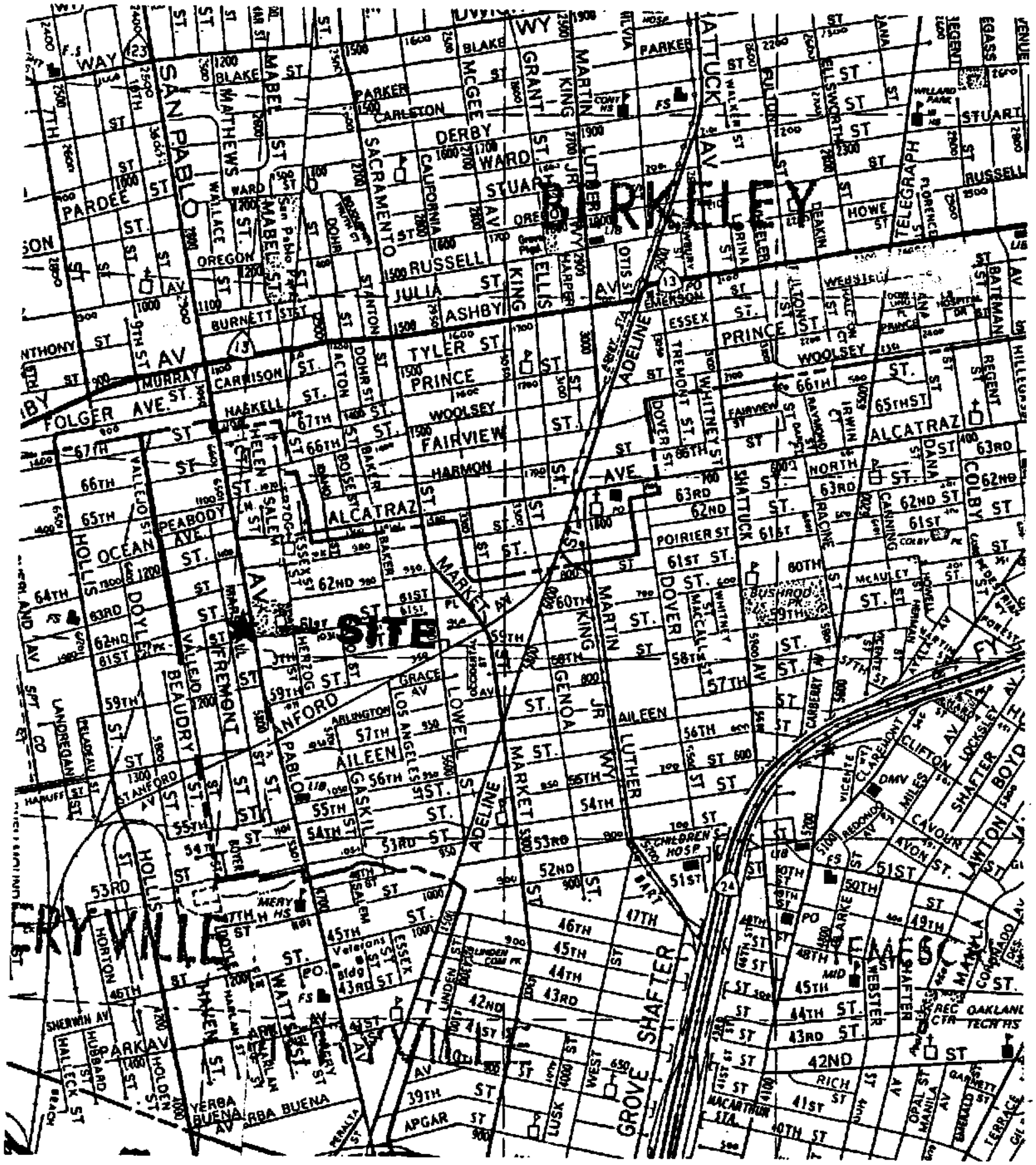
The site was characterized at the request of Mr. Leon Breckenridge for a real estate transaction. A total of 8 borings were advanced to a maximum depth of 25 feet, and 19 samples were analyzed for TPH(G) and BTEX.

Background

Approximately 20 years ago, prior to Mr. Breckenridge's purchase of the property, underground storage tanks used to store fuel were removed from the site. Since that time, the site has operated as a auto repair business. In 1992, an abandoned waste oil tank was removed, and site closure was obtained for that tank. There have been no known petroleum product release during the past 20 years. The site layout is shown on Figure 2.

Site Geology

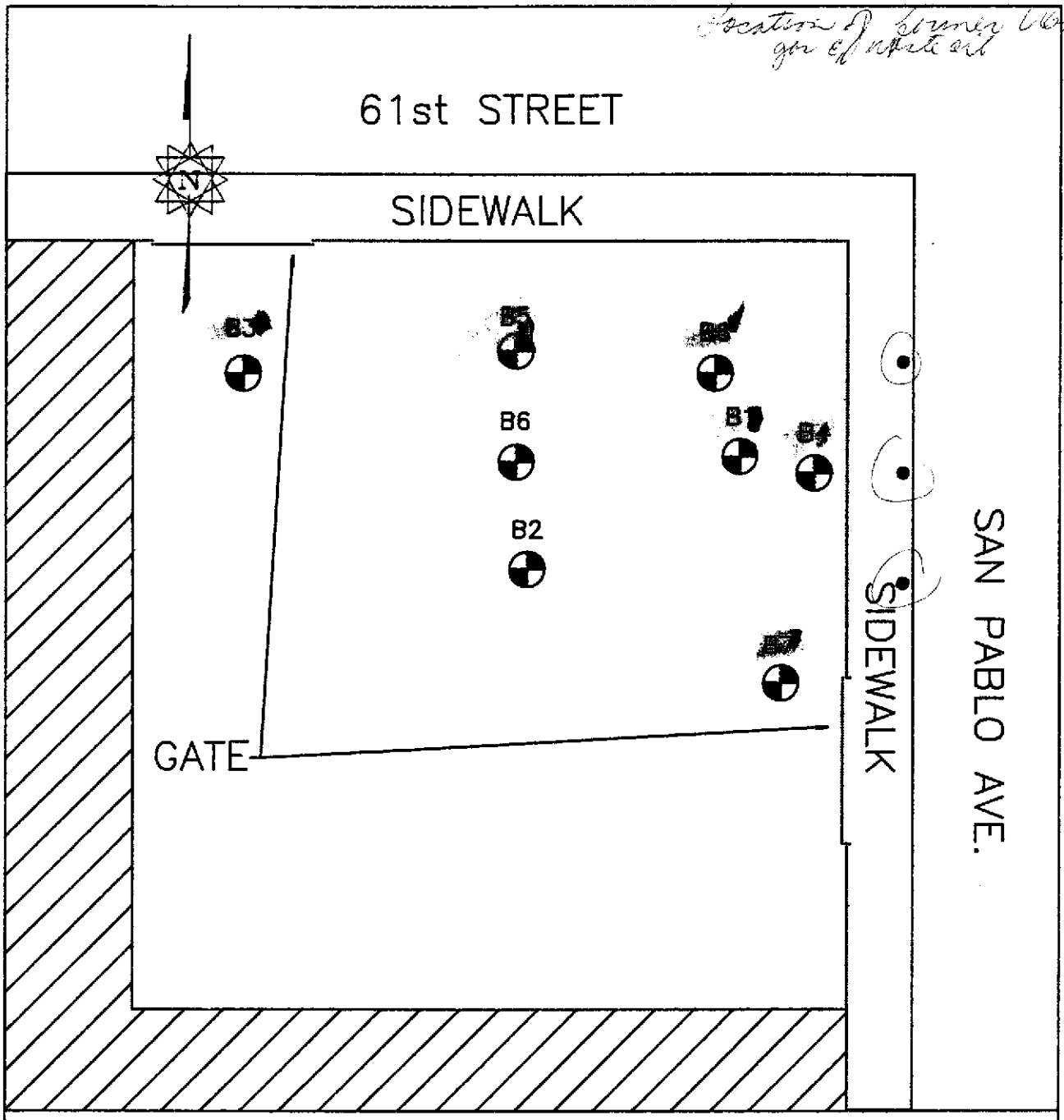
The site is underlain by Interfluvial basin deposits and Fluvial deposits from the Holocene Epoch. A typical soil profile shows that each of these deposits usually form layers less than 15 feet thick. In general, they range from unconsolidated, plastic, moderately to poorly sorted silt and clay that is rich in organic material to unconsolidated moderately sorted fine sand, silt, and clayey silt, with occasional thin beds of coarse sand. The water bearing properties of the soil is low to moderately permeability, yielding a small quantity of groundwater to wells.
Below these deposits is older alluvium, consisting of layers of poorly consolidated to unconsolidated clay, silt, sand and gravel. This layer is permeable, but the water yielding ability varies from large to small amounts of groundwater being yielded to wells. This unit can be as much as 1100 feet thick.



CERTIFIED

FIGURE 1

SITE LOCATION MAP



BRECKENRIDGE AUTO
SITE AND BORING LOCATION MAP
6045 SAN PABLO AVE., EMERYVILLE

CERTIFIED ENVIRONMENTAL CONSULTING
356 STONE ROAD, SUITE J, BENICIA, CA 94510
(707) 745-0171 / (800) 228-0171 / (707) 745-0163 FAX

BUILDING
FENCE
ABANDONED FILL PORT
B1 BORING LOCATION
0' 5' 10' 20'

FIGURE 2

SITE WORK

Investigation

On July 12, 1993, CEC advanced 3 borings as a Preliminary Site Investigation. The first two holes were advanced to a depth of approximately 15 feet below ground (bg), and the Modified California Split Spoon sampler was driven past the augers an additional 18-24" into undisturbed soil. The third hole went to 25' bg to find groundwater. Soil samples were obtained from borings at 5, 10, 15, and 20' bg, although not all samples were analyzed. Samples were chosen for analysis based on visual and olfactory evidence of contamination. The first and third holes were also sampled for groundwater. The soil did not yield water through the hydropunch screen, so the water samples were obtained from inside the augers. Groundwater was encountered in boring 1 at 17' bg, and at 25' bg in Boring 3. Boring 1 appeared to be in a fill area, and Boring 3 was in a native clay layer. The location of the borings are shown on Figure 2. Samples were analyzed for TPH(G), TPH(D), BTEX, and TTLC extraction for lead. The results of the laboratory analysis are shown in Table 1. Copies of the laboratory reports, chain of custodies, and the drilling permit are found in Appendix A. Appendices B and C contain CEC's procedures for sampling soil and groundwater in boreholes.

TABLE 1

SOIL SAMPLES

Boring/ Depth	TPH(G) ppm	TPH(D) ppm	Benzene ppm	Toluene ppm	Ethyl Benzene ppm	Xylene ppm
1 @ 5'	240	24	0.80	1.3	4.8	1.0
2 @ 5'	64	11	ND	0.16	0.11	ND
2 @ 10'	ND	ND	ND	ND	ND	ND
3 @ 20'	ND	ND	ND	ND	ND	ND

ND = NON DETECT

LOCATION	LEAD TTLC (ppm)
1 @ 5'	6.8
2 @ 5'	6.4
2 @ 10'	4.0
3 @ 20'	5.5

WATER SAMPLES
(Through a Hollow Stem Auger)

Boring/ Depth	TPH(G) ppb	TPH(D) ppb	Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Xylene ppb
1 Water	6600	45000	150	22	91	35
3 Water	ND	ND	ND	ND	ND	ND

ND = NON DETECT

LOCATION	LEAD TTLC (mg/L)
1 WATER	0.18
3 WATER	0.22

The laboratory reports for these samples indicate that the contamination is extremely weathered, probably due to effect of twenty years of natural bioremediation.

A second day of investigation was scheduled to further define the contamination, and on August 17, 1993 CEC advanced 5 additional borings at the site. As was done during the previous site work, soil samples were obtained every 5 feet and water samples were obtained from two borings. One of the borings was advanced as a continuous core to assess the site geology. A profile of this boring is shown in Figure 3. The soil did not yield groundwater during two attempts to obtain groundwater samples using hydropunch tips and screens, so both water samples were again obtained from inside the augers.

Selected soil samples were submitted for analysis for TPH(G) and BTEX. TPH(D) was not analyzed for because the site was a former gas station, and there is no evidence of any UST's containing diesel on site. The intent was to determine if the contamination existed in contact with groundwater. In addition, one of the three abandoned fill ports in the sidewalk on San Pablo Avenue was sampled at a depth of 6.5'. Table 2 contains these laboratory results.

CERTIFIED ENVIRONMENTAL CORPORATION

WELL/BORING NO. 6

PROJECT BRECKENRIDGE AUTO
PROJECT NO. 370-1170
LOCATION 6045 SAN PABLO AVE. EMERYVILLE
DATE/TIME DRILLED 8/17/93
SCREEN TYPE N/A INTERVAL N/A
FILTER PACK TYPE N/A INTERVAL N/A
SURFACE SEAL TYPE N/A INTERVAL N/A

LOGGED BY JAMES H. ROBBINS
DRILLING METHOD CONTINUOUS CORE
SAMPLING METHOD CAL. SPLIT SPOON
DRILLING CO./FOREMAN WEST HAZMAT/GENE
CASING DIA. N/A SLOT SIZE N/A
INITIAL WATER LEVEL 18' FINAL WATER LEVEL N/A
BOREHOLE DIA. 8" TOTAL DEPTH 18'

DESCRIPTION	USCS	GRAPHIC LOG	SAMPLE	BLOWS/6"
HIGH PLASTICITY, VERY STIFF ORGANIC RICH SILTY CLAY, MOIST, VERY DARK BROWN (10YR 2/2)	OH	0		
LOW PLASTICITY SILTY CLAY WITH 5-10% SAND AND GRAVEL; MOIST, VERY STIFF, PETROLEUM ODOR, GRAY (10YR 5/1)	CL			15 25 40
DENSE, MOIST CLAYEY SAND WITH GRAVEL, PETROLEUM ODOR, DARK GRAY (10YR 5/1)	SC	5	B6@5'	20 35 50
MOIST, HARD HIGHLY PLASTIC SILTY CLAY, PETROLEUM ODOR, DARK GRAY (10YR 4/1)	CL			30 22 25
MOIST, DENSE, CLAYEY SAND WITH GRAVEL, PETROLEUM ODOR, GRAY (10YR 5/1) MOTTLED WITH RED, YELLOW, AND BROWN	SC	10	B6@10'	24 40 12 18 25
MOIST, VERY STIFF SANDY CLAY WITH GRAVEL, NO PETROLEUM ODOR, YELLOWISH BROWN	CL			15 17 22
MOIST, VERY STIFF LEAN CLAY, LOW PLASTICITY, NO PETROLEUM ODOR, BROWNISH YELLOW (10YR 6/6)	CL	15	B6@15'	15 18 25 17 30 30
MOIST, DENSE CLAYEY SAND, NO PETROLEUM ODOR, BROWNISH YELLOW (10YR 6/6) SATURATED AT 18'				18 35 35
			B6 WATER	
		20		
		25		

FIGURE 3

TABLE 2

SOIL SAMPLES

Boring/ Depth	TPH(G) ppm	Benzene ppm	Toluene ppm	Ethyl Benzene ppm	Xylene ppm
4 @ 11'	220	ND < 0.2	0.84	1.9	3.0
4 @ 16'	1.0	ND	ND	ND	0.006
5 @ 10'	200	ND < 0.1	0.65	ND < 0.1	ND < 0.1
5 @ 15'	ND	ND	ND	ND	ND
6 @ 10'	9.5	ND < 0.01	0.29	0.34	ND < 0.01
6 @ 15'	ND	ND	ND	ND	ND
7 @ 10'	220	ND < 0.1	1.0	2.8	0.59
8 @ 5'	6.4	ND	0.011	0.043	0.011
8 @ 10'	[illegible]	ND < 0.3	0.24	0.16	ND < 0.03
Fill 2	1.4	ND	0.008	ND	0.025

ND = NON DETECT

WATER SAMPLES
(Through a Hollow Stem Auger)

Boring/ Depth	TPH(G) ppb	Benzene ppb	Toluene ppb	Ethyl Benzene ppb	Xylene ppb
4 Water	670	7.6	2.5	6.2	32
6 Water	490	5.5	20	6.4	34

DISCUSSION

An unknown number of UST's were removed approximately 20 years ago from this site. From that time to the present, the site has operated as a car repair facility, without any fuel being stored in an underground tank. The contamination is contained in the upper 5 to 10 feet of soil and consists of weathered gas. Benzene is non detect in all but one of the soil samples. The sample that contained Benzene had 0.80 ppm, and was at a depth of 5' bg. The other aromatic compounds (Toluene, Ethyl Benzene, and Xylene) are all less than 5 ppm. All samples obtained from 15' bg or deeper are 1 ppm or less for TPH(G), and non detect or at the detection limit for BTEX compounds.

The soil at this site does not yield groundwater easily. It is possible that this shallow groundwater is perched, and has been introduced through the abandoned fill ports in the sidewalk. The groundwater samples were all obtained from inside the hollow stem augers after drilling through contaminated ~~soil.~~ It is possible that the groundwater samples were contaminated leading to false positive results. It is not possible that sampling through the augers could lead to a false negative (non detect) result for groundwater. The presumed groundwater flow direction is to the west, towards the San Francisco Bay. The groundwater sample from Boring # 3 on the west side of the site was non detect for TPH(G), TPH(D), and BTEX. This indicates that groundwater has not been impacted. There are no natural or man made conduits for the contamination to follow down to groundwater. The site is surfaced with asphalt which will cap the area and prevent rainfall from aiding the migration of the contaminants. There is a clay layer from approximately 10' bg to 15' bg that we believe will act as an aquitard and prevent the existing contamination from impacting groundwater at 17' bg.

CONCLUSION

CEC believes that due to the weathered nature of the contamination and the extremely low levels of BTEX compounds, that no further remediation work is justified at this location. From the water sample obtained from Boring 3, it does not appear that groundwater is being impacted. To insure that surface runoff does not impact groundwater through the abandoned fill ports, CEC suggests that the fill ports be backfilled with grout.

CEC requests case closure for this location.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 6045 San Pablo Ave, Oakland, CA 94608

CLIENT
Name Leon Brockenridge
Address 6045 San Pablo Ave Voice 510-654-3734
City Oakland Zip 94608

APPLICANT
Name Certified Environmental Consulting, Eng, Suite 338 Fax 510-867-0915
Address 3160 Crow Canyon Rd. Voice 510-867-6522
City San Ramon Zip 94583

TYPE OF PROJECT
Well Construction
Cathodic Protection N/A
Water Supply ___
Monitoring ___
Geotechnical Investigation
General ___
Contamination X
Well Destruction ___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other N/A
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 582696

WELL PROJECTS
Drill Hole Diameter N/A in. Maximum Depth ___ ft.
Casing Diameter ___ in. Number ___
Surface Seal Depth ___ ft.

GEOTECHNICAL PROJECTS
Number of Borings 3
Hole Diameter 8 in. Maximum Depth 30 ft.

ESTIMATED STARTING DATE July 30 93
ESTIMATED COMPLETION DATE July 30 93

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Matt Bekker Date 7/23/93

FOR OFFICE USE

PERMIT NUMBER 93403
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 26 Jul 93
Wyman Hong

9191

McCAMPBELL ANALYTICAL

110 2nd AVENUE, # D7
PACHECO, CA 94553
(510) 798-1620 FAX (510) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☐ 5 DAY

REPORT TO: BILL TO: CEC - San Ramon

COMPANY: CEC - San Mateo

TELE: FAX #:

PROJECT NUMBER: SM.370.1150 PROJECT NAME: Breckenridge

PROJECT LOCATION: San Pablo Ave. Oak. SAMPLER SIGNATURE: Matt Bekler

SAMPLE ID	LOCATION	SAMPLING DATE	SAMPLING TIME	# CONTAINERS	TYPE CONTAINERS	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	MATRIX: OTHER	METHOD PRESERVED: HCL	METHOD PRESERVED: HNO_3	METHOD PRESERVED: OTHER ICE	BTEX & TPH as Gasoline (602/8020 & 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/5520 B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601/8010	EPA 602/8020	EPA 608/8080	EPA 608/8080 - PCBs Only	EPA 624/8240/8260	EPA 625/8270	CAM - 17 Metals	EPA - Priority Pollutant Metals	LEAD (7240/7421/239.2/6010)	ORGANIC LEAD	RCI	OTHER	COMMENTS
1-B	#1-10'	7/12	10:20				X						X	X	X											X				31270
2-B	#2-10'		11:20				X						X																	31271
2-C	#2-15'		11:30				X						X																	31272
3-D	#3-25'		12:55				X						X																	
W-1	#1-15'		10:45			X					X		X																	31273
W-3	#3-25'		12:35			X					X		X																	
1-A	#1-5'		10:00				X						X																	Hold
1-C	#1-15'		10:30				X						X																	
2-A	#2-5'		11:10				X						X																	
3-A	#3-5'		11:50				X						X																	
3-B	#3-10'		12:05				X						X																	
3-C	#3-15'	↓	12:15				X						X	↓	↓											↓				↓

31274

31275

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
M Bekler	7/12	3:30	Cal [signature]
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY LABORATORY:

REMARKS:
ICE/T° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE ✓
APPROPRIATE CONTAINERS ✓

VOAS	O&G	METALS
✓		✓

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 32 W. 25th Avenue, Ste. 102 San Mateo, CA 94403	Client Project ID: # SM.370.1150; Breckenridge	Date Sampled: 07/12/93
		Date Received: 07/12/93
	Client Contact: Matt Bekker	Date Extracted: 07/13/93
	Client P.O:	Date Analyzed: 07/12-07/15/93

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
31270	1-B	S	240,d	0.80	1.3	4.8	1.0	103
31271	2-B	S	64,d	ND< 0.05	0.16	0.11	ND< 0.05	102
31272	2-C	S	ND,d	ND	ND	ND	ND	98
31273	3-D	S	ND	ND	ND	ND	ND	103
31274	W-1	W	6600,c,d	150	22	91	35	115#
31275	W-3	W	ND,d	ND	ND	ND	ND	104
Detection Limit unless other-wise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak co-elutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds are significant; no recognizable pattern; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 32 W. 25th Avenue, Ste. 102 San Mateo, CA 94403	Client Project ID: # SM. 370.1150; Breckenridge	Date Sampled: 07/12/93
		Date Received: 07/12/93
	Client Contact: Matt Bekker	Date Extracted: 07/12-07/16/93
	Client P.O:	Date Analyzed: 07/12-07/16/93

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	% Recovery Surrogate
31270	1-B	S	24,d	108
31271	2-B	S	11,d	103
31272	2-C	S	ND	99
31273	3-D	S	ND	98
31274	W-1	W	45,000,d,h	110
31275	W-3	W	ND,f,d,b	81
Detection Limit unless otherwise stated; ND means Not Detected		W	50 ug/L	
		S	10 mg/kg	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; surrogate and sample peaks co-elute or surrogate peak is on elevated baseline

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) modified diesel?; light(C_L) or heavy(C_H) diesel compounds are significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel(?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

Certified Environmental Consultants 32 W. 25th Avenue, Ste. 102 San Mateo, CA 94403	Client Project ID: # SM. 370.1150; Breckenridge	Date Sampled: 07/12/93
		Date Received: 07/12/93
	Client Contact: Matt Bekker	Date Extracted: 07/14/93
	Client P.O:	Date Analyzed: 07/14/93

Lead*

EPA analytical method 239.2 or 7420+

Lab ID	Client ID	Matrix	Extraction°	Lead*
31270	1-B	S	TTLC	6.8
31271	2-B	S	TTLC	6.4
31272	2-C	S	TTLC	4.0
31273	3-D	S	TTLC	5.5
31274	W-1	W	TTLC	0.18
31275	W-3	W	TTLC	0.22
Detection Limit unless otherwise stated; ND means Not Detected		W	TTLC	0.005mg/L
		S	TTLC	4.0 mg/kg
		—	STLC,TCLP	0.20 mg/L

* soil samples are reported in mg/kg, and water samples and all STLC & TCLP extracts in mg/L

+ Lead is analysed using EPA method 7420 (AA Flame)for soils, STLC & TCLP extracts and method 239.2 (AA Furnace) for water samples

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC from CA Title 22

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR AA METALS

Date: 07/14/93 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
Total Lead	4.0	104.0	104.0	100	100	100	0.0
Total Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Chromium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Nickel	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STLC Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organic Lead	0.00	4.90	5.00	5.00	98	100	2.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

AC62503

CERTIFIED ENVIRONMENTAL CONSULTANTS, INC.
140 West Industrial Way, Benicia, CA, 94510-1016
Ofc. (707) 745-0171 (800) 447-0171 Fax. (707) 745-0163

Chain of Custody Record

Date 8/17/93 Sheet 1 of 1

Project Number:
Project Name: Brackenridge Auto
Address: 6045 San Pablo Ave Emeryville

Sampler's Name: Jim Robbins
Sampler's Signature: James H Robbins

Lab Name
Address
Phone Number

Turnaround Time: ☐ Rush ☐ 24 Hour ☐ 48 Hour ☒ 5-Day

Report to:

Sample Number	Location	Date	Time	TPH as Gasoline 8015	TPH as Diesel 8015	TPH-G and B.T.E.X 8015/8020	B.T.X.& E 8020	Oil and Grease 5520	Volatile Organics (8010)	CAM Metals (17)	Pt. Pollutant Metals (15)	Base/Neu/Acids (Organic)	Pesticides 8140/8141	Matrix (Soil/Water)	
B4@11'		8/17		X		X								S	31764
B4@16'				X										S	31765
B5@10'				X										S	31766
B5@15'				X										S	31767
B6@10'				X										S	31768
B6@15'				X										S	31769
B7@10'				X										S	31770
B8@5'				X										S	31771
B8@10'				X										S	31772
MW2 - 6½'				X										S	31773
B4 Water				X										W	31774
B6 Water				X										W	31775

Relinquished By	Date	Time	Received By	Date	Time
1 Matt Robbins	8/17/93	2:30	1	8/17/93	2:30
2			2		
3			3		
Dispatched By	Date		Received in Lab By	Date	Time

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT

PRESERVATIVE ✓ APPROPRIATE ✓ CONTAINERS

VOAS ✓ | O&G | METALS | OTHER

Total Number of Containers This Sheet:
Method of Shipment
Special Shipment / Handling or Storage Requirements:

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR AA METALS

Date: 07/14/93 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
Total Lead	4.0	104.0	104.0	100	100	100	0.0
Total Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Chromium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Nickel	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STLC Lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Organic Lead	0.00	4.90	5.00	5.00	98	100	2.0

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

AC6530

CERTIFIED ENVIRONMENTAL CONSULTING INC.
140 West Industrial Way, Benicia, CA, 94510-1016
Ofc. (707) 745-0171 (800) 447-0171 Fax. (707) 745-0163

Chain of Custody Record

Date 8/17/93 Sheet 1 of 1

Project Number:
Project Name: Breckenridge Auto
Address: 6045 San Pablo Ave Emeryville
Sampler's Name: Jim Robbins
Sampler's Signature: James H Robbins

Lab Name
Address
Phone Number

Turnaround Time: ☐ Rush ☐ 24 Hour ☐ 48 Hour ☒ 5-Day
Report to:

Sample Number	Location	Date	Time	TPH as Gasoline 8015	TPH as Diesel 8015	TPH-G and B.T.E.X 8015/8020	B.T.X.& E 8020	Oil and Grease 5520	Volatile Organics (8010)	CAM Metals (17)	Pt. Pollutant Metals (13)	Base/Neu/Acids (Organic)	Pesticides 8140/8141	Matrix (Soil/Water)	
B4@11'		8/17		X		X								S	31764
B4@16'				X		X								S	31765
B5@10'				X		X								S	31766
B5@15'				X		X								S	31767
B6@10'				X		X								S	31768
B6@15'				X		X								S	31769
B7@10'				X		X								S	31770
B8@5'				X		X								S	31771
B8@10'				X		X								S	31772
Hill 2 - 6½'				X		X								S	31773
B4 Water				X		X								W	31774
B6 Water				X		X								W	31775

Relinquished By	Date	Time	Received By	Date	Time
1. Matt Robbins	8/17/93	2:30	1.	8/17-93	2:30
2.			2.		
3.			3.		
Dispatched By	Date		Received in Lab By	Date	Time

ICE/T ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓
PRESERVATIVE ✓
APPROPRIATE CONTAINERS ✓

VOAS | O&G | METALS | OTHER

Total Number of Containers This Sheet:
Method of Shipment
Special Shipment / Handling or Storage Requirements:

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Certified Environmental Consulting 536 Stone Road, Ste. J Benicia, CA 94510-1016	Client Project ID: Breckenridge Auto, Emeryville	Date Sampled: 08/17/93
		Date Received: 08/17/93
	Client Contact: Jim Robbins	Date Extracted: 08/18/93
	Client P.O:	Date Analyzed: 08/18-08/24/93

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	Benzene	Toluene	Ethylben-zene	Xylenes	% Rec. Surrogate
31764	B4@11'	S	220,d	ND< 0.2	0.84	1.9	3.0	115#
31765	B4@16'	S	1.0,d	ND	ND	ND	0.006	107
31766	B5@10'	S	200,d	ND< 0.1	0.65	ND< 0.1	ND< 0.1	105
31767	B5@15'	S	ND	ND	ND	ND	ND	109
31768	B6@10'	S	9.5,d	ND< 0.01	0.029	0.034	ND< 0.01	100
31769	B6@15'	S	ND	ND	ND	ND	ND	105
31770	B7@10'	S	230,d	ND< 0.1	1.0	2.8	0.59	133#
31771	B8@5'	S	6.4,d	ND	0.011	0.043	0.011	102
31772	B8@10'	S	64,d	ND< 0.03	0.24	0.16	ND< 0.03	101
31773	fill 2-6.5'	S	1.4,d,b	ND	0.008	ND	0.025	108
31774	B4 water	W	670,c,d	7.6	2.5	6.2	3.2	114#
31775	B6 water	W	490,d	5.5	20	6.4	34	107
Detection Limit unless other-wise stated; ND means Not Detected		W	50 ug/L	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.005	0.005	0.005	0.005	

*water samples are reported in ug/L, soil samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak co-elutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds are significant; no recognizable pattern; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible phase is present.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553
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QC REPORT FOR HYDROCARBON ANALYSES

Date: 08/24/93 Matrix: Soil

Analyte	Concentration (mg/kg)			Amount Spiked	% Recovery		RPD
	Sample	MS	MSD		MS	MSD	
TPH (gas)	0.000	1.824	2.074	2.03	90	102	12.9
Benzene	0.000	0.190	0.200	0.2	95	100	5.1
Toluene	0.000	0.190	0.200	0.2	95	100	5.1
Ethyl Benzene	0.000	0.190	0.198	0.2	95	99	4.1
Xylenes	0.020	0.582	0.594	0.6	94	96	2.0
TPH (diesel)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

% Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

GENERAL CONSIDERATIONS

In general, the composition of water within the well casing and in close proximity to the well is not representative of groundwater quality. This may be due to contamination by drilling fluids or drilling equipment or to disparities between the oxidation-reduction potential in the well and the redox potential in the aquifer. To obtain a representative sample of groundwater, therefore, the well should be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. One common procedure is to pump or bail the well until a minimum of three bore volumes (or alternatively, 10 well volumes) have been removed.

At the least, pumping should continue until water in casing storage has been removed. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. (2) Monitor the temperature, pH, conductivity, and turbidity of the water while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and most of the water is coming from the aquifer.

PURGING

Static water level will be measured prior to purging using an electronic sounder. All water-level measurements will be recorded to the nearest 0.01 foot with respect to casing elevation.

A minimum of three bore volumes will generally be purged from the well prior to sampling. Bore and well volumes will be calculated using the table in this Appendix. To insure that water in the well has been exchanged pumping or bailing shall commence at the top and work downward. The well will be allowed to return to 80 percent of the original water level before sampling.

Temperature, Ph, specific conductance, and turbidity will be measured for each bore volume pumped. Purging will continue until these field-measured water quality parameters have stabilized and the water is, in the judgment of the geologist, representative of water in the aquifer. Data obtained from field water quality measurements will be recorded in the field log book or data sheets. A separate aliquot of groundwater collected from the purge water outlet stream will be used for field measurements; samples intended for laboratory analysis will not be used.

Temperature, pH, specific conductance, and turbidity meters will be calibrated per manufacturers guidelines. Calibration will be documented in the field log book or data sheets and will include a description of the calibration method, identification number of equipment and/or regents used in calibration.

Temperature will be measured with a good grade mercury-filled Centigrade thermometer, bimetallic-element thermometer, or electronic thermistor.

DOCUMENTATION

Sampling information will be recorded in ink in a bound notebook with consecutively number pages. Pages will not be removed for any reason. Alternatively, specially formatted field data sheets may be used to record the information collected during water quality sampling. Errata may be marked out with a single line, and initials of person making the change. The log book and data sheets will be placed in the project file when sampling is completed.

FIELD EQUIPMENT DECONTAMINATION PROCEDURES

Bailers and string will be properly disposed of off site. All other sampling equipment, such as buckets and stands, will be decontaminated after each use by washing in a tri-sodium phosphate solution, followed by tap water rinses.

All rinseate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.

DRILLING PROCEDURES

Monitoring wells will be drilled with a hollow-stem, continuous-flight auger. All boring and logging will be overseen by a geologist with special attention given to the avoidance of cross contaminating underlying aquifers. The following procedures used by CEC geologists prevent pollution of clean aquifers underlying contaminated zones:

1. Drilling will cease if five feet of impermeable material is encountered. It will be assumed that any significant, saturated, impermeable layer, such as a clay layer, is an aquitard separating the shallow and deep aquifers and should not be penetrated.

2. Drilling will be terminated 10-15 feet below any perched or unconfined water table.

3. Drilling will be terminated at 60 feet below ground surface if groundwater is not encountered. This is above nearly all deep aquifers currently supplying groundwater in the Bay Area.

The drill rig operator and the CEC geologist will discuss significant changes in material penetrated by the drill, changes in drilling conditions, hydraulic pressure, and drilling action. The CEC geologist will be present during the drilling of exploratory borings and will observe and record changes by time and depth and evaluate the relative moisture and content of the samples and note water producing zones. This record will be used later to prepare a detailed lithologic log. Lithologic descriptions will include soil or rock type, color, grain, size, texture, hardness, degree of induration, carbonate content, presence of fossils and other materials (gypsum, hydrocarbons) and other pertinent information. A copy of the logs will be retained in the field file at the project site.

Soil Cuttings

Soil cuttings generated during drilling will be placed on and covered by polyethylene sheeting. Soils will remain on-site for subsequent disposal pending analytical results. Soil cuttings will be the responsibility of the owner/generator, although CEC may arrange for disposal.

SOIL SAMPLING IN BOREHOLES

U.S. Environmental Protection Agency standards serve as the foundation for all field sampling operations performed by CEC. EPA SW 846 is the primary publication from which procedures are derived. While some aspects of field and laboratory work may be delegated to the California Department of Health Services, the California Water Resources Control Board, the San Francisco Bay Regional Water Quality Control Board, and the San Mateo County Environmental Health Services Division establish the general and specific criteria for sampling.

Sample Intervals

Undisturbed soil samples will be obtained for chemical analysis and geotechnical classification on six inch intervals for the first five feet of native soil penetrated by drilling and at five-foot intervals thereafter, distinct lithologic changes, and the capillary fringe zone. Selected samples will be properly retained for chemical analysis.

Collection Devices

Samples will be collected using a 2- or 2.5-inch-I.D. modified California split spoon sampler containing three, six-inch-long brass tubes. The sampler and will be decontaminated before and after each use by steam cleaning, or an Alconox solution wash, and tap water rinses. The sampler will be driven ahead of the augers using a 140 pound drop hammer. The average blow counts required to drive the sampler the last 12 inches will be recorded on the boring logs.

Preservation and Handling

Sample tubes will be labeled, sealed at each end with Teflon sheeting and PVC end caps, and stored in an ice chest with ice. Samples will be delivered under chain of custody to a State-certified laboratory.

Soils Classification

Soils exposed at the ends of each brass tube will be examined by a geologist for obvious signs of contamination and classified according to the Unified Soil Classification System. These observations will be recorded in the boring logs.

Selection of samples for laboratory analysis will be based primarily on headspace readings and position within the boring, although some discretion by the site geologist or engineer will be required. In general, samples with headspace readings over 50 ppm or that have visual or olfactory indications of contamination will be submitted for analysis. One sample will also be selected from one to two intervals below the apparent lower limit of contamination to obtain a "zero line" value. In addition, the sample closest to the depth of the storage tank invert (i.e. 12-13 feet) will be submitted for analysis. If the water table is above the tank invert, the sample closest to the water table will be selected. If the water table is below the tank invert, a sample from the capillary fringe zone above the water table will be collected and analyzed.

Sample Labeling and Chain of Custody

Samples selected for analysis will be labeled with self-adhesive, pre-printed labeled indicating project name (or number), sample number, boring/well number, sample depth, date and collection time. The same information will be recorded on the chain of custody.

DRILLING EQUIPMENT DECONTAMINATION PROCEDURES

The sampler will be decontaminated before and after each use by steam cleaning or washing in a tri-sodium phosphate, followed by tap water. Only clean water from a municipal supply will be used for decontamination of drilling equipment.

All rinseate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number, sealed and left on-site for subsequent disposal pending analytical results.