

QUARTERLY GROUND WATER MONITORING REPORT

APRIL, MAY, JUNE 1994

**2857 Hannah Street
Oakland, California**

1.0 INTRODUCTION

This report documents the sampling performed by Riedel Environmental Services, Inc. (RES) at the site located at 2857 Hannah Street in Oakland, California (see Location Map, Figure 1). The purpose of the quarterly monitoring is to determine if ground water in the immediate vicinity of four Underground Storage Tanks (USTs) has been impacted by petroleum hydrocarbons. Investigation of the ground water in the immediate vicinity of the four USTs has been required by the Alameda County Department of Environmental Health (ACDEH) under guidelines established by the Regional Water Quality Control Board.

1.1 Site Conditions

The site is located on the west side of Hannah Street near the Emeryville/Oakland border. The ground surface elevation is approximately 10 feet above mean sea level. The ground surface in the immediate area is relatively flat lying, with a gentle gradient to the west. The regional ground water flow is generally to the west, towards the San Francisco bay.

1.2 Previous work

In December of 1989, a 285-gallon unleaded gasoline UST and a 1,000-gallon gasoline UST were removed from beneath the sidewalk along Hannah Street. Samples obtained from the bottom of the UST pits indicated that the soils contained up to 140 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg). Both of the excavations were backfilled and paved with asphalt. The locations of the abandoned UST pits are shown on Figure 2.

In June of 1991, an 8,000-gallon gasoline UST and an 8,000-gallon diesel UST were removed from the site. Soil samples obtained from the floor of the gasoline UST excavation did not contain TPHg. However, concentrations of 20 ppm TPHg were present in samples obtained from the excavated soil stockpile. Samples from the diesel UST excavation contained up to 1,000 ppm total petroleum hydrocarbons as diesel (TPHd). In May of 1992, the diesel UST pit was over-excavated and resampled. Both UST pits were then backfilled upon permission from the ACDEH.

On 19 March 1992, samples of the soils beneath the sidewalk were obtained in the areas that previously contained the USTs. The soil samples obtained from the areas of the 285-gallon UST and the 1,000-gallon UST contained up to 850 and 520 ppm TPHg, respectively. On 13 October 1992, RES over-excavated the abandoned UST pits and collected soil samples from the floor and sidewalls. Over-excavation of soils containing residual hydrocarbons was not fully completed. The excavation work was halted due to the position of the 12-foot chain link fence on the west side of the pit and to avoid undermining or damaging Hannah Street on the east side of the pit. Samples obtained at the completion of the over-excavation work indicated that concentrations of 190 and 110 ppm TPHg remained in the western and eastern walls respectively. The over-excavation work on the Hannah Street sidewalk is documented in the RES report dated 19 April 1993.

On 9 July 1993, RES installed three ground water monitoring wells at the subject site in the locations shown on Figure 2. The initial water samples obtained from the monitoring wells MW-1 through MW-3 did not contain petroleum hydrocarbons above laboratory detection limits. However, detectable concentrations of petroleum hydrocarbons were present in soil samples obtained from 5 feet below grade in the MW-1 (0.1 ppm benzene, 0.02 ppm toluene and 0.03 ppm xylenes), MW-2 (22 ppm TPHg, and 0.018 ppm benzene) and MW-3 (1.2 ppm TPHd) well borings. Details of the monitoring well installations and the soil and ground water sampling are contained in the RES well installation report dated 24 September 1993.

On 17 December 1993, RES conducted a second quarterly sampling event. Ground water samples obtained from MW-2 and MW-3 contained 0.82 parts per billion (ppb, or micrograms per liter [$\mu\text{g}/\text{l}$]) benzene and 72 ppb TPHd respectively. The results of the sampling event are documented in the RES report dated 8 February 1994.

On 3 March 1994, RES conducted a third quarterly sampling event. Ground water samples obtained from MW-1 and MW-3 contained 0.83 ppb benzene and 56 ppb TPHd respectively. In addition to the petroleum analysis performed on the samples, each was tested for total dissolved solids (TDS) by EPA method 160.1. The results of the analysis indicated that the samples obtained from MW1, MW2 and MW3 contained 870, 1300 and 2500 ppm TDS respectively. The results of the sampling event are documented in the RES report dated 6 June 1994. The TDS concentrations in the ground water exceed the California Code of Regulations (CCR) Title 22 Secondary Drinking Water Standards Recommended Maximum Contaminant Level (MCL) of 500 ppm.

2.0 FIELD ACTIVITIES

The ground water wells were purged and sampled on 30 June 1994 according to the RES Standard Operating Procedure included in Appendix A. Wells were purged of four casing volumes of water utilizing disposable polyethylene bailers. Water samples were obtained from each well and placed in 40-ml VOA vials and 1-liter amber bottles. Ground water samples were kept at 4° C and delivered to Precision Analytical Laboratory, Inc. for analysis. Field ground water sampling forms are included in Appendix B.

Water levels within the three monitoring wells were measured prior to ground water sampling. The depths to water measured in the three wells ranged from 8.20 to 11.23 feet below the top of the well casings. The elevation of ground water in each well was determined from the depth to water measurements and the top of casing elevations which were surveyed to mean sea level (msl) by Ron Archer and Associates. ground water elevation in the three wells ranged from -0.83 to 0.91 feet msl. The ground water elevations in the three wells result in a gradient of 0.01 to the south as indicated in Figure 2.

3.0 LABORATORY ANALYSIS

The water samples obtained from the three monitoring wells were analyzed by Precision Analytical Laboratory. Samples obtained from monitoring wells MW1 (MW1-1.94) and MW2 (MW2-1.94) were analyzed for TPHg and BTEX compounds. Sample MW3-1.94 was analyzed for TPHd and BTEX compounds. The results of the water sample analyses indicate that 0.55 ppb benzene was present in the water sample obtained from MW-1. All other analyzed petroleum constituents were not present in the water samples at concentrations above laboratory detection limits. A summary of the quarterly ground water monitoring data is included in Table 1. Laboratory analytical results and chain of custody documentation are included in Appendix C.

TABLE 1. Summary of Ground Water Monitoring Data

Well	Date Sampled	Depth to Water (feet)	Ground Water Elevation (feet msl)*	Sample ID	TPH Gasoline (µg/l)	TPH Diesel (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)
MW1	7-30-93	8.52	0.59	MW1-1.93	<50	---	<0.3	<0.3	<0.3	<0.3
MW1	12-17-93	6.50	2.61	MW1-2.93	<50	---	<0.3	<0.3	<0.3	<0.3
MW1	3-03-94	5.07	4.04	MW1-1.94	<50	---	0.83	<0.3	<0.3	<0.3
MW1	6-30-94	8.20	0.91	MW1-2.94	<50	---	0.55	<0.3	<0.3	<0.3
MW2	7-30-93	9.60	-0.06	MW2-1.93	<50	---	<0.3	<0.3	<0.3	<0.3
MW2	12-17-93	7.60	1.94	MW2-2.93	<50	---	0.82	<0.3	<0.3	<0.3
MW2	3-03-94	7.15	2.39	MW2-1.94	<50	---	<0.3	<0.3	<0.3	<0.3
MW2	6-30-94	9.27	0.27	MW2-2.94	<50	---	<0.3	<0.3	<0.3	<0.3
MW3	7-30-93	11.57	-1.17	MW3-1.93	---	<50	<0.3	<0.3	<0.3	<0.3
MW3	12-17-93	9.00	1.40	MW3-2.93	---	72	<0.3	<0.3	<0.3	<0.3
MW3	3-03-94	8.56	1.84	MW3-1.94	<50	56	<0.3	<0.3	<0.3	<0.3
MW3	6-30-94	11.23	-0.83	MW3-2.94	<50	<50	<0.3	<0.3	<0.3	<0.3

Notes:

- µg/l Micrograms per liter or parts per billion (ppb).
- <50 Indicates that the constituent analyzed was not detected at a concentration above the stated detection limit.
- * Ground water elevations in feet above mean sea level.
- Constituent was not analyzed in this sample.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the recent ground water monitoring event indicate that with the exception of 0.55 ppb benzene present in the water sample obtained from MW-1, detectable concentrations of the analyzed petroleum hydrocarbons were not present in the ground water samples obtained from the three monitoring wells on site.

The results of the four quarterly monitoring events, which are summarized in Table 1, indicate that up to 0.83 ppb benzene and 72 ppb TPHd have been detected in ground water samples obtained from wells at the site. These low concentrations, however, are only slightly above laboratory detection limits and do not exceed MCLs or other regulatory levels of concern.

Based upon the results of the four quarterly sampling events, which also indicated that TDS in ground water on site ranges from 870 to 2500 ppm, RES believes that no further action at this site is warranted and that this site should be considered for case closure. If case closure is granted, abandonment of the site monitoring wells would be required by Alameda County and the Regional Water Quality Control Board.

5.0 REPORTING REQUIREMENTS

Copies of this report along with a letter requesting case closure must be submitted to Ms. Susan Hugo of the Alameda County Department of Environmental Health and to Mr. Eddie So of the Regional Water Quality Control Board.

Ms. Susan Hugo
Alameda County Department of Environmental Health
80 Swan Way, Suite 200
Oakland, California 94621

Mr. Eddie So
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

DRAWING NO./FILE NO. 3/29/93
DRAWN BY: G. BARTON
CHECKED BY: 3/29/93
APPROVED BY:

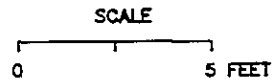
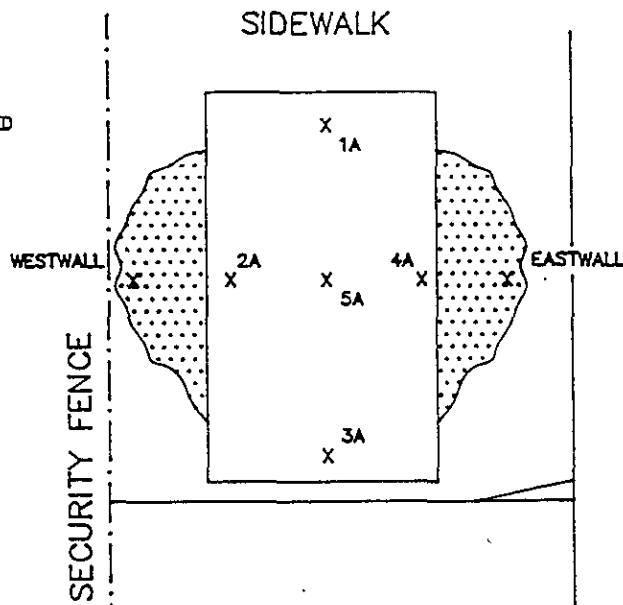
DRAWN BY: G. BARTON
CHECKED BY: 3/29/93
APPROVED BY:

DRAWN BY: G. BARTON
CHECKED BY: 3/29/93
APPROVED BY:

DRAWN BY: G. BARTON
CHECKED BY: 3/29/93
APPROVED BY:

PIT GT2

FORMER 285 GAL UNLEADED GASOLINE TANK PIT



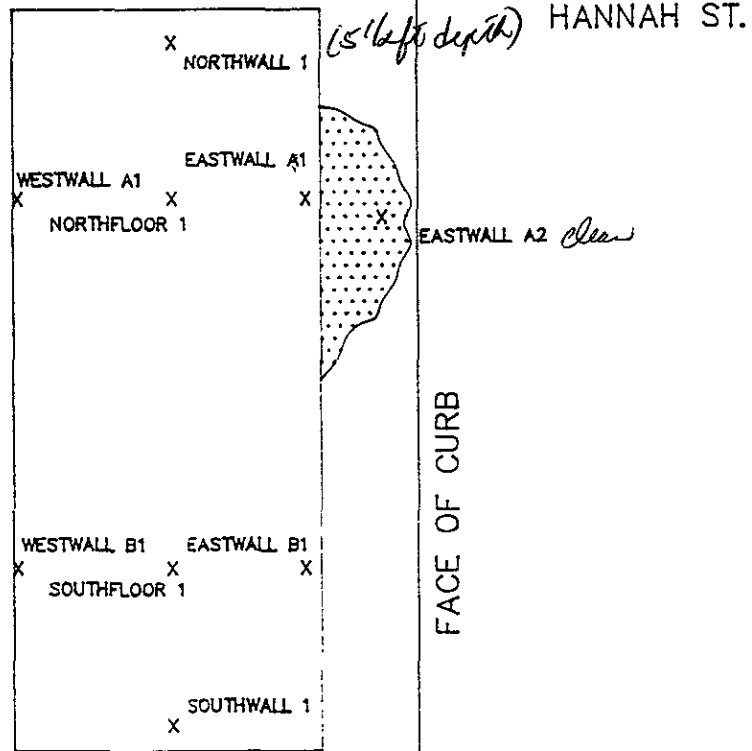
AREA OF ADDITIONAL EXCAVATION

ELEVATION OF FLOOR SAMPLES
GT2 10 FEET
ELEVATION OF FLOOR SAMPLES
GT1 12 FEET
ELEVATION OF WALL SAMPLES
APPROX. 5-1/2 FEET

DRIVEWAY

PIT GT1

FORMER 1,000 GAL UNLEADED GASOLINE TANK PIT



SOIL SAMPLING LOCATIONS

OCTOBER 13 & 22, 1992

FITZMAURICE REMEDIATION

2857 HANNAH ST, OAKLAND, CA

RES PROJECT 4272-9217



RIEDEL ENVIRONMENTAL SERVICES, INC RICHMOND, CALIFORNIA

FIGURE 2

6/2/11

A-1 BTX&E TPH₃ TPH_d.

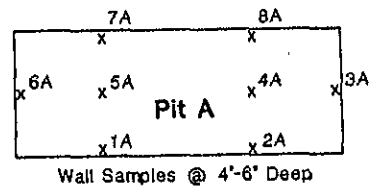


Scale
0 5 10 Feet

Boring
x
A-1
A-2
A-3

Alta
Building
Materials
Storage
Area

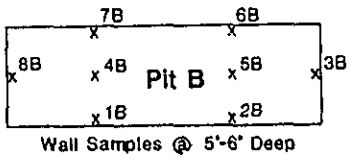
Asphalt



Boring
x
B-1
B-2
B-3

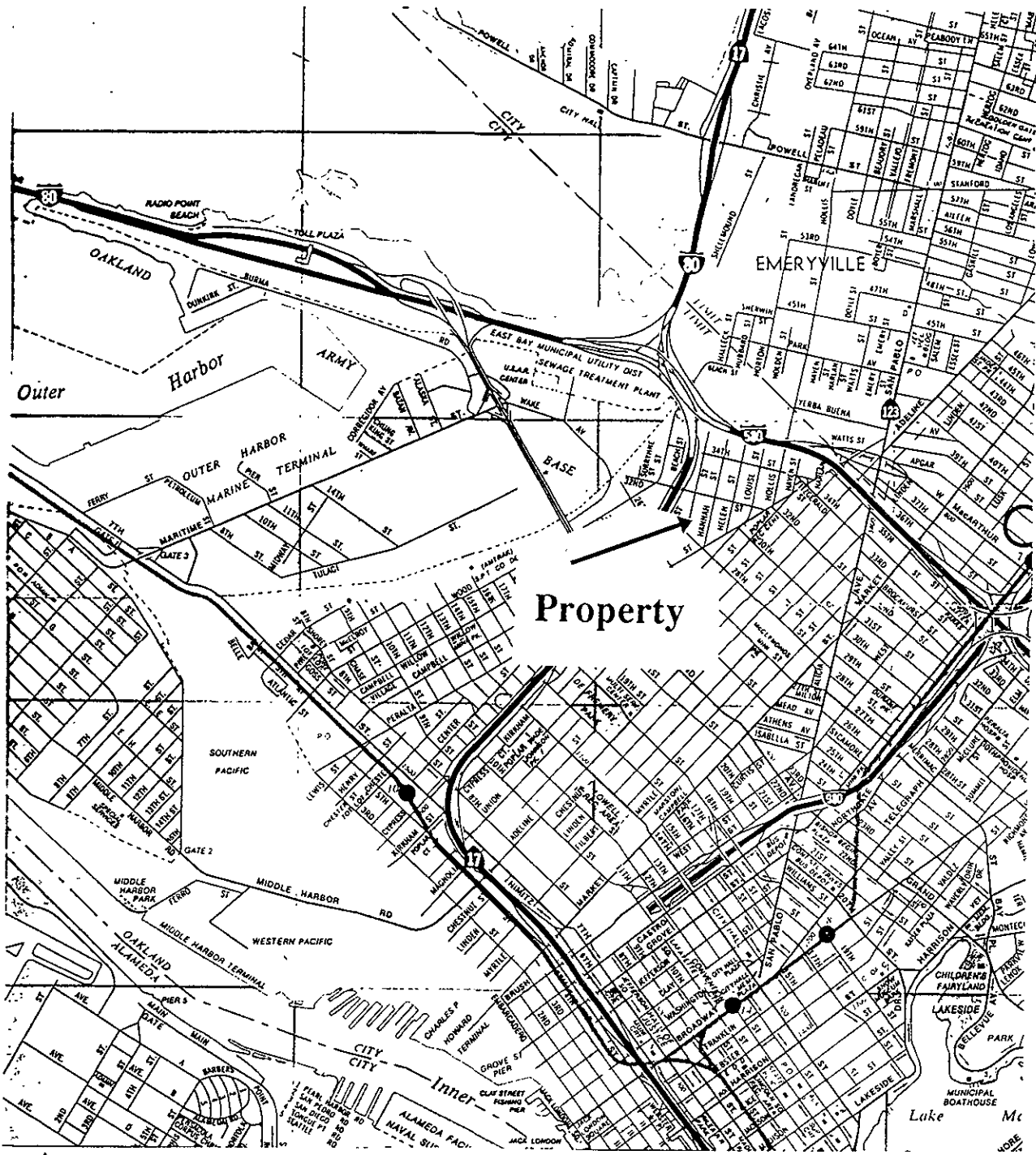
x
Boring
C

Sidewalk
Hannah St.

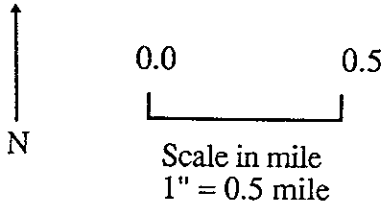


Legend
 A-1 @ 3 Feet
 A-2 @ 6 Feet
 A-3 @ 9 Feet
 Boring C samples taken,
 not analyzed

Sample Locations
Fitzmaurice Remediation



Property



Subsurface Environmental, Inc.
 4030 Pacheco Blvd., Suite 1
 Martinez, CA 94553

VICINITY MAP
 2857 Hannah Street
 Oakland, California

Project No. 025-01

Date: October 1991

Drawn by: OPJ

Figure No. 1

TABLE 4
FINAL SOIL SAMPLES PIT B
2857 HANNAH STREET, OAKLAND, CALIFORNIA
JUNE 9, 1992

ANALYSES	FINAL END WALL	FINAL FLOOR
TPH-D	ND < 1	250 ✓
TPH-G	ND < 1.0	75 ✓
BENZENE	ND	ND
TOLUENE	ND.	ND
ETHYL-BENZENE	ND	ND
XYLENES	ND	0.025

Notes: ND: Concentration is below the method detection limit (MDL).
The detection limit for the BTEX constituents is 0.005 ppm.
Concentrations are in ppm (parts per million).

TABLE 3
SOIL SAMPLE RESULTS PIT B
2857 HANNAH STREET, OAKLAND, CALIFORNIA
APRIL 23, 1992

SAMPLE I.D. NUMBERS	TPH-DIESEL (mg/Kg)
1B	ND < 1.0
2B	ND < 1.0
3B	160
4B	ND < 1.0
5B	60
6B	18
7B	ND < 1.0
8B	ND < 1.0

REPEAT SOIL SAMPLES PIT B
MAY 21, 1992

ANALYSES	SAMPLE IDENTIFICATION		
	REPEAT 3B	REPEAT 5B	REPEAT 6 B
TPH-G	41	1.1	ND < 1.0
TPH-D	530	96	ND < 1.0
BENZENE	ND	ND	ND
TOLUENE	ND	ND	ND
ETHYL-BENZENE	ND	ND	ND
XYLENES	0.09	0.005	ND

Notes:

ND: The concentration was below the method detection limit (MDL).
 The detection limit for BTEX constituents was 0.005 ppm.

**TABLE 2 - SOIL ANALYSES RESULTS PIT A (1A-4A)
2857 HANNAH STREET, OAKLAND, CALIFORNIA**

ANALYSES	SAMPLE IDENTIFICATION			
	1A	2A	3A	4A
TPH-G	16	1.9	1.7	1.1
BENZENE	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	ND
XYLENES	ND	ND	0.005	0.031

SOIL SAMPLES PIT A (5A-8A)

ANALYSES	5A	6A	7A	8A
TPH-G	ND < 1.0	2.0	3.4	ND < 1.0
BENZENE	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	ND
XYLENES	ND	ND	ND	0.015

Notes: ND: Concentration is below the method detection limit (MDL).
The detection limit for the BTEX constituents is 0.005 ppm.
Concentrations are in ppm (parts per million).

TABLE 1 - SOIL ANALYSES RESULTS
2857 HANNAH STREET, OAKLAND, CALIFORNIA
MARCH 18, 1992

ANALYSES	SAMPLE		IDENTIFICATION	
	A-1 <i>3 ft depth</i>	B-3 <i>9 ft depth</i>	STOCK PILE 1	STOCK PILE 2
TPH-D (ppm)	*	*	*	ND < 0.05
TPH-G (ppm)	850	520	1.9 ₁	0.48 ₁
OIL AND GREASE (ppm)	60	*	*	*
BENZENE	0.038	0.13	2.0 ₂	1.8 ₂
TOLUENE	0.160	3.0	26 ₂	6.2 ₂
ETHYLBENZENE	1.3	2.6	18 ₂	ND < 0.3
XYLENE	4.5	4.1	325 ₂	4.8 ₂
REACTIVITY	*	*	ND < 1	ND < 1
CORROSIVITY	*	*	7.5	7.9
IGNITABILITY	*	*	NO	NO
STLC LEAD (ppm)	*	*	0.4	*

Notes: ND: Compound below the method detection limit (MDL).

1 - Analysed per EPA method 1311/5030 Toxicity Characteristic Leaching Procedure (TCLP). Units are represented in ppm.

2 - Analysed per EPA method 1311/602 TCLP. Units are in parts per billion (ppb).

* - Not analyzed for this constituent.

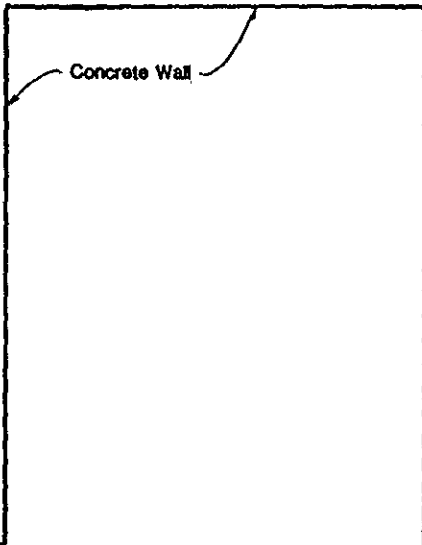
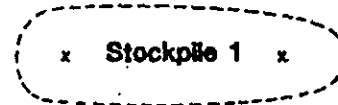
Water samples collected from Pit A and Pit B were analysed for TPH-g, BTEX and TPH-d. All chemical constituents were not detected and are therefore not represented.



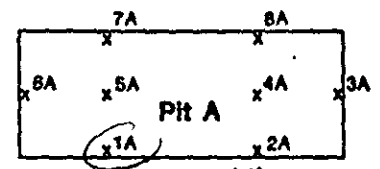
Scale
0 5 10 Feet

*138 ppm
60 ppm
850 ppm*

Boring
x A-1
x A-2
x A-3



Asphalt



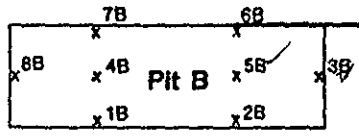
Wall Samples @ 4'-6" Deep
Heppengas

Boring
x B-1
x B-2
x B-3
x Boring C

*520 ppm
D. 13 ppm*

Sidewalk

Hannah St.



Wall Samples @ 5'-6" Deep

Legend
A-1 @ 3 Feet
A-2 @ 6 Feet
A-3 @ 9 Feet
Boring C samples taken,
not analyzed

Note: Stockpile 2 was located along side of fence on the West side of the property

Sample Locations
Fitzmaurice Remediation
2857 Hannah St., Oakland



RIEDEL ENVIRONMENTAL SERVICES, INC. Richmond, California

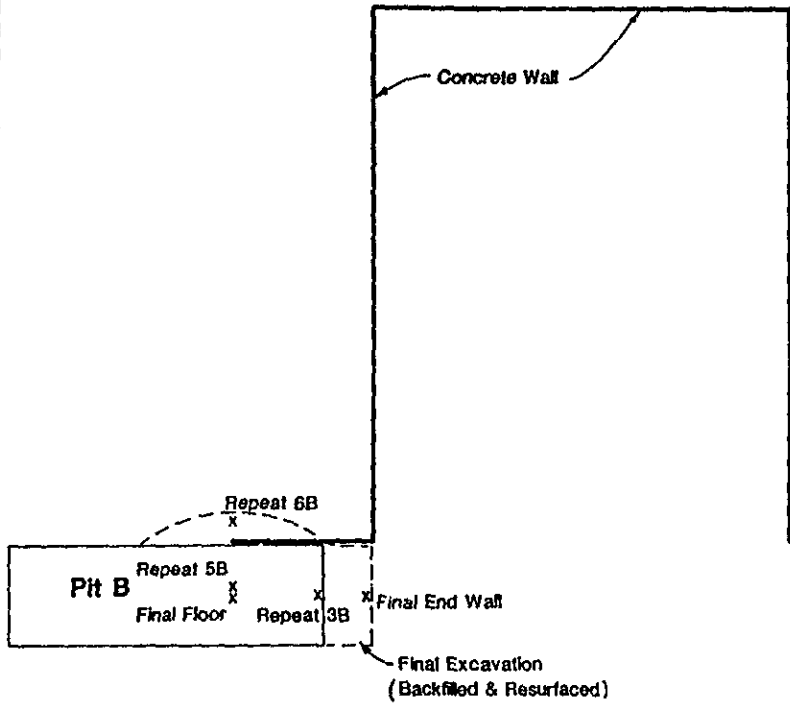
Alta Building Materials Storage Area

RES Project 4272-0217

2



Scale
0 5 10 Feet



Final Floor at 11'-6"
Repeat 5B & 3B were over-excavated & removed



Hannah St.

Final Confirmation
Sample Locations
Fitzmaurice Remediation
2857 Hannah St., Oakland

DRAWING NO./FILE
DRAWN BY
CHECKED BY
DATE
APPROVED BY

ALLIED PAINT CONTRACTOR

TULLOCH CONSTRUCTION

VACANT

RESIDENTIAL

34TH STREET

MATZON ELECTRIC

INDUSTRIAL

RESIDENTIAL

FORMER DRY CLEANER

RESIDENTIAL

VACANT

ETTIE STREET

HANNAH STREET

INDUSTRIAL OR WAREHOUSE

QUANSET HUT

RESIDENTIAL

VACANT LOT

RESIDENTIAL

32ND STREET

BUILDING SUPPLY

ALTA BUILDING SUPPLY (WAREHOUSE & SALES)

SITE

PRECISION CAST PRODUCTIONS, INC.



NO SCALE

VICINITY MAP
J.H. FITZMAURICE, INC.
2858 HANNAH ST, OAKLAND, CA



RIEDEL ENVIRONMENTAL SERVICES, INC. RICHMOND, CALIFORNIA

RES PROJECT 4218-9301

FIGURE 2



RIEDEL ENVIRONMENTAL SERVICES, INC

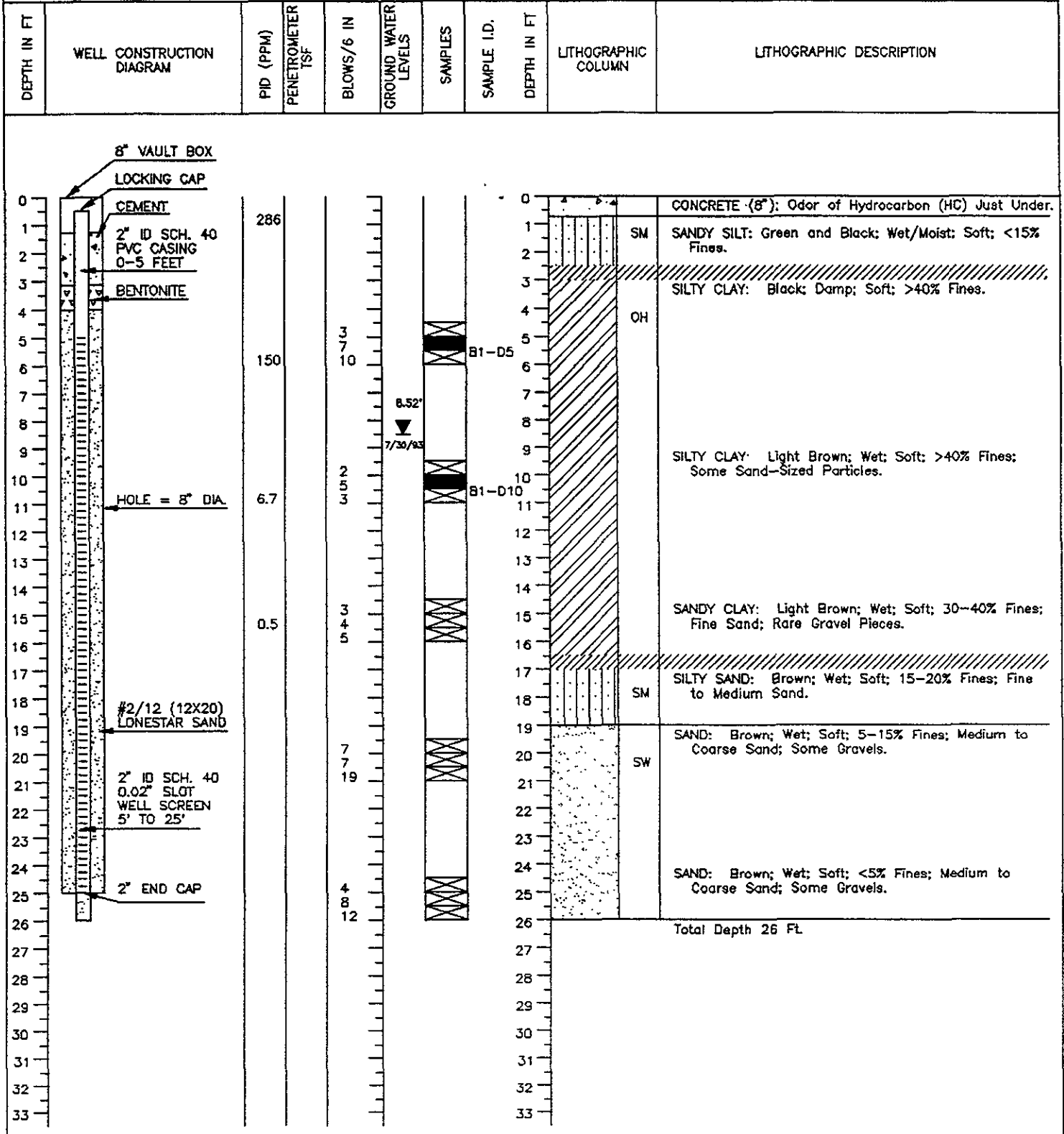
4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94808
(510) 222-7810

LOG OF BORING/MONITORING WELL B1/MW1

SHEET 1 OF 1

PROJECT NO.: 4218-9301	DRILLING CO.: West Hazmat	BORING TOTAL DEPTH (FT): 26
PROJECT NAME: J. H. Fitzmaurice	DRILL RIG MODEL: CME 55	TOP OF CASING ELEVATION (FT MSL)
LOCATION: 2857 Hannah St, Oakland, CA	DRILLING METHOD: 8" Hollow Stem Auger	TOP OF VAULT BOX ELEV. (FT MSL)
FILE NAME: D:\ACAD\DRAW9-93\FITZMAB1	SAMPLER TYPE: 2" Split Spoon	SCREENED INTERVAL: 5-25

LOGGED BY: C. Merritt	LOCAL AGENCY: ACFC/WCD
DATE DRILLED: 7/9/93	APPROVED BY: <i>C. Merritt</i>
	PERMIT NO.: 93317





RIEDEL ENVIRONMENTAL SERVICES, INC

4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94806
(510) 222-7810

LOG OF BORING/MONITORING WELL B2/MW2

SHEET 1 OF 1

PROJECT NO.: 4218-9301
PROJECT NAME: J. H. Fitzmaurice
LOCATION: 2857 Hannah St, Oakland, CA
FILE NAME: D:\ACAD\DRAW9-93\FITZMA81

DRILLING CO.: West Hazmat
DRILL RIG MODEL: CME 55
DRILLING METHOD: 8" Hollow Stem Auger
SAMPLER TYPE: 2" Split Spoon

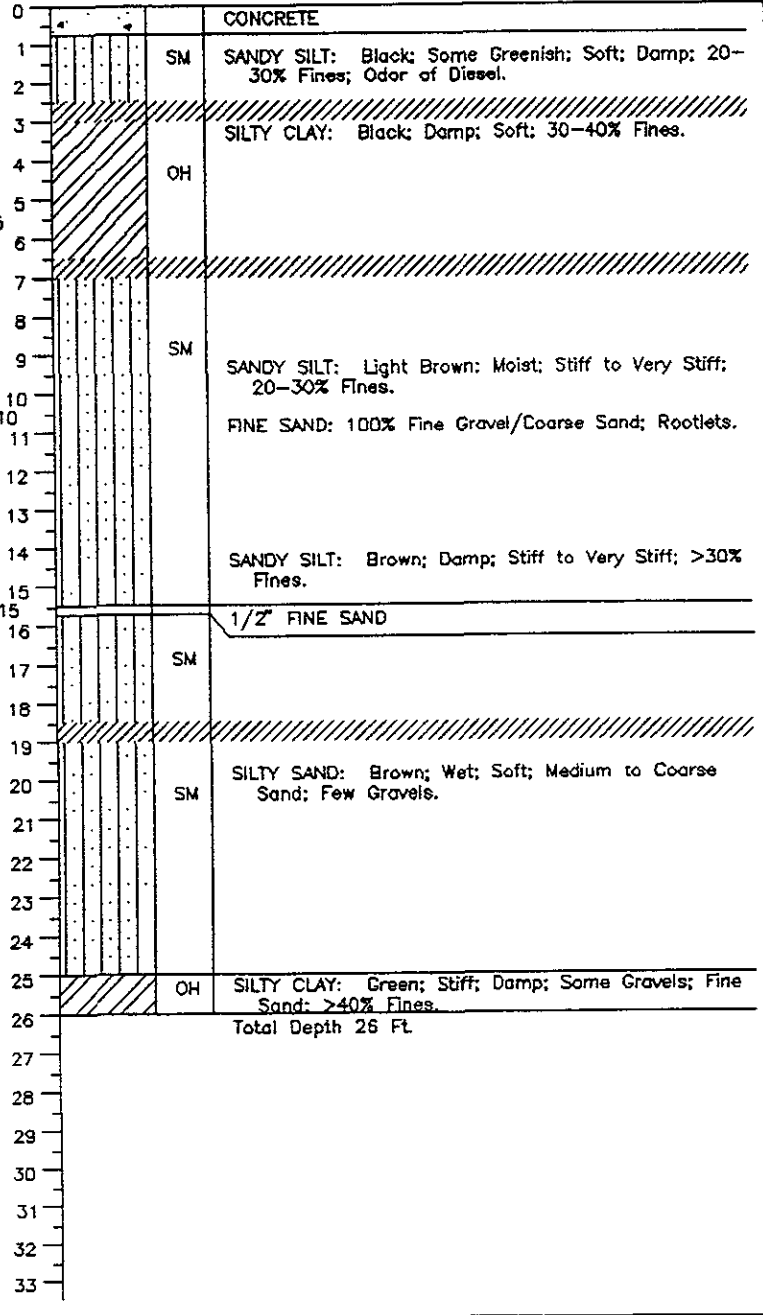
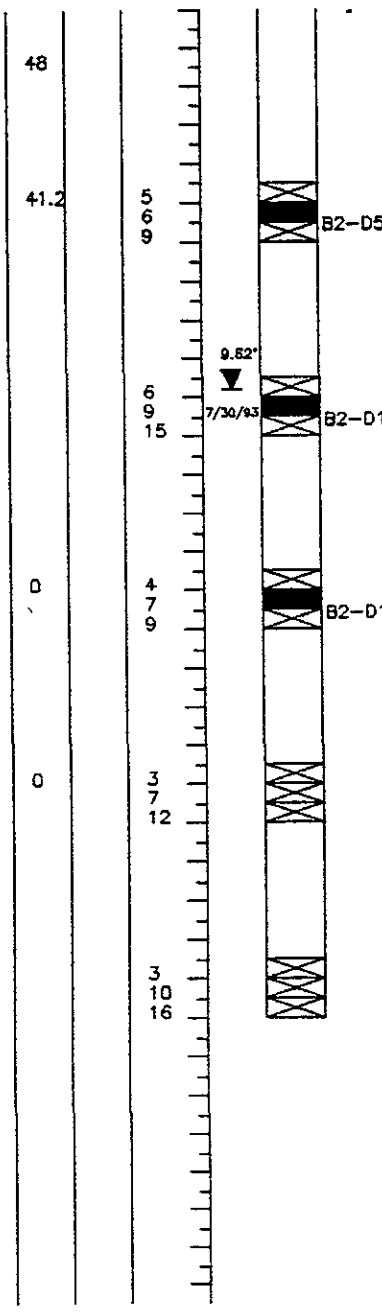
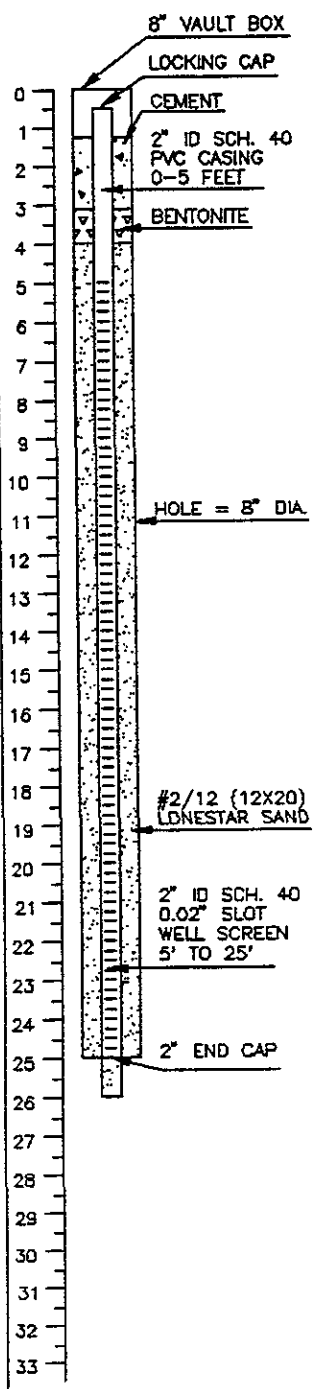
BORING TOTAL DEPTH (FT): 26
TOP OF CASING ELEVATION (FT MSL)
TOP OF VAULT BOX ELEV. (FT MSL)
SCREENED INTERVAL: 5-25

DATE DRILLED: 7/9/93

LOGGED BY: C. Merritt
APPROVED BY: *C. Merritt*

LOCAL AGENCY: ACFC/WCD
PERMIT NO.: 93317

DEPTH IN FT	WELL CONSTRUCTION DIAGRAM	PID (PPM)	PENETROMETER TSF	BLOWS/6 IN	GROUND WATER LEVELS	SAMPLES	SAMPLE I.D.	DEPTH IN FT	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
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RIEDEL ENVIRONMENTAL SERVICES, INC

4138 LAKESIDE DRIVE
RICHMOND, CALIFORNIA 94808
(510) 222-7810

LOG OF BORING/MONITORING WELL B3/MW3

SHEET 1 OF 1

PROJECT NO.: 4218-9301

PROJECT NAME: J. H. Fitzmaurice

LOCATION: 2857 Hannah St Oakland, CA

FILE NAME: D:\ACAD\DRAW9-93\FITZMAB1

DRILLING CO.: West Hazmat

DRILL RIG MODEL: CME 55

DRILLING METHOD: 8" Hollow Stem Auger

SAMPLER TYPE: 2" Split Spoon

BORING TOTAL DEPTH (FT): 26

TOP OF CASING ELEVATION (FT MSL)

TOP OF VAULT BOX ELEV. (FT MSL)

SCREENED INTERVAL: 5-25

DATE DRILLED: 7/9/93

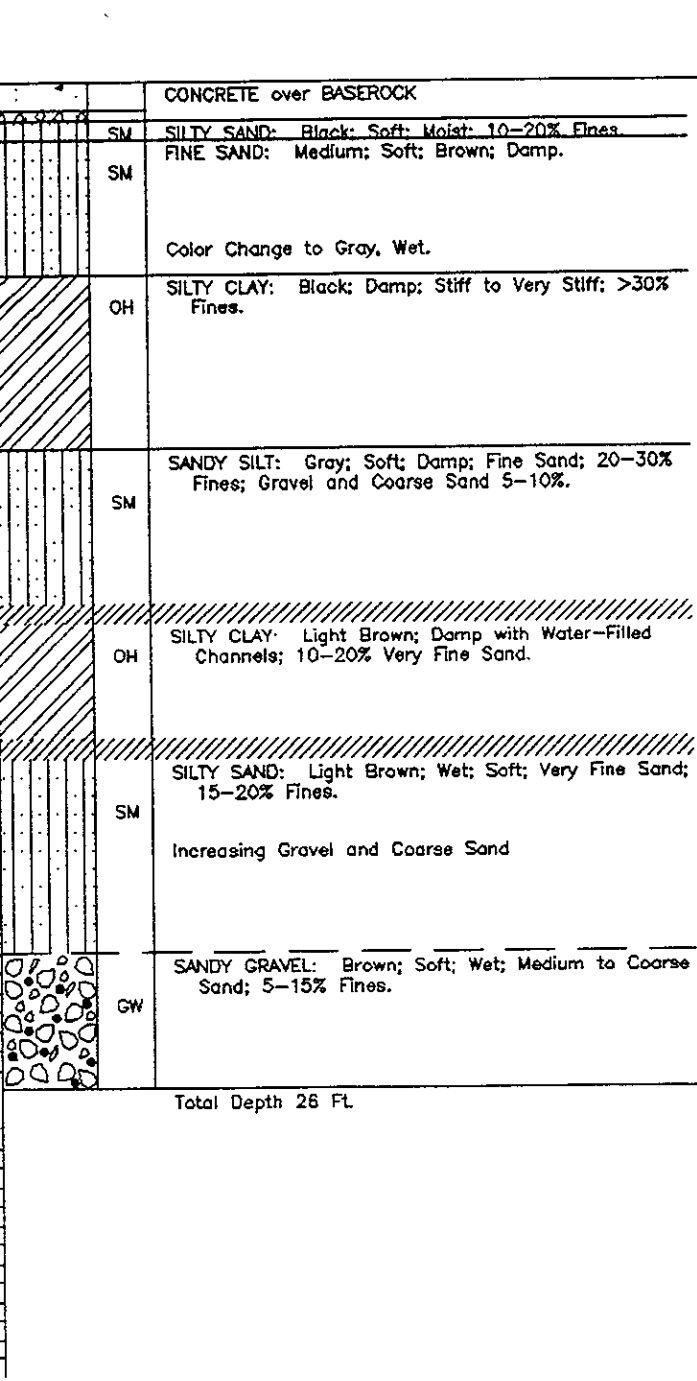
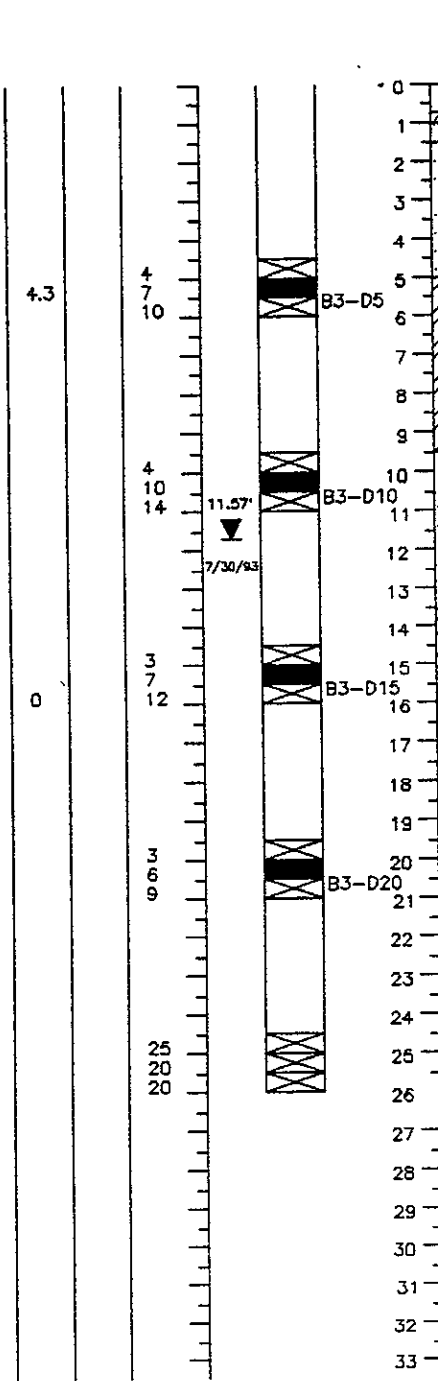
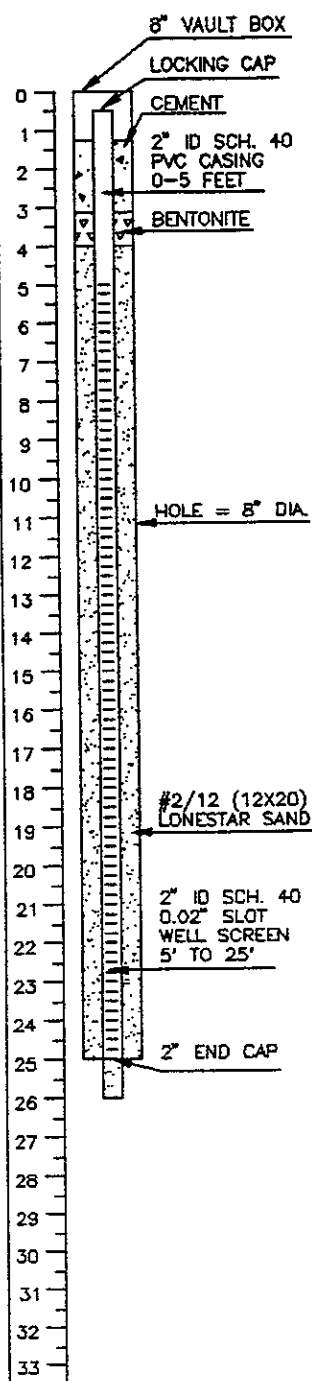
LOGGED BY: C. Merritt

APPROVED BY: *C. Merritt*

LOCAL AGENCY: ACFC/WCD

PERMIT NO.: 93317

DEPTH IN FT	WELL CONSTRUCTION DIAGRAM	PID (PPM)	PENETROMETER TSF	BLOWS/6 IN	GROUND WATER LEVELS	SAMPLES	SAMPLE I.D.	DEPTH IN FT	LITHOGRAPHIC COLUMN	LITHOGRAPHIC DESCRIPTION
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11.57'
7/30/93

B3-D5

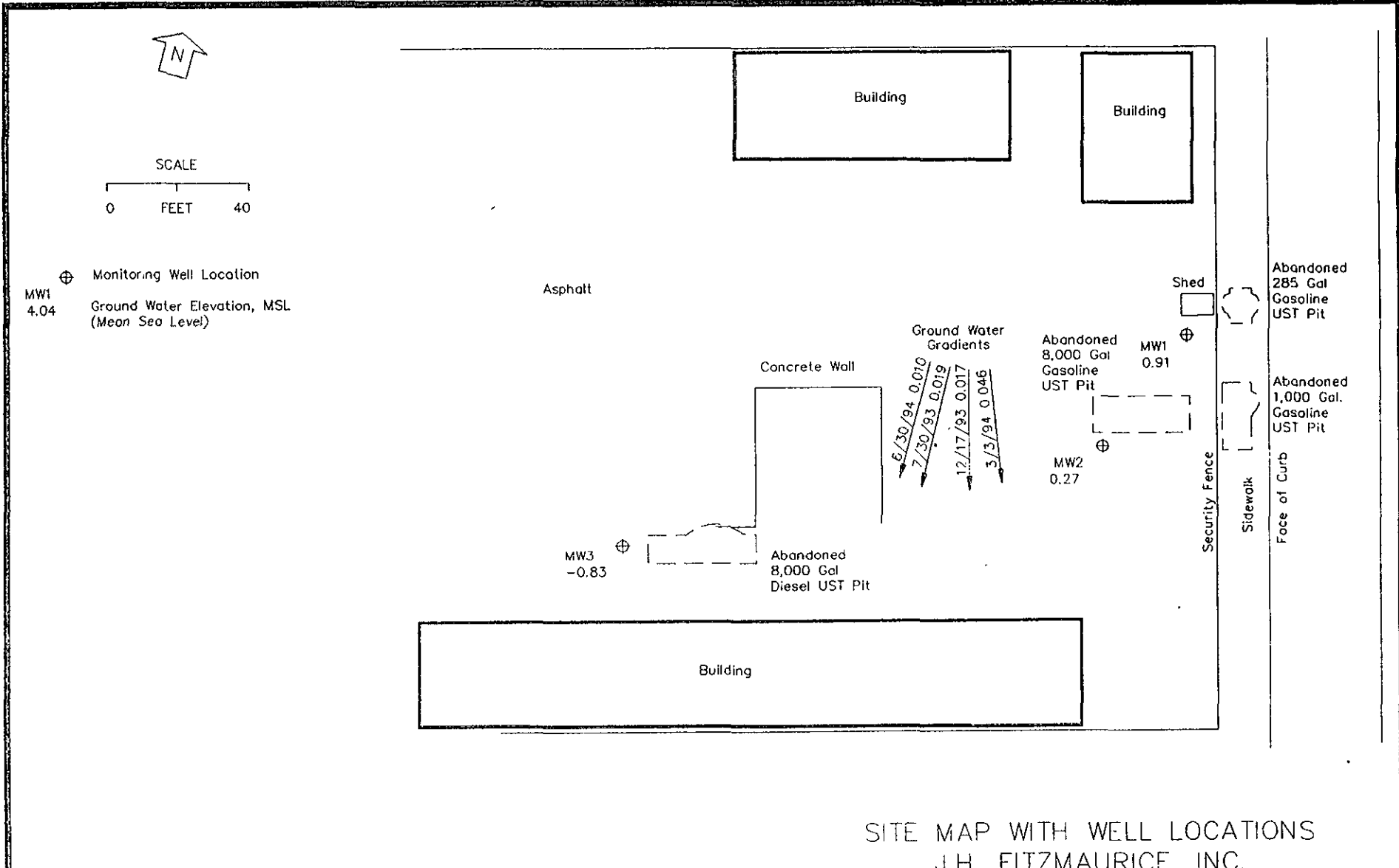
B3-D10

B3-D15

B3-D20

Base Map Based on Ron Archer, RCE Survey Plat, August 5, 1993

Drawn:	C. Barton	Checked:	C. MEDDITT 8/14/94	Job No:	4218-9301
Date:	8/9/94	Approved:	C. MEDDITT 8/10/94	CAD File:	Draw8-94\FitzmaS4



SITE MAP WITH WELL LOCATIONS
J.H. FITZMAURICE, INC.
2857 HANNAH ST, OAKLAND, CA



RIEDEL ENVIRONMENTAL
SERVICES, INC. RICHMOND, CALIFORNIA

RES PROJECT 4218-9301

FIGURE
2