

R469

C A M B R I A

August 9, 2001

AUG 14 2001

Mr. Scott Seery
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Site Conceptual Model and Well Receptor Survey
Shell-branded Service Station
6039 College Avenue
Oakland, California
Incident #98995745
Cambria Project #243-0503-009



Dear Mr. Seery:

On behalf of Equiva Services LLC, Cambria Environmental Technology, Inc. (Cambria) has prepared this site conceptual model (SCM) and well receptor survey for the site.

SITE CONCEPTUAL MODEL

Cambria's preliminary SCM, which details our current understanding of the hydrocarbon sources, pathways, and potential receptors associated with the site, is presented as Attachment A.

WELL RECEPTOR SURVEY

In 1998, Cambria prepared a potential receptor survey for the site that included an Alameda County Department of Public Works database search. The search produced a listing of 37 wells within a ½-mile radius of the site. One well is a domestic water-producing well, and the other 36 are groundwater monitoring wells, peizometers, cathodic protection wells, or test wells. The survey indicated that the closest downgradient wells to the subject site are three monitoring wells located southeast along College Avenue and one cathodic protection well located directly south along Chabot Road. The only potential receptor well in the study area is a domestic well ¼ mile east (upgradient) of the subject site on Ivanhoe Road. Locations of wells identified in the 1998 survey are listed on Table 1 and shown in Figure 1.

Oakland, CA
San Ramon, CA
Sonoma, CA

**Cambria
Environmental
Technology, Inc.**

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For the present study, well records were obtained from the California Department of Water Resources (DWR). These records identified a total of 62 wells, including 1 irrigation well, 6 unknown wells, 5 cathodic protection wells, and 50 monitoring wells within a ½-mile radius of the site. Six of the groundwater-monitoring wells are associated with the subject property. Four wells of unknown use were identified within the study area. One well, installed in 1935, is located approximately ½-mile east (downgradient) of the site. The other three are located approximately ¼-mile south (crossgradient) of the site. Except for monitoring wells, the wells identified by the DWR records are listed on Table 2 and shown in Figure 2. Copies of the well completion reports provided by the DWR are included as Attachment B.




SURFACE WATER BODIES

In 1998, Cambria also reviewed the Oakland East and Oakland West California topographic quadrangles produced by the United States Geological Survey and "Guide to East Bay Creeks," and noted three surface bodies of water within the study area. The first is an intermittent and partially underground section of Claremont Creek located approximately 0.2 miles northeast (upgradient) to east of the subject site. The second is a very small section of the primarily underground Temescal Creek southeast (crossgradient) of the subject site. The third is a section of the Broadway Branch of Glen Echo Creek, at the southeast (crossgradient) edge of the study area (Figure 2).

CONDUIT STUDY

A utility conduit survey was conducted to determine the location of potential preferential pathways beneath the site. Conduit trenches are often back-filled with materials that are more permeable than the surrounding native soils, providing a path of least resistance for petroleum hydrocarbon migration if groundwater levels rise into the trench alignment. The utility survey consisted of reviewing maps and plans acquired from the City of Oakland Engineering Department, East Bay Municipal Utility District (EBMUD) and Pacific Gas and Electric Company (PG&E), and conducting a site visit to identify surface features of underground utilities in the site vicinity. The identified locations of sanitary sewer, storm drain, electrical, water, natural gas, and electric utility lines are shown on Figure 3.

The estimated flow line elevations shown in Figure 3 were calculated by subtracting the depth to the top of the pipe and the pipe diameter from the curb elevation. Sanitary sewer conduits and storm



drain lines run northeast along Claremont Avenue and north along College Avenue. City of Oakland engineering maps indicate that the curb elevation in the vicinity of the site is 199.48 feet above mean sea level (msl). Eight-inch diameter sanitary sewer lines and 90-inch diameter storm drain lines are typically buried at 11 feet to the top of the pipe, resulting in a sanitary sewer flow line elevation of approximately 187.81 feet above msl and a storm drain flow line elevation of approximately 180.98 feet above msl, in the vicinity of the site. Eight-inch diameter water main lines also run northeast along Claremont and north along College. EBMUD engineering maps indicate that the water main pipes are typically buried to a depth of approximately 4 feet to the top of the pipe, resulting in a flow line elevation of approximately 194.81 feet above msl. Buried gas and electric lines are also found along Claremont and College. PG&E records indicate that these 6-inch diameter conduits are buried at approximately 3 feet to the top of the pipe, resulting in a flow line elevation of approximately 195.98 feet above msl.

Historically, groundwater elevation gauged in onsite monitoring wells has ranged from approximately 173 to 187 feet above msl. Thus the groundwater table may have infiltrated the sewer and storm drain trenches and flowed preferentially within porous backfill. The possibility that the conduit trenches are serving as preferential pathways for the migration of petroleum hydrocarbons and methyl tert-butyl ether (MTBE) cannot be ruled out.


CONCLUSIONS

Three surface water bodies and five potential receptor wells have been identified within the study area. Due to either distance or location upgradient and crossgradient of the subject site, it is unlikely that any of these wells would be impacted by hydrocarbons originating from at the site. The findings from the conduit investigation indicate that the potential for preferential pathway migration of petroleum hydrocarbons in existing horizontal utility trenches is possible.

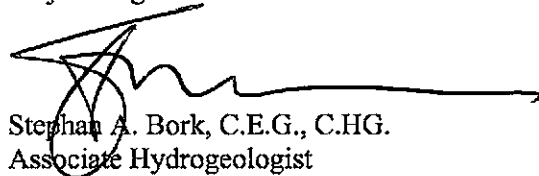
CLOSING

We appreciate the opportunity to work with you on this project. Please call Melody Munz at (510) 420-3324 if you have any questions or comments.

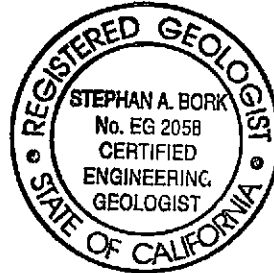
Sincerely,
Cambria Environmental Technology, Inc



Melody Munz
Project Engineer



Stephan A. Bork, C.E.G., C.H.G.
Associate Hydrogeologist



Figures: 1 - Well Locations
2 - Area Well Survey
3 - Underground Utility Locations

Tables: 1 - Well Survey
2 - DWR Well Survey Results (2001)

Attachments: A - Site Conceptual Model
B - DWR Well Completion Records

cc: Karen Petryna, Equiva Services LLC, P.O. Box 7869, Burbank, California 91510-7869

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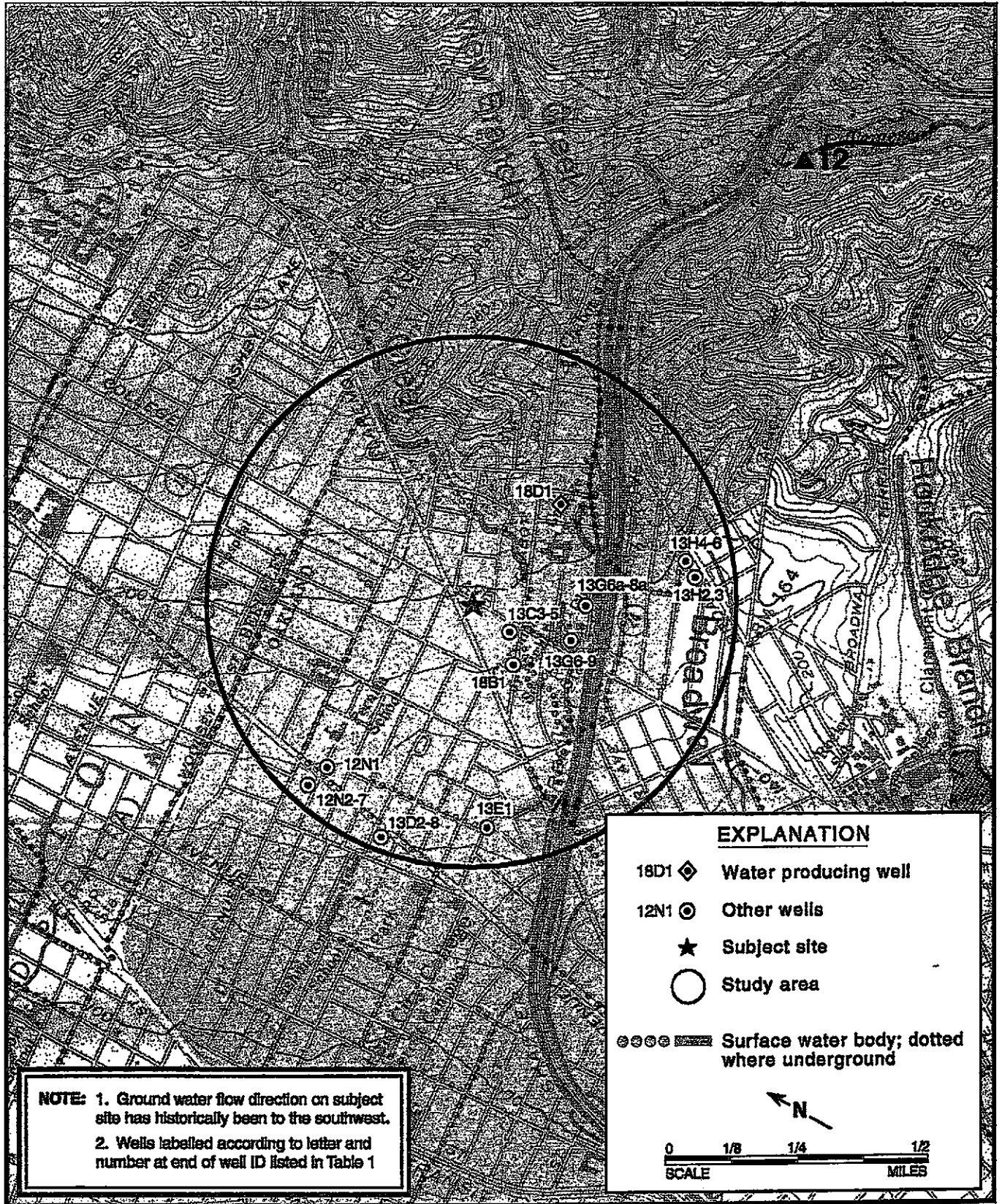
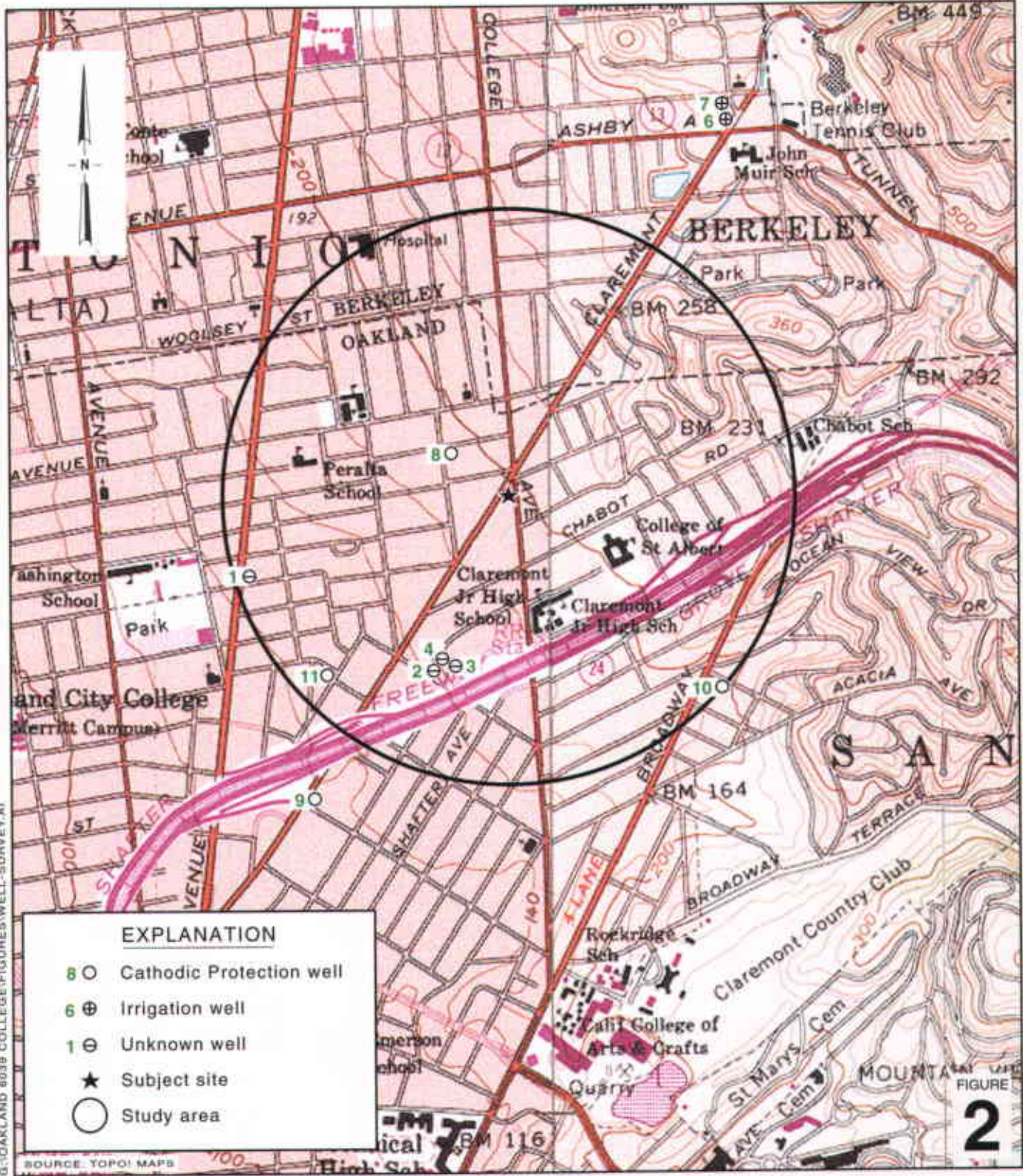


Figure 1. Well Locations - Shell Service Station, 6039 College Avenue, Oakland, California



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Shell-branded Service Station
 6039 College Avenue
 Oakland, California
 Incident #98995745



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Area Well Survey

1/2 Mile Radius

FIGURE
2

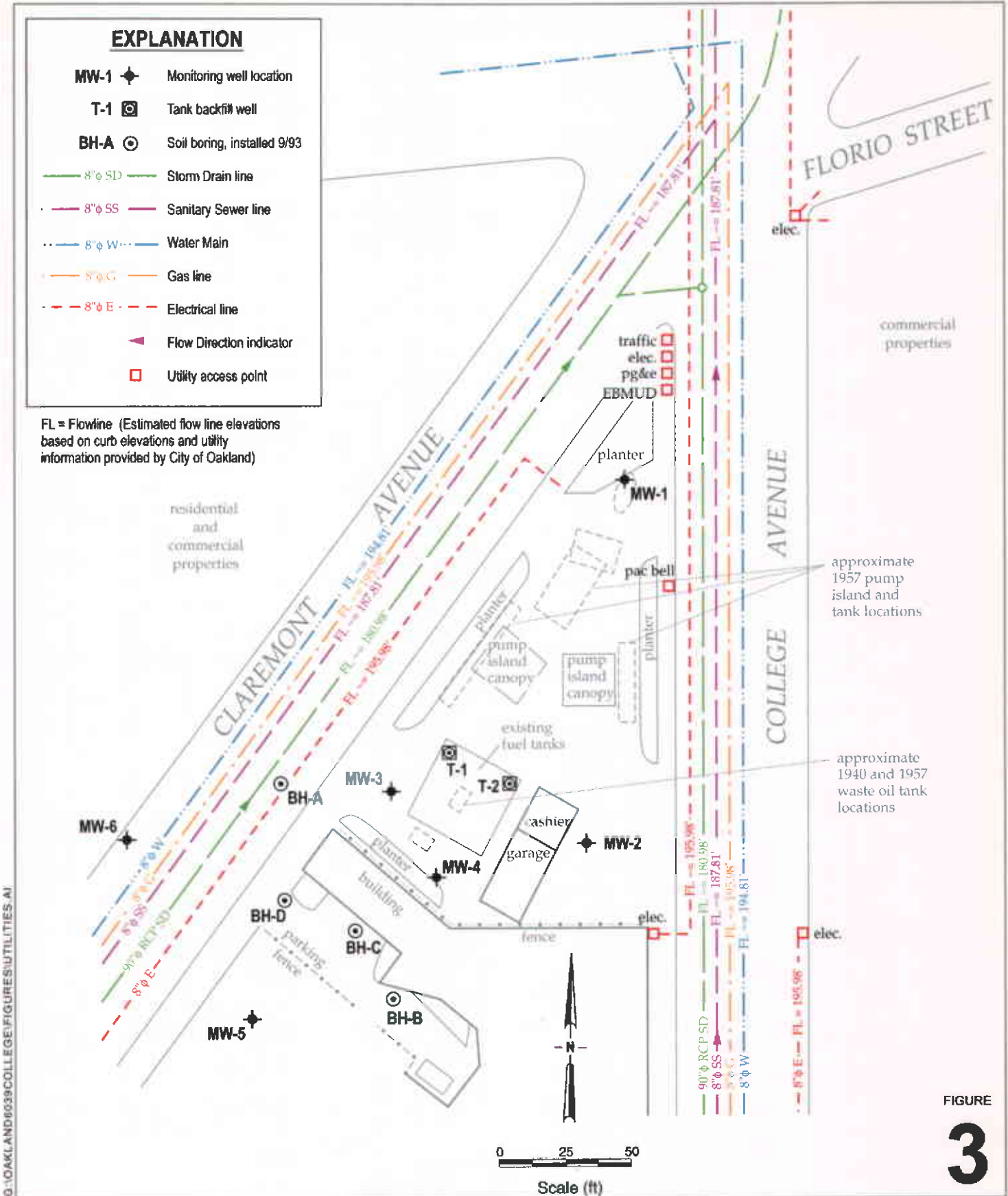


FIGURE
3

Shell-branded Service Station
 6039 College Avenue
 Oakland, California
 Incident #98995745



Underground Utility Locations

Table 1. Well Survey - Shell Service Station - WIC# 204-5508-3301, 6039 College Avenue, Oakland, California

Well ID	Installation Date	Owner	Map	Use	Depth (feet)
1S-4W-13H2	September 1989	Shell Oil Products Company	M	MON	10
1S-4W-13H3	September 1989	Shell Oil Products Company	M	MON	10
1S-4W-13G6	December 1989	Chevron, USA, Inc.	M	MON	17
1S-4W-13G7	December 1989	Chevron, USA, Inc.	M	MON	17
1S-4W-13D8	October 1989	Thrifty Oil Company	M	MON	30
1S-4W-13G8	July 1990	Chevron, USA, Inc.	M	MON	48
1S-4W-13G9	August 1990	Chevron, USA, Inc.	M	MON	28
1S-4W-13B3	January 1990	Shell Oil Products Company	SS	MON	25
1S-4W-13B4	January 1990	Shell Oil Products Company	SS	MON	25
1S-4W-18B1	July 1981	EBMUD	M	CAT	27
1S-4W-18D1	UNK	H.L. Sorensen	M	DOM	80
1S-4W-12N1	July 1988	Givens Investment Company	M	MON	29
1S-4W-12N2	July 1989	Arco Products Company	M	MON	29
1S-4W-12N3	July 1989	Arco Products Company	M	MON	29
1S-4W-12N4	July 1989	Arco Products Company	M	MON	29
1S-4W-12N5	July 1989	Arco Products Company	M	MON	28
1S-4W-13D2	June 1986	Arco Products Company	M	TES	30
1S-4W-13D3	June 1986	Arco Products Company	M	TES	30
1S-4W-13D4	June 1986	Arco Products Company	M	TES	30
1S-4W-13D5	November 1986	Thrifty Oil Company	M	MON	30
1S-4W-13D6	November 1986	Thrifty Oil Company	M	MON	27
1S-4W-13D7	November 1986	Thrifty Oil Company	M	MON	27
1S-4W-13E1	July 1974	PG&E	M	CAT	78
1S-4W-13L2	May 1975	EBMUD	NM	CAT	50
1S-4W-13N2	May 1975	EBMUD	NM	CAT	50
1S-4W-13G6a	April 1989	City of Oakland	M	PIE	28

Table 1. Well Survey - Shell Service Station - WIC# 204-5508-3301, 6039 College Avenue, Oakland, California

Well ID	Installation Date	Owner	Map	Use	Depth (feet)
1S-4W-13G7a	April 1989	City of Oakland	M	PIE	28
1S-4W-13G8a	April 1989	City of Oakland	M	MON	33
1S-4W-13C2	August 1991	Shell Oil Products Company	SS	MON	32
1S-4W-13C3	July 1991	Dryer's Ice Cream	M	MON	30
1S-4W-13C4	July 1991	Dryer's Ice Cream	M	MON	28
1S-4W-13C5	July 1991	Dryer's Ice Cream	M	MON	27
1S-4W-12N6	April 1992	Arco Products Company	M	MON	26
1S-4W-12N7	April 1992	Arco Products Company	M	MON	17
1S-4W-13H4	August 1992	Chevron, USA, Inc	M	MON	43
1S-4W-13H5	August 1992	Chevron, USA, Inc	M	MON	43
1S-4W-13H6	August 1992	Chevron, USA, Inc	M	MON	38

Abbreviations:

- M = Well location shown on map
- NM = Not mapped, unable to determine location
- SS = Well located on subject site
- MON = Monitoring well
- DOM = Domestic well
- PIE = Piezometer
- CAT = Cathodic protection well
- TES = Test well
- UNK = Unknown

Note: Well labelled on Figure 1 by letter and numbers at end of Well ID

Table 2 Well Survey Results (2001) - Shell-branded Service Station, 6039 College Avenue, Oakland, California. Incident # 98995745

LOCATION	Well ID	Installation Date	Owner	Use	Depth (ft bgs)	Screened Interval (ft bgs)	Sealed Interval (ft bgs)
1	1S/4W-13E	July 1, 1935	R.A. Shuey Creamery	UNK	22.0	UNK	UNK
2	1S/4W-13F	UNK	UNK	UNK	122.00	UNK	UNK
3	1S/4W-13F	UNK	UNK	UNK	63.0	UNK	UNK
4	1S/4W-13G	UNK	UNK	UNK	86	UNK	UNK
5	15/4W12H2	Dec. 17, 1990	Claremont Resort and Tennis Club	IRR	200.0	70- 90, 150-180.0	0 to 60.0
6	15/4W-12H1	UNK	Jordan Schnitzer- Claremont Hotel	IRR	200.0	50.0 to 200.0	0 to 50.0
7	1S/4W13C80	July 10, 1975	Pacific Gas and Electric	CATH	81.0	none	0-81
8	1S/4W13M80	August 22, 1975	Pacific Gas and Electric	CATH	120.0	none	0-95
9	1S/4W-13H	December 27, 1973	Pacific Gas and Electric	CATH	120.0	none	0-88
10	1S/4W13E80	UNK	Pacific Gas and Electric	CATH	78	none	0-78

Well Locations provided by the State of California Department of Water Resources

Notes and Abbreviations:

Location = Column number refers to map location on Figure 2.

Well ID = California State well identification number as recorded by the Department of Water Resources in Sacramento, California.

UNK = Unknown.

DOM= Domestic

CATH = Cathodic

IRR =Irrigation

ATTACHMENT A
Site Conceptual Model

SITE CONCEPTUAL MODEL
July 3, 2001
Cambria Environmental Technology, Inc.

Site Address:	6039 College Ave.	Incident Number:	98995745
City:	Oakland, CA	Regulator:	Alameda County Health Care Services Agency

Item	Evaluation Criteria	Comments/Discussion
1	Hydrocarbon Source	
1.1	Identify/Describe Release Source and Volume (if known)	In September 1989, the Alameda County Department of Environmental Health received notification of an unauthorized release from a UST. The source of the release was reported as a slight weep at the piping connection to the submersible pump for a gasoline tank. The volume of release is unknown.
1.2	Discuss Steps Taken to Stop Release	Shell repaired the gasoline tank piping failure in September 1989, immediately after it was detected. Soils associated with the repair work were removed. Dispenser upgrade activities in February 1998 included installation of turbine containment sumps on the USTs, secondary containment pans beneath existing dispensers, and new leak detection sensors.
2	Site Characterization	
2.1	Current Site Use/Status	The site is an active Shell-branded service station at the southern corner of College and Claremont Avenues in Oakland, California. USTs were installed in the 1940s, replaced in 1957, and replaced again in 1978. There are currently three, 10,000 gallon fiberglass USTs at the site. The site is surrounded by mixed residential and commercial property.
2.2	Soil Definition Status	TPHg and BTEX in the soil have been adequately defined as extending a limited distance (less than 80 ft) into the southwest neighboring property and slightly westward beneath Claremont Avenue. Hydrocarbon concentrations in the soil are defined by non-detection of contaminants in soil borings MW-5 and BH-A downgradient of the site, MW-2 crossgradient of the site, and B-1 and B-5 upgradient of the site. The highest contaminant concentrations are approximately 10-18 fbg in the tank pit area.

Item	Evaluation Criteria	Comments/Discussion
2.3	Separate-Phase Hydrocarbon Definition Status	SPH was detected in MW-4 in November 1991. Removal began in December 1991. A petroleum hydrocarbon skimmer was installed in the well to continuously remove the SPH. Additional SPH was removed through manual bailing. Advanced Cleanup Technologies, Inc. of Benicia, California extracted SPH and from MW-4 with a vacuum truck between September 22 and November 10, 1999. Beginning November 10, 1999, Blaine took over the weekly purging events as the volume of groundwater and SPH removed each week was not sufficient to warrant using a vacuum truck. Weekly purging events by Blaine were discontinued on June 8, 2000 due to the absence of SPH in MW-4. Viscous, black SPH, were observed again in MW-4 on May 31, 2001.
2.4	Groundwater Definition Status (BTEX)	BTEX in groundwater has been adequately defined as extending a limited distance (less than 80ft) into the southwest neighboring property and slightly westward beneath Claremont Avenue. Hydrocarbon concentrations in groundwater are defined by non-detection of contaminants in upgradient well MW-1, crossgradient well MW-2, and downgradient wells MW-5 and MW-6.
2.5	BTEX Plume Stability and Concentration Trends	Based on periodic monitoring since 1991, the BTEX plume is essentially stable
2.6	Groundwater Definition Status (MTBE)	The lateral extent of MTBE has been adequately defined upgradient and crossgradient of the site by non-detection in MW-1 and MW-2. The lateral extent of MTBE has not been completely defined in the downgradient direction, although results indicate significant downgradient attenuation from well MW-4 to MW-3, MW-5 and MW-6.. The vertical extent of MTBE has not yet been defined.
2.7	MTBE Plume Stability and Concentration Trends	Based on periodic monitoring since 1996-97, MTBE concentrations appear to be stable. Continued monitoring is necessary to further characterize MTBE concentration trends.
2.8	Groundwater Flow Direction, Depth Trends and Gradient Trends	Groundwater flow ranges from west-southwestward to southwestward at approximately .015 ft/ft. Depth to groundwater in site wells has ranged from 8.5-21 feet bgs. Average depth is about 15-18 feet bgs.
2.9	Stratigraphy and Hydrogeology	The site is located approximately three miles east of San Francisco Bay and one mile southwest of the Berkeley Hills. Site elevation is 190-200 feet above MSL, and topography slopes south-southwest at approximately 1.5 degrees. The site is underlain by fine-grained Quaternary alluvial deposits consisting of interbedded sandy clay and sandy silt with rare silty gravel and sand units to the total depth explored of 50 ft.

Item	Evaluation Criteria	Comments/Discussion
4.4	Well Survey Results	<p>In a 1998 potential receptor survey by Cambria, ACDPW records identified 37 active wells within a one-half mile radius of the site: one is a domestic water-producing well approximately ¼-mile east (upgradient) of the site and the other thirty six are monitoring wells, piezometers, cathodic protection wells, or test wells. The closest wells are three monitoring wells located just less than 1/8 mile southeast along College Avenue. The closest downgradient well is a cathodic protection well located 1/8 mile south along Chabot Road.</p> <p>DWR records identified a total of 62 wells, including one irrigation well, six unknown wells, five cathodic protection wells, and fifty monitoring wells within a ½-mile radius of the site. Six of the groundwater-monitoring wells are associated with the subject property. Four wells of unknown use were identified within the study area. One well, installed in 1935 is located approximately ½-mile east (downgradient) of the site. The other three are located approximately ¼-mile south (crossgradient) of the site.</p>
4.5	Likelihood of Impact to Wells	<p>Unlikely. Given their distance or location upgradient and crossgradient, it is unlikely that any potential receptors would be impacted by hydrocarbons detected at the site. In addition, low permeability sediments make it unlikely that significant plume migration will take place before the petroleum hydrocarbons attenuate.</p>
4.6	Likelihood of Impact to Surface Water	<p>Unlikely, given that the three surface water bodies within one-half mile of the site (sections of Claremont Creek, Temescal Creek, and Glen Echo Creek) are all located upgradient and/or crossgradient (northeast to southeast) of the release. In addition, low permeability sediments make it unlikely that significant plume migration will take place before the remaining petroleum hydrocarbons attenuate.</p>
5	Risk Assessment	
5.1	Site Conceptual Exposure Model (current and future uses)	<p>The site is an active Shell-branded service station surrounded by mixed commercial and residential property. The plume lies beneath the southwestern portion of the site and extends under the northwestern portion of the adjacent commercial property and slightly under Claremont Avenue. Highest contaminant concentrations in soil and groundwater soil exist under the UST complex and the office building on the adjacent property to the south. Identified contaminants of concern (COCs) include BTEX, MTBE and selected VOCs and SVOCs.</p>
5.2	Exposure Pathways	<p>Potential exposure pathways include inhalation of COCs volatilized to indoor and outdoor air from impacted soil and groundwater. Known potential receptors are the commercial occupants of the site and southern adjacent property. A 1995 RBCA identified worst-case receptor was office workers at 6074 Claremont, the building on the adjacent property south of the site.</p>

Item	Evaluation Criteria	Comments/Discussion
2.10	Preferential Pathways Analysis	Three surface water bodies and five potential receptor wells have been identified within the study area. Due to either distance or location upgradient and crossgradient of the subject site, it is unlikely that any would be impacted by hydrocarbons detected at the site. The findings from the conduit investigation indicate that the potential for preferential pathway migration of petroleum hydrocarbons in existing horizontal utility trenches is possible.
2.11	Other Pertinent Issues	
3	Remediation Status	
3.1	Remedial Actions Taken	SPH and groundwater were extracted from wells MW-3 and MW-4 from September 22 until June 8, 2000. No SPH was observed after June 8, 2000, until it was again observed in MW-4 on May 31, 2001. Short-term pilot tests were conducted on March 15, 2001 in MW-3 and MW-4 to determine the effectiveness of dual-phase vacuum extraction (DVE), as well as soil vapor extraction (SVE), in remediating hydrocarbons in soil and groundwater. Water recovery during the DVE pilot test exhibited a significant increase over the average recovery rate for historical total fluid extraction by vacuum truck operations (TFE VacOps); however it was uncertain whether the difference in water recovery could be attributed to the DVE operations. Monthly TFE VacOps will continue at the site and the effectiveness of DVE and TFE VacOps will be re-evaluated in the 4th quarter of 2001.
3.2	Area Remediated	SPH has been observed and removed from wells MW-3 and MW-4. DVE and SVE has focussed on MW-3 and MW-4 as well.
3.3	Remediation Effectiveness	Groundwater extraction activities have removed an estimated total of 9,612 gallons of groundwater, 1.727 pounds of TPPH, .060 lbs of benzene, and 1.876 pounds of MTBE. Vapor extraction activities have removed an estimated total of 0.191 lbs TPHg, 0.004 lbs benzene, and .020 lbs MTBE.
4	Well and Sensitive Receptor Survey	
4.1	Designated Beneficial Water Use	Municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply (RWQCB basin plan)
4.2	Shallow Groundwater Use	Shallow wells within a half-mile of the site are associated with industrial uses.
4.3	Deep Groundwater Use	The deepest wells within a half-mile radius are an 80 ft domestic water-producing well located approximately one quarter mile east of the site and a 78 ft cathodic protection well located about 3/8 mile southwest of the site. Other deep groundwater use is unknown.

Item	Evaluation Criteria	Comments/Discussion
5.3	Risk Assessment Status	The RBCA analysis of July 1995 and RBCA revision of November 1996 found that petroleum hydrocarbons in the soil and groundwater do not present a significant risk to human health. Continued groundwater monitoring and natural attenuation was recommended for remediation. MTBE was not addressed in either the initial RBCA analysis or the revision. Continued monitoring of MTBE levels was recommended.
5.4	Identified Human Exceedances	No exceedances were identified by the risk assessment of 1995-1996.
5.5	Identified Ecological Exceedances	No exceedances were identified by the risk assessment of 1995-1996.
6	Additional Recommended Data or Tasks	
6.1		
6.2		
6.3		
6.4		

Known environmental documents for site:

April 30, 1998, *Dispenser Soil Sampling Report*, Cambria
 March 5, 1998, *Potential Receptor Survey Report*, Cambria
 November 26, 1996, *Corrective Action Plan and RBCA Addendum*, Weiss
 July 12, 1995, *Comprehensive Site Evaluation and Proposed Future Action Plan*, Weiss Associates
 January 3, 1994, *Soil and Water Investigation*, Weiss Associates
 January 10, 1990, *Soil and Water Investigation Work Plan*, Harding Lawson and Associates

Attached:

Latest QMR map (2/01)
 Latest groundwater monitoring tables (2/01)
 Latest groundwater extraction data (2/01)
 Latest Total Recoverable Petroleum Hydrocarbons data (02/01)
 Analytical Results for Soil Samples (summary)
 Soil Analytical Results - Well Borings (1990)
 Soil Analytical Results and Map - Soil Borings (1991)
 Soil Analytical Results and Map - Dispenser Sampling (1997)
 Well Survey map and table (1998)
 Isoconcentration maps for soil and groundwater (1993)
 Boring/Well logs (1991)

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Table 1. Analytic Results for Soil - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Oakland, California

Well/ Boring ID	Date Sampled	Sample Depth (ft)	TPH-G	TPH-D	TPH-MO	POG	B	E	T	X	HVOCs	Pb	Cd	Cr	Zn
B-1	01/04/90	22.5	8.1	---	---	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
B-2	01/05/90	18	130	---	---	---	0.62	0.48	<0.1	1.2	---	---	---	---	---
	01/05/90	24	1.8	---	---	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
B-3	01/05/90	19	610	5,900	110,000	810	0.24	4.1	0.18	9.8	<0.5	13	<0.5	48	51
	01/05/90	21	71	750	14,000	380	0.19	0.53	<0.1	0.68	<0.5	7.6	<0.5	61	54
B-4	01/04/90	18.5	170	---	---	---	0.57	0.65	0.11	1.3	---	---	---	---	---
	01/04/90	25	<1	---	---	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
B-5	01/04/90	22	<1	---	---	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
	01/04/90	23	4.4	---	---	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
B-6	01/05/90	19.5	260	600	12,000	1100	0.28	1.3	<0.1	2.1	<0.5	8.1	<0.5	86	52
	01/05/90	22.5	<1	16	320	91	<0.05	<0.1	<0.1	<0.1	<0.005	9.2	<0.5	73	60
MW-2	02/08/90	11	<1	<1	<10	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
	02/08/90	15.5	<1	<1	<1	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
	02/08/90	20.5	<1	1.1	<10	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
MW-3	02/07/90	10	12	4.4	<10	---	<0.05	<0.1	<0.1	0.11	---	---	---	---	---
	02/07/90	15.5	230	200	1,800	---	1.1	3.1	0.7	1.9	---	---	---	---	---
	02/07/90	20.5	28	9.9	<10	---	<0.05	<0.1	<0.1	<0.1	---	---	---	---	---
MW-4	02/07/90	10.5	<1	1.2	<1	---	<0.05	<0.1	<0.11	<0.1	---	---	---	---	---
	02/07/90	15.5	140	61	6,400	---	0.31	0.92	0.34	2.6	---	---	---	---	---
	02/07/90	20.5	72	2,200	46,000	---	0.06	0.46	<0.1	0.57	---	---	---	---	---
MW-5	08/24/91	6	<1	<1.2	<12	<50	<0.005	<0.00	0.005	<0.005	---	---	---	---	---
	08/24/91	16	23*	7**	13	<50	<0.005	0.02	<0.005	0.10	---	---	---	---	---
	08/24/91	21	<1	<1.2	<12	<50	<0.005	<0.00	<0.005	<0.005	---	---	---	---	---
BH-A	09/09/93	6.0	<1	---	---	---	<0.0025	<0.00	<0.002	<0.0025	---	---	---	---	---
	09/09/93	11.0	28 ^a	11 ^b	---	<50	<0.0025	<0.00	<0.002	<0.0025	c	---	---	---	---
	09/09/93	16.0	130	27 ^b	---	<50	<0.025	1.4	<0.025	0.51	ND	---	---	---	---
BH-B	09/09/93	11.0	<1	---	---	---	<0.0025	<0.00	<0.002	<0.0025	---	---	---	---	---
	09/09/93	15.7	<1	<1	---	<50	<0.0025	<0.00	<0.002	<0.0025	ND	---	---	---	---
BH-C	09/10/93	10.7	<1	---	---	---	<0.0025	<0.00	<0.002	<0.0025	---	---	---	---	---
	09/10/93	15.7	580 ^a	4,900 ^d	---	930	<0.125	<0.12	<0.125	<0.125	ND	---	---	---	---
	09/10/93	20.7	<1	---	---	---	<0.0025	<0.00	<0.002	<0.0025	---	---	---	---	---

Table 1. Analytic Results for Soil and Well Borings - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Oakland, California (continued)

Well/ Boring ID	Date Sampled	Sample Depth (ft)	TPH-G	TPH-D	TPH-MO	POG	B	E	T	X	HVOCs	Pb	Cd	Cr	Zn
			← parts per million (mg/kg) →												
BH-D	09/10/93	10.7	6.8 ^a	8.9 ^b	---	<50	<0.0025	<0.00	<0.002	<0.0025	ND	---	---	---	---
	09/10/93	15.7	150	55	---	69	0.42	<0.02	<0.025	<0.025	ND	---	---	---	---
	09/10/93	20.7	5.6	2.9 ^c	---	<50	<0.0025	0.01	0.007	<0.0025	ND	---	---	---	---
BH-E (MW-6)	09/10/93	10.7	<1	---	---	---	<0.0025	<0.00	<0.002	<0.0025	---	---	---	---	---
	09/10/93	15.7	<1	3.5 ^b	---	<50	<0.0025	<0.00	<0.025	<0.0025	ND	---	---	---	---

Abbreviations:

TPH-G = Total petroleum hydrocarbons as gasoline by Modified EPA Method 8015
 TPH-D = Total petroleum hydrocarbons as diesel by Modified EPA Method 8015
 TPH-MO = Total petroleum hydrocarbons as motor oil by EPA Method 8015
 B = Benzene by EPA Method 8020
 E = Ethylbenzene by EPA Method 8020
 T = Toluene by EPA Method 8020
 X = Xylenes by EPA Method 8020
 POG = Petroleum Oil & Grease by APHA Method 5520B/F
 SVOCs = Semi-Volatile Organic Compounds by EPA Method 8270
 Pb = Lead by EPA Method 7241
 Cd = Cadmium by EPA Method 6010
 Cr = Chromium by EPA Method 6010
 Zn = Zinc by EPA Method 6010
 NE = Not established
 --- = Not analyzed or measured
 <n = Not detected at detection limits of n ppm
 ND = No compounds detected

Notes:

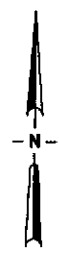
* = Compounds detected are due to petroleum mixture other than gasoline
 ** = Not characteristic of standard diesel pattern
 a = Positive result for TPH-G has an atypical pattern for gasoline
 b = Positive result appears to be a lighter hydrocarbon than diesel
 c = 1.6 ppm diethylphthalate and 0.37 ppm diethyl phthalate detected
 d = Positive result appears to be a heavier hydrocarbon than diesel
 e = Positive result for TPH-D has an atypical pattern for diesel

EXPLANATION

- MW-1 ◆ Monitoring well location
- T-1 □ Tank backfill well
- BH-A ⊙ Soil boring, installed 9/930
- NA Not available
- Groundwater flow direction

— XX.XX Groundwater elevation contour, in feet above mean sea level (msl) approximately located; dashed where inferred

Well — Well designation
ELEV — Groundwater elevation, in feet above msl
Benzene
MTBE — Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8020; MTBE results in parentheses are analyzed by EPA Method 8260. Date is most recent sampling unless otherwise noted.



FLORIO STREET

commercial properties

residential and commercial properties

approximate 1940 pump island and tank locations

MW-1
 181.61
 <0.50 - 2/20/97
 <2.5 - 2/20/97

approximate 1957 pump island and tank locations

AVENUE

approximate 1940 and 1957 waste oil tank locations

COLLEGE AVENUE

AVENUE

MW-6
 NA
 <5.00 - 2/16/01
 3.810 - 2/16/01

MW-3
 179.47
 563
 8,980

existing fuel tanks

MW-2
 180.69
 <0.50 - 2/20/97
 <2.5 - 2/20/97

CLAREMONT AVENUE

BH-A

MW-5
 178.30
 <0.500
 2,440

179.00

180.00

MW-4
 180.07
 309
 (20,300)

BH-D

BH-C

BH-B

179.00

180.00

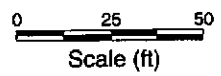
building

garage

cashier

fence

parking fence



FIGURE

1

06/14/01

G:\OAKLAND\6039COLLEGE\FIGURES\1\CM01-MP.A1

Shell-branded Service Station
 6039 College Avenue
 Oakland, California
 Incident #98995745



CAMBRIA

Groundwater Elevation Contour Map

February 13, 2001

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
---------	------	----------------	----------------	-------------	-------------	-------------	-------------	------------------------	------------------------	--------------	----------------------------	--------------------------	--------------------------	---------------------------	-------------

MW-1	02/15/1990	95	650	ND	0.67	0.37	3.2	NA	NA	195.89	17.73	NA	178.16	NA	NA
MW-1	04/19/1990	NA	NA	NA	NA	NA	NA	NA	NA	195.89	18.51	NA	177.38	NA	NA
MW-1	05/14/1990	95	ND	0.7	0.57	0.71	3.5	NA	NA	195.89	18.92	NA	176.97	NA	NA
MW-1	06/21/1990	NA	NA	NA	NA	NA	NA	NA	NA	195.89	18.21	NA	177.68	NA	NA
MW-1	09/12/1990	ND	84	ND	ND	ND	ND	NA	NA	195.89	19.81	NA	176.08	NA	NA
MW-1	11/27/1990	NA	NA	NA	NA	NA	NA	NA	NA	195.89	20.39	NA	175.50	NA	NA
MW-1	03/08/1991	ND	50	ND	ND	ND	ND	NA	NA	195.89	16.85	NA	179.04	NA	NA
MW-1	06/03/1991	ND	ND	ND	ND	ND	ND	NA	NA	195.89	17.82	NA	178.07	NA	NA
MW-1	08/30/1991	16.85	520	ND	ND	ND	ND	NA	NA	195.89	19.87	NA	176.02	NA	NA
MW-1	11/22/1991	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	20.58	NA	175.31	NA	NA
MW-1	03/18/1992	<30	<50	<0.3	<0.3	<0.3	<0.3	NA	NA	195.89	13.55	NA	182.34	NA	NA
MW-1	05/28/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	17.08	NA	178.81	NA	NA
MW-1	08/19/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	19.07	NA	176.82	NA	NA
MW-1	11/17/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	20.11	NA	175.78	NA	NA
MW-1	02/12/1993	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	12.10	NA	183.79	NA	NA
MW-1	06/10/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	14.87	NA	181.02	NA	NA
MW-1	08/18/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	16.90	NA	178.99	NA	NA
MW-1	11/19/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	19.72	NA	176.17	NA	NA
MW-1	02/28/1994	<50	NA	<0.5	<0.5	<0.5	1.7	NA	NA	195.89	15.08	NA	180.81	NA	NA
MW-1	05/04/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	17.20	NA	178.69	NA	NA
MW-1	08/10/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	18.76	NA	177.13	NA	NA
MW-1	11/08/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	16.00	NA	179.89	NA	NA
MW-1	02/01/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	10.18	NA	185.71	NA	NA
MW-1	05/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	11.88	NA	184.01	NA	NA
MW-1	08/24/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	15.60	NA	180.29	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
MW-1	11/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	18.24	NA	177.65	NA	NA
MW-1	02/24/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	195.89	9.88	NA	186.01	NA	NA
MW-1	05/22/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	195.89	12.24	NA	183.65	NA	NA
MW-1	08/19/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	195.89	15.86	NA	180.03	NA	NA
MW-1	12/05/1996	160	NA	7.3	8.2	5.5	23	<2.5	NA	195.89	16.21	NA	179.68	NA	NA
MW-1	01/08/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	195.89	9.73	NA	186.16	NA	NA
MW-1	02/20/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	195.89	11.60	NA	184.29	NA	NA
MW-1	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	195.89	15.02	NA	180.87	NA	NA
MW-1	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	195.89	17.20	NA	178.69	NA	NA
MW-1	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	195.89	16.02	NA	179.87	NA	NA
MW-1	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	195.89	9.35	NA	186.54	NA	NA
MW-1	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	195.89	11.75	NA	184.14	NA	NA
MW-1	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	195.89	13.32	NA	182.57	NA	NA
MW-1	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	195.89	14.01	NA	181.88	NA	NA
MW-1	02/03/1999	NA	NA	NA	NA	NA	NA	NA	NA	195.89	15.62	NA	180.27	NA	NA
MW-1	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	195.89	14.72	NA	181.17	NA	NA
MW-1	08/31/1999	NA	NA	NA	NA	NA	NA	NA	NA	195.89	17.00	NA	178.89	NA	NA
MW-1	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	195.89	18.36	NA	177.53	NA	NA
MW-1	02/11/2000	NA	NA	NA	NA	NA	NA	NA	NA	195.89	15.09	NA	180.80	NA	NA
MW-1	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	195.89	12.97	NA	182.92	NA	NA
MW-1	08/31/2000	NA	NA	NA	NA	NA	NA	NA	NA	195.89	15.02	NA	180.87	NA	NA
MW-1	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	195.89	12.90	NA	182.99	NA	NA
MW-1	02/13/2001	NA	NA	NA	NA	NA	NA	NA	NA	195.89	14.28	NA	181.61	NA	NA
MW-2	02/15/1990	ND	560	ND	ND	ND	ND	NA	NA	194.27	16.90	NA	177.37	NA	NA
MW-2	04/19/1990	NA	NA	NA	NA	NA	NA	NA	NA	194.27	17.69	NA	176.58	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
MW-2	05/14/1990	ND	ND	ND	ND	ND	ND	NA	NA	194.27	18.01	NA	176.26	NA	NA
MW-2	06/21/1990	NA	NA	NA	NA	NA	NA	NA	NA	194.27	17.39	NA	176.88	NA	NA
MW-2	09/12/1990	ND	ND	ND	ND	ND	ND	NA	NA	194.27	19.00	NA	175.27	NA	NA
MW-2	11/27/1990	ND	ND	ND	ND	ND	ND	NA	NA	194.27	19.44	NA	174.83	NA	NA
MW-2	03/08/1991	ND	ND	ND	ND	ND	ND	NA	NA	194.27	15.96	NA	178.31	NA	NA
MW-2	06/03/1991	ND	ND	ND	ND	ND	ND	NA	NA	194.27	17.00	NA	177.27	NA	NA
MW-2	08/30/1991	ND	ND	ND	ND	ND	ND	NA	NA	194.27	18.95	NA	175.32	NA	NA
MW-2	11/22/1991	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	19.55	NA	174.72	NA	NA
MW-2	03/18/1992	<30	NA	<0.3	<0.3	<0.3	<0.3	NA	NA	194.27	12.91	NA	181.36	NA	NA
MW-2	05/28/1992	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	16.25	NA	178.02	NA	NA
MW-2	08/19/1992	<50	NA	<0.5	2	1.2	1.9	NA	NA	194.27	18.21	NA	176.06	NA	NA
MW-2	11/17/1992	<50	NA	<0.5	2	1.2	1.9	NA	NA	194.27	19.15	NA	175.12	NA	NA
MW-2	02/12/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	11.60	NA	182.67	NA	NA
MW-2	06/10/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	14.14	NA	180.13	NA	NA
MW-2	08/18/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	16.10	NA	178.17	NA	NA
MW-2	11/19/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	18.77	NA	175.50	NA	NA
MW-2	02/28/1994	<50	NA	<0.5	<0.5	<0.5	1.6	NA	NA	194.27	14.35	NA	179.92	NA	NA
MW-2	05/04/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	16.34	NA	177.93	NA	NA
MW-2	08/10/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	15.79	NA	178.48	NA	NA
MW-2	11/08/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	15.04	NA	179.23	NA	NA
MW-2	02/01/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	10.08	NA	184.19	NA	NA
MW-2	05/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	11.68	NA	182.59	NA	NA
MW-2	08/24/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	14.94	NA	179.33	NA	NA
MW-2	11/10/1995	<50	NA	1.7	0.8	1.4	4.9	NA	NA	194.27	13.36	NA	180.91	NA	NA
MW-2	02/24/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	194.27	9.90	NA	184.37	NA	NA
MW-2	05/22/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	194.27	11.80	NA	182.47	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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MW-2	08/19/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	<2.5	NA	194.27	15.08	NA	179.19	NA	NA
MW-2	12/05/1996	<50	NA	1.5	1.6	1.2	5.2	<2.5	NA	194.27	15.16	NA	179.11	NA	NA
MW-2	01/08/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	194.27	9.76	NA	184.51	NA	NA
MW-2	02/20/1997	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.5	NA	194.27	11.47	NA	182.80	NA	NA
MW-2	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	194.27	14.30	NA	179.97	NA	NA
MW-2	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	194.27	16.33	NA	177.94	NA	NA
MW-2	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	194.27	15.54	NA	178.73	NA	NA
MW-2	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	194.27	9.43	NA	184.84	NA	NA
MW-2	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	194.27	11.45	NA	182.82	NA	NA
MW-2	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	194.27	12.71	NA	181.56	NA	NA
MW-2	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	194.27	13.98	NA	180.29	NA	NA
MW-2	02/03/1999	NA	NA	NA	NA	NA	NA	NA	NA	194.27	15.01	NA	179.26	NA	NA
MW-2	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	194.27	13.93	NA	180.34	NA	NA
MW-2	08/31/1999	NA	NA	NA	NA	NA	NA	NA	NA	194.27	16.22	NA	178.05	NA	NA
MW-2	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	194.27	17.58	NA	176.69	NA	NA
MW-2	02/11/2000	NA	NA	NA	NA	NA	NA	NA	NA	194.27	14.10	NA	180.17	NA	NA
MW-2	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	194.27	12.72	NA	181.55	NA	NA
MW-2	08/31/2000	NA	NA	NA	NA	NA	NA	NA	NA	194.27	14.39	NA	179.88	NA	NA
MW-2	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	194.27	17.00	NA	177.27	NA	NA
MW-2	02/13/2001	NA	NA	NA	NA	NA	NA	NA	NA	194.27	13.58	NA	180.69	NA	NA

MW-3	02/15/1990	4,700	3,100	320	29	110	33	NA	NA	192.52	15.81	NA	176.71	NA	NA
MW-3	04/19/1990	NA	NA	NA	NA	NA	NA	NA	NA	192.52	16.57	NA	175.95	NA	NA
MW-3	05/14/1990	1,400	60	130	8.6	40	17	NA	NA	192.52	16.97	NA	175.55	NA	NA
MW-3	06/21/1990	NA	NA	NA	NA	NA	NA	NA	NA	192.52	16.27	NA	176.25	NA	NA
MW-3	09/12/1990	2,000	1,500	58	5.8	16	15	NA	NA	192.52	18.78	NA	173.74	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
MW-3	11/27/1990	540	240	18	1.5	8.7	2.5	NA	NA	192.52	18.27	NA	174.25	NA	NA
MW-3	03/08/1991	3,400	2,100	630	33	270	18	NA	NA	192.52	14.86	NA	177.66	NA	NA
MW-3	06/03/1991	1,700	690a	260	13	98	24	NA	NA	192.52	15.84	NA	176.68	NA	NA
MW-3	08/30/1991	870	370a	44	6.1	10	2.9	NA	NA	192.52	17.79	NA	174.73	NA	NA
MW-3	11/22/1991	310	140	18	1.2	3.3	2.9	NA	NA	192.52	18.40	NA	174.12	NA	NA
MW-3	03/18/1992	67,100	1,900	620	28	220	38	NA	NA	192.52	12.03	NA	180.49	NA	NA
MW-3	05/28/1992	2,300	1,100a	200	9	71	17	NA	NA	192.52	15.16	NA	177.36	NA	NA
MW-3	08/19/1992	5,700	1,000a	71	77	52	130	NA	NA	192.52	17.03	NA	175.49	NA	NA
MW-3	11/17/1992	3,600	160a	16	8.6	24	50	NA	NA	192.52	17.94	NA	174.58	NA	NA
MW-3	02/12/1993	4,700	560a	820	58	130	77	NA	NA	192.52	9.16	NA	183.36	NA	NA
MW-3	06/10/1993	2,200	NA	310	23	89	23	NA	NA	192.52	13.20	NA	179.32	NA	NA
MW-3	08/18/1993	260	NA	27	2	7	2.2	NA	NA	192.52	14.93	NA	177.59	NA	NA
MW-3	11/19/1993	1,500a	NA	24	54	37	17	NA	NA	192.52	17.58	NA	174.94	NA	NA
MW-3	02/28/1994	2,700	NA	65	5.2	16	6.3	NA	NA	192.52	13.30	NA	179.22	NA	NA
MW-3	05/04/1994	780	NA	120	7.5	21	6.9	NA	NA	192.52	15.25	NA	177.27	NA	NA
MW-3	08/10/1994	920	NA	20	2.3	3	2.2	NA	NA	192.52	16.63	NA	175.89	NA	NA
MW-3	11/08/1994	1,300	NA	180	16	7	12	NA	NA	192.52	13.88	NA	178.64	NA	NA
MW-3	02/01/1995	1,400	NA	210	8.5	11	8.7	NA	NA	192.52	9.25	NA	183.27	NA	NA
MW-3	05/10/1995	460	NA	97	10	1	19	NA	NA	192.52	10.76	NA	181.74	NA	NA
MW-3	08/24/1995	640	NA	68	21	14	19	NA	NA	192.52	13.90	NA	178.62	NA	NA
MW-3	11/10/1995	350	NA	15	2.3	1.2	2.5	NA	NA	192.52	16.20	NA	176.32	NA	NA
MW-3	02/24/1996	3,300	NA	240	53	38	55	NA	NA	192.52	8.93	NA	183.59	NA	NA
MW-3	05/22/1996	1,300	NA	110	15	<10	<10	3,500	NA	192.52	10.86	NA	181.66	NA	NA
MW-3	08/19/1996	350	NA	15	3.3	3.4	3.3	340	NA	192.52	13.97	NA	178.55	NA	NA
MW-3	12/05/1996	290	NA	12	7.6	5.4	16	370	NA	192.52	14.06	NA	178.46	NA	NA
MW-3	02/20/1997	980	NA	69	7.9	14	15	3,200	NA	192.52	10.60	NA	181.92	NA	NA

WELL CONCENTRATIONS
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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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MW-3	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	192.52	13.26	NA	179.26	NA	NA
MW-3	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	192.52	15.21	NA	177.31	NA	NA
MW-3	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	192.52	14.49	NA	178.03	NA	NA
MW-3	01/20/1998	3,100	NA	360	1,000	73	420	59,000	NA	192.52	8.43	NA	184.09	NA	NA
MW-3	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	192.52	10.55	NA	181.97	NA	NA
MW-3	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	192.52	11.80	NA	180.72	NA	NA
MW-3	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	192.52	11.97	NA	180.55	NA	NA
MW-3	02/03/1999	<10,000	NA	840	131	<100	316	27,600	NA	192.52	13.55	NA	178.97	NA	2.3
MW-3	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	192.52	12.90	NA	179.62	NA	NA
MW-3	08/31/1999	1,550	NA	232	<10.0	125	293	4,620	2,460b	192.52	14.99	NA	177.53	NA	3.4
MW-3	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	192.52	16.35	NA	176.17	NA	NA
MW-3	02/11/2000	10,900	NA	1,030	<50.0	308	1,000	19,300	NA	192.52	12.85	NA	179.67	NA	1.0
MW-3	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	192.52	17.05	NA	175.47	NA	NA
MW-3	08/31/2000	2,560	NA	165	7.19	77.6	183	4,090	NA	192.52	14.26	NA	178.26	NA	c
MW-3	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	192.52	15.75	NA	176.77	NA	NA
MW-3	02/13/2001	5,880	NA	563	<50.0	282	472	8,960	NA	192.52	13.05	NA	179.47	NA	3.6

MW-4	02/15/1990	ND	1,200	ND	ND	ND	ND	NA	NA	193.37	16.73	NA	176.65	NA	NA
MW-4	04/19/1990	NA	NA	NA	NA	NA	NA	NA	NA	193.37	17.48	NA	175.89	NA	NA
MW-4	05/14/1990	650	350	160	7	1.9	3.1	NA	NA	193.37	17.88	NA	175.49	NA	NA
MW-4	06/21/1990	NA	NA	NA	NA	NA	NA	NA	NA	193.37	17.18	NA	176.19	NA	NA
MW-4	09/12/1990	440	260	91	1.1	0.75	0.79	NA	NA	193.37	17.85	NA	175.52	NA	NA
MW-4	11/27/1990	470	2,400	64	1.2	0.8	2.7	NA	NA	193.37	19.16	NA	174.21	NA	NA
MW-4	03/08/1991	1,100	2,600	330	3.5	88	5.8	NA	NA	193.37	15.77	NA	177.60	NA	NA
MW-4	06/03/1991	670	1,100	240	2.3	1.6	2.3	NA	NA	193.37	16.77	NA	176.60	NA	NA
MW-4	08/30/1991	570	280	64	1.8	0.9	0.9	NA	NA	193.37	18.71	NA	174.66	NA	NA

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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
MW-4	11/22/1991	NA	NA	NA	NA	NA	NA	NA	NA	193.37	NA	NA	NA	NA	NA
MW-4	01/15/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	NA	NA	NA	NA	NA
MW-4	02/15/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	NA	NA	NA	NA	NA
MW-4	03/18/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	13.15	NA	180.41	0.24	NA
MW-4	04/29/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	NA	NA	NA	NA	NA
MW-4	05/28/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	16.22	NA	177.25	0.12	NA
MW-4	08/19/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	18.05	NA	175.39	0.09	NA
MW-4	11/17/1992	NA	NA	NA	NA	NA	NA	NA	NA	193.37	18.89	NA	174.48	NA	NA
MW-4	02/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	193.37	11.78	NA	181.59	<0.01	NA
MW-4	06/10/1993	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.20	NA	179.17	0.02	NA
MW-4	08/18/1993	NA	NA	NA	NA	NA	NA	NA	NA	193.37	15.95	NA	177.43	0.01	NA
MW-4	11/19/1993	NA	NA	NA	NA	NA	NA	NA	NA	193.37	18.48	NA	174.90	0.01	NA
MW-4	02/28/1994	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.60	NA	178.77	0.01	NA
MW-4	05/04/1994	NA	NA	NA	NA	NA	NA	NA	NA	193.37	16.15	NA	177.22	<0.01	NA
MW-4	08/10/1994	NA	NA	NA	NA	NA	NA	NA	NA	193.37	17.58	NA	175.81	0.02	NA
MW-4	11/10/1994	NA	NA	NA	NA	NA	NA	NA	NA	193.37	15.05	NA	178.36	0.05	NA
MW-4	02/01/1995	NA	NA	NA	NA	NA	NA	NA	NA	193.37	10.71	NA	182.69	0.04	NA
MW-4	05/10/1995	NA	NA	NA	NA	NA	NA	NA	NA	193.37	11.90	NA	181.52	0.06	NA
MW-4	08/24/1995	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.97	NA	178.42	0.02	NA
MW-4	11/10/1995	4,700	NA	100	22	23	38	NA	NA	193.37	17.27	NA	176.10	<0.01	NA
MW-4	02/24/1996	NA	NA	NA	NA	NA	NA	NA	NA	193.37	10.44	NA	182.95	0.03	NA
MW-4	05/22/1996	NA	NA	NA	NA	NA	NA	NA	NA	193.37	11.88	NA	181.51	0.03	NA
MW-4	08/19/1996	NA	NA	NA	NA	NA	NA	NA	NA	193.37	15.23	NA	178.16	0.02	NA
MW-4	12/05/1996	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.70	NA	178.69	0.02	NA
MW-4	01/08/1997	<10,000	NA	<100	<100	<100	<100	24,000	NA	193.37	11.60	NA	181.79	0.02	NA
MW-4	02/20/1997	<10,000	NA	490	<100	<100	<100	59,000	NA	193.37	11.91	NA	181.46	NA	NA

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6039 College Avenue
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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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MW-4	05/30/1997	<2,000	NA	72	<20	<20	<20	6,100	NA	193.37	14.68	NA	178.69	NA	NA
MW-4	08/18/1997	<5,000	NA	150	570	<50	130	31,000	NA	193.37	15.07	NA	178.30	NA	NA
MW-4	11/03/1997	32,000	NA	1,100	6,100	640	3,600	78,000	NA	193.37	15.87	NA	177.50	NA	NA
MW-4	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	193.37	10.25	NA	183.62	0.62	NA
MW-4	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	193.37	11.62	NA	181.80	0.06	NA
MW-4	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	193.37	13.93	NA	179.51	0.09	NA
MW-4	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.07	14.03	179.33	0.04	NA
MW-4	12/09/1998	NA	NA	NA	NA	NA	NA	NA	NA	193.37	15.84	15.81	177.55	0.03	NA
MW-4	02/03/1999	NA	NA	NA	NA	NA	NA	NA	NA	193.37	15.58	15.55	177.81	0.03	NA
MW-4	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	193.37	14.04	14.02	179.35	0.02	NA
MW-4	08/31/1999	NA	NA	NA	NA	NA	NA	NA	NA	193.37	16.15	16.12	177.24	0.03	NA
MW-4	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	193.37	17.41	17.31	176.04	0.10	NA
MW-4	02/11/2000	47,200	NA	905	<200	479	3,690	27,400	30,300b	193.37	14.82	NA	178.55	NA	0.6
MW-4	05/04/2000	30,800	NA	1,650	<100	574	3,310	28,600	31,200b	193.37	12.64	NA	180.73	NA	2.1
MW-4	08/31/2000	5,470	NA	366	<10.0	296	834	3,950	NA	193.37	16.47	NA	176.90	NA	c
MW-4	11/30/2000	20,700	NA	525	<50.0	447	1,570	2,440	4,280b	193.37	17.67	NA	175.70	NA	3.3
MW-4	02/13/2001	16,200	NA	909	<50.0	514	2,390	21,300	20,300	193.37	13.30	NA	180.07	NA	2.4

MW-5	08/30/1991	ND	80	ND	ND	ND	ND	NA	NA	190.35	16.74	NA	173.61	NA	NA
MW-5	11/22/1991	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	17.27	NA	173.08	NA	NA
MW-5	03/18/1992	<30	<50	<0.3	<0.3	<0.3	<0.3	NA	NA	190.35	11.28	NA	179.07	NA	NA
MW-5	05/28/1992	Well Inaccessible		NA	NA	NA	NA	NA	NA	190.35	NA	NA	NA	NA	NA
MW-5	08/19/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	15.99	NA	174.36	NA	NA
MW-5	11/17/1992	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	16.84	NA	173.51	NA	NA
MW-5	02/12/1993	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	10.30	NA	180.05	NA	NA
MW-5	06/10/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	12.36	NA	177.99	NA	NA

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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
MW-5	08/18/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	14.02	NA	176.33	NA	NA
MW-5	11/19/1993	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	16.50	NA	173.85	NA	NA
MW-5	02/28/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	12.55	NA	177.80	NA	NA
MW-5	05/04/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	14.27	NA	176.08	NA	NA
MW-5	08/10/1994	70a	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	15.60	NA	174.75	NA	NA
MW-5	11/08/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	12.85	NA	177.50	NA	NA
MW-5	02/01/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	8.98	NA	181.37	NA	NA
MW-5	05/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	10.16	NA	180.19	NA	NA
MW-5	08/24/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	12.98	NA	177.37	NA	NA
MW-5	11/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	190.35	15.12	NA	175.23	NA	NA
MW-5	02/24/1996	NA	NA	NA	NA	NA	NA	NA	NA	190.35	NA	NA	NA	NA	NA
MW-5	05/22/1996	<2,000	NA	<20	<20	<20	<20	NA	NA	190.35	10.10	NA	180.25	NA	NA
MW-5	08/19/1996	<2,500	NA	<25	<25	<25	<25	NA	NA	190.35	13.09	NA	177.26	NA	NA
MW-5	12/05/1996	<500	NA	<5.0	<5.0	<5.0	<5.0	NA	NA	190.35	13.31	NA	177.04	NA	NA
MW-5	02/20/1997	<1,000	NA	<10	<10	<10	<10	NA	NA	190.35	9.55	NA	180.80	NA	NA
MW-5	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	190.35	12.40	NA	177.95	NA	NA
MW-5	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	190.35	14.19	NA	176.16	NA	NA
MW-5	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	190.35	13.66	NA	176.69	NA	NA
MW-5	01/20/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	1,600	NA	190.35	8.06	NA	182.29	NA	NA
MW-5	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	190.35	9.95	NA	180.40	NA	NA
MW-5	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	190.35	11.10	NA	179.25	NA	NA
MW-5	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	190.35	12.21	NA	178.14	NA	NA
MW-5	02/03/1999	<500	NA	<5.00	<5.00	<5.00	<5.00	2850	NA	190.35	12.99	NA	177.36	NA	2.4
MW-5	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	190.35	12.08	NA	178.27	NA	NA
MW-5	08/31/1999	<50.0	NA	<0.500	<0.500	<0.500	<0.500	4,260	NA	190.35	14.05	NA	176.30	NA	2.7
MW-5	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	190.35	15.41	NA	174.94	NA	NA

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Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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MW-5	02/11/2000	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	190.35	12.42	NA	177.93	NA	1.7
MW-5	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	190.35	11.13	NA	179.22	NA	NA
MW-5	08/31/2000	<500	NA	<5.00	<5.00	<5.00	<5.00	13,000	15,700b	190.35	13.53	NA	176.82	NA	c
MW-5	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	190.35	14.65	NA	175.70	NA	NA
MW-5	02/13/2001	<50.0	NA	<0.500	<0.500	<0.500	<0.500	2,440	NA	190.35	12.05	NA	178.30	NA	4.1

MW-6	09/21/1993	<50	<50	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	14.64	NA	174.41	NA	NA
MW-6	11/19/1993	NA	NA	NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	02/28/1994	98a	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	12.18	NA	176.87	NA	NA
MW-6	05/04/1994	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	13.62	NA	175.43	NA	NA
MW-6	08/10/1994	80a	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	14.98	NA	174.07	NA	NA
MW-6	11/08/1994	NA	NA	NA	NA	NA	NA	NA	NA	189.05	12.20	NA	176.85	NA	NA
MW-6	02/01/1995	120	NA	3.5	21	3.4	22	NA	NA	189.05	8.70	NA	180.35	NA	NA
MW-6	05/10/1995	NA	NA	NA	NA	NA	NA	NA	NA	189.05	9.86	NA	179.19	NA	NA
MW-6	08/24/1995	80	NA	<0.5	<0.5	1.8	2.4	NA	NA	189.05	12.46	NA	176.59	NA	NA
MW-6	11/10/1995	<50	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	14.56	NA	174.49	NA	NA
MW-6	11/10/1995	60	NA	<0.5	<0.5	<0.5	<0.5	NA	NA	189.05	14.56	NA	174.49	NA	NA
MW-6	02/24/1996	NA	NA	NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	05/22/1996	<50	NA	<0.5	<0.5	<0.5	<0.5	290	NA	189.05	10.23	NA	178.82	NA	NA
MW-6	08/19/1996	<1,250	NA	<12	<12	<12	<12	1,100	NA	189.05	12.61	NA	176.44	NA	NA
MW-6	12/05/1996	<125	NA	<1.2	<1.2	<1.2	<1.2	440	NA	189.05	12.47	NA	176.58	NA	NA
MW-6	02/20/1997	<100	NA	<1.0	<1.0	<1.0	<1.0	480	NA	189.05	9.85	NA	179.20	NA	NA
MW-6	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	189.05	11.96	NA	177.09	NA	NA
MW-6	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	189.05	13.65	NA	175.40	NA	NA
MW-6	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	01/20/1998	<50	NA	<0.50	<0.50	<0.50	<0.50	340	NA	189.05	7.76	NA	181.29	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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MW-6	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	189.05	9.85	NA	179.20	NA	NA
MW-6	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	189.05	10.99	NA	178.06	NA	NA
MW-6	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	189.05	11.36	NA	177.69	NA	NA
MW-6	02/03/1999	Well Inaccessible		NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	06/04/1999	Well Inaccessible		NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	06/22/1999	<5,000	NA	<50.0	<50.0	<50.0	<50.0	2,800	NA	189.05	12.15	NA	176.90	NA	2.1
MW-6	08/31/1999	<50.0	NA	<0.500	<0.500	<0.500	<0.500	3,390	NA	189.05	13.62	NA	175.43	NA	2.5
MW-6	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	189.05	14.98	NA	174.07	NA	NA
MW-6	02/11/2000	<50.0	NA	<0.500	<0.500	<0.500	<0.500	<2.50	NA	189.05	12.00	NA	177.05	NA	1.1
MW-6	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	189.05	10.94	NA	178.11	NA	NA
MW-6	08/31/2000	<250	NA	<2.50	<2.50	<2.50	<2.50	4,460	NA	189.05	13.19	NA	175.86	NA	c
MW-6	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	189.05	14.28	NA	174.77	NA	NA
MW-6	02/13/2001	Well Inaccessible		NA	NA	NA	NA	NA	NA	189.05	NA	NA	NA	NA	NA
MW-6	02/16/2001	<500	NA	<5.00	<5.00	<5.00	<5.00	3,910	NA	189.05	12.10	NA	176.95	NA	3.8

T-1	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	02/03/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	08/31/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA

WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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T-1	02/11/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	08/31/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-1	02/13/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA

T-2	05/30/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	08/18/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	11/03/1997	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	01/20/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	06/05/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	07/23/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	11/19/1998	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	02/03/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	06/04/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	08/31/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	12/10/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	02/11/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	05/04/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	08/31/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA
T-2	11/30/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.50	NA	NA	NA	NA
T-2	02/13/2001	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	NA	NA	NA

BH-A	09/09/1993	4,900	2,900a	18	<5	54	11	NA	NA	NA	16.50	NA	NA	NA	NA
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BH-B	09/09/1993	<50	150	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	15.85	NA	NA	NA	NA
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WELL CONCENTRATIONS
Shell-branded Service Station
6039 College Avenue
Oakland, CA
Wic #204-5508-3301

Well ID	Date	TPPH (ug/L)	TEPH (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	Depth to SPH (ft.)	GW Elevation (MSL)	SPH Thickness (ft.)	DO (ppm)
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BH-C	09/10/1993	640a	100	3.5	<0.5	0.6	<0.5	NA	NA	NA	15.80	NA	NA	NA	NA
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BH-D	09/10/1993	24,000a	25,000a	720	86	44	11	NA	NA	NA	14.20	NA	NA	NA	NA
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Abbreviations:

TPPH = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015

TEPH = Total petroleum hydrocarbons as diesel by modified EPA Method 8015

BTEX = benzene, toluene, ethylbenzene, xylenes by EPA Method 8020

MTBE = methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

SPH = Separate-Phase Hydrocarbons

GW = Groundwater

DO = Dissolved Oxygen

ug/L = parts per billion

ppm = parts per million

msl = Mean sea level

ft = Feet

<n = Below detection limit

NA = Not applicable

ND = Not detected at or above the minimum quantitation limits.

Notes:

a = Chromatogram patterns indicate an unidentified hydrocarbon.

b = Sample was analyzed outside the EPA recommended holding time.

c = DO Readings not taken this event.

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH Removed To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene Removed To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE Removed To Date (pounds)
09/22/99	MW-3	115	115	08/31/99	1,550	0.0015	0.0015	232	0.0002	0.0002	4,620	0.0044	0.0044
10/06/99	MW-3	40	155	08/31/99	1,550	0.0005	0.0020	232	0.0001	0.0003	4,620	0.0015	0.0060
10/14/99	MW-3	50	205	08/31/99	1,550	0.0006	0.0027	232	0.0001	0.0004	4,620	0.0019	0.0079
10/18/99	MW-3	30	235	08/31/99	1,550	0.0004	0.0030	232	0.0001	0.0005	4,620	0.0012	0.0091
10/29/99	MW-3	30	265	08/31/99	1,550	0.0004	0.0034	232	0.0001	0.0005	4,620	0.0012	0.0102
11/03/99	MW-3	30	295	08/31/99	1,550	0.0004	0.0038	232	0.0001	0.0006	4,620	0.0012	0.0114
11/10/99	MW-3	30	325	08/31/99	1,550	0.0004	0.0042	232	0.0001	0.0006	4,620	0.0012	0.0125
11/19/99	MW-3	169	494	08/31/99	1,550	0.0022	0.0064	232	0.0003	0.0010	4,620	0.0065	0.0190
11/24/99	MW-3	160	654	08/31/99	1,550	0.0021	0.0085	232	0.0003	0.0013	4,620	0.0062	0.0252
12/02/99	MW-3	200	854	08/31/99	1,550	0.0026	0.0110	232	0.0004	0.0017	4,620	0.0077	0.0329
12/10/99	MW-3	60	914	08/31/99	1,550	0.0008	0.0118	232	0.0001	0.0018	4,620	0.0023	0.0352
12/17/99	MW-3	150	1,064	08/31/99	1,550	0.0019	0.0138	232	0.0003	0.0021	4,620	0.0058	0.0410
01/03/00	MW-3	0	1,064	08/31/99	1,550	0.0000	0.0138	232	0.0000	0.0021	4,620	0.0000	0.0410
01/07/00	MW-3	0	1,064	08/31/99	1,550	0.0000	0.0138	232	0.0000	0.0021	4,620	0.0000	0.0410
01/13/00	MW-3	360	1,424	08/31/99	1,550	0.0047	0.0184	232	0.0007	0.0028	4,620	0.0139	0.0549
01/21/00	MW-3	40	1,464	08/31/99	1,550	0.0005	0.0189	232	0.0001	0.0028	4,620	0.0015	0.0564
01/25/00	MW-3	80	1,544	08/31/99	1,550	0.0010	0.0200	232	0.0002	0.0030	4,620	0.0031	0.0595
02/01/00	MW-3	165	1,709	08/31/99	1,550	0.0021	0.0221	232	0.0003	0.0033	4,620	0.0064	0.0659
02/11/00	MW-3	24	1,733	02/11/00	10,900	0.0022	0.0243	1,030	0.0002	0.0035	19,300	0.0039	0.0697
02/15/00	MW-3	150	1,883	02/11/00	10,900	0.0136	0.0379	1,030	0.0013	0.0048	19,300	0.0242	0.0939
02/23/00	MW-3	100	1,983	02/11/00	10,900	0.0091	0.0470	1,030	0.0009	0.0057	19,300	0.0161	0.1100
03/02/00	MW-3	168	2,151	02/11/00	10,900	0.0153	0.0623	1,030	0.0014	0.0071	19,300	0.0271	0.1371
03/10/00	MW-3	270	2,421	02/11/00	10,900	0.0246	0.0869	1,030	0.0023	0.0094	19,300	0.0435	0.1805
03/15/00	MW-3	96	2,517	02/11/00	10,900	0.0087	0.0956	1,030	0.0008	0.0103	19,300	0.0155	0.1960
03/21/00	MW-3	100	2,617	02/11/00	10,900	0.0091	0.1047	1,030	0.0009	0.0111	19,300	0.0161	0.2121
03/27/00	MW-3	100	2,717	02/11/00	10,900	0.0091	0.1138	1,030	0.0009	0.0120	19,300	0.0161	0.2282
04/07/00	MW-3	160	2,877	02/11/00	10,900	0.0146	0.1283	1,030	0.0014	0.0133	19,300	0.0258	0.2540
04/13/00	MW-3	120	2,997	02/11/00	10,900	0.0109	0.1393	1,030	0.0010	0.0144	19,300	0.0193	0.2733

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE			
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE To Date (pounds)	
04/18/00	MW-3	180	3,177	02/11/00	10,900	0.0164	0.1556	1,030	0.0015	0.0159	19,300	0.0290	0.3023	
04/26/00	MW-3	225	3,402	02/11/00	10,900	0.0205	0.1761	1,030	0.0019	0.0179	19,300	0.0362	0.3385	
05/04/00	MW-3	160	3,562	02/11/00	10,900	0.0146	0.1906	1,030	0.0014	0.0192	19,300	0.0258	0.3643	
05/09/00	MW-3	180	3,742	02/11/00	10,900	0.0164	0.2070	1,030	0.0015	0.0208	19,300	0.0290	0.3933	
05/17/00	MW-3	138	3,880	02/11/00	10,900	0.0126	0.2196	1,030	0.0012	0.0220	19,300	0.0222	0.4155	
05/22/00	MW-3	200	4,080	02/11/00	10,900	0.0182	0.2378	1,030	0.0017	0.0237	19,300	0.0322	0.4477	
06/01/00	MW-3	120	4,200	02/11/00	10,900	0.0109	0.2487	1,030	0.0010	0.0247	19,300	0.0193	0.4670	
06/08/00	MW-3	170	4,370	02/11/00	10,900	0.0155	0.2641	1,030	0.0015	0.0262	19,300	0.0274	0.4944	
03/15/01	MW-3	Dual-phase Vacuum Extraction (DVE) Pilot Test using a RSI V3 Internal Combustion Engine with a Bioslurp tank												
10:00	RPM=2000	0	0	GPM	<1000	0.0000	0.2641	110	0.0000	0.02618	4,300	0.00000	0.49443	
10:10		55	55	5.50	<1000	0.0005	0.2646	110	0.0001	0.02623	4,300	0.00197	0.49640	
10:15		18	73	3.60	<1000	0.0002	0.2647	110	0.0000	0.02625	4,300	0.00065	0.49705	
10:20		32	105	6.40	<1000	0.0003	0.2650	110	0.0000	0.02628	4,300	0.00115	0.49819	
10:25					<1000		0.2650	110		0.02628	4,300		0.49819	
10:40		25	130	1.67	<1000	0.0002	0.2652	110	0.0000	0.02630	4,300	0.00090	0.49909	
10:55		35	165	2.33	<1000	0.0003	0.2655	110	0.0000	0.02633	4,300	0.00126	0.50035	
11:10		45	210	3.00	<1000	0.0004	0.2659	110	0.0000	0.02637	4,300	0.00161	0.50196	
11:15	RPM=1500	25	235	5.00	<1000	0.0002	0.2661	110	0.0000	0.02639	4,300	0.00090	0.50286	
11:45		40	275	1.33	<1000	0.0003	0.2664	110	0.0000	0.02643	4,300	0.00144	0.50429	

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH Removed To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene Removed To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE Removed To Date (pounds)
09/22/99	MW-4	100	100	11/03/97	32,000	0.0267	0.0267	1,100	0.0009	0.0009	78,000	0.0651	0.0651
10/06/99	MW-4	60	160	11/03/97	32,000	0.0160	0.0427	1,100	0.0006	0.0015	78,000	0.0391	0.1041
10/14/99	MW-4	30	190	11/03/97	32,000	0.0080	0.0507	1,100	0.0003	0.0017	78,000	0.0195	0.1237
10/18/99	MW-4	30	220	11/03/97	32,000	0.0080	0.0587	1,100	0.0003	0.0020	78,000	0.0195	0.1432
10/29/99	MW-4	30	250	11/03/97	32,000	0.0080	0.0668	1,100	0.0003	0.0023	78,000	0.0195	0.1627
11/03/99	MW-4	30	280	11/03/97	32,000	0.0080	0.0748	1,100	0.0003	0.0026	78,000	0.0195	0.1822
11/10/99	MW-4	30	310	11/03/97	32,000	0.0080	0.0828	1,100	0.0003	0.0028	78,000	0.0195	0.2018
11/19/99	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
11/24/99	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
12/02/99	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
12/10/99	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
12/17/99	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
01/03/00	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
01/07/00	MW-4	0	310	11/03/97	32,000	0.0000	0.0828	1,100	0.0000	0.0028	78,000	0.0000	0.2018
01/13/00	MW-4	350	660	11/03/97	32,000	0.0935	0.1762	1,100	0.0032	0.0061	78,000	0.2278	0.4296
01/21/00	MW-4	40	700	11/03/97	32,000	0.0107	0.1869	1,100	0.0004	0.0064	78,000	0.0260	0.4556
01/25/00	MW-4	100	800	11/03/97	32,000	0.0267	0.2136	1,100	0.0009	0.0073	78,000	0.0651	0.5207
02/01/00	MW-4	165	965	11/03/97	32,000	0.0441	0.2577	1,100	0.0015	0.0089	78,000	0.1074	0.6281
02/11/00	MW-4	19	984	02/11/00	47,200	0.0075	0.2652	905	0.0001	0.0090	27,400	0.0043	0.6324
02/15/00	MW-4	100	1,084	02/11/00	47,200	0.0394	0.3045	905	0.0008	0.0098	27,400	0.0229	0.6553
02/23/00	MW-4	100	1,184	02/11/00	47,200	0.0394	0.3439	905	0.0008	0.0105	27,400	0.0229	0.6782
03/02/00	MW-4	270	1,454	02/11/00	47,200	0.1063	0.4503	905	0.0020	0.0126	27,400	0.0617	0.7399
03/10/00	MW-4	220	1,674	02/11/00	47,200	0.0866	0.5369	905	0.0017	0.0142	27,400	0.0503	0.7902
03/15/00	MW-4	96	1,770	02/11/00	47,200	0.0378	0.5747	905	0.0007	0.0149	27,400	0.0219	0.8121
03/21/00	MW-4	100	1,870	02/11/00	47,200	0.0394	0.6141	905	0.0008	0.0157	27,400	0.0229	0.8350
03/27/00	MW-4	100	1,970	02/11/00	47,200	0.0394	0.6535	905	0.0008	0.0164	27,400	0.0229	0.8579
04/07/00	MW-4	113	2,083	02/11/00	47,200	0.0445	0.6980	905	0.0009	0.0173	27,400	0.0258	0.8837
04/13/00	MW-4	110	2,193	02/11/00	47,200	0.0433	0.7413	905	0.0008	0.0181	27,400	0.0251	0.9088

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE To Date (pounds)
04/18/00	MW-4	225	2,418	02/11/00	47,200	0.0886	0.8299	905	0.0017	0.0198	27,400	0.0514	0.9603
04/26/00	MW-4	315	2,733	02/11/00	47,200	0.1241	0.9540	905	0.0024	0.0222	27,400	0.0720	1.032
05/04/00	MW-4	150	2,883	02/11/00	47,200	0.0591	1.013	905	0.0011	0.0233	27,400	0.0343	1.067
05/09/00	MW-4	315	3,198	02/11/00	47,200	0.1241	1.137	905	0.0024	0.0257	27,400	0.0720	1.139
05/17/00	MW-4	270	3,468	02/11/00	47,200	0.1063	1.243	905	0.0020	0.0278	27,400	0.0617	1.200
05/22/00	MW-4	200	3,668	02/11/00	47,200	0.0788	1.322	905	0.0015	0.0293	27,400	0.0457	1.246
06/05/00	MW-4	125	3,793	02/11/00	47,200	0.0492	1.371	905	0.0009	0.0302	27,400	0.0286	1.275
06/08/00	MW-4	170	3,963	02/11/00	47,200	0.0670	1.438	905	0.0013	0.0315	27,400	0.0389	1.314
Dual-phase Vacuum Extraction (DVE) Pilot Test using a RSI V3 Internal Combustion Engine with a Bioslurp tank													
03/15/01	MW-4												
14:00	RPM=2000	0	0	GPM	2,600	0.0000	1.438	300	0.0000	0.0315	7,000	0.0000	1.314
14:15		51	51	3.40	2,600	0.0011	1.440	300	0.0001	0.0316	7,000	0.0030	1.317
14:30		39	90	2.60	2,600	0.0008	1.440	300	0.0001	0.0317	7,000	0.0023	1.319
14:35		91	181	18.20	2,600	0.0020	1.442	300	0.0002	0.0320	7,000	0.0053	1.324
14:40					2,600		1.442	300		0.0320	7,000		1.324
14:45		37	218	7.40	2,600	0.0008	1.443	300	0.0001	0.0320	7,000	0.0022	1.326
15:00		36	254	2.40	2,600	0.0008	1.444	300	0.0001	0.0321	7,000	0.0021	1.328
15:15		57	311	3.80	2,600	0.0012	1.445	300	0.0001	0.0323	7,000	0.0033	1.332
15:30		53	364	3.53	2,600	0.0011	1.446	300	0.0001	0.0324	7,000	0.0031	1.335
03/15/01	MW-4	640	4,967	03/15/01	2,600	0.0139	1.460	300	0.0016	0.0340	7,000	0.0374	1.372
Total Gallons Extracted:					Total Pounds Removed:			1.727			0.0604		
					Total Gallons Removed:			0.2831			0.3027		

Table 1: Groundwater Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Purged	Well ID	Volume Pumped (gal)	Cumulative Volume Pumped (gal)	Date Sampled	TPPH			Benzene			MTBE		
					TPPH Concentration (ppb)	TPPH Removed (pounds)	TPPH Removed To Date (pounds)	Benzene Concentration (ppb)	Benzene Removed (pounds)	Benzene Removed To Date (pounds)	MTBE Concentration (ppb)	MTBE Removed (pounds)	MTBE Removed To Date (pounds)

Abbreviations & Notes:

TPPH = Total purgeable hydrocarbons as gasoline

MtBE = Methyl tert-butyl ether

µg/L = Micrograms per liter

ppb = Parts per billion, equivalent to µg/L

L = Liter

gal = Gallon

g = Gram

Mass removed based on the formula: volume extracted (gal) x Concentration (µg/L) x (g/10⁶µg) x (pound/453.6g) x (3.785 L/gal)

Volume removal data based on the formula: density (in gms/cc) x 9.339 (ccxlbs/gmsxgals)

TPPH, benzene analyzed by EPA Method 8015/8020

MTBE analyzed by EPA Method 8260 in bold font, all other MTBE analyzed by EPA Method 8020

Concentrations based on most recent groundwater monitoring results

Groundwater extracted by vacuum trucks provided by ACTI between September 22, 1999 and November 10, 1999, and by Blaine Tech Services thereafter. Water disposed of at a Martinez refinery.

Table 2: Vapor Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date	Well ID	Interval Hours of Operation (hours)	System Flow Rate (CFM)	Horiba VOA (ppm)	Hydrocarbon Concentrations			TPHg		Benzene		MTBE	
					TPHg	Benzene	MTBE	TPHg Removal Rate (#/hour)	Cumulative TPHg Removed (#)	Benzene Removal Rate (#/hour)	Cumulative Benzene Removed (#)	MTBE Removal Rate (#/hour)	Cumulative MTBE Removed (#)
03/15/01 MW-3 Dual-phase Vacuum Extraction (DVE) Pilot Test using a RSI V3 Internal Combustion Engine with a Bioslurp Tank													
10:00	RPM=2000	0.00	0		130	3.2	17	0.000	0.000	0.000	0.000	0.000	0.000
10:10		0.17	9		130	3.2	17	0.016	0.003	0.000	0.000	0.002	0.000
10:15		0.083	12	274	130	3.2	17	0.021	0.004	0.000	0.000	0.003	0.001
10:20		0.083	15	363	130	3.2	17	0.026	0.007	0.001	0.000	0.003	0.001
10:25		0.083	15		130	3.2	17	0.026	0.009	0.001	0.000	0.003	0.001
10:40		0.25	15	440	130	3.2	17	0.026	0.015	0.001	0.000	0.003	0.002
10:55		0.25	16	401	130	3.2	17	0.028	0.022	0.001	0.000	0.004	0.003
11:10		0.25	16	319	130	3.2	17	0.028	0.029	0.001	0.001	0.004	0.004
11:15	RPM=1500	0.083	30	250	130	3.2	17	0.052	0.033	0.001	0.001	0.007	0.004
11:45		0.50	29	325	130	3.2	17	0.050	0.059	0.001	0.001	0.007	0.008
3/15/01 MW-4 Dual-phase Vacuum Extraction (DVE) Pilot Test using a RSI V3 Internal Combustion Engine with a Bioslurp Tank													
14:00	RPM=2000	0.00	0		440	9.4	41	0.000	0.000	0.000	0.000	0.000	0.000
14:15		0.25	0		440	9.4	41	0.000	0.000	0.000	0.000	0.000	0.000
14:30		0.25	8	355	440	9.4	41	0.047	0.012	0.001	0.000	0.004	0.001
14:35		0.083	20	1007	440	9.4	41	0.118	0.022	0.002	0.000	0.011	0.002
14:40		0.083	27	957	440	9.4	41	0.159	0.035	0.003	0.001	0.015	0.003
14:45		0.083	20	753	440	9.4	41	0.118	0.044	0.002	0.001	0.011	0.004
15:00		0.25	19	1047	440	9.4	41	0.112	0.072	0.002	0.001	0.011	0.007
15:15		0.25	21	1029	440	9.4	41	0.124	0.103	0.002	0.002	0.012	0.010
15:30		0.25	20	812	440	9.4	41	0.118	0.133	0.002	0.003	0.011	0.013
Total Pounds Removed								TPHg = 0.191	Benzene = 0.004	MTBE = 0.020			

Table 2: Vapor Extraction - Mass Removal Data - Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date	Well ID	Interval Hours of Operation (hours)	System Flow Rate (CFM)	Horiba VOA (ppm)	Hydrocarbon Concentrations			TPHg		Benzene		MTBE	
					TPHg	Benzene	MTBE	TPHg Removal Rate (#/hour)	Cumulative TPHg Removed (#)	Benzene Removal Rate (#/hour)	Cumulative Benzene Removed (#)	MTBE Removal Rate (#/hour)	Cumulative MTBE Removed (#)

Abbreviations and Notes:

CFM = Cubic feet per minute

TPHg = Total petroleum hydrocarbons as gasoline (C6-C12) by modified EPA Method 8015 in 1 liter tedlar bag samples

ppmv = Parts per million by volume

= Pounds

NA = Not available

TPHg, Benzene, and MTBE analyzed by EPA Method 8015/8020 in 1 liter tedlar bag samples

TPHg / Benzene / MTBE removal rate = Rate based on Bay Area Air Quality Management District's Manual of Procedures for Soil Vapor Extraction dated July 17, 1991.

$$\text{Rate} = \text{Concentration (ppmv)} \times \text{system flow rate (cfm)} \times (1\text{lb-mole}/386\text{ft}^3) \times \text{molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene, 88 lb/lb-mole for MTBE)} \\ \times 60 \text{ min/hour} \times 1/1,000,000$$

Cumulative TPHg / Benzene / MTBE removal = Previous removal rate multiplied by the hour-interval of operation plus the previous total

Table 3: Total Recoverable Petroleum Hydrocarbons
 Shell-branded Service Station, Incident #98995745, 6039 College Avenue, Oakland, California

Date Sampled	Reporting Limit (mg/L)	MW-3 TRPH Concentration (mg/L)	MW-4 TRPH Concentration (mg/L)
2/13/01	5.0	ND	13.3
2/11/00	5.0	11.7	178
8/5/99	5.0	ND	NR
2/11/99	5.0	ND	NR
1/20/98	5.0	ND	NR
8/18/97	5.0	NR	67
5/30/97	5.0	NR	8.1
2/20/97	5.0	NR	8.7
12/5/96	5.0	6.1	NR
8/19/96	5.0	9.2	NR

Abbreviations & Notes:

TRPH = Total recoverable petroleum hydrocarbons

ND = Analyte NOT DETECTED at or above the reporting limit

NR = Not reported

Table 4. Soil Analytical Results - Well Borings
 Shell 6039 College Avenue, Oakland
 Concentrations in parts per million (ppm)

Sample/Depth Approx. GU Depth Sample Date	MW-2-11' 17' 2/08/90	MW-2-15.5' 17' 2/08/90	MW-2-20.5' 17' 2/08/90	MW-3-10' 16' 2/07/90	MW-3-15.5' 16' 2/07/90	MW-3-20.5' 16' 2/07/90	MW-4-10.5' 17' 2/07/90	MW-4-15.5' 17' 2/07/90	MW-4-20.5' 17' 2/07/90	MW-5-6' 17" 8/24/91	MW-5-16' 17' 8/24/91	MW-5-21' 17' 08/24/91
Parameter /Method												
Benzene	ND @ 0.05	ND @ 0.05	ND @ 0.05	ND @ 0.05	1.1	ND @ 0.05	ND @ 0.05	0.31	0.06	ND @ 0.005	ND @ 0.005	ND @ 0.005
Toluene	ND @ 0.1	ND @ 0.1	ND @ 0.1	ND @ 0.1	0.7	ND @ 0.1	ND @ 0.11	0.34	ND @ 0.1	ND @ 0.005	ND @ 0.005	ND @ 0.005
Ethylbenzene	ND @ 0.1	ND @ 0.1	ND @ 0.1	ND @ 0.1	3.1	ND @ 0.1	ND @ 0.1	0.92	0.46	ND @ 0.005	0.028	ND @ 0.005
Xylenes /EPA 8020	ND @ 0.1	ND @ 0.1	ND @ 0.1	0.11	1.9	ND @ 0.1	ND @ 0.1	2.6	0.57	ND @ 0.005	0.10	ND @ 0.005
TPH as Gasoline	ND @ 1	ND @ 1	ND @ 1	12	230	28	ND @ 1	140	72	ND @ 1	23*	ND @ 1
TPH as Motor Oil	ND @ 10	ND @ 1	ND @ 10	ND @ 10	1,800	ND @ 10	ND @ 1	6,400	46,000	ND @ 12	13	ND @ 12
TPH as Diesel /EPA 8015	ND @ 1	ND @ 1	1.1	4.4	200	9.9	1.2	61	2200	ND @ 1.2	7**	ND @ 1.2
PCBs/EPA 8080	---	---	---	ND @ 0.05	ND @ 0.05	ND @ 0.05	ND @ 0.05	ND @ 0.05	ND @ 0.05	---	---	---
TOG /503E	---	---	---	---	---	---	---	---	---	ND @ 50	ND @ 50	ND @ 50

- = Analysis not performed on sample
 ND = Not present above the stated detection limit
 TPH = Total petroleum hydrocarbons
 PCBs = Polychlorinated biphenyls
 TOG = Total oil and grease
 * = Compounds detected are due to petroleum mixture other than gasoline
 ** = Not characteristic of standard diesel pattern
 *** = Results include compounds apparently due to gasoline as well as those due to diesel.

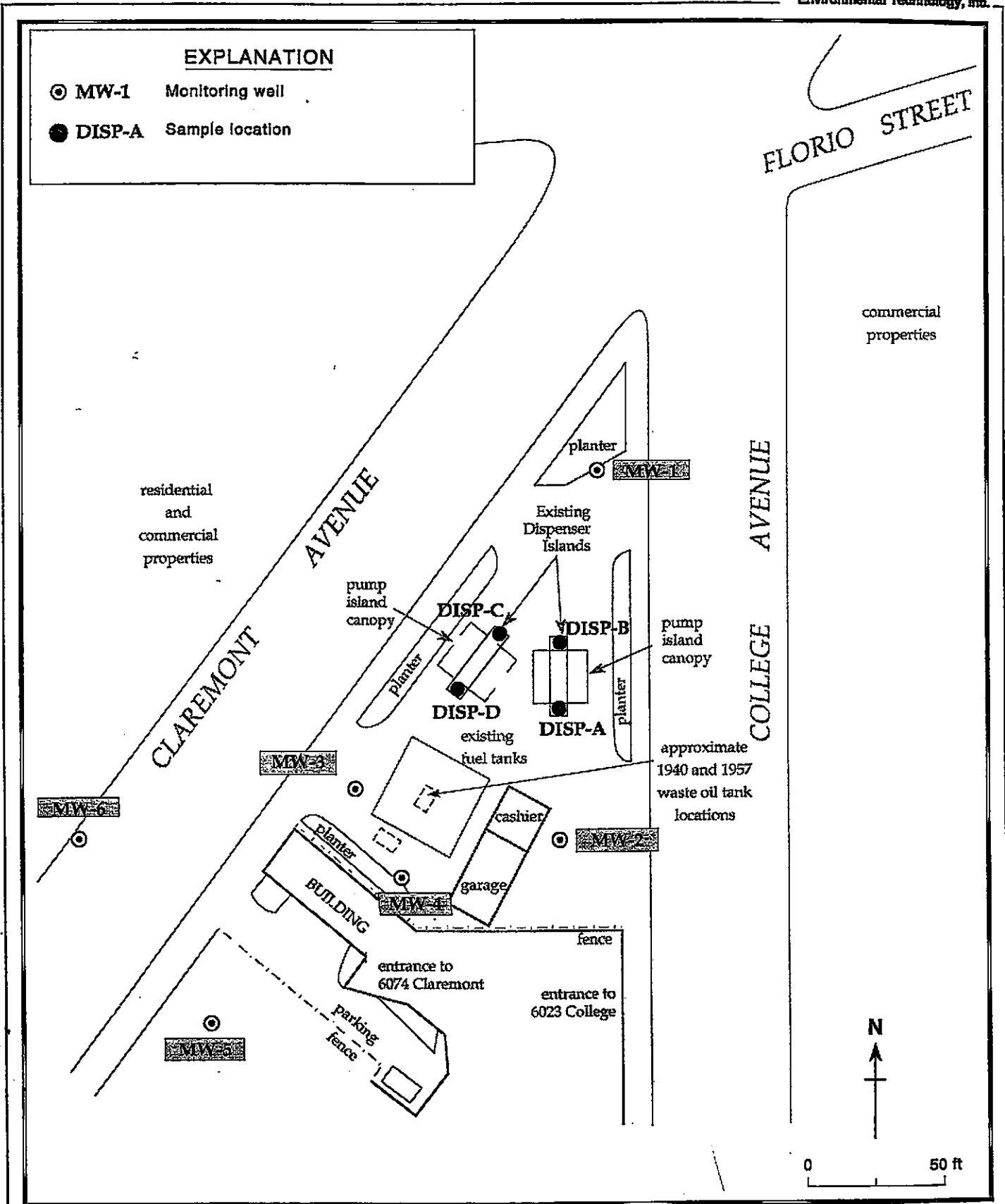


Figure 1. Dispenser Sampling Location - February 11 and 12, 1997 - Shell Service Station, 6039 College Avenue, Oakland, California

Table 1. Dispenser Sample Analytical Data - Shell Service Station - WIC# 204-5508-3301, 6039 College Avenue, Oakland, California

Sample ID - Depth in ft	TPPH	MTBE (EPA Method 8020)	MTBE * (EPA Method 8260)	Benzene	Toluene	Ethylbenzene	Xylenes
February 11 & 12, 1998 Samples:				(Concentrations reported in milligrams per kilogram)			
Disp-A-2.0'	3.2	0.51	< 0.10	0.016	0.045	< 0.0050	0.0072
Disp-A-4.0'	53	< 0.12	NA	< 0.025	< 0.025	< 0.025	< 0.025
Disp-B-2.0'	1.2	0.25	< 0.10	< 0.0050	0.011	< 0.0050	< 0.0050
Disp-B-4.0'	< 1.0	< 0.025	NA	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Disp-C-2.0'	1,900	420	240	10	190	42	260
Disp-C-4.0'	5,300	< 12	NA	< 2.5	5.0	26	250
Disp-D-2.0'	31	0.65	0.69	< 0.025	0.035	< 0.025	0.17
Disp-D-4.0'	6.3	0.10	0.13	0.011	0.013	< 0.010	< 0.010

Abbreviations/Notes:

TPPH = Total purgable petroleum hydrocarbons as gasoline by modified EPA Method 8015.

MTBE = Methyl tert-butyl ether by EPA Method 8020 or EPA Method 8260, as noted.

Benzene, ethylbenzene, toluene, xylenes by EPA Method 8020.

NA = Not Analyzed

* Note: Analysis was not performed within the standard holding time, therefore, the results should be considered qualitatively.

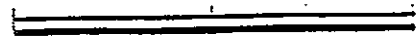


EXPLANATION

⊗ Boring location

▨ Planter area

0 50 100



SCALE IN FEET

Union
76

62nd STREET

FLORIO STREET

Residential and
commercial properties

Commercial
properties

CLAIRMONT AVENUE

COLLEGE AVENUE

B-1

⊗ B-2

B-4

B-5

Pump island
canopies

⊗ B-3

Storage
tanks

Cashier

Fence

⊗ B-6

Storage

Fence



Harding Lawson Associates
Engineering and
Environmental Services

DRAWN
S. Patel

JOB NUMBER
4022,233.03

APPROVED
MJB

DATE
10/03/91

REVISED DATE

Soil Boring Locations
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

3

Table 3. Soil Analytical Results - Borings
Concentrations in Parts Per Million (ppm)

Sample Depth	B-1-22.5'	B-2-18'	B-2-24'	B-3-19'	B-3-21'	B-4-18.5'	B-4-25'	B-5-22'	B-5-23'	B-6-19.5'	B-6-22.5'
Approx. GW Depth	21'	22'	22'	18'	18'	20'	20'	19'	19'	18'	18'
Sample Date	01/04/90	01/05/90	01/05/90	01/05/90	01/05/90	01/04/90	01/04/90	01/04/90	01/04/90	01/05/90	01/05/90
Parameter /Method											
Benzene	ND @ 0.05	0.62	ND @ 0.05	0.24	0.19	0.57	ND @ 0.05	ND @ 0.05	ND @ 0.05	0.28	ND @ 0.05
Toluene	ND @ 0.1	ND @ 0.1	ND @ 0.1	0.18	ND @ 0.1	0.11	ND @ 0.1	ND @ 0.1	ND @ 0.1	ND @ 0.1	ND @ 0.1
Ethylbenzene	ND @ 0.1	0.48	ND @ 0.1	4.1	0.53	0.65	ND @ 0.1	ND @ 0.1	ND @ 0.1	1.3	ND @ 0.1
Xylenes	ND @ 0.1	1.2	ND @ 0.1	9.8	0.68	1.3	ND @ 0.1	ND @ 0.1	ND @ 0.1	2.1	ND @ 0.1
/EPA 8020											
TPH as Gasoline	8.1	130	1.8	610	71	170	ND @ 1	ND @ 1	4.4	260	ND @ 1
TPH as Motor Oil	---	---	---	110000	14000	---	---	---	---	12000	320
TPH as Diesel	---	---	---	5900	750	---	---	---	---	600	16
/EPA 8015											
Oil and Grease	---	---	---	810	380	---	---	---	---	1100	91
/SM 503 D&E											
Halogenated VOCs	---	---	---	ND @ 0.5	ND @ 0.5	---	---	---	---	ND @ 0.05	ND @ 0.005
/EPA 8010				to 2.5	to 0.25					to 0.25	to 0.025
Cadmium	---	---	---	ND @ 0.5	ND @ 0.5	---	---	---	---	ND @ 0.5	ND @ 0.5
Chromium	---	---	---	48	61	---	---	---	---	86	73
Zinc	---	---	---	51	54	---	---	---	---	52	60
/EPA 6010											
Lead/EPA 7241	---	---	---	13	7.6	---	---	---	---	8.1	9.2

--- = Analysis not performed on sample
ND = Not present above the stated detection limit

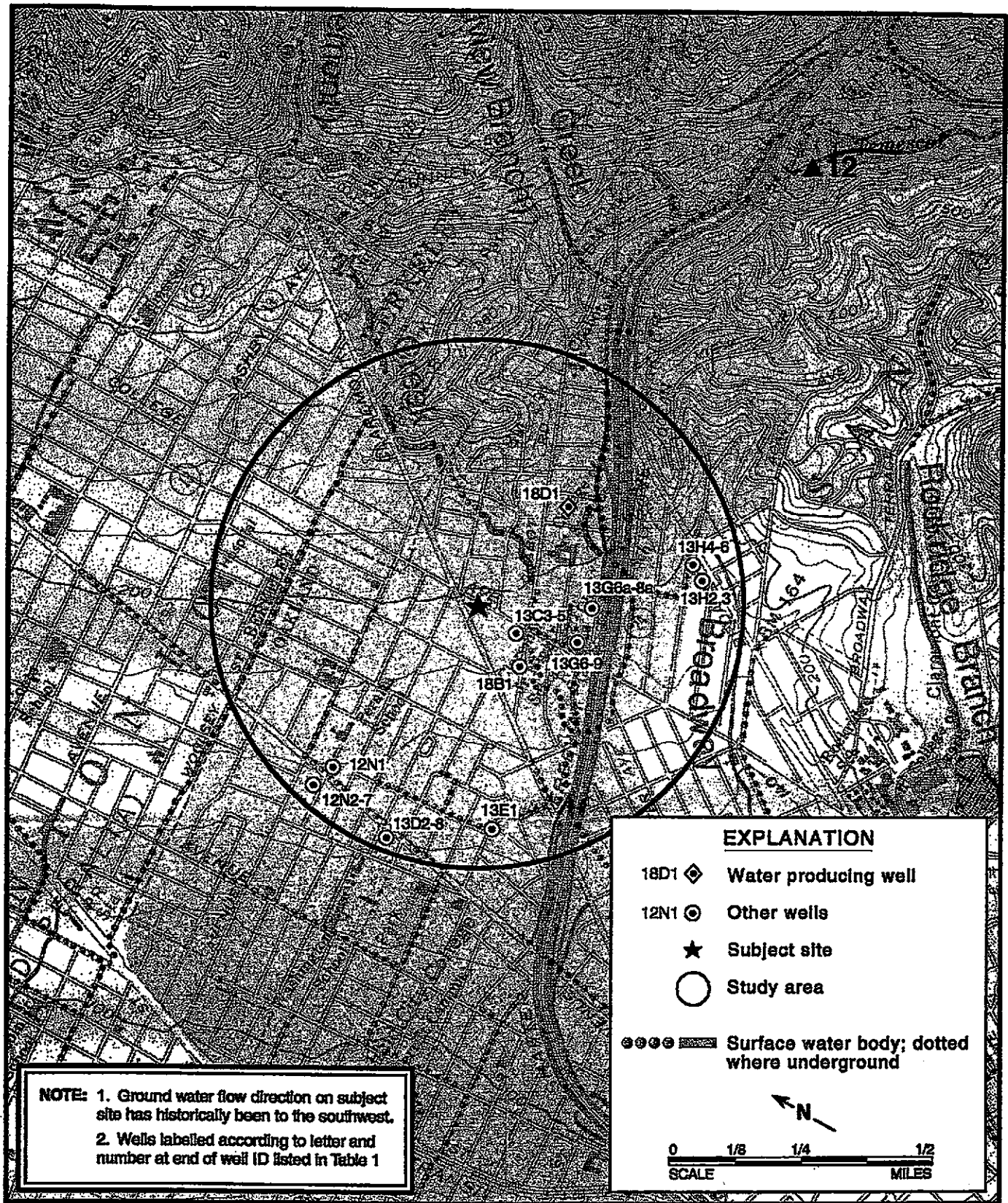


Figure 1. Well Locations - Shell Service Station, 6039 College Avenue, Oakland, California

Table 1. Well Survey - Shell Service Station - WIC# 204-5508-3301, 6039 College Avenue, Oakland, California

Well ID	Installation Date	Owner	Map	Use	Depth (feet)
1S-4W-13H2	September 1989	Shell Oil Products Company	M	MON	10
1S-4W-13H3	September 1989	Shell Oil Products Company	M	MON	10
1S-4W-13G6	December 1989	Chevron, USA, Inc.	M	MON	17
1S-4W-13G7	December 1989	Chevron, USA, Inc.	M	MON	17
1S-4W-13D8	October 1989	Thrifty Oil Company	M	MON	30
1S-4W-13G8	July 1990	Chevron, USA, Inc.	M	MON	48
1S-4W-13G9	August 1990	Chevron, USA, Inc.	M	MON	28
1S-4W-13B3	January 1990	Shell Oil Products Company	SS	MON	25
1S-4W-13B4	January 1990	Shell Oil Products Company	SS	MON	25
1S-4W-18B1	July 1981	EBMUD	M	CAT	27
1S-4W-18D1	UNK	H.L. Sorensen	M	DOM	80
1S-4W-12N1	July 1988	Givens Investment Company	M	MON	29
1S-4W-12N2	July 1989	Arco Products Company	M	MON	29
1S-4W-12N3	July 1989	Arco Products Company	M	MON	29
1S-4W-12N4	July 1989	Arco Products Company	M	MON	29
1S-4W-12N5	July 1989	Arco Products Company	M	MON	28
1S-4W-13D2	June 1986	Arco Products Company	M	TES	30
1S-4W-13D3	June 1986	Arco Products Company	M	TES	30
1S-4W-13D4	June 1986	Arco Products Company	M	TES	30
1S-4W-13D5	November 1986	Thrifty Oil Company	M	MON	30
1S-4W-13D6	November 1986	Thrifty Oil Company	M	MON	27
1S-4W-13D7	November 1986	Thrifty Oil Company	M	MON	27
1S-4W-13E1	July 1974	PG&E	M	CAT	78
1S-4W-13L2	May 1975	EBMUD	NM	CAT	50
1S-4W-13N2	May 1975	EBMUD	NM	CAT	50
1S-4W-13G6a	April 1989	City of Oakland	M	PIE	28

Table 1. Well Survey - Shell Service Station - WIC# 204-5508-3301, 6039 College Avenue, Oakland, California

Well ID	Installation Date	Owner	Map	Use	Depth (feet)
1S-4W-13G7a	April 1989	City of Oakland	M	PIE	28
1S-4W-13G8a	April 1989	City of Oakland	M	MON	33
1S-4W-13C2	August 1991	Shell Oil Products Company	SS	MON	32
1S-4W-13C3	July 1991	Dryer's Ice Cream	M	MON	30
1S-4W-13C4	July 1991	Dryer's Ice Cream	M	MON	28
1S-4W-13C5	July 1991	Dryer's Ice Cream	M	MON	27
1S-4W-12N6	April 1992	Arco Products Company	M	MON	26
1S-4W-12N7	April 1992	Arco Products Company	M	MON	17
1S-4W-13H4	August 1992	Chevron, USA, Inc	M	MON	43
1S-4W-13H5	August 1992	Chevron, USA, Inc	M	MON	43
1S-4W-13H6	August 1992	Chevron, USA, Inc	M	MON	38

Abbreviations:

M = Well location shown on map

NM = Not mapped, unable to determine location

SS = Well located on subject site

MON = Monitoring well

DOM = Domestic well

PIE = Piezometer

CAT = Cathodic protection well

TES = Test well

UNK = Unknown

Note: Well labelled on Figure 1 by letter and numbers at end of Well ID

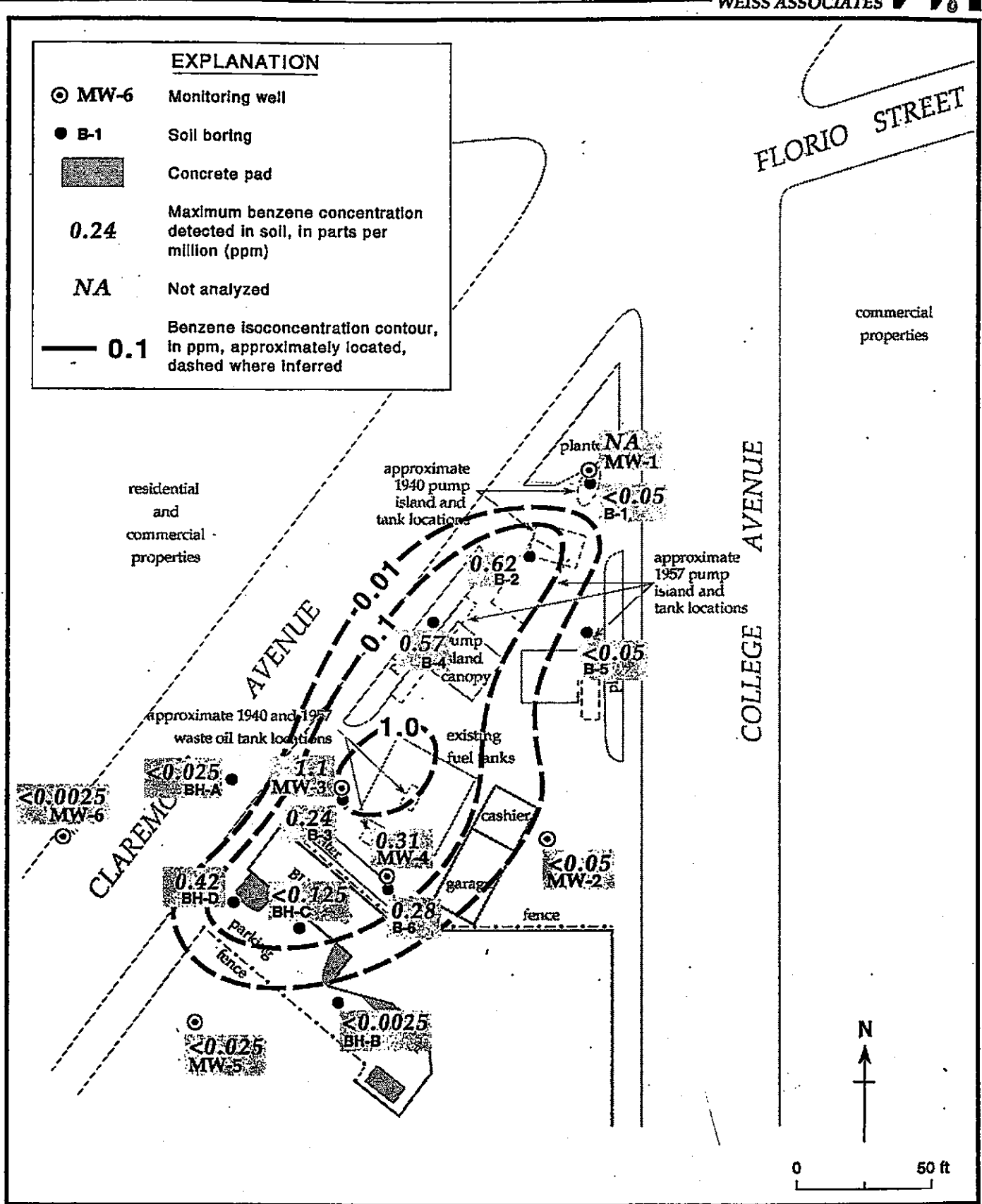


Figure 3. Maximum Benzene Concentrations Detected in Soil - Shell Service Station WIC #204-5510-0303, 6039 College Avenue, Oakland, California

EXPLANATION	
⊙ MW-6	Monitoring well
● B-1	Soil boring
▒	Concrete pad
810	Maximum petroleum oil and grease concentration detected in soil, in parts per million (ppm)
*	TPH as motor oil
NA	Not analyzed
— 10	Petroleum oil and grease isoconcentration contour, in ppm, approximately located, dashed where inferred

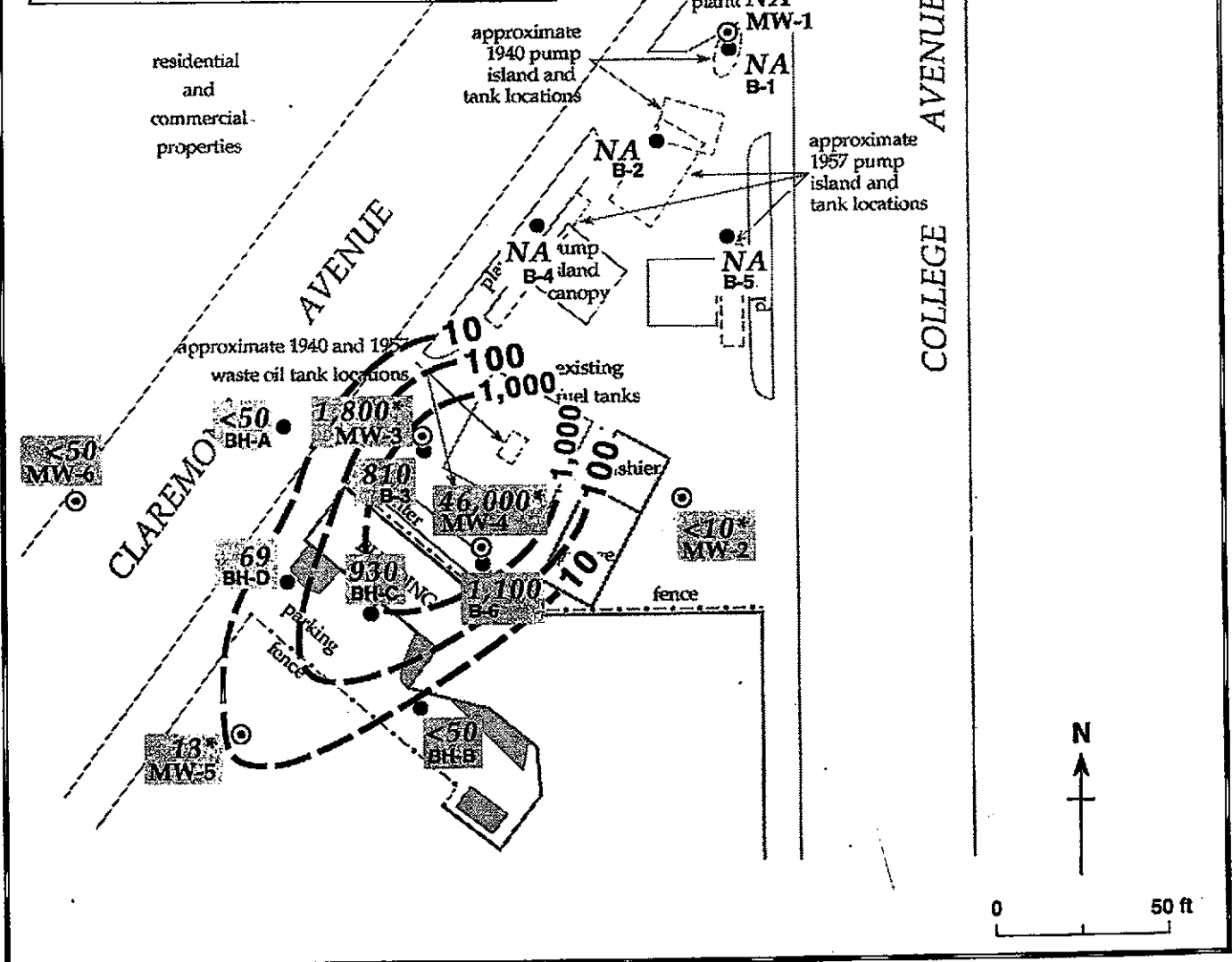


Figure 4. Maximum Petroleum Oil and Grease Concentrations Detected in Soil - Shell Service Station WIC #204-5510-0303, 6039 College Avenue, Oakland, California

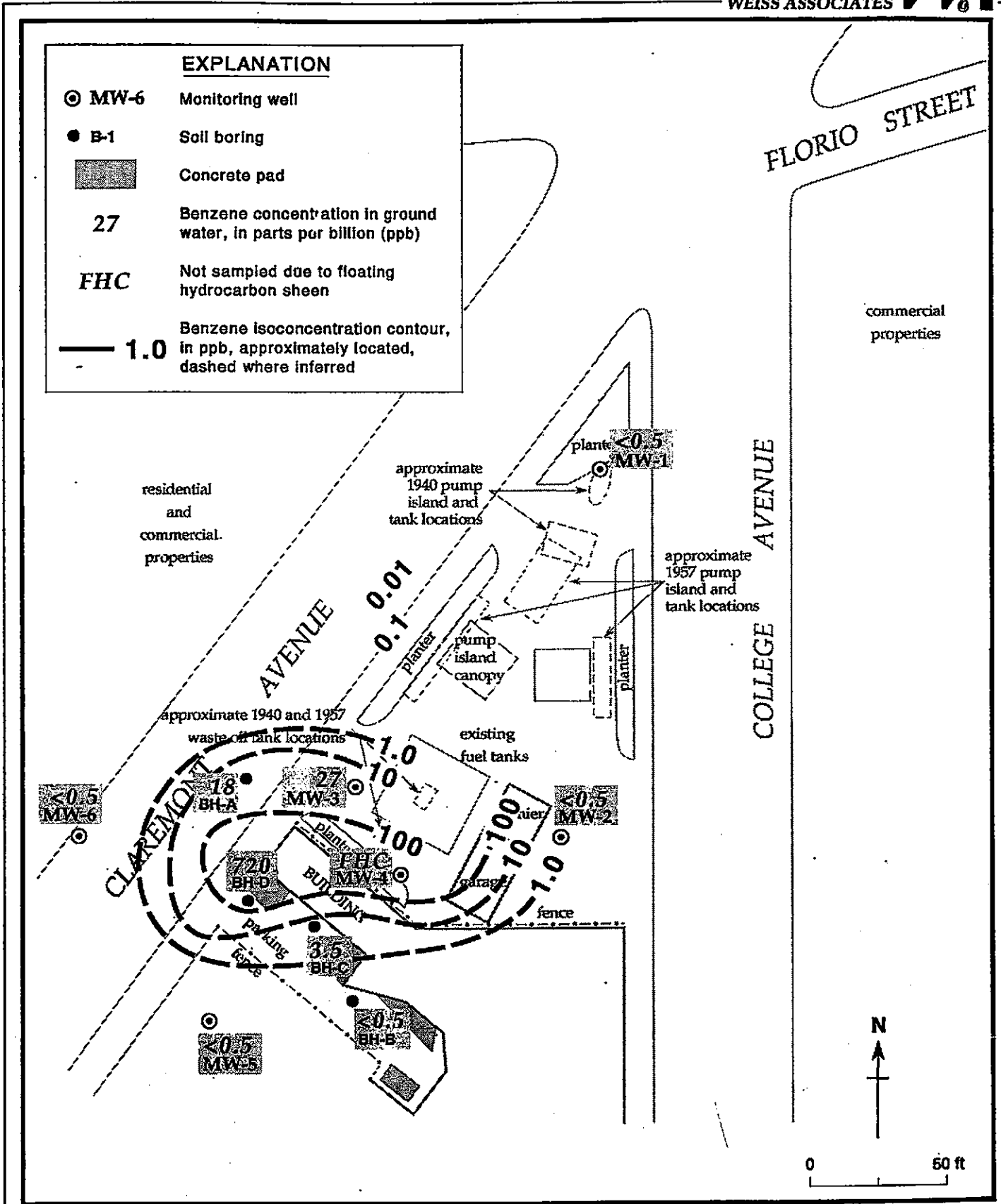
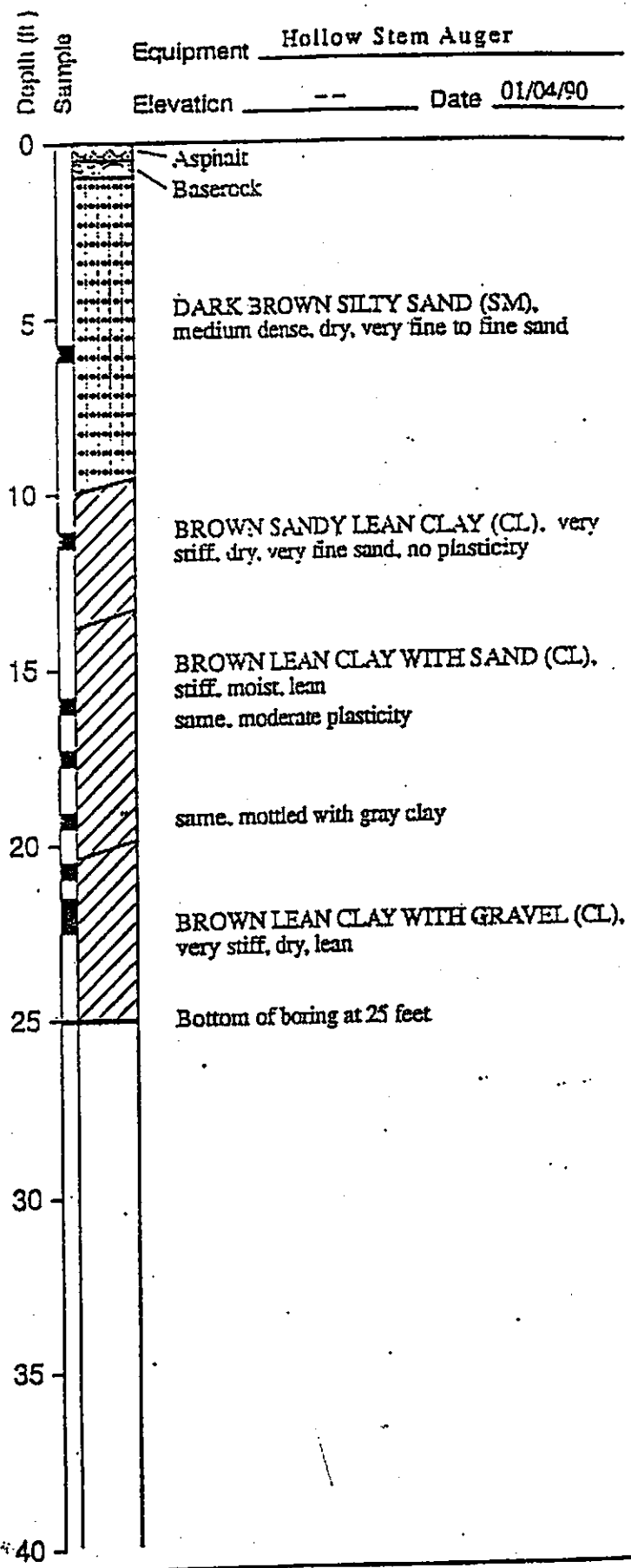


Figure 6. Benzene Concentrations in Ground Water - Third Quarter 1993 - Shell Service Station WIC #204-5510-0303, 6039 College Avenue, Oakland, California

Blows/foot *	Photo Ionization Detector (ppm) H1Nu	Gasoline Odor
8	0	none
33	0	none
12	0	none
15	1	none
30	0	none
33	0	none
58	0	none



* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineering and
Environmental Services

Log of Boring B-1
Shell Service Station
6093 College Avenue
Oakland, California

PLATE

B-1

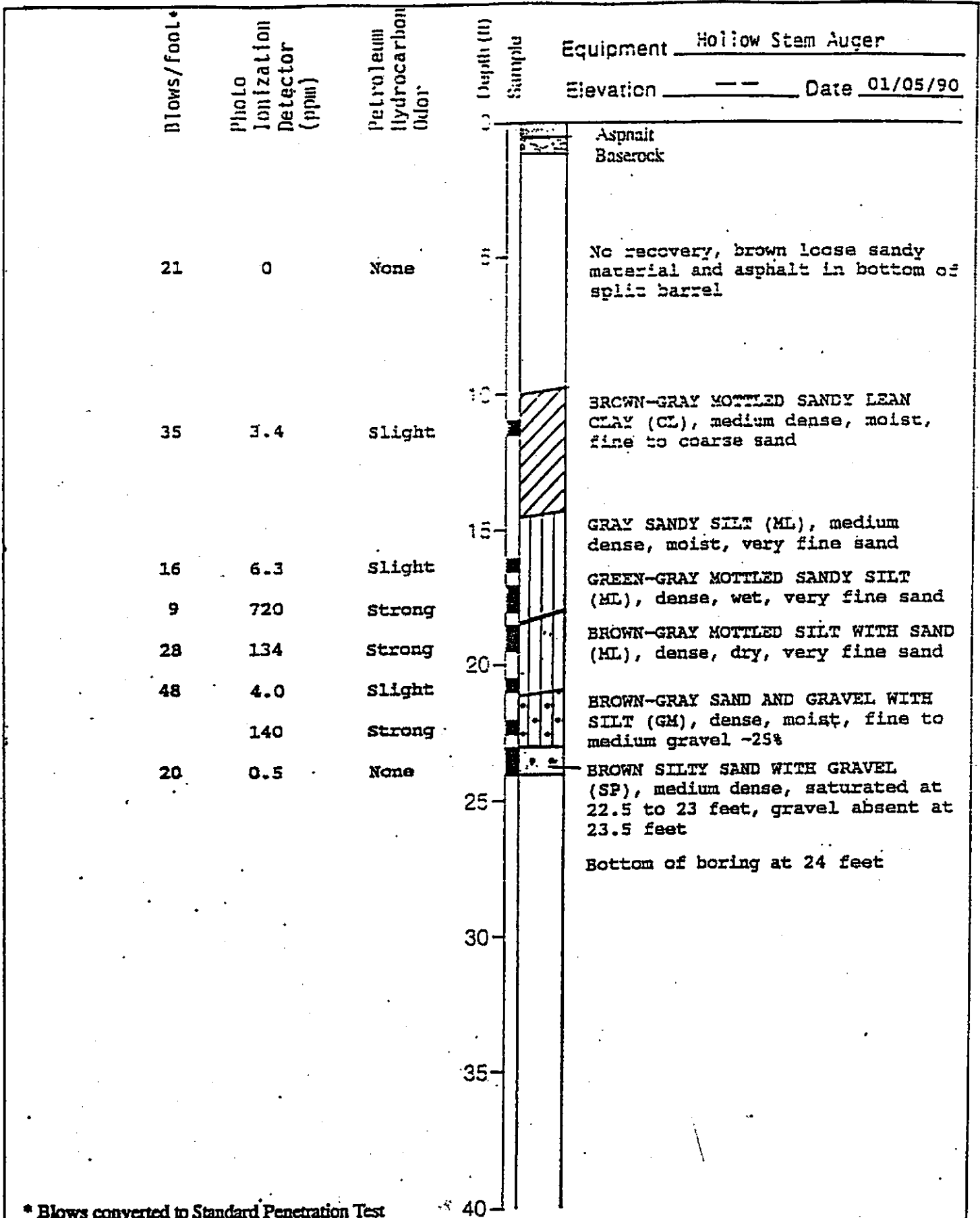
DRAWN
S. Patel

JOB NUMBER
4022,233.03

APPROVED
MJB

DATE
10/10/91

REVISED DATE



* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-2
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-2

Blows/foot*	Photo Ionization Detector (ppm)	Petroleum Hydrocarbon Odor	Depth (ft)	Sample	Equipment	Elevation	Date
					Hollow Stem Auger	--	01/05/90
			0		Asphalt		
					Basereck		
10	0	None	10		DARK BROWN SANDY SILT (ML), medium dense, moist, very fine sand		
43	56	Strong	10		BROWN-GRAY MOTTLED SANDY CLAY (CL), hard, moist, very fine sand, occasional gravel		
14	95	Strong	15		GREEN-GRAY SANDY SILT WITH CLAY (ML), very stiff, moist, very fine sand, slight plasticity		
12	240	Strong	12		GRAY SANDY SILT (ML), medium dense, dry, very fine sand, non-plastic		
8	220	Strong	8		GRAY SANDY SILT (ML), medium dense, wet, very fine sand		
28	170	Strong	20		BROWN SANDY SILT (ML), dense, saturated, very fine sand, some clay		
29	18	Slight	29		Bottom of boring at 22.5 feet		
			25				
			30				
			35				
			40				

* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-3
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-3

DRAWN
YC

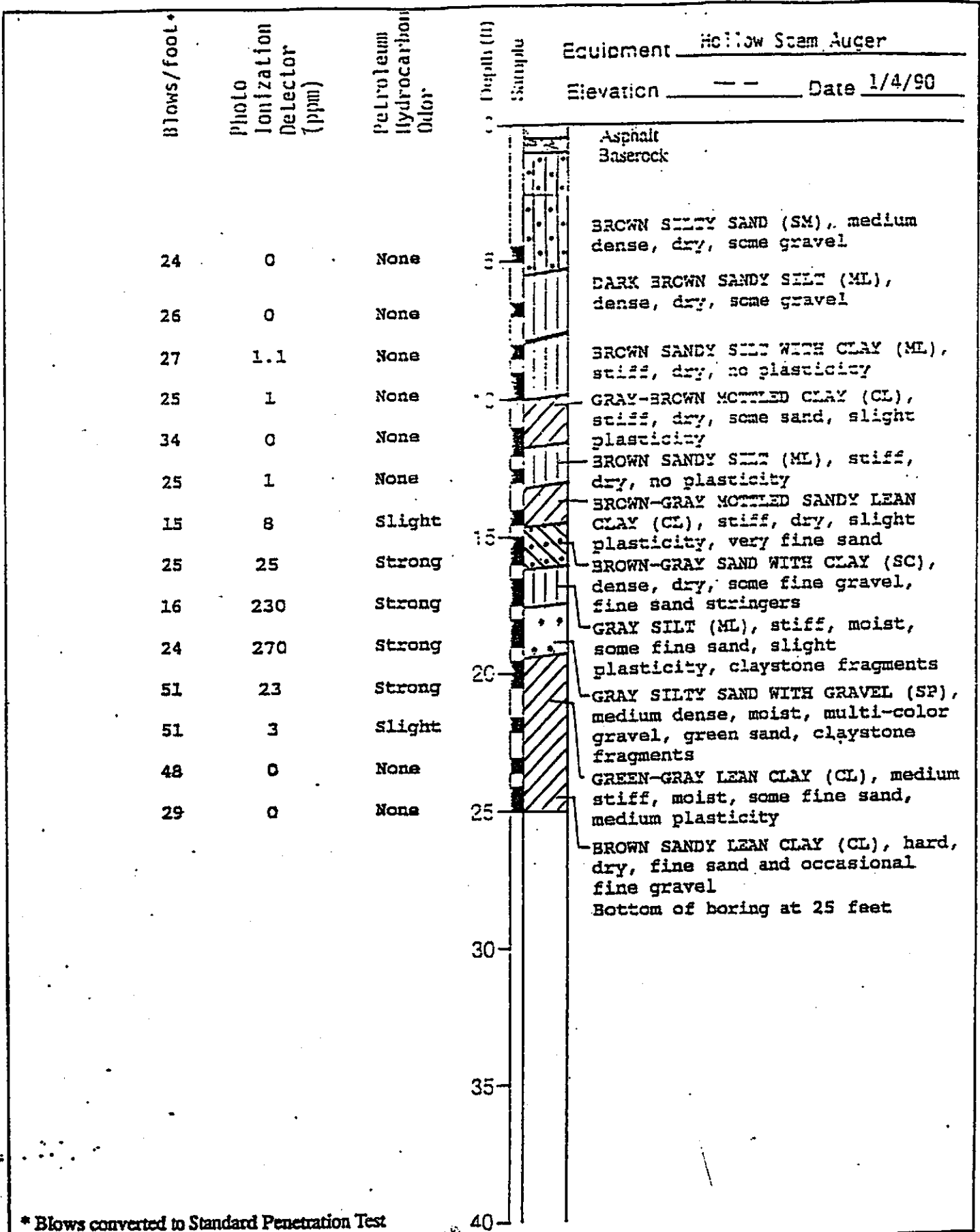
JOB NUMBER
4022,233.03

APPROVED
[Signature]

DATE
10/10/91

REVISED

DATE



Asphalt
Basereck

BROWN SILTY SAND (SM), medium dense, dry, some gravel

DARK BROWN SANDY SILT (ML), dense, dry, some gravel

BROWN SANDY SILT WITH CLAY (ML), stiff, dry, no plasticity

GRAY-BROWN MOTTLED CLAY (CL), stiff, dry, some sand, slight plasticity

BROWN SANDY SILT (ML), stiff, dry, no plasticity

BROWN-GRAY MOTTLED SANDY LEAN CLAY (CL), stiff, dry, slight plasticity, very fine sand

BROWN-GRAY SAND WITH CLAY (SC), dense, dry, some fine gravel, fine sand stringers

GRAY SILT (ML), stiff, moist, some fine sand, slight plasticity, claystone fragments

GRAY SILTY SAND WITH GRAVEL (SP), medium dense, moist, multi-color gravel, green sand, claystone fragments

GREEN-GRAY LEAN CLAY (CL), medium stiff, moist, some fine sand, medium plasticity

BROWN SANDY LEAN CLAY (CL), hard, dry, fine sand and occasional fine gravel

Bottom of boring at 25 feet

* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-4
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-4

Blows/foot	Photo Ionization Detector (ppm)	Petroleum Hydrocarbon Odor	Depth (ft)	Sample	Equipment	Elevation	Date
			0		Hollow Stem Auger		01/04/90
					Asphalt Base rock		
20	0	None	5		DARK BROWN SILTY SAND (SM), medium dense, dry, occasional fine gravel, orange mottling		
27	0	None	10		BROWN SANDY SILT WITH CLAY (ML), very stiff, dry, very fine sand, no plasticity		
12	3	None	15		BROWN-GRAY SILT WITH SAND (ML), very stiff, dry, very fine sand, no plasticity		
28	9	Slight	20		BROWN-GRAY MOTTLED SANDY LEAN CLAY (CL), very stiff, dry, very fine sand, no plasticity		
19	1	None	21.5		BROWN SANDY LEAN CLAY (CL), stiff, saturated from 21.5 to 21.7 feet, moist at 22 feet		
			23		Bottom of boring at 23 feet		
			25				
			30				
			35				
			40				

* Blows converted to Standard Penetration Test

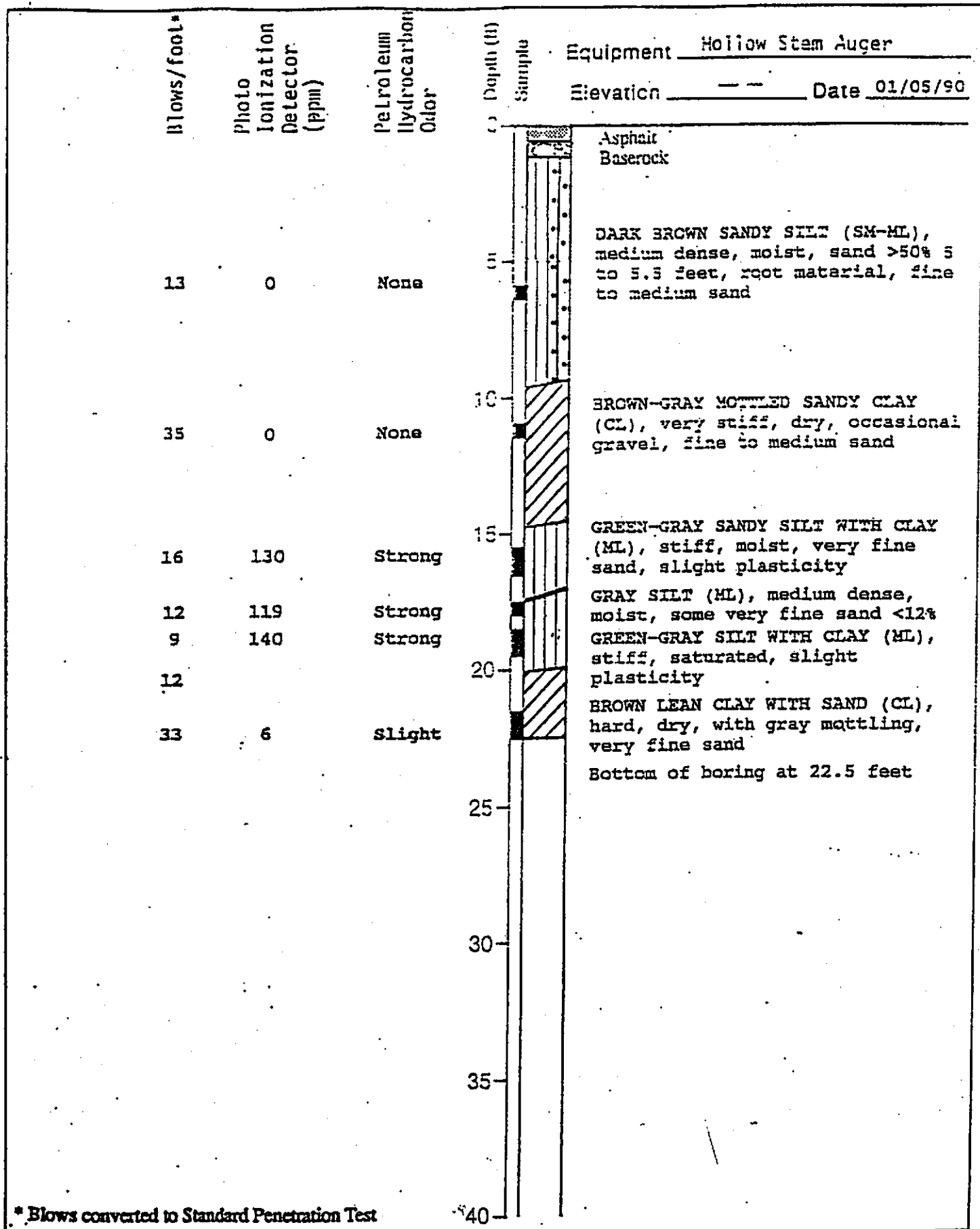


Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-5
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-5



* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring B-6
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-6

DRAWN
YC

JOB NUMBER
4022,233.03

APPROVED
[Signature]

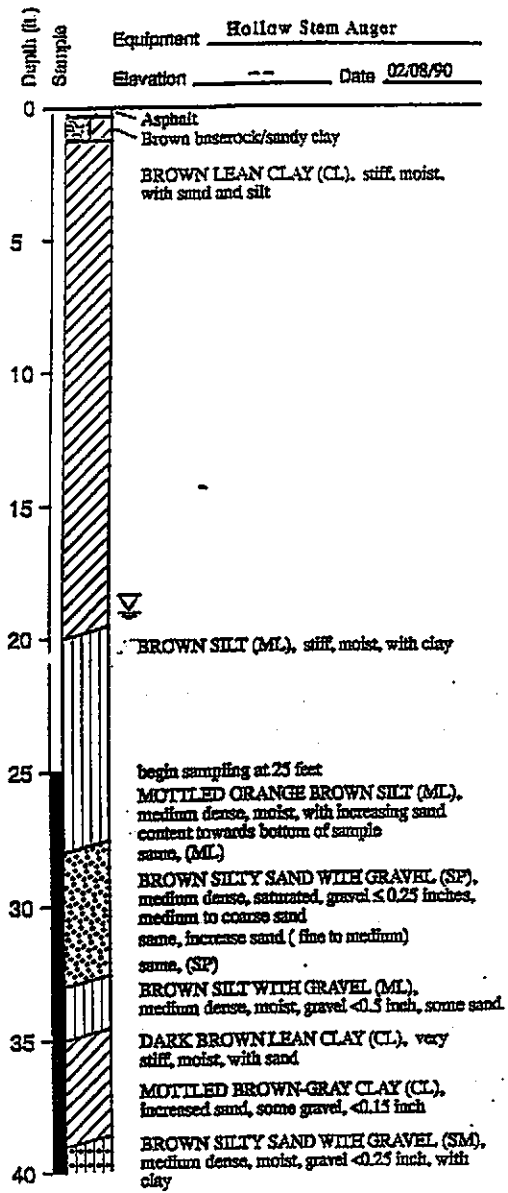
DATE
10/10/91

REVISED

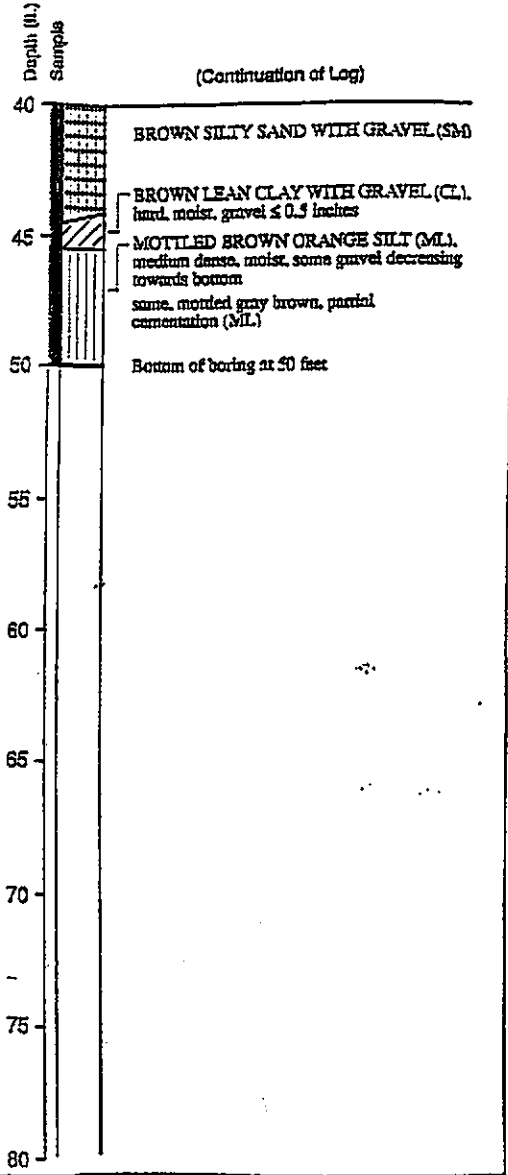
DATE

Blows/foot*	Photo ionization Detector (ppm) / (µg)	Well Screen Interval	Gasoline Odor
22	0		none
14	0		none
24	0		none
29	0		none
16	0		none
25	0		none
29	0		none
21	0		none
26	0		none

no samples obtained from 0-25 feet
(see Log of Boring B-1)

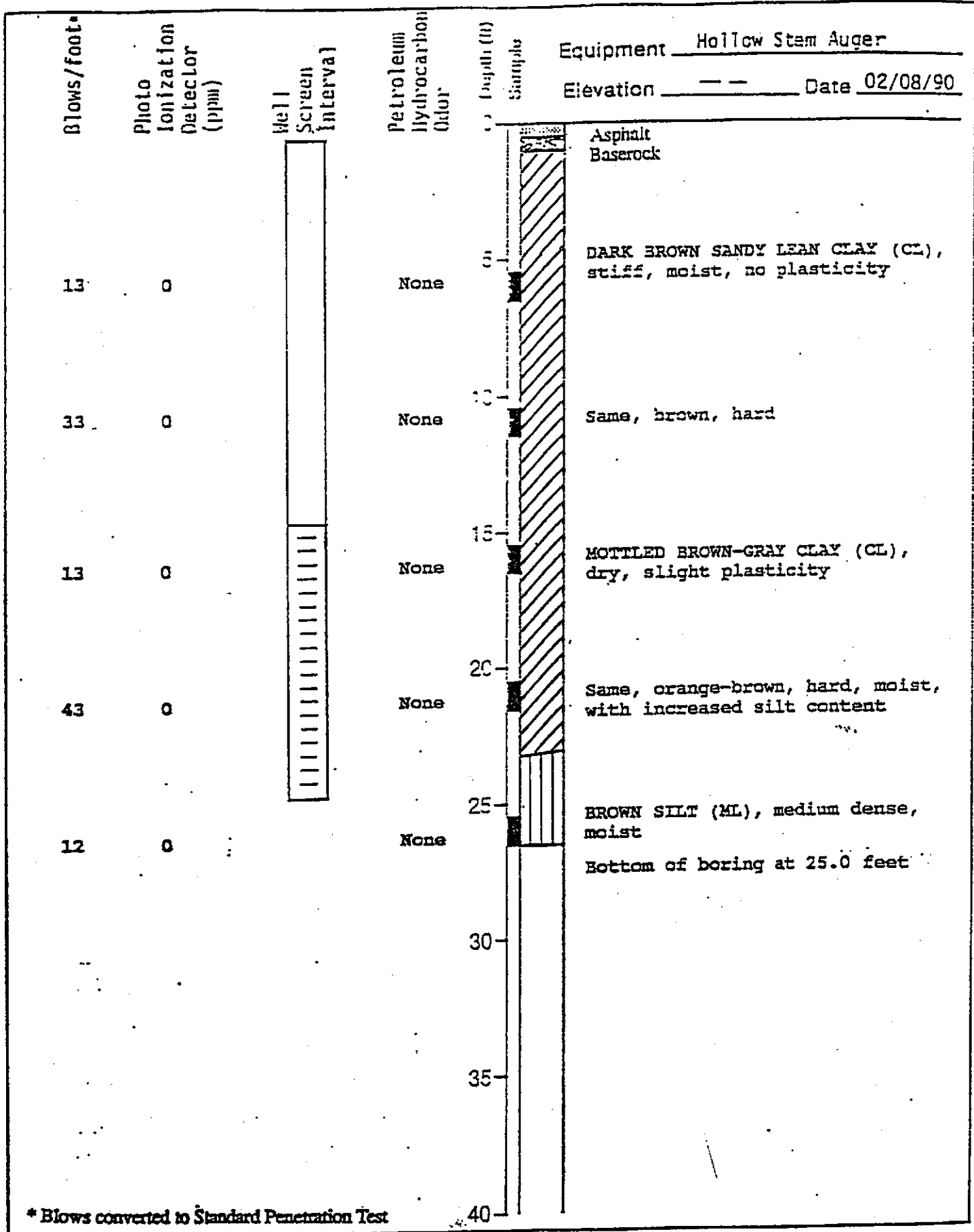


Blows/foot*	Photo ionization Detector (ppm) / (µg)	Well Screen Interval	Gasoline Odor
23	0		none
32	0		none
42	0		none
48	0		none
15	0		
31	0		



	Harding Lawson Associates Engineering and Environmental Services	Log of Boring MW-1 Shell Service Station 6039 College Avenue Oakland, California	PLATE B-7
	DRAWN S. Patel	JOB NUMBER 4022.233.03	APPROVED MSP DATE 10/10/91

* Blows converted to Standard Penetration Test



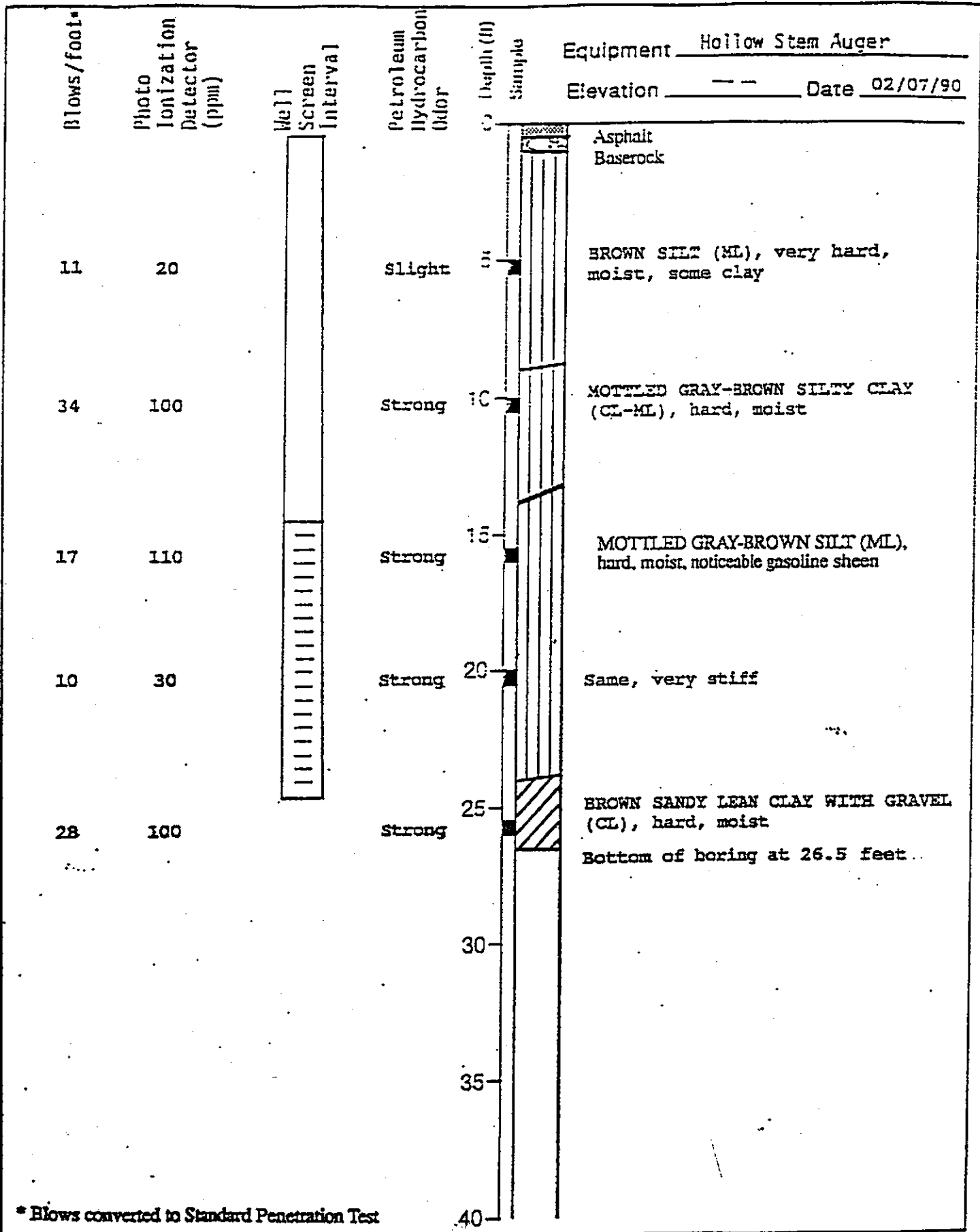
* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring MW-2
Shell Service Station
6039 College Avenue
Oakland, California

PLATE
B-8



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring MW-3
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-9

DRAWN
YC

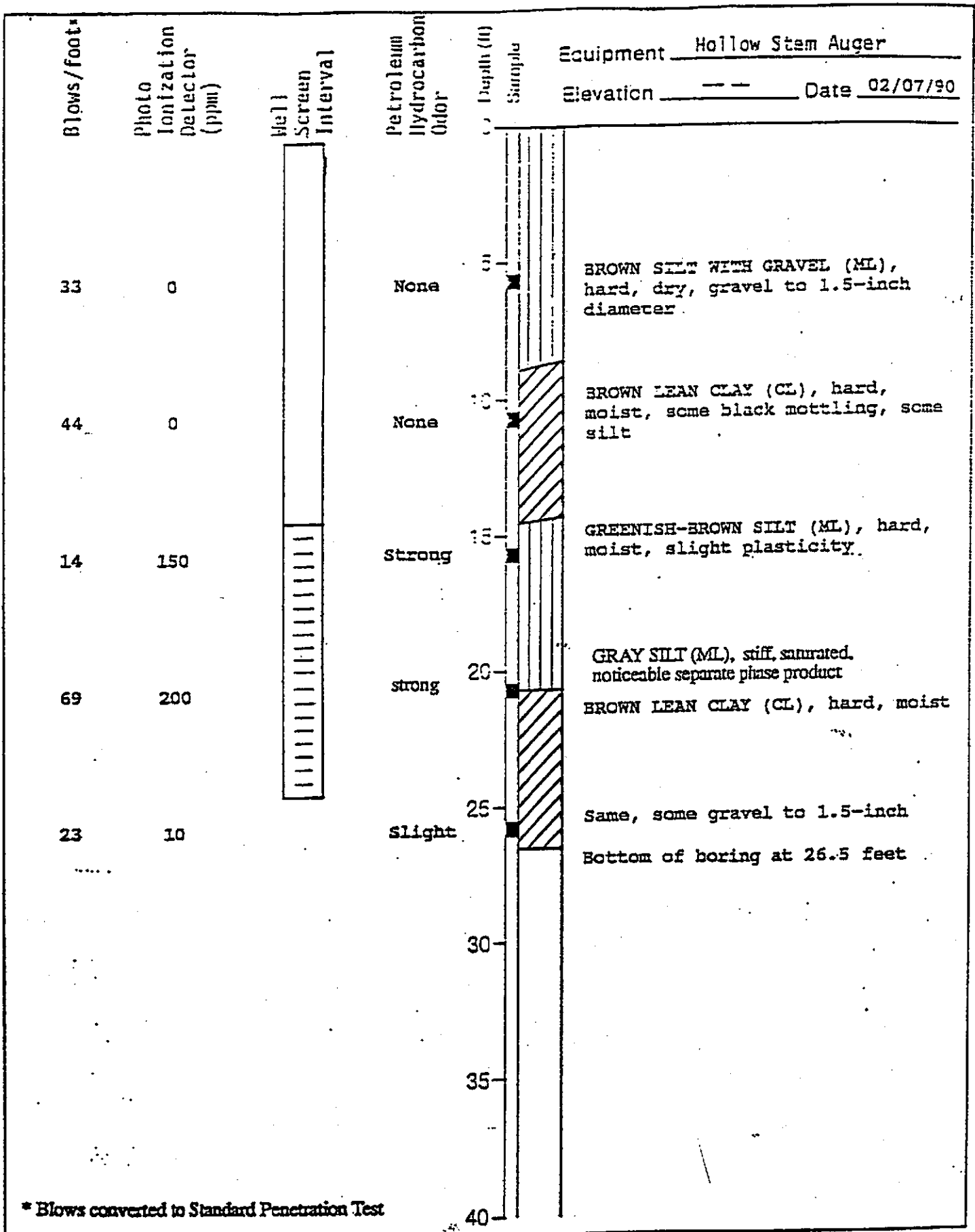
JOB NUMBER
4022,233.03

APPROVED
[Signature]

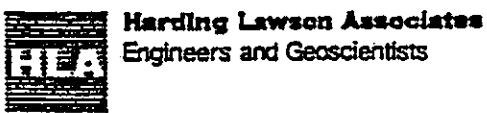
DATE
10/10/91

REVISED

DATE

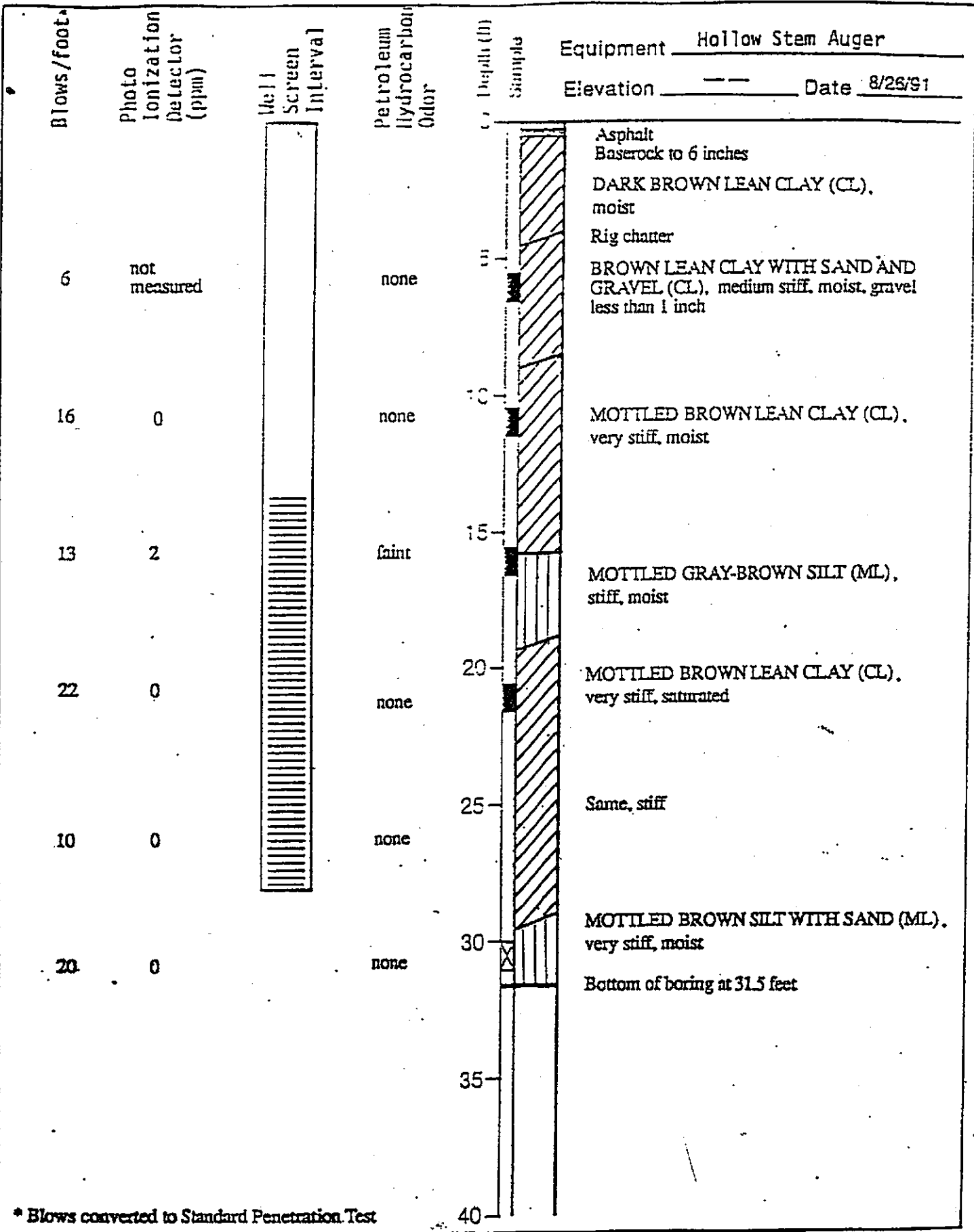


* Blows converted to Standard Penetration Test



Log of Boring MW-4
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE
B-10



* Blows converted to Standard Penetration Test



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring MW-5
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

B-11

DRAWN
S. Patel

JOB NUMBER
4022,233.03

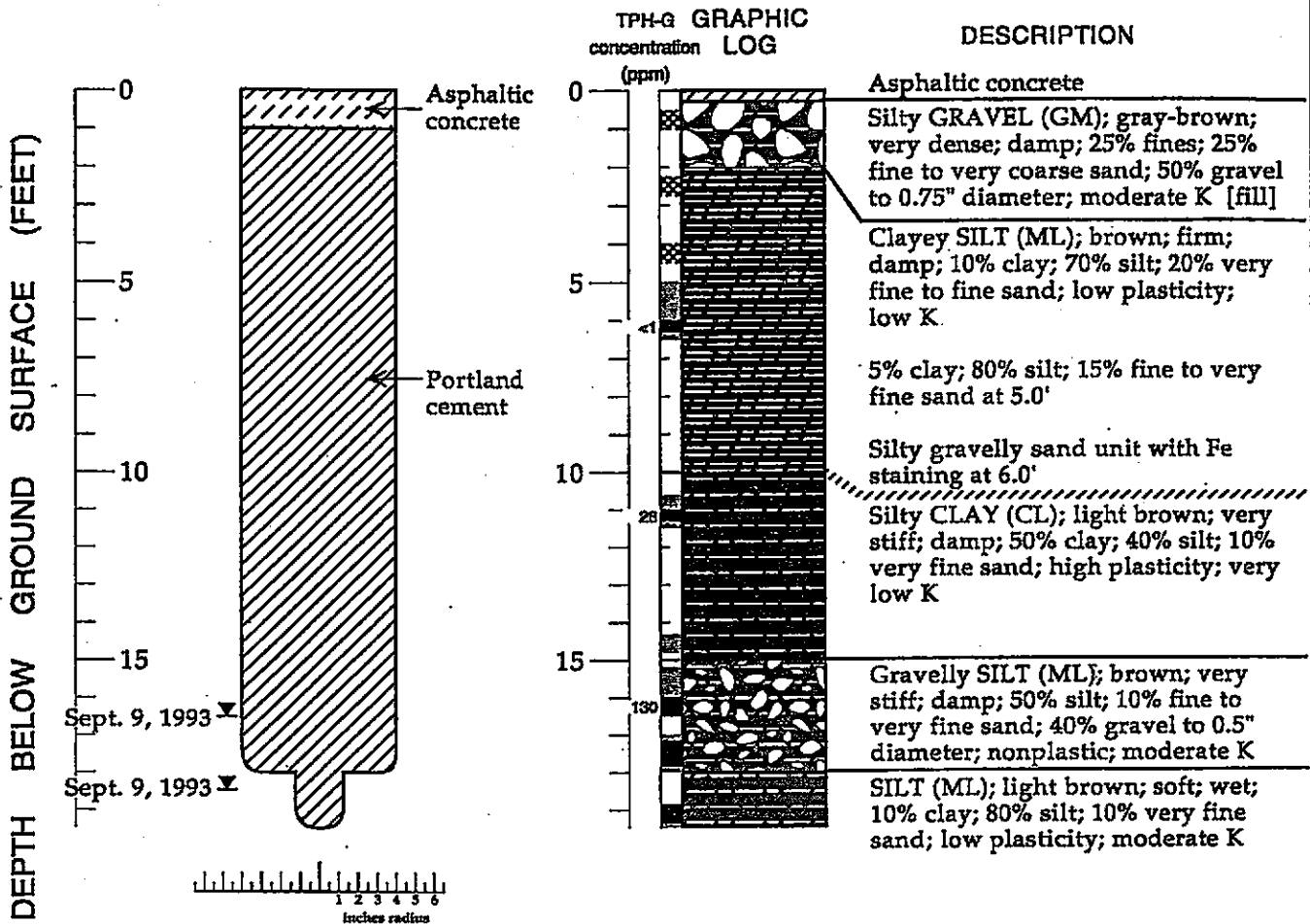
APPROVED
[Signature]

DATE
10/10/91

REVISED

DATE

BORING BH-A



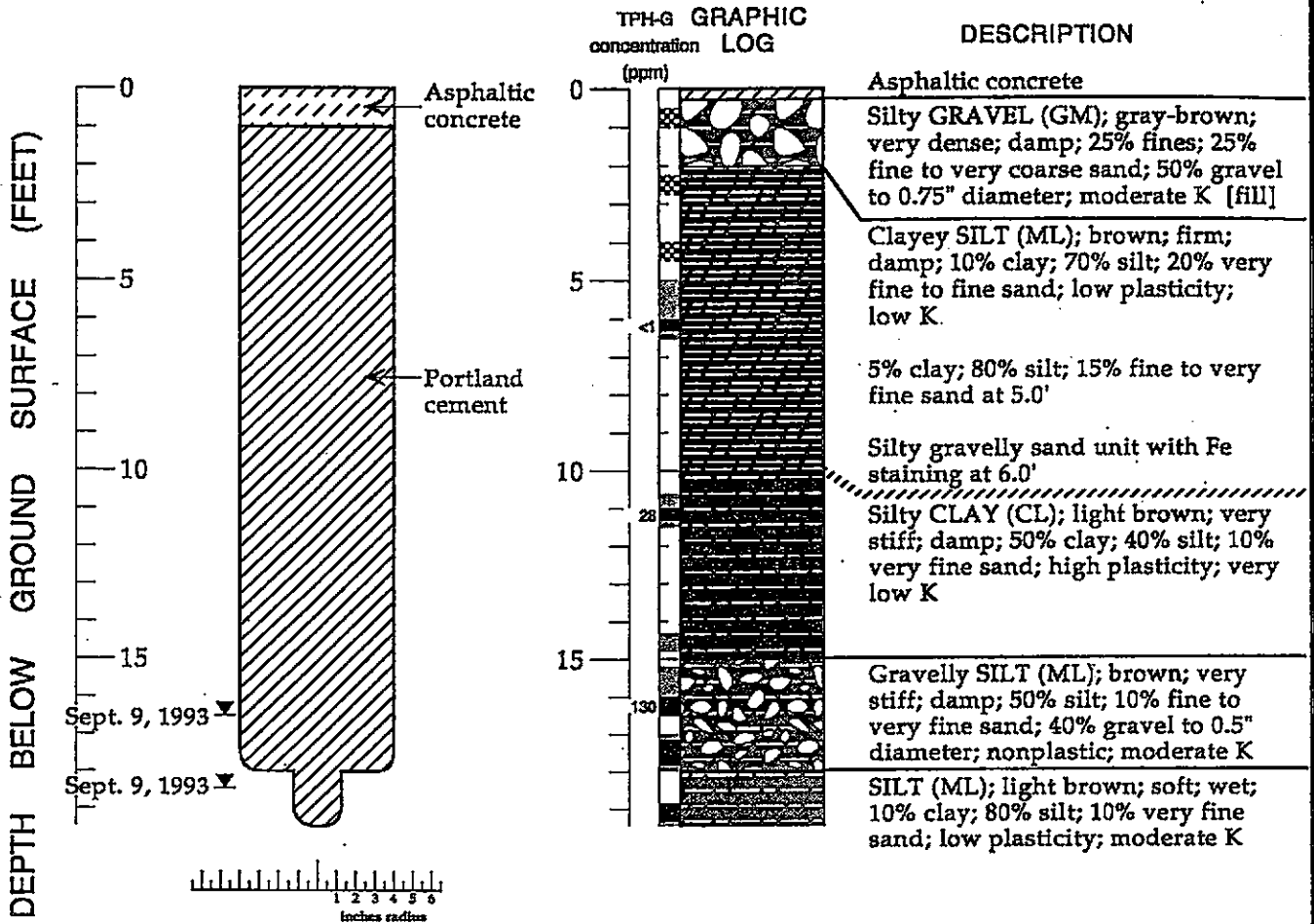
EXPLANATION

- ▼ Water level during drilling (date)
- ▽ Water level (date)
- Contact (dotted where approximate)
- ?-?-? Uncertain contact
- ////// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: David C. Elias
 Supervisor: N. Scott MacLeod; RG 5747
 Drilling Company: Soils Exploration Services, Vacaville, CA
 License Number: C57-582696
 Driller: Ken Lenk
 Drilling Method: Hollow-stem auger
 Date Drilled: September 9, 1993
 Type of Sampler: Split spoon (1.5", 2", 2.5" ID)
 Ground Surface Elevation: -193 feet above mean sea level
 TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015

Boring Log BH-A - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Berkeley, California

BORING BH-A



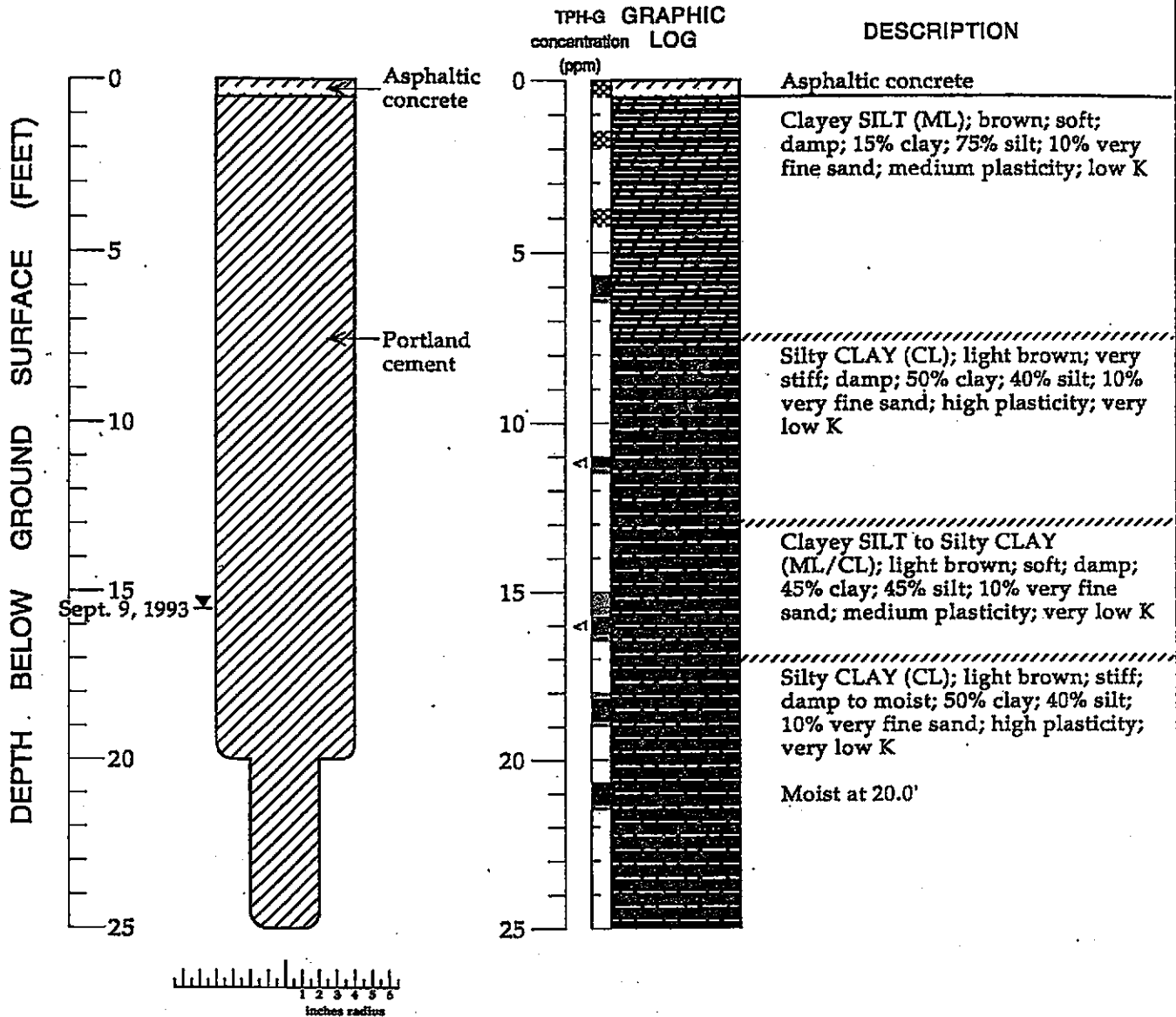
EXPLANATION

- | | |
|---|--|
| <ul style="list-style-type: none"> ▼ Water level during drilling (date) ∇ Water level (date) ----- Contact (dotted where approximate) -?-?-? Uncertain contact //// Gradational contact ■ Location of recovered drive sample ■ Location of drive sample sealed for chemical analysis ■ Cutting sample K = Estimated hydraulic conductivity | <ul style="list-style-type: none"> Logged By: David C. Elias Supervisor: N. Scott MacLeod; RG 5747 Drilling Company: Soils Exploration Services, Vacaville, CA License Number: C57-582696 Driller: Ken Lenk Drilling Method: Hollow-stem auger Date Drilled: September 9, 1993 Type of Sampler: Split spoon (1.5", 2", 2.5" ID) Ground Surface Elevation: ~193 feet above mean sea level TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015 |
|---|--|

Boring Log BH-A - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Berkeley, California



BORING BH-B

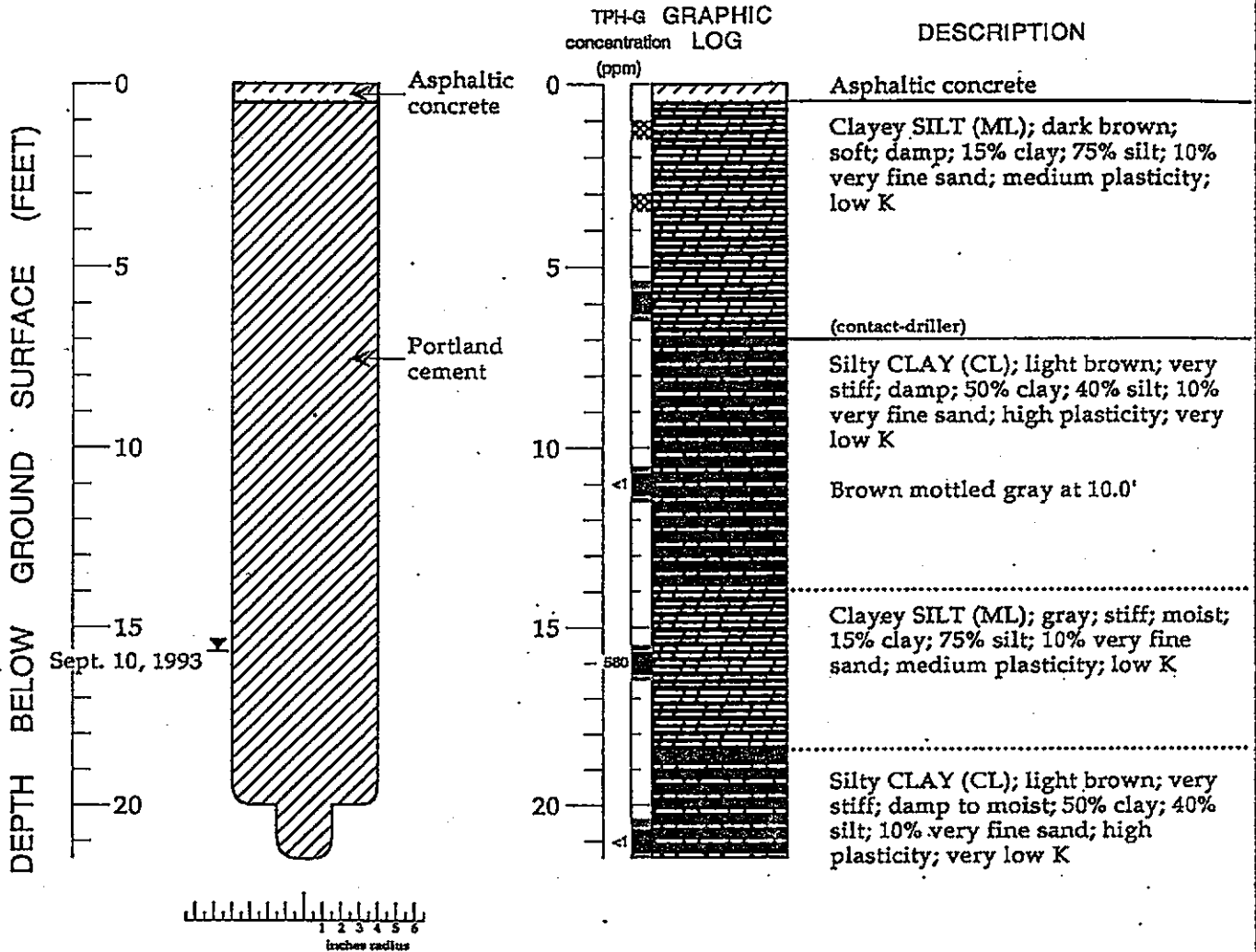


EXPLANATION

- ▼ Water level during drilling (date)
 - ▽ Water level (date)
 - Contact (dotted where approximate)
 - ?-?-? Uncertain contact
 - //// Gradational contact
 - ▨ Location of recovered drive sample
 - Location of drive sample sealed for chemical analysis
 - ▩ Cutting sample
 - K = Estimated hydraulic conductivity
- Logged By: David C. Elias
 Supervisor: N. Scott MacLeod; RG 5747
 Drilling Company: Soils Exploration Services, Vacaville, CA
 License Number: C57-582696
 Driller: Ken Lenk
 Drilling Method: Hollow-stem auger
 Date Drilled: September 9, 1993
 Type of Sampler: Split spoon (1.5", ID)
 Ground Surface Elevation: ~193 feet above mean sea level
 TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015

Boring Log BH-B - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Berkeley, California

BORING BH-C



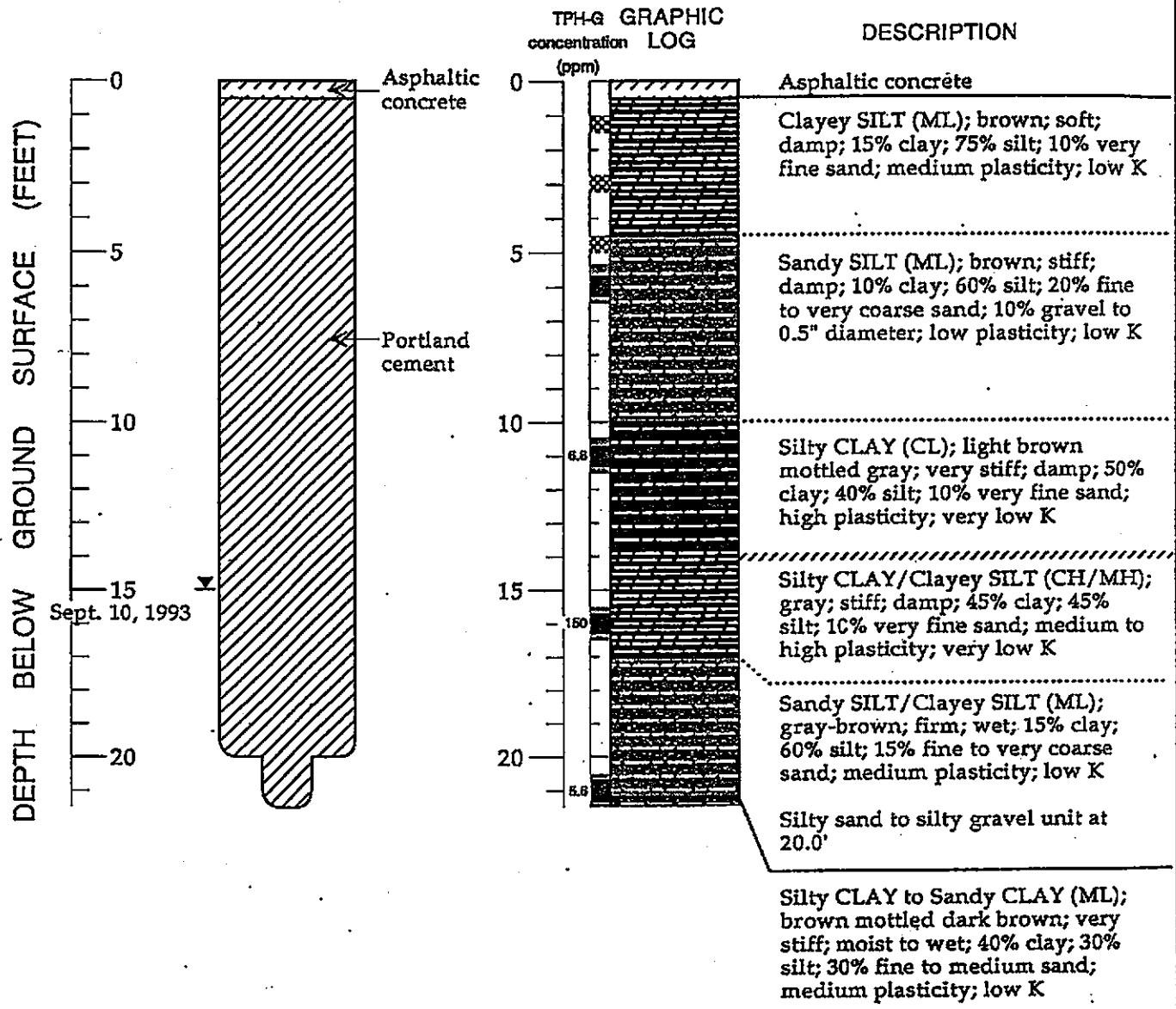
EXPLANATION

- ∇ Water level during drilling (date)
- ∇ Water level (date)
- Contact (dotted where approximate)
- ?-?-? Uncertain contact
- //// Gradational contact
- ▨ Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- ▨ Cutting sample
- K = Estimated hydraulic conductivity

Logged By: David C. Elias
 Supervisor: N. Scott MacLeod; RG 5747
 Drilling Company: Soils Exploration Services, Vacaville, CA
 License Number: C57-582696
 Driller: Gene Bernard
 Drilling Method: Hollow-stem auger
 Date Drilled: September 10, 1993
 Type of Sampler: Split spoon (2", ID)
 Ground Surface Elevation: ~193 feet above mean sea level
 TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015

Boring Log BH-C - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Berkeley, California

BORING BH-D

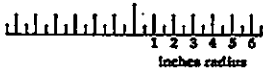
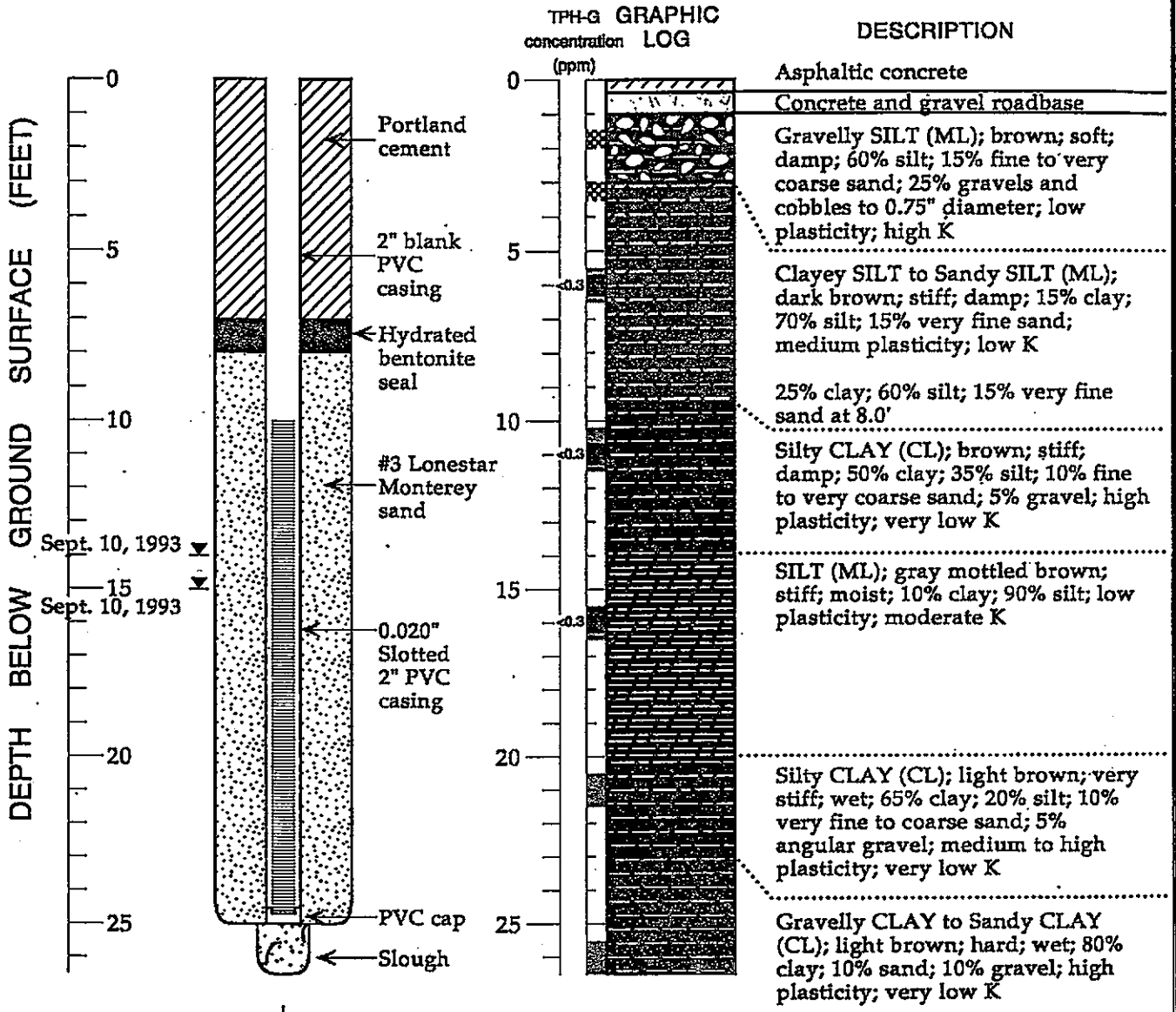


EXPLANATION

- | | |
|---|--|
| <ul style="list-style-type: none"> ▼ Water level during drilling (date) ▽ Water level (date) ----- Contact (dotted where approximate) -?-?-? Uncertain contact //// Gradational contact ■ Location of recovered drive sample ■ Location of drive sample sealed for chemical analysis ■ Cutting sample K = Estimated hydraulic conductivity | <ul style="list-style-type: none"> Logged By: David C. Elias Supervisor: N. Scott MacLeod; RG 5747 Drilling Company: Soils Exploration Services, Vacaville, CA License Number: C57-582696 Driller: Gene Bernard Drilling Method: Hollow-stem auger Date Drilled: September 10, 1993 Type of Sampler: Split spoon (2", ID) Ground Surface Elevation: ~193 feet above mean sea level TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015 |
|---|--|

Boring Log BH-D - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Berkeley, California

WELL MW-6 (BH-E)



EXPLANATION

- ▼ Water level during drilling (date)
- ▽ Water level (date)
- Contact (dotted where approximate)
- ?-?-? Uncertain contact
- //// Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged By: David C. Elias/Jeni C. Martin
 Supervisor: N. Scott MacLeod; RG 5747
 Drilling Company: Soils Exploration Services, Vacaville, CA
 License Number: C57-582696
 Driller: Gene Bernard
 Drilling Method: Hollow-stem auger
 Date Drilled: September 10, 1993
 Well Head Completion: 2" locking well-plug, traffic-rated vault
 Type of Sampler: Split spoon (2" ID)
 Ground Surface Elevation: 189.3 feet above mean sea level
 TPH-G: Total petroleum hydrocarbons as gasoline in soil by modified EPA Method 8015

Boring Log and Well Construction Details - Well MW-6 (BH-E) - Shell Service Station WIC #204-5508-3301, 6039 College Avenue, Oakland, California

ATTACHMENT B
DWR Well Completion Records

REGION _____
COUNTY _____
NEAR _____

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

BASIN _____
DWR NO. 18/4W-138
OTHER NOS. _____
Job No. 1667
01-715

WELL LOG

LOCATION 5976 Telegraph Avenue, Oakland

OWNER R. A. Shady Grocery ADDRESS 5976 Telegraph Avenue, Oakland

DRILLED BY J. S. Dugh ADDRESS _____

DRILLING METHOD _____ GRAVEL PACKED Yes DATE COMPLETED July 1995

SIZE OF CASING DEPTH 21' of 8" STRUCK WATER AT _____

PERFORATIONS _____ SIZE _____ NO. _____

WATER LEVEL BEFORE PERFORATING 9' AFTER _____

TEST DATA: DISCHARGE G. P. M. 10 DRAWDOWN FT. 15 1/2 HOURS RUN _____

OTHER DATA AVAILABLE: WATER LEVEL RECORD _____ ANALYSIS _____

SURFACE ELEV. _____ DATUM _____ SOURCE OF INFORMATION Driller's log

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0 - 10		Yellow clay		
- 13		Sandy clay and gravel		
- 20 1/2		Sand and gravel		
- 22		Sand rock		

FOR FIELD COPIES USE ALTERNATE LINES

REGION _____

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

BASIN _____
DWR No. 13/LW-13F E & N

COUNTY _____

OTHER Nos. _____ 01-716

NEAR _____

WELL LOG

#1

LOCATION Foot of Oak Grove Avenue, Oakland

OWNER _____ ADDRESS _____

DRILLED BY Bugh ADDRESS _____

DRILLING METHOD _____ GRAVEL PACKED _____ DATE COMPLETED _____

SIZE OF CASING DEPTH _____ STRUCK WATER AT _____

PERFORATIONS _____ SIZE _____ No. _____

WATER LEVEL BEFORE PERFORATING _____ AFTER _____

TEST DATA: DISCHARGE G. P. M. _____ DRAWDOWN FT. _____ HOURS RUN _____

OTHER DATA AVAILABLE: WATER LEVEL RECORD _____ ANALYSIS _____

SURFACE ELEV. _____ DATUM _____ SOURCE OF INFORMATION _____

FOR FIELD COPIES USE ALTERNATE LINES

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0 - 2		Loam		
13		Yellow cement		
23		Yellow clay		
26		Yellow sand		
35		Yellow clay		
45		Yellow cem gravel		
48		Yellow cem clay		
55		Yellow cem gravel		
63		Yellow cem clay		
82		Yellow cem gravel		
98		Sand and Gravel		
110		Cem gravel		
120		Clay		
122		Hard cement, basement rock/.		

REGION _____
COUNTY _____
NEAR _____

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

Basin _____
DWR No. 15/441-1584
OTHER Nos. _____
_____ 01-717 _____

WELL LOG

LOCATION Foot of Oak Grove Avenue, Oakland

OWNER _____ ADDRESS _____

DRILLED BY _____ ADDRESS _____

DRILLING METHOD _____ GRAVEL PACKED _____ DATE COMPLETED _____

SIZE OF CASING DEPTH _____ STRUCK WATER AT _____

PERFORATIONS _____ SIZE _____ No. _____

WATER LEVEL BEFORE PERFORATING _____ AFTER _____

TEST DATA: DISCHARGE G. P. M. _____ DRAWDOWN FT. _____ HOURS RUN _____

OTHER DATA AVAILABLE: WATER LEVEL RECORD _____ ANALYSIS _____

SURFACE ELEV. _____ DATUM _____ SOURCE OF INFORMATION _____

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0 - 2		Loam		
15		Cement clay		
26		Yellow clay		
33		sand		
33		yellow clay		
48		gravel and sand		
48		gravel		
49		sand		
52		gravel and sand		
63		yellow clay		

FOR FIELD COPIES USE ALTERNATE LINES

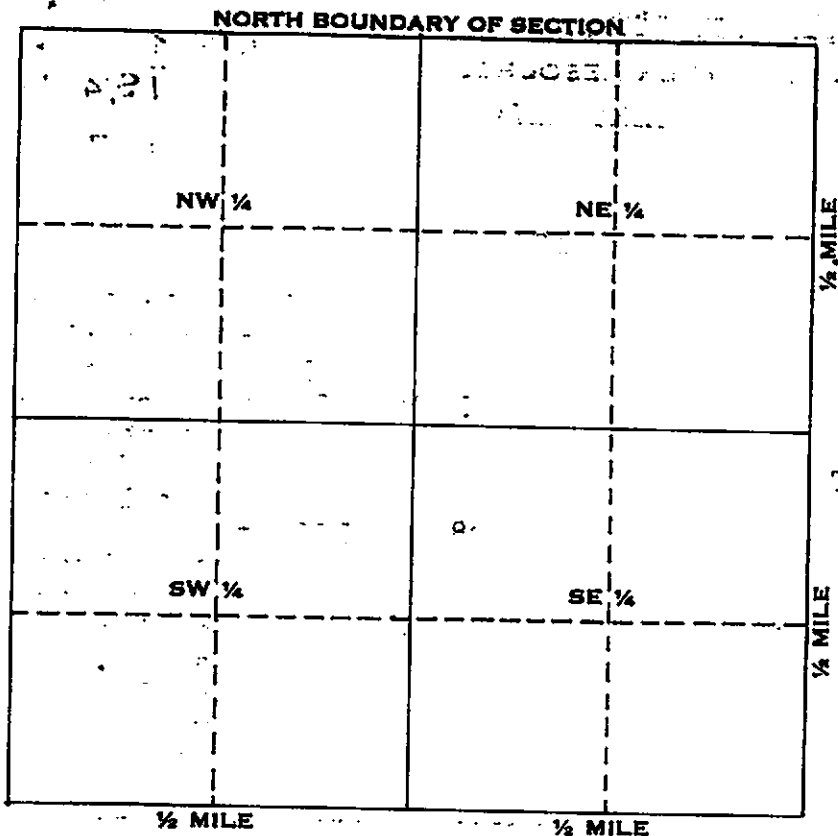
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

WELL LOCATION SKETCH

120152

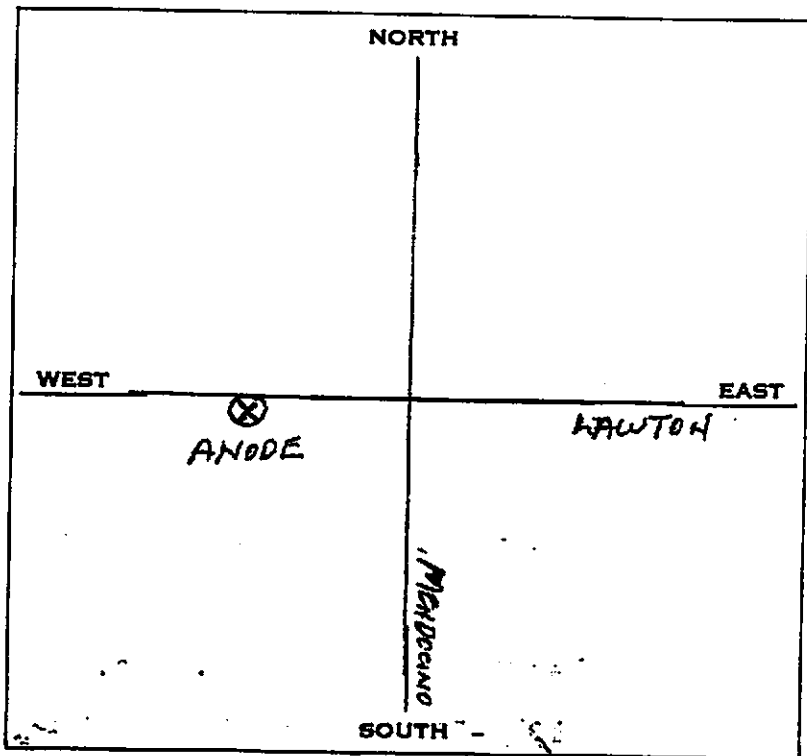


Township _____ N/S

Range _____ E/W

Section No. _____

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
Sketch roads, railroads, streams, or other features as necessary.
Indicate distances.

1971 JAN 3 AM 11 20

DEPT. OF WATER RESOURCES

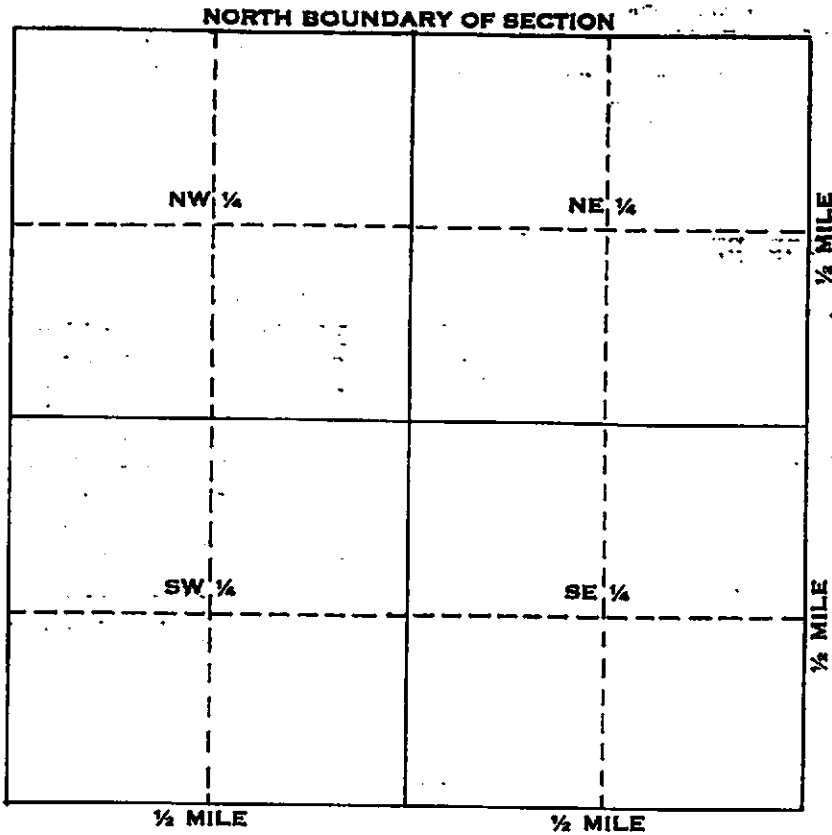
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

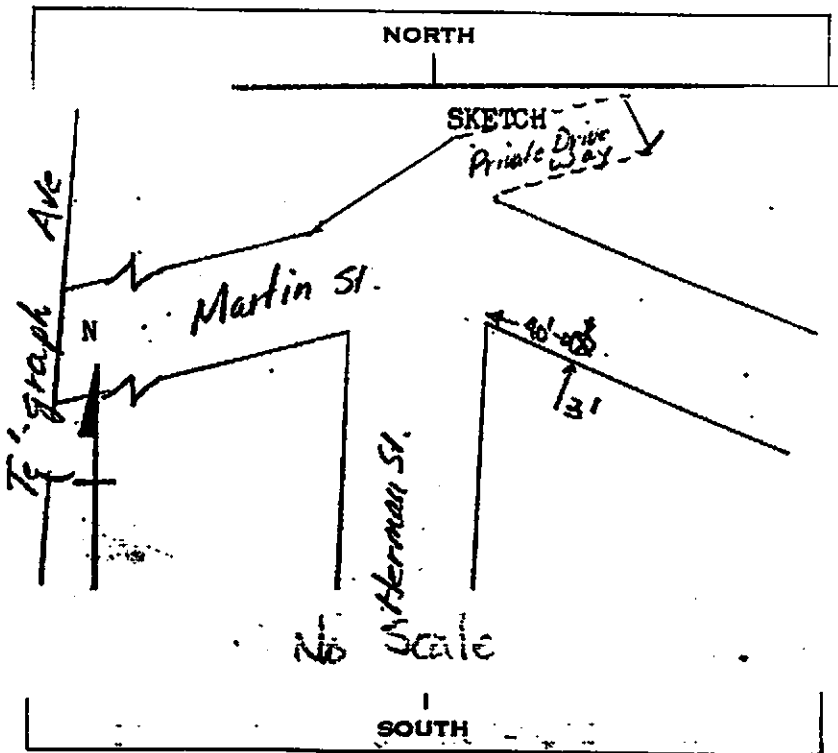
WELL LOCATION SKETCH

12D167



Township _____ N/S
 Range _____ E/W
 Section No. _____

A. Location of well in sectionized areas.
 Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

1974 JUL 12 AM 11 01

DEPT. OF WATER RESOURCES

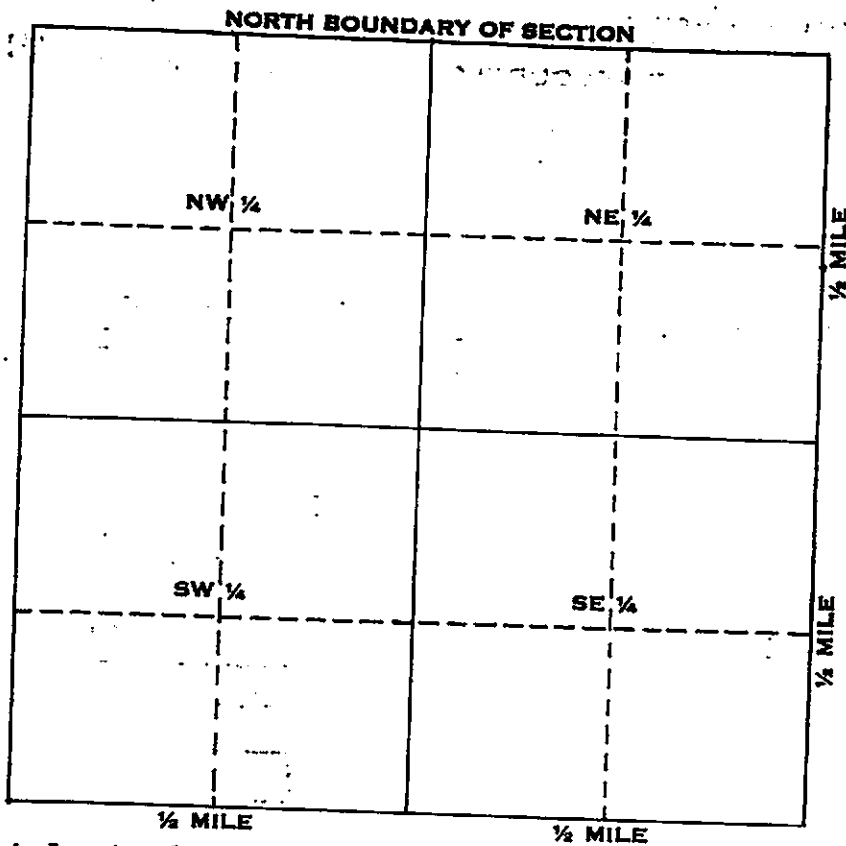
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

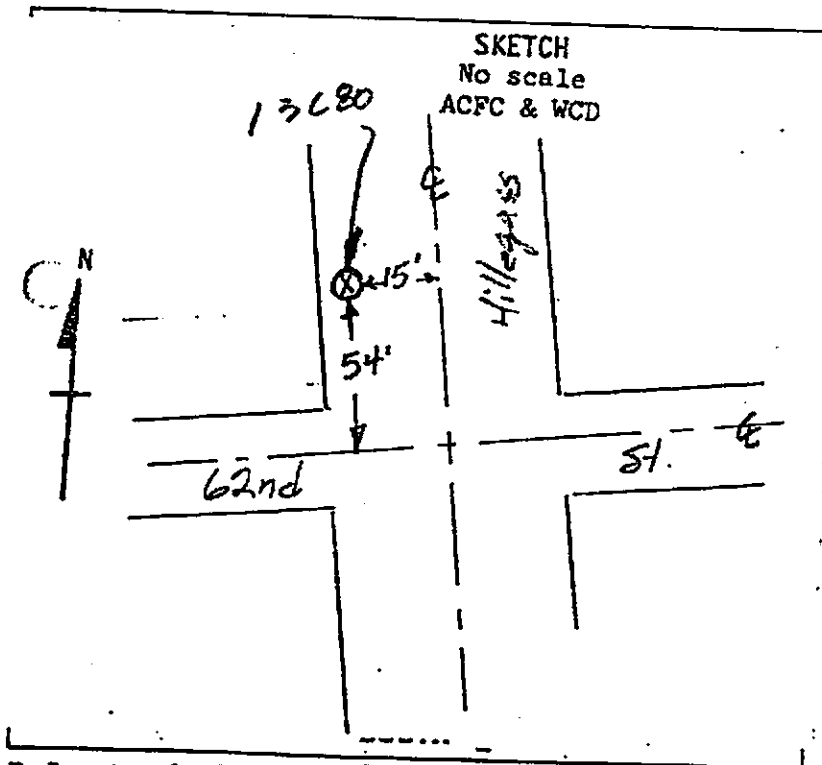
WELL LOCATION SKETCH

120189



Township 1 N/S
 Range 4 E/W
 Section No. 13080

A. Location of well in sectionized areas.
 Sketch roads, railroads, streams, or other features as necessary.



B. Location of well in areas not sectionized.
 Sketch roads, railroads, streams, or other features as necessary.
 Indicate distances.

1976 SEP 2 PM 1 31

DEPT. OF WATER
 RESOURCES

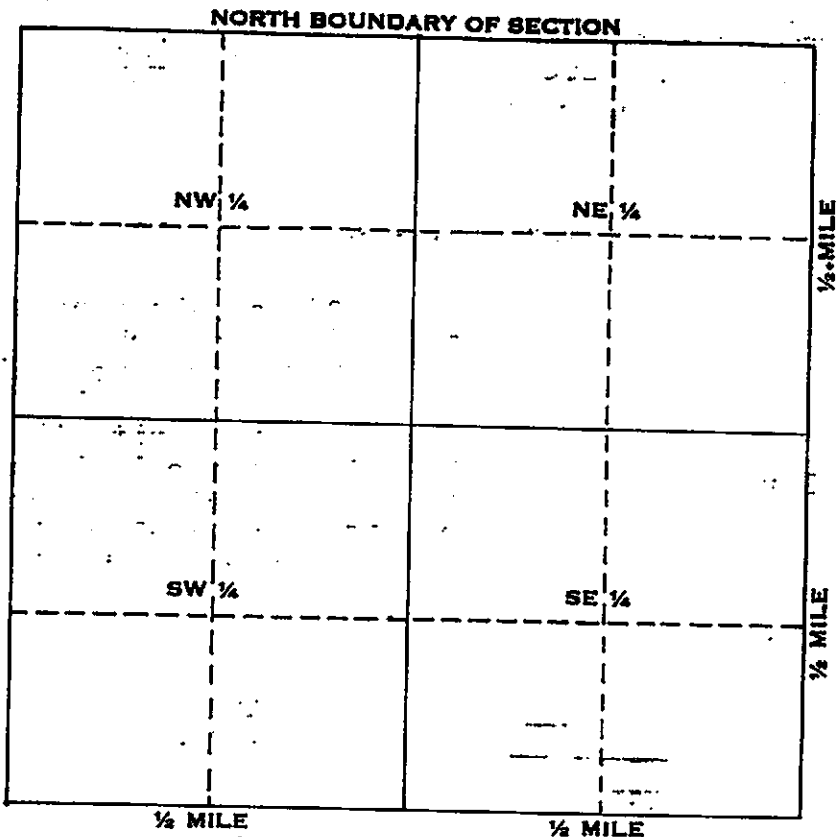
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

WELL LOCATION SKETCH

12619



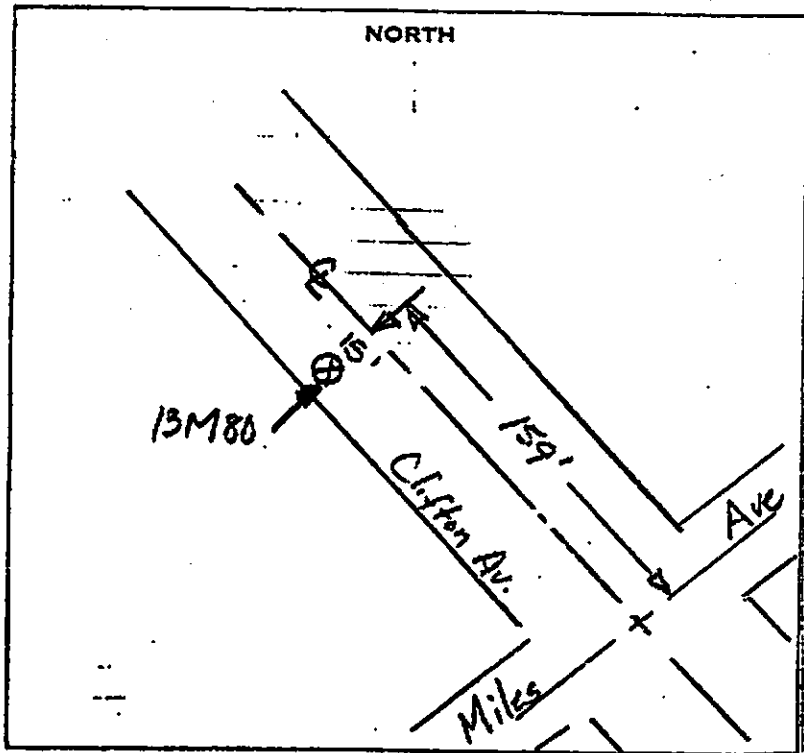
Township 1 N S

Range 4 E W

Section No. 13 M 80

A. Location of well in sectionized areas.
Sketch roads, railroads, streams, or other features as necessary.

SKETCH
No scale
ACFC & WCD



1976 SEP 2 PM 1 31

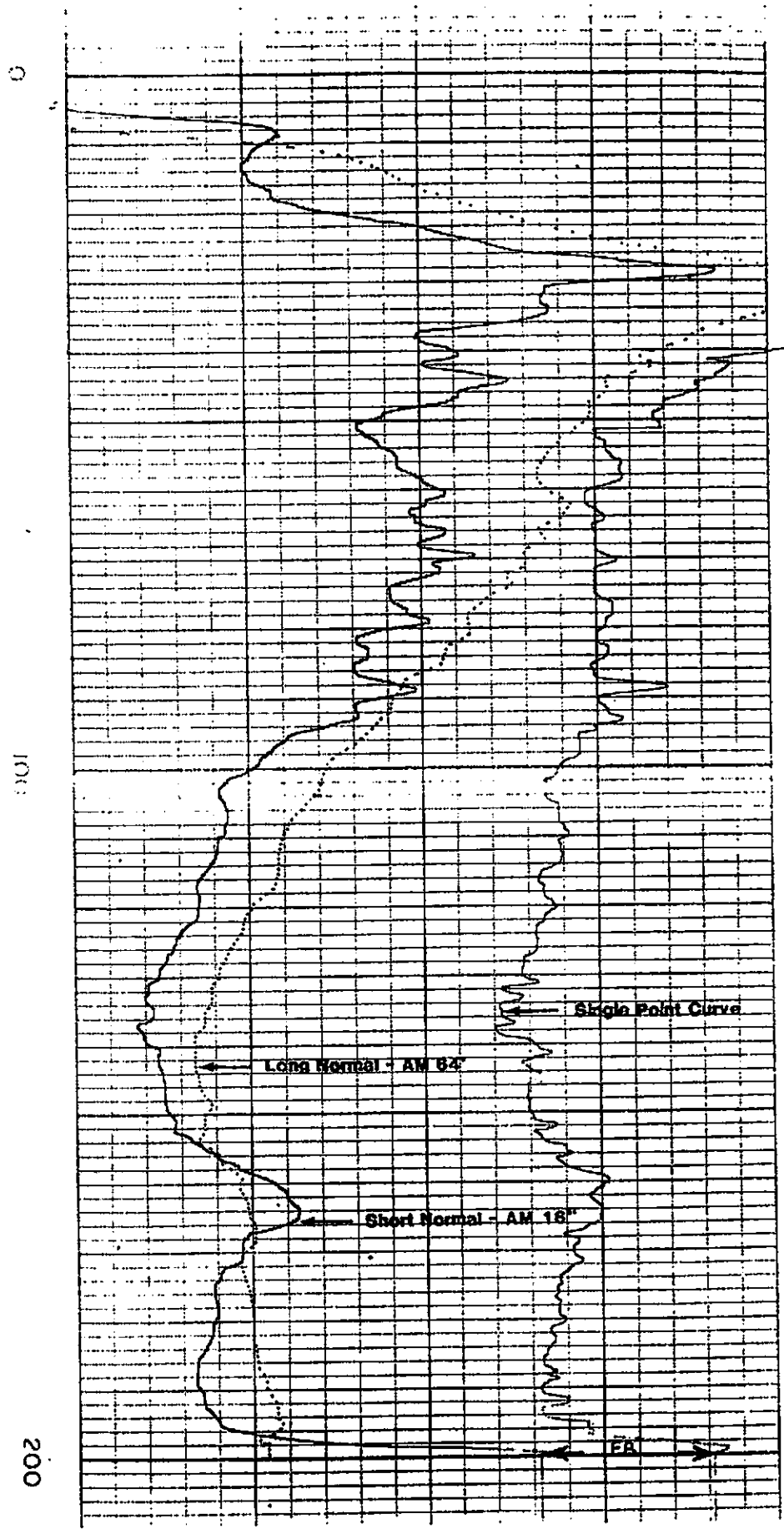
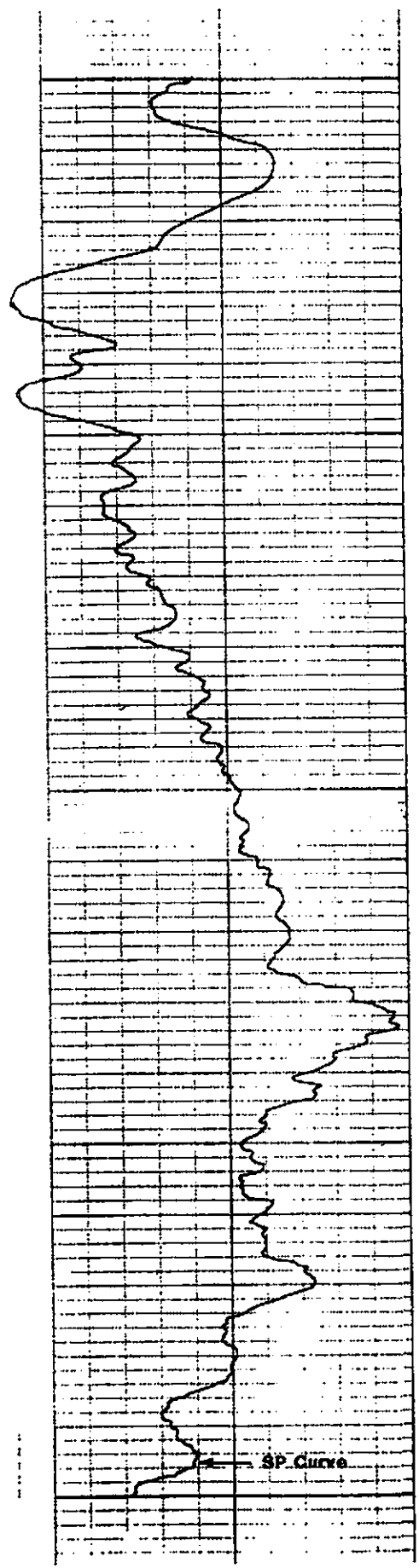
OFFICE WATER
RESOURCES

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

15/4W 1242
340582



0

100

200

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

1S/4W 12H2

340582



ELECTRIC LOG

FILING NO _____

COMPANY LUMCOFFE & SCAZZARIANI

WELL CLAIRMONT RESORT & TENNIS CLUB

FIELD _____

STATE CALIFORNIA COUNTY ALAMEDA

LOCATION: _____ OTHER SERVICES _____

SEC _____ TWP _____ RGE _____

REAR PARKING LOT

Permanent Datum: GL, Elev. _____, Elev.: K.B. _____

Log Measured From GL, Ft. Above Perm. Datum _____, D.F. _____

Drilling Measured From GL, G.L. _____

Date	12-18-90			
Run No.	ONE			
Depth—Driller	200'			
Depth—Logger	200'			
Btm. Log Inter.	199'			
Top Log Inter.	5'			
Casing—Driller	N/A			
Casing—Logger	N/A			
Bit Size	6 1/8"			
Type Fluid in Hole	BENTONITE			
Dens.	8.9	Visc.	52	
pH		Fluid Loss		
Source of Sample	FLOWLINE			
R _m @ Meas. Temp.	10 @ 77°F			
R _{at} @ Meas. Temp.	10 @ 75°F			
R _{ss} @ Meas. Temp.	NA @ *F			
Source: R _m	M			
R _m @ BHT	N/A @ *F			
Time Since Circ.	0 HR			
Max. Rec. Temp.	N/A			
Equip. Location	L11 SAC			
Recorded By	D. LOCKERIE			
Witnessed By	M. GORDON RBATISTA			

This Heading and Log Conform To API RP 31

REMARKS	Scale Changes		Type Log	Depth	Equipment Data			
	Scale Up Hole	Scale Down Hole			Run No.	Tool Type	Tool Position	Other
Changes in Mud Type or Additional Samples								
Date Sample No.								
Depth—Driller								
Type Fluid in Hole								
Dens. Visc.								
ph Fluid Loss								
Source of Sample								
R _m @ Meas. Temp.								
R _{at} @ Meas. Temp.								
R _{ss} @ Meas. Temp.								
Source: R _m R _{ss}								
R _m @ BHT								
R _{at} @ BHT								
R _{ss} @ BHT								

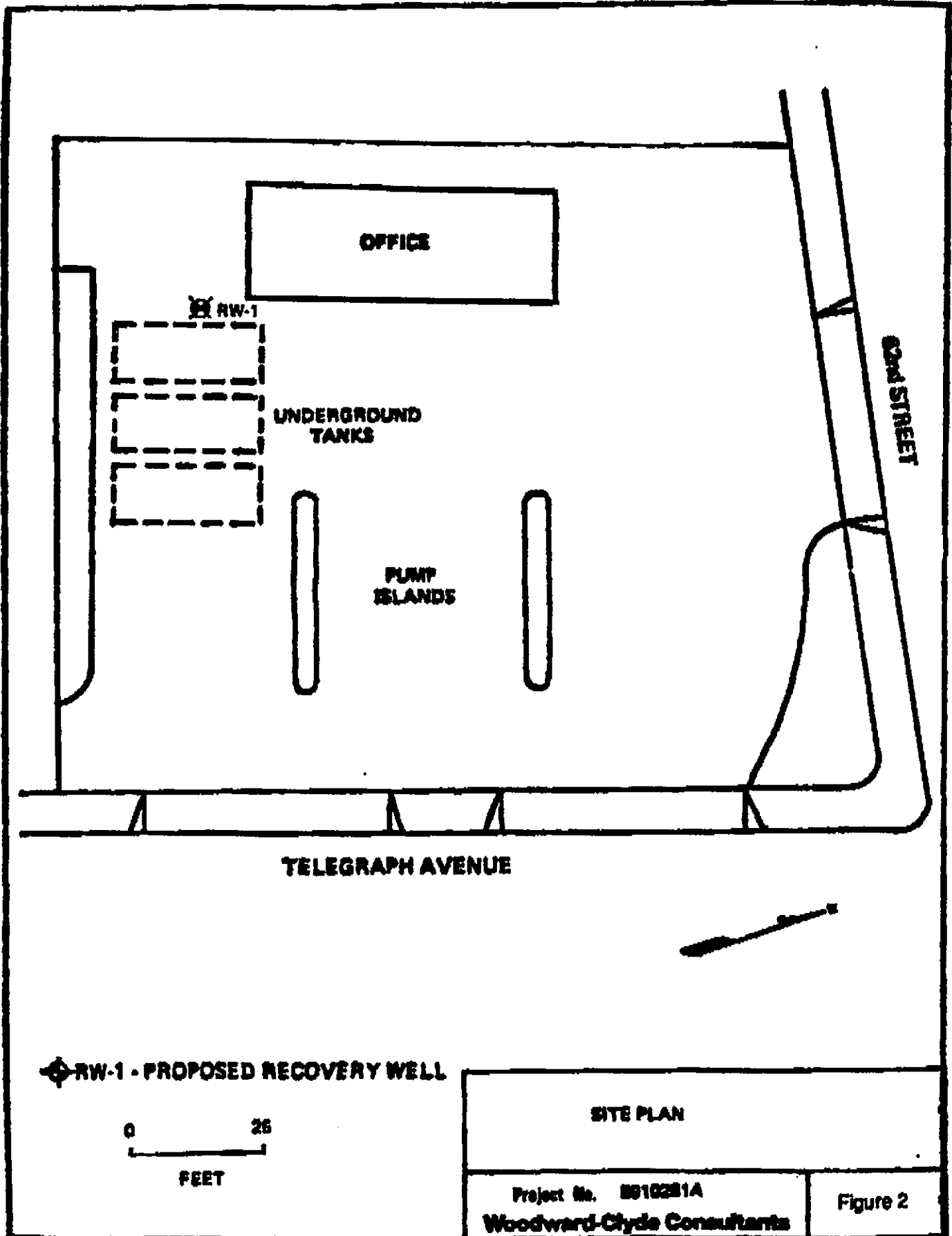
SPONTANEOUS POTENTIAL millivolts	Depth	RESISTIVITY ohms. m ² /m	RESISTIVITY ohms. m ² /m
		RESISTANCE Detail Curve	RESISTANCE Detail Curve
		SHORT NORMAL 16 Inch	SHORT NORMAL 100
		LONG NORMAL 64 Inch	

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

201222
IS/4W 13D8



⊕ RW-1 - PROPOSED RECOVERY WELL

0 25
FEET

SITE PLAN

Project No. 0010281A
Woodward-Clyde Consultants

Figure 2

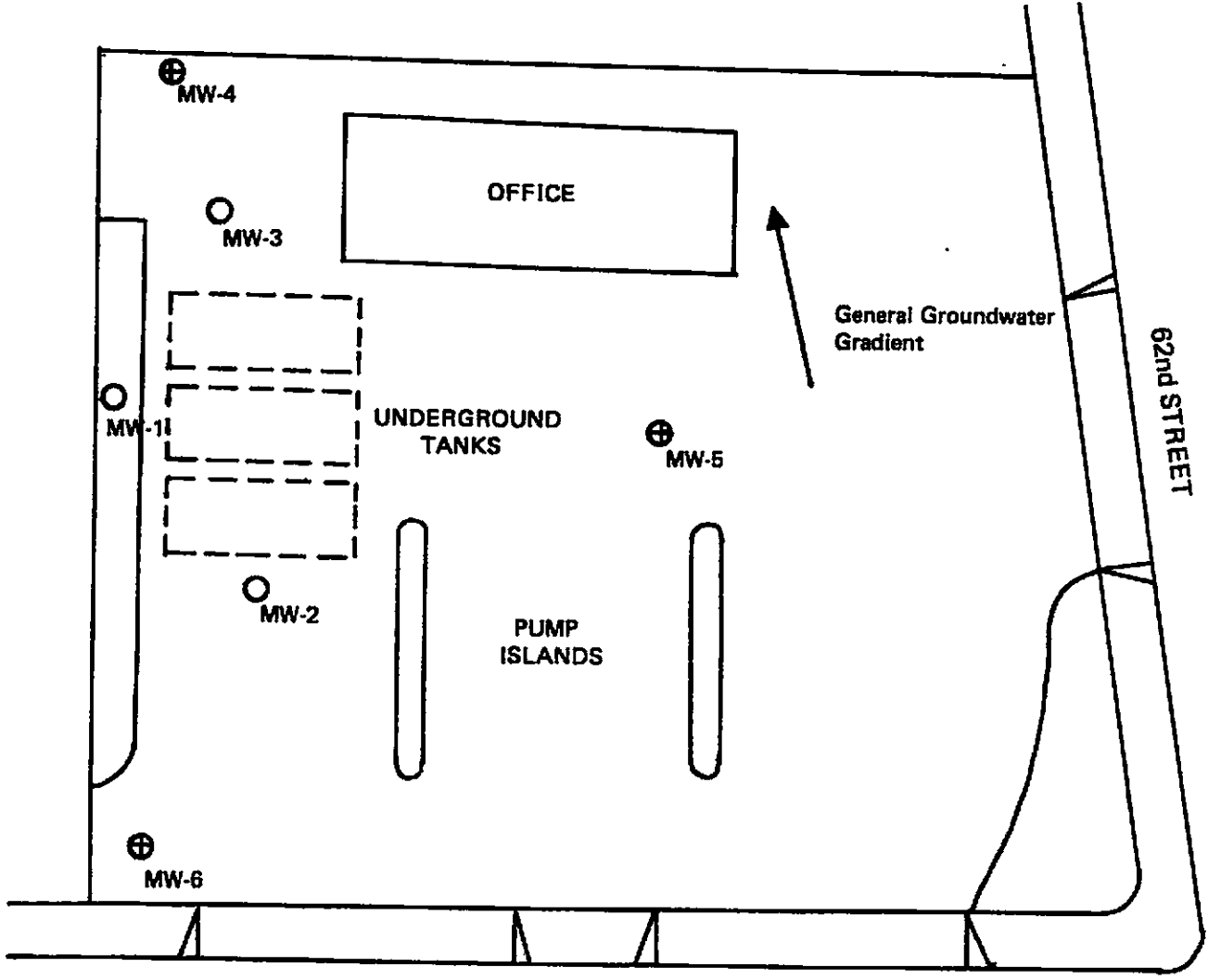
CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

INV ✓ ~~ST-277~~ A, B, C p61/fox
AD ✓ 179203 Permit No. 86305

15/W13D5-7



LEGEND

- MW-1 GT Monitoring Wells
- ⊕ MW-4 WCC Monitoring Wells



THRIFTY OIL
6125 TELEGRAPH AVE.
OAKLAND, CA.

Figure 1. MONITORING WELL LOCATIONS

DRILLER: KVILHAUG WELL DRILLING, CONCORD

#P6305

INV ✓
AD ✓

179203A ~~217A~~
1S/4W13D5

Project No.: 90390A

Date: 11-13-86

Elevation.

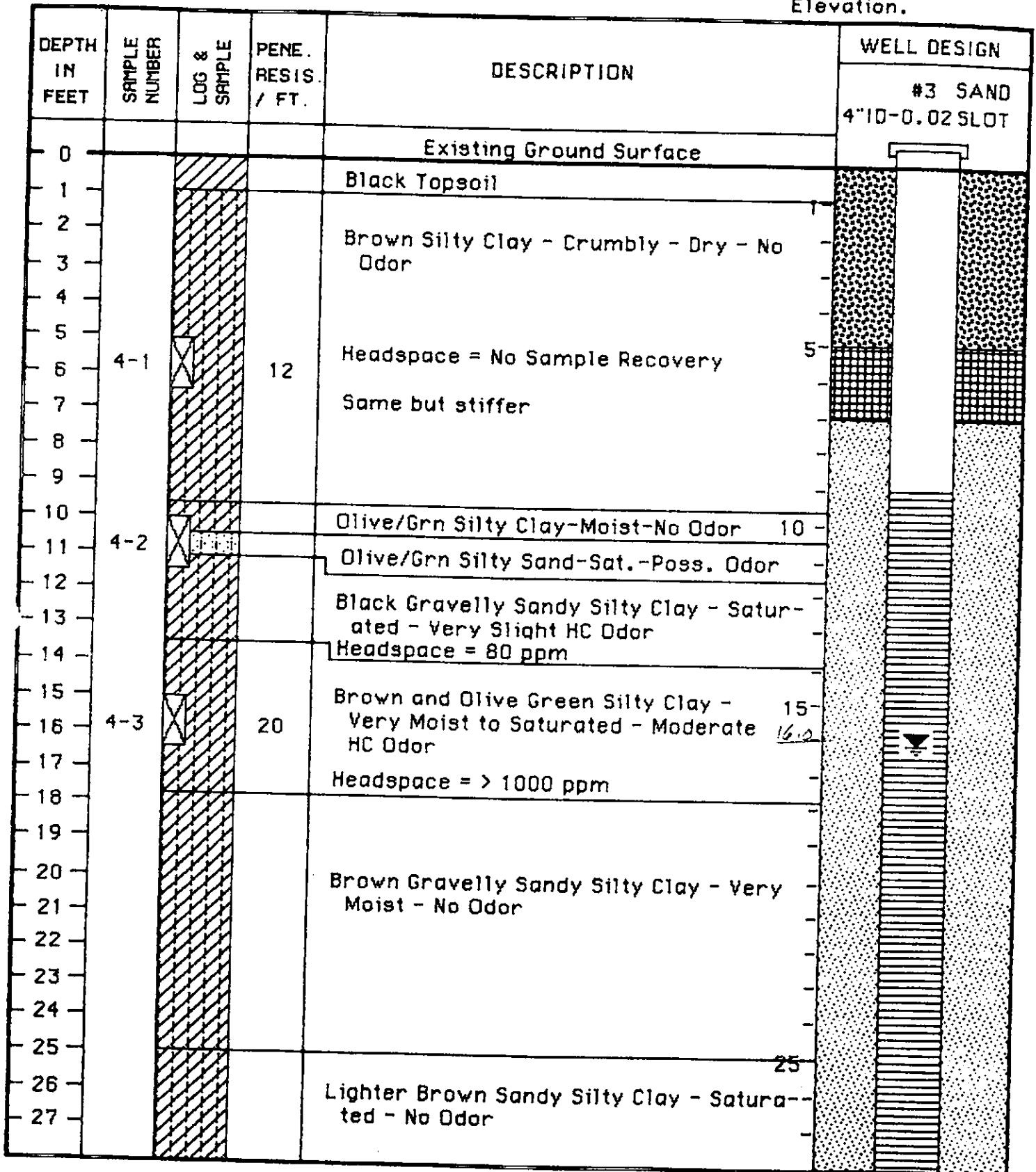


Figure 3A - Test Boring Log No. 1
- Monitoring Well No. MW-4

Woodward-Clyde Consultants

#P6305

179203A

15/4W13D5

Project No.: 90390A

Date: 11-13-86

Elevation.

DEPTH IN FEET	SAMPLE NUMBER	LOG & SAMPLE	PENE. RESIS / FT.	DESCRIPTION	WELL DESIGN		
					#3 SAND 4"ID-0.02 SLOT		
28				28 Feet Below Existing Ground Surface			
29				Light Brown Sandy Silty Clay - Saturated - No Odor			
30				Bottom of Boring at 30 ft.			
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							

Figure 3B - Test Boring Log No. 1
 - Monitoring Well No. MW-4

Woodward-Clyde Consultants

#96305

INV ✓
AD ✓

179203B ~~01-217B~~
IS/4W13D6

Project No.: 90390A

Date: 11-13-86

Elevation.

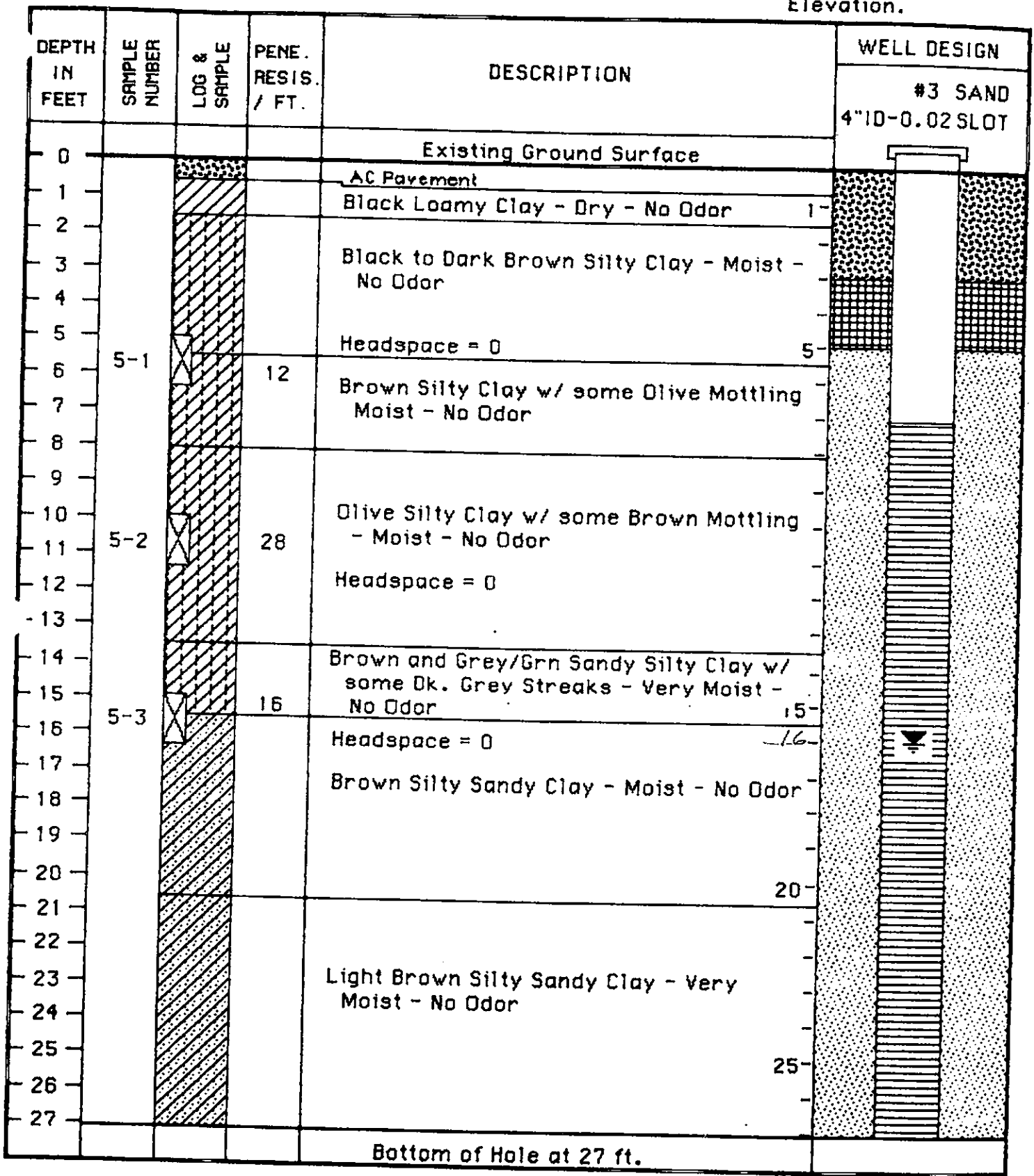


Figure 4 - Test Boring Log No. 2
- Monitoring Well No. MW-5

Woodward-Clyde Consultants

#P6-305

INV ✓
AD ✓

179203C 01-2170
15/4W13D7

Project No.: 90390A

Date: 11-13-86

Elevation.

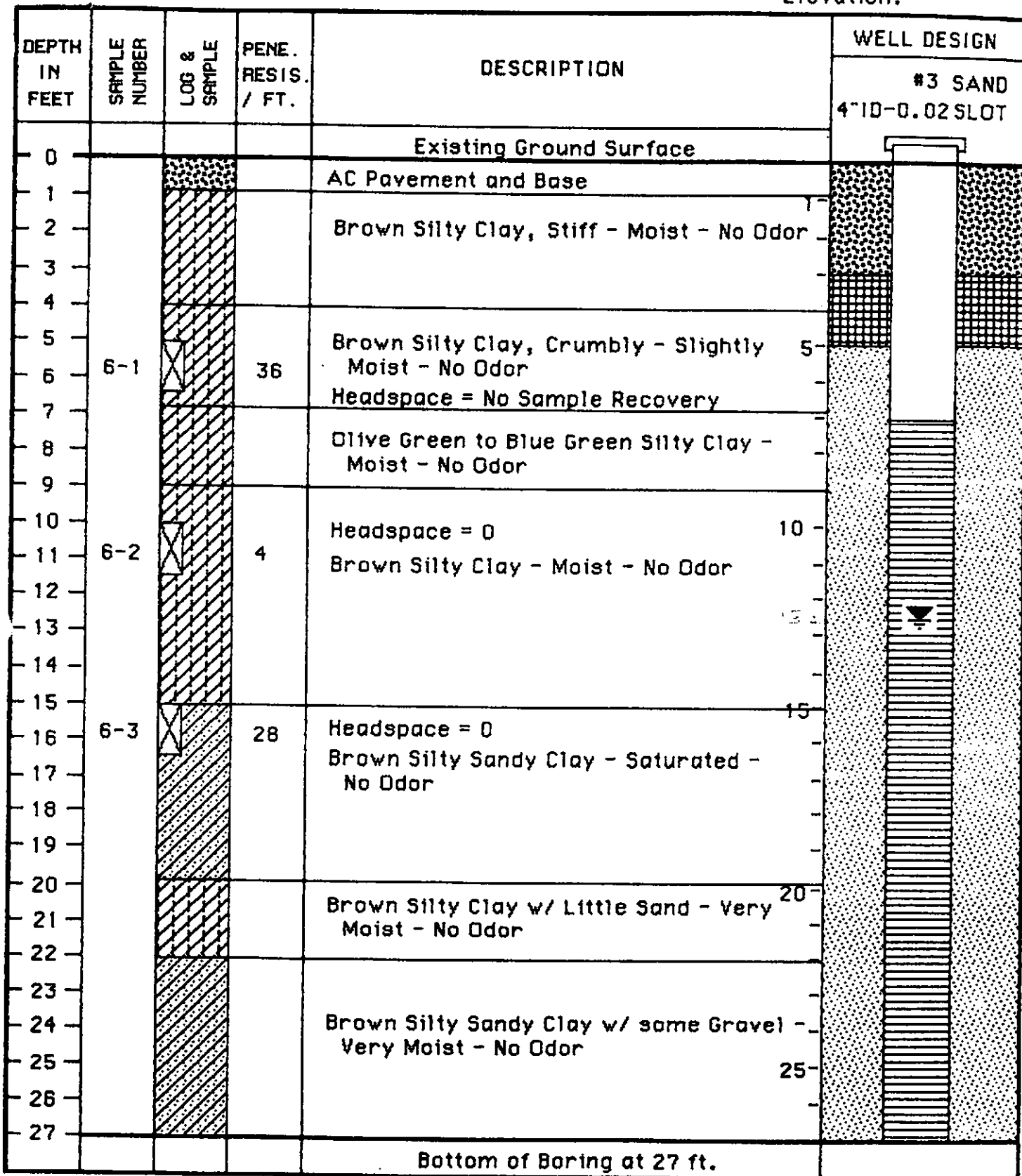


Figure 5 - Test Boring Log No. 3
- Monitoring Well No. MW-6

Woodward-Clyde Consultants

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

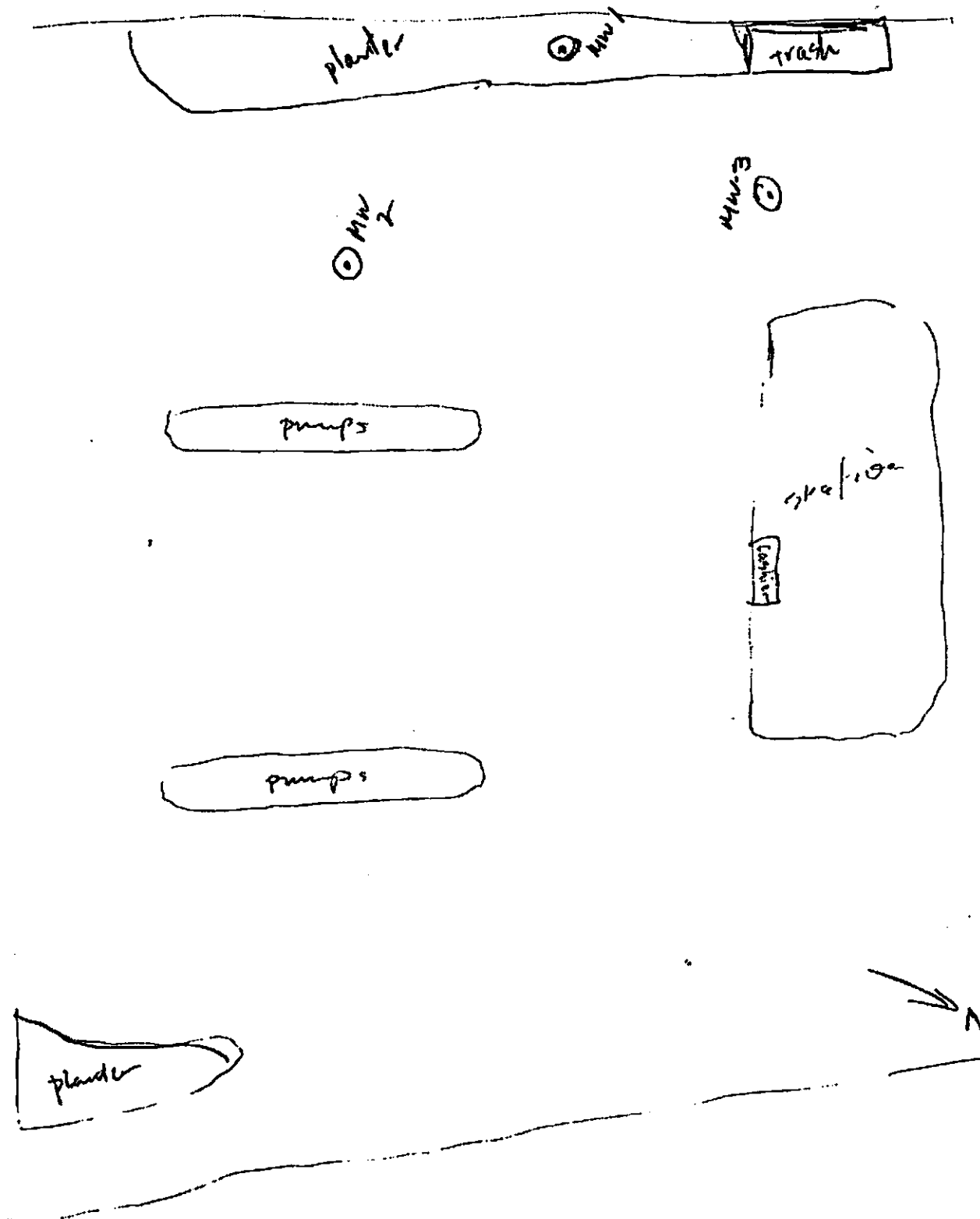
86159

15/4W13D2-4

179204

Arco / Telegraph

telegraph



2009

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

AQUA TERRA TECHNOLOGIES INC.

Log of Exploratory Boring

Project: Dryers Ice Cream Job No.: 9126
 Location: 5929 College Avenue, Oakland, CA Date: 07/18/91
 Boring No.: MW3 Driller: Gregg Drilling Page 1 of 2
 Logged by: Bruce Berman Proj. Mgr. Terry Carter Reviewed by: _____

Penetration 0.5 Feet	Depth (feet)	U.S.C.S. Soil Class.	Field Description	
	0			
	1	Fill	0'-1.5- Soil fill materials (planter area)	
	2		1.5'-27' Sandy clay; black (10YR 2/1); 10% to 20% very fine sand; moist.	3' Hydro-carbon odor in drill cuttings
	3			
	4			
2, 2, 4	5		5'; lens of fine sand; dark yellowish brown (10YR 4/4); 3-inches thick; damp.	5' sampler driven for lithologic description only (without tubes), sample not retained, hydrocarbon odor
	6			
	7	CL-Fill?	Soil just above and below sand lens has minor blue-green aged hydrocarbon discoloring. Gradational increase in moisture and fine sand content with increased depth.	
	8			
	9		Major blue-green aged hydrocarbon discoloring below 10'.	
4, 4, 5	10			
	11			10' Sample, strong hydrocarbon odor
	12			
	13			
	14			
3, 5, 10	15		15'; wood chips in good condition, not decomposed (brought up in sampler).	14' First water, strong hydrocarbon odor in water drip-
	16			

AQUA TERRA TECHNOLOGIES INC.

Field Drilling and Sampling Log

Job No: 9126

Page 2 of 2

Penetration 0.5 Feet	Depth (feet)	U.S.C.S. Soil Class.	MW3 Field Description	
	17	CL	17'; Drillers observation; augers encountered stiffer material similar to drilling conditions in native material in the other two boreholes. (possibly in tank excavation backfilled with excavated soil to 17', native material below 17'?).	ping from end of drill rod, sheen
	18			15' Incomplete sample recovery, saturated soil, sample not retained
	19			
	20			
	21			
	22			
	23			
	24			
	25			
	26			
	27	B.O.H. @ 27'		
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
	36			
	37			
	38			

MW3

Well Designation:

IS/MW-13C
OL 505L

Site Location:
5929 College Avenue,
Oakland, CA.

Date Installed: 7-18-91

Drilling Company:
Gregg Drilling

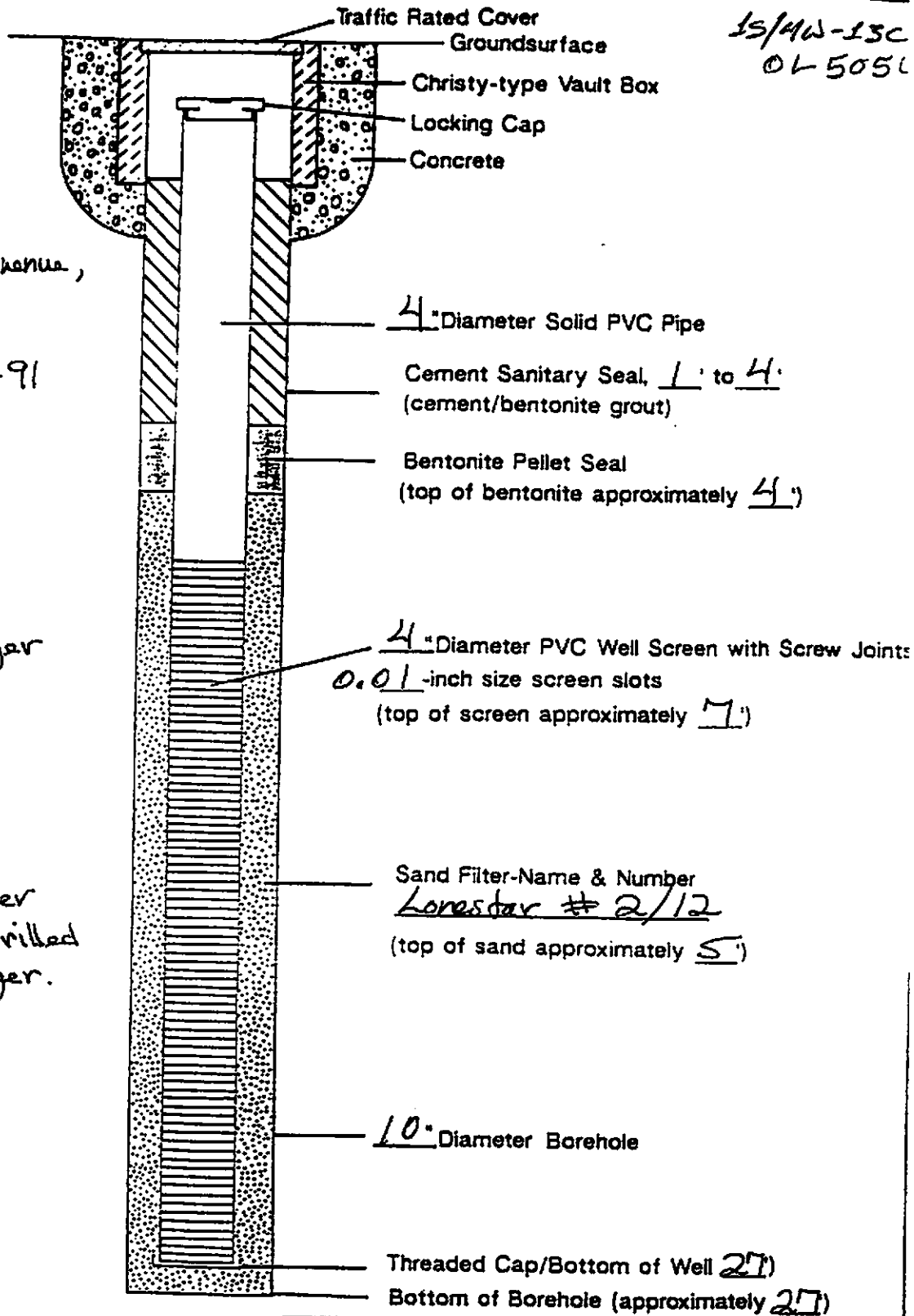
Driller: Chris

Drilling Method:
Hollow-stem auger

Logged By: BB

Notes:

Pilot hole drilled
with 6-inch auger
to 15-feet, overdrilled
with 10-inch auger.



Not to Scale

Groundwater Monitoring Well
Construction Details

ATT

Aqua Terra Technologies
Consulting Engineers
& Scientists

Dryers Ice Cream

JOB NUMBER

DATE

9126

PLATE

MW3

01-505T
LS/4W-1364

AQUA TERRA TECHNOLOGIES INC.

Log of Exploratory Boring

Project: Dryers Ice Cream Job No.: 9126

Location: 5929 College Avenue, Oakland, CA Date: 07/17/91

Boring No.: MW2 Driller: Gregg Drilling Page 1 of 2

Logged by: Bruce Berman Proj. Mgr. Terry Carter Reviewed by: _____

Penetration 0.5 Feet	Depth (feet)	U.S.C.S. Soil Class.	Field Description		
	0				
	1	Asphalt, baserock	0'-1.5' Asphalt and gravel base-rock		
	2	CL	1.5-10' Silty clay; very dark grayish brown (10YR 3/2); stiff; medium plasticity; slightly damp to damp. Gradational color change to dark brown (10YR 4/3).		
	3				
	4				
	5				
	6				
	7				
	8				
	9				
6, 10, 12	10	CL	10'-28' Sandy clay; dark brown (10YR 4/3); 10% to 20% very fine to fine sand; stiff; damp to moist; minor rust staining; minor blue-green aged hydrocarbon discoloring. Gradational increase in fine sand content and moisture content.	10' Sample, hydrocarbon odor	
	11				
	12				
	13				
	14				
	15				15' First water, 15' sample slipped
4, 9, 12	16				
	17				

Field Drilling and Sampling Log

Job No: 9126

Page 2 of 2

Penetration 0.5 Feet	Depth (feet)	U.S.C.S. Soil Class.	MW2 Field Description		
	—				
	18	CL		out of sampler, saturated, not recovered. Hydrocarbon odor in water dripping from sampler. Hydrocarbon odor in drill cuttings below 15'.	
	19				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	28				B.O.H. @ 28'.
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
	37				
	38				
	39				

M.W2

Well Designation:

1s/42-13c
01-505T

Site Location:
5929 College Avenue,
Oakland, CA.

Date Installed: 7-17-91

Drilling Company:
Gregg Drilling

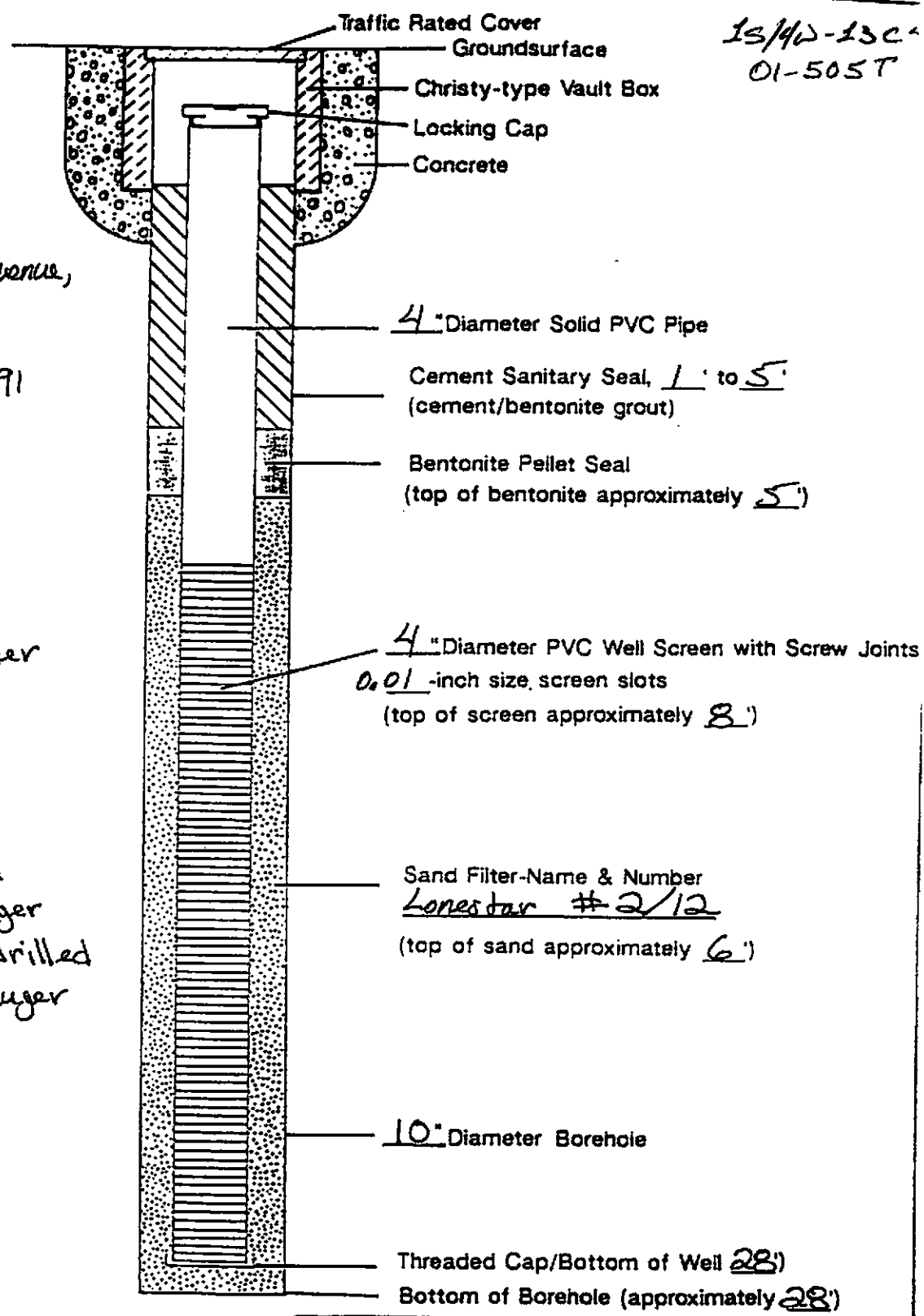
Driller: Chris

Drilling Method:
Hollow-stem auger

Logged By: BB

Notes:

Pilot hole drilled
with 6-inch auger
to 15 feet, overdrilled
with 10-inch auger



Not to Scale

Groundwater Monitoring Well
Construction Details

ATT Aqua Terra Technologies
Consulting Engineers
& Scientists

Dryers Ice Cream

PLATE

JOB NUMBER

DATE

9126

MW2

01-5055
15/4D-13C 3

AQUA TERRA TECHNOLOGIES INC.

Log of Exploratory Boring

Project: Dryers Ice Cream Job No.: 9126

Location: 5929 College Avenue, Oakland, CA Date: 07/16/91

Boring No.: MW1 Driller: Gregg Drilling Page 1 of 2

Logged by: Bruce Berman Proj. Mgr. Terry Carter Reviewed by: _____

Penetration 0.5 Feet	Depth (feet)	U.S.C.S. Soil Class.	Field Description		
	0				
	1	Fill	0'-1' Redwood chip-bark and soil backfill (planter)		
	2	CL	1'-8' Silty clay; black (10YR 2/1); stiff; slightly damp. Gradational color change to very dark grayish brown (10YR 3/2), minor component of very fine sand beginning at 5'.		
	3				
	4				
	5				
	6				
	7				
	8	CL	8'-18' Sandy clay; dark yellowish brown (10YR 4/4); 10% to 20% very fine sand; stiff to very stiff; slightly damp. Gradational increase in fine sand content and moisture content; minor iron staining and micro pores beginning at ≈ 15'.		
	9				
7,9,14	10				10' Sample
	11				
	12				
	13				
	14				
5,17,12	15			15' Sample	
	16				
	17				

AQUA TERRA TECHNOLOGIES INC.

Field Drilling and Sampling Log

Job No: 9126

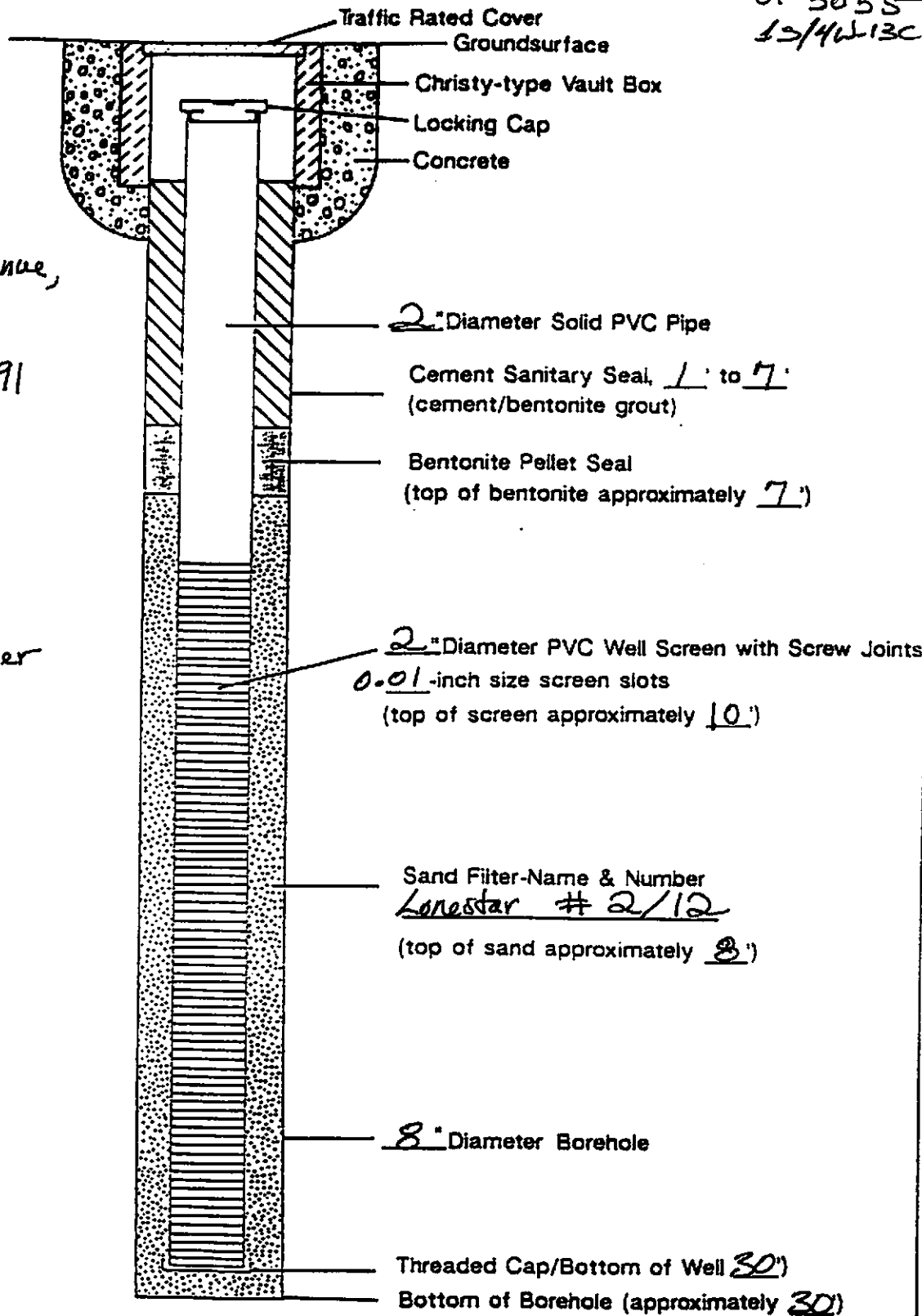
Page 2 of 2

Penetration (0.5 Ft)	Depth (feet)	U.S.C.S. Soil Class.	MW1 Field Description		
	18	CL	18'-30' Sandy-gravelly clay to clayey sand; 20% very fine sand, 10% medium to coarse sand, 20% fine to medium gravel (semi-round sandstone to 1/2-inch diameter); thin lenses of clean gravel (< 6-inches) diminish with depth.	18' First water	
	19				
6, 16, 22	20				20' Sample saturated, not retained.
	21				
	22	GC-CL			
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30		B.O.H. @ 30'.		
	31				
	32				
	33				
	34				
	35				
	36				
	37				
	38				
	39				

MW1

01-5055
12/4/13C

Well Designation:



Site Location:
5929 College Avenue,
Oakland, CA.

Date Installed: 7-16-91

Drilling Company:
Gregg Drilling

Driller: Chris

Drilling Method:
Hollow-stem auger

Logged By: BB

Notes:

Not to Scale

Groundwater Monitoring Well
Construction Details

ATT

Aqua Terra Technologies
Consulting Engineers
& Scientists

Dryers Ice Cream

JOB NUMBER

DATE

9/26

PLATE

MW1

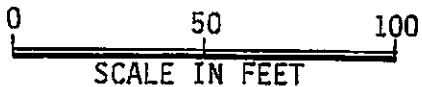
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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

LEGEND

⊕ Proposed Monitoring Well Location



N

Union
76

62nd STREET

FLORIO STREET

Residential and
Commercial
Properties

Commercial
Properties

CLAREMONT AVENUE

COLLEGE AVENUE

Grass
MW-1

Grass

Grass

Pump Island
Canopies

MW-3

Storage
Tanks

Cashier

MW-2

Storage

MW-4

Fence

Fence

CHECK PRINT
 date 1/27 drafter u



Harding Lawson Associates
 Engineering and
 Environmental Services

Monitoring Well Locations
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE

4

DRAWN
KH

JOB NUMBER
4022,233.03

APPROVED

DATE
11/89

REVISED DATE

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

(Continuation of Log)

Blows/ foot	Photo Ionization Detector (ppm)	Well Screen Interval	Gasoline Odor
8	0		None
33	0		None
12	0		None
15	1		None
30	0		None
33	0		None
58	0		None
22	0		None
14	0		None
24	0		None
29	0		None
16	0		None
25	0		None
29	0		None
21	0		None
26	0		None

MOTTLED BROWN-GRAY SILT (ML),
medium dense, moist

BROWN SILTY SAND WITH GRAVEL
(SM), dense, saturated, gravel
≤.5 inch, some clay

BROWN LEAN CLAY WITH GRAVEL (CL),
hard, moist, gravel ≤.5 inch

MOTTLED BROWN-ORANGE SILT (ML),
medium dense, moist, some gravel
decreasing towards bottom

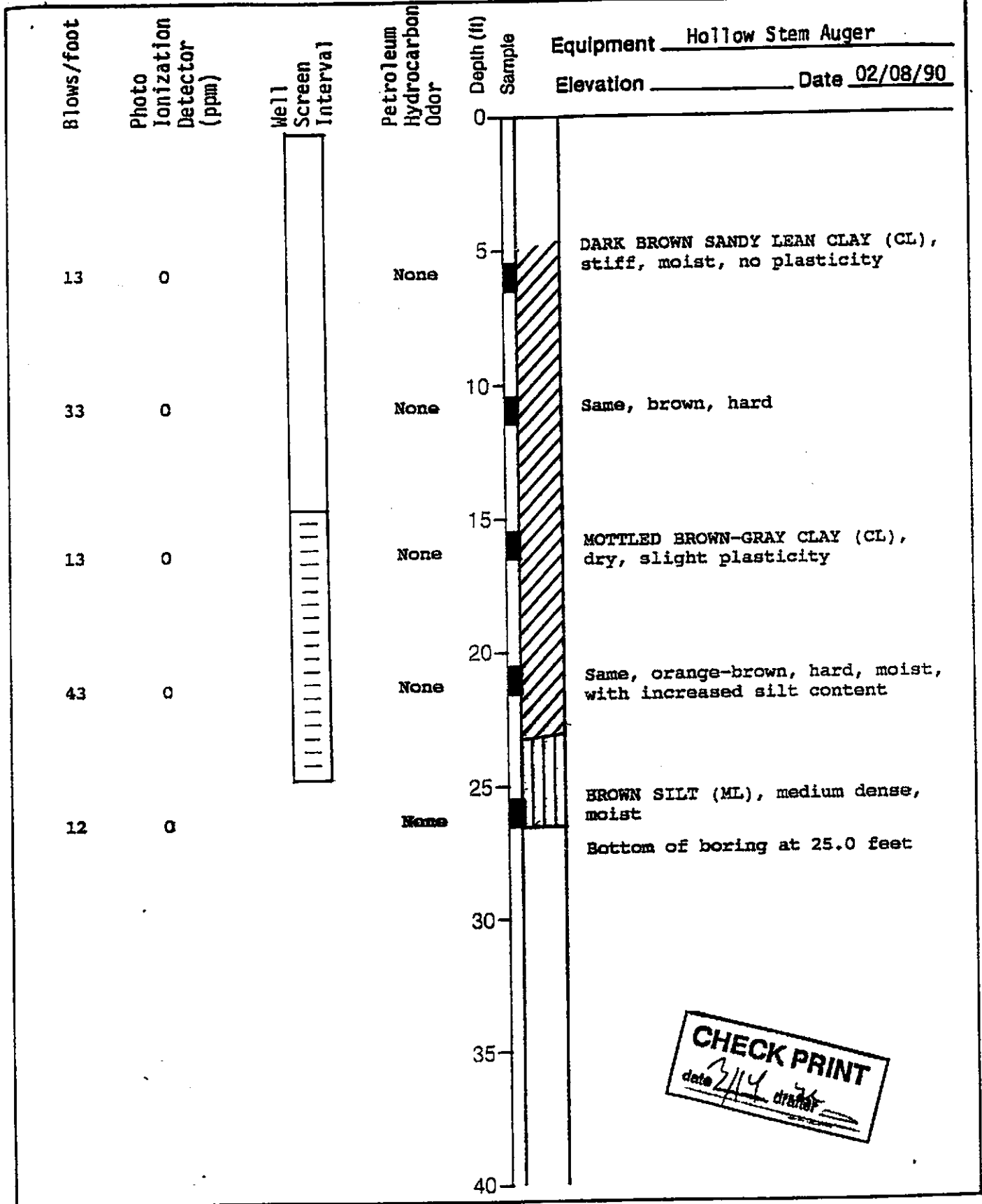
Same, mottled gray-brown, partial
cementation

CHECK PRINT
date 3/18 drafter a

oring B-1, MW-1
rvice Station
lege Avenue
California

PLATE

3424010 1514W 1324



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 date 2/14/90
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 Engineers and Geoscientists

Log of Boring MW-2
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE

DRAWN
 YC

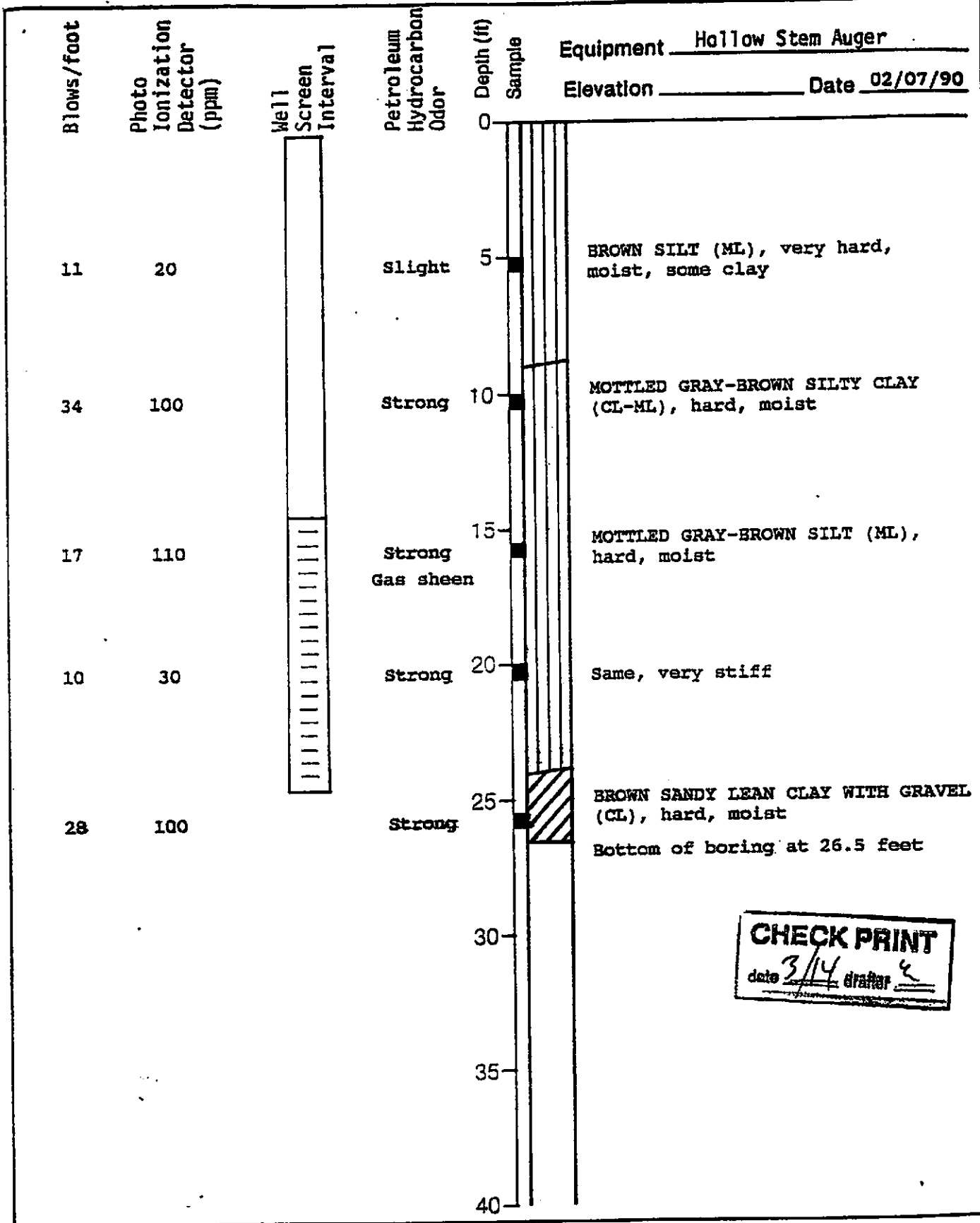
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 4022,233.03

APPROVED

DATE
 2/90

REVISED

DATE

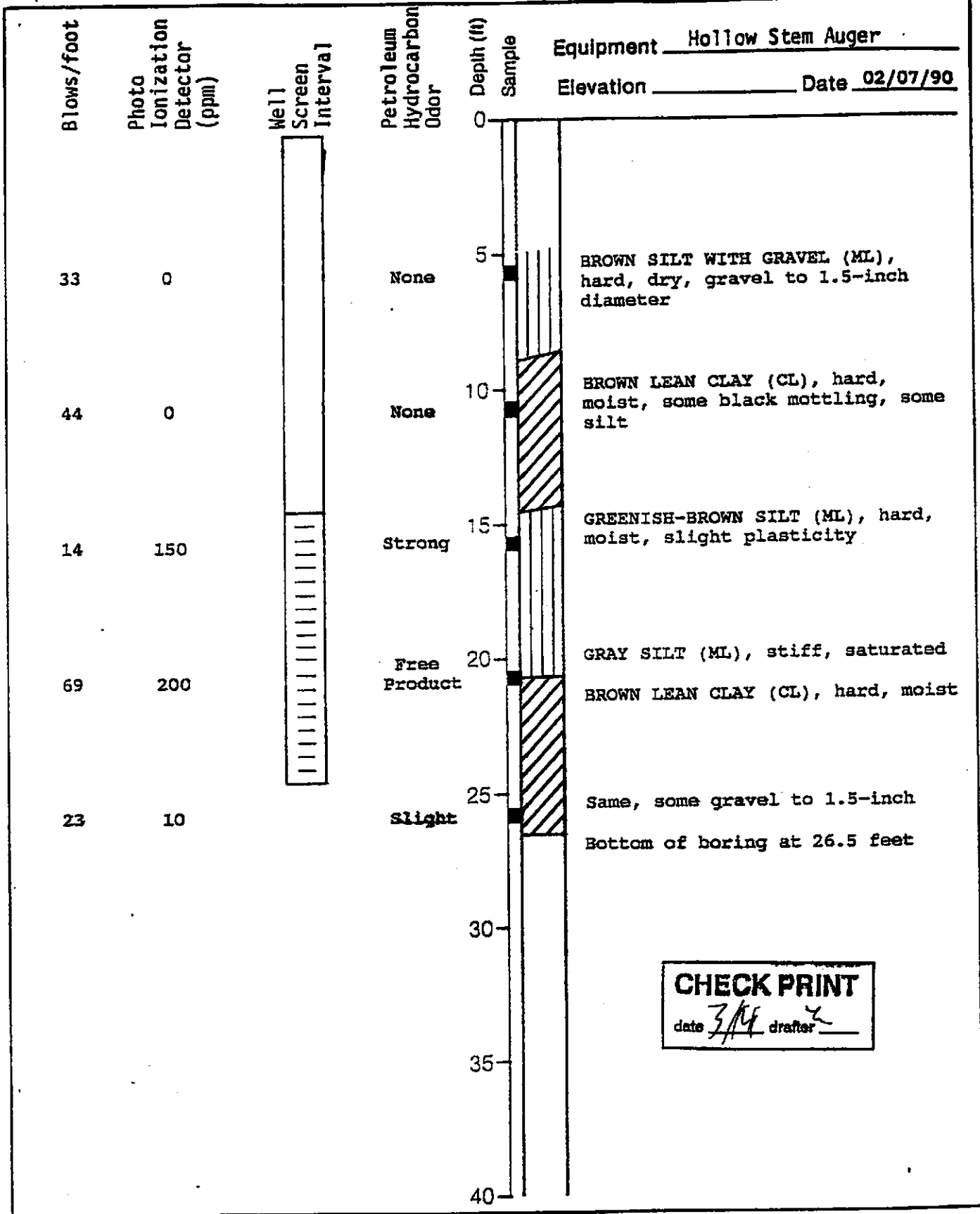


Harding Lawson Associates
Engineers and Geoscientists

Log of Boring MW-3
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

DRAWN YC	JOB NUMBER 4022,233.03	APPROVED	DATE 2/90	RE/SEC	DATE
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 date 3/14 drafter [Signature]



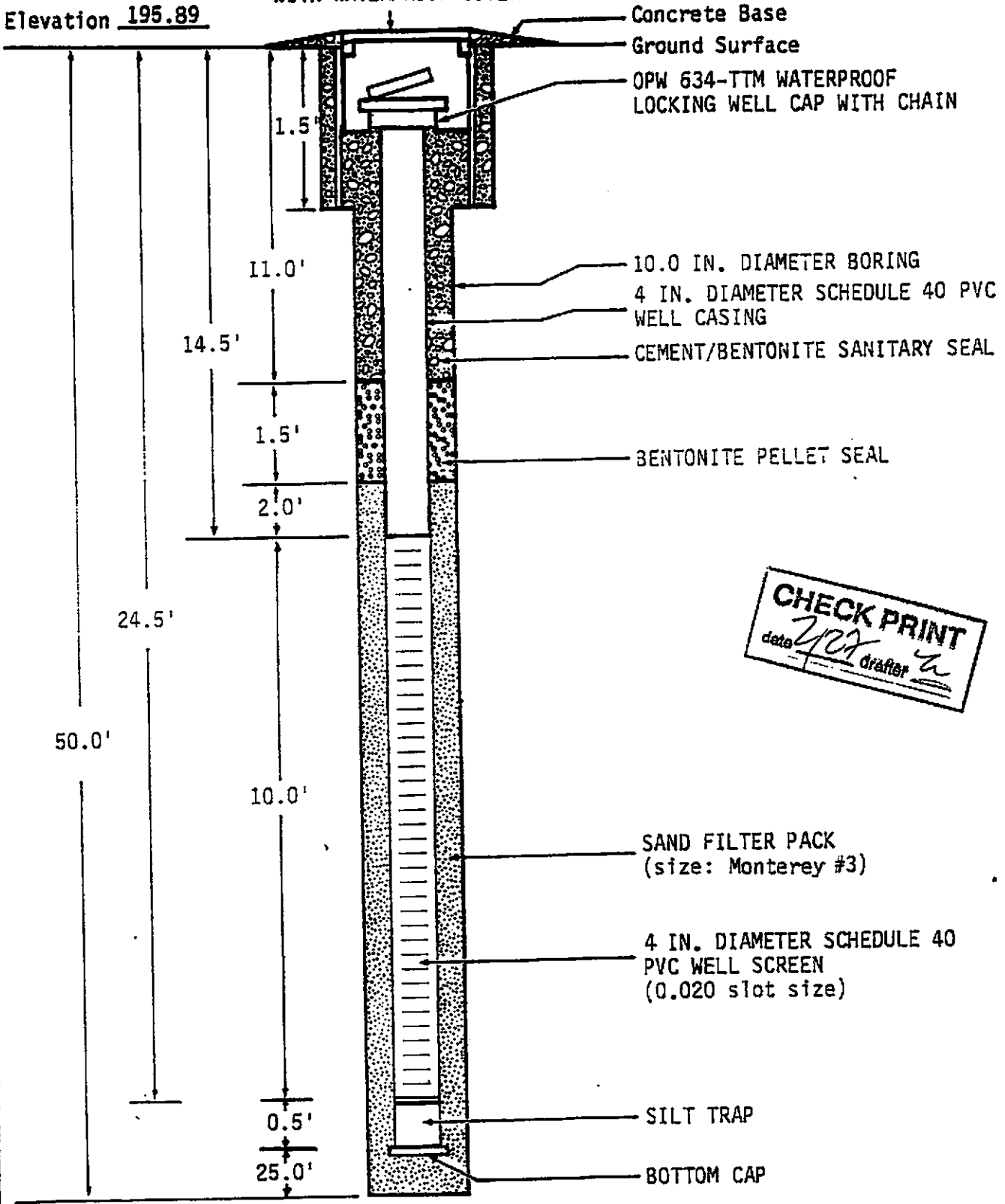
Harding Lawson Associates
 Engineers and Geoscientists

Log of Boring MW-4
 Shell Service Station
 6039 College Avenue
 Oakland, California

Top of PVC Casing
Elevation 195.89

12" EMCO WHEATON A-721 MANHOLE
WITH WATERPROOF COVER

15/4w 138/



CHECK PRINT
 date *2/90* drafter *YC*

NOT TO SCALE

PLATE



Harding Lawson Associates
Engineers and Geoscientists

Well Completion Diagram MW-1
Shell Service Station
6039 College Avenue
Oakland, California

DRAWN
YC

JOB NUMBER
4022,233.03

APPROVED

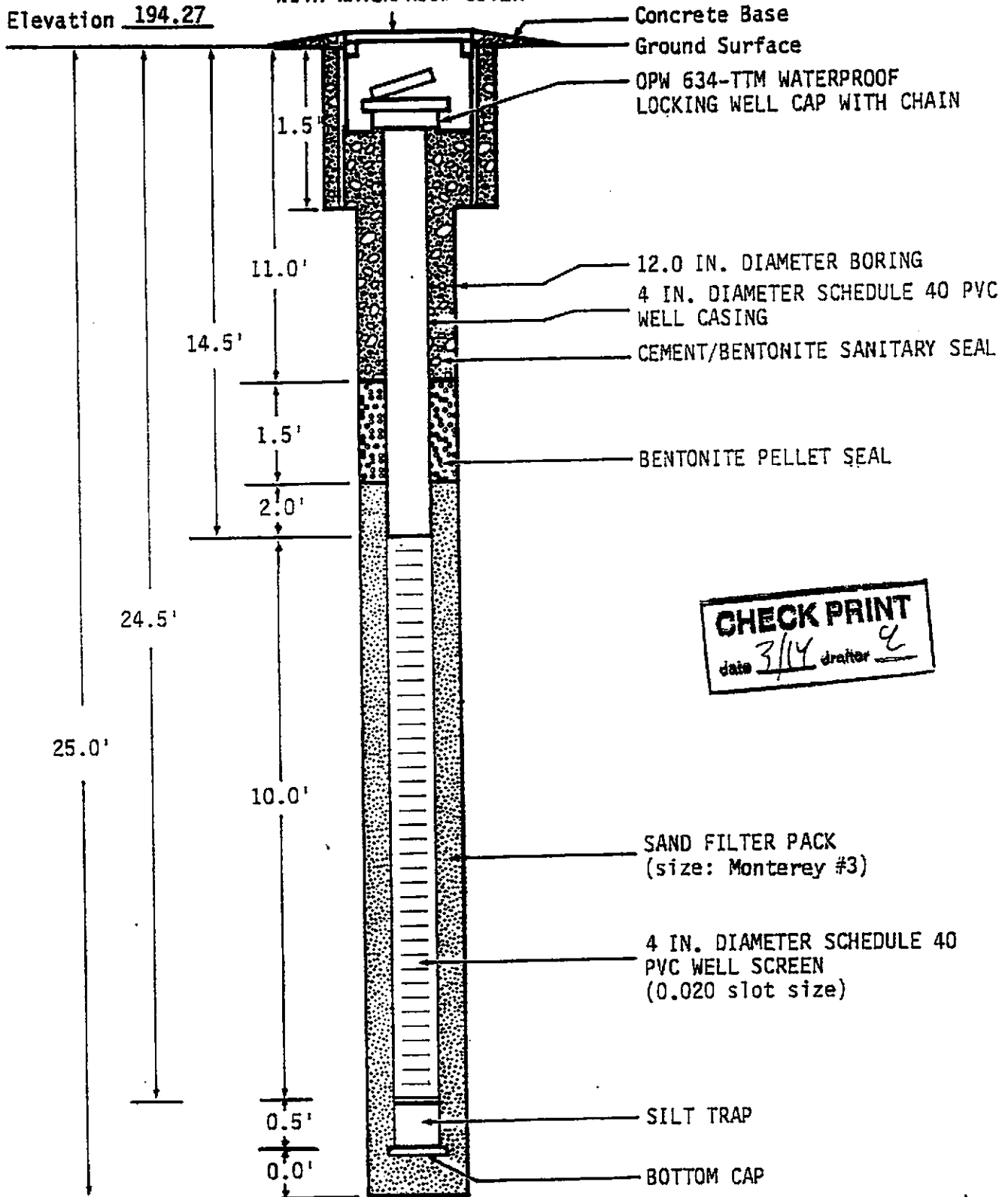
DATE
2/90

REVISED

DATE

Top of PVC Casing
Elevation 194.27

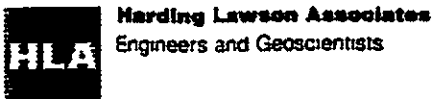
12" EMCO WHEATON A-721 MANHOLE
WITH WATERPROOF COVER



CHECK PRINT
 date 3/14 drafter [Signature]

NOT TO SCALE

PLATE



Well Completion Diagram MW-2
 Shell Service Station
 6039 College Avenue
 Oakland, California

DRAWN
YC

JOB NUMBER
4022,233.03

APPROVED

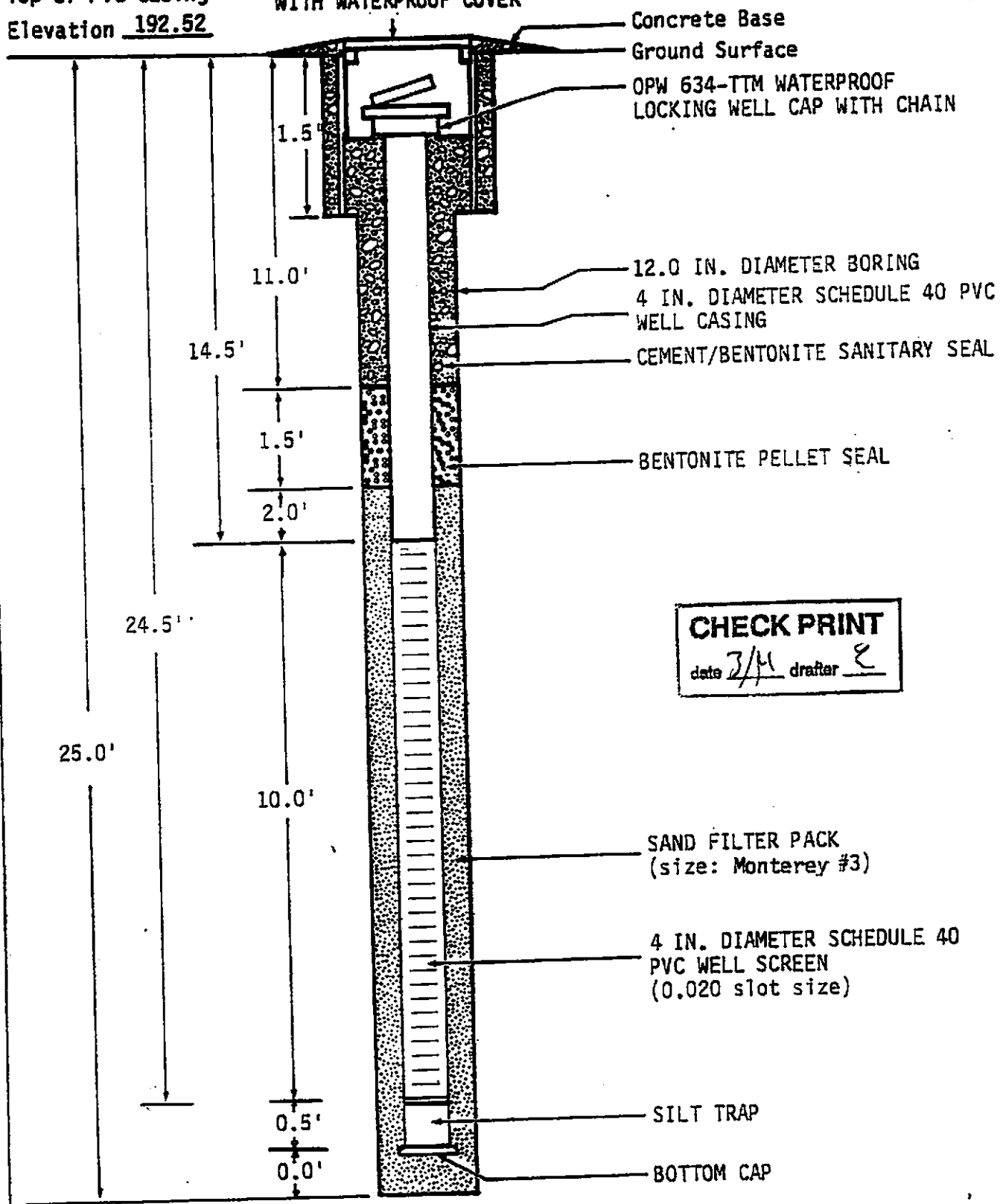
DATE
2/90

REVISED

DATE

Top of PVC Casing
Elevation 192.52

12" EMCO WHEATON A-721 MANHOLE
WITH WATERPROOF COVER



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 date 3/11 drafter E

NOT TO SCALE

PLATE



Harding Lawson Associates
Engineers and Geoscientists

Well Completion Diagram MW-3
Shell Service Station
6039 College Avenue
Oakland, California

DRAWN
YC

JOB NUMBER
4022,233.03

APPROVED

DATE
2/90

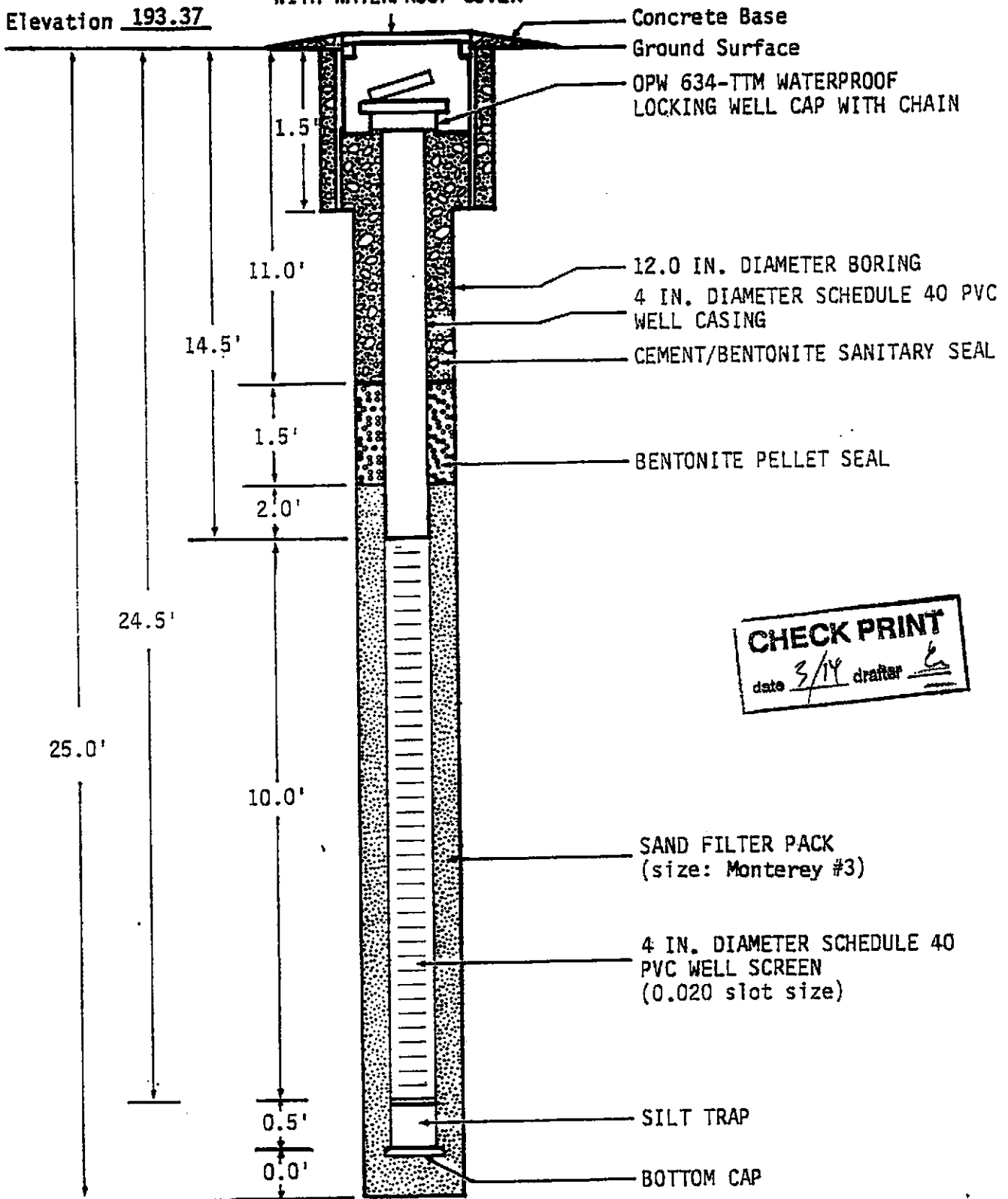
REVISED

DATE

15/4W 1384

Top of PVC Casing
Elevation 193.37

12" EMCO WHEATON A-721 MANHOLE
WITH WATERPROOF COVER



CHECK PRINT
 date 3/14 drafter *[Signature]*

NOT TO SCALE



Harding Lawson Associates
Engineers and Geoscientists

Well Completion Diagram MW-4
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

DRAWN
YC

JOB NUMBER
4022,233.03

APPROVED

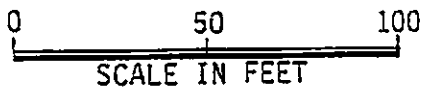
DATE
2/90

REVISED

DATE

LEGEND

☒ Proposed Boring Location



N

Union
76

62nd STREET

FLORIO STREET

Residential and
Commercial
Properties

Commercial
Properties

CHECK PRINT
 date 11/27 drafter [Signature]

CLAREMONT AVENUE

COLLEGE AVENUE

B-1 (MW-1)

B-2

B-4

B-5

Pump Island
Canopies

Storage
Tanks

Cashier

Storage

Fence

B-3

B-6

Fence



Harding Lawson Associates
 Engineering and
 Environmental Services

Soil Boring Locations
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE

3

DRAWN KH
 JOB NUMBER 4022,233.03

APPROVED

DATE 11/89

REVISED DATE

Laboratory Tests	Blows/foot	Photo Ionization Detector (ppm)	Petroleum Hydrocarbon Odor	Depth (ft)	Equipment
					Hollow Stem Auger
				Sample	Elevation _____ Date <u>01/05/90</u>
				0	
	21	0	None	5	No recovery, brown loose sandy material and asphalt in bottom of split barrel
	35	3.4	Slight	10	BROWN-GRAY MOTTLED SANDY LEAN CLAY (CL), medium dense, moist, fine to coarse sand
	16	6.3	Slight	15	GRAY SANDY SILT (ML), medium dense, moist, very fine sand
	9	720	Strong		GREEN-GRAY MOTTLED SANDY SILT (ML), dense, wet, very fine sand
Perm MA	28	134	Strong	20	BROWN-GRAY MOTTLED SILT WITH SAND (ML), dense, dry, very fine sand
	48	4.0	Slight		BROWN-GRAY SAND AND GRAVEL WITH SILT (GM), dense, moist, fine to medium gravel ~25%
		140	Strong		
Perme MA	20	0.5	None	25	BROWN SILTY SAND WITH GRAVEL (SP), medium dense, saturated at 22.5 to 23 feet, gravel absent at 23.5 feet
					Bottom of boring at 24 feet
				30	
				35	
				40	

CHECK PRINT
 date 7/14 drafter Z

HLA **Harding Lawson Associates**
 Engineers and Geoscientists

Log of Boring B-2
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE

Blows/foot
Photo Ionization Detector (ppm)
Petroleum Hydrocarbon Odor

Equipment Hollow Stem Auger
Elevation _____ Date 01/05/90

Depth (ft)
Sample

10	0	None
43	56	Strong
14	95	Strong
12	240	Strong
8	220	Strong
28	170	Strong
29	18	Slight

DARK BROWN SANDY SILT (ML), medium dense, moist, very fine sand

BROWN-GRAY MOTTLED SANDY CLAY (CL), hard, moist, very fine sand, occasional gravel

GREEN-GRAY SANDY SILT WITH CLAY (ML), very stiff, moist, very fine sand, slight plasticity

GRAY SANDY SILT (ML), medium dense, dry, very fine sand, non-plastic

GRAY SANDY SILT (ML), medium dense, wet, very fine sand

BROWN SANDY SILT (ML), dense, saturated, very fine sand, some clay

Bottom of boring at 22.5 feet

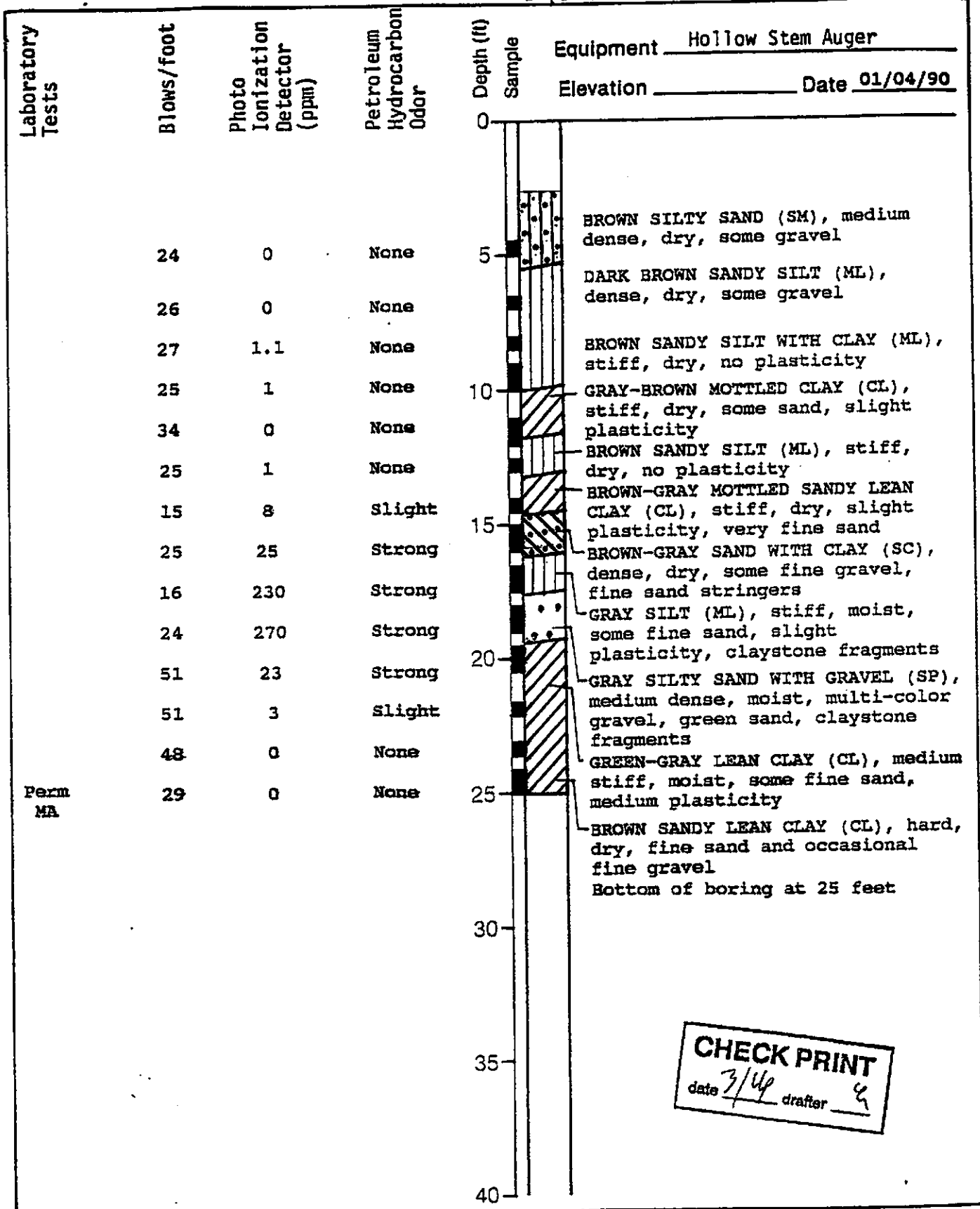
CHECK PRINT
date 3/14 drafter Z

HLA **Harding Lawson Associates**
Engineers and Geoscientists

Log of Boring B-3
Shell Service Station
6039 College Avenue
Oakland, California

PLATE

DRAWN YC JOB NUMBER 4022,233.03 APPROVED _____ DATE 2/90 REVISED _____ DATE _____



CHECK PRINT
 date 3/4/90 drafter [signature]



Harding Lawson Associates
 Engineers and Geoscientists

Log of Boring B-4
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE

Laboratory Tests	Blows/foot	Photo Ionization Detector (ppm)	Petroleum Hydrocarbon Odor	Depth (ft)	Sample	Equipment	Date
						Hollow Stem Auger	01/04/90
	20	0	None	5			
	27	0	None	10			
Perm MA	12	3	None	15			
	28	9	Slight	20			
	19	1	None	22			

DARK BROWN SILTY SAND (SM), medium dense, dry, occasional fine gravel, orange mottling

BROWN SANDY SILT WITH CLAY (ML), very stiff, dry, very fine sand, no plasticity

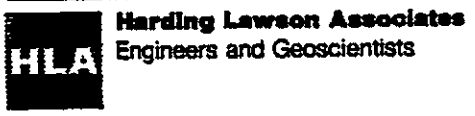
BROWN-GRAY SILT WITH SAND (ML), very stiff, dry, very fine sand, no plasticity

BROWN-GRAY MOTTLED SANDY LEAN CLAY (CL), very stiff, dry, very fine sand, no plasticity

BROWN SANDY LEAN CLAY (CL), stiff, saturated from 21.5 to 21.7 feet, moist at 22 feet

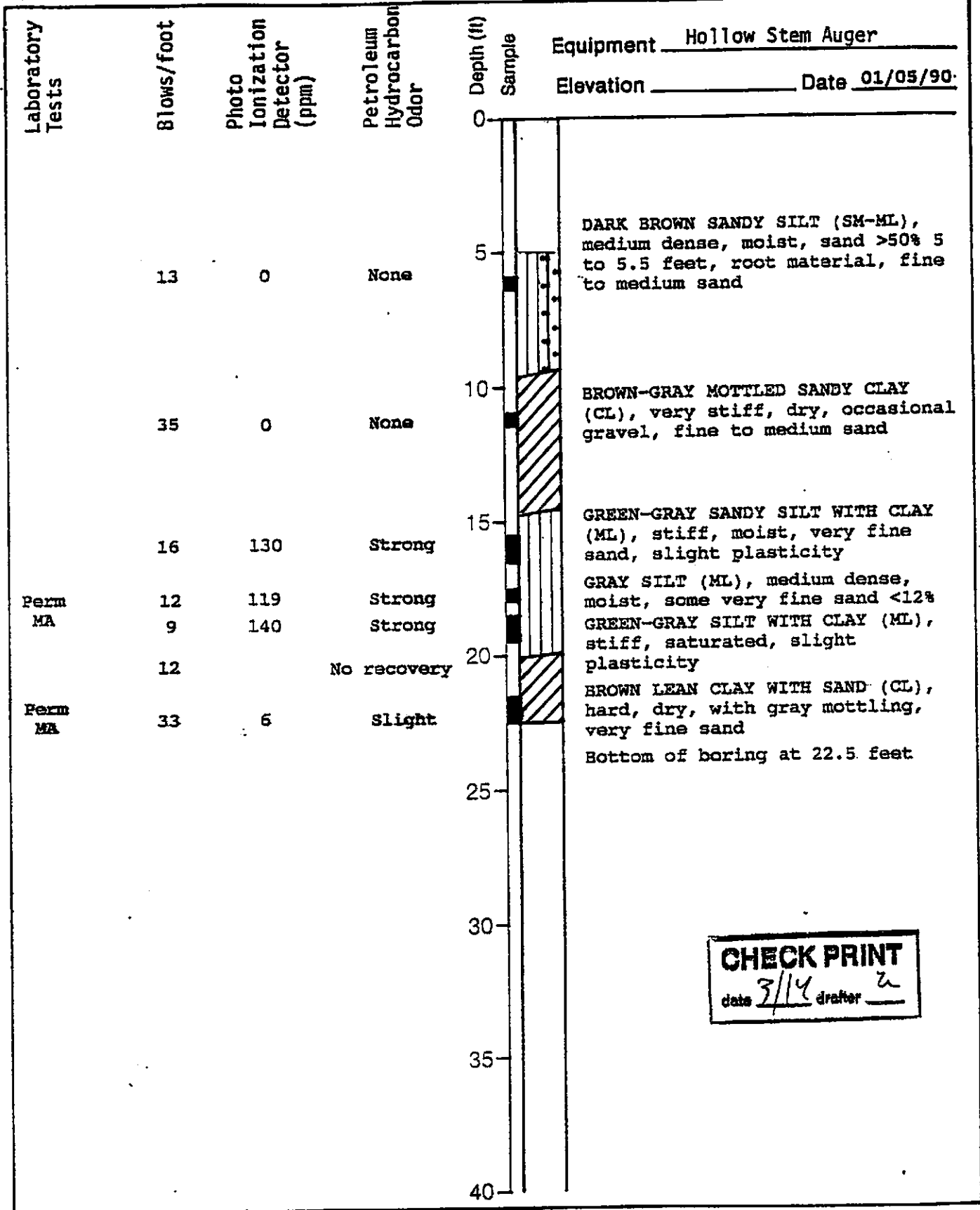
Bottom of boring at 23 feet

CHECK PRINT
 date 3/14 drafter u



Log of Boring B-5
 Shell Service Station
 6039 College Avenue
 Oakland, California

PLATE



CHECK PRINT
 date 3/14 drafter *u*

PLATE

HLA **Harding Lawson Associates**
 Engineers and Geoscientists

Log of Boring B-6
 Shell Service Station
 6039 College Avenue
 Oakland, California



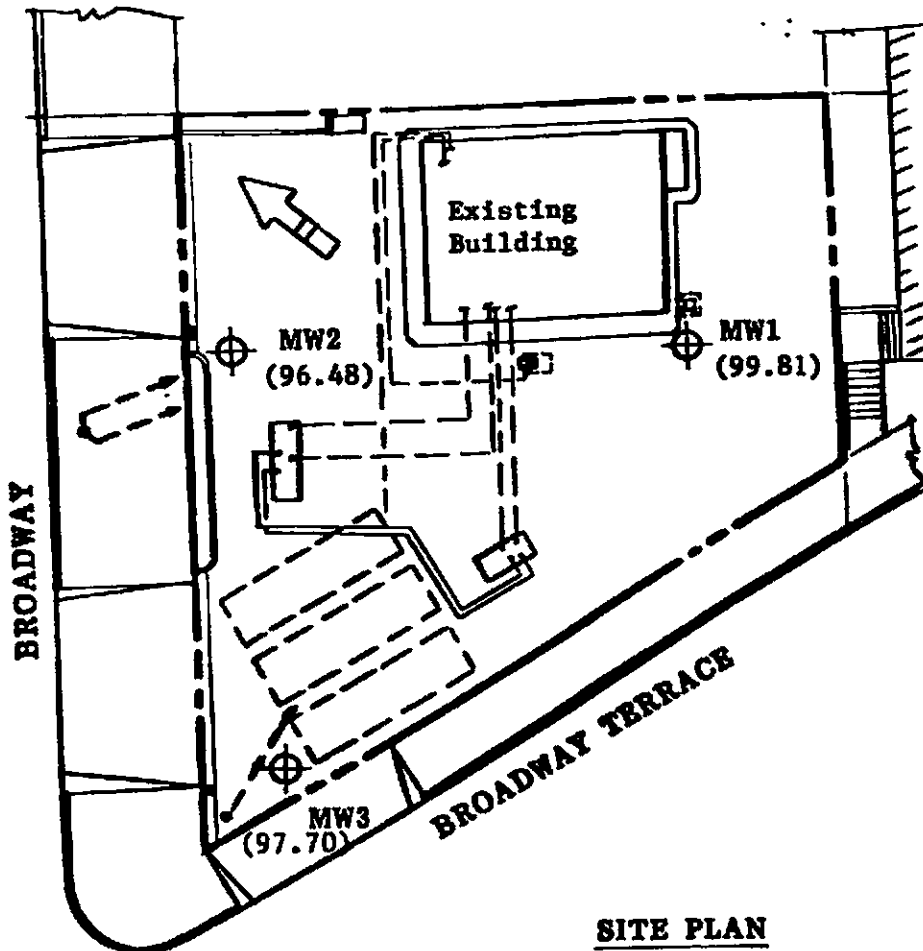
KAPREALIAN ENGINEERING, INC.

Consulting Engineers

P.O. BOX 996 • BENICIA, CA 94510

(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

380348A-C



SITE PLAN

LEGEND

- Monitoring Well
- () Ground Water Elevation in feet on 4/23/90.
Top of MW3 Well Cover assumed 100.00 feet as datum.

Ground Water Flow Direction



Unocal Service Station #1028
5300 Broadway
Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

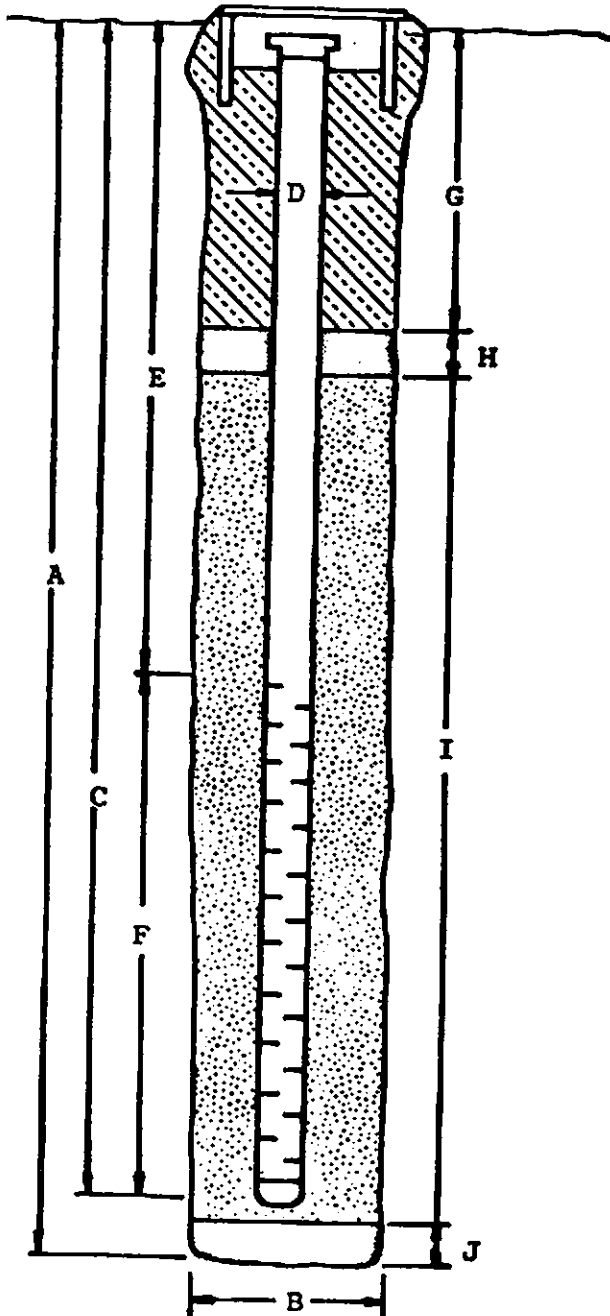
REMOVED

380348A

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - 5300 Broadway BORING/WELL NO. MW1
 PROJECT NUMBER: KEI-P89-1111
 WELL PERMIT NO.: 90154

Flush-mounted Well Cover



- A. Total Depth: 19'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 19'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 3'
- F. Perforated Length: 16'
 Perforation Type: Machined Slot
 Perforation Size: 0.020"
- G. Surface Seal: 1'
 Seal Material: Concrete
- H. Seal: 1'
 Seal Material: Bentonite
- I. Gravel Pack: 17'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15/441392

BORING LOG

380348B

Project No. KEI-P89-1111	Boring & Casing Diameter 9" 2"	Logged By D.L. <i>[Signature]</i>
Project Name Unocal Oakland-5300 Broadway	Well Head Elevation N/A	Date Drilled 4/6/90
Boring No. MW2	Drilling Method Hollow-stem Auger	Drilling Company EGI

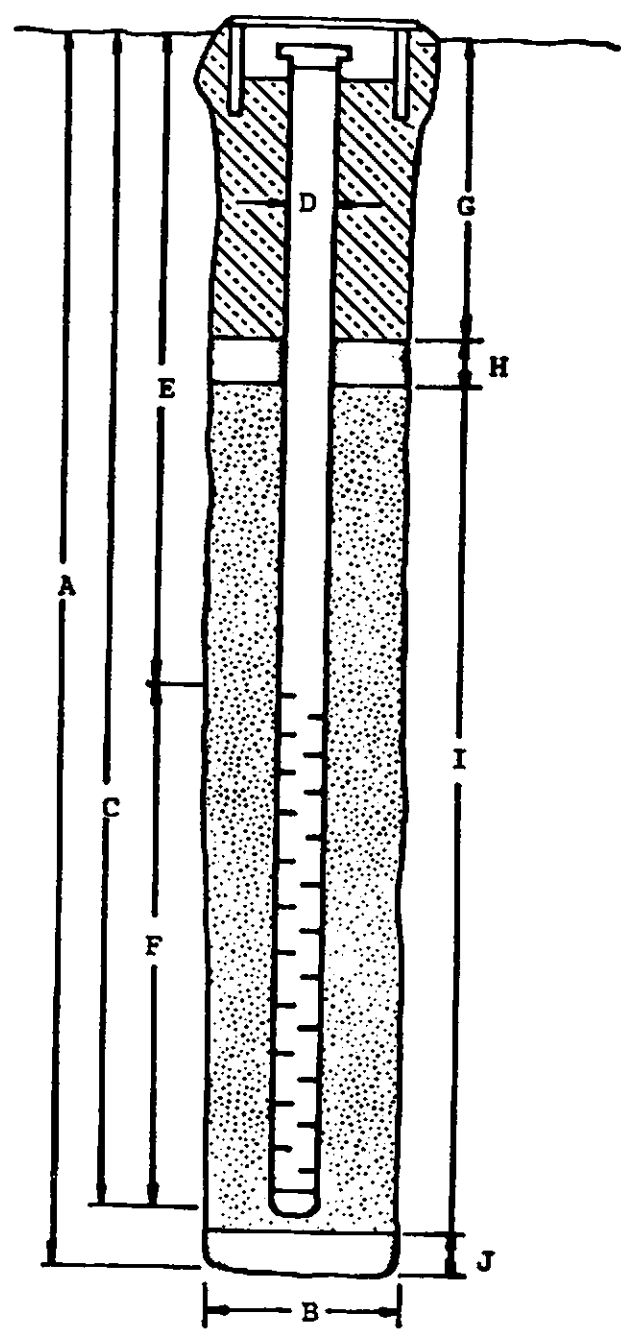
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		A. C. Pavement Sand and gravel base.
			CL/ CH	Sandy clay, 10-15% gravel, very stiff, moist, yellowish brown and red, gravel is composed of weathered shale fragments.
26/50-5"			N/A	BEDROCK - FRANCISCAN COMPLEX Shale, hard, weathered, slightly moist to dry, fractured, locally decomposed and clayey, olive and olive brown, dark reddish brown in fractured planes.
50-6"				
50-5"	▼	10		Shale Bedrock, as above, hard, dry, fractured, olive gray, olive brown and strong brown in fractures, weathered, wet below 9.5 feet.
50-5 3/4		15		Shale, as above, wet, less weathered than above.
		20		
				TOTAL DEPTH: 19'

380348G

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - 5300 Broadway BORING/WELL NO. MW2
 PROJECT NUMBER: KEI-P89-1111
 WELL PERMIT NO.: 90154

Flush-mounted Well Cover



- A. Total Depth: 19'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 19'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 4'
- F. Perforated Length: 15'
 Perforation Type: Machined Slot
 Perforation Size: 0.020"
- G. Surface Seal: 1.5'
 Seal Material: Concrete
- H. Seal: 1.5'
 Seal Material: Bentonite
- I. Gravel Pack: 16'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

15441343

BORING LOG

380348C

Project No. KEI-P89-1111	Boring & Casing Diameter 9" 2"	Logged By D.L. <i>[Signature]</i>
Project Name Unocal Oakland-5300 Broadway	Well Head Elevation N/A	Date Drilled 4/6/90 & 4/9/90
Boring No. MW3	Drilling Method Hollow-stem Auger	Drilling Company EGI

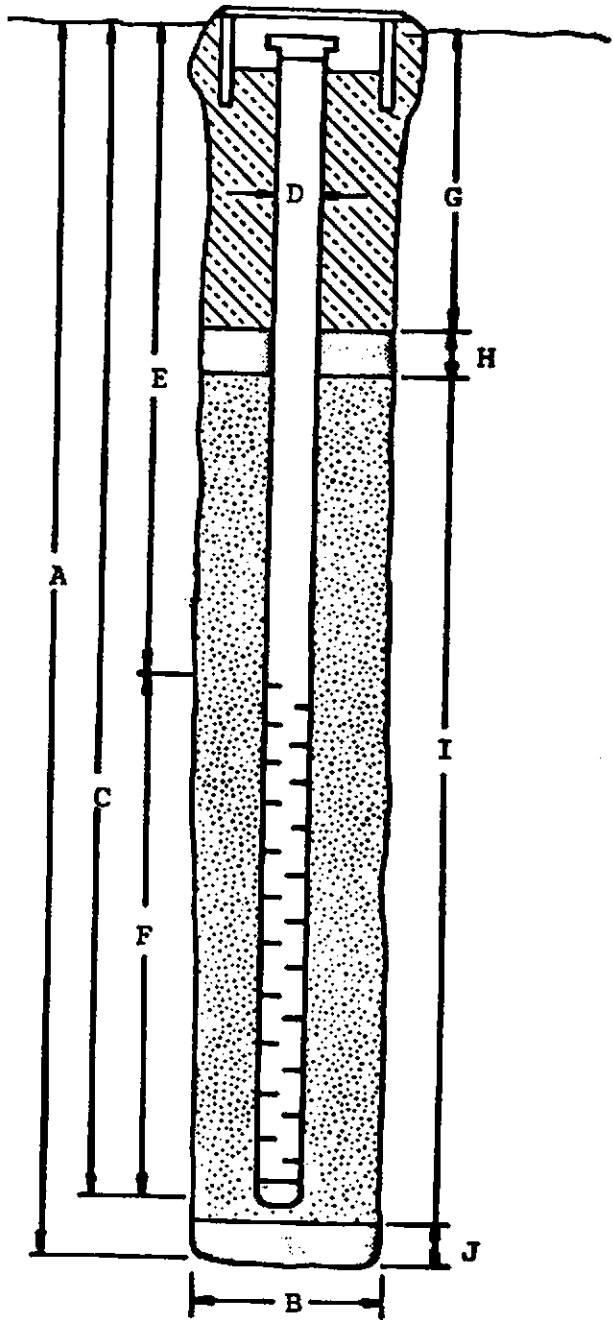
Penetration blows/6"	G. W. level	Depth (ft) Samples	Strati- graphy USCS	Description
		0		Concrete Pavement
			CL/ CH	Sandy clay, 10-20% gravel, very stiff, moist, yellowish brown, gravel is shale, bedrock weathered to soil.
20/24/50 -5"		5	N/A	BEDROCK - FRANCISCAN COMPLEX Shale, moderately hard to hard, slightly moist to dry, weathered, locally decomposed and clayey, fractured, olive brown and strong brown, black in some fracture planes.
50-3"				
51		10		Shale to silty shale, as above, moderately decomposed and clayey between 9 and 10 feet.
		15		Shale to silty shale, as above, less weathered than above, hardness increasing with depth.
		20		TOTAL DEPTH: 20'

380348c

WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Oakland - 5300 Broadway BORING/WELL NO. MW3
 PROJECT NUMBER: KEI-P89-1111
 WELL PERMIT NO.: 90154

Flush-mounted Well Cover



- A. Total Depth: 20'
- B. Boring Diameter*: 9"
 Drilling Method: Hollow Stem Auger
- C. Casing Length: 20'
 Material: Schedule 40 PVC
- D. Casing Diameter: OD = 2.375"
ID = 2.067"
- E. Depth to Perforations: 4'
- F. Perforated Length: 16'
 Perforation Type: Machined Slot
 Perforation Size: 0.020"
- G. Surface Seal: 1.5'
 Seal Material: Concrete
- H. Seal: 1.5'
 Seal Material: Bentonite
- I. Gravel Pack: 17'
 Pack Material: RMC Lonestar Sand
 Size: #3
- J. Bottom Seal: None
 Seal Material: N/A

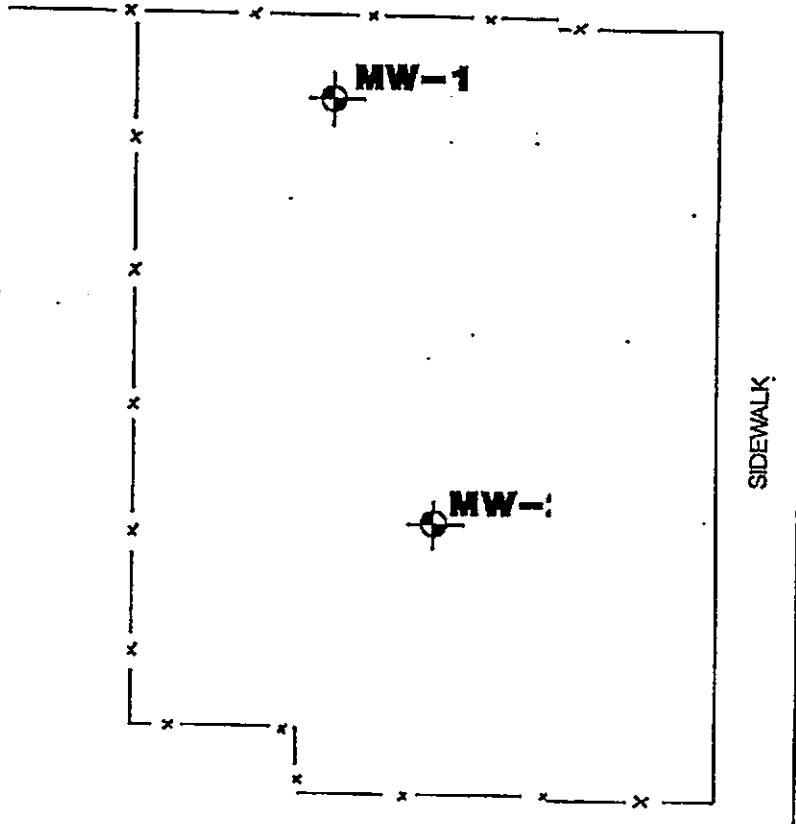
*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

01S04W.14 N01-03

X 14N01

Y 14N02

Z 14N03



SIDEWALK

48TH STREET

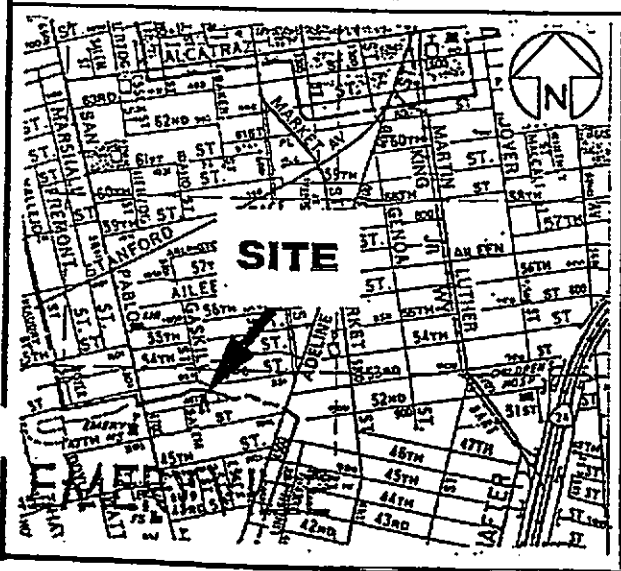


MONITORING WELL



FENCE

VICINITY MAP



SITE PLAN

3 48TH STREET - EMERYVILLE, CA

PLATE

BER

DATE

APPROVED

6

10/28/92

WW

1



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

FOR OFFICE USE

LOCATION OF PROJECT 1056 48th Street
Emeryville, CA

PERMIT NUMBER 92529
LOCATION NUMBER 1S/4W 15R80 to 15R82

CLIENT
Name City of Emeryville
Address 2260 Powell St, 12th Floor Phone 510-435-0100
City Emeryville Zip 94608

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT
Name Marianne Watada
Subsurface Consultants, Inc.
Address 171 12th St # 201 Phone 268-0461
City Oakland Zip 94607

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.

TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Erosion Protection	General
Water Supply	Contamination
Monitoring	Well Destruction <input checked="" type="checkbox"/>

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 well 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.

PROPOSED WATER SUPPLY WELL USE

Domestic Industrial Other monitoring
Municipal Irrigation

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.

DRILLING METHOD:

Aud Rotary Air Rotary Auger
Cable Other

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

DRILLER'S LICENSE NO.

E. WELL DESTRUCTION. See attached.

Each well will be drilled out. The casing, seal and gravel pack will be removed. The resulting holes will be backfill with neat cement using tremie methods.

WELL PROJECTS

Drill Hole Diameter	<u>8</u> in.	Maximum	
Casing Diameter	<u>2</u> in.	Depth	<u>28</u> ft.
Surface Seal Depth	<u>14</u> ft.	Number	<u>3</u>

GEOTECHNICAL PROJECTS

Number of Borings Maximum Depth ft.
Hole Diameter in.

ESTIMATED STARTING DATE 10/27/92
ESTIMATED COMPLETION DATE 10/27/92

Approved Wyman Hong Date 23 Oct
Wyman Hong

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 79-88.

APPLICANT'S

SIGNATURE Marianne Watada Date 10/22/92

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

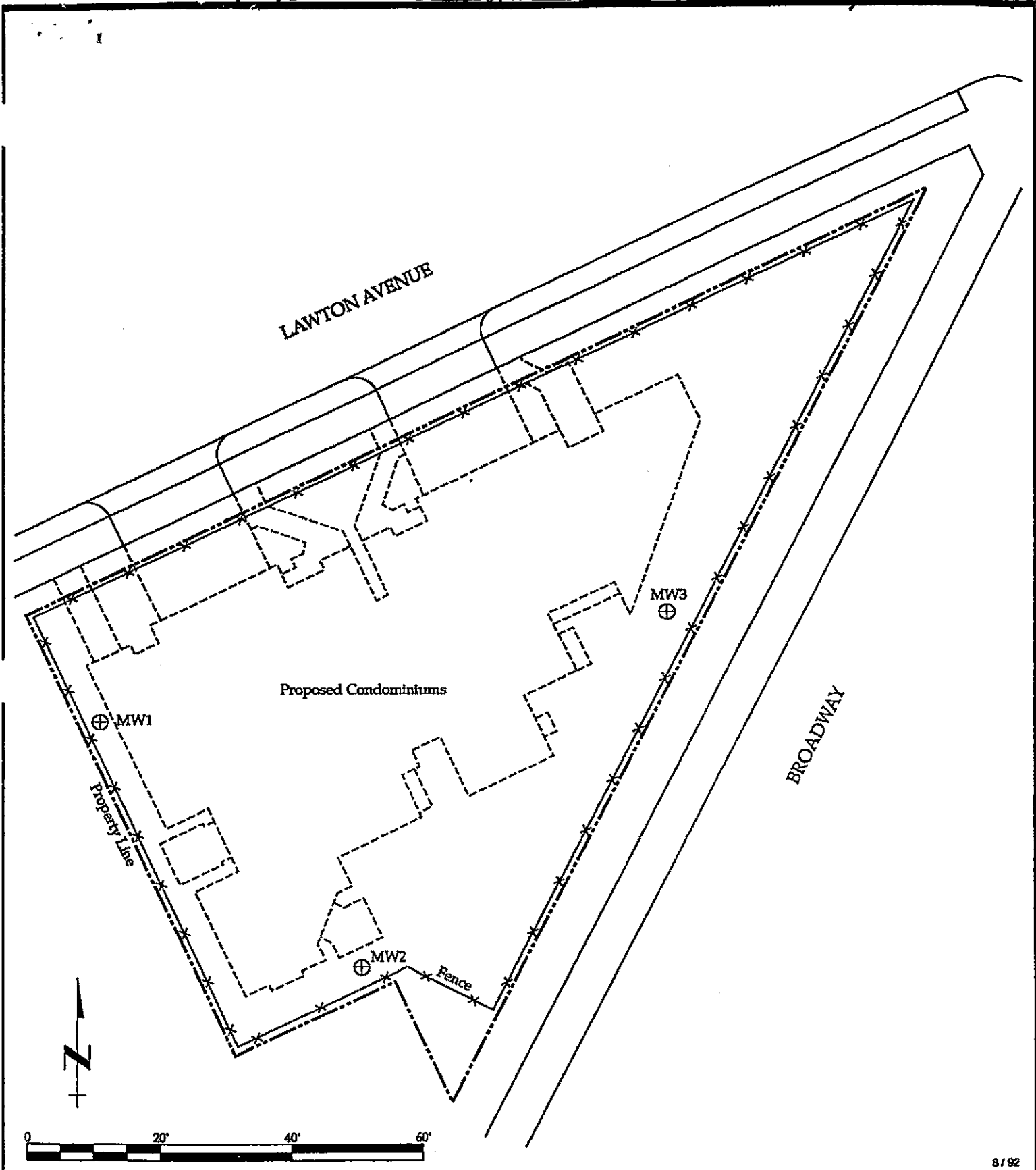
STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



8/92

EXPLANATION

⊕ MW-3 Proposed Monitor Well location

Site Location Map

Former Chevron Service Station #9-3575
 5775 Broadway
 Oakland, California

FIGURE

2

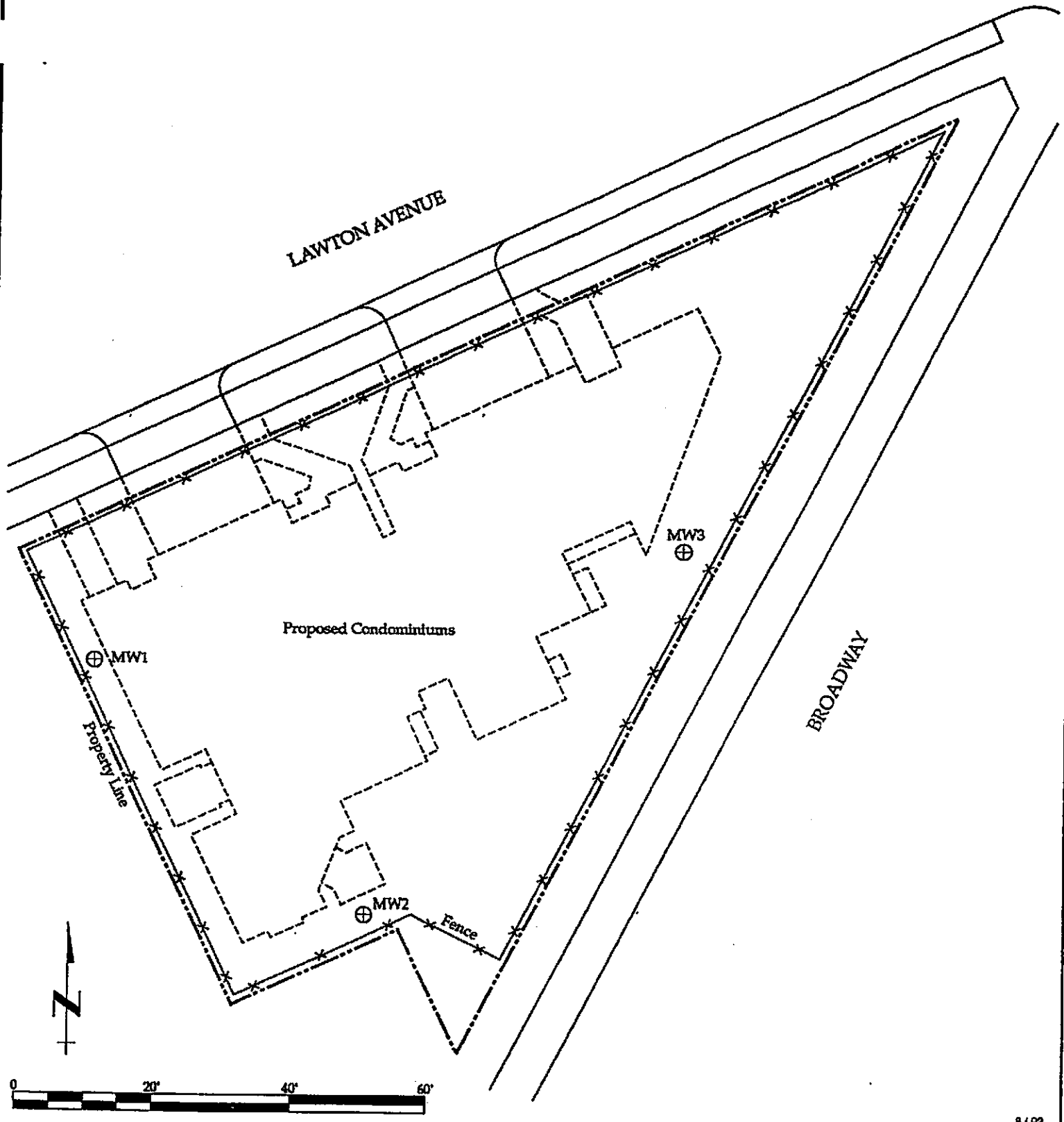


17046.01

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STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



EXPLANATION

⊕ MW-3 Proposed Monitor Well location

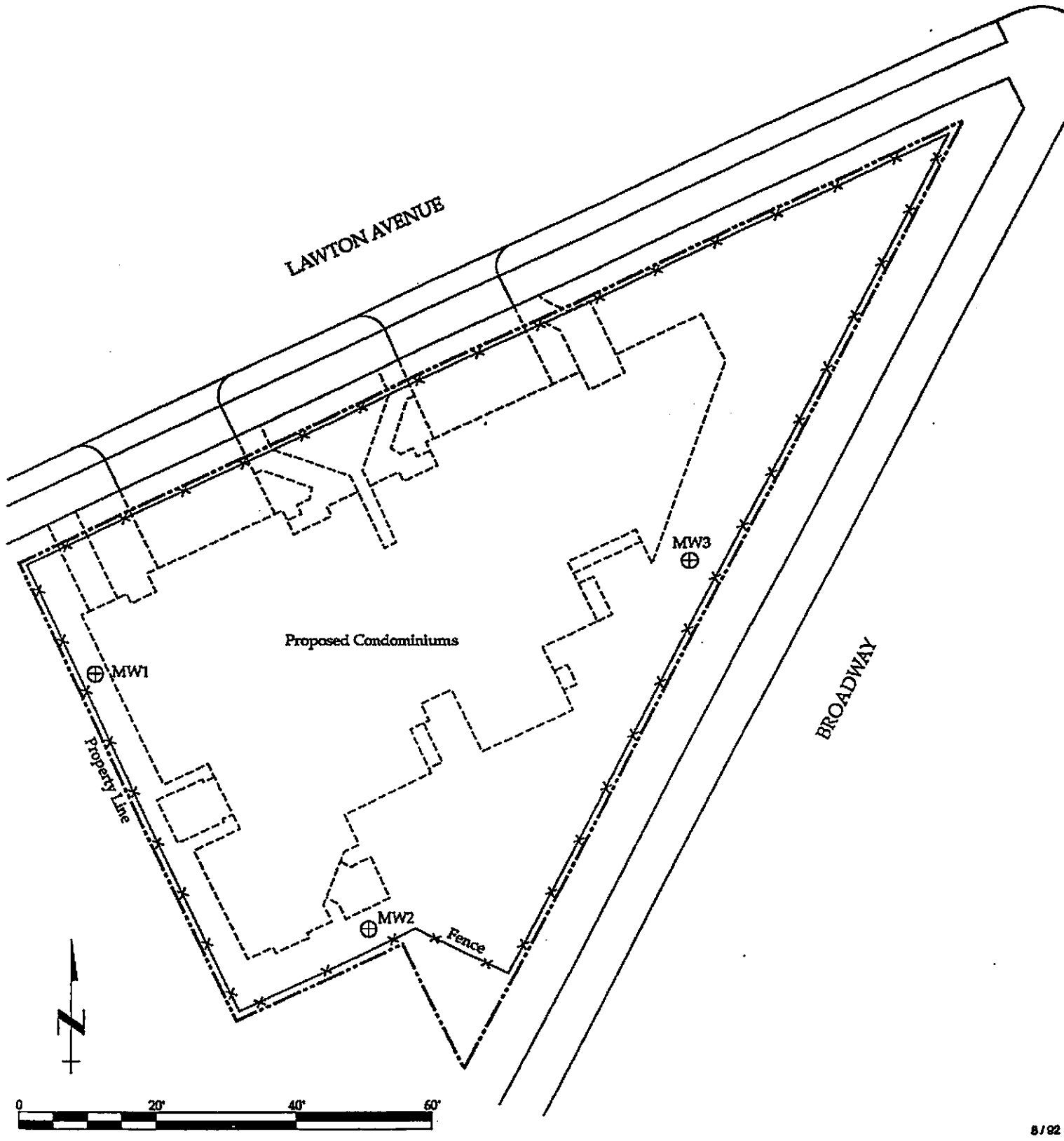
Site Location Map
 Former Chevron Service Station #9-3575
 5775 Broadway
 Oakland, California

FIGURE
2

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



8/92

EXPLANATION

⊕ MW-3 Proposed Monitor Well location

Site Location Map

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

FIGURE

2

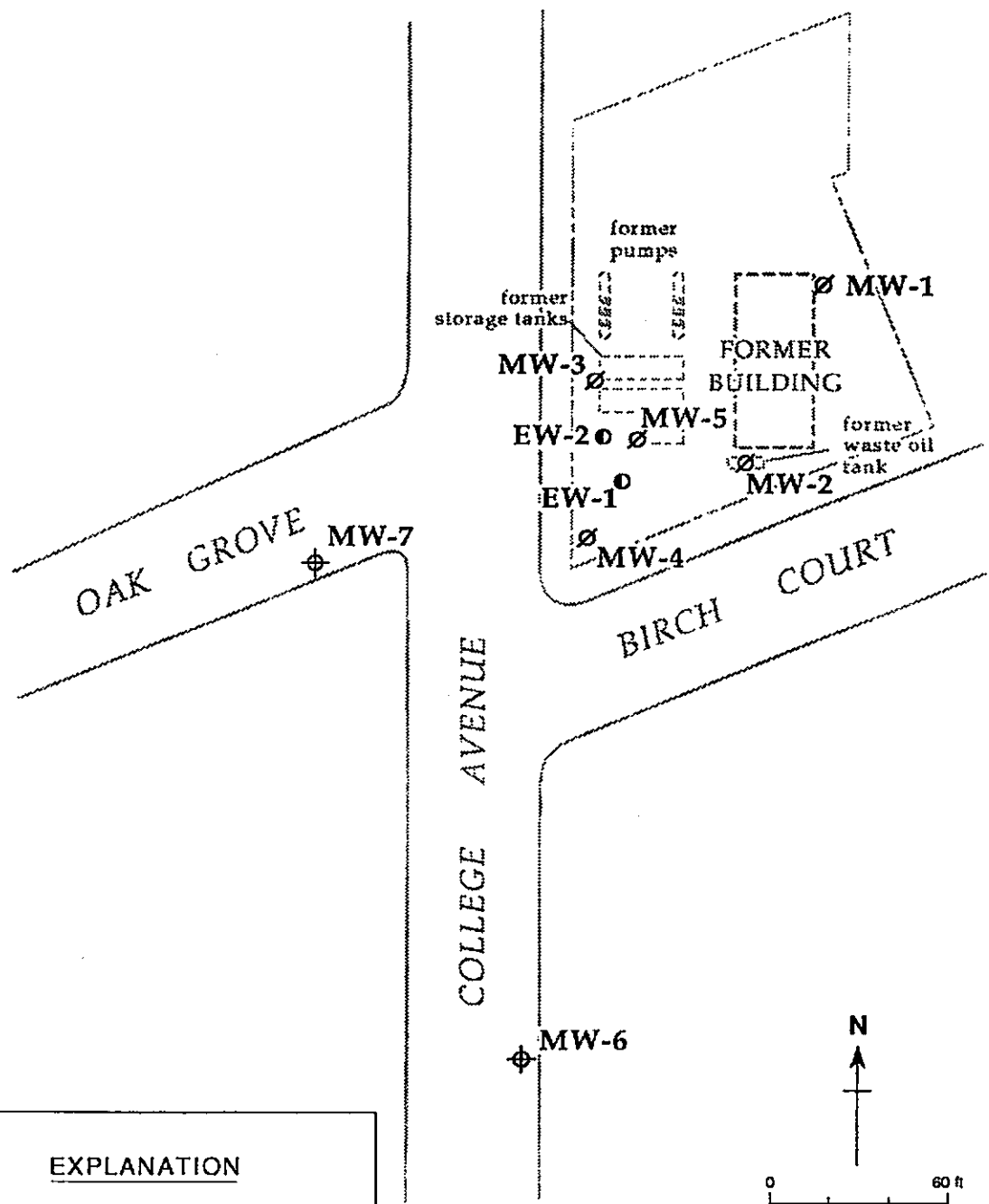


17046.01

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



EXPLANATION	
⊕ MW-1	Monitoring well
∅ MW-1	Destroyed monitoring well
● MW-1	Extraction well

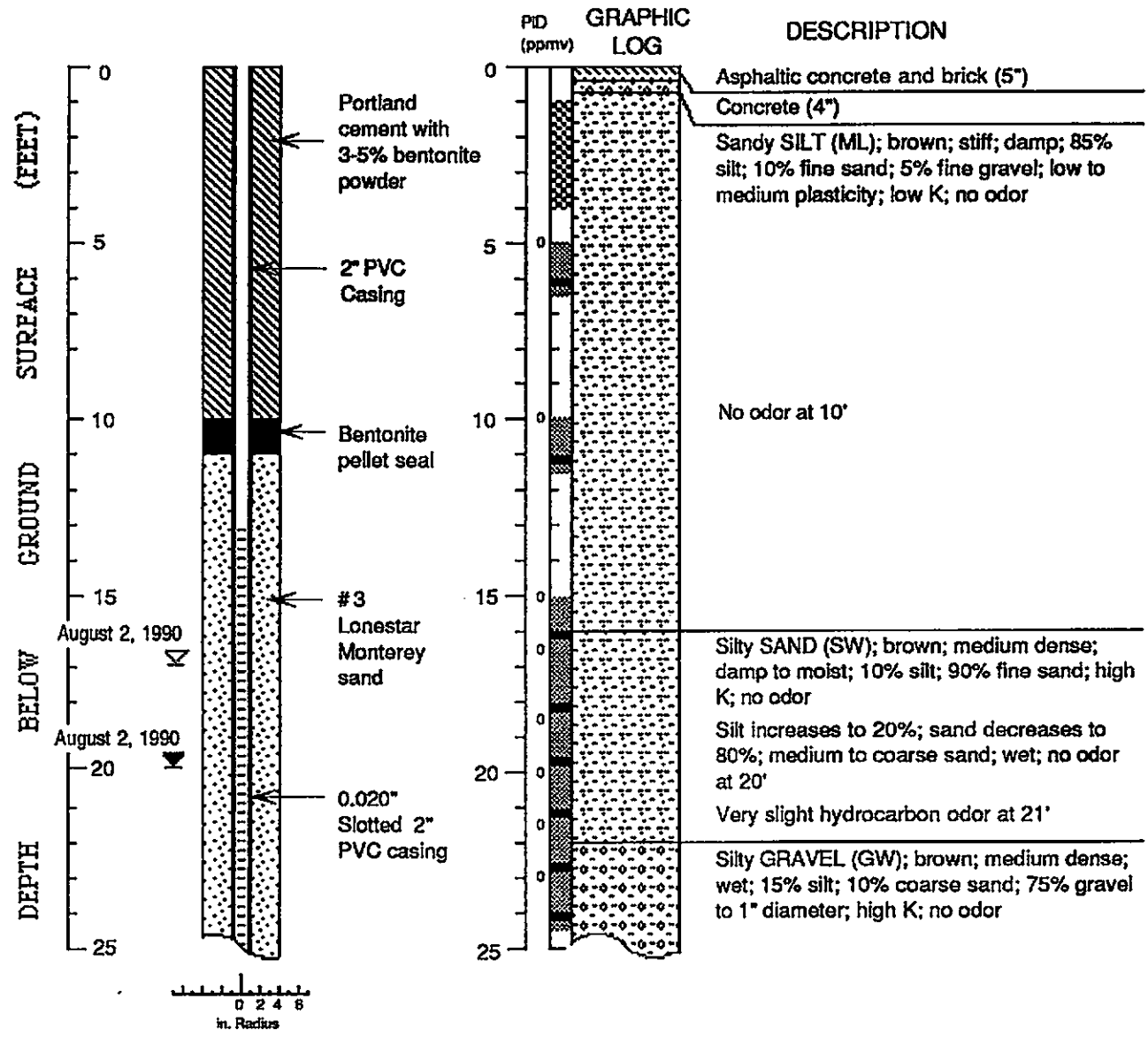
Figure 2. Monitoring and Extraction Well Locations - Chevron Service Station #92258, 5800 College Avenue, Oakland, California

CONFIDENTIAL








STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

WELL MW-6 (BH-F)



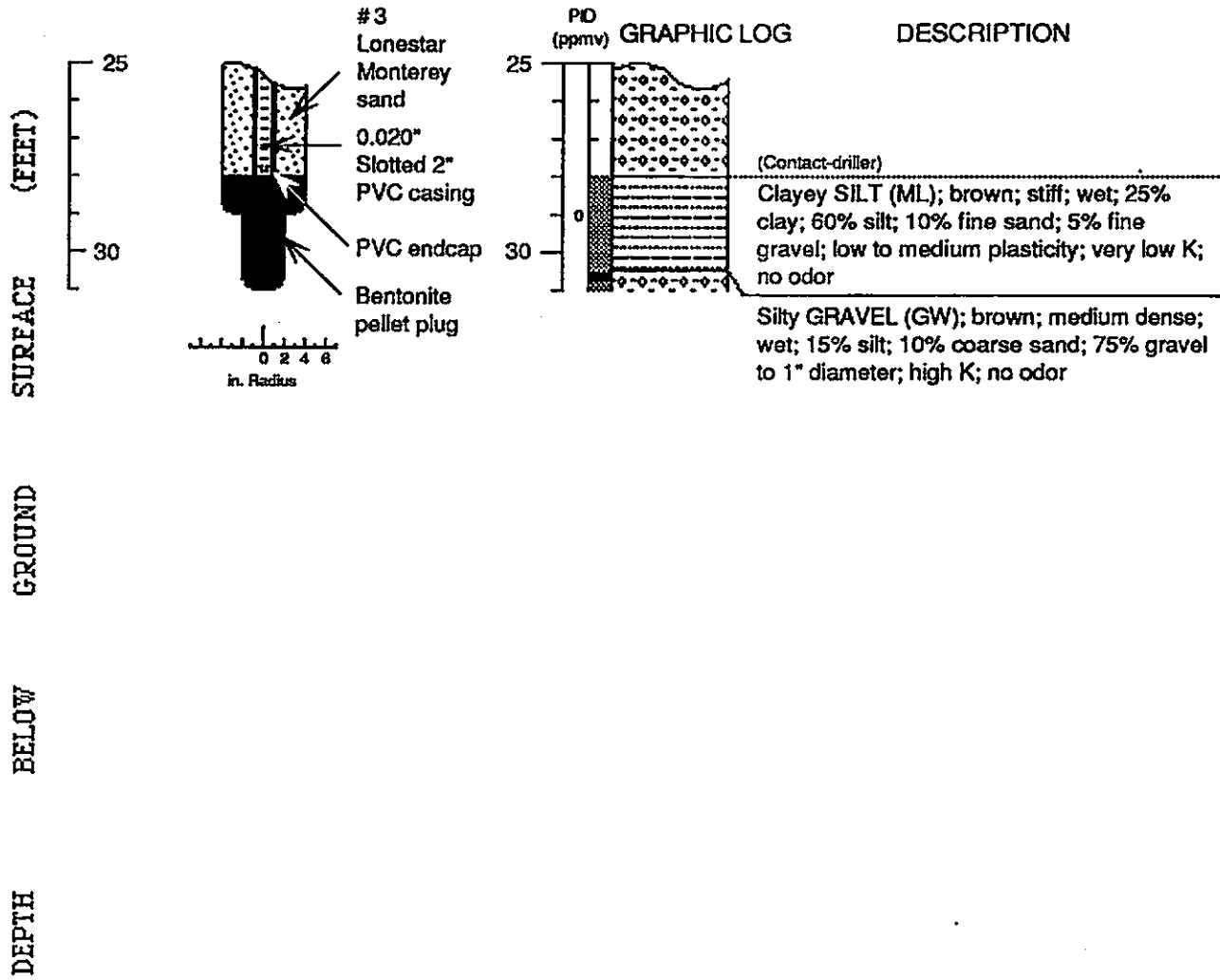
EXPLANATION

-  Water level during drilling (date)
-  Water level (date)
-  Contact (dotted where approx.)
-  Uncertain contact
-  Location of recovered drive sample
-  Location of drive sample sealed for chemical analysis
-  Cutting sample
- K** = Estimated hydraulic conductivity

Logged by: Robert Kitay
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Soils Exploration Services, Vacaville, CA
 Driller: Russ Ellis
 Drilling Method: Hollow-stem auger
 Date Drilled: August 2, 1990
 Well Head Completion: 4" Locking well-plug, traffic-rated vault
 Type of sampler: Split barrel (1.5", 2.0", 2.5" ID)
 Ground Surface Elevation: 179.04 feet above mean sea level

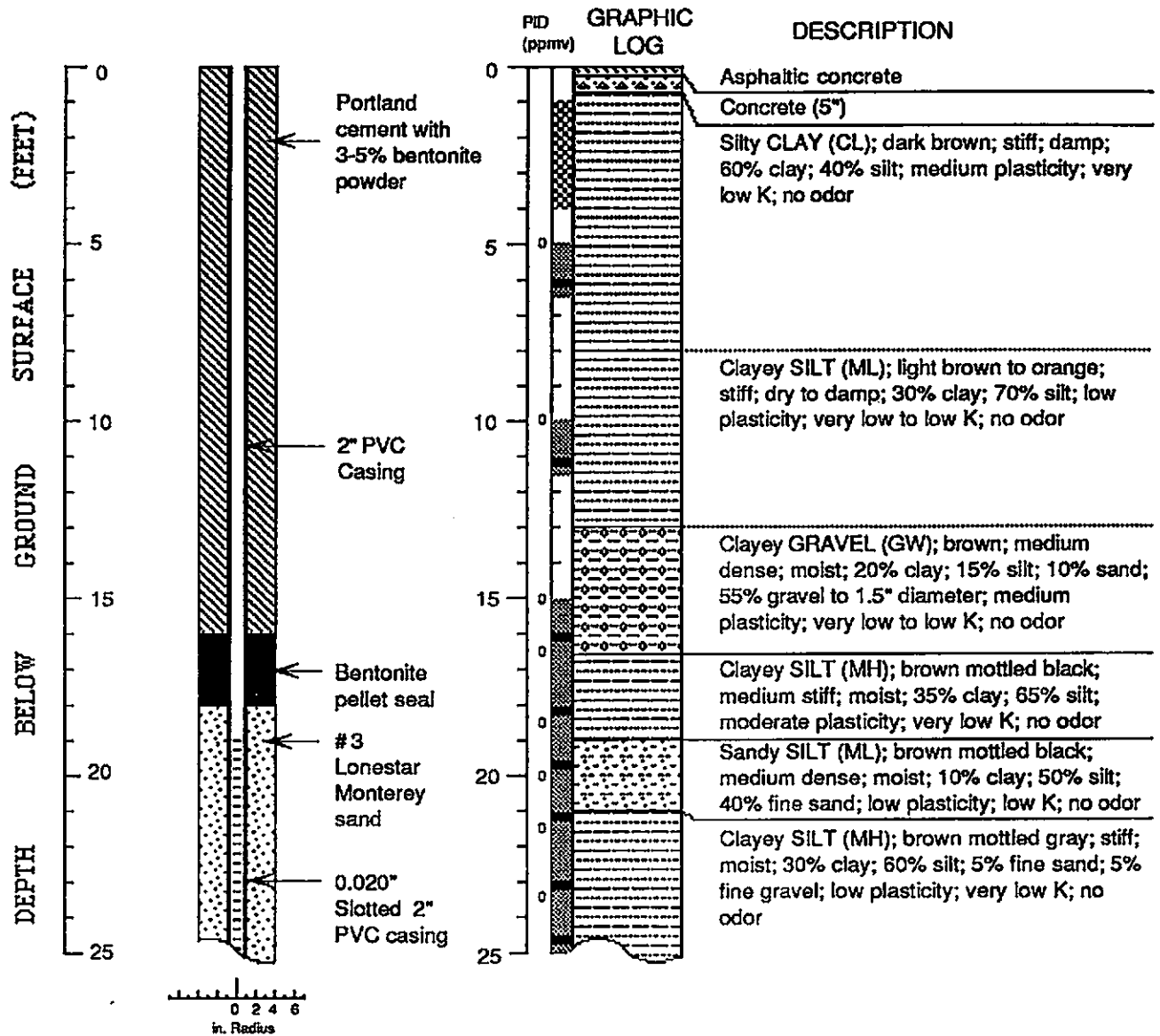
Well Construction and Boring Log - Well MW-6 (BH-F) Chevron Service Station #92258 Oakland, California

WELL MW-6 (BH-F) (cont.)





WELL MW-7 (BH-G)



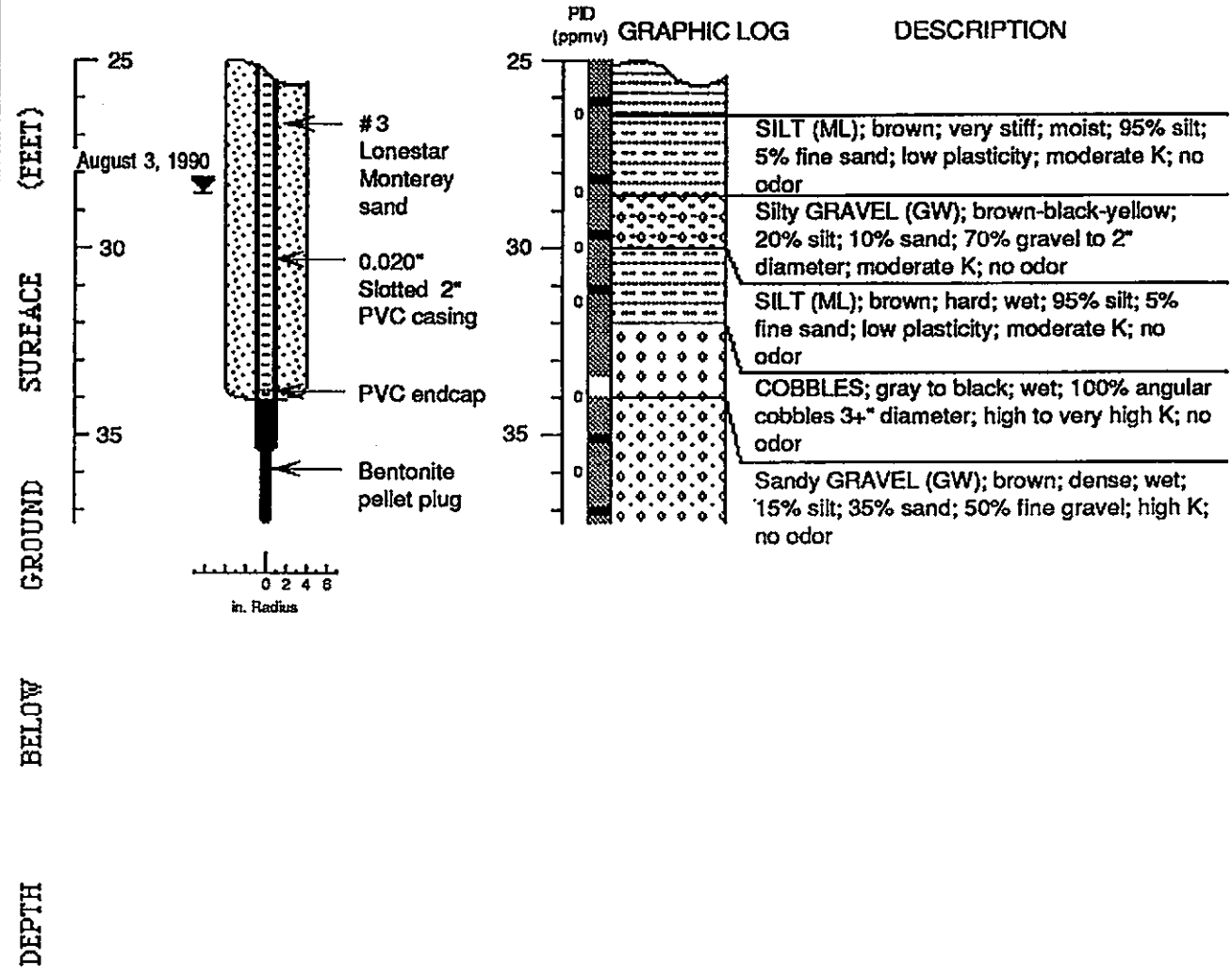
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K** = Estimated hydraulic conductivity

Logged by: Robert Kitay
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Soils Exploration Services, Vacaville, CA
 Driller: Russ Ellis
 Drilling Method: Hollow-stem auger
 Date Drilled: August 3, 1990
 Well Head Completion: 4" Locking well-plug, traffic-rated vault
 Type of sampler: Split barrel (1.5", 2.0", 2.5" ID)
 Ground Surface Elevation: 180.53 feet above mean sea level

Well Construction and Boring Log - Well MW-7 (BH-G) Chevron Service Station #92258
Oakland, California

WELL MW-7 (BH-G) (cont.)



LOG OF TEST BORING 1

EQUIPMENT 7" Hollow Stem Auger

DATE DRILLED 4/21/89

ELEVATION TOC: 100.18'*

LABORATORY TESTS

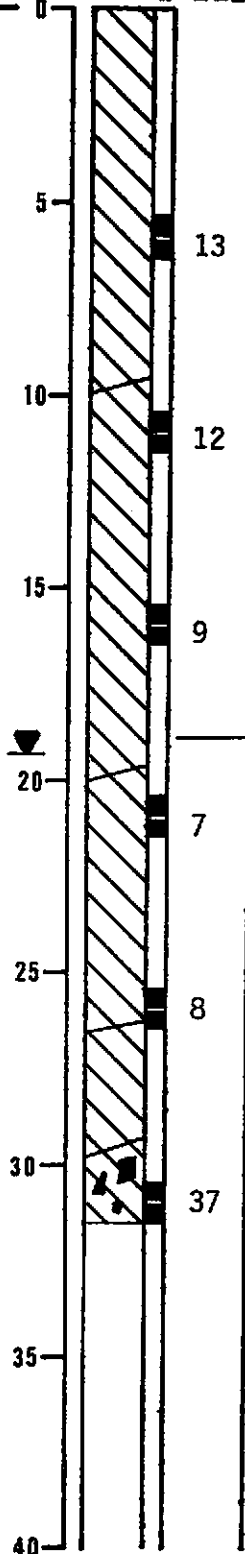
MOISTURE
CONTENT
%

DRY
DENSITY
(PCF)

DEPTH
(FT)

SAMPLE

BLOWS
PER
FOOT



DARK BROWN SILTY CLAY (CL)
medium stiff, moist

BROWN SILTY CLAY (CL)
medium stiff, moist, with fine
grained sand

increased sand content below
15 feet

GROUNDWATER LEVEL (4/28/89)

MOTTLED ORANGE AND BROWN SANDY
CLAY (CL)
medium stiff, wet, fine grained
sand

GRAY SILTY CLAY (CL)
soft, wet

BROWN CLAYEY GRAVEL (GC)
medium dense, wet, with coarse
grained sand

(Piezometer installed to depth
of 28 feet)

*Top of casing (TOC), using
assumed elevation, referenced
location shown on Site Plan,
plate 1.

SAMPLER:
CALIFORNIA DRIVE:
I.D. = 2.0 inches
O.D. = 2.5 inches

HAMMER:
WEIGHT: 140 pounds
DROP: 30 inches

Subsurface Consultants

FIRE STATION 19 - OAKLAND, CA

JOB NUMBER
272.010

DATE
5/4/89

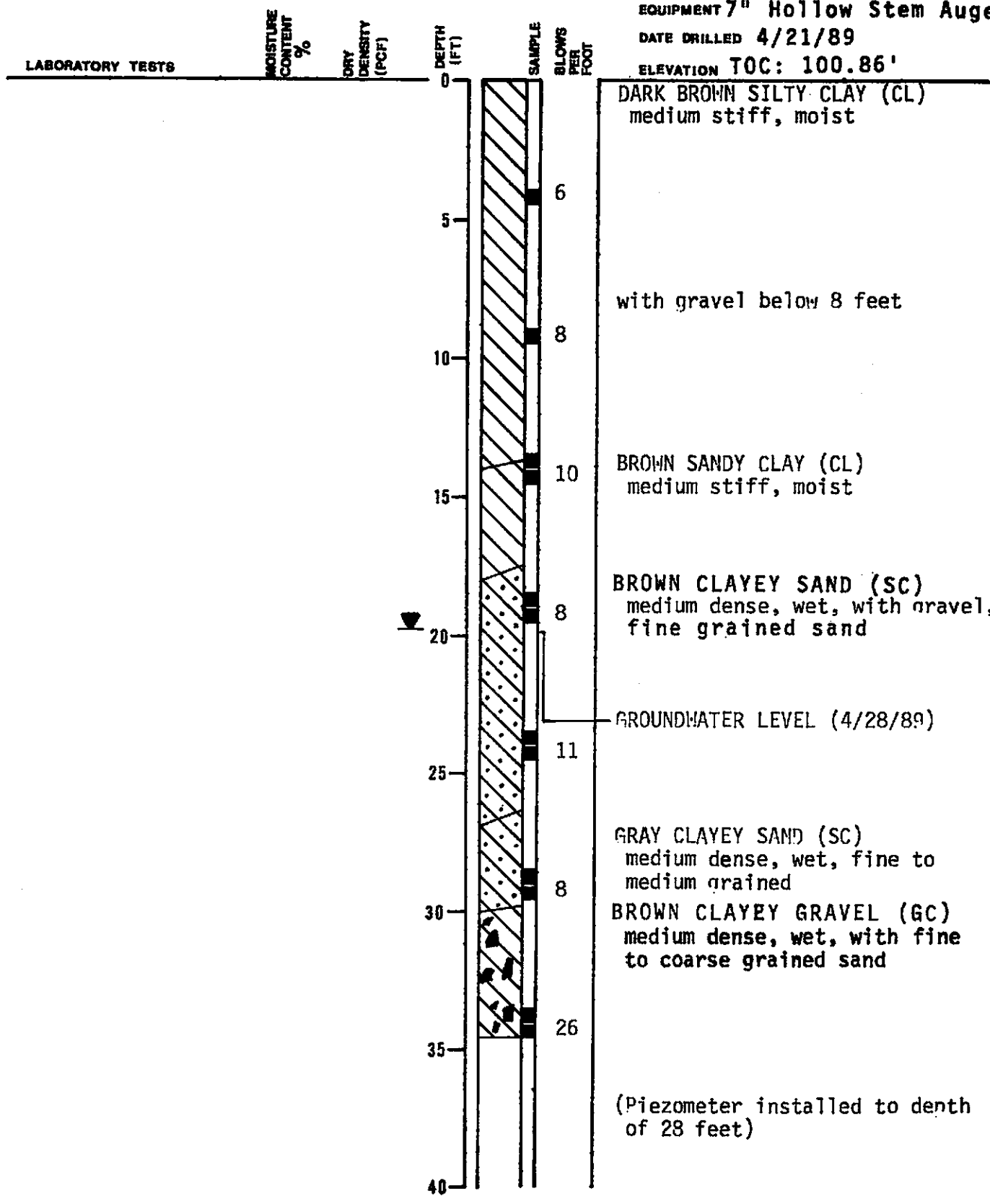
APPROVED
William L. [Signature]

PLATE

2

LOG OF TEST BORING 2

EQUIPMENT 7" Hollow Stem Auger
 DATE DRILLED 4/21/89
 ELEVATION TOC: 100.86'



Subsurface Consultants

FIRE STATION 19 - OAKLAND, CA

PLATE

JOB NUMBER
272.010

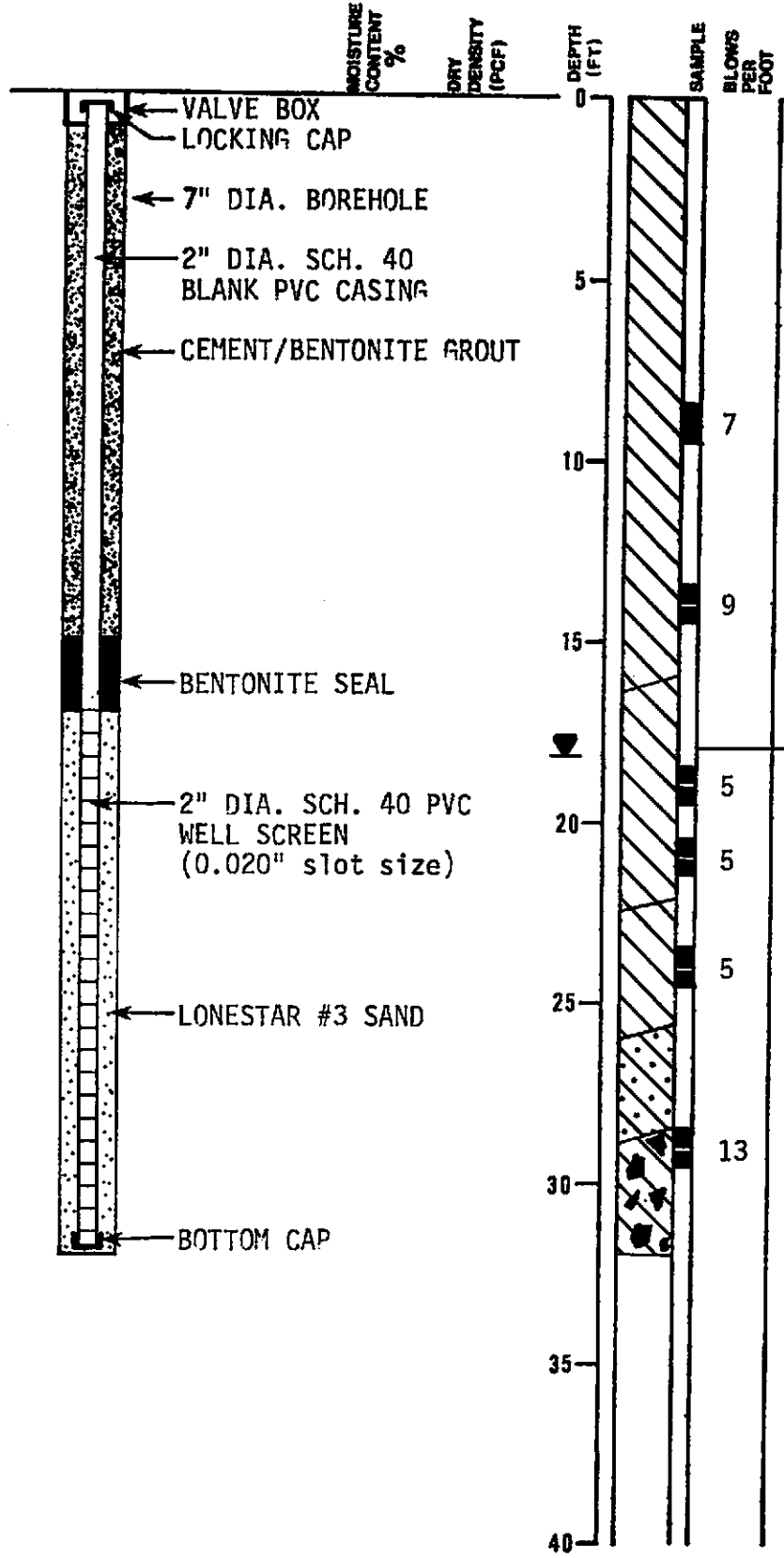
DATE
5/4/89

APPROVED
[Signature]

3

LOG OF TEST BORING 3

EQUIPMENT 7" Hollow Stem Auger
 DATE DRILLED 4/21/89
 ELEVATION TOC: 99.03'



DARK BROWN SILTY CLAY (CL)
 medium stiff, moist, with fine
 grained sand

brown below 6 feet

thin clayey sand layer
 at 15 feet

GROUNDWATER LEVEL (4/28/89)
 MOTTLED GRAY AND ORANGE SILTY
 CLAY (CL)
 medium stiff, wet, with
 sand below 20 feet

MOTTLED BROWN AND GRAY SANDY
 CLAY (CL)
 medium stiff, wet, fine grained
 sand

GRAY CLAYEY SAND (SC)
 medium dense, wet

BROWN CLAYEY GRAVEL (GC)
 medium dense, wet, with fine to
 coarse grained sand

(monitoring well installed as
 shown)

Subsurface Consultants

FIRESTATION 19 - OAKLAND, CA

PLATE

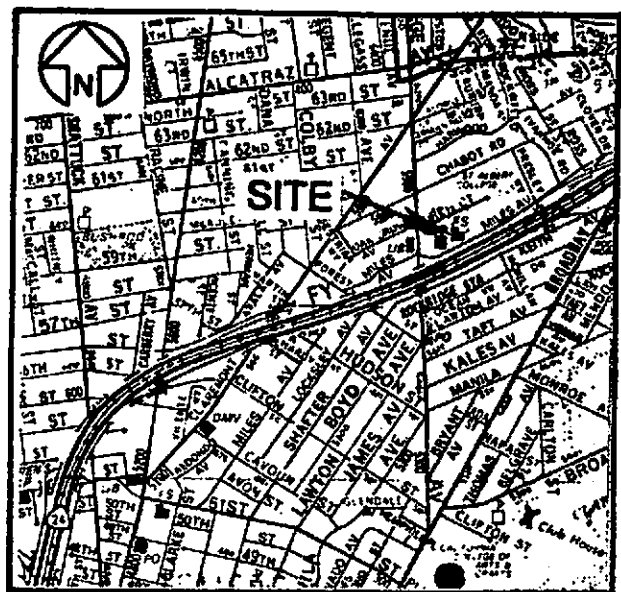
JOB NUMBER
 272.010

DATE
 5/4/89

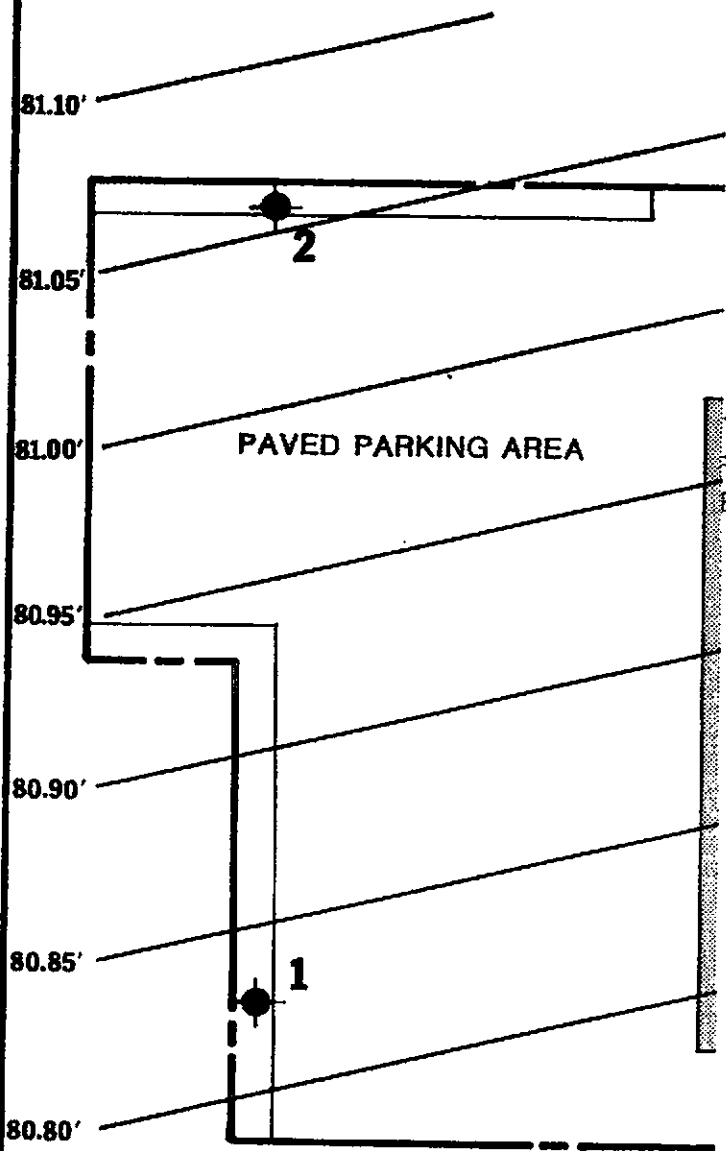
APPROVED
William L. Allen

4

30.



VICINITY MAP



MONITORING REFERENCE CURB
 ELEVATED AT 100.00 FEET

	PIEZOMETER
	MONITORING WELL
	PROPERTY LINE
	GROUNDWATER ELEVATION CONTOURS (FEET) (4/28/89)
	APPROXIMATE PREVIOUS UNDERGROUND TANK LOCATION



SITE SKETCH

FIRE STATION 19 - OAKLAND, CA			PLATE
PROJECT NUMBER 272.010	DATE 4/15/89	APPROVED <i>[Signature]</i>	1

89249

57 Lic.# C57-522125

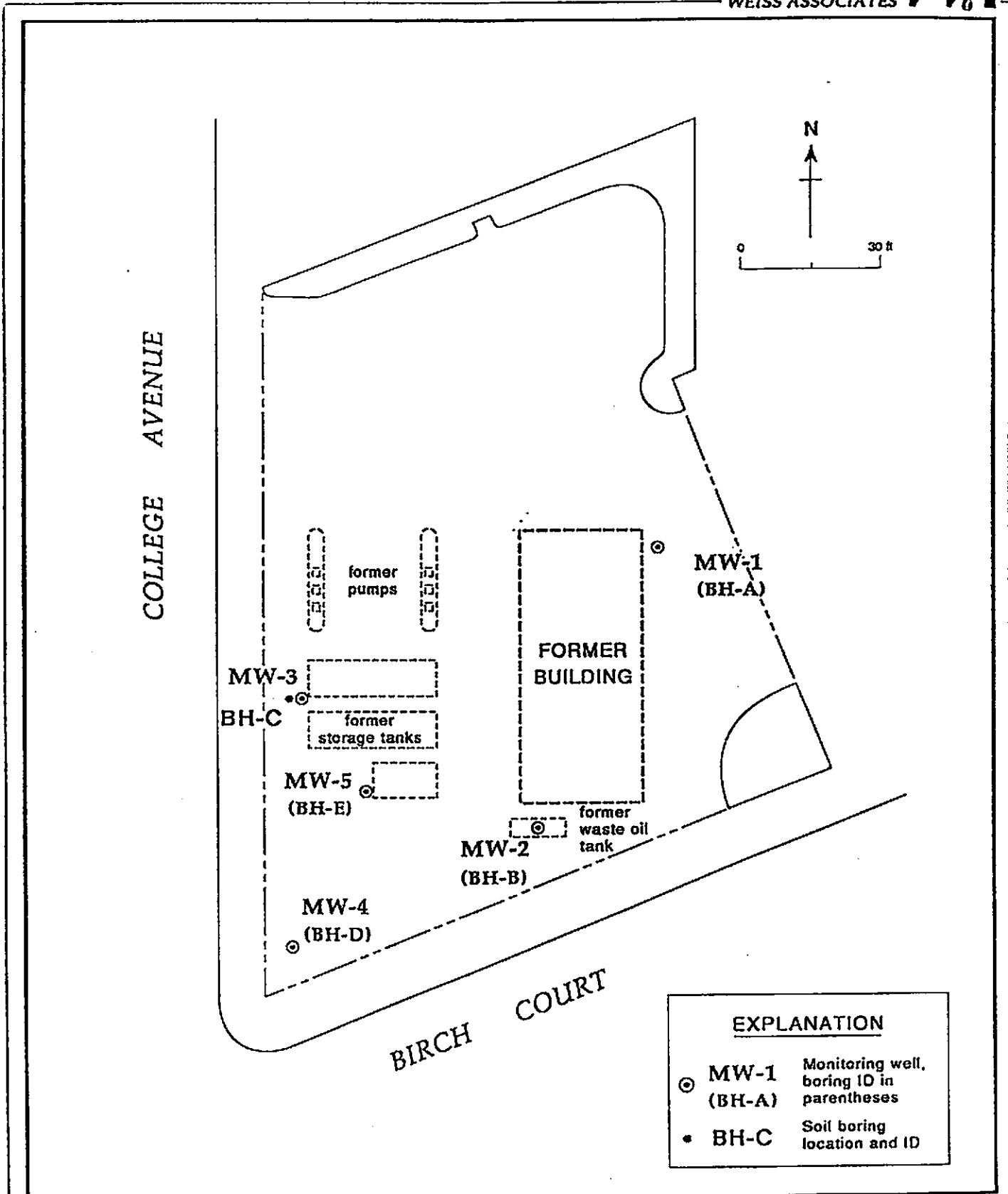


Figure 2. Monitoring Well and Soil Boring Locations - Chevron Service Station #92258, Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

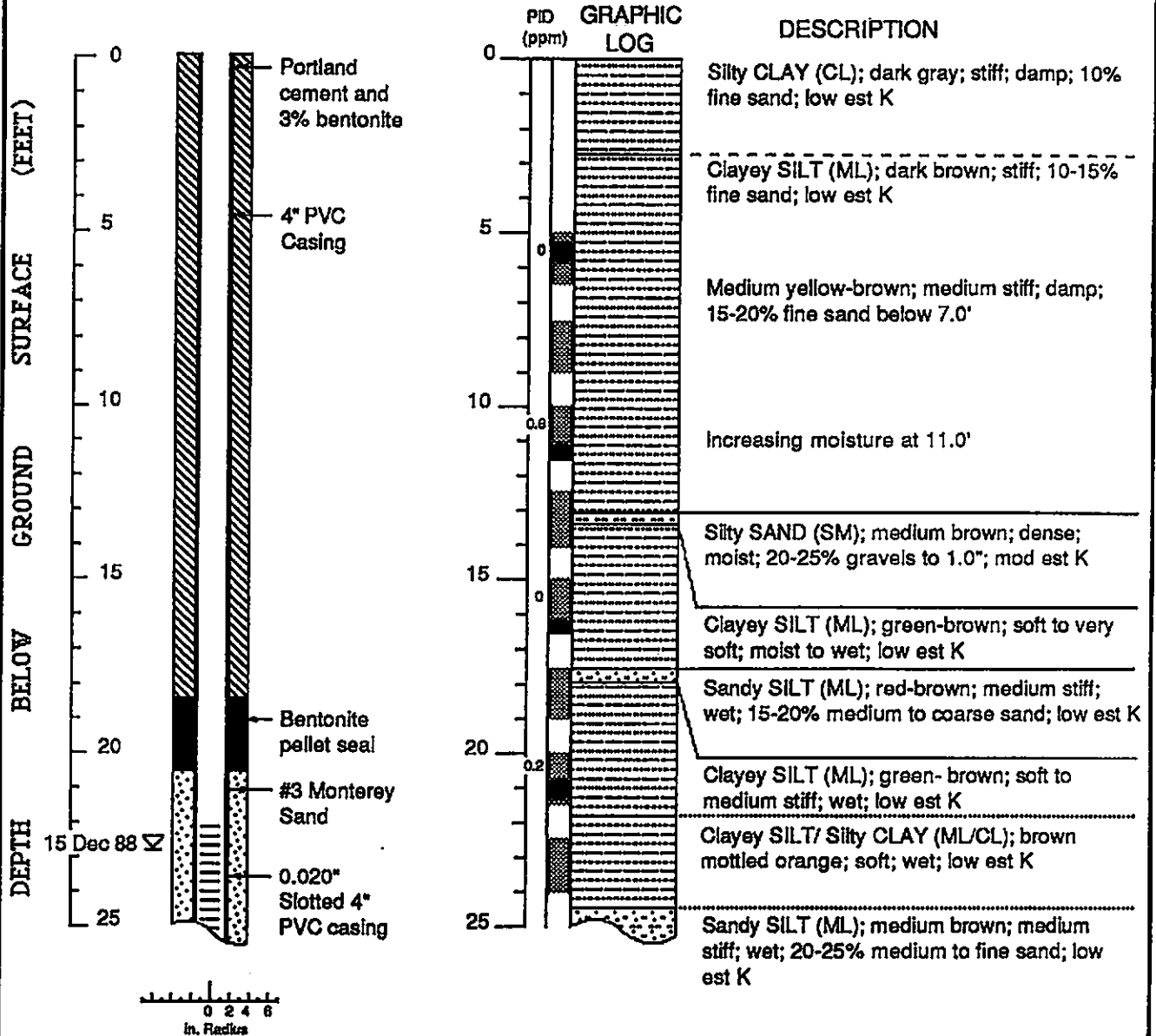
REMOVED

Add ✓
Invol.

IS/4W 13G-1
WA

WEISS ASSOCIATES

WELL MW-1 (BH-A)



EXPLANATION

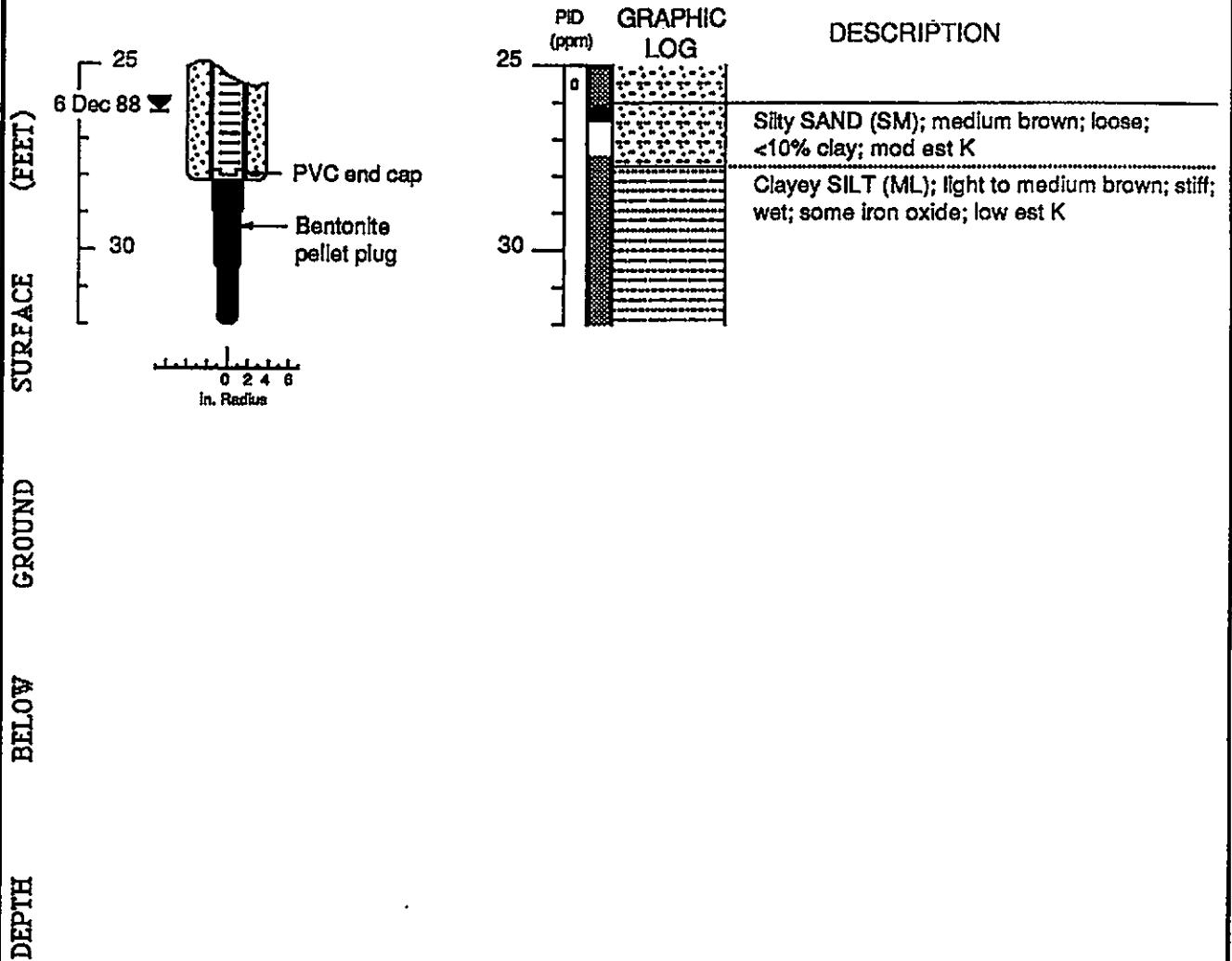
- ▼ Water level during drilling (date)
- ⊗ Water level (date)
- Contact (dotted where approx.)
- - - - - Uncertain contact
- ▨ Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- ⊗ Cutting sample
- K = Estimated permeability (hydraulic conductivity)

Logged by: Jim Carmody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Datum Exploration, Pittsburg, CA
 Driller: Jim Condrey
 Drilling Method: CME-75
 Dates Drilled: 6 December 1988
 Well Head Completion: Locking Stovepipe
 Type of sampler: Split barrel (1.4, 2.0, 2.5" ID)

Well Construction and Boring Log - Well MW-1 (BH-A)

Chevron Service Station #92258
Oakland, California

WELL MW-1 (BH-A) (cont.)



179045B

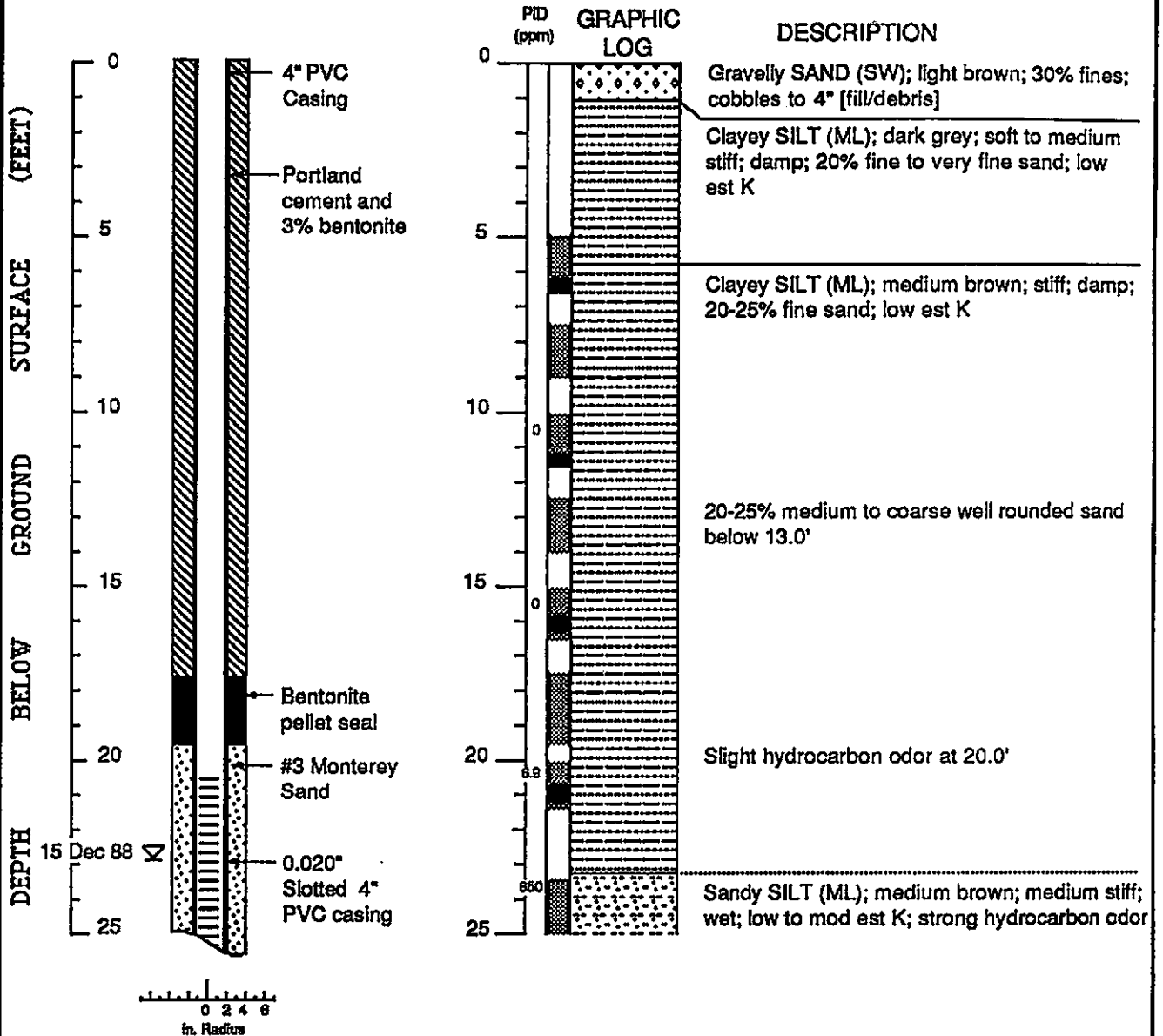
*Add
In*

15/4W 13G2

WEISS ASSOCIATES



WELL MW-2 (BH-B)



EXPLANATION

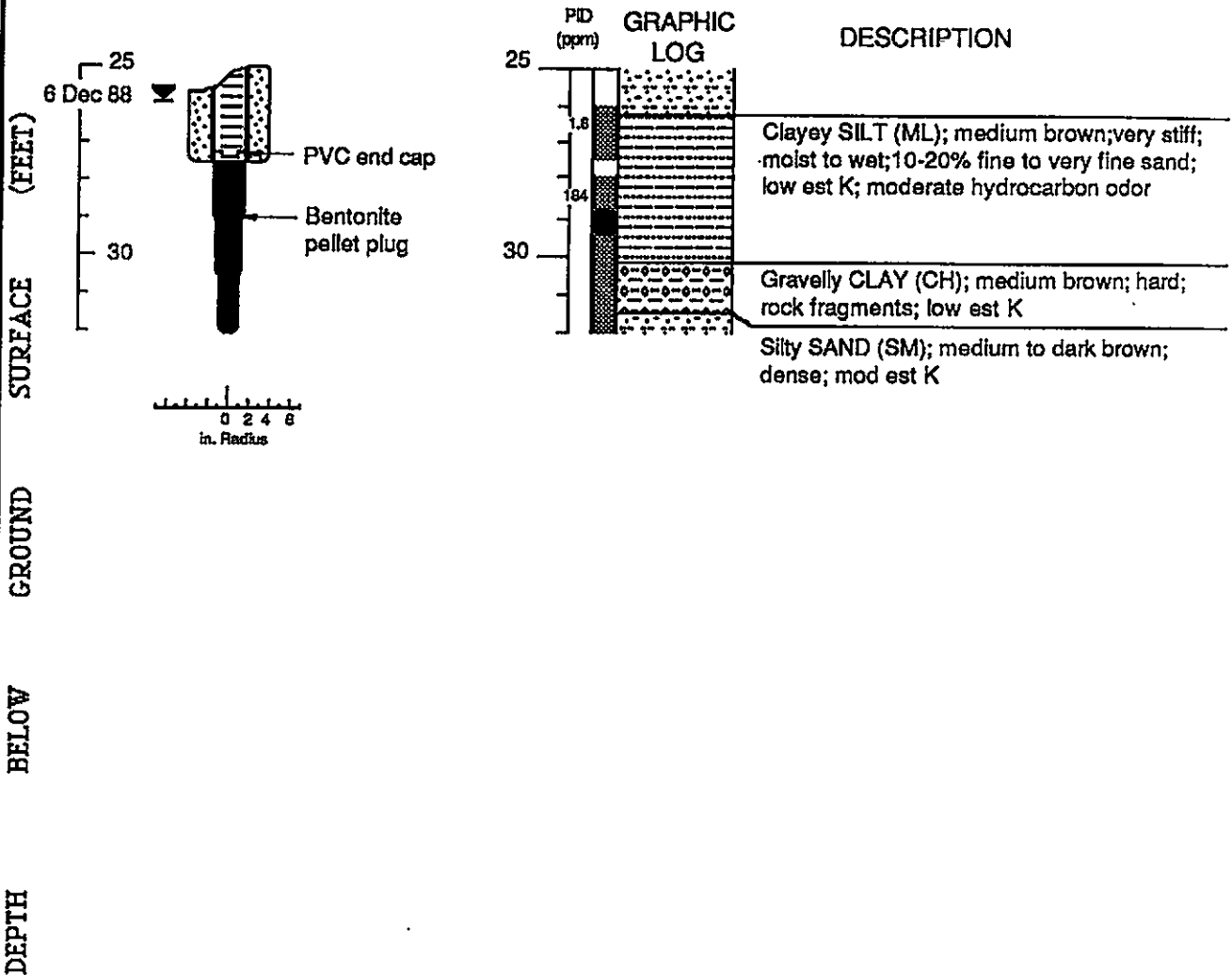
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K** = Estimated permeability (hydraulic conductivity)

Logged by: Jim Carnody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Datum Exploration, Pittsburg, CA
 Driller: Jim Condrey
 Drilling Method: CME-75
 Dates Drilled: 6 December 1988
 Well Head Completion: Locking Stovepipe
 Type of sampler: Split barrel (1.4, 2.0, 2.5" ID)

Well Construction and Boring Log - Well MW-2 (BH-B) Chevron Service Station #92258
 Oakland, California



WELL MW-2 (BH-B) (cont.)



179045C

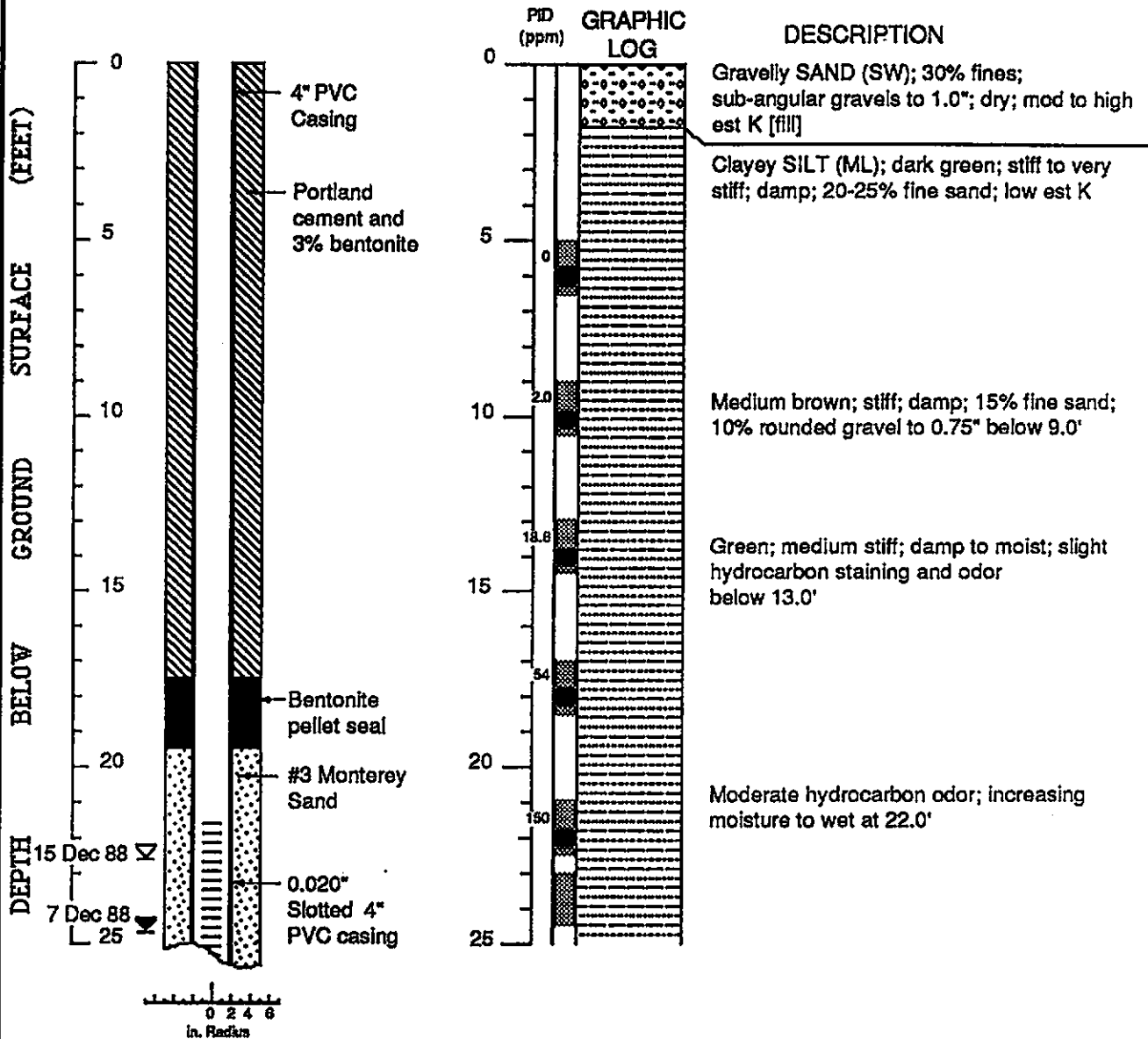
IS/HW 13G3



WEISS ASSOCIATES

Add
In

WELL MW-3 (BH-C)



EXPLANATION

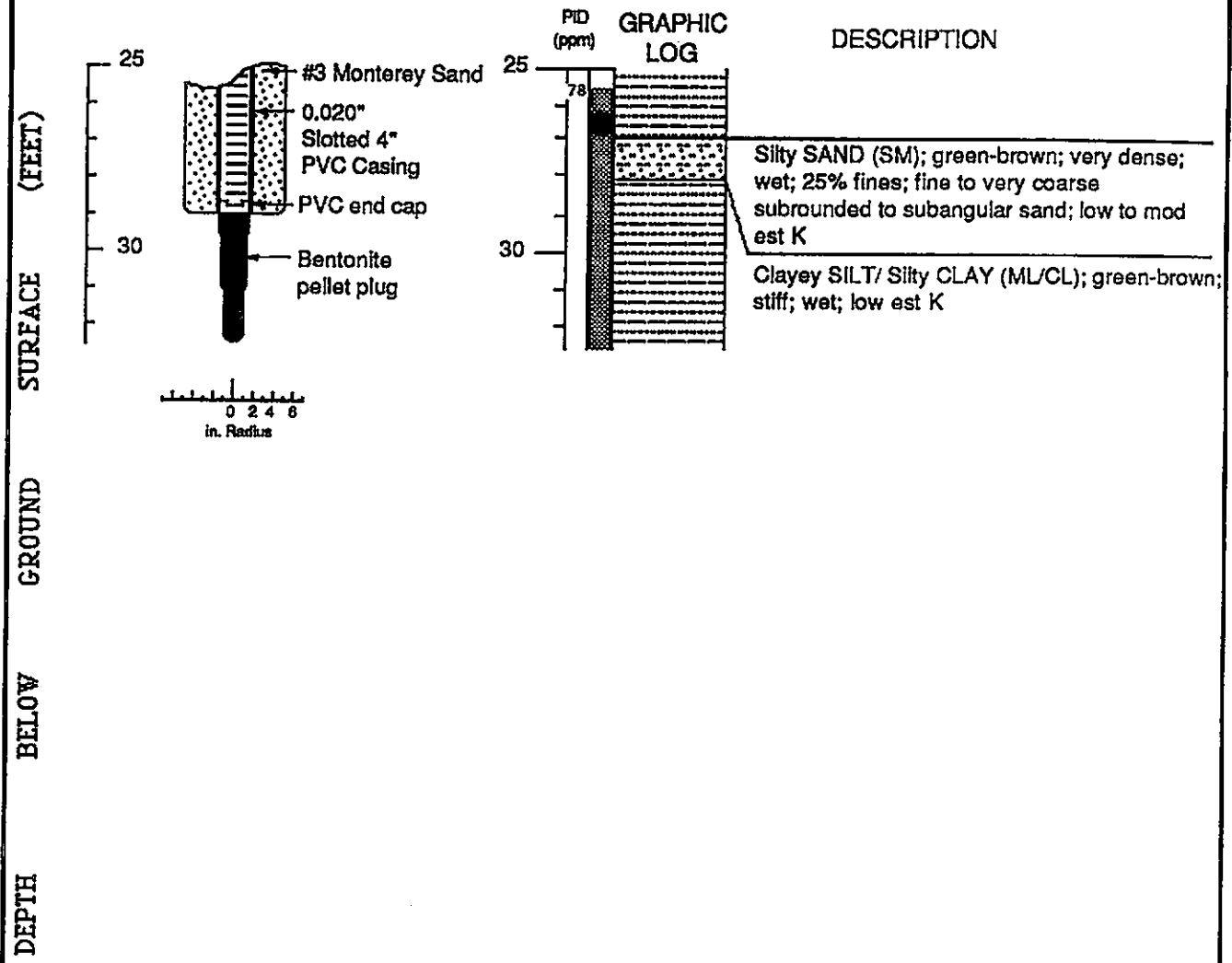
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- Contact (dotted where approx.)
- - - - - Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- ⊗ Cutting sample
- K = Estimated permeability (hydraulic conductivity)

Logged by: Jim Carmody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Datum Exploration, Pittsburg, CA
 Driller: Jim Condrey
 Drilling Method: CME-75
 Dates Drilled: 7 December 88
 Well Head Completion: Locking Stovepipe
 Type of sampler: Split barrel (1.4, 2.0, 2.5" ID)

Well Construction and Boring Log - Well MW-3 (BH-C)

Chevron Service Station #92258
Oakland, California

WELL MW-3 (BH-C) (cont.)

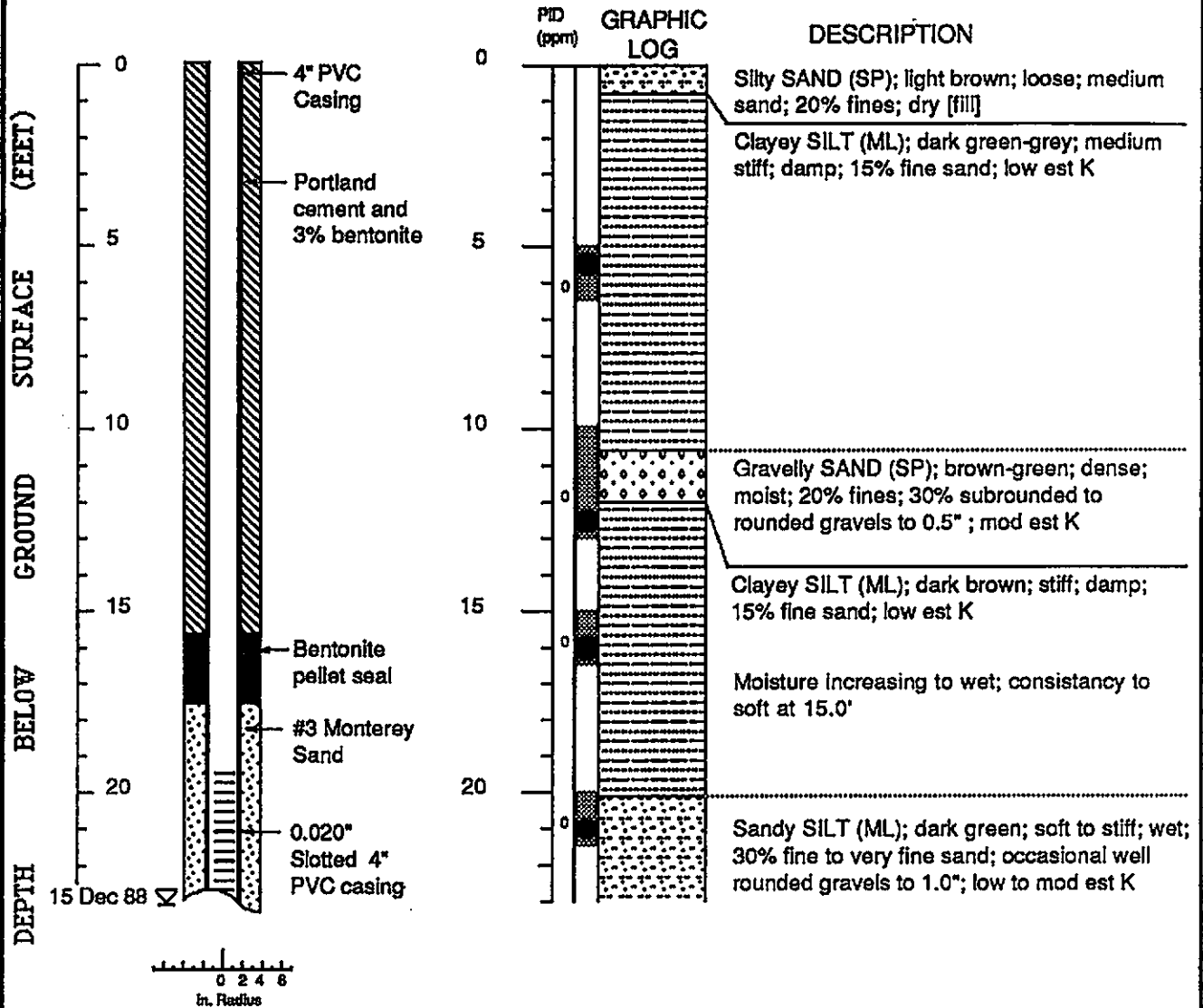


Add ✓
Inv ✓

15/4W 13G-4



WELL MW-4 (BH-D)



EXPLANATION

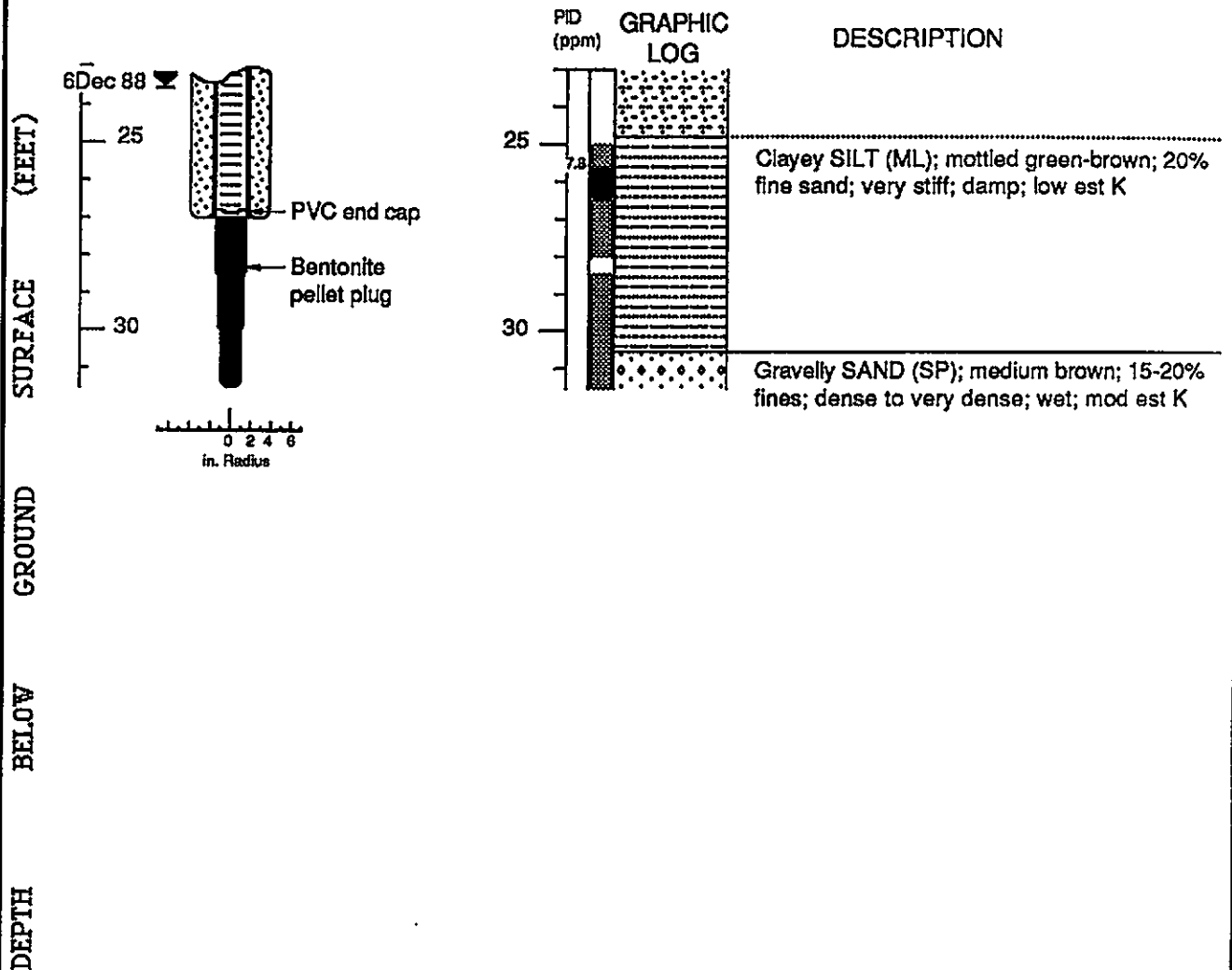
- ▼ Water level during drilling (date)
- ▽ Water level (date)
- Contact (dotted where approx.)
- - - - - Uncertain contact
- ▨ Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- ⊗ Cutting sample
- K = Estimated permeability (hydraulic conductivity)

Logged by: Jim Carmody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Datum Exploration, Pittsburg, CA
 Driller: Jim Condrey
 Drilling Method: CME-75
 Dates Drilled: 8 December 1988
 Well Head Completion: Locking Stovepipe
 Type of sampler: Split barrel (1.4, 2.0, 2.5" ID)

Well Construction and Boring Log - Well MW-4 (BH-D)

Chevron Service Station #92258
Oakland, California

WELL MW-4/BH-D (cont.)

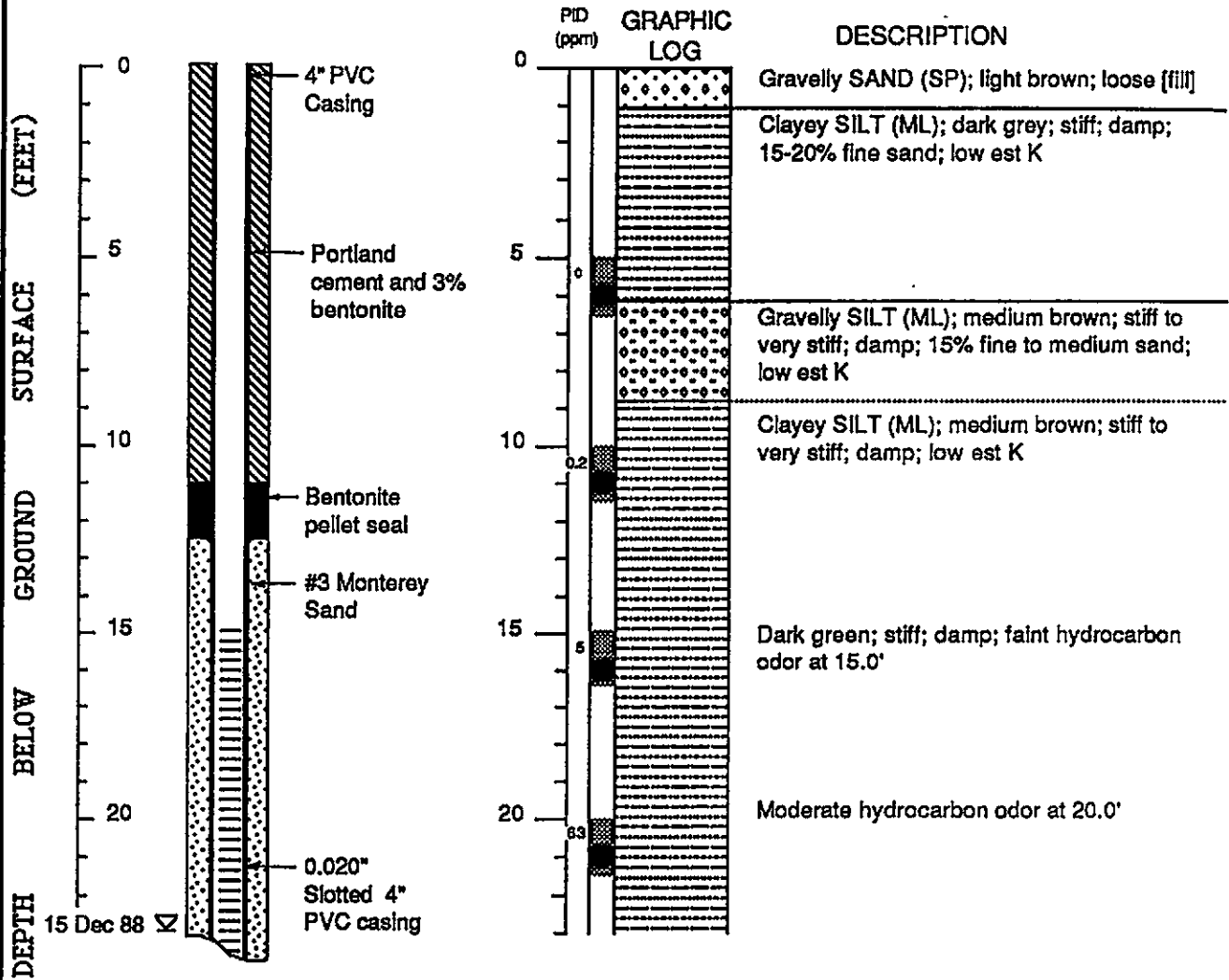


Well Construction and Boring Log - Well MW-4 (BH-D) Chevron Service Station #92258
 Oakland, California

Add
In



WELL MW-5 (BH-E)

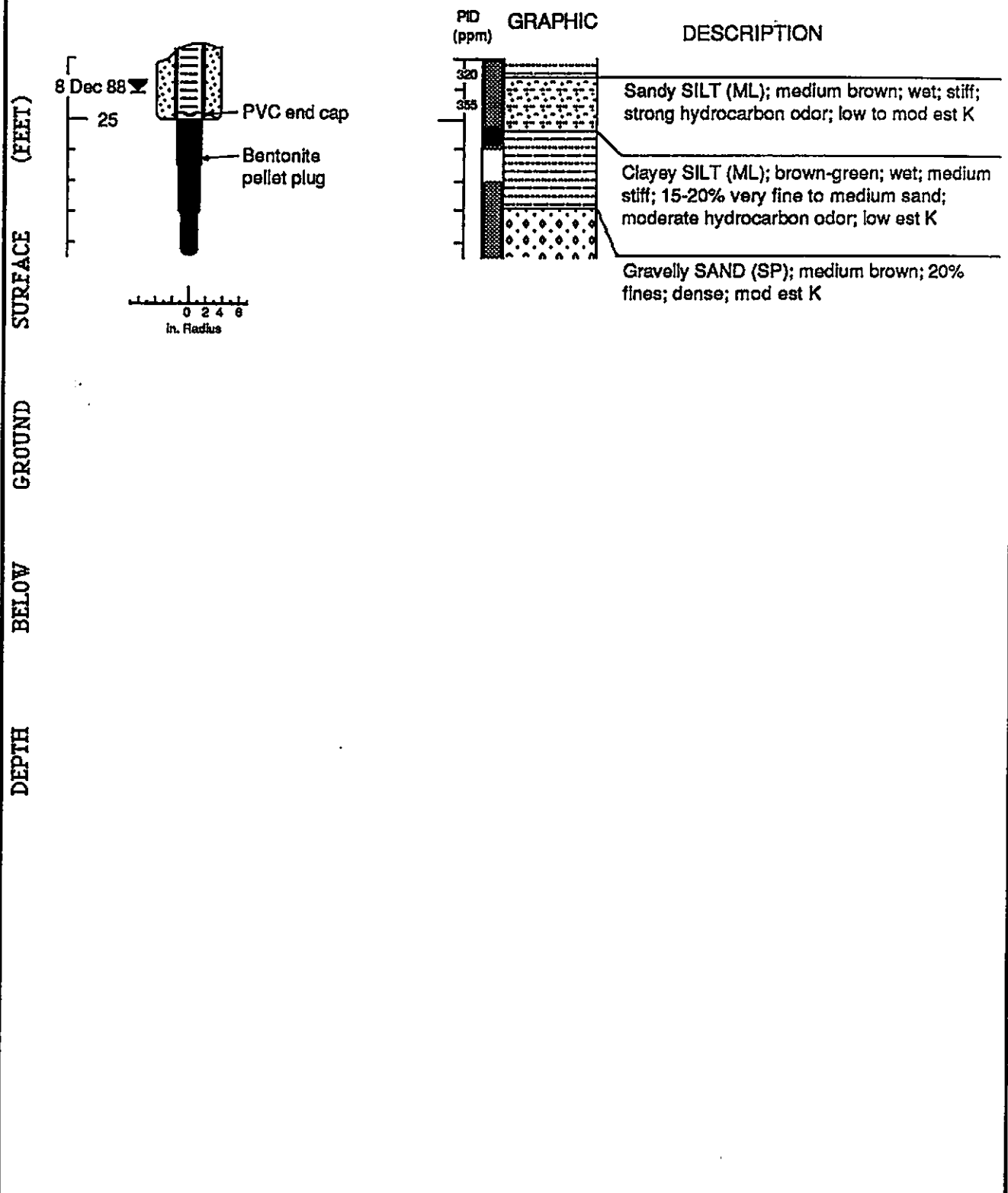


EXPLANATION

- | | |
|---|---|
| <ul style="list-style-type: none"> ▼ Water level during drilling (date) ⊗ Water level (date) ----- Contact (dotted where approx.) - - - - - Uncertain contact ▨ Location of recovered drive sample ■ Location of drive sample sealed for chemical analysis ⊗ Cutting sample K = Estimated permeability (hydraulic conductivity) | <ul style="list-style-type: none"> Logged by: Jim Carmody Supervisor: Richard Weiss; EG 1112 Drilling Company: Datum Exploration, Pittsburg, CA Driller: Jim Condrey Drilling Method: CME-75 Dates Drilled: 8 December 1988 Well Head Completion: Locking Stovepipe Type of sampler: Split barrel (1.4, 2.0, 2.5" ID) |
|---|---|



WELL MW-5 (BH-E) (cont.)



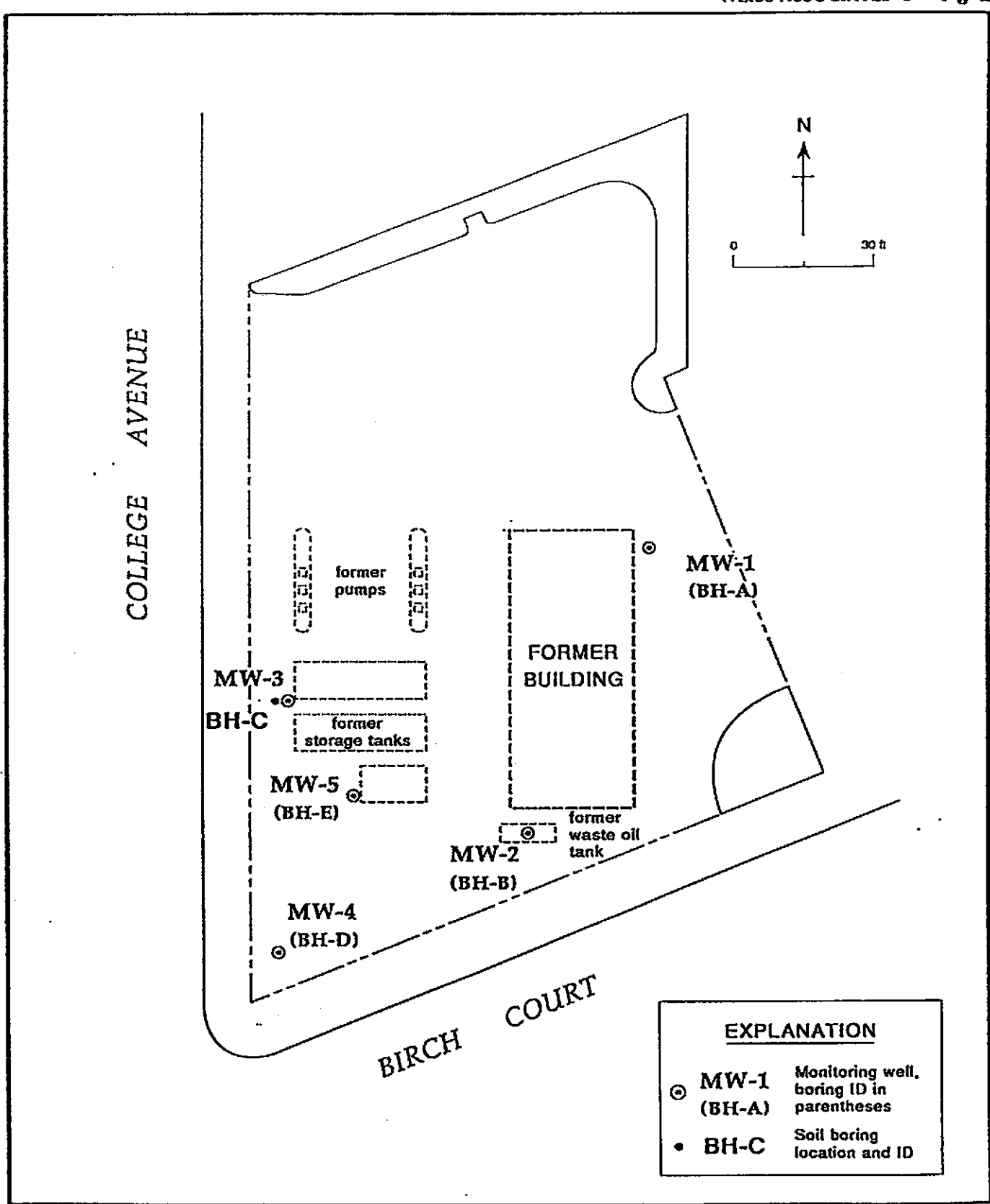


Figure 2. Monitoring Well and Soil Boring Locations - Chevron Service Station #92258, Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



EXPLANATION

- ▲ Ground water extraction well
- Ground water discharge line

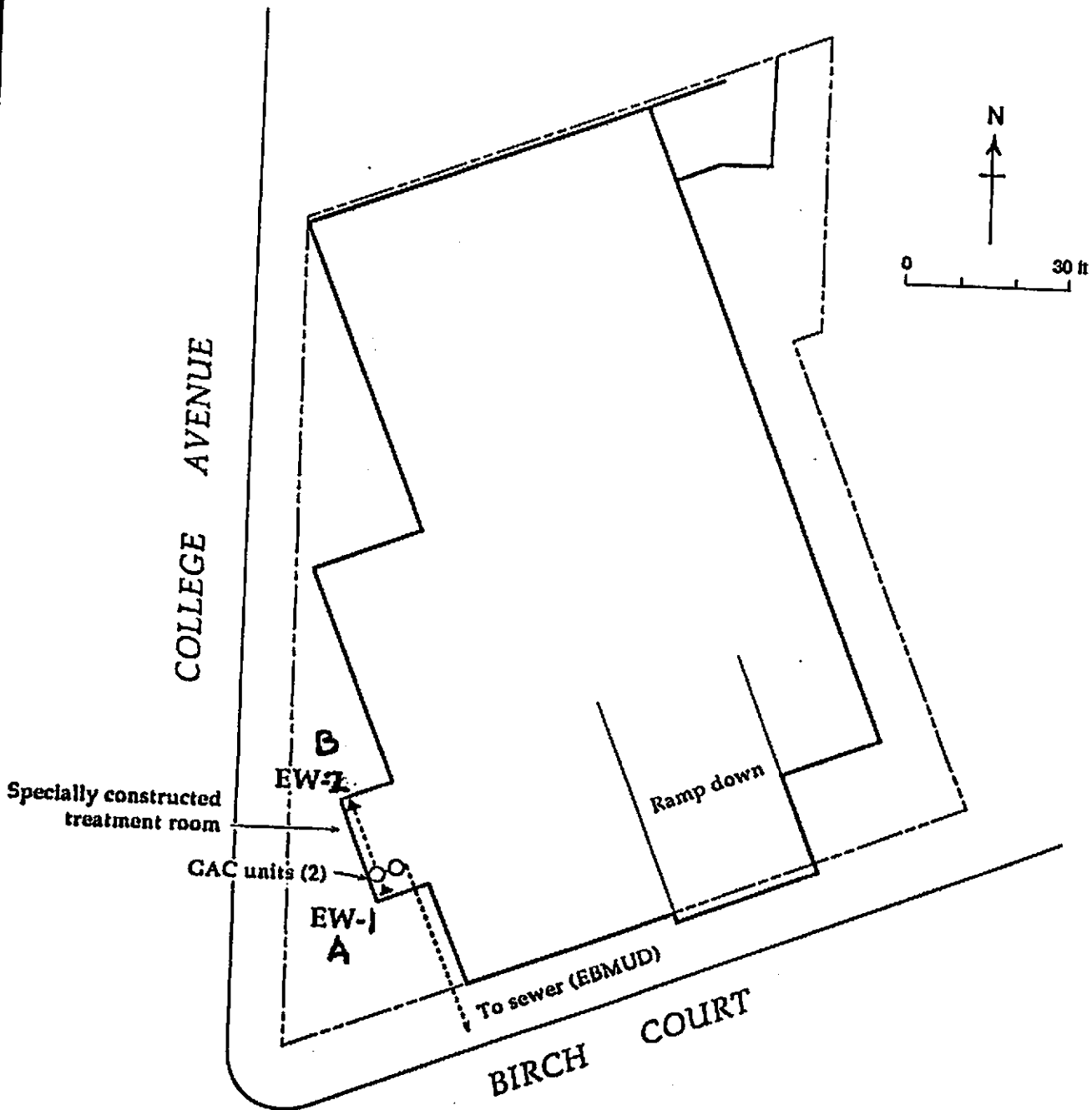


Figure 5. Proposed Ground Water Remediation System - Former Chevron Service Station #92258, 5800 College Avenue, Oakland, California

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

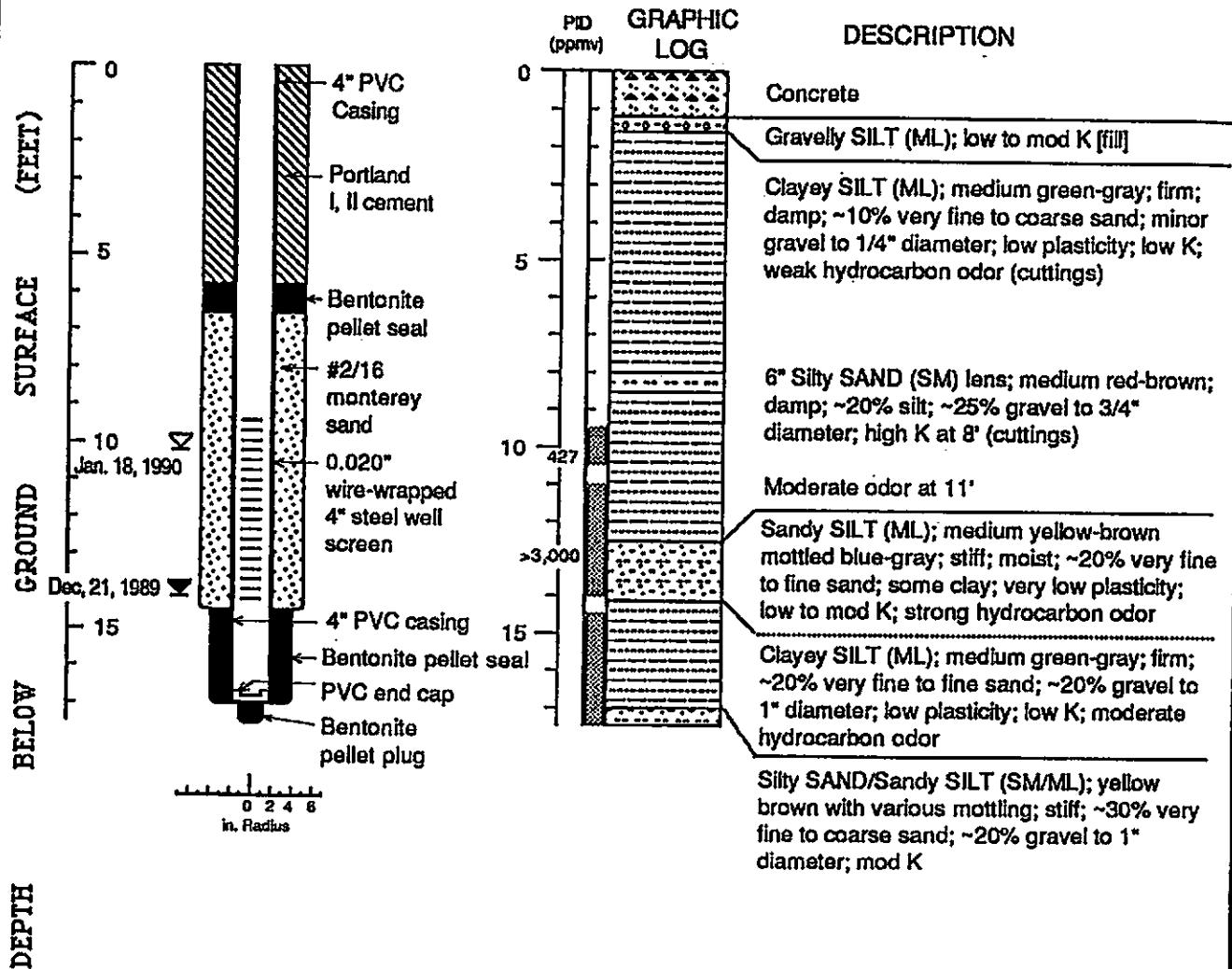
154W 1367

325102B



WEISS ASSOCIATES

WELL EW-2



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K** = Estimated hydraulic conductivity

Logged by: John Duey
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Allen Drilling
 Driller: Guy Lyons
 Drilling Method: Hollow stem auger
 Dates Drilled: Dec. 20, 21, 1989
 Well Head Completion: Concrete vault
 Type of sampler: Split Barrel (1.5", 2.0", 2.5" ID)

Well Construction and Boring Log - Well EW-2

Chevron Service Station
 #92258, Oakland, CA

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

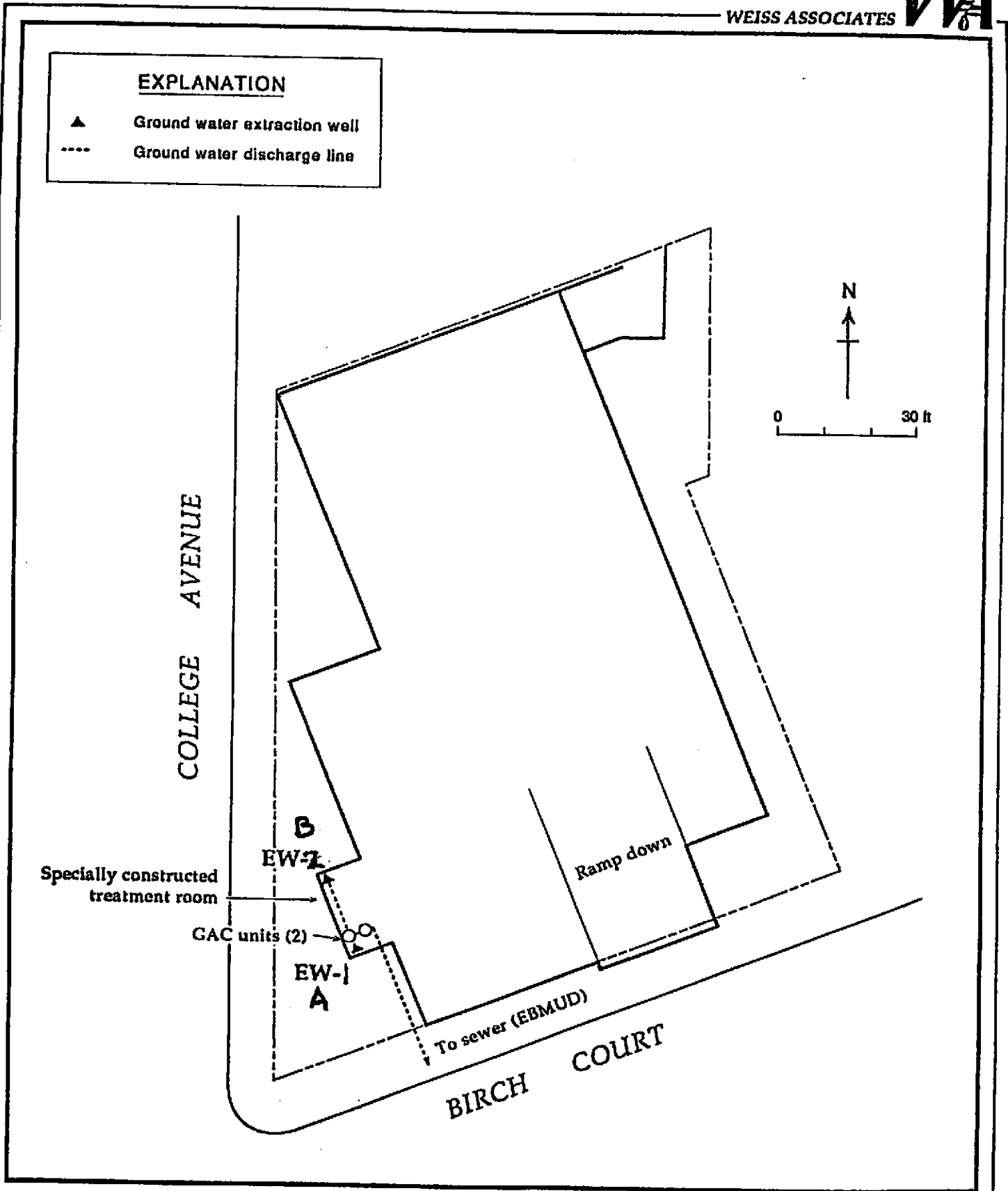
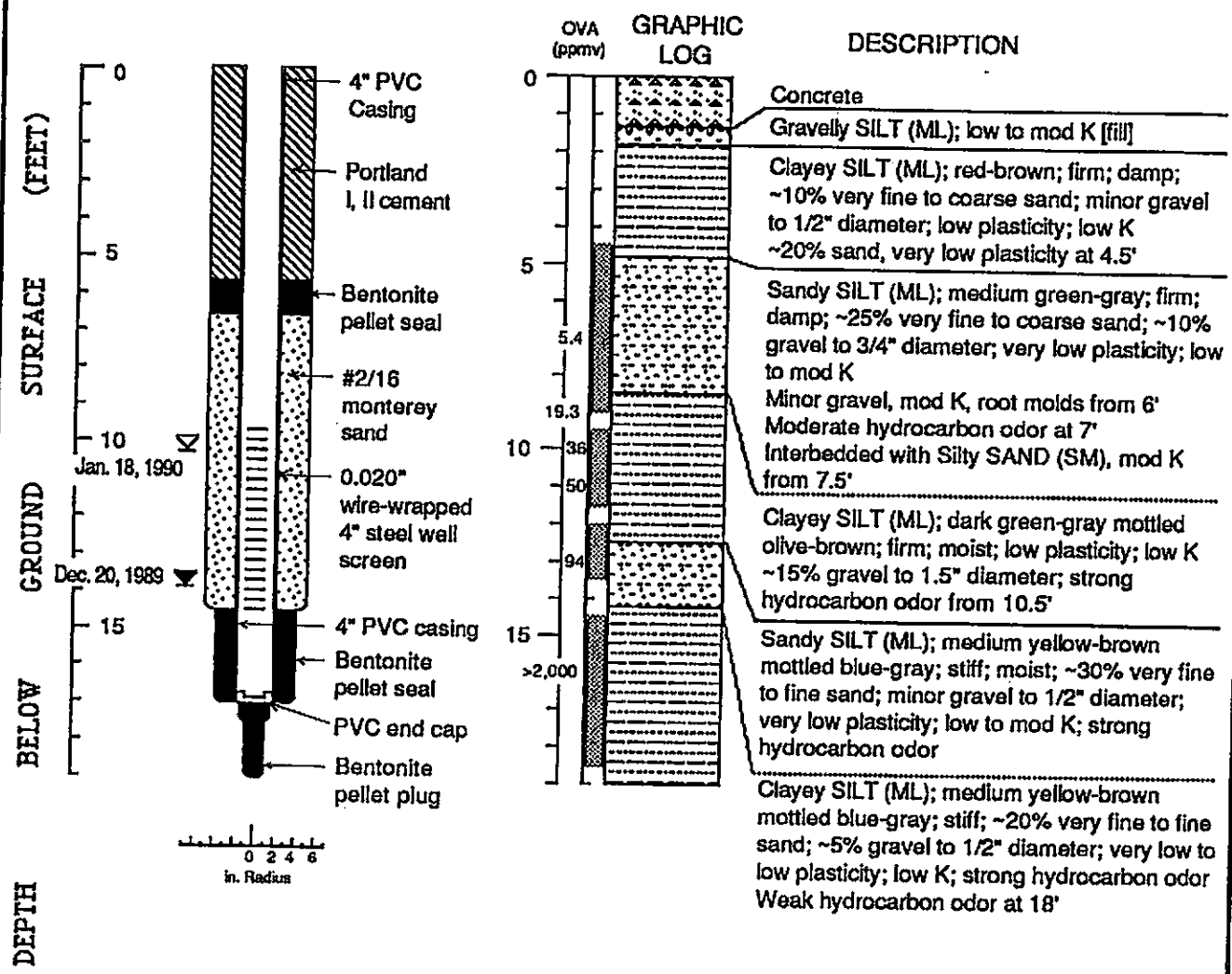


Figure 5. Proposed Ground Water Remediation System - Former Chevron Service Station #92258, 5800 College Avenue, Oakland, California

WELL EW-1



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K** = Estimated hydraulic conductivity

Logged by: John Ducy
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Allen Drilling
 Driller: Guy Lyons
 Drilling Method: Hollow stem auger
 Dates Drilled: Dec. 20, 21, 1989
 Well Head Completion: Concrete vault
 Type of sampler: Split Barrel (1.5", 2", 2.5" ID)

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

01-2175-Y

In/Adv

15/4W 12N 2-5



Source: U.S. Geological Survey
 7.5-Minute Quadrangle
 Oakland West/Oakland East
 California
 Photorevised 1980



phone 415-

651 1906



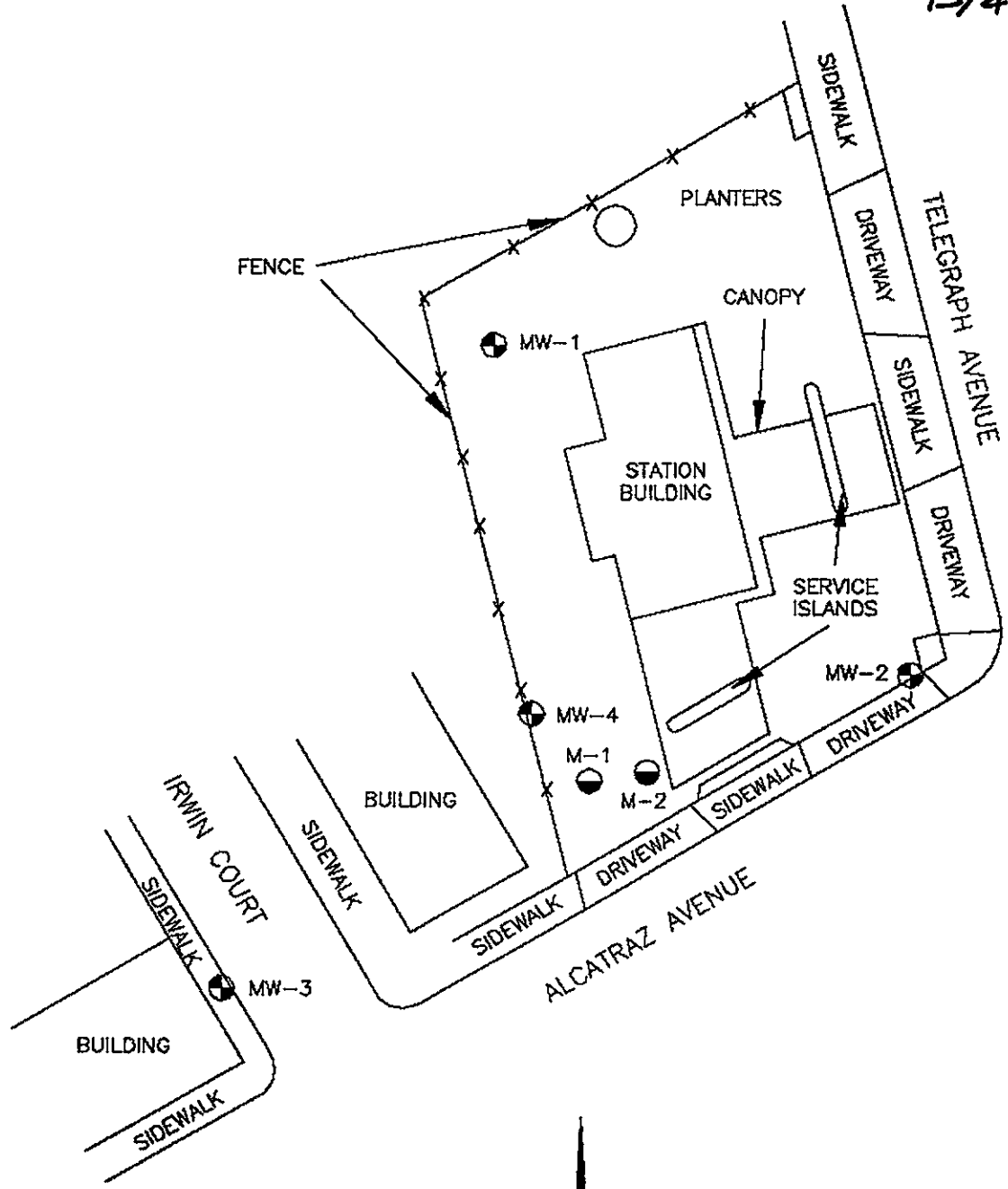
2121 Alameda Blvd. Suite 817 Emeryville, CA 94608-4171 FAX

SITE VICINITY MAP
 ARCO Station No. 374
 6407 Telegraph Avenue

PLATE
P - 1

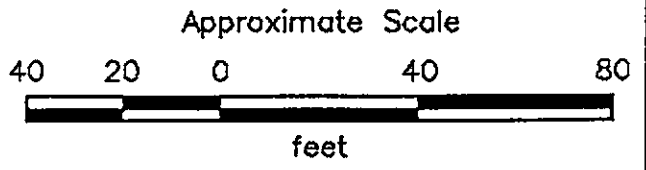
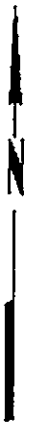
06-2175-V

15/40-12N2-5



MW-4 ⊕ = Monitoring well installed by Applied GeoSystems (July 1989)
 M-2 ⊙ = Tank pit monitoring well installed by Applied GeoSystems (1988)

Source: Surveyed by Ron Archer
 Civil Engineer, Inc.



GENERALIZED SITE PLAN
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE
P - 2

PROJECT NO. 18039-3

31-2175

In. Add 15/4W 12N2

Total depth of boring: 28-1/2 feet Diameter of boring: 11 inches Date drilled: 7-6-89
 casing diameter: 4 inches Length: 27 feet Slot size: 0.020-inch
 screen diameter: 4 inches Length: 20 feet Material type: Sch 40 PVC
 Drilling Company: Kvilhaug Drilling Company, Inc. Driller: Rod and Leroy
 Method Used: Hollow-Stem Auger Field Geologist: Becky and Keith

Signature of Registered Professional: _____
 Registration No.: _____ State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt.	
2				CL	Silty clay, dark brown, slightly damp, medium plasticity, very stiff, rootlets, minor iron staining.	
4	S-3.5	4 12 18				
8	S-8.5	3 5 12			Sandy clay, grading to clay with gravel, some mottling, slight plasticity, stiff.	
14	S-13.5	15 18 20			Slightly green, hard.	
18	S-18.5	8 10 12			Silty clay, some sand and gravel, light brown, moist, medium plasticity, very stiff.	
20						

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-1/MW-1

ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE

P - 4

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
				CL	Silty clay, some sand and gravel, light brown, moist, medium plasticity, stiff.	
-22	S-23	357			Trace gravel.	
-24						
-26						
-28	S-28	357				
-30	Total Depth = 28-1/2 feet.					
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



LOG OF BORING B-1/MW-1

ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE

P - 5

PROJECT NO. 18039-3

01-217T Inw Add 15/4W 12N3

Total depth of boring: 28-1/2 feet Diameter of boring: 11 inches Date drilled: 7-6-89
 casing diameter: 4 inches Length: 27 feet Slot size: 0.020-inch
 Screen diameter: 4 inches Length: 20 feet Material type: Sch 40 PVC
 Drilling Company: Kvilhaug Drilling Company, Inc. Driller: Rod and Leroy
 Method Used: Hollow-Stem Auger Field Geologist: Becky and Keith
 Signature of Registered Professional: _____
 Registration No.: _____ State: CA

Depth	Sample No.	Blows	P.L.D.	USCS Code	Description	Well Const.
0				CL	Sandy clay, dark brown, damp, slight plasticity, very stiff.	
2						
4	S-3.5	6 10 12				
6						
8	S-8.5	7 20 25			Silty clay, with some gravel, light brown, damp, hard.	
10						
12						
14	S-13.5	5 7 15			Very stiff.	
16						
18	S-18.5	7 20 25			Silty clay with gravel, brown, moist, hard.	
20						

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-2/MW-2
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE
 P - 6

01-217T

1S/4W-12N3

Depth	Sample No.	BLOWS	P.L.D.	USCS Code	Description	Well Const.
				CL	Silty clay with gravel, brown, moist, hard.	
-22	S-23	3				
-24		5			Silty clay, some fine gravel, dark brown, stiff.	
-26						
-28	S-28	10			Silty clay with sand, medium brown, slightly damp, slight plasticity, hard.	
-28		20				
-28		25			Total Depth = 28-1/2 feet.	
-30						
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



LOG OF BORING B-2/MW-2 PLATE

ARGO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

P - 7

PROJECT NO. 18039-3

01-2170

Inc. Add'l S/C/W 12N 4

Total depth of boring: 28-1/2 feet Diameter of boring: 11 inches Date drilled: 7-7-89
 Casing diameter: 4 inches Length: 27 feet Slot size: 0.020-inch
 screen diameter: 4 inches Length: 20 feet Material type: Sch 40 PVC
 Drilling Company: Kvilhaug Drilling Company, Inc. Driller: Rod and Leroy
 Method Used: Hollow-Stem Auger Field Geologist: Becky and Keith
 Signature of Registered Professional: _____
 Registration No.: _____ State: CA

Depth	Sample No.	Blows	P.L.D.	USCS Code	Description	Well Const.
0					Concrete (4 inches) over baserock (6 inches).	
2				CL	Silty clay, with sand and some gravel, medium brown, damp, slight plasticity, stiff, rootlets.	
3		3				
4	S-3.5	10				
4		10				
6						
8	S-8.5	2			Damp.	
8		4				
8		8				
10						
12						
12	S-13.5	4			Some mottling, moist.	
12		6				
12		10				
16						
18	S-18.5	6			Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff.	
18		5				
18		12				
20						

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-3/MW-3
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE
 P - 8

01-217U

1S/4W-12N4

Depth	Sample No.	BLOWS	P.L.D.	USCS Code	Description	Well Const.
22	S-23.5	.6		CL	Silty clay, minor gravel, light to medium brown, damp, medium plasticity, stiff. Very stiff.	[Well Const. Pattern]
24		8				
26						
28	S-28.5	.5			Silty clay with sand, slight plasticity, very stiff.	
		10			Total Depth = 28-1/2 feet.	
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						



LOG OF BORING B-3/MW-3

ARCO Station No. 374
6407 Telegraph Avenue
Oakland, California

PLATE

P - 9

PROJECT NO. 18039-3

01-217V

Inn Add 15/4W 12NS

Total depth of boring: 27-1/2 feet Diameter of boring: 11 inches Date drilled: 7-7-89
 Casing diameter: 4 inches Length: 27 feet Slot size: 0.020-inch
 Screen diameter: 4 inches Length: 20 feet Material type: Sch 40 PVC
 Drilling Company: Kvilhaug Drilling Company, Inc. Driller: Rod and Leroy
 Method Used: Hollow-Stem Auger Field Geologist: Becky and Keith

Signature of Registered Professional: _____
 Registration No. _____ State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0				CL	Silty clay, some sand and fine-grained gravel, very dark brown, slightly damp, slight plasticity, stiff.	
2		2				
3.5		3				
4		8				
6						
8		3				
8.5		4				
10		10				
12						
14	S-13.5	4		GM	Sandy gravel, some silt, medium brown, very moist, medium dense.	
16		10				
18	S-18.5	15				
18		15				
20		20			Wet, dense.	

(Section continues downward)



PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4

ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE

P - 10

Depth	Sample No.	BLOWS	P.L.D.	USCS Code	Description	Well Const.
				GM	Sandy gravel, some silt, medium brown, very moist, medium dense.	[Well Const. Diagram]
-22		.6		CL	Silty clay, some sand and gravel, very stiff.	
-24	S-23.5	12 15				
-26		.7			Grades more gravelly.	
-28	S-27	20 20			Total Depth = 27-1/2 feet.	
-30						
-32						
-34						
-36						
-38						
-40						
-42						
-44						
-46						
-48						
-50						



PROJECT NO. 18039-3

LOG OF BORING B-4/MW-4
 ARCO Station No. 374
 6407 Telegraph Avenue
 Oakland, California

PLATE

P. - 11



15/4W-12N2-5
01-2178-V

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE PLEASANTON, CALIF. 94566 (510) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

(1) LOCATION OF PROJECT 6407 Telegraph Ave.
Oakland, CA.

PERMIT NUMBER 89361
LOCATION NUMBER _____

(2) CLIENT
Name Aico Products Co.
Address 2000 Alameda Phone 571-2434
City San Marco, CA Zip 94403

Approved Wyman Hong Date 26 Jun 87
Wyman Hong

(3) APPLICANT
Name Bill Applied Geo Systems
Address 43255 Mission Phone 651-1906
City FILMONT, CA Zip 94539

PERMIT CONDITIONS

Circled Permit Requirements Apply

(4) DESCRIPTION OF PROJECT
Water Well Construction Geotechnical _____
Cathodic Protection _____ Well Destruction _____

- (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. Notify this office (484-2600) at least one day prior to starting work on permitted work and before placing well seals.
 3. 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 bore hole logs and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
 4. Permit is void if project not begun within 90 days of approval date.

(5) PROPOSED WATER WELL USE
Domestic _____ Industrial _____ Irrigation _____
Municipal _____ Monitoring Other _____

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

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary _____ Air Rotary _____ Auger
Cable _____ Other _____

WELL PROJECTS
Drill Hole Diameter 10 in. Depth(s) 25 ft.
Casing Diameter 4 in. Number _____
Surface Seal Depth 2 ft. of Wells 3
Driller's License No. _____

GEOTECHNICAL PROJECTS
Number _____
Diameter _____ in. Maximum Depth _____ ft.

(7) ESTIMATED STARTING DATE 7/6/89
ESTIMATED COMPLETION DATE 7/7/89

- C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material.
- D. CATHODIC. Fill hole above anode zone with concrete placed by tremie, or equivalent.
- E. WELL DESTRUCTION. See attached.

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

APPLICANT'S SIGNATURE Bill Howell Date _____

WATER WELL DRILLERS REPORT

Owner: Givens and Zweben
6407 Fairmont Ave.
El Cerrito, CA 94530

Constructed: 7-26-88

County: Alameda

Permit No: ACFC 88346

Equipment: Rotary (Geospace 1200) Gravel Pack: Yes/#3 Aquarium Sand
From: 8 ft. to 24 ft.

Casing: 2" PVC
From: to 29 ft.

Perforations: 0.010"
From: 9 ft. 24 ft.

Well Seal: Yes/neat Portland cement surface to 7 ft., bentonite 7 ft.
to 8 ft. bentonite from 24 ft. to 29 ft.

Water Levels

Depth of First Water: .
Depth After Well Completion:

Sampling: Soils by Calif. Split Spoon, 5 ft. and 10 ft.

Chemical Analysis: Yes, GC/FID of two soil samples and one water sample
(results negative)

Well Use: monitoring

Pump Tests: No

PROJECT: OVENS AND ZVEBEN, OAKLAND

Add ✓

LOG OF BOREHOLE 01-4221 (S/4W 12N)

depth ft.	SOILS DESCRIPTION	BOREHOLE DETAILS	Hammer Blow Count	REMARKS
0				
1	Black Silty Clay, Slightly Moist, Medium Plasticity (CL)	Steel Cover		
2				
3				
4	Brown to Light Brown Silty Clay, Minor Quantity of Fine Gravel (CL)	Cement		
5			10 12 15	Soil Sample
6				
7				
8	Brown to Light Brown Silty Clay, Minor Quantity of Fine to Medium Gravel Increasing Moisture Content (CL)	Bentonite		
9				
10				
11				
12				
13	Fine to Medium Gravel Mixed With Sand, Some Silty Clay (GC)			
14				
15				
16				
17				

**AQUA
SCIENCE
ENGINEERS**

Date: 7-26-68

Logged By: Bruce Berman

PROJECT: GIVENS AND ZWEBEN (Cont.)

LOG OF BOREHOLE

depth ft.	SOILS DESCRIPTION	BOREHOLE DETAILS			Hammer Blow Count	REMARKS						
18	Fine to Medium Gravel Mixed With Sand, Some Silty Clay (GC)		No. 3 Monterey Sand ▼									
19												
20	Coarse Gravel (GP)											
21												
22												
23												
24	Light Brown to Yellow Silty Clay Moist, Stiff, Some Coars Sand and Gravel (CH)		Bentonite ▼									
25												
26												
27												
28	B.O.H.											
29												
30												
31												
32												
33												
34												
35												

**AQUA
SCIENCE
ENGINEERS**

Date: 7-26-88

Logged By: Bruce Berman

USA LOCATION REQUEST FORM

CA: 800-642-2444
 NV: 800-227-2600

REQUEST # 110343
 DATE CALLED IN: 7-21-88

ADDRESS OR DESCRIPTION WHERE YOU WILL BE DIGGING:

6392 Telegraph Ave., Oakland
abandoned gas station

CITY: Oakland

NEAREST CROSS STREET: Alcatraz

NATURE OF WORK: exploratory drilling & soil
sampling

WHO IS THE WORK BEING DONE FOR? Shell Givens

STARTING DATE: 7-25-88 TIME: 8:00 am

YOUR NAME: Bruce Bertram

YOUR COMPANY'S NAME: Aqua Science Engineers

AREA CODE AND TELEPHONE NUMBER WHERE YOU CAN BE REACHED?

(415) 268-2000 - 9391

COUNTY WHERE WORK IS BEING DONE: Alameda

WORK PERMIT, CITY OR COUNTY? None Required NUMBER:

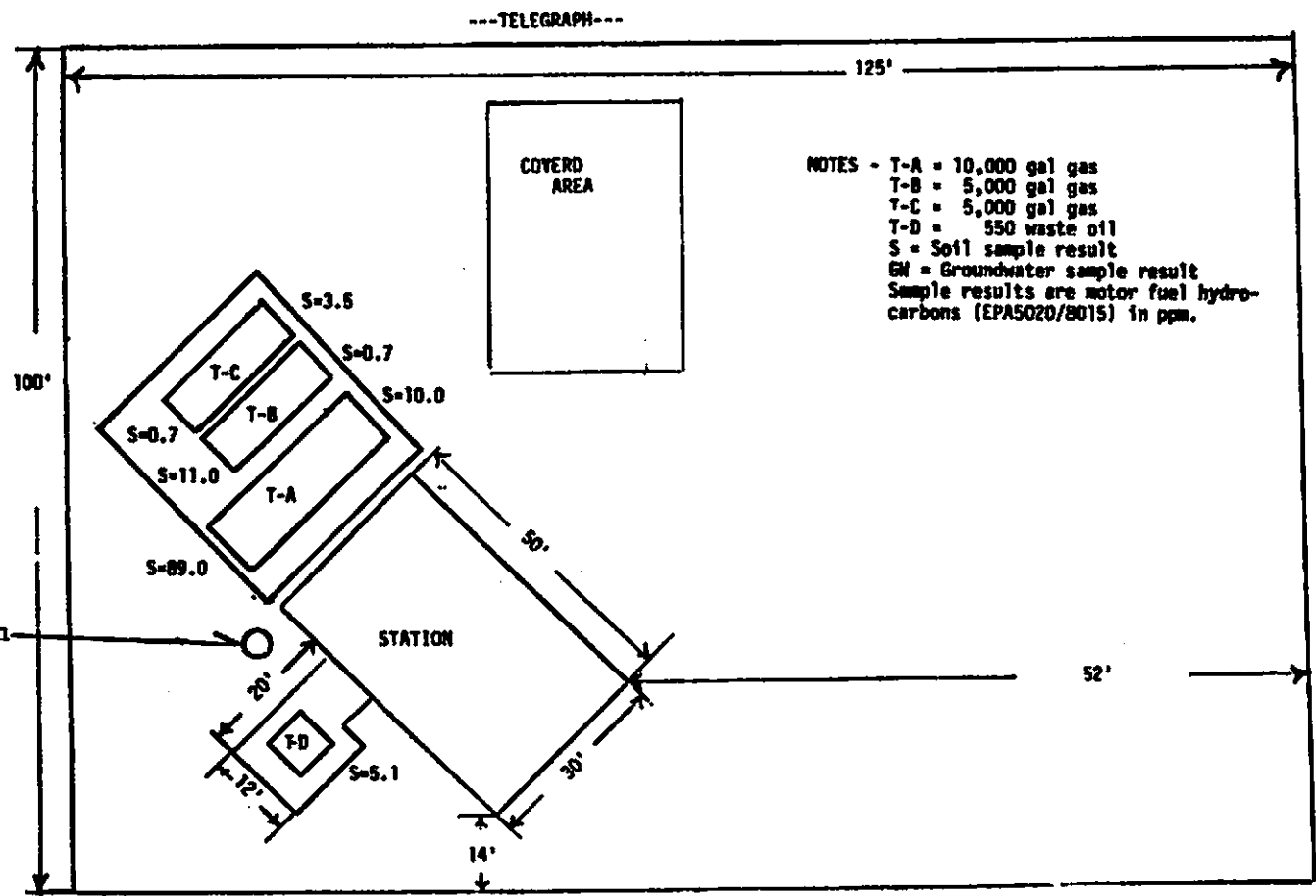
FOREMAN OF THE JOB Bruce Bertram

TWO WORKING DAYS NOTICE IS REQUIRED ON ALL LOCATION REQUESTS. EACH LOCATION IS ACTIVE FOR 14 CALENDAR DAYS FROM THE DATE IT IS CALLED IN.

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WELL COMPLETION REPORT
(WELL LOGS)

REMOVED



6392 Telegraph Ave., Oakland, California

SCALE	APPROVED BY	DRAWN BY
DATE	REVISION	
AQUA SCIENCE ENG.		
Figure 1, not to scale		ISSUING ENGINEER

01-4221

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(WELL LOGS)

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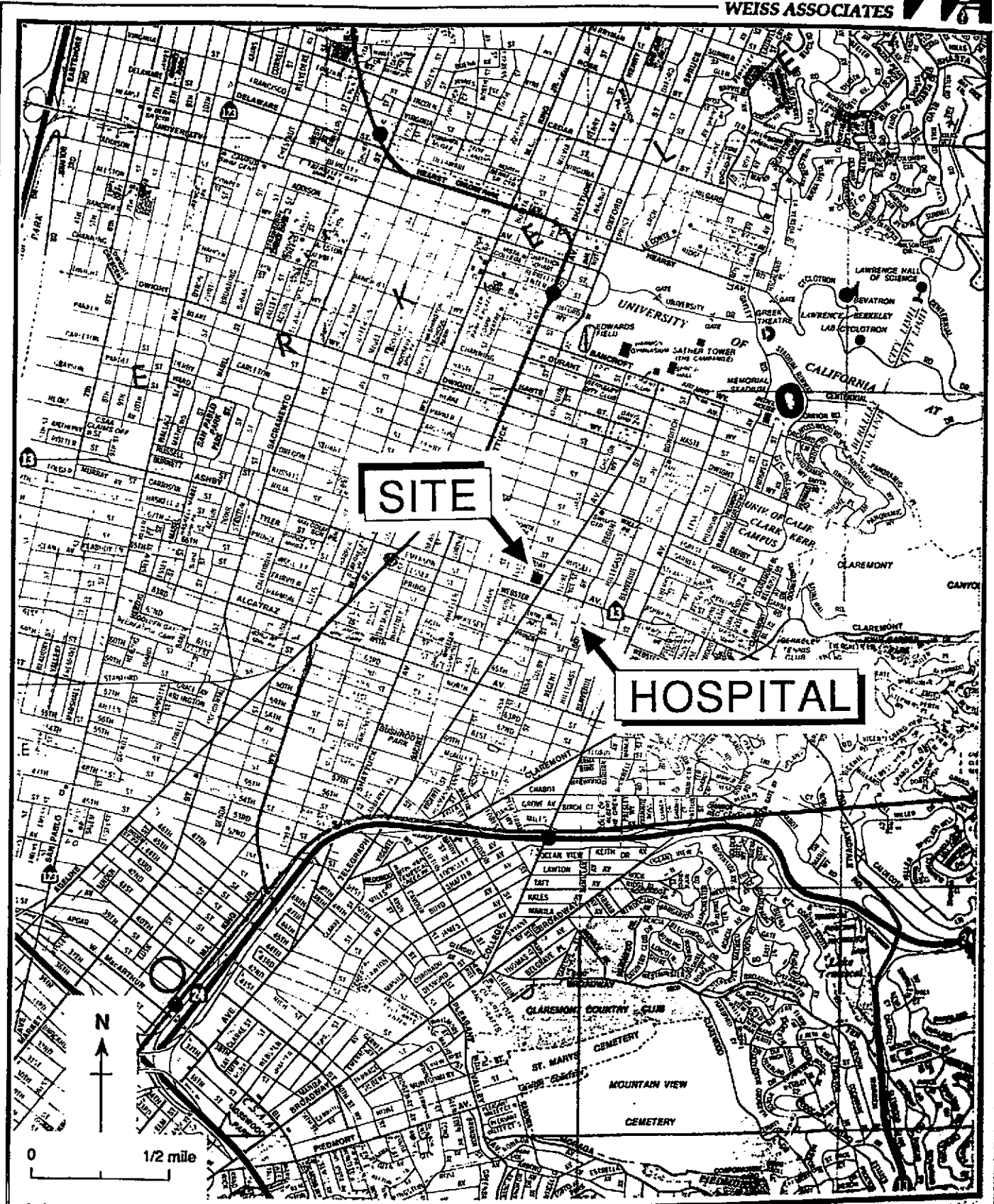
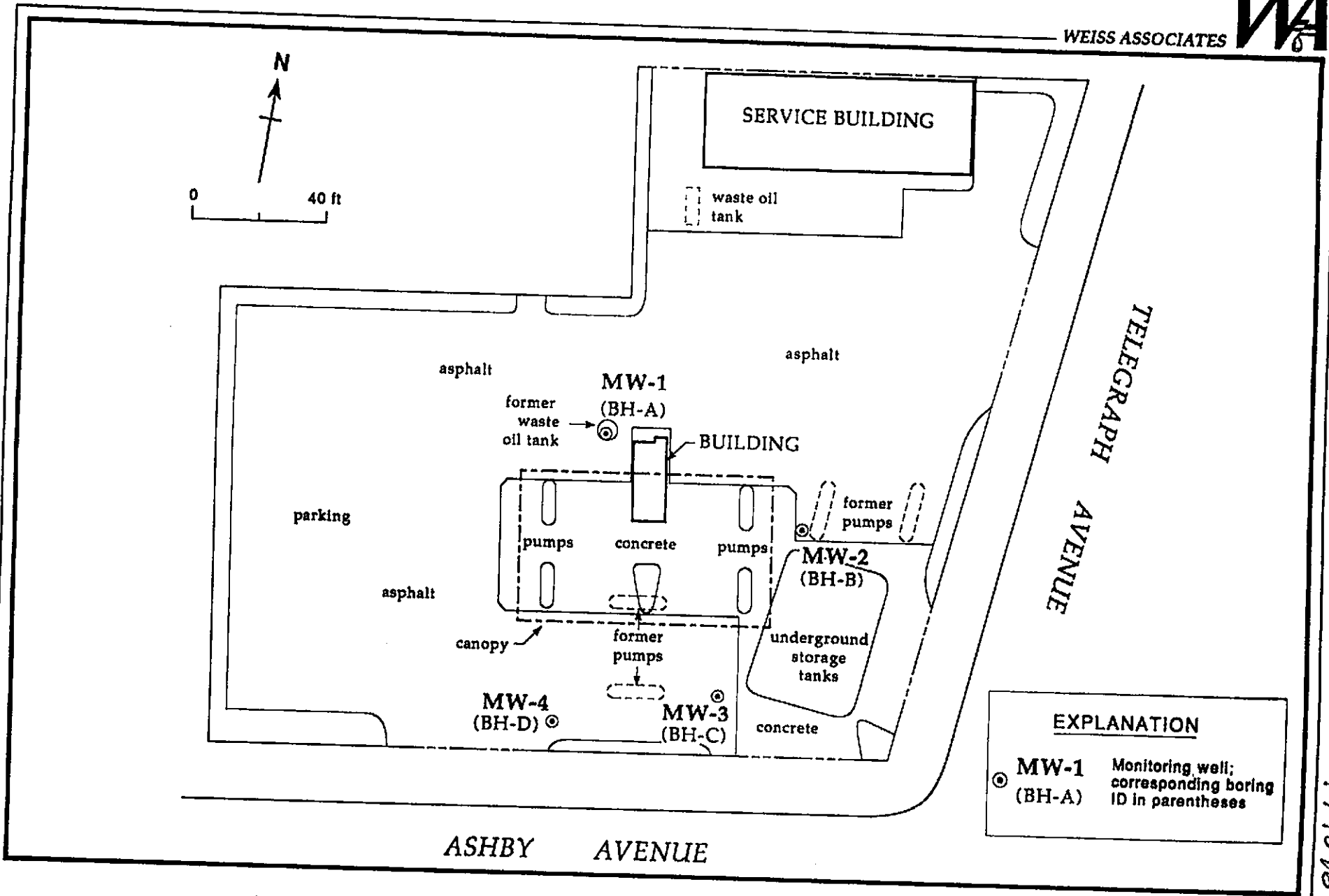


Figure 1. Hospital Route Map (Alta Bates Hospital) - Chevron Service Station #90972, Berkeley, California



EXPLANATION	
⊙	MW-1 Monitoring well; corresponding boring ID in parentheses

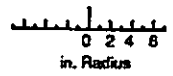
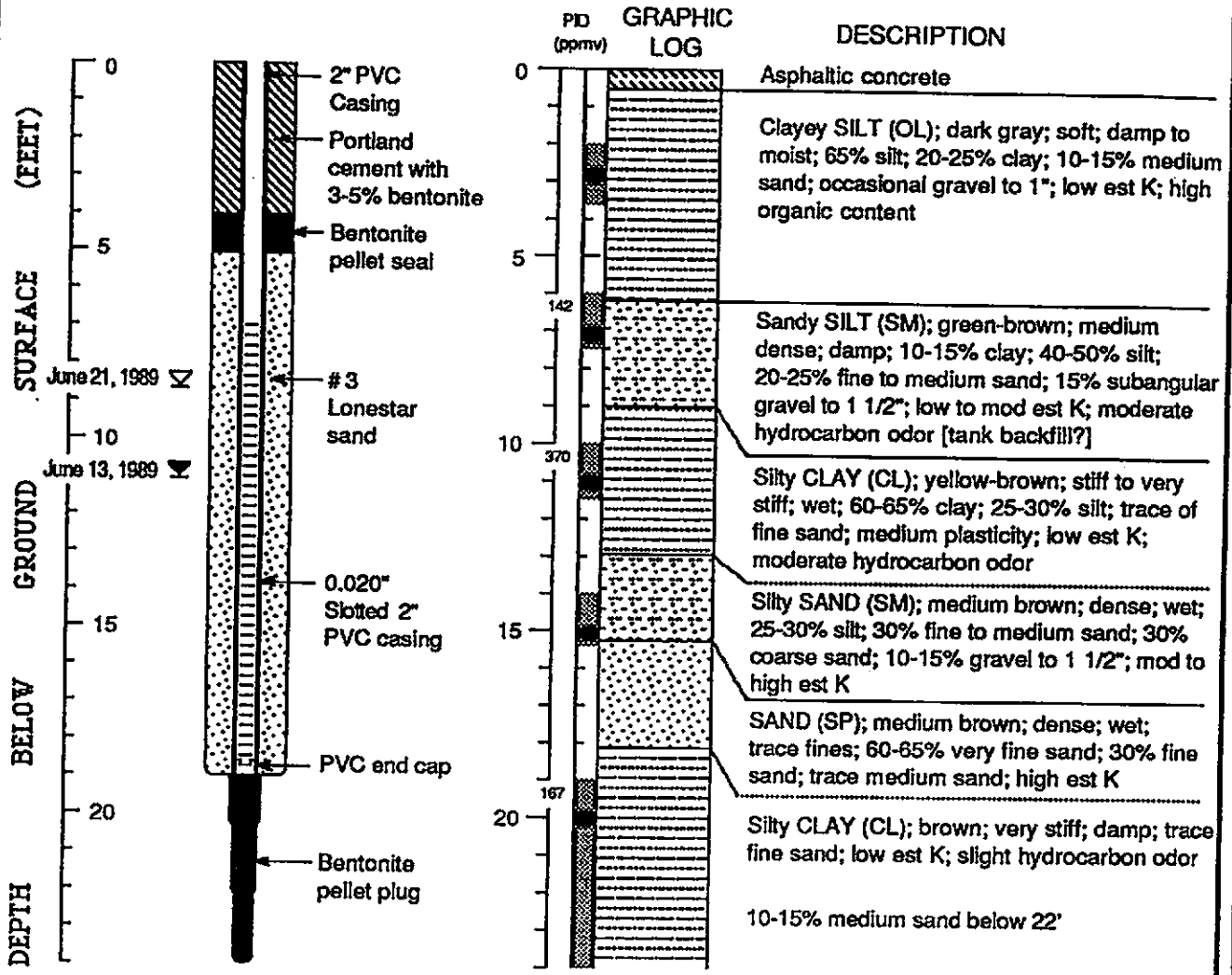
Figure 4. Monitoring Well Locations - Chevron Service Station #90972, Berkeley, California

177076A-D
15/40-12M1-4

Add
Inv

WELL MW-1 (BH-A)

IS(4W12M1



EXPLANATION

- ▼ Water level during drilling (date)
- ⊂ Water level (date)
- Contact (dotted where approx.)
- - - - - Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- ⊗ Cutting sample
- K = Estimated hydraulic conductivity

Logged by: Jim Carnody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Bay Area Exploration
 Driller: Rick Carr
 Drilling Method: Hollow stem auger
 Date Drilled: June 13, 1989
 Well Head Completion: Locking stovepipe inside concrete vault
 Type of sampler: Split barrel (1.4", 2.0", 2.5" ID)

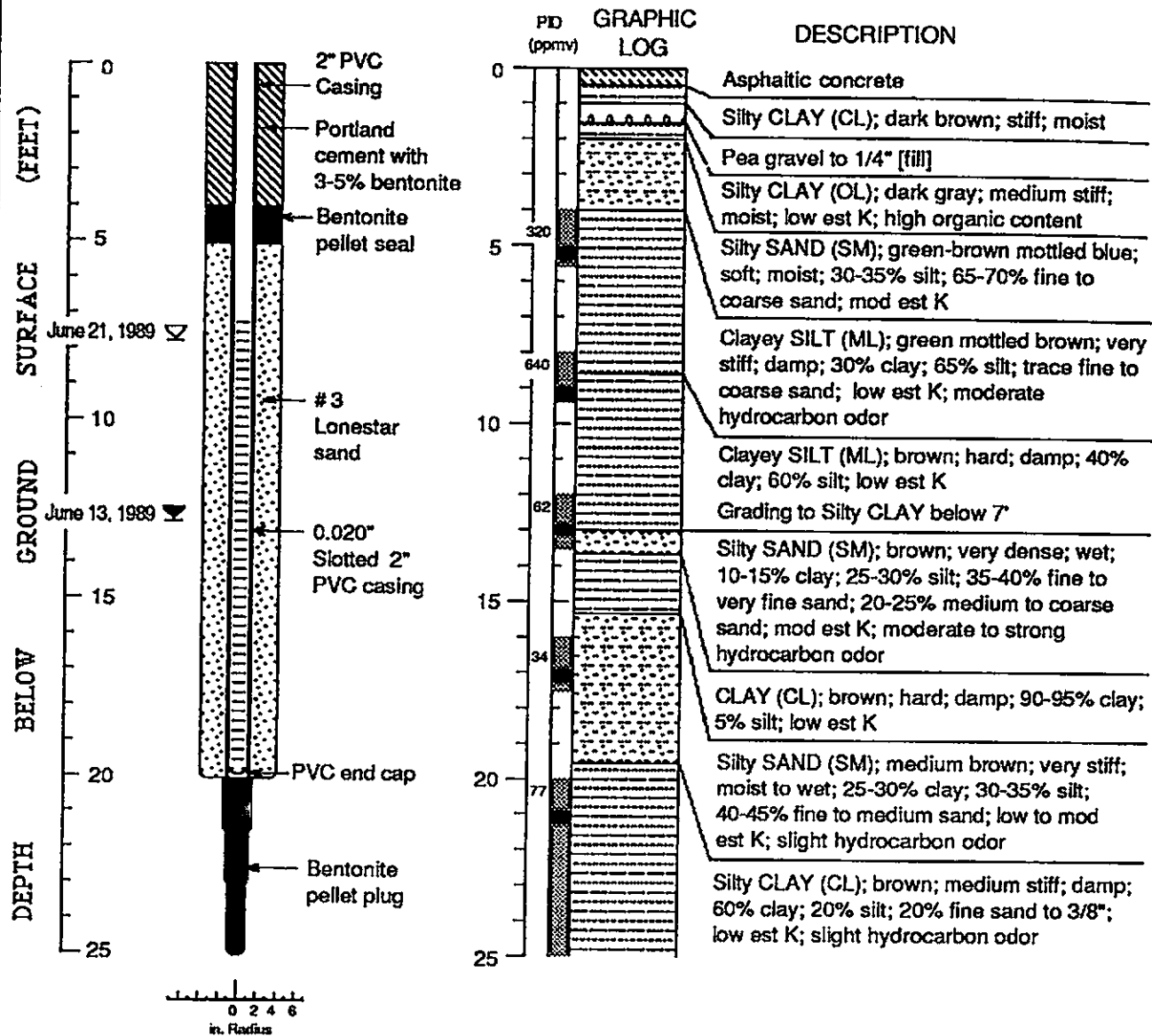
Well Construction and Boring Log - Well MW-1 (BH-A) Chevron Service Station #90972
 Berkeley, California

Add
Inv



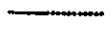
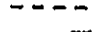



1790968

WELL MW-2 (BH-B)

ISPLW 12M2



EXPLANATION

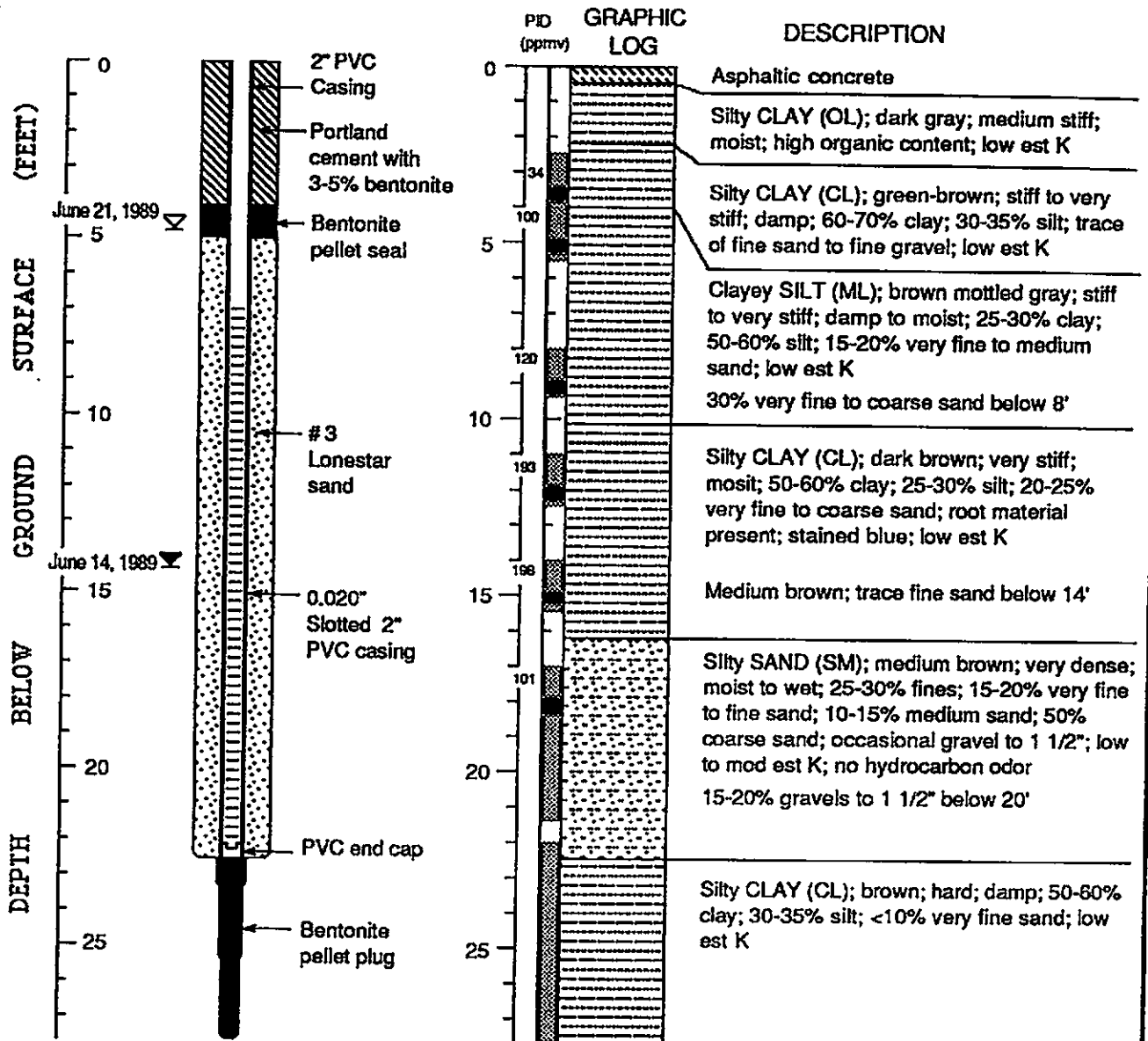
-  Water level during drilling (date)
-  Water level (date)
-  Contact (dotted where approx.)
-  Uncertain contact
-  Location of recovered drive sample
-  Location of drive sample sealed for chemical analysis
-  Cutting sample
- K** = Estimated hydraulic conductivity

Logged by: Jim Carnody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Bay Area Exploration
 Driller: Rick Carr
 Drilling Method: Hollow stem auger
 Date Drilled: June 13, 1989
 Well Head Completion: Locking stovepipe inside concrete vault
 Type of sampler: Split barrel (1.4", 2.0", 2.5" ID)

Add ✓
Inv ✓

WELL MW-3 (BH-C)

15/4012M3



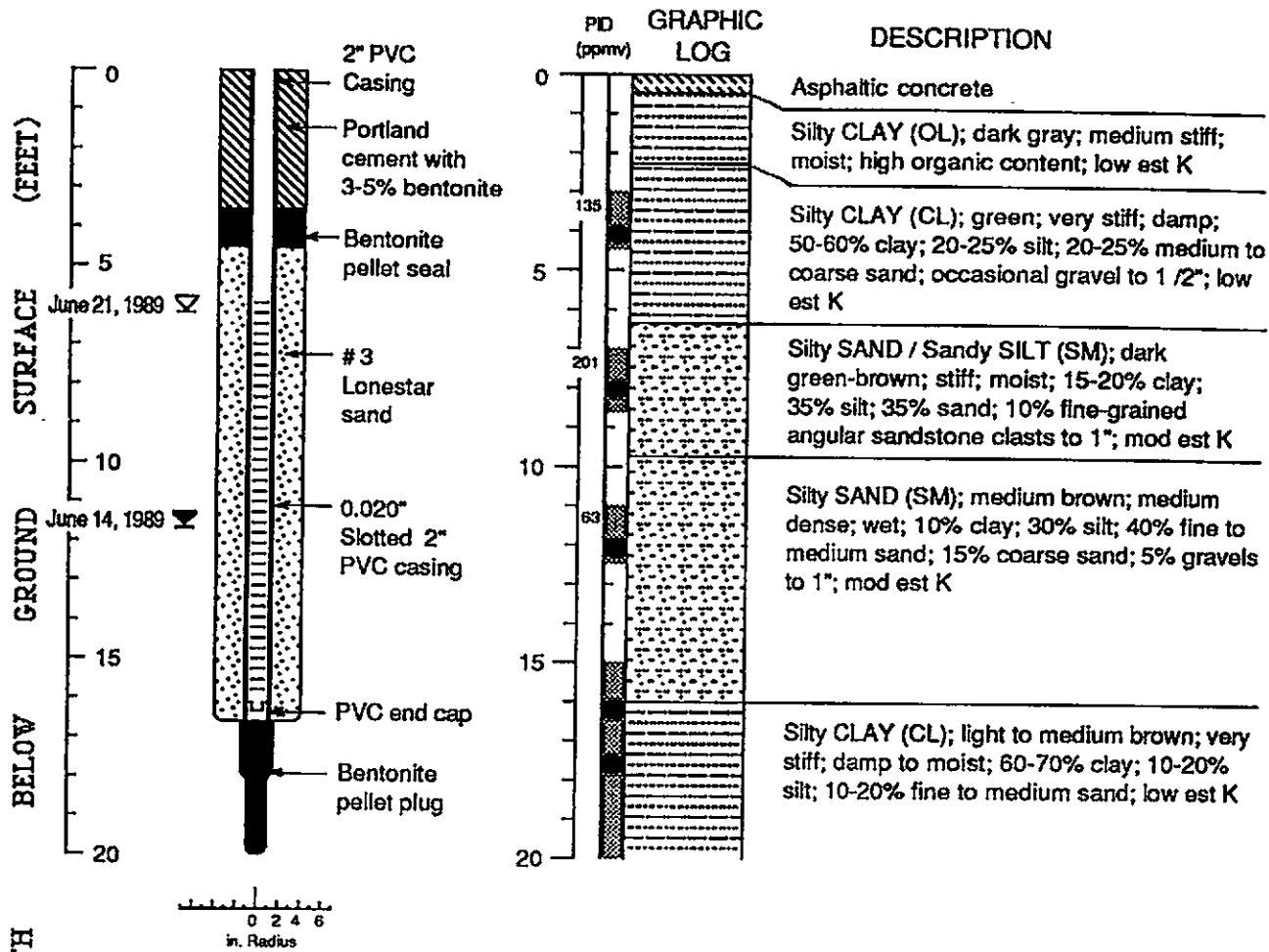
EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged by: Jim Carmody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Bay Area Exploration
 Driller: Rick Carr
 Drilling Method: Hollow stem auger
 Date Drilled: June 14, 1989
 Well Head Completion: Locking stovepipe inside concrete vault
 Type of sampler: Split barrel (1.4", 2.0", 2.5" ID)

Add
In

WELL MW-4 (BH-D) 1S/4W/2M4



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

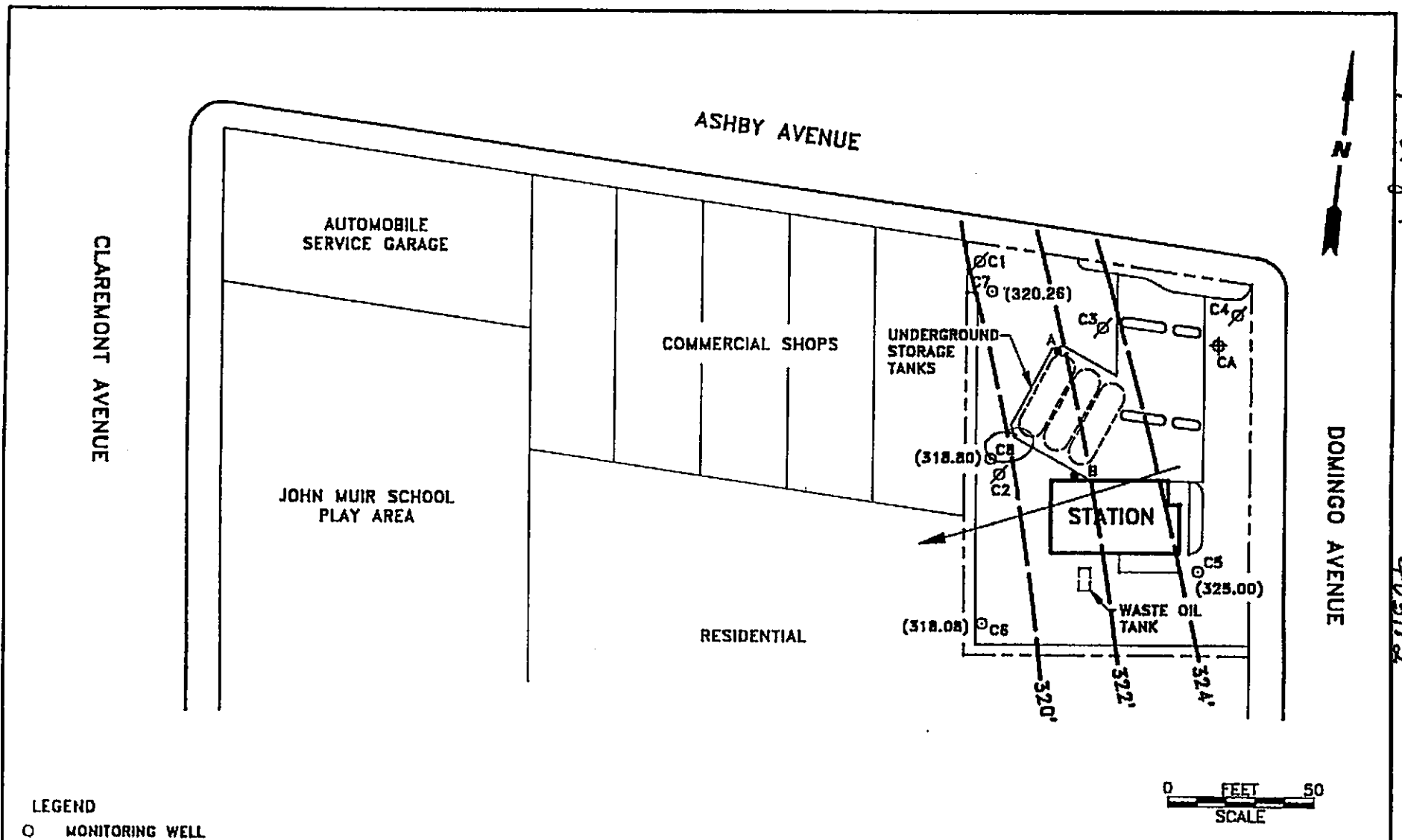
Logged by: Jim Carmody
 Supervisor: Richard Weiss; EG 1112
 Drilling Company: Bay Area Exploration
 Driller: Rick Carr
 Drilling Method: Hollow stem auger
 Date Drilled: June 14, 1989
 Well Head Completion: Locking stovepipe inside concrete vault
 Type of sampler: Split barrel (1.4", 2.0", 2.5" ID)

Well Construction and Boring Log - Well MW-4 (BH-D) Chevron Service Station #90972 Berkeley, California

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15/14W 2414

LEGEND

- MONITORING WELL
- TANK PIT MONITORING WELL
- ⊗ ABANDONED MONITORING WELL
- ⊕ SOIL BORING
- () POTENTIOMETRIC SURFACE ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR
- GROUNDWATER FLOW DIRECTION

 GROUNDWATER TECHNOLOGY		4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387		POTENTIOMETRIC SURFACE MAP (12/4/92)	
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0289			LOCATION: 3048 ASHBY AVENUE BERKELEY, CALIFORNIA		REV. NO.: 0
					DATE: 1/14/93
PM: <i>JAW</i>	PE/RG: <i>DRK</i>	DESIGNED: TW	DETAILED: ML	ACAD FILE: PSMD492/SP193	PROJECT NO.: 020203082
					FIGURE: 3

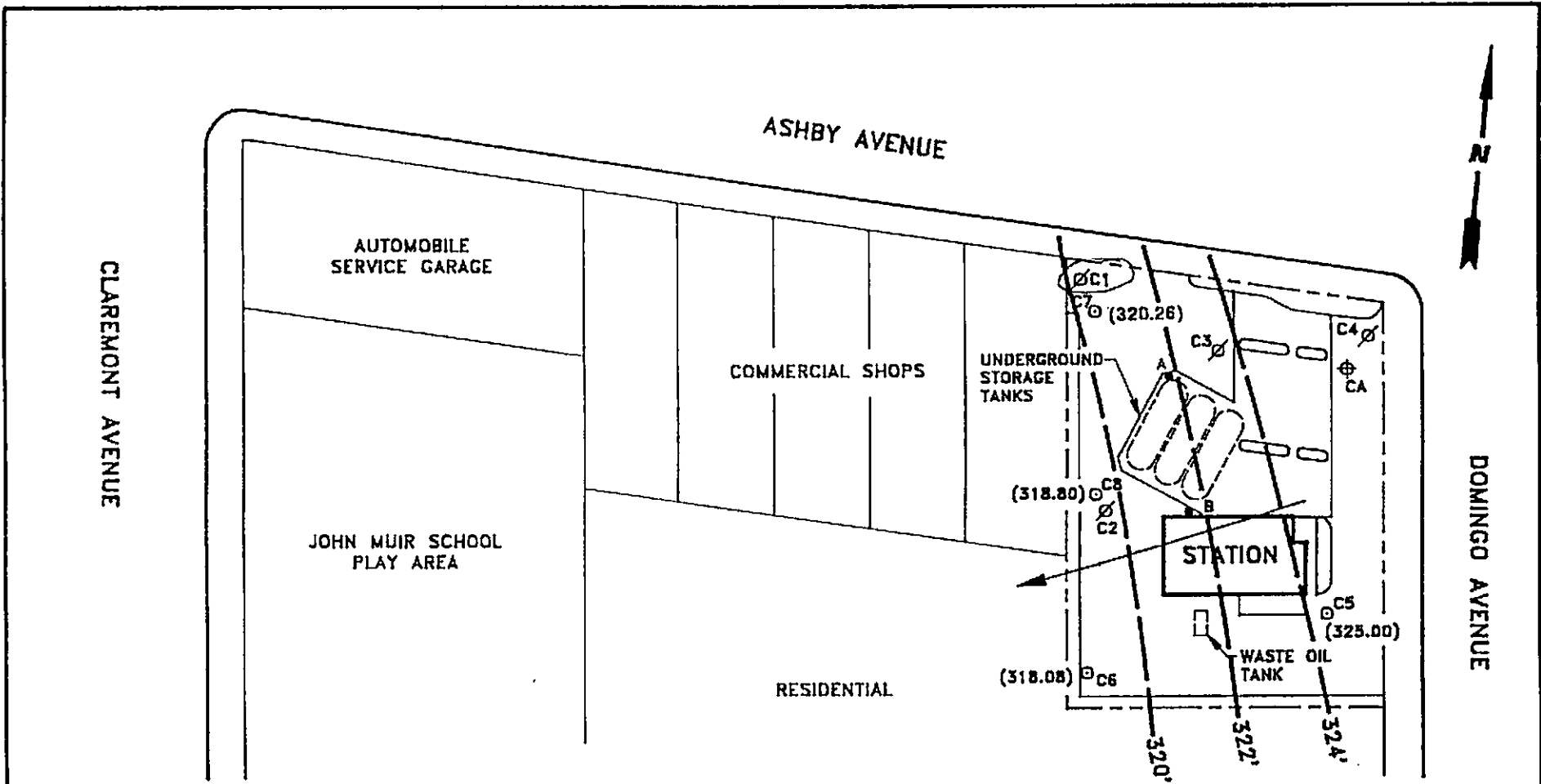
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WELL COMPLETION REPORT
(WELL LOGS)

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P. 2242

403113



LEGEND

- MONITORING WELL
- TANK PIT MONITORING WELL
- ⊗ ABANDONED MONITORING WELL
- ⊕ SOIL BORING
- () POTENTIOMETRIC SURFACE ELEVATION
- POTENTIOMETRIC SURFACE CONTOUR
- GROUNDWATER FLOW DIRECTION

 GROUNDWATER TECHNOLOGY		4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387		POTENTIOMETRIC SURFACE MAP (12/4/92)	
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-0289			LOCATION: 3048 ASHBY AVENUE BERKELEY, CALIFORNIA		REV. NO.: 0
					DATE: 1/14/93
PM <i>LAW</i>	PE/RG <i>DRK</i>	DESIGNED TW	DETAILED ML	ACAD FILE: PSMD492/SP193	PROJECT NO.: 020203082
					FIGURE: 3



GROUNDWATER
TECHNOLOGY

Monitoring Well C8

Project CHV/3048 Ashby Ave.

Owner Chevron U.S.A. Products Co.

Location Berkeley, CA

Project No. 020203082

Date drilled 11/12/92

Depth (ft.)	Well Completion	Sample ID	Blow Count % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		25	/none 50/none 50/none			SANDSTONE. No hydrocarbon odor.
26		27	/none 50/none 50/part			Drill rig refusal at 27 feet.
28						
30						
32						SANDSTONE. No hydrocarbon odor. Drill rig refusal at 34 feet. Set the well at 34 feet below grade.
34		34	/none 50/none 50/none			End of boring at 34.5 feet. Installed groundwater monitoring well.
36						
38						
40						
42						
44						
46						
48						
50						
52						
54						
56						

Drilling Log

Monitoring Well C8



GROUNDWATER TECHNOLOGY

Project CHV/3048 Ashby Ave. Owner Chevron U.S.A. Products Co.
 Location Berkeley, CA Project No. 020203082 Date drilled 11/12/92
 Surface Elev. 338.99 ft. Total Hole Depth 34.5 ft. Diameter 8.5 inches
 Top of Casing 338.55 ft. Water Level Initial 22 ft. Static 12/04/92 19.75 ft.
 Screen: Dia 4 in. Length 20 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 14 ft. Type SCH 40 PVC
 Filter Pack Material #3 sand Rig/Core Type Mobile B-53/Split Spoon
 Drilling Company Kvilhaug Well Drilling Method Hollow Stem Auger Permit # 92S-039
 Driller Mike Crocker Log By Chip Hurley
 Checked By David Kleesattel License No. RG# 5136 *David Kleesattel*

See Site Map For Boring Location

COMMENTS:

On 11-12-92 drill rig refusal was encountered at 22-feet. Drilling was continued on 11-16-92.

The total depth of the well was set at approximately 34-feet below grade.

