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

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

REMEDIAL ACTION COMPLETION CERTIFICATION

September 25, 1998

Mr. Balwand Grewal
754 Taylor Avenue
Alameda, California 94501

Ms. Amy Hiestand
City of Emeryville Redevelopment Agency
2200 Powell Street, 12th Floor
Emeryville, California 94608

RE: STID # 4987 Vacant Property Located at
4800 San Pablo Avenue, Emeryville, California 94608

Dear Mr. Grewal and Ms. Hiestand:

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

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

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

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

Sincerely,

Mee Ling Tung, Director

c: Chuck Headlee, San Francisco Bay RWQCB
Dave Deaner, SWRCB, UST Cleanup Fund Program (with enclosure)
George Warren Emeryville Fire Department
Ignacio Dayrit, Emeryville Redevelopment Agency, 2200 Powell St., 12th Floor, Emeryville, CA 94608
Susan Hugo (2 copies of letter only)

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September 25, 1998

Ms. Amy Hiestand
City of Emeryville Redevelopment Agency
2200 Powell Street, 12th Floor
Emeryville, California 94608

Mr. Balwand Grewal
754 Taylor Avenue
Alameda, California 94501

RE: Fuel Leak Site Case Closure – Vacant Property (STID # 4987)
4800 San Pablo Avenue, Emeryville, California 94608

Dear Ms. Hiestand and Mr.Grewal:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37 [h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health Services, Local Oversight Program is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed.

Site Investigation and Cleanup Summary:

Please be advised that the following conditions exist at the site:

- Three hundred fifty parts per million (ppm) Total Petroleum Hydrocarbon (TPH) as Gasoline, 3,900 ppm oil and grease, 0.96 ppm benzene, 0.63 ppm ethylbenzene, 0.4 ppm toluene and 1.8 ppm xylene remain in the soil at the site.
- Four hundred fifteen parts per billion (ppb) Total Petroleum Hydrocarbon (TPH) as Gasoline, 26.8 ppb benzene, 1.5 ppb ethyl benzene and 2.7 ppb xylene remain in the groundwater beneath the site.
- Prior to any construction activities at the site, a risk management plan must be submitted and approved by this agency.

If you have any questions, please contact me at (510) 567-6780. Thank you.

Sincerely,

Susan L. Hugo

Susan L. Hugo, Hazardous Materials Specialist

Enclosures:
1. Case Closure Letter
2. Case Closure Summary

c: George Warren, Emeryville Fire Department, 2333 Powell Street, Emeryville, CA 94608
Claudia Cappio, Emeryville Planning Department, 2200 Powell St., 12th Floor, Emeryville, CA 94608
Ignacio Dayrit, Emeryville Redevelopment Agency, 2200 Powell St., 12th Floor, Emeryville, CA 94608
SH / files

RBP 01-1987

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Agency Name: **Alameda County-HazMat**
City/State/Zip: **Alameda, CA 94502**
Responsible Staff Person: **Susan L. Hugo**
Date: July 31, 1998
Address: **1131 Harbor Bay Parkway**
Phone: **(510) 567-6700**
Title: **Hazardous Materials Specialist**

II. CASE INFORMATION

Site Facility Name: **Vacant Property**
Site Facility Address: **4800 San Pablo Avenue, Emeryville, CA 94608**
RB LUSTIS Case No: **N/A**
Local Case No./LOP Case No. **4987**
URF Filing Date: **2/16/94**
SWEEPS No.: **N/A**

Responsible Parties:	Address:	Phone Numbers:
Mr. Balwand Grewal	**754 Taylor Avenue, Alameda CA 94501**	
City of Emeryville Redevelopment Agency Attn: Amy Heestad	**2200 Powell Street, Suite 1200, Emeryville, CA 94608**	

Tank No:	Size in gal:	Contents:	Closed in-place or removed?:	Date:
Unknown (Probably 3 USTs)	**Unknown**	**Unknown**	**Reportedly removed**	**1975**

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown**
Site characterization complete: **Yes**
Date Approved by oversight agency: **4/2/96**
Monitoring wells installed: **Yes**
Number: **Five (5)**
Properly screened interval ?: **Yes**
Highest ~~GW depth~~ below ground surface: **6.52 feet**
Lowest depth: **13.51 feet**
Flow direction: **North**
Most sensitive current use: **Commercial**
Are ~~drinking water wells~~ affected: **No**
Aquifer name: **NA**
Is surface water affected?: **No**
Nearest affected SW name: **NA**
Off-site beneficial use impacts (address /location): **Unknown**
Report (s) on file?: **Yes**
Where is report (s) filed?: **Alameda County, 1131 Harbor Bay Parkway, Alameda, CA 94502**

Treatment and Disposal of Affected Materials:

Materials	Amount (Include units)	Action (Treatment /or Disposal with Destination)	Date
Tanks	Probably 3 USTs, unknown capacity	Unknown	Unknown

Maximum Documented Contaminant Concentrations -- Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After*	Before**	After***
TPH (gasoline)	-	350	1,900	415
TPH (diesel)		nd	nd	nd
TPH (motor oil)		-	nd	nd
Oil & Grease	-	3,900	1,700	-
Benzene	-	0.96	65	26.8
Ethyl benzene	-	0.63	0.6	1.5
Toluene	-	0.4	3.2	nd
Xylene	-	1.8	10	2.7
Lead (STLC)		nd (<0.05)		

*Soil samples collected from borings (B-1, B-2 & B-3) on 12/93 (see Table 1).
**Water samples collected from monitoring wells (WB-8, WB-14 & WB-12) on 6/20/94 (see Table 2).
***Water samples collected from monitoring wells (WB-9 & WB-14) on 10/02/96 (see Table2).

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?
Undetermined
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?
Undetermined
Does corrective action protect public health for current land use? **Yes**
Site management requirements: **Risk Management Plan must be submitted and approved by ACDEH prior to any future construction and /or change in land use at the site.**
Should corrective action be reviewed if land use changes? **Yes**
Monitoring wells decommissioned: **Yes**
Number Decommissioned: **Five (5)** Number Retained: **None**
List enforcement actions taken: **None**
List enforcement action rescinded: **NA**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Susan L. Hugo Title: Hazardous Materials Specialist
Signature: Susan L. Hugo Date: 9/23/98

Reviewed by:

Name: Thomas Peacock Title: Manager, LOP
Signature: for Tom Peacock Date: 9/24/98

Name: Barney Chan Title: Hazardous Materials Specialist
Signature: Barney Chan Date: 9/24/98

VI. RWQCB NOTIFICATION

Date Submitted to RB: 9/24/98 RB Response: 9/24/98
RWQCB Staff Name: Chuck Headlee Title: Engineering Geologist
Signature: Chuck Headlee Date: 9/24/98

VII. ADDITIONAL COMMENTS

The subject site, approximately 100 feet by 80 feet, is presently vacant and surrounded by a drainage channel (Temescal Creek) along the northern perimeter, San Pablo Avenue to the west, 48th Street and commercial / light industrial landuse to the south and a church /residential area to the east. The San Francisco Bay is approximately 4,500 feet west of the property. Historically, a gasoline service station used to operate at the site. It was reported (by Mr. Balwand Grewal), that the underground storages tanks (USTs) had been removed from the site in 1975 and he bought the property in 1986.

In November 1993, HydroSolutions of California under contract with the City of Emeryville Redevelopment Agency (the potential buyer of the property) conducted an environmental site assessment (soil-gas survey at 4 to 6 feet depth & map/aerial photo survey) to evaluate the presence of Total Petroleum Hydrocarbons (TPH) in the subsurface. Review of aerial photographs & insurance maps (Sanborn maps) showed that USTs had at one time existed beneath the site. Soil-gas survey also revealed low to non-detectable concentration of organic vapors.

In December 1993, a geophysical survey was conducted to evaluate the presence of USTs beneath the subject property. Results appeared to indicate the absence of USTs. In addition, six exploratory borings (B-1 to B-6) were drilled to 15 feet depth and soil samples were collected between 4 to 15 feet below ground surface (bgs). TPH gasoline (up to 350 ppm), benzene (0.96 ppm), toluene (0.4 ppm) xylene (1.8 ppm), ethylbenzene (0.64 ppm) and oil &grease (3,900 ppm) were detected in soil samples collected at 8-10 feet bgs. No detectable levels of TPH diesel and soluble lead (STLC) were found in the samples. Soil beneath the site consisted of clayey gravels and sandy silty clay.

On June 16, 1994, eight additional borings (WB-7, WB-8, WB-9, B-10, B-11, WB-12, B-13 & WB-14) were drilled at the subject property. Five of the borings were converted to shallow groundwater monitoring wells. Saturated sediment was detected in borings WB-7, WB-8, WB-9, B-10, B-11, WB-12 and B-13 between 20 and 27 foot interval. Water levels measured in the wells several days after well construction were significantly more shallow (ranging from 9.62 to 13.48 feet bgs.) Groundwater beneath the site appeared to be under semi-confined condition. In addition, boring B-6 and WB-14 encountered a different lithology as well as a perched groundwater condition with water levels at 7 to 7.77 foot depth. Soil samples collected from the borings showed very low concentrations of petroleum hydrocarbons (up to 2.5 ppm TPH gasoline, 24 ppm TPH oil & grease, 0.015 ppm benzene, 0.007 ppm toluene, 0.12 ppm xylenes, and 0.084 ppm ethylbenzene). Water samples collected from the wells showed up to 1,900 ppb TPH gasoline, 1,700 ppb TPH oil & grease, 65 ppb benzene, 3.2 ppb toluene and 10 ppb xylenes. Groundwater beneath the site had been monitored from 6/94 to 10/96 (five sampling events). The last sampling event (10/2/96) showed the following concentrations: 56-415 ppb TPH gasoline, 1 - 26.8 ppb benzene, nd – 2.7 ppb xylene and nd – 1.5 ethylbenzene. No detectable concentration of TPH diesel and oil and grease was found during the last sampling event.

Benzene, however, was still detected at 26.8 ppb in well WB-14 where perched groundwater condition was present. Benzene concentration exceeded the ASTM Risk Based Corrective Action (RBCA) Tier 1 Risk Based Screening Level (RBSL) of 21 ppb (cancer risk = 1E-05) in groundwater using the commercial / industrial scenario with the groundwater - vapor intrusion from groundwater to buildings being considered as a complete pathway of exposure. To confirm the actual presence or absence of the exposure route and estimate the maximum exposure concentrations, a direct measurement of soil-gas vapors was conducted on 8/21/98 and 8/28/98 from three locations (adjacent to borings B-2, B-3 and well WB-14) at three different depths (3 feet, 6 feet and 9 feet). Benzene in soil-gas was not detected above the nine-foot depth. Therefore, based on the soil-gas data, conclusions from the RBCA evaluations do not appear to represent actual site conditions.

No further investigations related to the USTs reportedly removed at the site are recommended since the site appears to meet the San Francisco Bay RWQCB's definition of a "low risk" soil and groundwater case:

1) Aggressive source removal has occurred at the site. The tanks have been reportedly removed in 1975.
2) The extent of soil and groundwater contamination has been adequately characterized. Although petroleum hydrocarbons in soil and groundwater remain at the site, it does not appear to be an on going source. Groundwater data collected to date showed that the plume is stable and not migrating.
3) Analytical groundwater data collected for the site showed no significant impact to groundwater. In addition, shallow groundwater beneath the site may have limited potential use.
4) No water wells, deeper drinking water wells, surface water or other sensitive receptors are likely to be impacted.
5) The site does not appear to present a significant risk to human health and the environment. Soil-gas data showed no detectable level of benzene above the nine-foot depth.
6) A risk management plan is required to manage the residual contamination left at the site and will include notifying ACDEH and City Building and Planning Department prior to any construction, redevelopment and /or change in land use.

11/93

TABLE 1. LABORATORY ANALYSIS

Sample Location	B	T	X	E	TPH-G	418.1
B-1-(6-7)	ND	ND	ND	ND	ND	ND
B-1-(10-10.5)	ND	0.019	0.36	0.044	7.1	3900
B-2-(8-10)	0.13	0.4	1.8	0.63	220	ND
B-2-(13-15)	ND	ND	ND	ND	ND	ND
B-3-(8-10)	0.96	ND	1.6	0.64	350	ND
B-3-(13-15)	ND	ND	ND	ND	ND	ND
B-4A-(8-10)	ND	ND	ND	ND	ND	ND
B-6-(4-5)	ND	ND	ND	ND	ND	990
B-6-(8.5-10)	0.063	ND	0.75	0.32	40	ND

Results reported in mg/kg (ppm).
No detectable levels of TPH-D and STLC Lead were detected in the above samples.
BTXE is benzene, toluene, xylene, and ethylbenzene.
BTXE analysis by EPA Method 8020. Reporting limit is 0.005 mg/kg.
TPH-Gasoline analysis by EPA Method 5030 Purge-and-trap, Reporting limit is 1 mg/kg.
TPH-Diesel analysis by modified EPA Method 8015. Reporting limit is 1 mg/kg.
Oil & Grease analysis by EPA Method 418.1 (IR Spectrophotometer). Reporting limit is 50 mg/kg.
Soluble Lead analysis by Lead STLC. Reporting limit is 0.05 mg/kg.
Lowest reporting limits are listed above. If sample extraction is diluted, reported limit increases accordingly (see laboratory reports).

8/94

	TPHR	TPH-G	BENZENE	TOLUENE	XYLENES	ETHYL-BENZENE
WB-7-10	-	<1	<0.005	<0.005	<0.015	<0.005
WB-7-20	-	<1	<0.005	<0.005	<0.015	<0.005
WB-8-15	<50	<1	<0.005	<0.005	<0.015	<0.005
WB-8-20	<50	<1	<0.005	<0.005	<0.015	<0.005
WB-9-15	<50	2.5	0.015	0.007	0.12	0.084
WB-9-20	<50	<1	<0.005	<0.005	<0.015	<0.005
B-10-10	-	1.5	<0.005	0.007	0.017	0.008
B-10-20	-	<1	<0.005	<0.005	<0.015	<0.005
B-11-10	-	<1	<0.005	<0.005	<0.015	<0.005
B-11-20	-	<1	<0.005	<0.005	<0.015	<0.005
WB-12-10	<50	<1	<0.005	<0.005	<0.015	<0.005
WB-12-20	<50	<1	<0.005	<0.005	<0.015	<0.005
B-13-10	-	<1	<0.005	<0.005	<0.015	<0.005
B-13-20	-	<1	<0.005	<0.005	<0.015	<0.005
WB-8-10	24	0.96	-	-	-	-

TPHR analyzed by EPA Method 418.1, oil & grease by IR spectrophotometer. Detectable limit is 50 mg/kg.
TPH-G analysis by EPA Method 5030 Purge & Trap. Detectable limit is 1 mg/kg.
Benzene, toluene, xylene and ethylbenzene analysis by EPA Method 8020. Detectable limit for benzene, toluene and ethylbenzene is 0.005 mg/kg and xylene is 0.015 mg/kg.
WB-8-10 was analyzed by TPH Volatile analysis utilizing a TCLP zero headspace extract.

Title: TABLE 1. SOIL LABORATORY DATA

Project No.: 94286-03

HydroSolutions of California, Inc.
5917 Moss Creek Circle, Suite 2
Fair Oaks, California
(916) 967-1222

Site: 4800 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA

Scale: NONE

Date: 07-25-94

TABLE 2 MONITOR WELL DATA
4800 SAN PABLO AVENUE, EMERYVILLE, CALIFORNIA
OCTOBER, 1996

WELL DESIGNATION	WB-8	WB-9	WB-14	WB-12	WB-7
TOTAL DEPTH	31	31	11	31	31
SCREENED INTERVAL	20-30	20-30	7-12	20-30	20-30
SAMPLE DATE	6-20-94				
DEPTH TO WATER	10.87	13.48	7.00	10.40	9.62
GROUNDWATER ELEVATION	83.45	80.42	87.42	84.16	83.95
TPH-G (ppb)	230	270	1900	ND	ND
~~TPHR~~ TRPH	ND	ND	1100	1700	ND
BENZENE	3	2.8	65	ND	ND
TOLUENE	1	1.3	3.2	ND	ND
XYLENE	ND	ND	10	ND	ND
ETHYLBENZENE	0.6	ND	ND	ND	ND
SAMPLE DATE	1-11-96				
DEPTH TO WATER	10.08	12.67	6.52	9.85	8.88
GROUNDWATER ELEVATION	84.24	81.23	87.90	84.71	84.69
TPH-G	230	300	220	ND	ND
TPH-D	ND	-	ND	ND	-
TPH-motor oil	-	-	-	ND	-
TPHR	160000	-	6900	-	-
BENZENE	2.2	10	3.2	ND	ND
TOLUENE	ND	1.1	ND	ND	ND
XYLENE	2	4.4	1.4	ND	ND
ETHYLBENZENE	5.5	9.6	0.8	ND	ND
DISSOLVED OXYGEN	2.4	3.0	0.6	1.4	1.4
SULFATE	8	12	160	35	40
SAMPLE DATE	4-05-96				
DEPTH TO WATER	10.87	13.48	7.00	9.79	7.98
GROUNDWATER ELEVATION	85.04	82.02	88.78	84.77	85.59
TPH-G	200	420	130		
TPH-D	ND	---	ND		
TPH-motor oil	ND	---	ND		
BENZENE	3.5	11	1.9		
TOLUENE	ND	ND	ND		
XYLENE	0.9	11	1.4		
ETHYLBENZENE	1.6	3.0	ND		
DISSOLVED OXYGEN	3.1	2.4	0.9		
SULFATE	10	44	2		

TABLE 2. MONITOR WELL DATA (CONTINUED)
4800 SAN PABLO AVENUE, EMERYVILLE, CALIFORNIA
JULY 16, 1996

WELL DESIGNATION	WB-8	WB-9	WB-14	WB-12	WB-7
TOTAL DEPTH	31	31	11	31	31
SCREENED INTERVAL	20-30	20-30	7-12	20-30	20-30
SAMPLE DATE	7-03-96				
DEPTH TO WATER	9.62	12.70	6.58	9.50	8.21
GROUNDWATER ELEVATION	84.70	81.20	87.84	85.06	85.36
TPH-G	289	2930	71		
TPH-D	ND	---	ND		
TPH-motor oil	ND	---	ND		
BENZENE	2.6	62.5	0.8		
TOLUENE	0.6	4.0	ND		
XYLENE	0.7	131	ND		
ETHYLBENZENE	ND	153	ND		
DISSOLVED OXYGEN	1.8	<0.2	3.4		
SULFATE	12	<1	4		
SAMPLE DATE	10-02-96				
DEPTH TO WATER	10.32	13.51	7.49	10.42	8.86
GROUNDWATER ELEVATION	84.00	880.39	87.07	84.00	84.71
TPH-G	56	250	415		
TPH-D	ND	---	ND		
TPH-motor oil	ND	---	ND		
BENZENE	1.0	6.4	26.8		
TOLUENE	ND	ND	ND		
XYLENE	ND	1.0	2.7		
ETHYLBENZENE	ND	1.5	ND		
DISSOLVED OXYGEN	0.4	0.3	0.3		
SULFATE	24	29	<4		

- Results reported in ug/l.
  NA means is not applicable or no data generated
- ND means nondetectable
- Petroleum analysis completed by Excelchem Environmental Labs during last three quarterly groundwater sampling events
- TPH-G reported in ug/l (ppb). Analyzed by EPA Method 5030 purge and trap. Detectable limit is 50 ug/l.
- Benzene, toluene, xylene, and ethylbenzene reported in ug/l (ppb). Analyzed by EPA Method 602. Detectable limit is 0.5 ug/l.
- TPH-D analyzed by EPA Method 3510 followed by modified EPA Method 8015 with direct sample injection into a GC equipped with a FID detector. Detectable limit is 0.050 ug/l.
- TPH-motor oil analyzed by extraction using EPA Method 3510 followed by modified EPA Method 8015 with direct sample injection into a GC equipped with a FID. Detectable limit is 500 ug/l.
- TPHR analyzed by Modified EPA Method 418.1. Detectable limit is 10 mg/l.

TABLE 3 - SOIL-GAS DATA

		TPH-G	BENZENE	TOLUENE	XYLENES	ETHYL-BENZENE
SG-15-3		ND	ND	ND	ND	ND
SG-15-6		ND	ND	ND	ND	ND
SG-15-9		376	ND	ND	ND	ND
SG-16-3		ND	ND	ND	ND	ND
SG-16-6		ND	ND	ND	ND	ND
SG-16-9		644	5.6	ND	ND	ND
SG-17-3		ND	ND	ND	ND	ND
SG-17-5.5		ND	ND	ND	ND	ND
SG-18-3		ND	ND	ND	ND	ND
SG-18-6		ND	ND	ND	ND	ND
SG-18-9		ND	ND	ND	ND	ND
SG-19-3		ND	ND	ND	ND	ND
SG-19-6		ND	ND	ND	ND	ND
SG-19-9		103	ND	10.6	2.5	14.4
SG-20-3		ND	ND	ND	ND	ND
SG-20-5		240	ND	1.1	1.2	4.2
REPORT LIMIT		200	5.0	5.0	5.0	5.0

NOTE: CONCENTRATIONS IN mg/M^3

SOIL-GAS SAMPLES COLLECTED IN 6 LITER SUMMA CANISTERS. GENERALLY, A 40-60 kPa VACUUM. SAMPLES WERE DELIVERED THE SAME DAY TO A CALIFORNIA CERTIFIED LABORATORY. ANALYSES INCLUDED TO3 (GC EQUIPPED WITH A PID) FOR BTXE AND TO3 (GC EQUIPPED WITH A FID) FOR TPH-G.

SG-15, 16 AND 17 SAMPLED AUGUST 21, 1997. SG-18, 19 AND 20 SAMPLED AUGUST 28, 1997.

Title: SOIL-GAS CHEMICAL DATA

Project No.: 95286

HydroSolutions of California, Inc.
5917 Moss Creek Circle, Suite 2
Fair Oaks, California
(916) 967-1222

Site: 4800 SAN PABLO AVENUE
EMERYVILLE, CALIFORNIA

Scale: NONE

Date: 10-14-97

(•) SUBJECT PROPERTY

Reproduced from USGS 7.5 Minute Series V895 (topographic)

Title: SUBJECT PROPERTY LOCATION MAP	Project No.: 93286-01	FIGURE 1
HydroSolutions of California, Inc. 11470 Sunrise Gold Circle, Suite 4 Rancho Cordova, California 95742 (916) 852-0188	Site: 4800 San Pablo Avenue Emeryville, California	
	Scale: 1 inch=2,000 feet	Date: 11-16-93

NOTES:

Exploratory drilling completed on December 23, 1993.

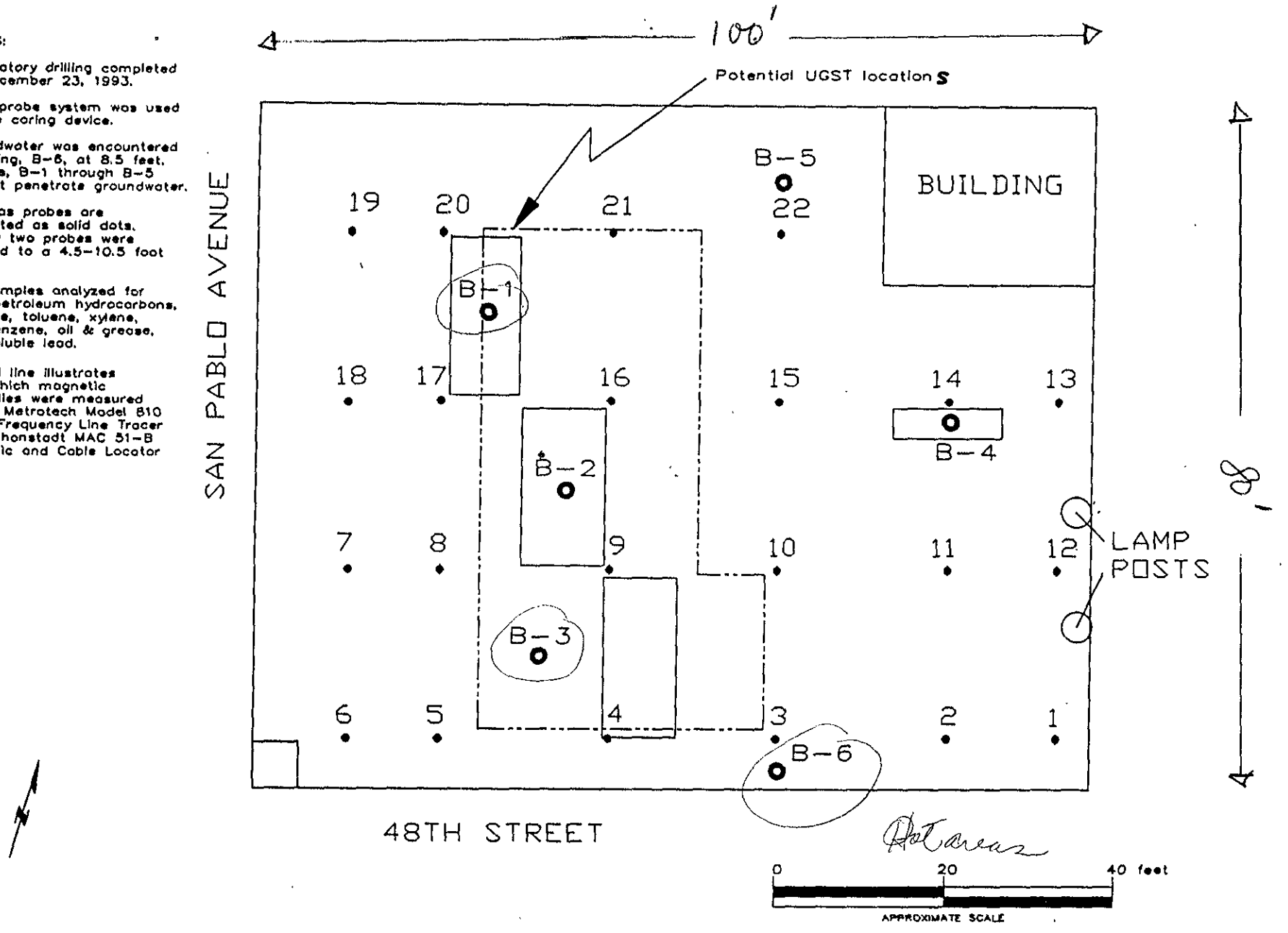
A Geoprobe system was used as the coring device.

Groundwater was encountered in boring, B-6, at 8.5 feet. Borings, B-1 through B-5 did not penetrate groundwater.

Soil-gas probes are illustrated as solid dots. Twenty two probes were inserted to a 4.5-10.5 foot depth.

Soil samples analyzed for total petroleum hydrocarbons, benzene, toluene, xylene, ethylbenzene, oil & grease, and soluble lead.

Dashed line illustrates area which magnetic anomalies were measured with a Metrotech Model 810 Radio Frequency Line Tracer and Schonstadt MAC 51-B Magnetic and Cable Locator tool.



HydroSolutions of California, Inc. 11470 Sunrise Gold Circle, Suite 4 Rancho Cordova, California 95742 (916) 852-0188	Title: EXPLORATORY BORING PROGRAM Site: 4800 SAN PABLO AVENUE EMERYVILLE, CALIFORNIA	Project Number: 93286-02 Date: 01-10-94 Scale: AS SHOWN	FIGURE 2

NOTES:

Exploratory drilling completed December 23, 1993 and June 16-17, 1994.

A Geoprobe system was used as the coring device for B-1 through B-6. A hollow stem augur was utilized for WB-7 through B-13.

Groundwater was encountered in boring, B-6, at 8.5 feet. Borings, B-1 through B-5 did not penetrate groundwater.

Soil-gas probes are illustrated as small dots. Twenty two probes were inserted to a 4.5-10.5 foot depth. Probes were removed after use.

Soil samples analyzed for total petroleum hydrocarbons, benzene, toluene, xylene, ethylbenzene, oil & grease, and soluble lead (B-1 through B-6).

Dashed line illustrates area which magnetic anomalies were measured with a Metrotech Model 810 Radio Frequency Line Tracer and Schonstadt MAC 51-B Magnetic and Cable Locator tool.

Ground water monitoring wells designated as WB-___ . All wells except WB-14 are 30 feet deep, perforated between the 20 and 30 foot depths, gravel pack to 18 foot depth and grouted to the ground surface. A locking well head is constructed at grade for each well.

Well, WB-14, is 12 feet in depth, perforated between 7 and 12 feet, gravel packed to a 5 foot depth and grouted to the ground surface.

Water samples from WB-8, WB-9 and WB-14 contained benzene concentrations above the MCLs. Petroleum hydrocarbon concentrations were detected as follows:

WB-7	<50 UG/L
WB-8	230 UG/L
WB-9	270 UG/L
WB-12	<50 UG/L
WB-14	1900 UG/L

Direction of groundwater table slope is to the north.

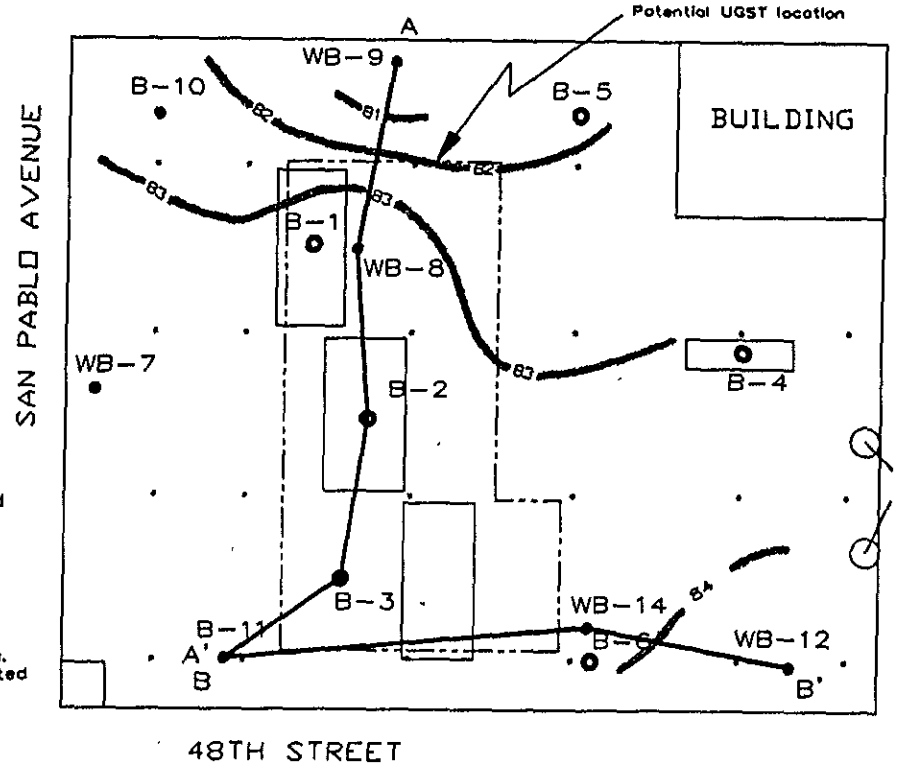
Table 1 summarizes chemical results from soil samples (June 1994).
Table 2 summarizes chemical results from soil and water samples (June 1994).
Table 3 summarizes chemical results from soil samples (December 1993).

Cross sections illustrated in figures 4 and 5.

Ground water level elevations are relative elevations.

Borings, WB-7 through B-13, were surveyed with a transit and rod.

Groundwater contour lines calculated by inverse distance method. Data includes WB-7,8,9 and 12.



EXPLANATION

- B-5 — BORING
- WB-7 — GROUNDWATER MONITOR WELL
- 80 — GROUNDWATER TABLE CONTOUR LINE AND RELATIVE ELEVATION (FT)
- SOIL-GAS SAMPLE
- A — A' — CROSS SECTION

0 20 40 feet
APPROXIMATE SCALE

B-13

HydroSolutions of California, Inc. 5917 Moss Creek Circle, Suite 2 Fair Oaks, California 95628-2714 (916) 967-1222	Title: PHASE II DRILLING PROGRAM	Project Number: 94286-03	FIGURE 3
	Site: 4800 SAN PABLO AVENUE EMERYVILLE, CALIFORNIA	Date: 07-21-94	
		Scale: AS SHOWN	

FIGURE 4 NORTH-SOUTH CROSS-SECTION
4800 SAN PABLO AVENUE, SACRAMENTO

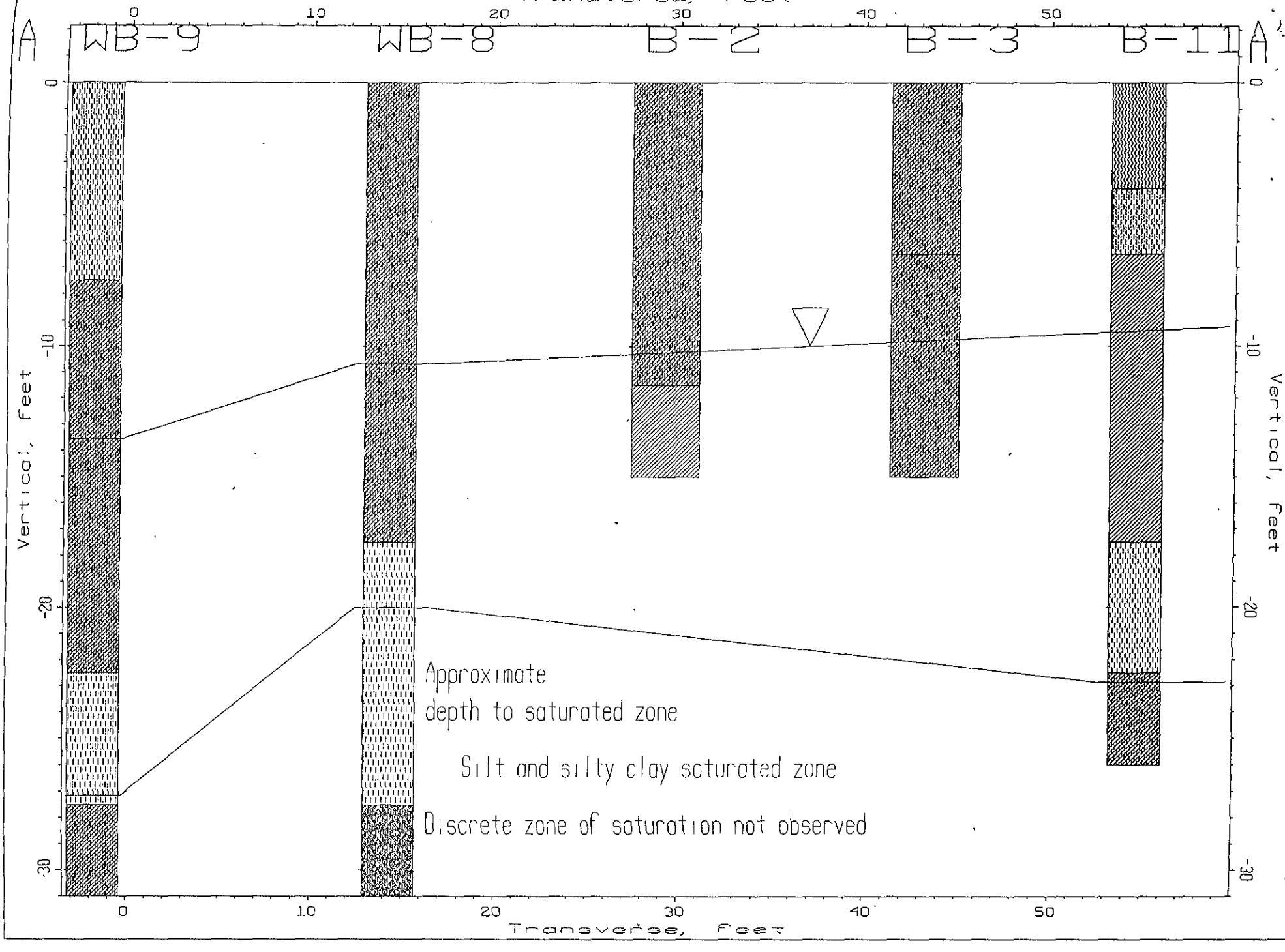
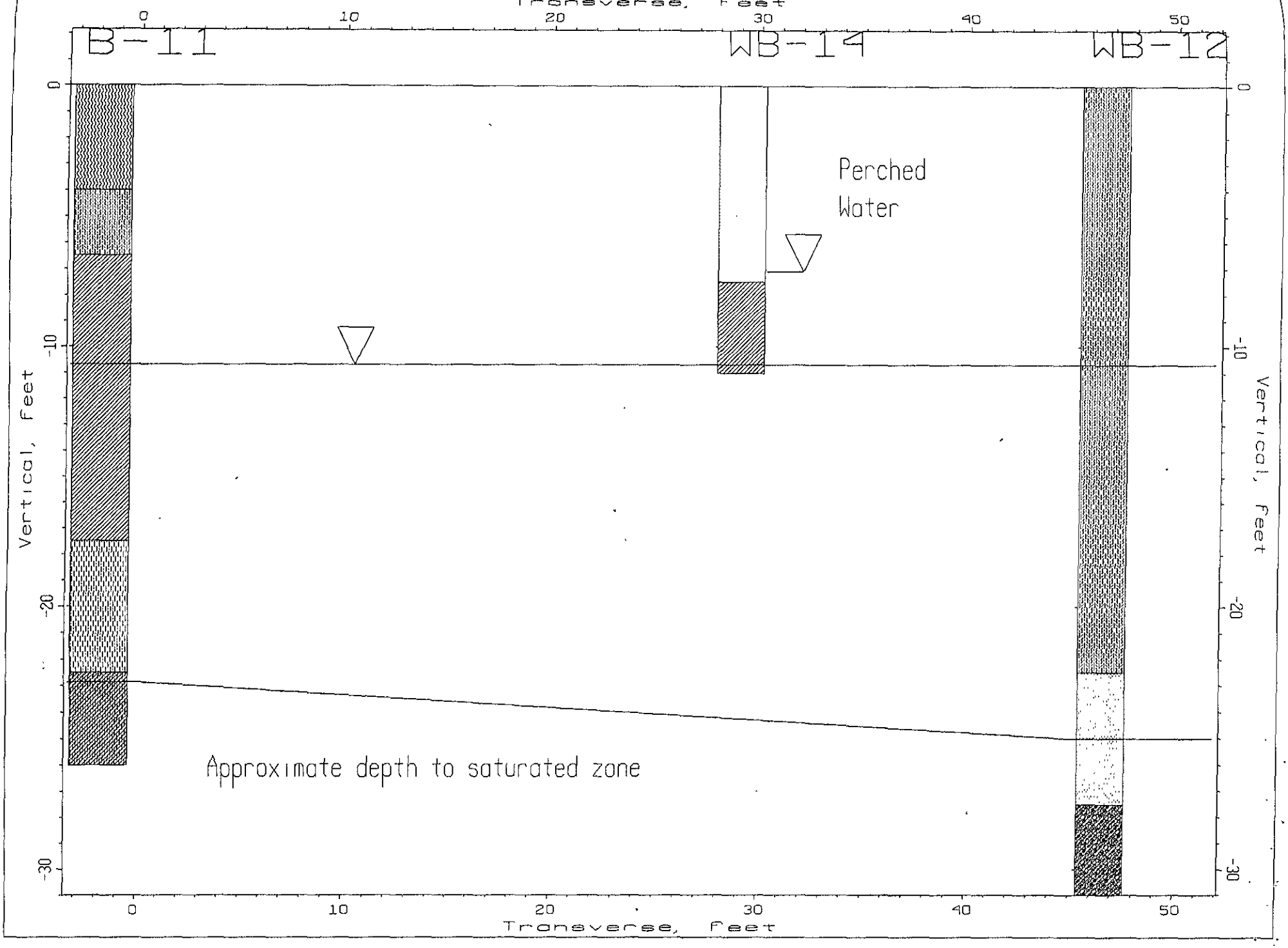


FIGURE 5 EAST-WEST CROSS-SECTION
4800 SAN PABLO AVENUE, SACRAMENTO



NOTES:

Exploratory drilling completed December 23, 1993 and June 16-17, 1994.

A Geoprobe system was used as the coring device for B-1 through B-6. A hollow stem augur was utilized for WB-7 through B-13.

Groundwater was encountered in boring, B-6, at 8.5 feet. Borings, B-1 through B-5 did not penetrate groundwater.

Soil samples analyzed for total petroleum hydrocarbons, benzene, toluene, xylene, ethylbenzene, oil & grease, and soluble lead (B-1 through B-6).

Ground water monitoring wells designated as WB-___ . All wells except WB-14 are 30 feet deep, perforated between the 20 and 30 foot depths, gravel pack to 18 foot depth and grouted to the ground surface. A locking well head is constructed at grade for each well.

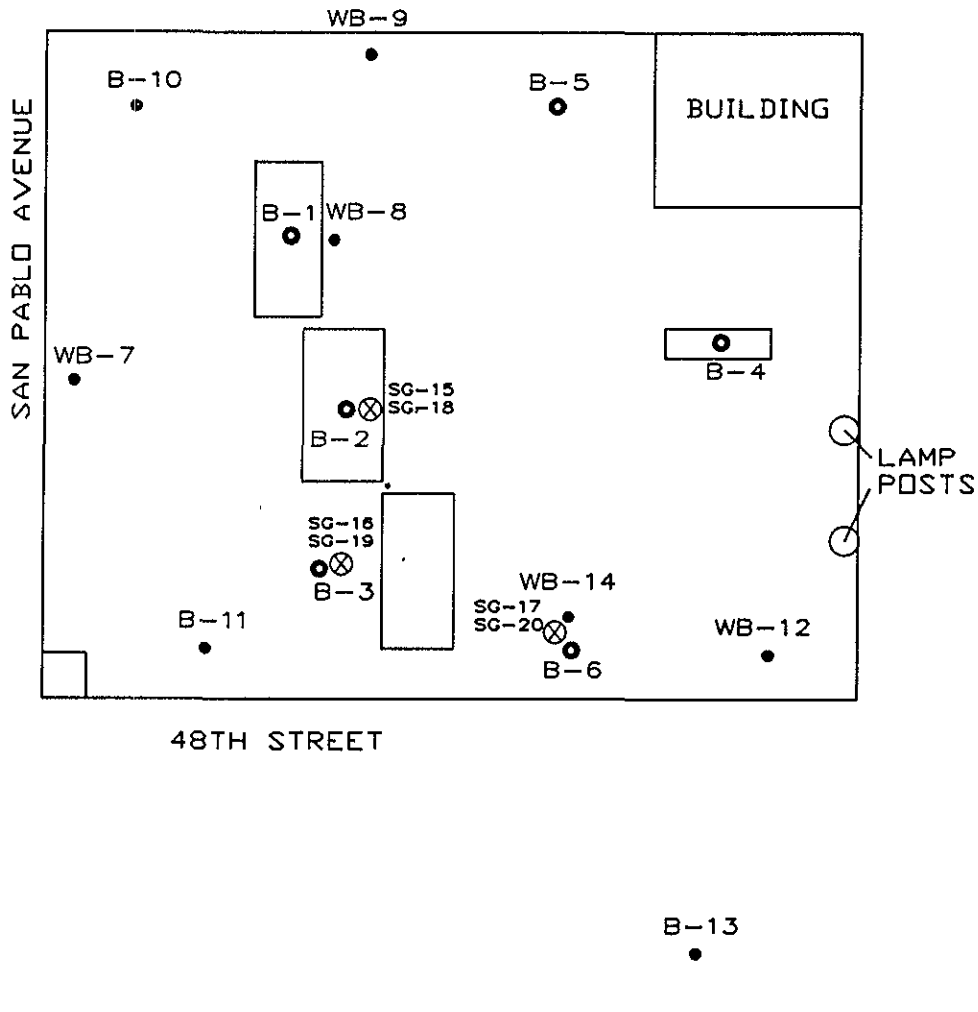
Well, WB-14, is 12 feet in depth, perforated between 7 and 12 feet, gravel packed to a 5 foot depth and grouted to the ground surface.

Collected soil-gas samples from the 3, 6 and 9 foot depth intervals in probes placed adjacent B-2 sand B-3.

Collected soil-gas samples from the 3 and 5-5.5 foot depth intervals in probes placed adjacent WB-14.

Probes SG-15, SG-16 and SG-17 were placed August 21, 1997.

Probes SG-18, SG-19 and SG-20 were placed August 28, 1997.



EXPLANATION

B-5 BORING

WB-7 GROUNDWATER MONITOR WELL

SG-15 SG-18 SOIL-GAS SAMPLING POINTS

0 20 40 feet

APPROXIMATE SCALE

HydroSolutions of California, Inc. 5917 Moss Creek Circle, Suite 2 Fair Oaks, California 95628-2714 (916) 967-1222	Title: SOIL-GAS CONFIRMATION SAMPLES Site: 4800 SAN PABLO AVENUE EMERYVILLE, CALIFORNIA	Project Number: 95286 Date: October 14, 1997 Scale: AS SHOWN	FIGURE 6

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesian Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	NONE
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	10 5

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-1

PAGE 1 OF 1

DEPTH BGS	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							CLAY (CL), moist, brown, dark brown, some fine grained sand, some gravel (1/8-1/4" dia), no petroleum-like odor
							fast penetration (soft)
10							REFUSAL (encountered concrete)
20							
30							
40							

Samples collected with a 1 88" dia geoprobe core
Collection tubes were covered with teflon wrap, capped with PVC caps, taped and labeled

S means sample locations
W means well seal log
C means well casing log
Information is not to be used for any engineering purposes
Samples collected at specified intervals

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesian Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	NONE
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	15

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-2

DEPTH BGS | C | W | BLOWS PER 6" | S | OV (PPM) | LOG | DESCRIPTION

0

SILTY CLAY (CL), moist, brown, yellow-brown, grey-brown, old petroleum-like odor

10

40 ppm

CLAY (CL), moist, brown, yellow-brown, silty, no petroleum-like odor

20

Samples collected with a 1 88" dia geoprobe core

Collection tubes were covered with teflon wrap, capped with PVC caps, taped and labeled

30

S means sample locations

W means well seal log

C means well casing log

Information is not to be used for any engineering purposes

Samples collected at specified intervals

40

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesian Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	NONE
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	15

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-3

DEPTH BGS	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							
							SILTY CLAY (CL), moist, green, brown nodules, silty, some very fine grained sand, petroleum-like odor
					9 ppm, old petroleum-like odor		
10					25 ppm, gasoline-like odor		SILTY CLAY (CL), moist, brown, yellow-brown, silty
					0 ppm, no petroleum-like odor		
20							
							Samples collected with a 1 88" dia geoprobe core
							Collection tubes were covered with teflon wrap, capped with PVC caps, taped and labeled
30							
							S means sample locations
							W means well seal log
							C means well casing log
							Information is not to be used for any engineering purposes
							Samples collected at specified intervals
40							

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesian Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	NONE
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	15

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-4A

DEPTH BGS	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							SILTY CLAY (CL), moist, brown, yellow-brown, silty, no petroleum-like odor
							2 ppm, no petroleum-like odor
10							0 ppm, no petroleum-like odor
							1 ppm, no petroleum-like odor
							first attempt resulted in refusal at 5 ft Very easy drilling Moved to new location 2 5 ft away and redrilled as WB-4A
20							Boring located in middle of concrete patch
							Samples collected with a 1 88" dia geoprobe core
							Collection tubes were covered with tefion wrap, capped with PVC caps, taped and labeled
30							
							S means sample locations
							W means well seal log
							C means well casing log
							Information is not to be used for any engineering purposes
							Samples collected at specified intervals
40							

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesian Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	NONE
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	2

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-5

PAGE 1 OF 1

DEPTH BGS	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							REFUSAL (encountered concrete)
							Moved 2 ft and redrilled
							REFUSAL at 1 foot
							ABORTED B-5 LOCATION
10							
20							
30							
40							

S means sample locations
W means well seal log
C means well casing log
Information is not to be used for any engineering purposes
Samples collected at specified intervals

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	93286-02
DRILL COMPANY	Artesion Environmental Consultants	DATE STARTED	12-23-93
DRILL EQUIPMENT	Geoprobe System, 1 7/8 inch dia	DATE FINISHED	12-23-93
GEOLGIST	Steve Baker	FIRST WATER, FT	8.5 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	12 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

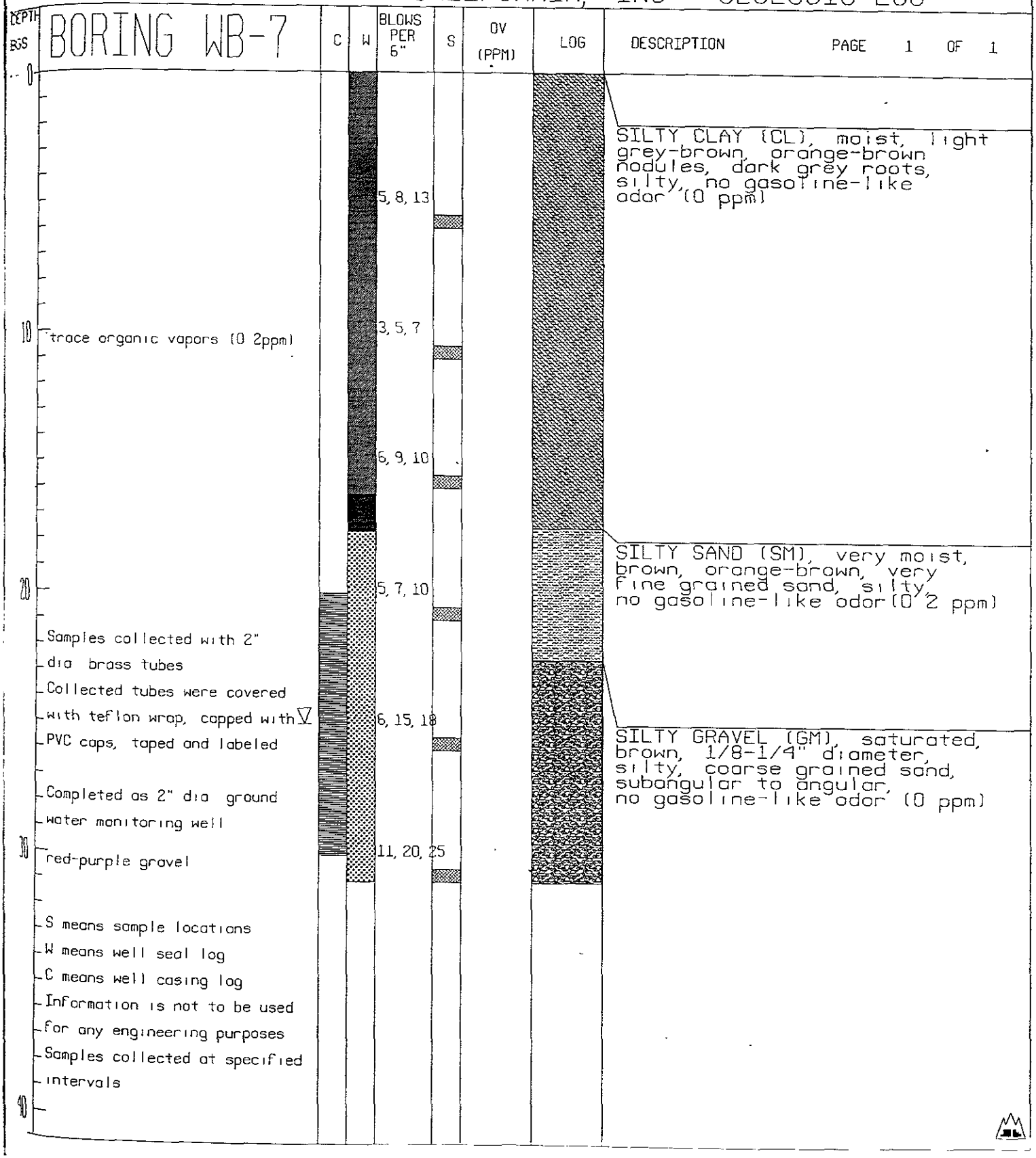
BORING B-6

DEPTH BGS	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							SAND (SW), moist to very saturated, dark brown, very fine to fine grained, some gravel (1/4"), no petroleum-like odor
10							green, black color petroleum-like odor sampled water with bailer after drilled to 12 feet attempted to collect a groundwater sample by redrilling to 12 ft and opened the hydropunch- like tool approx 2 ft
20							limited recovery Samples collected with a 1 88" dia geoprobe core Collection tubes were covered with teflon wrap, capped with PVC caps, taped and labeled
30							S means sample locations W means well seal log C means well casing log Information is not to be used for any engineering purposes Samples collected at specified intervals
40							

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	25 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	31 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

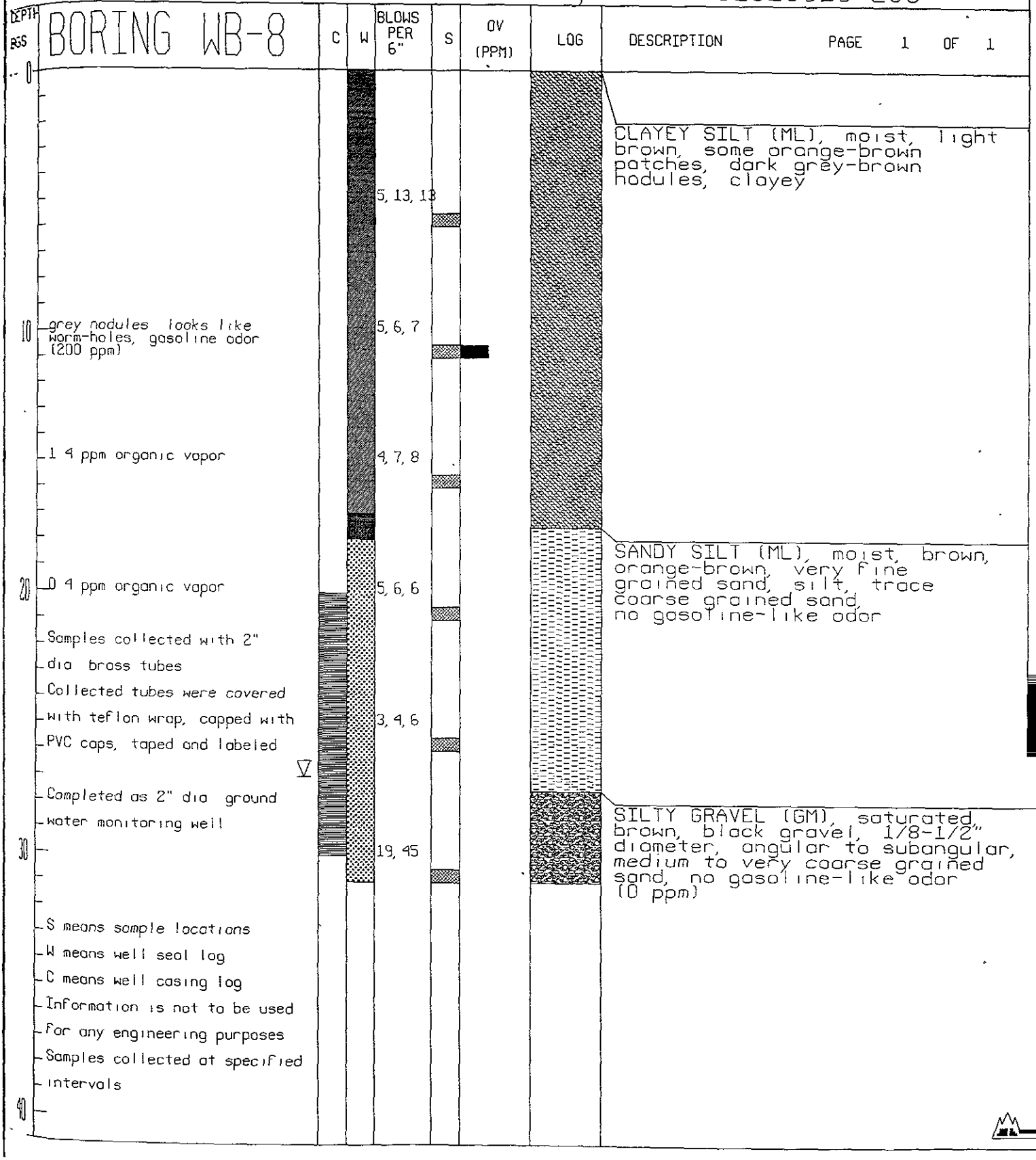
BORING WB-7



SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-17-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-17-94
GEOLGIST	Steve Baker	FIRST WATER, FT	27-30 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	31 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

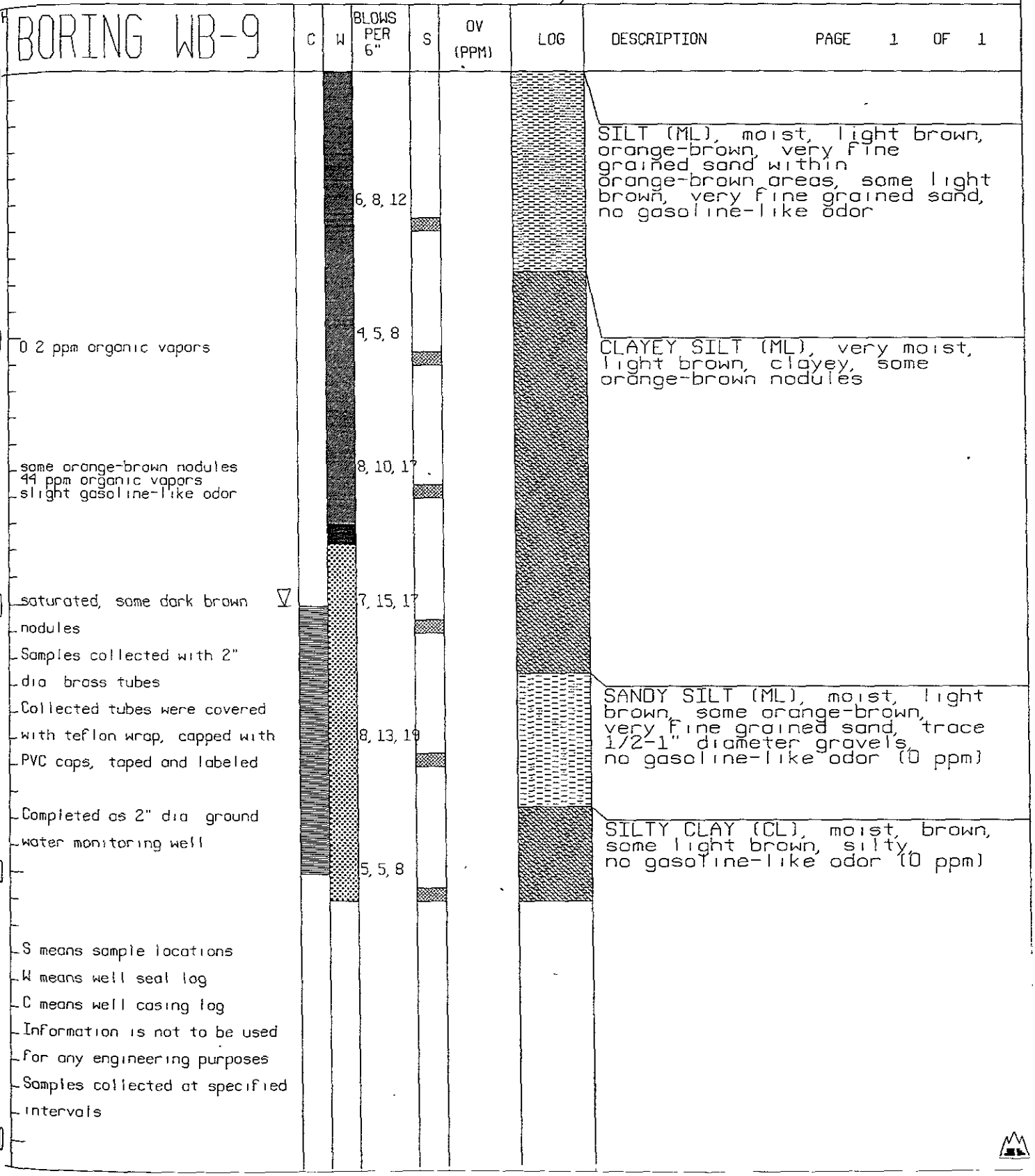
BORING WB-8



SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO.	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	20 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	31 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING WB-9



SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	23 5 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	26 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-10

DEPTH FEET	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							
							Boring backfilled with grout to ground surface
							CLAY (CL), moist, light brown, orange-brown, slightly silty, some dark brown hard nodules, no gasoline-like odor
							0 6 ppm organic vapors
			6, 6, 7				
10							3 2 ppm organic vapors
			5, 6, 7				
							10 ppm organic vapors
			7, 19, 30				
							SANDY CLAY (CL), moist to very moist, grey, fine to medium grained sand, trace of 1" diameter gravel, no gasoline-like odor
20							0 4 ppm organic vapors silty some orange-brown nodules
			4, 5, 7				
							CLAY (CL), very moist, grey-brown, sticky, trace sand, no gasoline-like odor
							0 2 ppm organic vapors
			3, 5, 7				
							Samples collected with a 2" dia brass tubes
							Collection tubes were covered with teflon wrap, capped with PVC caps, taped and labeled
30							
							S means sample locations
							W means well seal log
							C means well casing log
							Information is not to be used for any engineering purposes
							Samples collected at specified intervals
40							

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	23 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	26 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-11

DEPTH FEET	C	W	BLOWS PER 6"	S	OV (PPM)	LOG	DESCRIPTION
0							FILL, black, asphalt-like material
			3, 12, 16				SILTY SAND (SM), moist, very fine grained, silt, some gravel 1/8-1" diameter, angular, root-like zones, orange-brown areas, very strong septic-like odor, no gasoline-like odor
10			3, 5, 10				CLAY (CL), moist, light brown, orange-brown, cracks in sample are very moist, slightly silty, no gasoline-like odor
			5, 8, 10				
20			6, 8, 12				SILT (ML), moist, brown, orange-brown, trace pebbles 1/16" diameter no gasoline-like odor
			5, 6, 10				SILTY CLAY (CL), moist to saturated, grey, some orange-brown spots, silty, no gasoline-like odor
30							

Samples collected with 2" dia brass tubes ▽

Collected tubes were covered with teflon wrap, capped with PVC caps, taped and labeled

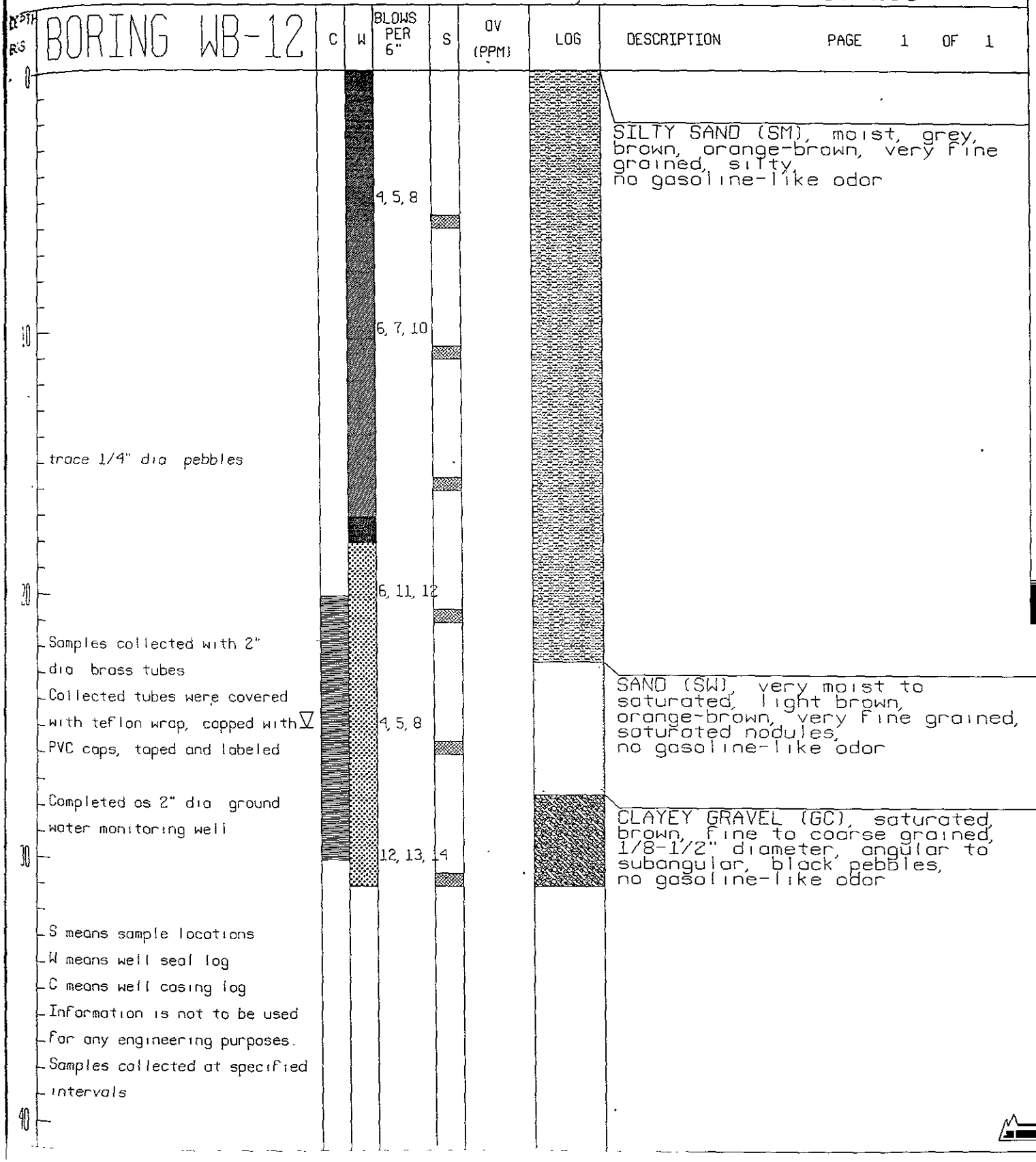
Boring backfilled with grout to ground surface

S means sample locations
W means well seal log
C means well casing log
Information is not to be used for any engineering purposes
Samples collected at specified intervals

SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	25 Feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	31 Feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

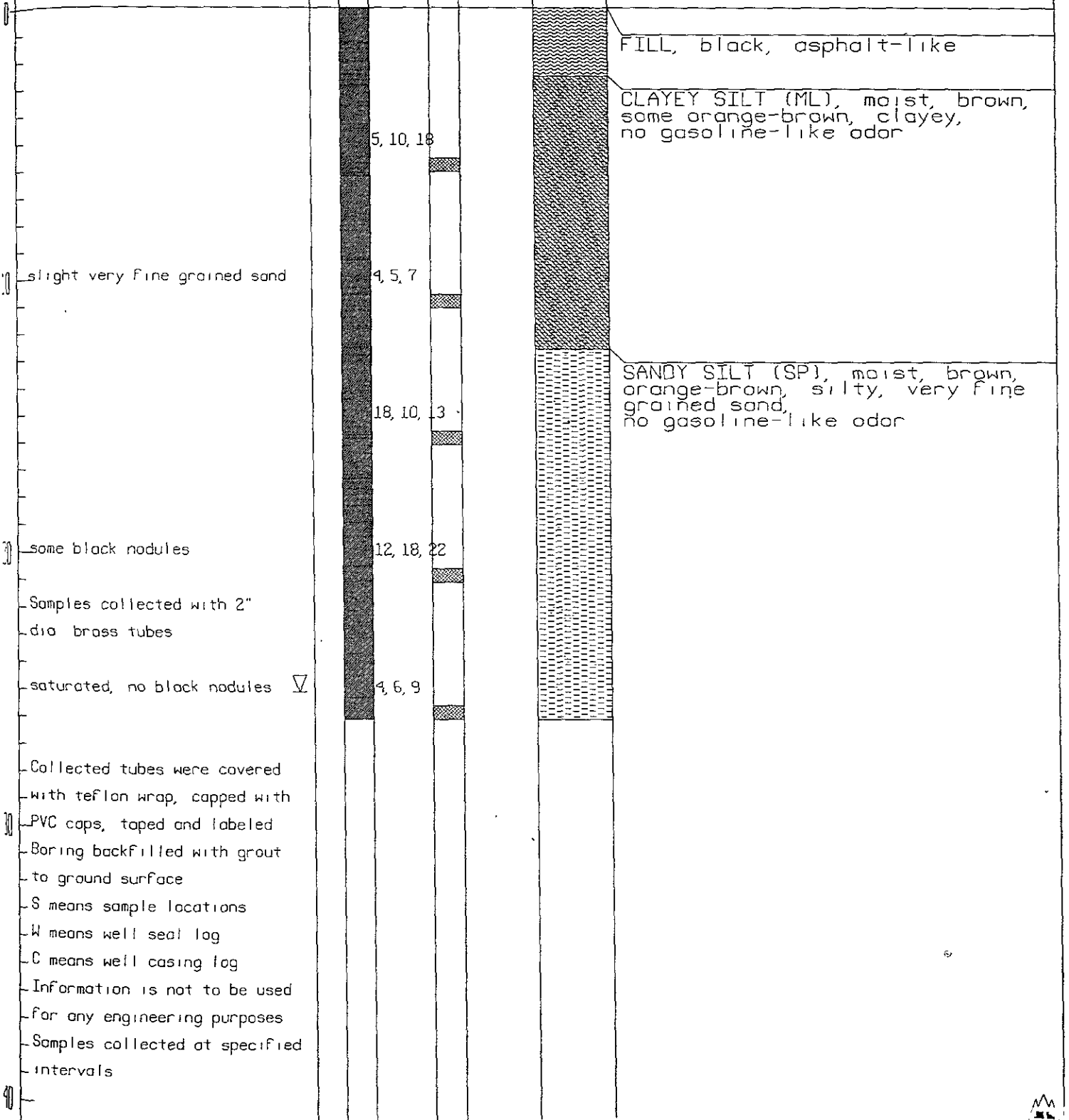
BORING WB-12



SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-17-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-17-94
GEOLGIST	Steve Baker	FIRST WATER, FT	25 feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	26 feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING B-13



SITE LOCATION	4800 San Pablo Avenue, Emeryville, California	PROJECT NO	94286-03
DRILL COMPANY	V&W Drilling	DATE STARTED	6-16-94
DRILL EQUIPMENT	Mobile B-61, 8" augur	DATE FINISHED	6-16-94
GEOLGIST	Steve Baker	FIRST WATER, FT	5 Feet
ORGANIC VAPOR(OV) DEVICE USED	Hnu Meter	TOTAL DEPTH, FT	11 Feet

HYDROSOLUTIONS OF CALIFORNIA, INC - GEOLOGIC LOG

BORING WB-14