ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

REMEDIAL ACTION COMPLETION CERTIFICATION

March 20, 1997

Marla Guensler
Exxon Corporation
800 Bell St., Rm 1331
Houston, Texas 77002

Richard Ritchey
3600 Vasco Road
Brentwood, CA 94513-4555

Perry K. Pahlmeyer
10234 County Road 250
Durango, CO 81301

Faramarz Khodayari
4868 Calaveras Ave.
Oakland, CA 94619

Re: Former Exxon Station, 4868 Calaveras Ave., Oakland, CA 94619
[STID 1114]

Dear Ms. Guensler and Messrs. Pahlmeyer, Ritchey, and Khodayari,

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Section 2721(e) of Title 23 of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director of Environmental Health Services

c: Acting Chief, Hazardous Materials Division - files
Juliet Shin, ACDEH
Kevin Graves, RWQCB
Lori Casias, SWRCB (w/ enclosure)

01-2209 *

ENVIRONMENTAL PROTECTION

97 MAR -7 PM 3:48

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION Date: December 30, 1997

Agency name: Alameda County-HazMat Address: 1131 Harbor Bay Pkwy.
City/State/Zip: Alameda, CA 94502 Phone: (510) 567-6700
Responsible staff person: Juliet Shin Title: Senior HMS

II. CASE INFORMATION

Site facility name: Former Exxon Station
Site facility address: 4868 Calaveras Ave., Oakland, CA 94619
RB LUSTIS Case No: N/A Local Case No./LOP Case No.: 1114
URF filing date: SWEEPS No: N/A

Responsible Parties:	Addresses:	Phone Numbers:
Exxon Corporation Contacts: Marla Guensler or Tom Michael	800 Bell St., Rm 1331 Houston, Texas 77002 or P.O. Box 4032 Concord, CA 94524-4032	(510)246-8776
Perry K. Pahlmeyer	10234 County Road 250 Durango, CO 81301	(970)259-7576
Richard Ritchey	3600 Vasco Rd. Brentwood, CA 94513-4555	Unknown
Faramarz Khodayari	4868 Calaveras Ave. Oakland, CA 94619	(510)482-2462

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	8,000-gallon	gasoline or diesel	removed	2/81
2	8,000-gallon	gasoline or diesel	removed	2/81
3	8,000-gallon	gasoline or diesel	removed	2/81
4	250-gallon	waste oil	removed	2/81

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown**

Site characterization complete? **YES**

Date approved by oversight agency: **December 30, 1996**

Monitoring Wells installed? **YES** Number: **3**

Proper screened interval? **YES. MW-1 and MW-2(16'-31'bgs); MW-3(16'-36'bgs)**

Highest GW depth below ground surface: 16.68 feet Lowest depth: 20.51 feet However, first encountered groundwater in Borings B-2 and B-8 in September 1995 was at 11-feet below ground surface (bgs). Based on the attached boring logs and cross-section diagram, the groundwater observed in these two borings may have been from the gravelly clay lenses as opposed to the primary sand aquifer.

Flow direction: **east-southeast**

Most sensitive current use: **Commercial/Residential**

Are drinking water wells affected? **NO** Aquifer name: **Unknown**

Is surface water affected? **NO** Nearest affected SW name: **None**

Off-site beneficial use impacts (addresses/locations): **None**

Report(s) on file? **YES** Where is report(s) filed? **Alameda County**
1131 Harbor Bay Pkwy.
Alameda, CA 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment or Disposal w/destination)	Date
Tanks	Four	Unknown	2/81
Soil Cuttings	Three cubic yards	BFI Landfill Livermore, CA	10/1/96
Purge water	130 gallons	Romic Environmental Palo Alto, CA	Unknown

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)
Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before[1]	After[4]	Before[3]	After
TPH (Gas)	110		2,800	ND
TPH (Diesel)	ND		ND	
Total Oil & Grease	ND		NA	
Benzene	0.24		13	ND
Toluene	0.19		6.7	ND
Xylene	0.23		16	ND
Ethylbenzene	0.08		13	ND
Chlorinated Hydrocarbons	ND		NA	
Metals	[2]		NA	

NA-Not Analyzed
1-Soil sample collected from Boring B-8 at 10-feet bgs on 9/5/95
2-Metal concentrations were very low and below human health protective thresholds established by U.S. EPA.
3-Groundwater sample collected from Boring B-8 in 9/13/95
4-Soil concentrations were left in place.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Undetermined

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Undetermined

Does corrective action protect public health for current land use? YES

Site management requirements: Based on the low levels of residual contaminant concentrations remaining in the soil and groundwater within the gravelly/clay lenses (refer to attached copy of cross-section diagram), the local agency should be notified if this material is ever exposed through construction activities, and the Health & Safety plan, for construction activities, should address potential exposures to these concentrations.

Should corrective action be reviewed if land use changes? NO

Monitoring wells Decommisioned: NO Will be decommissioned upon receipt of case closure.

Number Decommisioned: Number Retained:

List enforcement actions taken: None

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Juliet Shin Title: Senior HMS
Signature: Juliet Shin Date: 2/12/97

Reviewed by
Name: Eva Chu Title: Hazardous Materials Specialist
Signature: Eva Chu Date: 1/10/97

Name: Thomas Peacock Title: Supervising HMS
Signature: Thomas Peacock Date: 2-11-97

VI. RWQCB NOTIFICATION

Date Submitted to RB: RB Response: Approved
RWQCB Staff Name: Kevin Graves Title: San. Engineering Asso. Date: 3/3/97

VII. ADDITIONAL COMMENTS, DATA, ETC.

The site is located in the central-eastern section of Oakland, California, at the intersection of Calaveras Avenue and Buell Street, adjacent to Highway 580. The site is less than ½ mile south of the Hayward Fault line and lies at an elevation of approximately 150 feet above mean sea level. The topography slopes gently toward the southwest (refer to attached figure 1).

The site is currently zoned for residential and light commercial/ industrial, and is currently occupied by International Auto Clinic, an auto repair and detailing facility. Exxon operated a gas station at the facility from the early 1970s until 1981, when three 8,000-gallon gasoline/diesel underground storage tanks (USTs) and one 250-gallon waste oil UST was removed from the site.

On September 5, 1995, six exploratory borings (B-1 through B-6) were drilled at the site in the locations of the former USTs and piping, to identify any potential petroleum contamination (refer to attached figure 2 for sample locations). The borings were drilled to depths ranging from 10- to 18-feet below ground surface (bgs). On September 13, 1995, two additional borings, B-7 and B-8, were drilled in an attempt to collect additional groundwater samples.

A total of 13 soil samples were collected from Borings B-1 through B-6, and B-8 at depths ranging from 5- to 10-feet bgs. These samples were analyzed for Total Petroleum Hydrocarbons as gasoline (TPHg), TPH as diesel (TPHd), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Additionally, soil samples collected from Boring B-6, located adjacent to the former waste oil UST, was analyzed for Total Oil & Grease, chlorinated hydrocarbons (using Method 8010), and heavy metals. Analysis results identified up to 110 parts per million (ppm) TPHg, 0.24ppm benzene, 0.19ppm toluene, 0.083ppm

ethylbenzene, 0.23ppm total xylenes, and low levels of metals that were below human health protective levels per the U.S. Environmental Protection Agency (refer to attached table 1).

"Grab" groundwater samples were collected from Borings B-2 and B-8. These water samples were analyzed for TPHg and BTEX (refer to attached table 2). The groundwater sample collected from Boring B-8 identified 2,800 parts per billion (ppb) TPHg, 13ppb benzene, 6.7ppb toluene, 13ppb ethylbenzene, and 16ppb total xylenes. No contaminants were identified above detection limits from the sample collected from Boring B-2. It appears that, based on the attached boring logs and the cross-section diagram data, that these water samples were collected from the gravelly clay lenses located above the primary sandy aquifer (refer to attached figures 3 and 4). In fact, both the soil and groundwater contamination at the site appear to be limited to these lenses.

On August 7, 1996, three borings were drilled at the site and converted into monitoring wells (MW-1 through MW-3)(refer to attached figure 2). A total of 11 soil samples were collected from these three borings (refer to attached figures 3 & 4). These soil samples were analyzed for TPHg and BTEX. Soil samples collected from MW-1 identified up to 55ppm TPHg, 1ppm ethylbenzene, and 0.94ppm total xylenes. No contaminants were identified in the soil samples collected from the other two borings above detection limits. Groundwater samples were collected from the three wells after proper well development and purging processes. The groundwater samples were analyzed for TPHg and BTEX. No contaminants were identified above detection limits (refer to attached table 5 and well logs).

In summary, this office is recommending that this case be closed for the following reasons:

- Groundwater contamination was only identified in one "grab" groundwater sample collected from the site. The water sample collected from Boring B-8 identified 2,800ppb TPHg and 13ppb benzene, while water samples collected from Boring B-2 and the three monitoring wells did not identify any contaminants above detection limits. Based on the Tier 1 table of the American Society for Testing and Materials' Risk-Based Corrective Action guidelines [E 1739-95](ASTM RBCA), the levels of benzene identified in this groundwater sample do not exceed human health protective levels for groundwater for a residential property at 10^{-5} excess cancer risk. Additionally, the groundwater contaminant plume appears to be stable and limited in extent based on the fact that no groundwater contamination was identified in Well MW-3, located only ~40-feet downgradient from Boring B-8.

- Analytical results of all the soil samples collected from the site, other than from Boring B-8, identified low concentrations of TPHg and BTEX. Per the ASTM RBCA guidelines, the levels of BTEX in these samples were below the human health protective levels for soil for a residential property at a 10^{-5} excess cancer risk. Only one soil sample, out of 24 soil samples identified benzene levels exceeding human health protective levels for a residence at 0.24ppm (from Boring B-8). However, the mean concentration of benzene for all the soil samples on site would be below human health protective levels.

- Both soil and groundwater contamination identified at the site appear to be limited to the gravelly/clay lenses lying above the primary sandy aquifer, and do not appear to have migrated to the sandy aquifer (refer to attached boring logs and cross-section diagram).

- There are no water supply wells within 0.25 miles of the site.

FIGURES

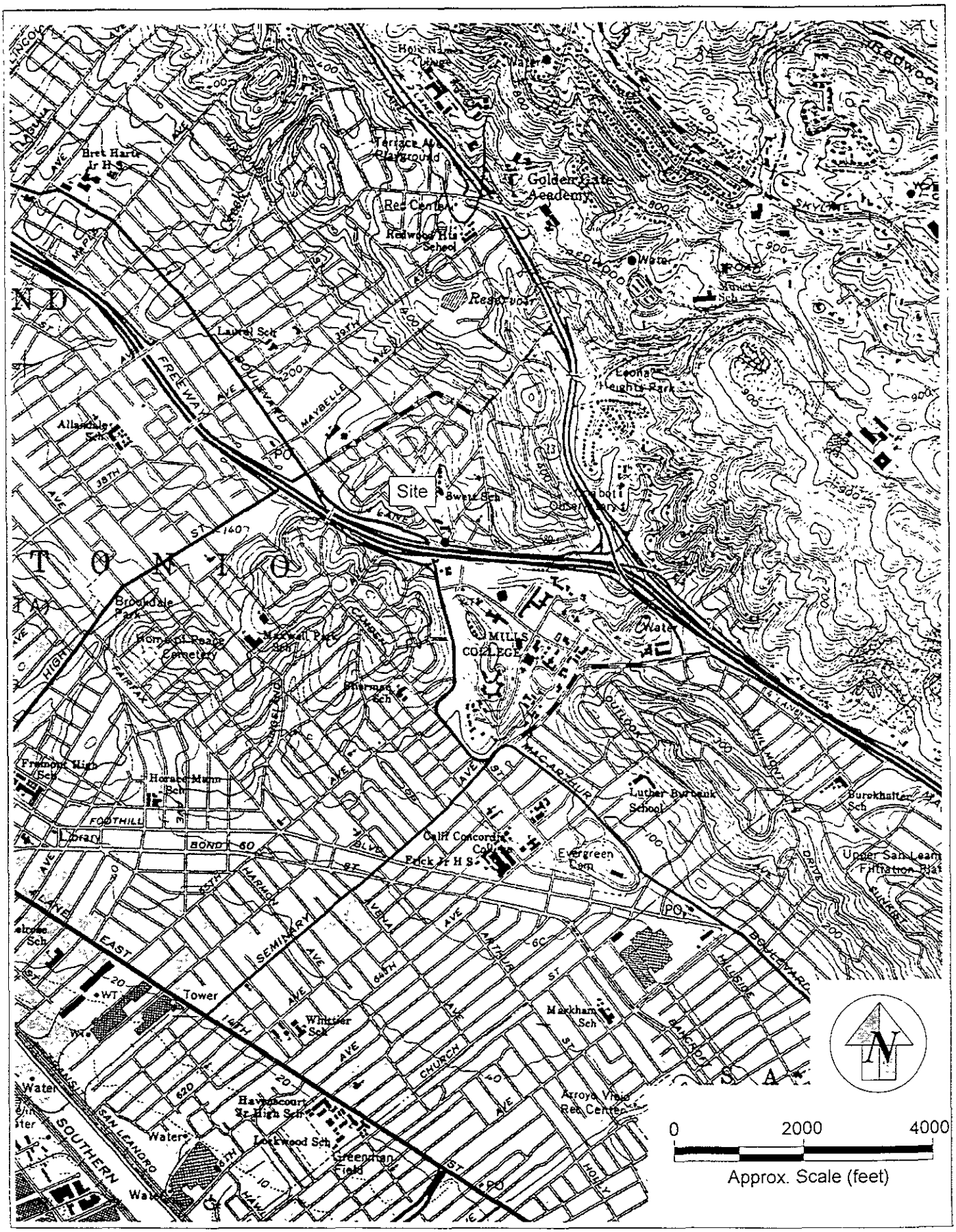

Figure 1. Location and topography, Exxon RS 7-3894, 4868 Calaveras Avenue, Oakland, California.

Drawn	ELA	Date	10/23/96
Reviewed		Date	
Rev		Date	
Final	CM	Date	11/21/96

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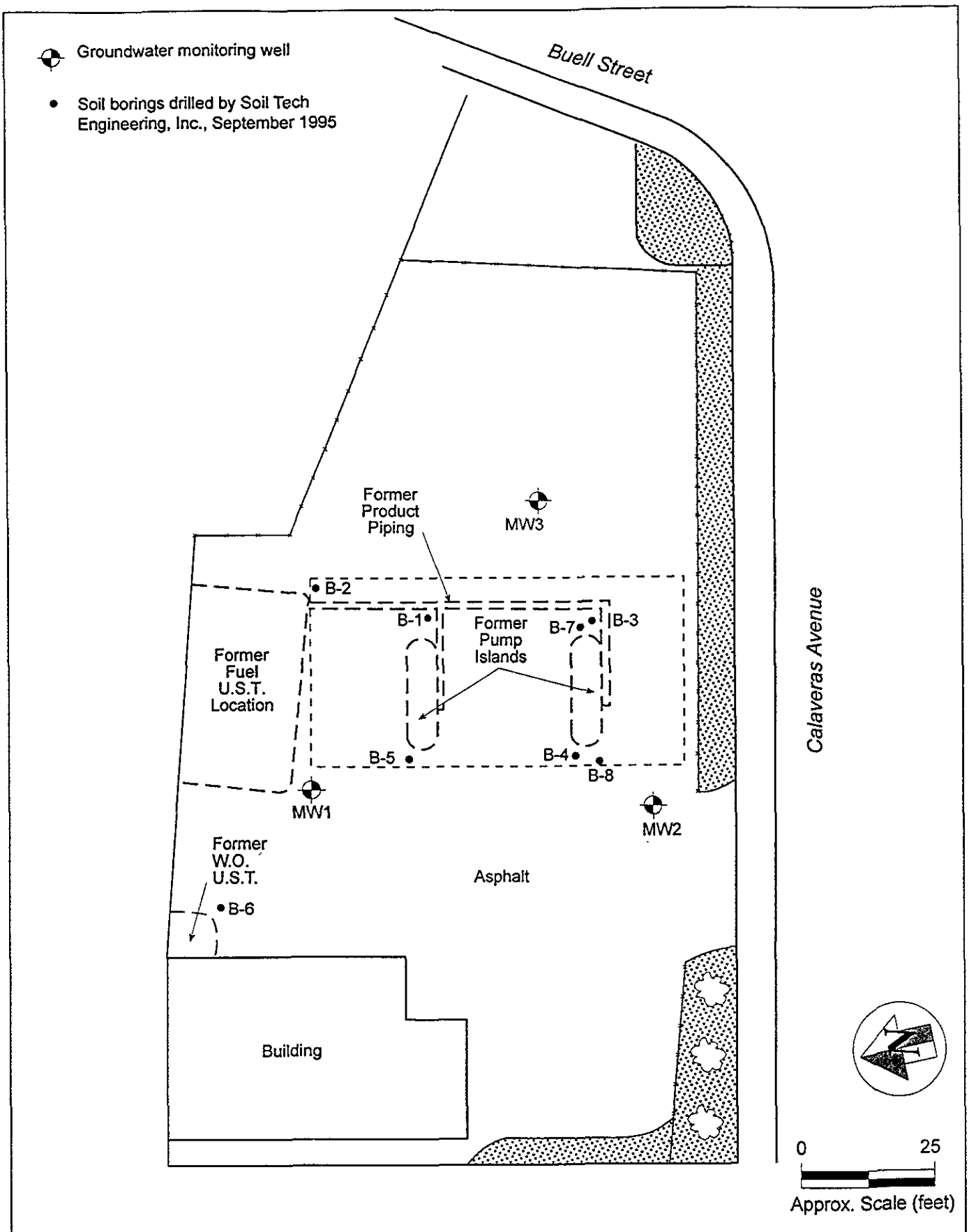

Figure 2. Site map showing locations of groundwater monitoring wells and soil borings, former Exxon RS 7-3894, 4868 Calaveras Avenue, Oakland, California.

Drawn	ELA	Date	10/21/96
Reviewed		Date	
Rev		Date	
Final	CM	Date	11/21/96

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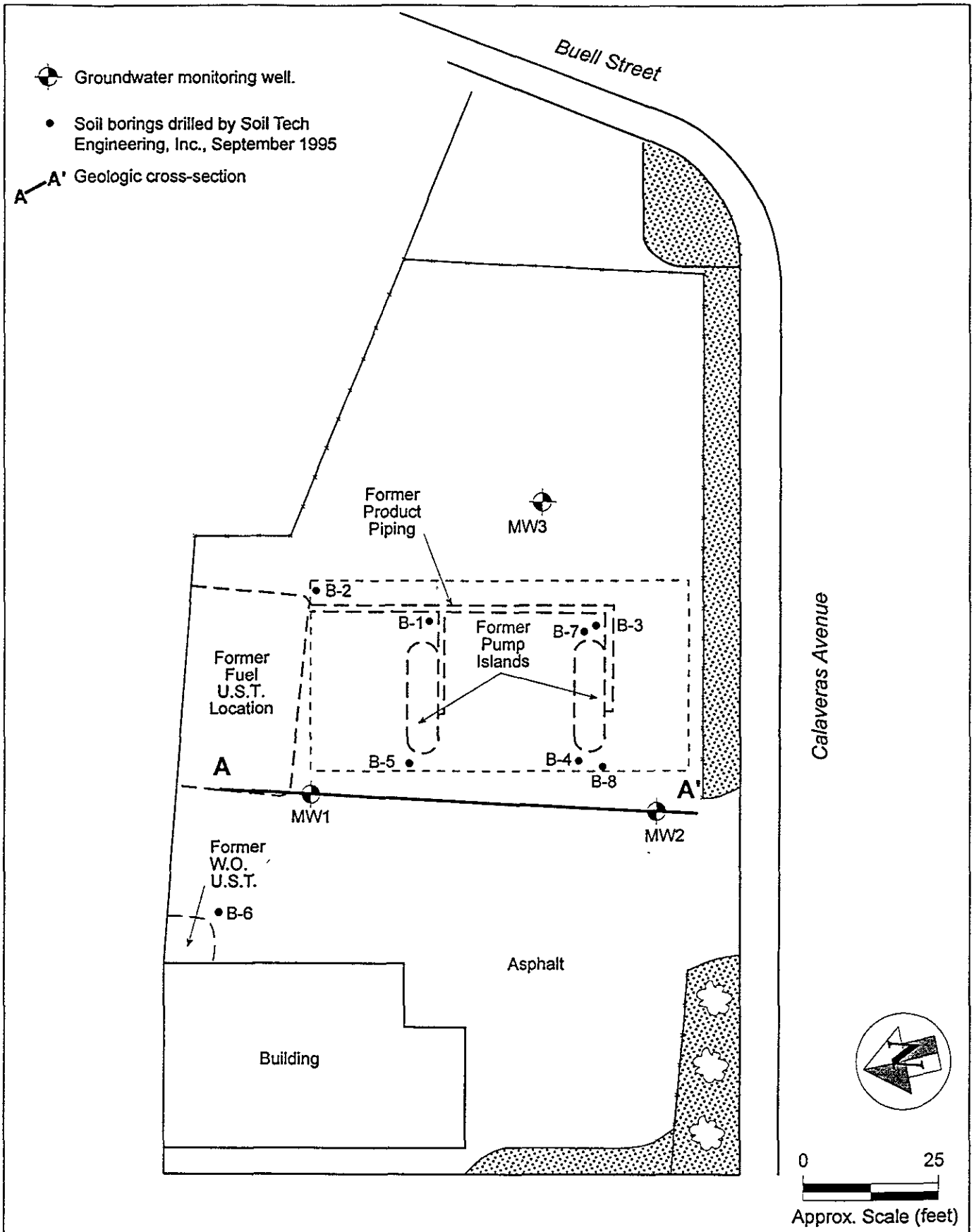

Figure 3. Site map showing geologic cross-section A-A', former Exxon RS 7-3894, 4868 Calaveras Avenue, Oakland, California.

Drawn	CTC	Date	10/25/96
Reviewed		Date	
Rev		Date	
Final	CM	Date	11/21/96

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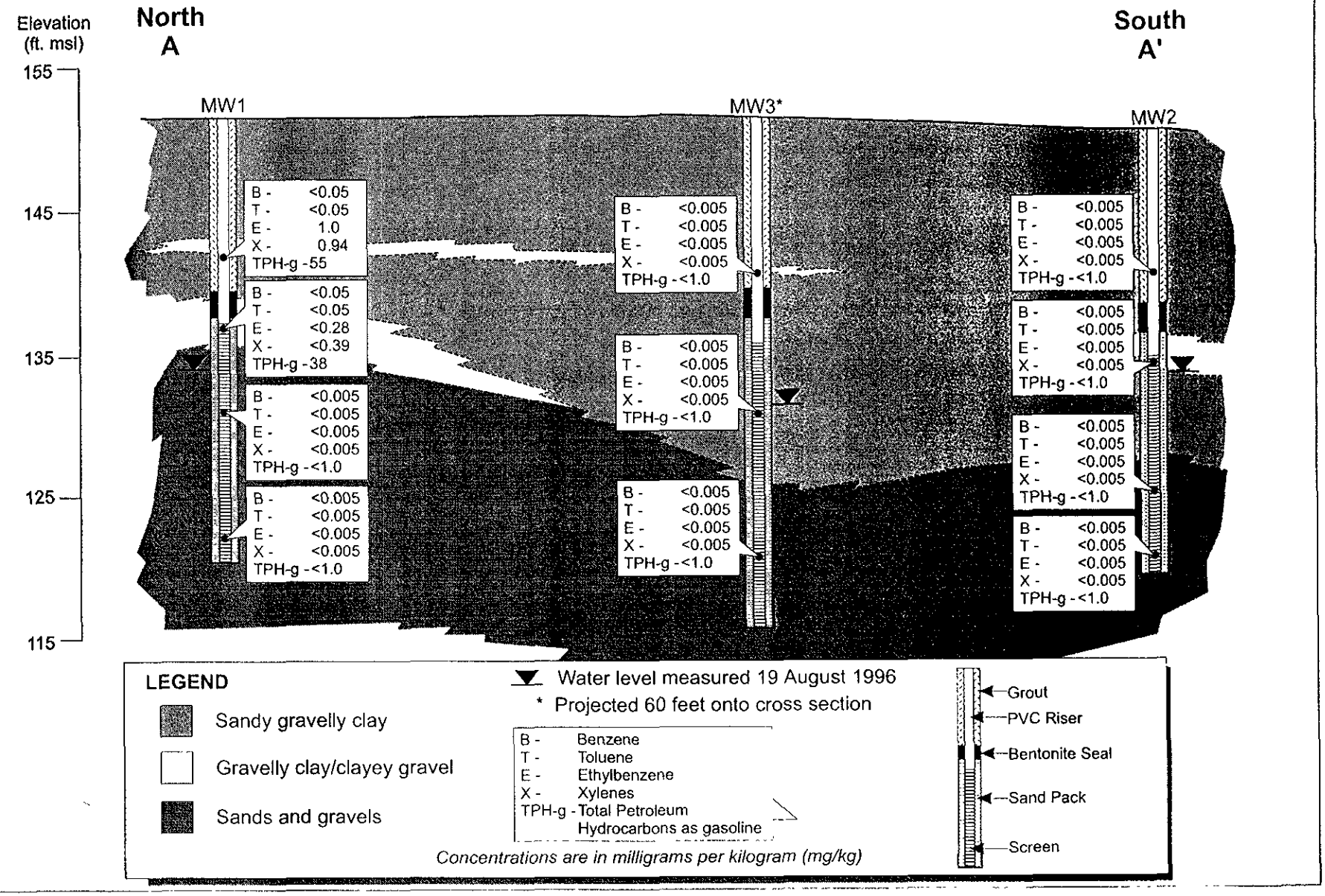

Figure 4. Geologic cross-section A-A', former Exxon 7-3894, 4868 Calaveras Ave., Oakland, California.

Drawn	ELA	Date	10/17/96
Reviewed		Date	
Rev		Date	
Final	CM	Date	11/21/96

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4

TABLES

TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS (mg/kg), FORMER EXXON RS 7-3894, 4868 CALAVERAS AVENUE, OAKLAND, CALIFORNIA, 5 SEPTEMBER 1995

Sample Number	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	TPH-d	TOG	VOCs	Cd	Cr	Pb	Ni	Zn
B-1-5	5	0.018	0.0086	0.025	0.064	4.5	ND	NA	NA	NA	NA	NA	NA	NA
B-1-10	10	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-2-5	5	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-2-9	9	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-3-5	5	0.027	0.05	0.012	0.061	6.0	ND	NA	NA	NA	NA	NA	NA	NA
B-3-9	9	0.099	0.081	0.031	0.12	21	ND	NA	NA	NA	NA	NA	NA	NA
B-4-5	5	0.048	0.045	0.041	0.063	12	ND	NA	NA	NA	NA	NA	NA	NA
B-4-9	9	0.013	0.013	ND	0.016	2.3	ND	NA	NA	NA	NA	NA	NA	NA
B-5-5	5	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-5-9	9	0.022	0.021	0.023	0.083	3.9	ND	NA	NA	NA	NA	NA	NA	NA
B-6-5	5	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-6-9	9	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
B-8-10	10	0.24	0.19	0.083	0.23	110	ND	NA	NA	NA	NA	NA	NA	NA
B-6-5	5							ND	ND	0.7	30	1.9	40	260
B-6-9	9							ND	ND	1.8	ND	4.6	36	290

TPH-g	Total Petroleum Hydrocarbons as gasoline.
TPH-d	Total Petroleum Hydrocarbons as diesel.
TOG	Total Oil and Grease.
VOCs	Volatile Organic Compounds.
Cd	Cadmium.
Cr	Chromium.
Pb	Lead.
Ni	Nickel.
Zn	Zinc.
NA	Not analyzed.
ND	Not detected (below laboratory detection limit).

Source: Soil Tech Engineering, Inc.

File No. 8-95-617-SA

TABLE 2
WATER SAMPLES ANALYTICAL RESULTS
IN
MILLIGRAMS PER LITER (mg/L)

Date	Sample No.	TPHd	TPHg	B	T	E	X
9/05/95	B-2	ND	ND	ND	ND	ND	ND
9/13/95	B-8	ND	2.8	0.013	0.0067	0.013	0.016
			(ppb) → 2,800	13	6.7	13	16

TPHd - Total Petroleum Hydrocarbons as diesel
TPHg - Total Petroleum Hydrocarbons as gasoline
BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes
ND - Not Detected (Below Laboratory Detection Limit)

TABLE 3 CONSTRUCTION DETAILS OF GROUNDWATER MONITORING WELLS, EXXON 7-3894, 4868 CALAVERAS AVENUE, OAKLAND, CALIFORNIA, 7 AUGUST 1996

Well No.	Elevation Ground (ft msl)	Elevation TOC (ft msl)	Casing Material	Total Depth (ft bgs)	Well Depth (ft bgs)	Borehole Diameter (in.)	Well Diameter (in.)	Screened Interval (ft bgs)	Slot Size (in.)	Filter Pack Interval (ft bgs)	Filter Pack Material
MW1	151.54	151.33	PVC	31	31	8.25	2	16-31	0.020	14-31	#3 Lonestar Sand
MW2	150.31	149.95	PVC	31	31	8.25	2	16-31	0.020	14-31	#3 Lonestar Sand
MW3	151.44	151.07	PVC	36	36	8.25	2	16-36	0.020	14-36	#3 Lonestar Sand

ft msl feet above mean sea level
ft bgs feet below ground surface
TOC top of casing

TABLE 5 SOIL SAMPLE ANALYTICAL RESULTS, FORMER EXXON RS 7-3894, 4868 CALAVERAS AVENUE, OAKLAND, CALIFORNIA, 7 AUGUST 1996

		Concentrations (mg/kg)					
Boring No.	Date	Depth (ft bgs)	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g
MW1	8/7/96	9-10	<0.05	<0.05	1.0	0.94	55*
	8/7/96	14	<0.05	<0.05	0.28	0.39	38*
	8/7/96	20-21	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	29-30	<0.005	<0.005	<0.005	<0.005	<1.0
MW2	8/7/96	9-11	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	15-17	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	25-27	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	29-31	<0.005	<0.005	<0.005	<0.005	<1.0
MW3	8/7/96	10-11.5	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	20-21.5	<0.005	<0.005	<0.005	<0.005	<1.0
	8/7/96	30-31.5	<0.005	<0.005	<0.005	<0.005	<1.0

* Hydrocarbons ranging from C8-C12 were present on the sample chromatogram, indicating weathered gasoline.

mg/kg milligrams per kilogram

ft bgs feet bgs

TABLE 4 QUARTERLY GROUNDWATER MONITORING AND SAMPLING RESULTS, 4868 CALAVERAS AVENUE, OAKLAND, CALIFORNIA, 1996

Well No.	Date	Top of Casing Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)	LPH Thickness (ft)	Concentration (µg/L) Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-g	MTBE
MW1	08/19/96	151.33	18.11	133.22	0.00	<0.5	<0.5	<0.5	<0.5	<50	<2.5
MW2	08/19/96	149.95	16.68	133.27	0.00	<0.5	<0.5	<0.5	<0.5	<50	<2.5
MW3	08/19/96	151.07	20.51	130.56	0.00	<0.5	<0.5	<0.5	<0.5	<50	<2.5
Rinse Blank	08/19/96					<0.5	<0.5	<0.5	<0.5	<50	<2.5
Trip Blank	08/19/96					<0.5	<0.5	<0.5	<0.5	<50	<2.5

TPH-g Total Petroleum Hydrocarbons as gasoline.
MTBE Methyl t-butyl ether
ft msl Feet relative to mean sea level.
µg/L Micrograms per liter.

BORING & WELL LOGS

File No 8-95-617-SA

Logged By	Noori Ameli	Exploratory Boring Log	Boring No. B-1
Date Drilled	9/05/95	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, 3-inch dark brown baserock.
					Munsell Soil Color: HUE 10YR 3/3
2					Very dark greyish-brown silty clay, damp, stiff.
					Munsell Soil Color: HUE 10YR 3/2
3					Color gets darker to black silty clay, damp, stiff.
					Munsell Soil Color: HUE 5Y 2.5/1
4					
5	B-1-5			CL	Color gets lighter to dark greyish-brown silty pea gravelly clay, hard.
					Munsell Soil Color: HUE 10YR 4/2
6					
					Color gets lighter brown silty pea gravelly clay, hard.
7					Munsell Soil Color: HUE 10YR 4/3
8					
					Color gets lighter to dark yellowish-brown silty pea
9					gravelly clay, hard.
					Munsell Soil Color: HUE 10YR 4/4
10	B-1-10			CL	▽ First groundwater encountered at 10 feet.
					Dark yellowish-brown silty pea gravelly clay, hard, moist.
11					Munsell Soil Color: HUE 10YR 4/4
					Boring terminated at 10 feet.
12					
13					
14					
15					
16					

Remarks

File No 8-95-617-SA

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. B-2
Date Drilled: 9/05/95	Approx. Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, 3-inch dark brown baserock.
					Munsell Soil Color: HUE 10YR 3/3
					Black silty pea gravelly clay, hard.
2					Munsell Soil Color: HUE 5Y 2.5/1
3					Color gets lighter to very dark greyish-brown silty pea gravelly clay, hard.
4					Munsell Soil Color: HUE 10YR 3/2
5	B-2-5			CL	Dark greyish-brown silty pea gravelly clay, hard.
					Munsell Soil Color: HUE 10YR 3/2
6					
7					
8					
9	B-2-9			CL	Color gets lighter to brown fine sandy pea gravelly, clay, moist.
					Munsell Soil Color: HUE 10YR 4/3
10					▽ First groundwater encountered at 10 feet.
					Boring terminated at 10 feet.
11					
12					
13					
14					
15					
16					

Remarks

File No 8-95-617-SA

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. B-3	
Date Drilled 9/05/95	Approx Elevation	Boring Diameter 8-inch	
Drilling Method: Mobile drill rig B-40L	Sampling Method		

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, 3-inch dark brown baserock.
					Munsell Soil Color: HUE 10YR 3/3
2					Dark olive-grey fine sandy clay, stiff, light petroleum odor.
					Munsell Soil Color: HUE 5Y 3/2
3					
4					Color gets darker to black silty clay, hard, very light petroleum odor.
					Munsell Soil Color: HUE 5Y 2.5/1
5	B-3-5			CL	Black silty clay, hard, very light petroleum odor.
					Munsell Soil Color: HUE 5Y 2.5/1
6					
7					
8					Color changes to dark greyish-brown silty pea gravelly clay, very light petroleum odor.
					Munsell Soil Color: HUE 2.5Y 4/2
9	B-3-9			CL	Dark greyish-brown silty pea gravelly clay, very light petroleum odor.
10					Munsell Soil Color: HUE 2.5Y 4/2
11					Color changes to dark yellowish-brown silty clay, hard, damp.
					Munsell Soil Color: HUE 10YR 4/4
12					Boring terminated at 12 feet.
13					
14					
15					
16					

Remarks

File No. 8-95-617-SA

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. B-4
Date Drilled 9/05/95	Approx Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, dark olive-grey baserock, damp, very light petroleum odor. Munsell Soil Color: HUE 5Y 3/2
2					Color gets darker to very dark grey silty clay, hard, very light petroleum odor, damp. Munsell Soil Color: HUE 5Y 3/1
3					
4					
5	B-4-5			CL	Color changes to olive-brown silty gravelly clay, hard. Munsell Soil Color: HUE 2.5Y 4/4
6					
7					
8					
9	B-4-9			CL	Olive-brown silty gravelly clay, hard, very light petroleum odor. Munsell Soil Color: HUE 2.5 4/4
10					Boring terminated at 10 feet.
11					
12					
13					
14					
15					
16					

Remarks

File No 8-95-617-SA

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. B-5
Date Drilled 9/05/95	Approx. Elevation	Boring Diameter 8-inch
Drilling Method: Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					4-inch asphalt, 4-inch dark brown baserock.
					Munsell Soil Color: HUE 10YR 3/3
					Black silty clay, hard.
2					Munsell Soil Color: HUE 5Y 2.5/1
3					
					Color gets lighter to dark olive-grey silty gravelly clay, hard.
4					Munsell Soil Color: HUE 5Y 3/2
5	B-5-5			CL	Color gets lighter to dark brown silty gravelly clay, hard.
					Munsell Soil Color: HUE 10YR 3/3
6					
7					
					Color gets lighter to olive-brown silty gravelly clay, hard.
8					Munsell Soil Color: HUE 2.5Y 4/4
9	B-5-9			CL	Color changes to dark olive-grey silty gravelly clay, hard.
10					Munsell Soil Color: HUE 5Y 3/2
					Boring terminated at 10 feet.
11					
12					
13					
14					
15					
16					

Remarks

File No 8-95-617-SA

Logged By Noori Ameli	Exploratory Boring Log	Boring No. B-6
Date Drilled 9/05/95	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, 3-inch dark olive-grey baserock. Munsell Soil Color: HUE 5Y 3/2 Color gets darker to very dark grey silty clay, hard. Munsell Soil Color: HUE 5Y 3/1
2					
3					Color gets lighter to very dark grey silty clay, hard. Munsell Soil Color: HUE 10YR 3/1
4					
5	B-6-5			CL	Color changes to olive-brown silty clay with minor pea gravel, hard. Munsell Soil Color: HUE 2.5Y 4/4
6					
7					
8					
9	B-6-9			CL	Olive-brown silty gravelly clay, hard. Munsell Soil Color: HUE 2.5Y 4/4
10					
11					Color changes to dark olive-grey fine sandy gravelly clay, moist, very light petroleum odor.
12					Munsell Soil Color: HUE 5Y 3/2
13					Color changes to olive-brown fine sandy clay, stiff. Munsell Soil Color: HUE 2.5Y 4/4
14					
15					
16					

Remarks

File No 8-95-617-SA

Logged By Noori Ameli	Exploratory Boring Log	Boring No B-6
Date Drilled 9/05/95	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/ft	Unified Soil Classification	DESCRIPTION
17				CL	Color changes to olive-brown fine sandy clay, stiff. Munsell Soil Color: HUE 2.5Y 4/4
18					Olive-brown fine sandy clay, stiff. Munsell Soil Color: HUE 2.5Y 4/4
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Remarks

File No 8-95-617-SA

Logged By Noori Ameli	Exploratory Boring Log	Boring No. B-7
Date Drilled 9/13/95	Approx. Elevation	Boring Diameter 8-inch
Drilling Method Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					3-inch asphalt, 3-inch dark brown baserock. Munsell Soil Color: HUE 10YR 3/3
2				CL	Dark Olive-grey fine sandy clay, stiff, light petroleum odor. Munsell Soil Color: HUE 5Y 3/2
3					Color gets darker to black silty clay, hard, very light petroleum odor.
4					Munsell Soil Color: HUE 5Y 2.5/1
5				CL	Black silty clay, hard, very light petroleum odor.
6					Munsell Soil Color: HUE 5Y 2.5/1
7					
8					
9					Color changes to dark greyish-brown silty pea gravelly clay, very light petroleum odor. Munsell Soil Color: HUE 2.5Y 4/2
10					
11					
12					Color changes to dark yellowish-brown silty clay, hard, damp. Munsell Soil Color: HUE 10YR 4/4
13					
14				CL	Dark yellowish-brown silty clay, hard, damp. Munsell Soil Color: HUE 10YR 4/4
15					Boring terminated at 14 feet.
16					

Remarks

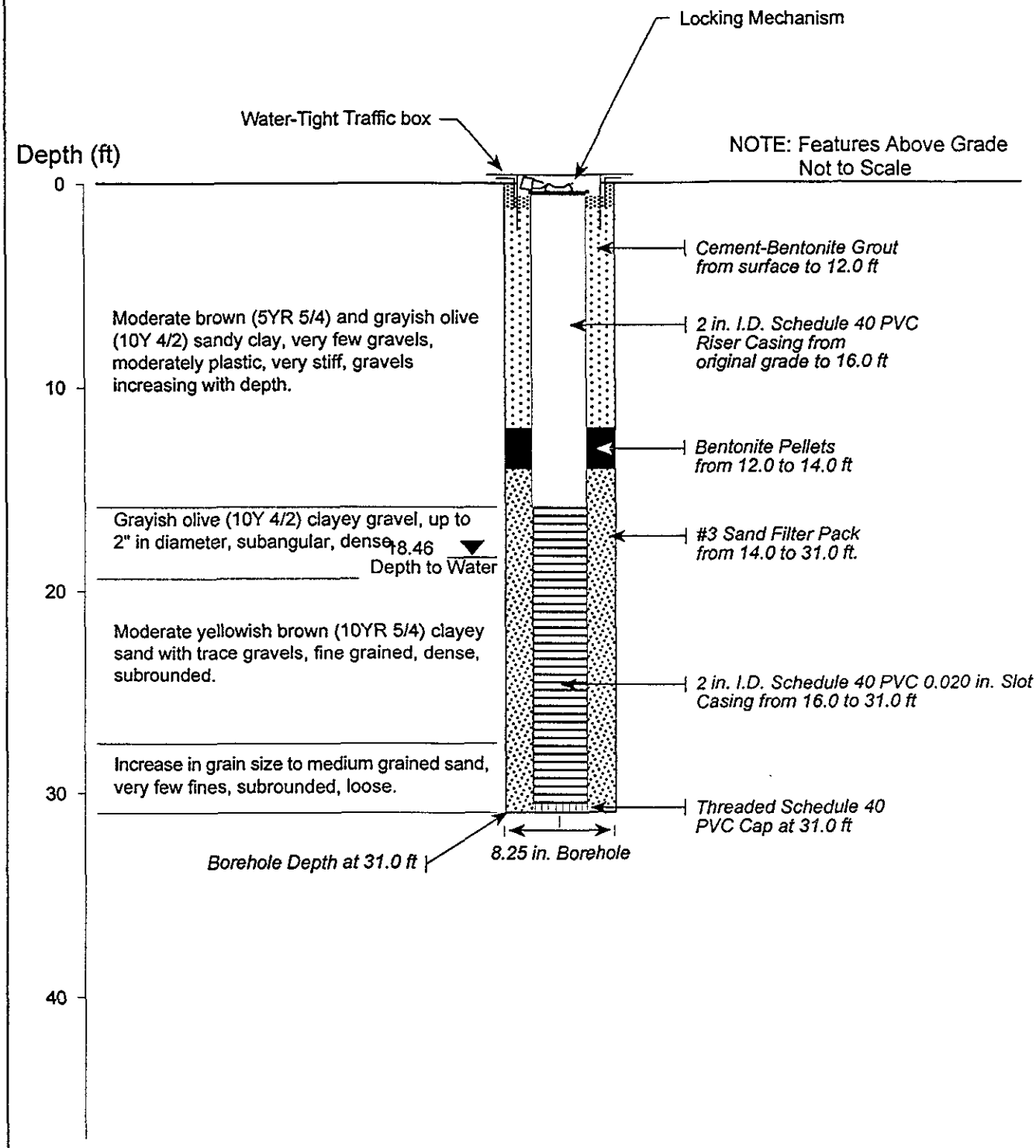
File No 8-95-617-SI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. B-8
Date Drilled 9/13/95	Approx. Elevation	Boring Diameter 8-inch
Drilling Method: Mobile drill rig B-40L		Sampling Method

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1				CL	3-inch asphalt, dark olive-grey baserock, damp, very light petroleum odor. Munsell Soil Color: HUE 5Y 3/2
2					Color gets darker to very dark grey silty clay, hard, very light petroleum odor, damp. Munsell Soil Color: HUE 5Y 3/1
3					
4					
5					Color changes to olive-brown silty gravelly clay, hard. Munsell Soil Color: HUE 2.5Y 4/4
6					
7					
8					
9					
10	B-8-10			CL	Olive-brown silty gravelly clay, hard, very light petroleum odor. Munsell Soil Color: HUE 2.5Y 4/4
11					▽ First groundwater encountered at 11 feet.
12					Boring terminated at 12 feet.
13					
14					
15					
16					

Remarks

WELL COMPLETION DIAGRAM FOR GROUNDWATER MONITORING WELL MW1



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

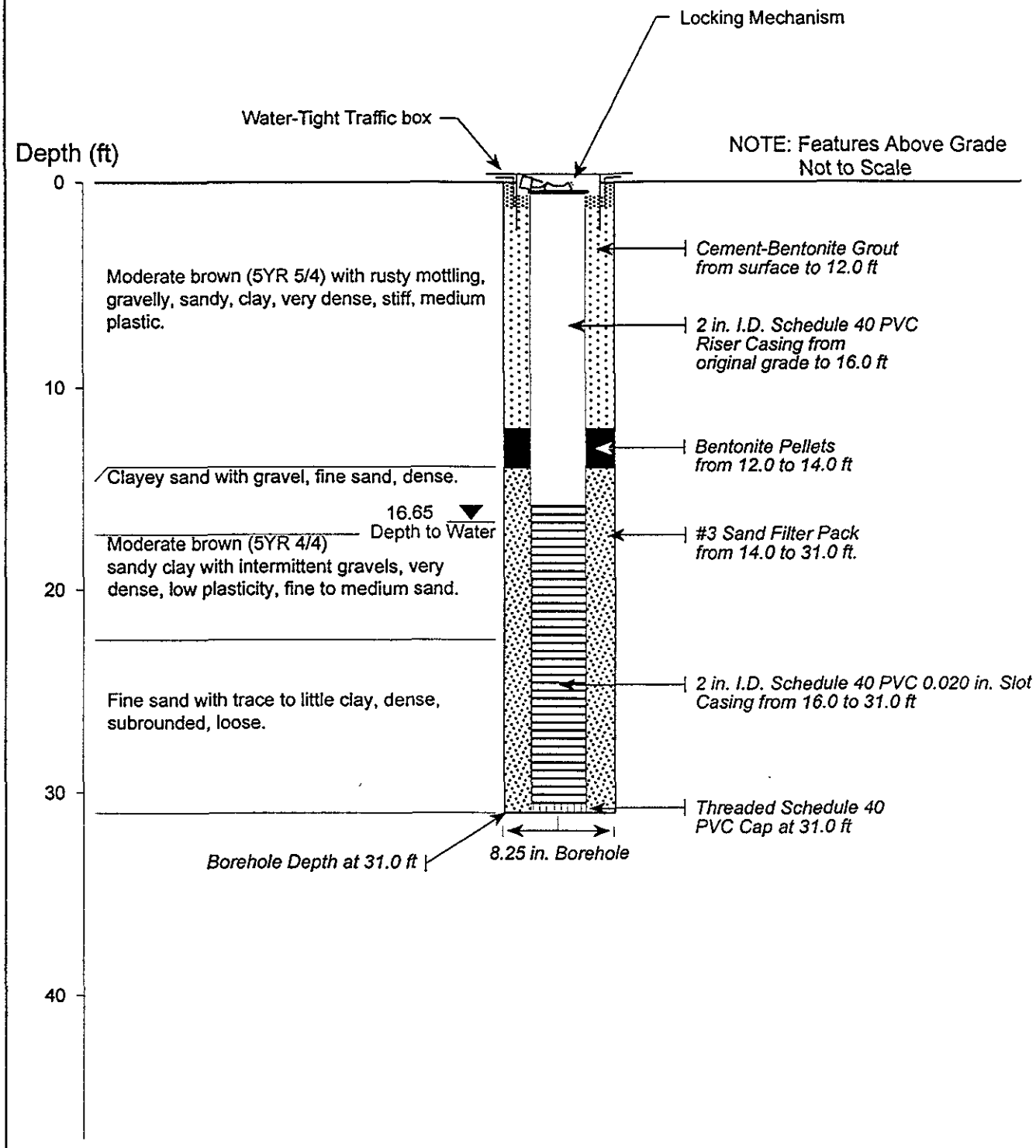
Client: Exxon Company, U.S.A.

Site: RS 7-3894

Location: 4868 Calaveras Avenue, Oakland, California.

73894\...\mw1-wc.fh5

WELL COMPLETION DIAGRAM FOR GROUNDWATER MONITORING WELL MW2

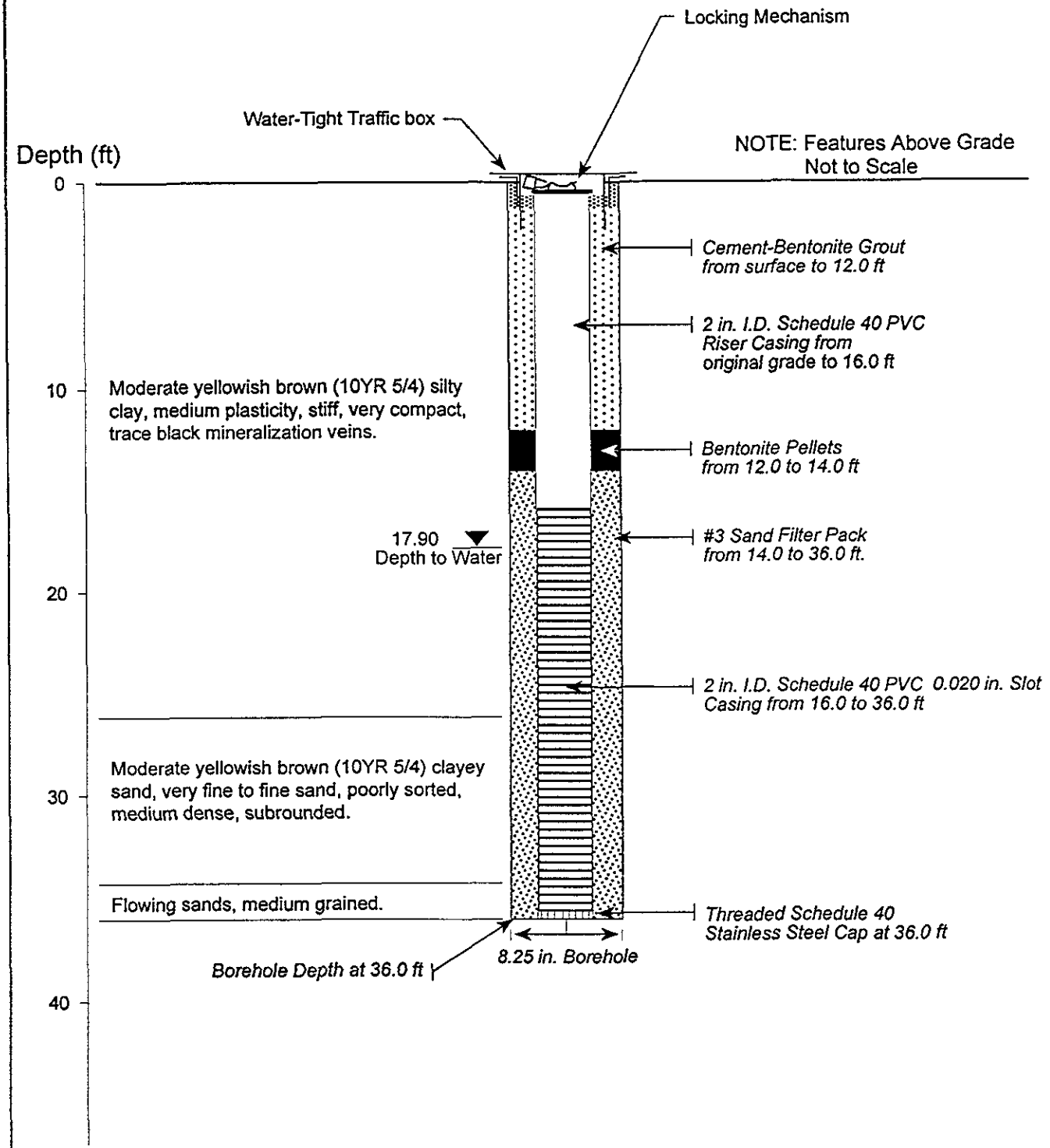


EA ENGINEERING, SCIENCE, AND TECHNOLOGY

Client: Exxon Company, U.S.A.
Site: RS 7-3894
Location: 4868 Calaveras Avenue, Oakland, California.

73894\...\mw2-wc.fh5

WELL COMPLETION DIAGRAM FOR GROUNDWATER RECOVERY WELL MW3



EA ENGINEERING, SCIENCE, AND TECHNOLOGY

Client: Exxon Company, U.S.A.

Site: RS 7-3894

Location: 4868 Calaveras Avenue, Oakland, California.

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