



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

**REMEDIAL ACTION COMPLETION CERTIFICATION**

**StID 911 - 9315 San Leandro Street, Oakland, CA  
(2-10K gallon tanks removed on March 15, 1993)**

September 13, 1999

Mr. Rob Aldenhuysen  
RMC Lonestar  
P.O.Box 5252  
Pleasanton, CA 94566

Dear Mr. Aldenhuysen:

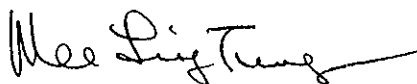
This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the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

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

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

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

Sincerely,

  
Mee Ling Tung, Director

cc: Ariu Levi, Chief of Division of Environmental Protection  
Chuck Headlee, RWQCB  
Dave Deaner, SWRCB  
Leroy Griffin, OFD  
files-ec (quikrete-10)

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)

StID 911

September 13, 1999

Mr. Rob Aldenhuisen  
RMC Lonestar  
P.O.Box 5252  
Pleasanton, CA 94566

**Re: Fuel Leak Site Case Closure for 9315 San Leandro Street, Oakland, CA**

Dear Mr. Aldenhuisen:

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 Protection Division 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:

- up to 760ppm TPH as diesel (TPHd) exists in soil beneath the site;
- up to 560ppm TPHd and 14ppb benzene exists in groundwater beneath the site; and,
- a site safety plan must be prepared for construction workers in the event of excavation/trenching is proposed in the vicinity of residual soil and groundwater contamination.

If you have any questions, please contact me at (510) 567-6762.

eva chu  
Hazardous Materials Specialist

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

c: Joan Curtis, City of Oakland, CEDA, 250 Frank H Ogawa Plaza, 2<sup>nd</sup> Floor, Oakland, CA 94612  
files (quikrete-11)



**Treatment and Disposal of Affected Material:**

<u>Material</u>	<u>Amount (include units)</u>	<u>Action (Treatment or Disposal w/destination)</u>	<u>Date</u>
Tank Soil	2 USTs 240 cy was bioremediated and reused to backfill the tank pit 50 cy	Disposed by H & H, San Francisco Disposed at Keller Canyon L.F. in Martinez	3/15/93
Groundwater	11,551 gallons recycled at Gibson Pilot in Redwood City		April 1994

**Maximum Documented Contaminant Concentrations - - Before and After Cleanup**

Contaminant	Soil (ppm)		Water (ppb)		
	Before <sup>1</sup>	After <sup>2</sup>	Before <sup>3</sup>	After <sup>4</sup>	After <sup>5</sup>
TPH (Gas)	370	36	ND	ND	24,000
TPH (Diesel)	1,000	760	FP	180	560,000
TPH (Motor Oil)			2,400	ND	
Benzene	.049	ND	ND	ND	14
Toluene	2.0	ND	ND	ND	ND
Ethylbenzene	2.0	ND	ND	ND	ND
Xylenes	10	.056	ND	ND	ND
Other: PCB (Aroclor 1254) PNAs			ND	ND	see Note 5

- NOTE: 1 soil sample collected from soil borings before USTs were removed, 2/89 or 2/91  
 2 soil sampled collected from soil borings in 7/95  
 3 Free Product (FP) was either weathered #2 diesel fuel or a transformer oil. Free product contained 59 ppm PCB (Aroclor 1254)  
 4 most recent sampling event, 3/96  
 5 groundwater sample collected from boring AW-5, advanced in 7/95. Up to 120ppb anthracene and 75ppb fluorene was identified in groundwater.

**IV. CLOSURE**

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

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

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

Site management requirements: **A site safety plan must be prepared for construction workers in the event excavation/trenching is proposed in the vicinity of residual soil and groundwater contamination.**

Should corrective action be reviewed if land use changes? **YES**

Monitoring wells Decommissioned: **Yes**

Number Decommissioned: **1** Number Retained: **5**

List enforcement actions taken: **CAO or 13267 issued, 12/92**

List enforcement actions rescinded:

## V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Eva Chu

Title: Haz Mat Specialist

Signature:



Date:

2/5/99

Reviewed by

Name: Madhulla Logan

Title: Haz Mat Specialist

Signature:



Date:

8-11-98

Name: Thomas Peacock

Title: Supervisor

Signature:



Date:

2-4-99

## VI. RWQCB NOTIFICATION

Date Submitted to RB:

2/8/99

RB Response:

RWQCB Staff Name: Chuck Headlee

Title: AEG

Signature:



Date:

2/11/99

## VII. ADDITIONAL COMMENTS, DATA, ETC.

The site is currently leased to Quikrete of Northern California. Quikrete operates a materials bagging operation which consists of bulk sand, cement, and aggregate storage, bagging operation, materials handling, storage and loading areas, and a vehicle maintenance and repair shop.

In 1988 the two USTs at the site were tested for leaks. The tanks passed, but soil contamination was noted beneath the tank feeder lines. The feeder lines were repaired. In August 1989 eight shallow soil borings (SB-1 through SB-8) were drilled to groundwater. Soil and groundwater samples were collected from each boring. Elevated TPHg and TPHd concentrations were identified in soil and groundwater. (See Figs 1 and 2, and Tables 1 and 2)

In February 1991 further subsurface investigations were performed to delineate the extent of soil and groundwater contamination. Five soil boring (SB-1 through SB-5) and four groundwater monitoring wells (LF-1 through LF-4) were drilled to depths ranging from 15' to 17' bgs. Only soil from the capillary fringe (~10' bgs) contained petroleum hydrocarbons. And well LF-1 contained free product, which was characterized to be either #2 diesel fuel or transformer oil. The free product also contained 59 ppm PCB (Aroclor 1254). (See Fig 3, Tables 3 and 4)

In March 1993 the two USTs (1-10K gallon gasoline and 1-10K gallon diesel tanks) were removed. Soil samples collected from the tank excavation contained up to 340 ppm TPHd. Water in the pit at ~12' bgs contained floating product. Grab water samples from the pit contained up to 4,500 ppm TPHd. TPHg and BTEX were not found in the soil and water samples (see Fig 4, Tables 5 and 6). Approximately 240 cubic yards of soil was removed from the pit. The soil was bioremediated and subsequently reused to backfill the excavation.

In April 1994 overexcavation of the perimeter walls was performed, beginning at the northwest end of the excavation. Soil from 9' to 11' bgs (capillary fringe) was stained and emitted a strong hydrocarbon odor. Floating product was observed to seep from the newly excavated northwest wall. Because the soil at 9' bgs was extremely wet, this made removal and stockpiling of this material unmanageable. RMC Lonestar elected to abandon the plan to overexcavate contaminated soil. Instead, groundwater pump and treat was initiated. Approximately 11,551 gallons of groundwater was removed from the pit and recycled at Gibson Pilot in Redwood City. Groundwater monitoring well LF-1, which was damaged during the tank removal processes, was completely removed at this time. In May 1994 the excavation was backfilled. At this time, two 3-inch diameter groundwater recovery wells (EW-1 and EW-2) were constructed within the newly excavated southeast end of the excavation.

In July 1995 a total of 10 boreholes (AW-1 through AW-10) were advanced, using the direct push geoprobe tool, in the area of the former USTs and adjacent to the previous soil boreholes advanced in 1991. The purpose of this investigation was to evaluate the effectiveness of natural bioattenuation at the site. Soil samples were collected at depths ranging from 5' to 10' bgs. One grab groundwater sample was collected from borehole AW-5, which exhibited a strong hydrocarbon odor. Soil analytical results from this investigation were compared to those obtained in 1991. Greater than 80% of the 1995 soil samples had hydrocarbon concentrations significantly less than the corresponding 1991 soil data. This indicates natural bioattenuation is occurring at the site. (See Fig 5, Table 7)

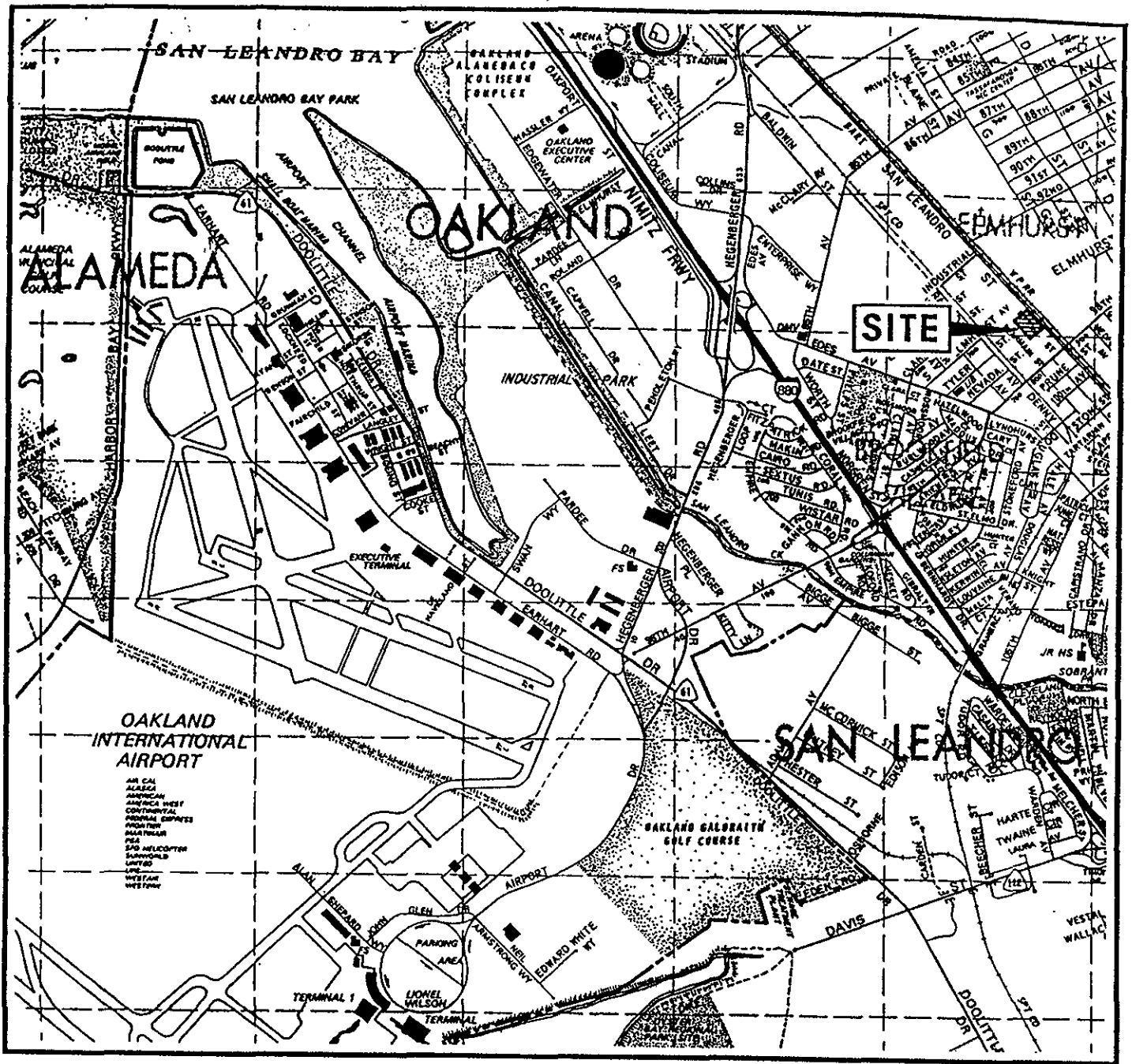
The grab groundwater sample from borehole AW-5 contained 24,000 ppb TPHg, 560,000 ppb TPHd, 14 ppb benzene, 120 ppb anthracene, and 75 ppb fluorene. Toluene, ethyl-benzene, xylenes, and other PNAs were not detected above the detection limits (see Table 8). Because chemicals of concern, such as benzene, benzo-a-pyrene were absent, it appears residual groundwater contamination should not pose a risk to human health under current use scenario, which includes groundwater volatilization of chemicals to outdoor air exposure pathways. Groundwater at the site is not a source of drinking water. However, if land use changes, earth moving/trenching activities, or construction in the area of residual contamination is proposed, a site specific health and safety plan to protect construction workers will be required. Risk from volatilization of chemicals to indoor air may also need to be evaluated.

The groundwater monitoring wells have been sampled for at least six quarters. Petroleum hydrocarbons in the form of diesel and motor oil have been detected in very low concentrations. Monitoring well LF-1, which was destroyed in May 1994, contained free product. However, much of the diesel may have been removed when over 11,000 gallons of groundwater was pumped from the tank pit. Diesel has not been routinely detected in downgradient wells LF-3 and LF-4. Continued monitoring is not warranted. (See Fig 6, Table 9)

A Risk Management Plan (RMP), prepared by All West Environmental, dated July 14, 1998, was prepared for the site to address potential risk to human health in the event of earth moving activities at the former UST location. The RMP is acceptable to this Agency, and a copy will be maintained at the Alameda County Environmental Health Services (ACEHS) office as well as at the subject site. Notification will also be given to ACEHS and other relevant governmental agencies of any proposed change in site use, and if necessary, revise the RMP.

In summary, case closure is recommended because:

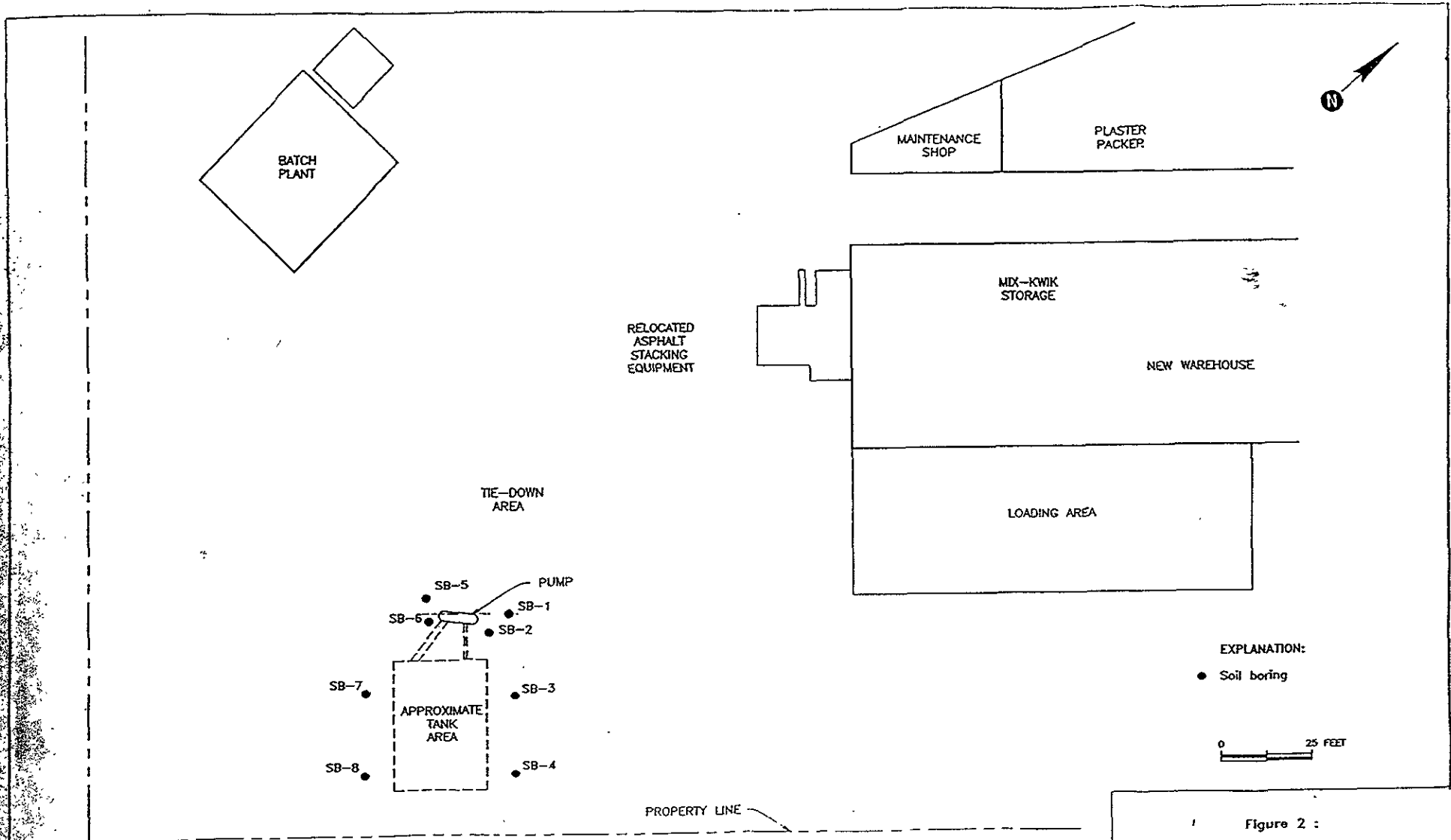
- o the leak and ongoing sources have been removed;
- o the site has been adequately characterized;
- o the dissolved plume is not migrating;
- o no water wells, surface water, or other sensitive receptors are likely to be impacted; and,
- o the site presents no significant risk to human health or the environment.



MAP SOURCE:  
 Thomas Bros. map  
 Alameda County  
 1987 updated edition

Figure 1: SITE VICINITY





EXPLANATION:  
 ● Soil boring

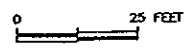


Figure 2 :  
 SOIL BORING LOCATIONS

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Project No. 1836 **LEVINE • FRICKE**

TABLE 1  
 SOIL CHEMICAL ANALYSIS DATA  
 TOTAL PETROLEUM HYDROCARBONS (TPH)  
 AND BENZENE, TOLUENE, XYLENE AND ETHYL BENZENE (BTXE)  
 [All concentrations expressed in parts per million (ppm)]

Sample No.	Sample Depth (ft)	Sample Date	Lab	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylene
SB-1-35	3.5	8/2/89	B&C	<5.0	<10	<0.1	<0.1	<0.1	<0.1
SB-1-85	8.5	8/2/89	B&C	120	470	<0.7	<0.7	<0.7	<0.7
SB-2-35	3.5	8/2/89	B&C	43	160	<0.2	<0.2	<0.2	<0.2
SB-2-75	7.5	8/2/89	B&C	52	690	<0.3	<0.3	<0.3	<0.3
SB-3-35	3.5	8/2/89	B&C	24	1000	<0.2	<0.2	<0.2	0.3
SB-3-8	8.0	8/2/89	B&C	200	530	<1.0	2.0	2.0	10
SB-4-3	3.0	8/2/89	B&C	27	<10	<0.1	<0.1	<0.1	0.1
SB-4-85	8.5	8/2/89	B&C	480	510	<1.0	<1.0	<1.0	<1.0
SB-5-35	3.5	8/2/89	B&C	<5.0	<10	<1.0	<1.0	<1.0	<1.0
SB-5-8	8.0	8/2/89	B&C	68	200	<0.5	<0.5	<0.5	<0.5
SB-6-35	3.5	8/3/89	B&C	<5.0	<10	<1.0	<1.0	<1.0	<1.0
SB-6-8	8.0	8/3/89	B&C	180	410	<1.0	<1.0	0.10	0.20
SB-7-35	3.5	8/3/89	B&C	<5.0	<10	<1.0	<1.0	<1.0	<1.0
SB-7-9	9.0	8/3/89	B&C	370	110	<0.4	<0.4	<0.4	1.5
SB-8-3	3.0	8/3/89	B&C	<5.0	<10	<0.1	<0.1	<0.1	<0.1
SB-8-8	8.0	8/3/89	B&C	16	14	<0.10	<0.10	<0.10	<0.10

NOTES: B&C - Brown and Caldwell Analytical Laboratories.

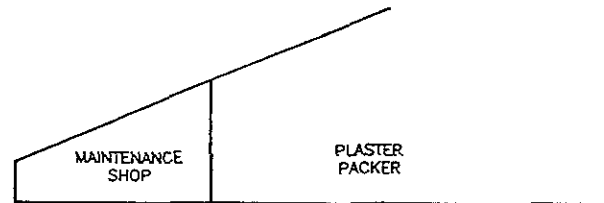
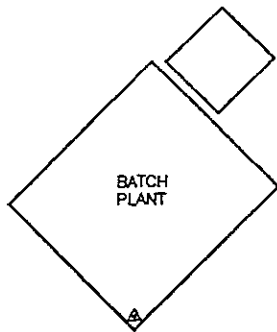
EPA Analysis Methods 8015 and 8020 were used to detect TPH and BTXE, respectively.

TABLE 2  
GROUND-WATER QUALITY DATA SUMMARY  
TOTAL PETROLEUM HYDROCARBONS (TPH) AND  
BENZENE, TOLUENE, XYLENE AND ETHYL BENZENE (BTXE)  
[All Concentrations Expressed in Parts Per Million (ppm)]

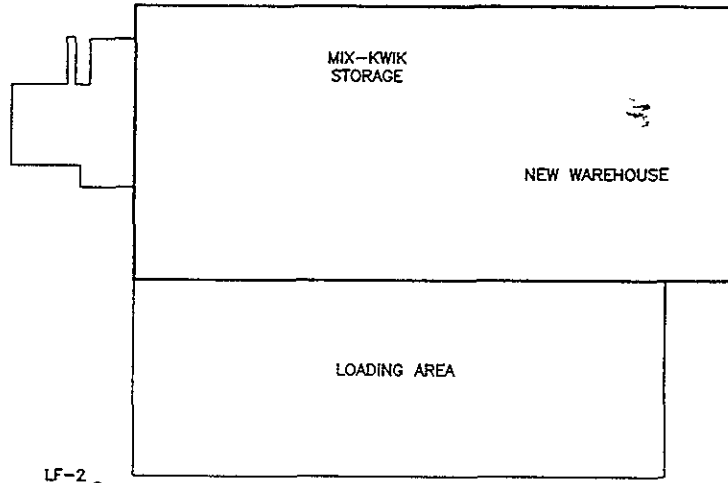
Sample No.	Sample Date	Lab	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylene
SB-1	8/2/89	B&C	0.25	1	<0.001	0.001	0.002	0.009
SB-2	8/2/89	B&C	1.2	330	0.007	0.006	0.007	0.022
SB-3	8/2/89	B&C	1.5	<1.0	<0.006	0.010	0.010	0.033
SB-4	8/2/89	B&C	2.2	12	0.0006	0.0009	0.0027	0.0055
SB-5	8/2/89	B&C	4.1	130	<0.003	0.004	0.009	0.012
SB-6	8/3/89	B&C	0.99	22	0.0032	<0.0003	0.003	0.0015
SB-7	8/3/89	B&C	130	190	0.060	<0.030	<0.030	0.050
SB-8	8/3/89	B&C	6.6	9.4	0.006	<0.0008	0.003	0.028

NOTES: B&C - Brown and Caldwell Analytical Laboratories.

EPA Analysis Methods 8015 and 8020 were used to detect TPH and BTXE, respectively.



RELOCATED ASPHALT STACKING EQUIPMENT



SB-1

SB-3

TIE-DOWN AREA

SB-4

LF-3

PUMP

LF-2

LF-1



SB-5

SB-2

LF-4

PROPERTY LINE

EXPLANATION

- ◆ Soil boring
- Monitoring well
- △ Temporary bench mark (defined at 20 feet above msl)

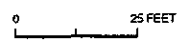


Figure 3  
SOIL BORING AND MONITORING WELL LOCATIONS

Project No. 2288

**LEVINE-FRICKE**  
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

TABLE 23  
 SOIL CHEMICAL ANALYSIS RESULTS  
 Former RMC LONESTAR Facility  
 9315 San Leandro Boulevard  
 Oakland, California  
 (mg/kg [ppm])

Sample ID	Date of Sample	Depth of Soil Sample (feet bgs)	Chemical Analysis	Laboratory	TPH(g)	TPH(d)	Benzene	Toluene	Ethyl-benzene	Total Xylenes
SB-1-10	21-Feb-91	9.5 to 10	8015/8020	Chromalab	<1	<1	<0.005	<0.005	<0.005	<0.005
SB-2-9	21-Feb-91	8.5 to 9	8015/8020	Chromalab	<1	<1	<0.005	<0.005	<0.005	<0.005
SB-3-10	21-Feb-91	9.5 to 10	8015/8020	Chromalab	<1	<1	<0.005	<0.005	<0.005	<0.005
SB-4-10	21-Feb-91	9.5 to 10	8015/8020	Chromalab	100	390	<0.005	0.015	0.024	0.023
SB-5-10	21-Feb-91	9.5 to 10	8015/8020	Chromalab	<1	<1	<0.005	<0.005	<0.005	<0.005
LF-1-10	21-Feb-91	9.5 to 10	8015/8020	Chromalab	55	110	0.049	0.027	0.025	0.023
LF-2-8	22-Feb-91	7.5 to 8	8015/8020	Chromalab	<1	<1	<0.005	<0.005	<0.005	<0.005
LF-3-10	22-Feb-91	9.5 to 10	8015/8020	Chromalab	21	450	<0.005	<0.005	0.014	0.062

Notes:

bgs = below ground surface

TPH(g) = total petroleum hydrocarbons as gasoline

TPH(d) = total petroleum hydrocarbons as diesel

8015 = EPA Method 5030/Modified EPA Method 8015 for TPH(g) and EPA Method 3550/Modified EPA Method 8015 for TPH(d)

8020 = EPA Method 8020 for benzene, toluene, ethylbenzene, and total xylenes

TABLE # 4  
 GROUND-WATER CHEMICAL ANALYSIS RESULTS  
 Former RMC LONESTAR Facility  
 9315 San Leandro Boulevard  
 Oakland, California  
 (ppm)

Well Location	Date	Chemical Analysis	Lab	TPH(g)	TPH(d)	Benzene [0.001]	Toluene	Ethyl-benzene [0.68]	Total Xylenes [1.75]
SB-1	21-Feb-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
SB-2	21-Feb-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
SB-3	21-Feb-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
SB-4	21-Feb-91	8015/8020	Chromalab	0.51	0.51	<0.005	<0.005	0.0014	0.0017
SB-5	21-Feb-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
LF-1	10-Apr-91	Fuel Char#	F&B	*	*	NA	NA	NA	NA
	14-May-91	8080#	BCA	**	**	NA	NA	NA	NA
	14-May-91	8080/8240	BCA	***	***	0.440	0.140	0.031	0.050
LF-2	10-Apr-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
LF-3	10-Apr-91	8015/8020	Chromalab	0.12	0.45	0.0011	<0.0005	<0.0005	<0.0005
LF-4	10-Apr-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
duplicate	10-Apr-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
Field Blanks:									
LF-FB	10-Apr-91	8015/8020	Chromalab	<0.05	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

Notes:

NA = Not analyzed

TPH(g) = total petroleum hydrocarbons as gasoline

TPH(d) = total petroleum hydrocarbons as diesel

[ ] = Maximum Contaminant Level; blank where no data are available

BCA: BC Analytical, Emeryville, California

F&B: Friedman & Bruya, Inc., Seattle, Washington

8015 = EPA Method 5030/Modified EPA 8015 for TPH(g) and EPA Method 3510/Modified EPA Method 8015 for TPH(d)

8020 = EPA Method 8020 for benzene, toluene, ethylbenzene, and total xylenes

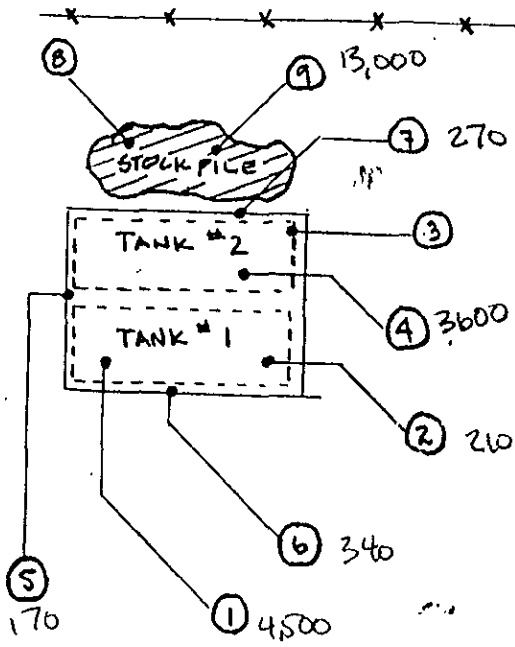
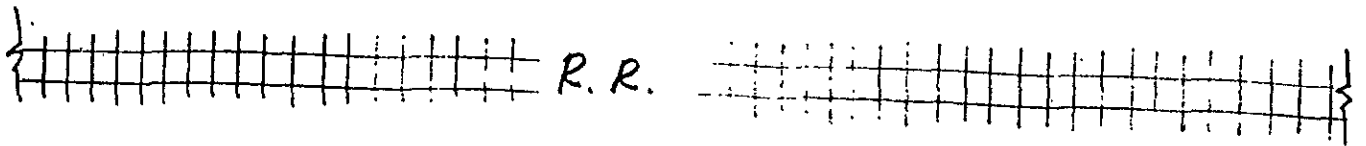
8080 = EPA Method 8080 for polychlorinated biphenyls (PCBs)

# = Product sample

\* = Fuel characterization indicated C12 to C24 hydrocarbons and semiquantified Aroclor 1254

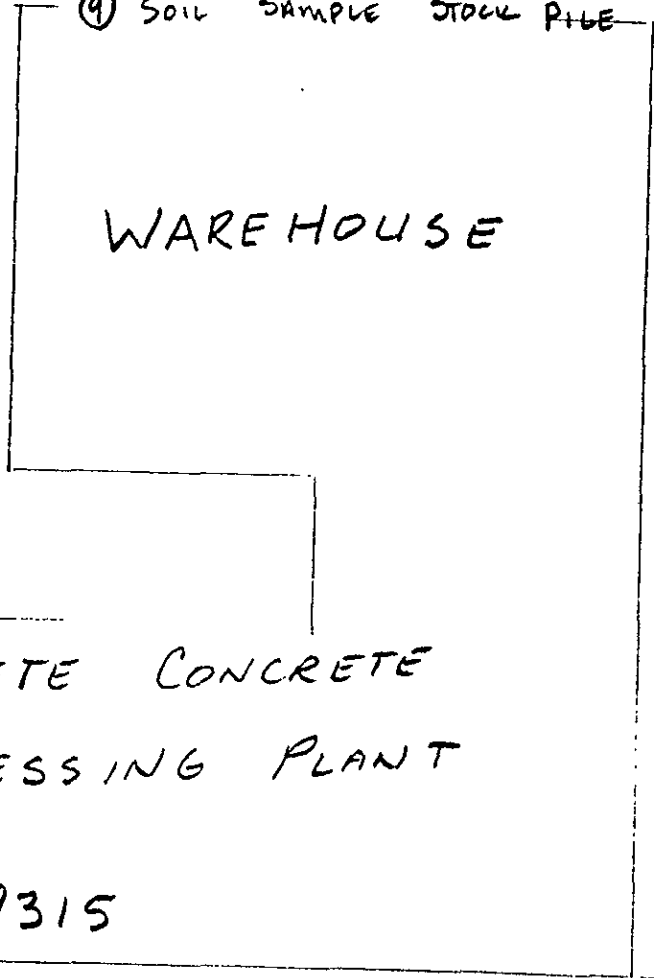
\*\* = Product analysis indicated 59 ppm of Aroclor 1254 (PCBs)

\*\*\* = Ground-water analysis indicated 0.280 ppm Aroclor 1254; TPH(g) and TPH(d) not analyzed



- ① GROUND WATER SAMPLE 10' DEEP
- ② SOIL SAMPLE 13' DEEP
- ③ SOIL SAMPLE 14' DEEP
- ④ GROUND WATER SAMPLE 10' DEEP
- ⑤ SOIL SIDE WALL SAMPLE 10' DEEP
- ⑥ SOIL SIDE WALL SAMPLE 10' DEEP
- ⑦ SOIL SIDE WALL SAMPLE 10' DEEP
- ⑧ SOIL SAMPLE STOCK PILE
- ⑨ SOIL SAMPLE STOCK PILE

ppm TPH-d (water)  
ppm TPH-d (soil)



SAN LEANDRO BLVD

Fig 4



# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

March 22, 1993

Table 5

PEL # 9303030

PACIFIC RIM ENVIRONMENTAL SERVICES, INC.

Attn: Don James

Re: Six soil samples for Gasoline/BTEX, Diesel, and PCB analyses.

Project name: 9315 San Leandro

Date sampled: Mar 15, 1993

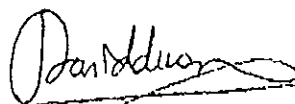
Date submitted: Mar 16, 1993

Date extracted: Mar 18-22, 1993

Date analyzed: Mar 18-22, 1993

## RESULTS:

SAMPLE I.D.	Gasoline (mg/Kg)	Diesel (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)	PCB's (mg/Kg)
2	N.D.	210	N.D.	N.D.	N.D.	N.D.	---
3	---	---	---	---	---	---	N.D.
5	N.D.	170	N.D.	N.D.	N.D.	N.D.	---
6	N.D.	340	N.D.	N.D.	N.D.	N.D.	---
7	N.D.	270	N.D.	N.D.	N.D.	N.D.	---
9 (stockpile soil)	N.D.	13000	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	86.6%	97.6%	84.2%	85.1%	92.4%	97.3%	89.5%
Duplicate Spiked Recovery	91.3%	93.5%	94.0%	90.9%	95.5%	102.1%	---
Detection limit	1.0	10	5.0	5.0	5.0	5.0	0.1
Method of Analysis	5030 / 8015	3550 / 8015	8020	8020	8020	8020	8080

  
 David Duong  
 Laboratory Director





# PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

*Table 6*

March 22, 1993

PEL # 9303029

PACIFIC RIM ENVIRONMENTAL SERVICES, INC.

Attn: Don James

Re: Two water samples for Gasoline/BTEX, Diesel, and PCB analyses.

Project name: 9315 San Leandro

Date sampled: Mar 15, 1993

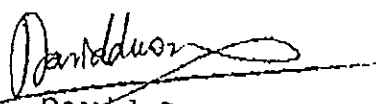
Date submitted: Mar 16, 1993

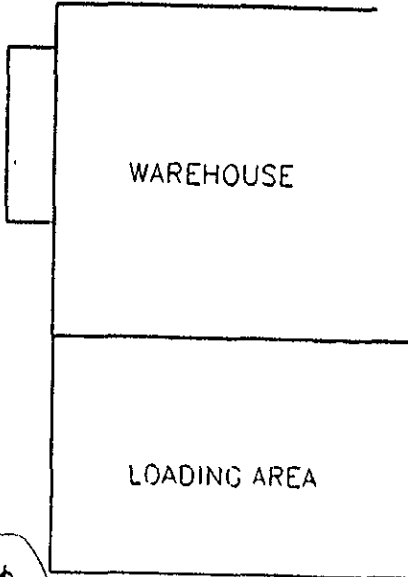
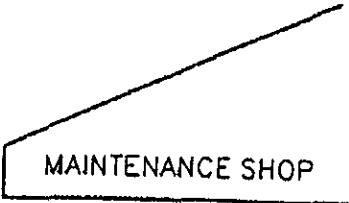
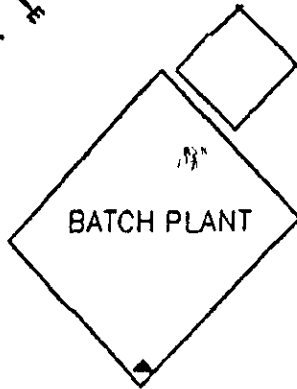
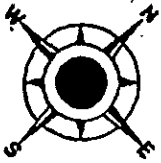
Date extracted: Mar 18-22, 1993

Date analyzed: Mar 18-22, 1993

RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Diesel (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)	PCB's (ug/L)
1W	N.D.	4500	N.D.	N.D.	N.D.	N.D.	N.D.
4W	N.D.	3600	N.D.	N.D.	N.D.	N.D.	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	86.6%	97.6%	84.2%	85.1%	92.4%	97.3%	89.5%
Detection limit	100	10	1.0	1.0	1.0	1.0	100
Method of Analysis	5030 / 8015	3510 / 8015	602	602	602	602	608

  
 David Duong  
 Laboratory Director



SB-1(II)



SB-3(II)



AW-10



SB-4(II)



SB-5

AW-4



Former Pump

SB-6



AW-5



SB-2



AW-6



SB-7



AW-3



Former Tank Pit

SB-3



SB-5(II)



SB-4



AW-7



SB-8



AW-2



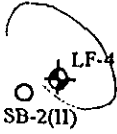
EW-1



EW-2

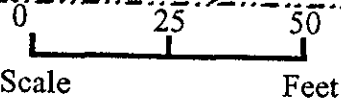


AW-8



SB-2(II)

PROPERTY LINE



- Levine Fricke Borehole, 8-91
- ⊕ Existing Monitoring Well
- AllWest Borehole, 7-95



**AllWest**  
AllWest Environmental, Inc.

August  
1995

**Generalized  
Site  
Plan**

Project No.  
95092.23

Figure  
5

9315 San Leandro Boulevard,  
Oakland, California

Base Map  
Levine-Fricke



**TABLE 7**  
**SOIL ANALYTICAL RESULTS**  
**1991 AND 1995**

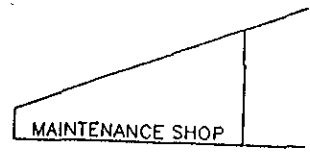
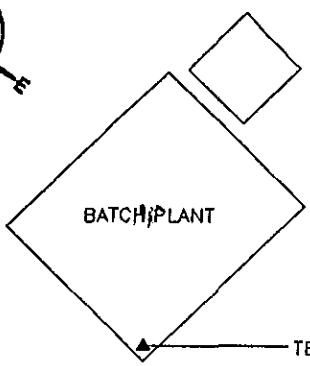
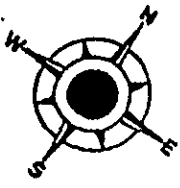
Sample Identification	TPH-g 8015 (m) <i>ppm</i>	TPH-d 8015 (m) <i>ppm</i>	BTEX 8020 <i>ppb</i>
AW-1-7.5	ND	140	ND
AW-2-9.5 SB-8-8.0 (1991)	1.0 16	4.4 14	ND ND
AW-3-7.5	17	160	ND
AW-3-9.5 SB-7-9.0 (1991)	4.9 370	220 110	ND BTE-ND X-1500
AW-4-10.0 SB-5-8.0 (1991) SB-6-8.0 (1991)	1.3 68 180	11 200 410	ND ND BT-ND E-100, X-200
AW-5-5.0 SB-1-3.5 (1991) SB-2-3.5 (1991) AW-5-5.0 Leachate	ND ND 43 ND	ND ND 160 ND	ND ND ND ND
AW-5-7.5 SB-1-8.5 (1991) SB-2-7.5 (1991)	16 120 52	110 470 690	BTE-ND, X-56 ND ND
AW-6-10.0 SB-3-8.0 (1991)	36 200	270 530	ND B-ND, T-2,000, E-2,000, X-10,000
AW-7-3.5 SB-4-3.0 (1991)	25 27	760 ND	BT-ND E-150, X-140 BTE-ND, X-100
AW-7-10.0 SB-4-8.5 (1991) AW-7-10.0 Leachate	4.9 480 0.790	180 510 0.260	ND ND ND
AW-8-10.0	8.1	72	ND
AW-9-9.5 LF-3-9.5	ND 21	ND 450	ND BT-ND, E-14, X-62
AW-10-6.5 SB-4-9.5 (1991)	ND 100	38 390	ND BT-ND, E-14, X-62



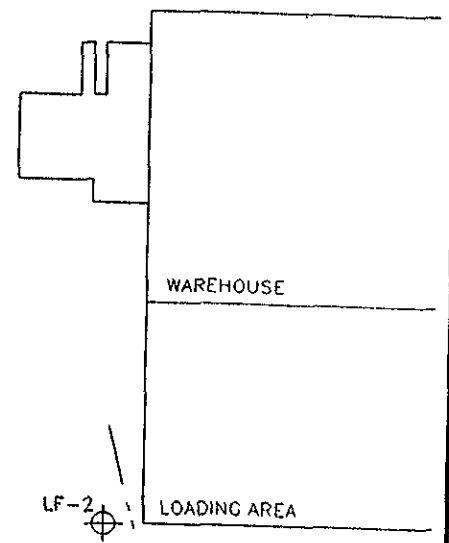
TABLE 18  
GROUNDWATER RESULTS FROM SOIL BOREHOLE AW-5  
August 1995

Sample Identification	TPH-g 8015 (m)	TPH-d 8015 (m)	BTEX 8020	PNAs 8270
AW-5-w	24.0-ppm	560-ppm	B-14-ppb, TEX-ND	Antracene-120-ppb Fluorene-75-ppb All Others-ND

Notes: TPH-g, and TPH-d is equivalent to Total Petroleum Hydrocarbons as gasoline and diesel, respectively.  
BTEX is equivalent to Benzene, Toluene, Ethylbenzene, and Xylene.  
PNAs are equivalent to polynuclear aromatic hydrocarbons and are analyzed by EPA method 8270.  
All samples were reported in micrograms per liter ( $\mu\text{g}/\text{kg}$ ) equivalent to parts per billion (ppb).  
ppm is equivalent to parts per million and milligrams per liter (mg/kg).  
ND is equivalent to none detected greater than or equal to the indicated value.  
Sample AW-5-W was collected via a temporary well located in a soil borehole.



RELOCATED ASPHALT STACKING EQUIPMENT



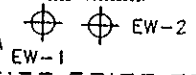
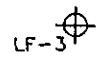
LF-1 (DESTROYED 05/94)

TIE-DOWN AREA

FORMER PUMP

HYDRAULIC GRADIENT DIRECTION

FORMER TANK PIT



8.20

8.40

8.60

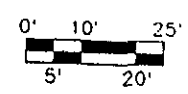
8.80

9.00

PROPERTY LINE

 = MONITORING WELL

AUGUST 1995



**AllWest**  
AllWest Environmental, Inc.

November  
1995

**Groundwater  
Contour  
Map**

Project No.  
95092.28

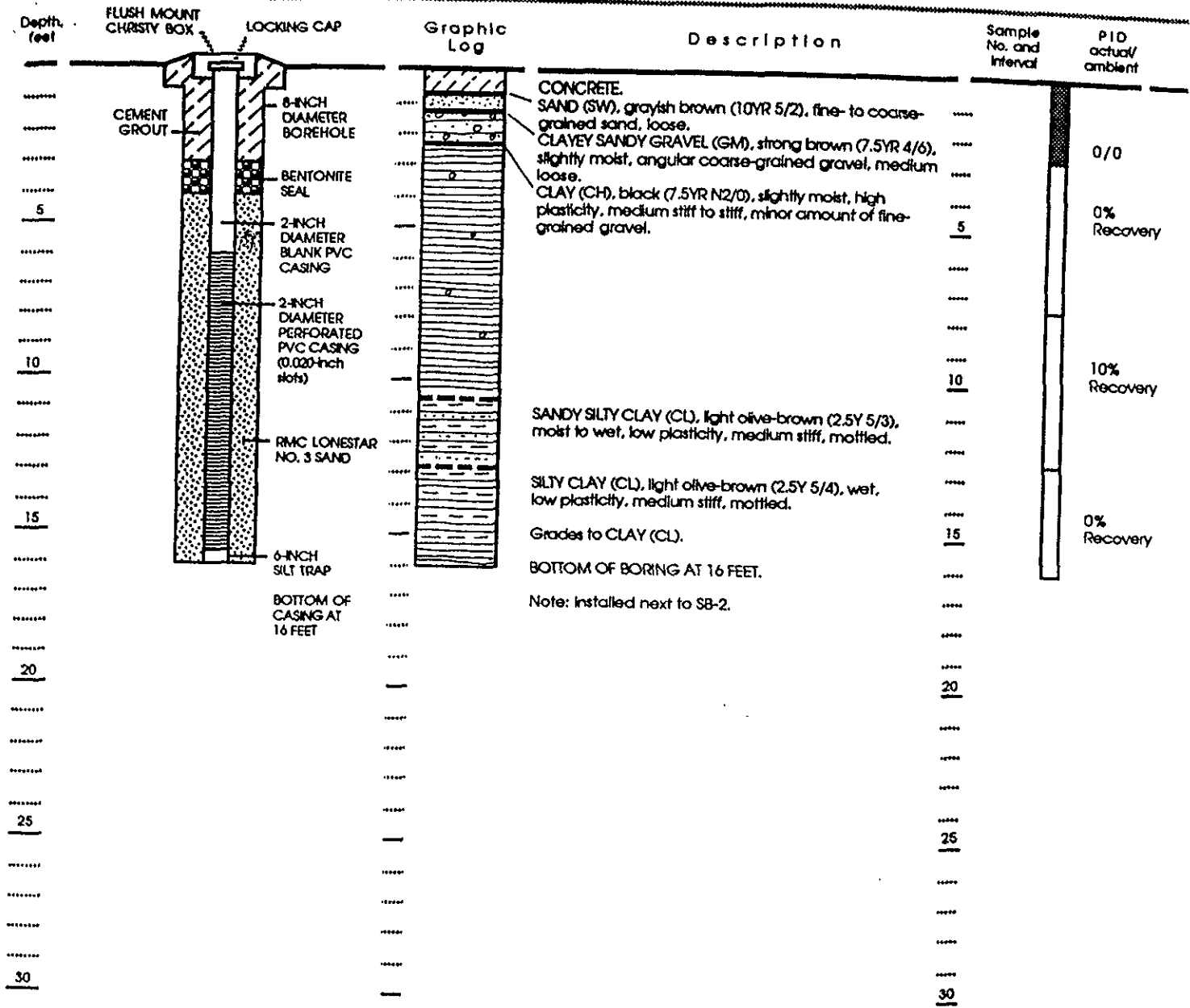
Figure  
4 b

9315 San Leandro Boulevard,  
Oakland, California

Base Map  
Levine-Fricke

**WELL CONSTRUCTION**

**LITHOLOGY**



- EXPLANATION**
- Clay
  - Silt
  - Sand
  - Gravel

Well Permit No. 91037  
 Date well drilled: February 22, 1991  
 Date water level measured:  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis

Approved by: *[Signature]*

**Figure B-9 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-4**



Log of Boring: AW-1  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A

Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
ND	NS		2	CL	Dark gray sandy clay, stiff, wet to saturated.
			3		
			4		
			5		
			6		
ND	AW-1-7.0'		7		
			8		
			9	SC	Dark gray clayey sand, slightly dense, saturated. Groundwater encountered at 9.0'.
ND	NS		10		
			11		
			12		Borehole terminated at 11.0'.
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		






**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-2  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
ND	NS		2	CL	Black silty clay stiff, wet.  Dark gray clay.
			3		
			4		
			5		
ND	NS		6		
			7		
ND	AW-2-9.0'		8		
			9		
			10		Borehole terminated at 10.0'. Groundwater not encountered
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		





**AllWest**

West Environmental, Inc.

Log of Boring: AW-3  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drilling Rig: Geoprobe  
 Driller: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

DVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
ND	NS		2	CL	Black to dark gray silty clay stiff, wet to saturated.
			3		
			4		
			5		
			6		
10	AW-3-7.5'		7		Dark gray clay. Strong HC odor.
			8		Ground water encountered at 9.0' logs.
			9		
10	AW-3-9.5'		10		
			11		Borehole terminated at 10.0'.
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		



**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-4  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
ND	NS		2	CL	Dark gray sandy clay, stiff, wet.
			3		
			4		
			5		
			6		
			7		
			8		
			9		
ND	AW-4-10.0'		10		
			11		Borehole terminated at 11.0' logs. No groundwater encountered
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		



**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-5  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
			2	CL	Dark gray to black sandy clay, stiff, wet to saturated.  Strong HC odor.
			3		
			4		
16 ppm	AW-5-5.0'		5		
			6		
5 ppm	AW-6-7.5'		7		Groundwater encountered at 6.0' Moderate HC odor.
			8		Borehole terminated at 8.0'. Groundwater had strong HC odor.
			9		
			10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		



**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-6  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			10"		10" concrete
	NS		1 2 3 4 5	CL	Dark gray clay, stiff, wet. Strong HC odor.
1	NS		6 7 8		No changes. HC odor slight at 7.5'
2	AW-6-10.0'		9 10 11		Moderate HC odor at 10'.
			12 13 14 15 16 17 18 19 20 21		Borehole terminated at 11.0'.



**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-7  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A

Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		8" concrete
5ppm	AW-7-3.5'		2	CL	Dark gray clay, stiff, wet.  Strong HC odor.
			3		
			4		
			5		
			6		
	NS		7		
			8		
4ppm	AW-7-10.0'		9		
			10		
			11		
			12	Borehole terminated at 11.0'. No groundwater encountered.	
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		






**AllWest**

AllWest Environmental, Inc.

Log of Boring: AW-8  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995



Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
ND	NS		2	CL	Dary gray clay stiff, wet.  Thin lenses of gravelly sand from 3.0' to 5.0' logs.  Slight HC odor. Mottled.
			3		
			4		
			5		
ND	NS		6		
			7		
			8		
			9		
2ppm	AW-8-10.0'		10		
			11		
			12	Borehole ferminated at 11.0'. No groundwater encountered.	
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		



Log of Boring: AW-9  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description
			1		10" concrete
			2	CL	Dark gray sandy clay, stiff, wet.
			3		
			4		
			5		
ND	NS		6		
			7		
			8		
			9		
ND	AW-9-9.0'		10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		
			21		



Log of Boring: AW-10  
 Project Name: Quik Soil  
 Project Number: 95092.23  
 Drilling Date: July 31, 1995

Drilling Contractor: Vironex  
 Drill Rig: Geoprobe  
 Auger: N/A  
 Sampler: 1.5" x 2' core pipe  
 Hammer: Hydraulic percussion  
 Logged By: Keith Craig

OVM Reading	Sample Number	Sample Interval	Depth in Feet	USCS Code	Soil Description	
			1		10" concrete	
			2		Dark gray clay stiff, wet to saturated.	
			3			
			4	CL		
ND 2ppm	NS		5			Slight HC odor
2ppm	AW-10-8.5'		6			Groundwater encountered at 6.0' logs.
			7			
			8		Borehole terminated at 8.0' logs. Slight HC odor in GW	
			9			
			10			
			11			
			12			
			13			
			14			
			15			
			16			
			17			
			18			
			19			
			20			
			21			





AllWest

TABLE #9  
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS

9315 San Leandro Boulevard  
Oakland, California

Sample Identification	Sample Date	TPH-g 8015 (m)	TPH-d 8015 (m)	TPH-mo 8015(m)	BTEX 8020	PNAs 8270
EW-1	6-2-94	ND	ND	NA	ND	NS
	8-25-94	ND	ND	NA	ND	NS
	2-15-94	ND	ND	NA	ND	ND
	7-26-95	ND < 50	310 (160)	NA (2,400)	ND < 0.5	ND < 4
	10-23-95	ND	180	ND	ND	ND
	3/8/96	ND	180	ND	ND	NA
EW-2	6-2-94	ND	ND	NA	ND	NA
	11-21-94	ND	ND	NA	ND	ND
	7-26-95	NS	NS	NS	NS	NS
	10-23-95	NS	NS	NS	NS	NS
	3/8/96	NS	NS	NS	NS	NS
*LF-1	4-10-91	FP	FP	NA	FP	FP
	11-30-93	FP	FP	NA	FP	FP
	4-7-94	FP	FP	NA	FP	FP
LF-2	4-10-91	ND	ND	NA	ND	NA
	11-30-93	ND	ND	NA	ND	NA
	4-7-94	ND	ND	NA	ND	NA
	7-26-95	ND < 50	240 (ND < 50)	NA (700)	ND < 0.5	ND < 4
	10-23-95	ND	ND	ND	ND	ND
	3/8/96	NS	NS	NS	NS	NS
LF-3	4-10-91	120,000	450	NA	B-1.1,TEX-ND	NA
	4-7-94	ND	ND	NA	ND	NA
	8-25-94	ND	ND	NA	ND	NA
	11-21-94	ND	ND	NA	ND	ND
	2-15-95	ND	ND	NA	ND	ND
	7-26-95	ND < 50	140 (ND < 50)	(1,100)	ND < 0.5	ND < 4
	10-23-95	ND	ND	ND	ND	ND
	3/8/96	NS	NS	NS	NS	NS
LF-4	4-10-91	ND	ND	NA	ND	NA
	4-7-94	ND	ND	NA	ND	NA
	8-25-94	ND	ND	NA	ND	NA
	2-15-95	ND	ND	NA	ND	ND
	7-26-95	ND < 50	100 (NA)	NA (NA)	ND < 0.5	ND < 4
	10-23-95	ND	ND	ND	ND	ND
	3/8/96	ND	ND	ND	ND	ND
QA/QC						
EW-1D	7-26-95	NA	NA (820)	NA (5,500)	NA	NA
LF-5	10-23-95	ND	ND	ND	ND	ND
Trip Blank	10-23-95	ND	ND	ND	ND	ND

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		SILTY CLAY (CL), black (7.5YR N2/0), slightly moist, stiff, moderately plastic, diesel odor.		
5		CLAY (OH), black (7.5YR N2/0), soft, plastic, some organic matter, diesel odor.	SB1-3.5	5
5		No detectable diesel odor.		
9				9
10		SILTY CLAY (CL), olive-brown (2.5Y 4/4), moist in some area (diesel ?), stiff, plastic, gray mottling in root/worm holes, diesel odor.	SB1-8.5	11
10		Diesel (?) in worm/root holes.		
15		SILTY SAND (SM), olive, wet, fine-grained, no diesel odor.		
15		SILTY CLAY (CL), light olive-brown (2.5Y 5/6), mottled tan, slightly moist, stiff, plastic.	SB1-13.5	11
15		BOTTOM OF BORING AT 12.5 FEET.		
15		BOTTOM OF SAMPLE BORING AT 14 FEET.		

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-1 Aug 1989

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
		ENGINEERED FILL, diesel odor.		
		CLAY (OH), black (7.5YR N2/0), slightly moist, moderately stiff, plastic, diesel odor.		
5		Diesel odor, slightly moist.	SB3-3.5 5	9
10		SILTY CLAY (CL), olive-brown (2.5Y 4/4), mottled gray in root/worm holes, stiff, moderately plastic, diesel odor.	SB3-8 10	10
		Diesel odor.		8
		Rust brown/mottled tan.		
		Minor amount of fine-grained sand. Faint diesel odor.	SB3-13	10
15		BOTTOM OF BORING AT 12.5 FEET.	15	
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

- EXPLANATION
- Clay
  - Silt
  - Sand
  - Gravel
  - Modified California Sampler
  - Sample retained for chemical analysis
  - Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-3 Aug 1989

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
		ENGINEERED FILL.		
		CLAY (OH), black (7.5YR N2/0), stiff, high plasticity, strong gasoline odor, organic matter, fractured (slicken sides).		
5		Slight gasoline odor.	SB5-3.5	13
		SILTY CLAY (CL), olive-gray (5Y 4/2), stiff, moderately plastic, root/worm holes are wet (gasoline ?) and mottled gray, strong gasoline odor.		8
10		Gasoline odor.	SB5-8	12
		Minor clayey sand lens, fine-grained. SILTY CLAY (CL), light olive-brown (2.5Y 5/6), mottled tan, wet, root/worm holes are stained gray, gasoline odor.		8
15		BOTTOM OF BORING AT 12.5 FEET.	SB5-13.5	10
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-5 *Aug 1989*

Project No. 1836

CB12SEP89am

**LEVINE•FRICKE**  
 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		ENGINEERED FILL, gasoline odor.		
5		CLAY (OH), black (7.5YR N2/0), stiff, plastic, friable, organic matter, fractured (slicken sides), gasoline odor.	SB7-3.5	9
10		SILTY CLAY (CI), olive-gray (5Y 4/2), stiff, moderately plastic, worm holes are moist (gasoline ?) and are stained mottled gray.	SB7-9	14
12.5		Dark greenish gray (SG 4/1), moist with gasoline, minor amount of gravel less than 2-mm diameter.		8
15		SILTY CLAY (CI), light olive-brown (2.5Y 5/6), strong gasoline odor, gray staining in worm holes and fractures; minor clayey sand lens (SC), light olive-brown, fine-grained.	SB7-13	12
15		BOTTOM OF BORING AT 12.5 FEET.		
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

- EXPLANATION
- Clay
  - Silt
  - Sand
  - Gravel
  - Modified California Sampler
  - Sample retained for chemical analysis
  - Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-7 Aug 1989

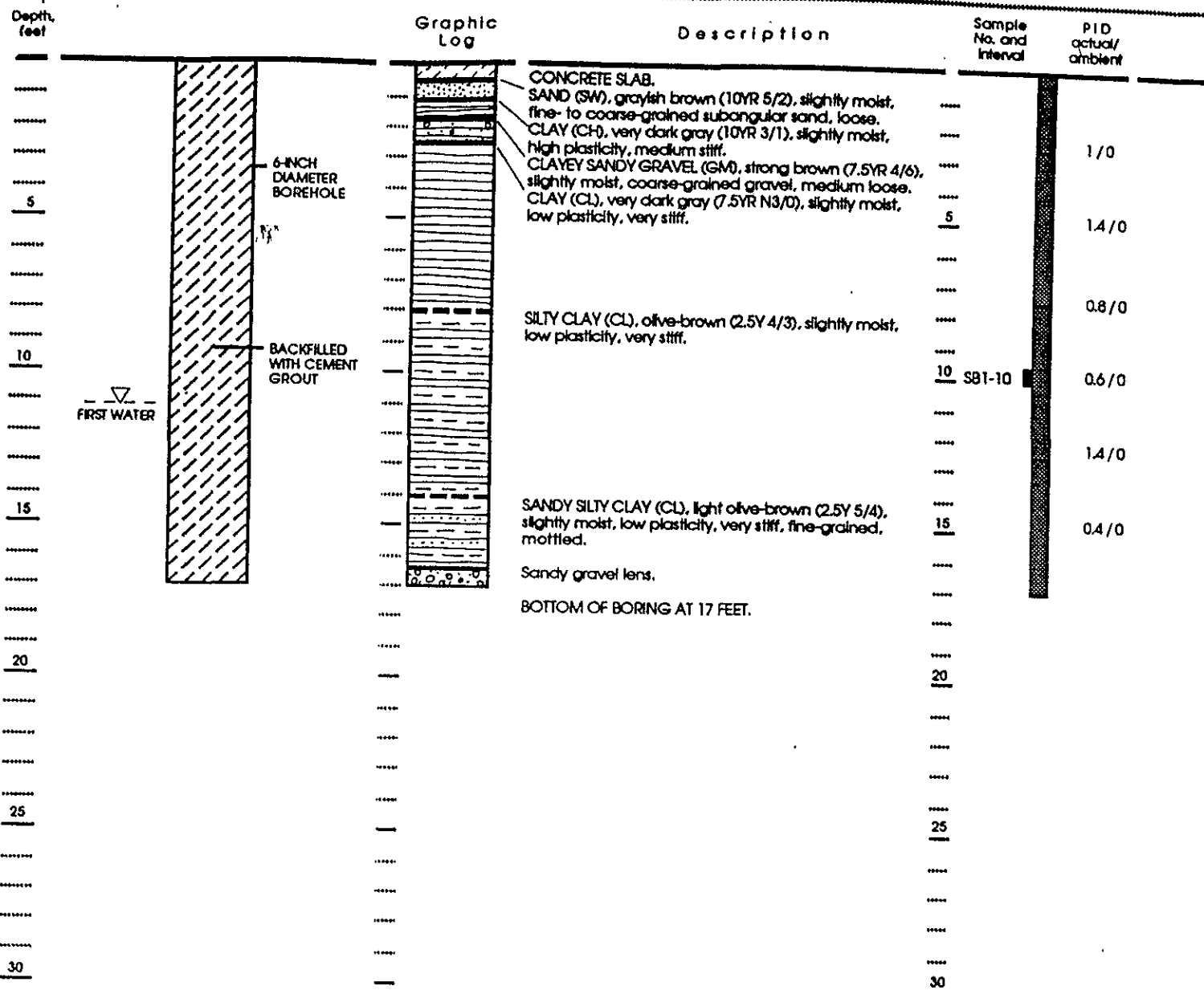
Project No. 1836

CB12SEP89em

**LEVINE•FRICKE**  
 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

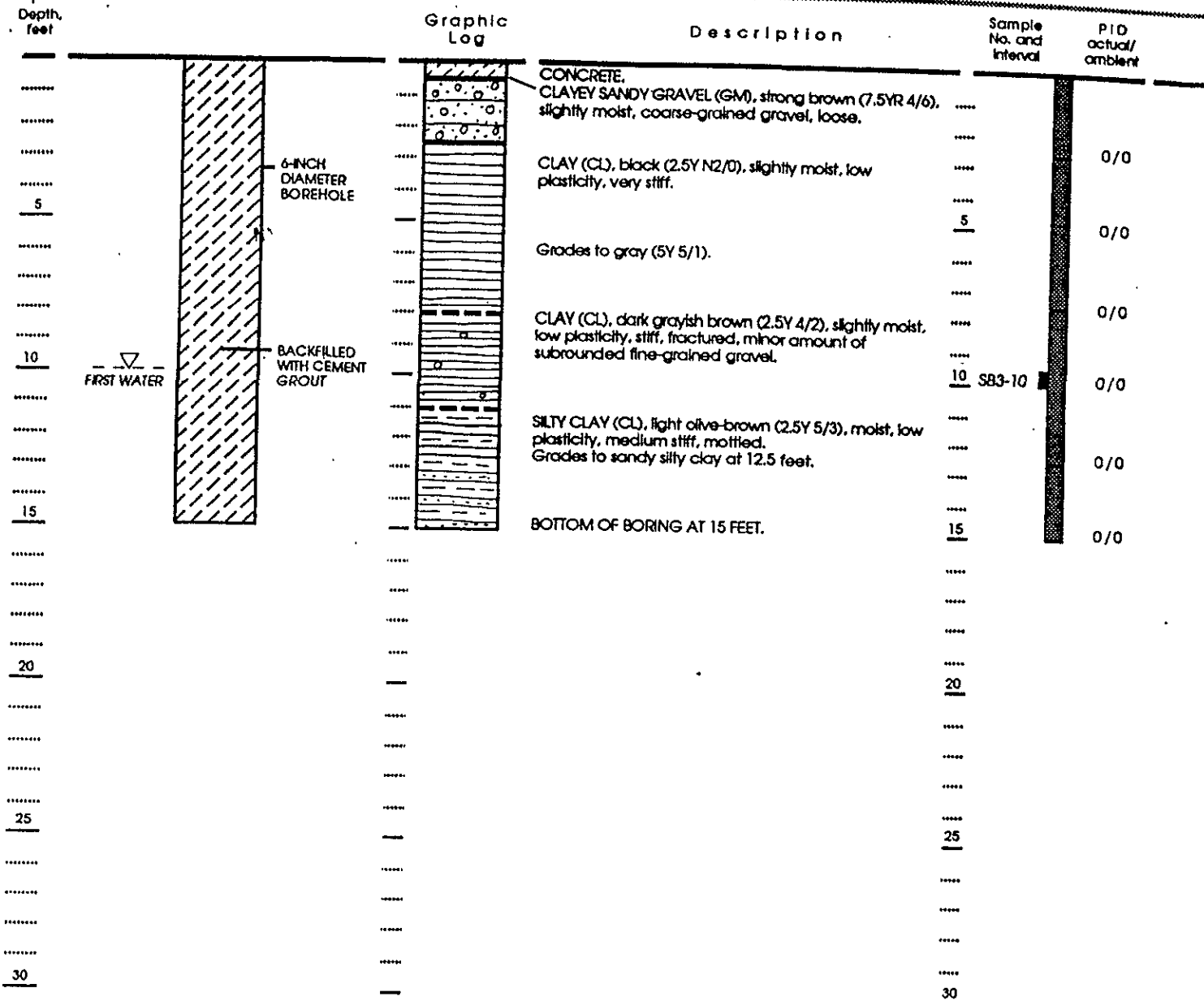
- Continuous Core Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by: *[Signature]*

**Figure B-1 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-1 Feb 1991**

WELL CONSTRUCTION

LITHOLOGY



6-INCH DIAMETER BOREHOLE

BACKFILLED WITH CEMENT GROUT

FIRST WATER

- EXPLANATION
- Clay
  - Silt
  - Sand
  - Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis

Water level at time of drilling

Approved by: *T.H.J.*

Figure B-3 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-3 Feb 1991

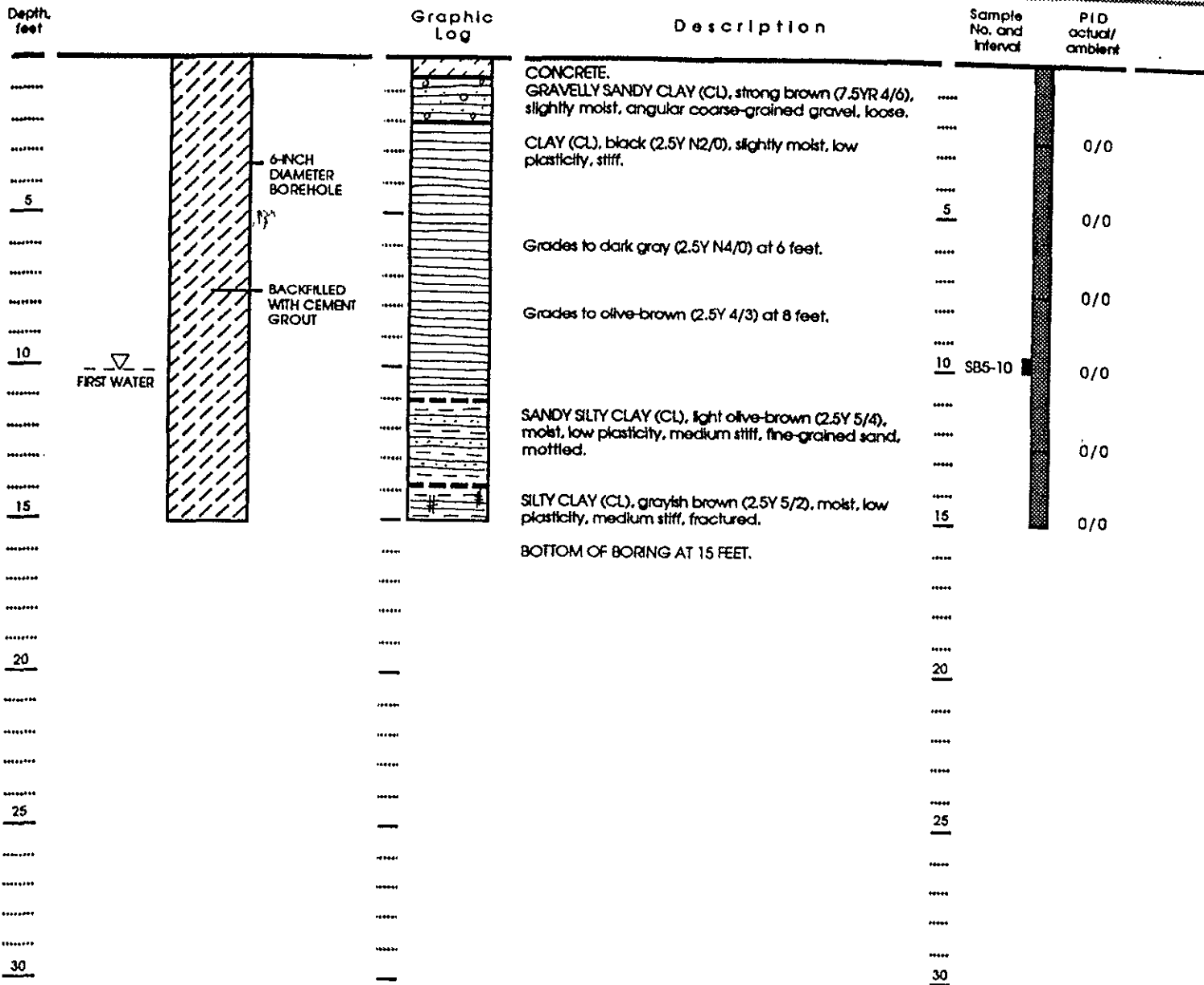
Project No. 2288

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**LEVINE-FRICKE**  
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**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis

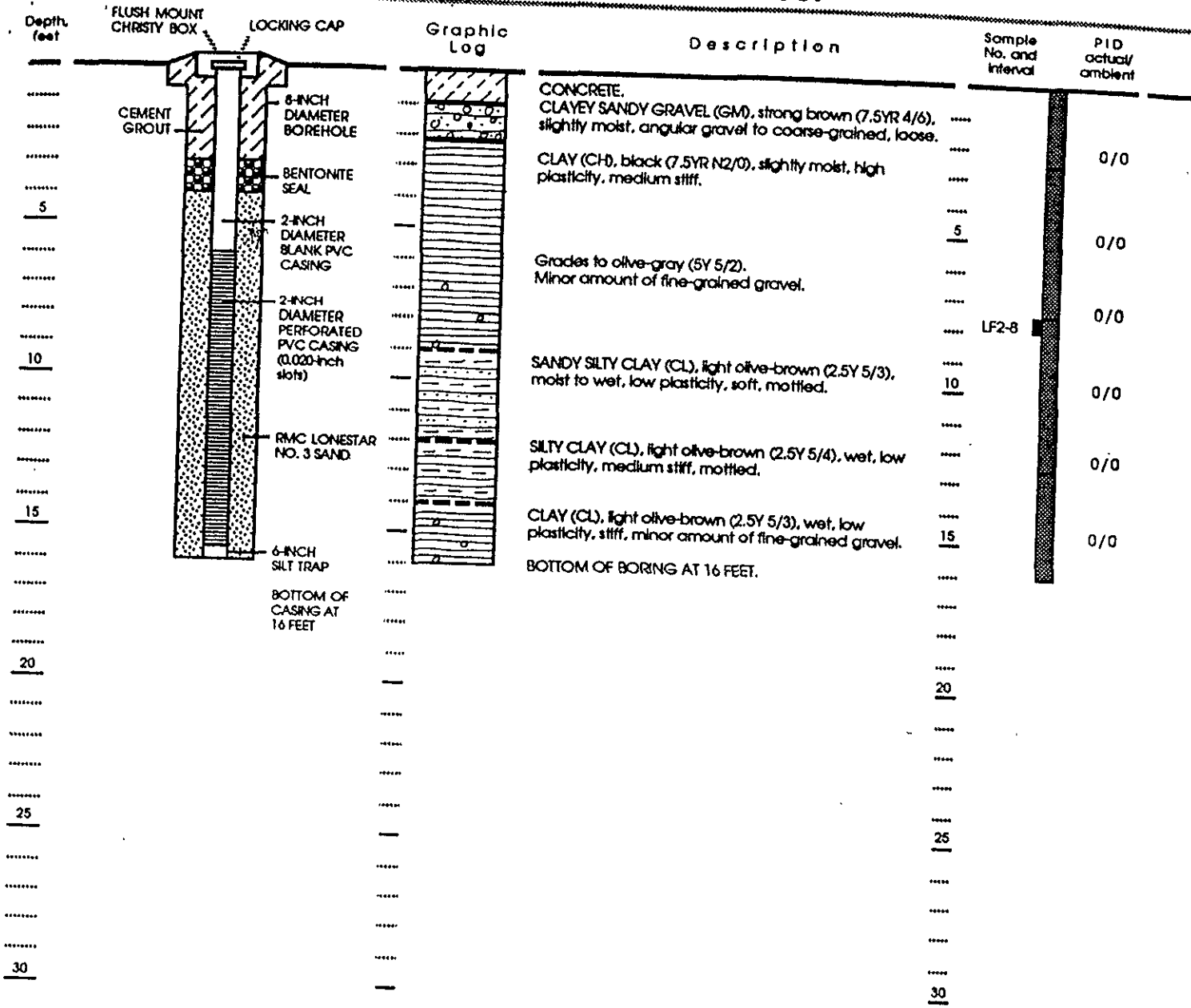
Approved by:

**Figure B-5 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-5 Feb 1991**



# WELL CONSTRUCTION



# LITHOLOGY



### EXPLANATION

-  Clay
-  Silt
-  Sand
-  Gravel

Well Permit No. 91037  
 Date well drilled: February 22, 1991  
 Date water level measured:  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

-  Continuous Core Sampler
-  Sample retained for chemical analysis


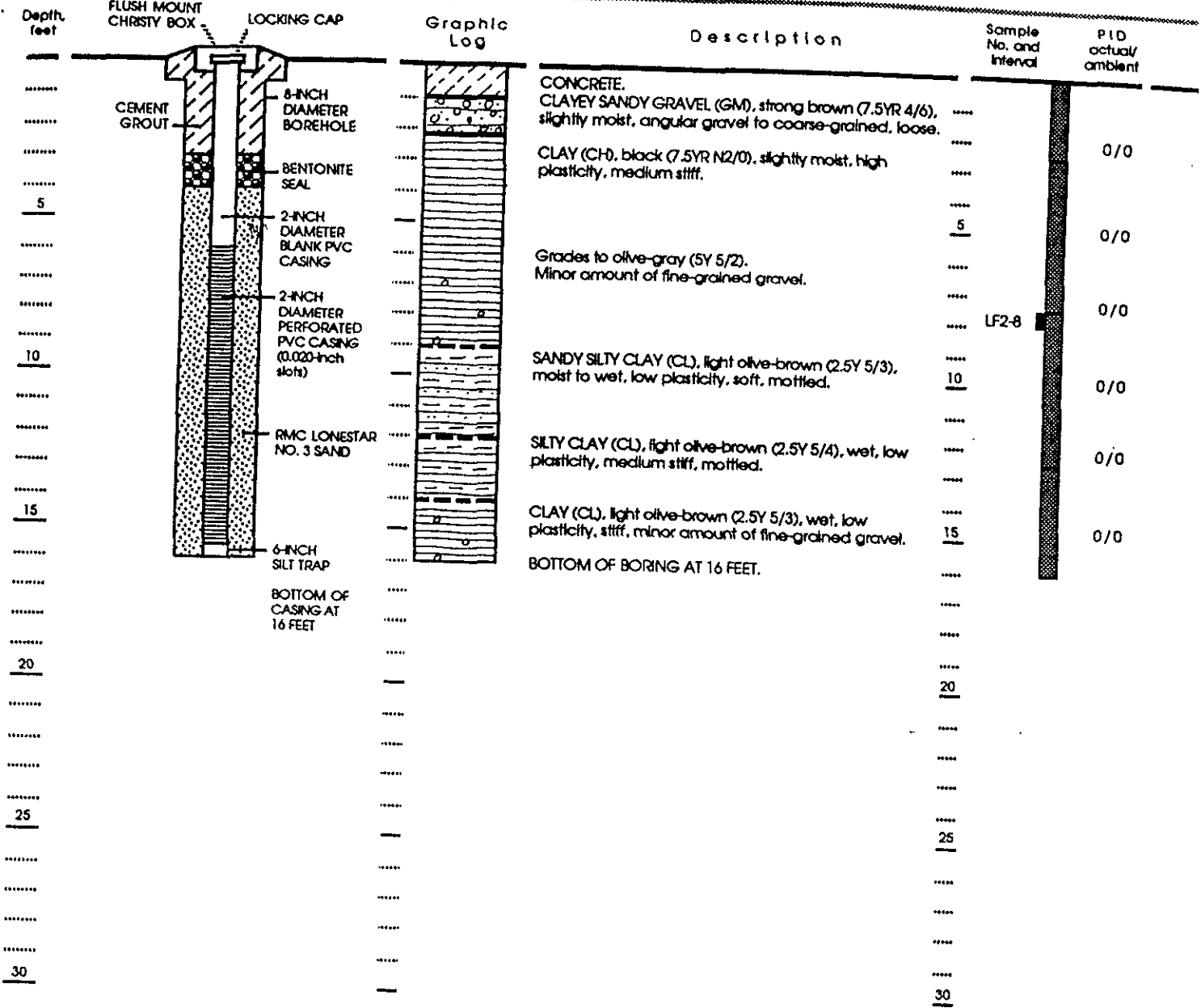
Approved by: 

Figure B-7 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-2

**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Well Permit No. 91037  
 Date well drilled: February 22, 1991  
 Date water level measured:  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis

Approved by:

**Figure B-7 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-2**

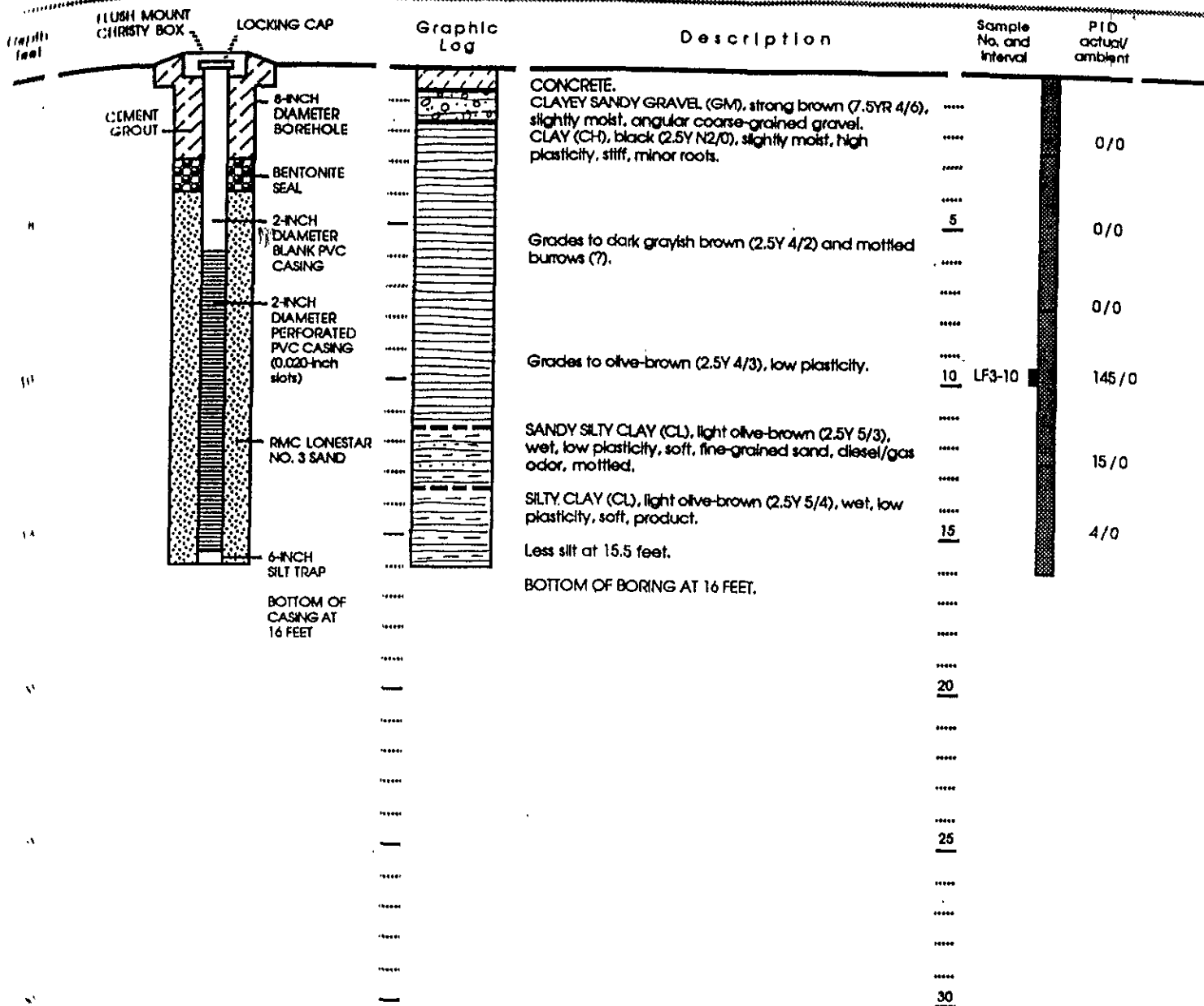
Project No. 2288

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 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Well Permit No. 91037  
 Date well drilled: February 22, 1991  
 Date water level measured:  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

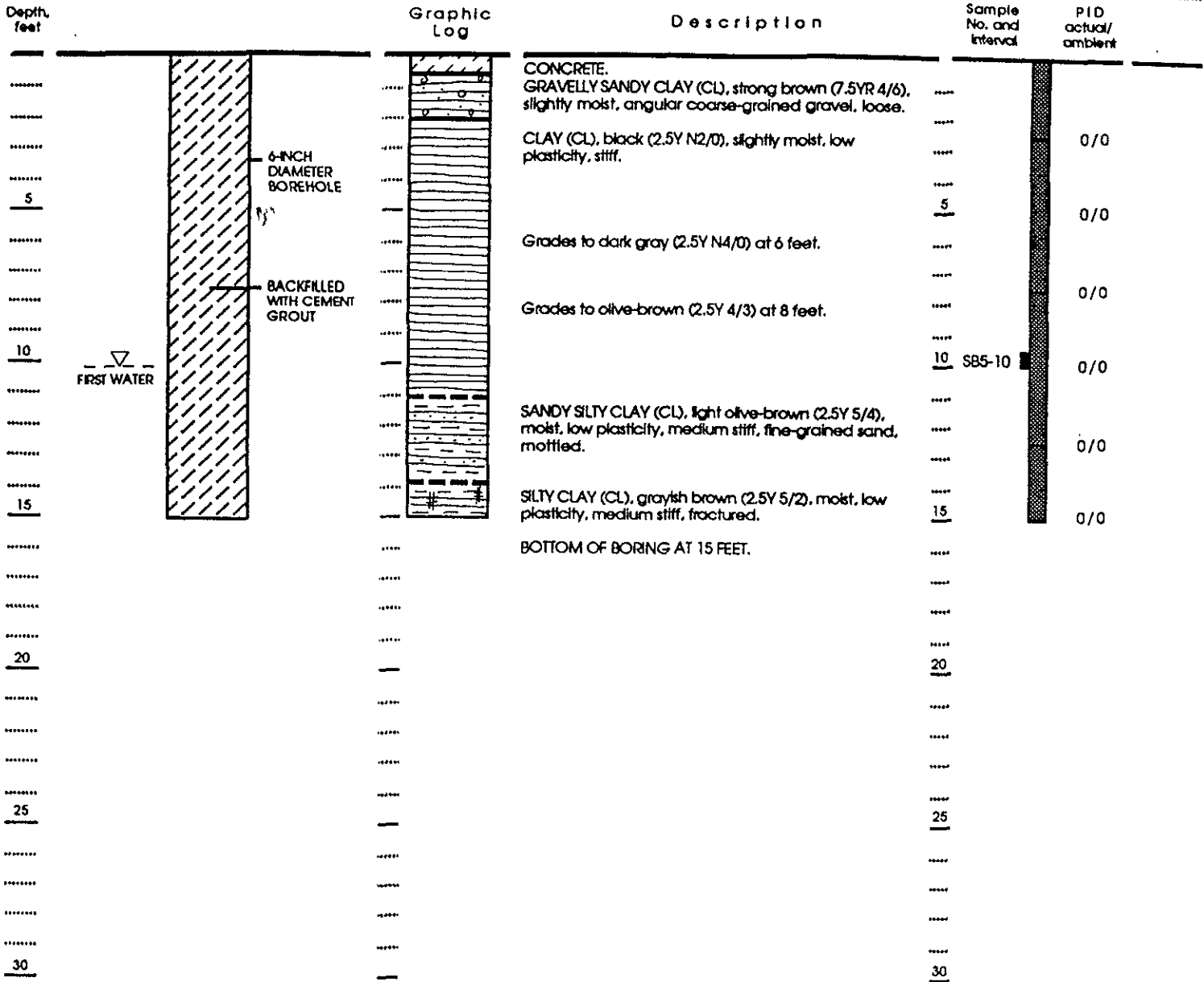
- Continuous Core Sampler
- Sample retained for chemical analysis

Approved by:

**Figure B-8 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-3**

**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

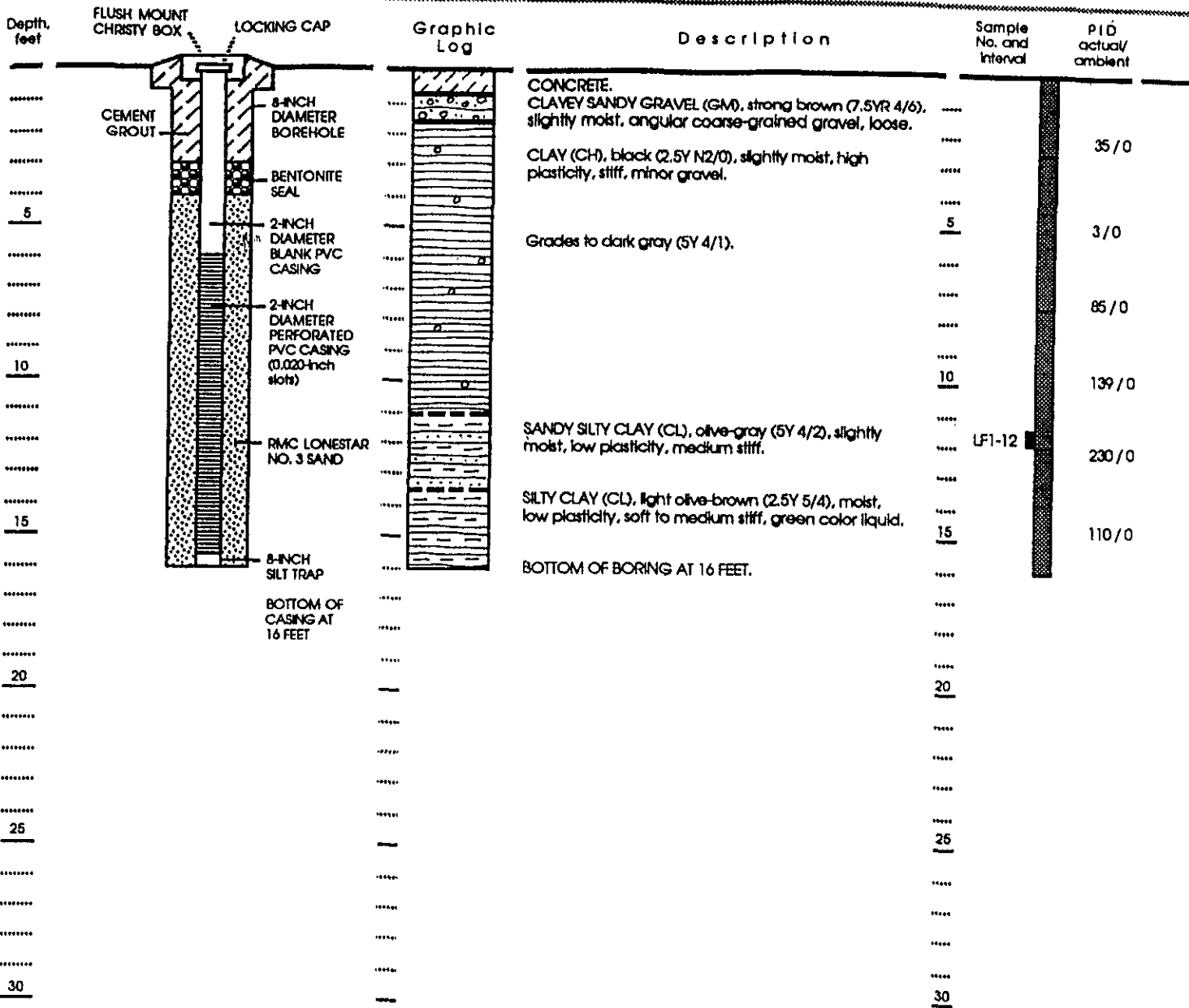
- Continuous Core Sampler
- Sample retained for chemical analysis

Approved by:

**Figure B-5 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-5 Feb 1991**

**WELL CONSTRUCTION**

**LITHOLOGY**



**EXPLANATION**

- Clay
- Silt
- Sand
- Gravel

Well Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured:  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

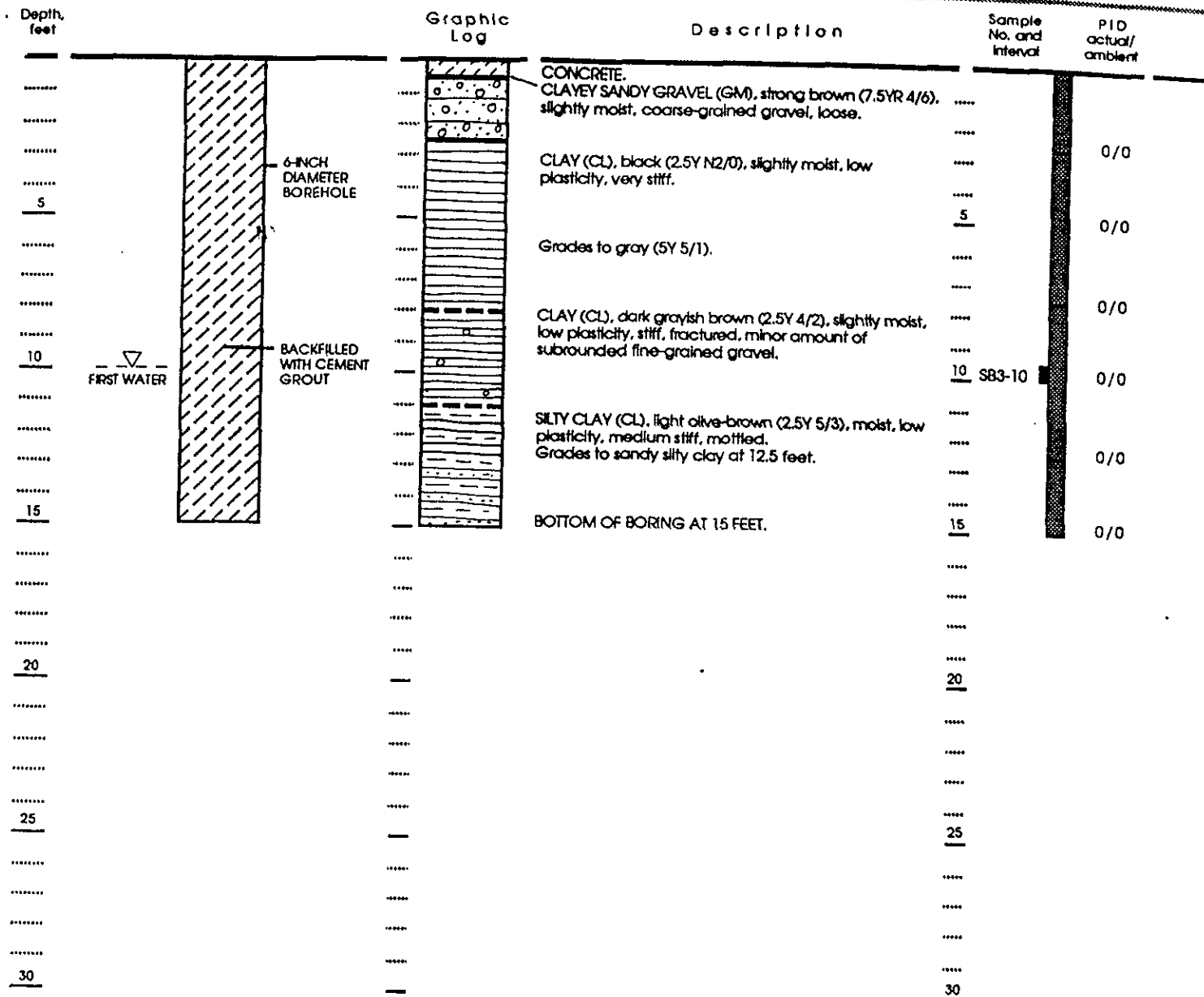
- Continuous Core Sampler
- Sample retained for chemical analysis

Approved by:

**Figure B-6 : WELL CONSTRUCTION AND LITHOLOGY FOR WELL LF-1**

WELL CONSTRUCTION

LITHOLOGY



6-INCH DIAMETER BOREHOLE

BACKFILLED WITH CEMENT GROUT

FIRST WATER

- EXPLANATION
- Clay
  - Silt
  - Sand
  - Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

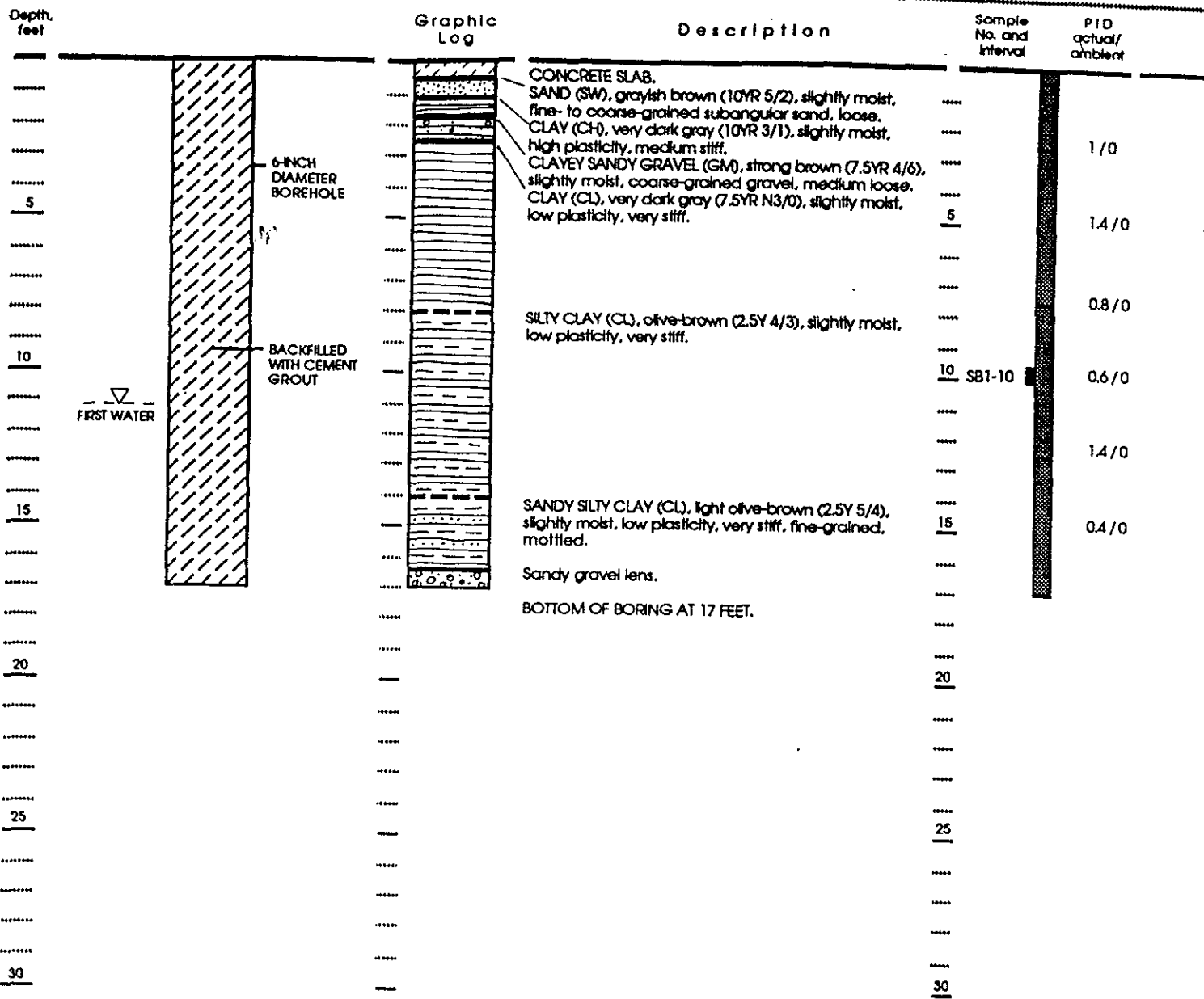
Approved by: *TJL*

Figure B-3 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-3 Feb 1991



**WELL CONSTRUCTION**

**LITHOLOGY**



- EXPLANATION**
- Clay
  - Silt
  - Sand
  - Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

- Continuous Core Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

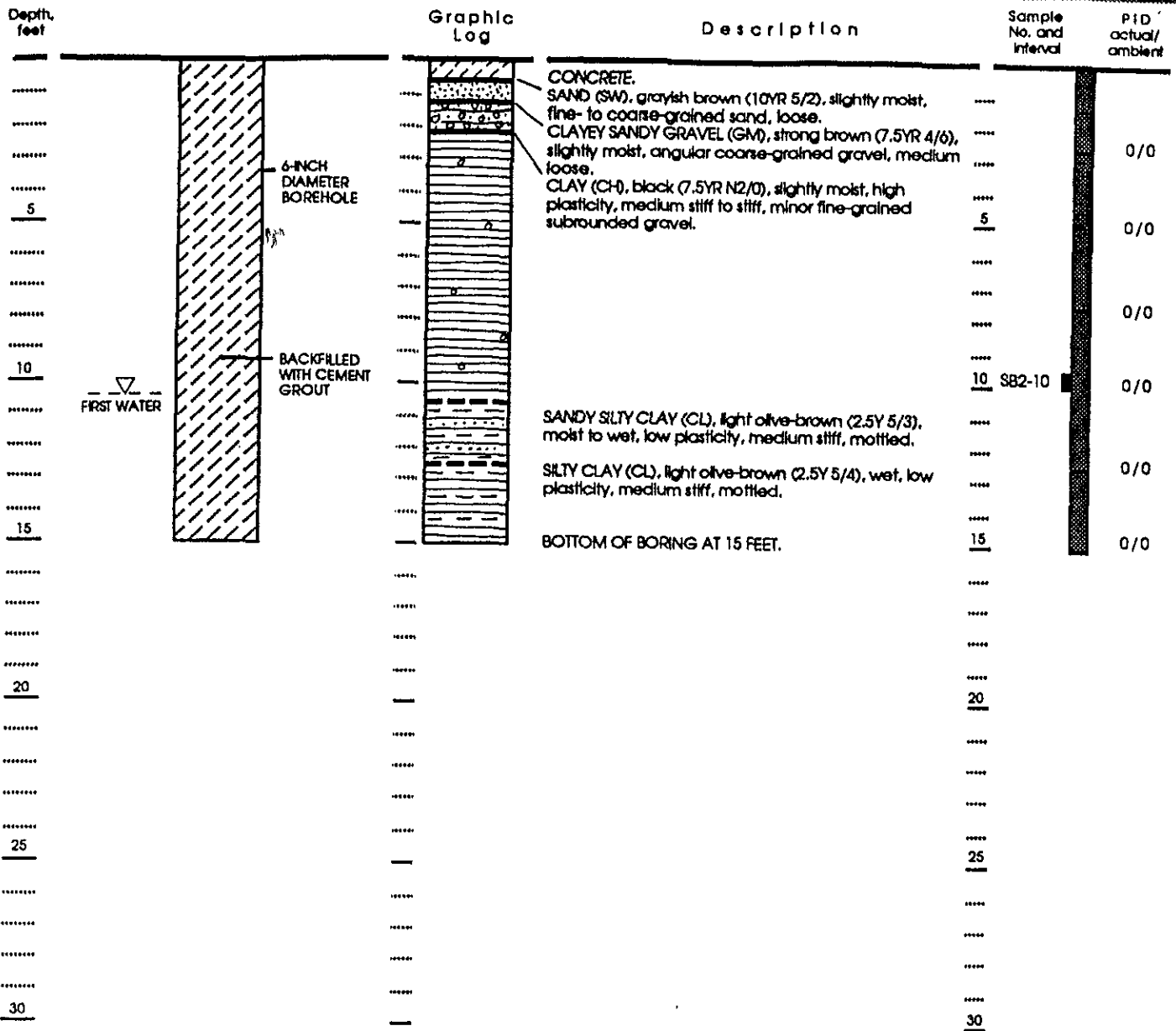
Approved by:

**Figure B-1 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-1 FEB 1991**






**WELL CONSTRUCTION**




**LITHOLOGY**

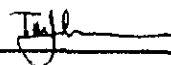


**EXPLANATION**

-  Clay
-  Silt
-  Sand
-  Gravel

Permit No. 91037  
 Date well drilled: February 21, 1991  
 Date water level measured: February 22, 1991  
 Well elevation:  
 Hammer weight:  
 LF Geologist: Kyle H. Kirchner

-  Continuous Core Sampler
-  Sample retained for chemical analysis
-  Water level at time of drilling

Approved by: 

**Figure B-2 : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-2 February 1991**

# LITHOLOGY

# SAMPLE DATA

Depth (feet)	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		ENGINEERED FILL, gasoline odor.		
5		CLAY (OH), black (7.5YR N2/0), stiff, plastic, friable, organic matter, fractured (slicken sides), gasoline odor.	SB7-3.5 5	9
10		SILTY CLAY (CL), olive-gray (5Y 4/2), stiff, moderately plastic, worm holes are moist (gasoline ?) and are stained mottled gray.	SB7-9 10	14
15		Dark greenish gray (5G 4/1), moist with gasoline, minor amount of gravel less than 2-mm diameter.	SB7-13 15	8
15		SILTY CLAY (CL), light olive-brown (2.5Y 5/6), strong gasoline odor, gray staining in worm holes and fractures; minor clayey sand lens (SC), light olive-brown, fine-grained.		12
BOTTOM OF BORING AT 12.5 FEET.				
BOTTOM OF SAMPLE BORING AT 14 FEET.				

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

### EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by: \_\_\_\_\_

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-7 Aug 1989

Project No. 1836

CB12SEP89am

**LEVINE•FRICKE**  
CONSULTING ENGINEERS AND HYDROGEOLOGISTS

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
		ENGINEERED FILL, gasoline odor.		
		CLAY (OH), black (7.5YR N2/0), stiff, plastic, organic matter.		
		Gasoline odor.	SB8-3	9
5		Slight gasoline odor.	5	8
		SILTY CLAY (CL), olive-gray (5Y 4/2), stiff, moderately plastic, worm/root holes.	SB8-8	14
10		Dark greenish gray (5G 4/1), moist (gasoline odor?).	10	6
		Strong gasoline odor.		
		SILTY CLAY (CL), olive (5Y 5/6), stiff, moderately plastic, gasoline odor, large worm/root holes with gray mottling.	SB8-13	14
15		BOTTOM OF BORING AT 12.5 FEET.	15	
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Date boring drilled: 3 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

Approved by: \_\_\_\_\_

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-8 Aug 1989

Project No. 1836

**LEVINE-FRICKI**  
 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

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LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
		<b>ENGINEERED FILL</b>		
		CLAY (OH), black (7.5YR N2/0), stiff, high plasticity, strong gasoline odor, organic matter, fractured (slicken sides).		
5		Slight gasoline odor.	SBS-3.5	13
		SILTY CLAY (CL), olive-gray (5Y 4/2), stiff, moderately plastic, root/worm holes are wet (gasoline ?) and mottled gray, strong gasoline odor.		8
10		Gasoline odor.	SBS-8	12
		Minor clayey sand lens, fine-grained.		8
		SILTY CLAY (CL), light olive-brown (2.5Y 5/6), mottled tan, wet, root/worm holes are stained gray, gasoline odor.		10
15		BOTTOM OF BORING AT 12.5 FEET.	SBS-13.5	
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-5 *Aug 1989*

Project No. 1836

**LEVINE•FRICKE**  
 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		ENGINEERED FILL, petroleum odor.		
5		CLAY (OH), black (7.5YR N2/0), slightly moist, stiff, plastic, gasoline odor, fractures (slicken sides), organic matter.	SB6-3 5	10
10		SILTY CLAY (CL), olive-brown (2.5Y 4/4), mottled gray, stiff, moderately plastic, worm/root holes are moist (gasoline ?).  Gasoline odor.	SB6-8 10	9
15		Gasoline odor. Minor CLAYEY SAND lens (SC), light olive-brown (2.5Y 5/6), wet, gasoline odor. SILTY CLAY (CL), light olive-brown (2.5Y 5/6), mottled gray, stiff, moderately plastic.	SB8-13 15	13
		BOTTOM OF BORING AT 14 FEET.		8
				12

Date boring drilled: 3 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by: \_\_\_\_\_

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-6 Aug 1989

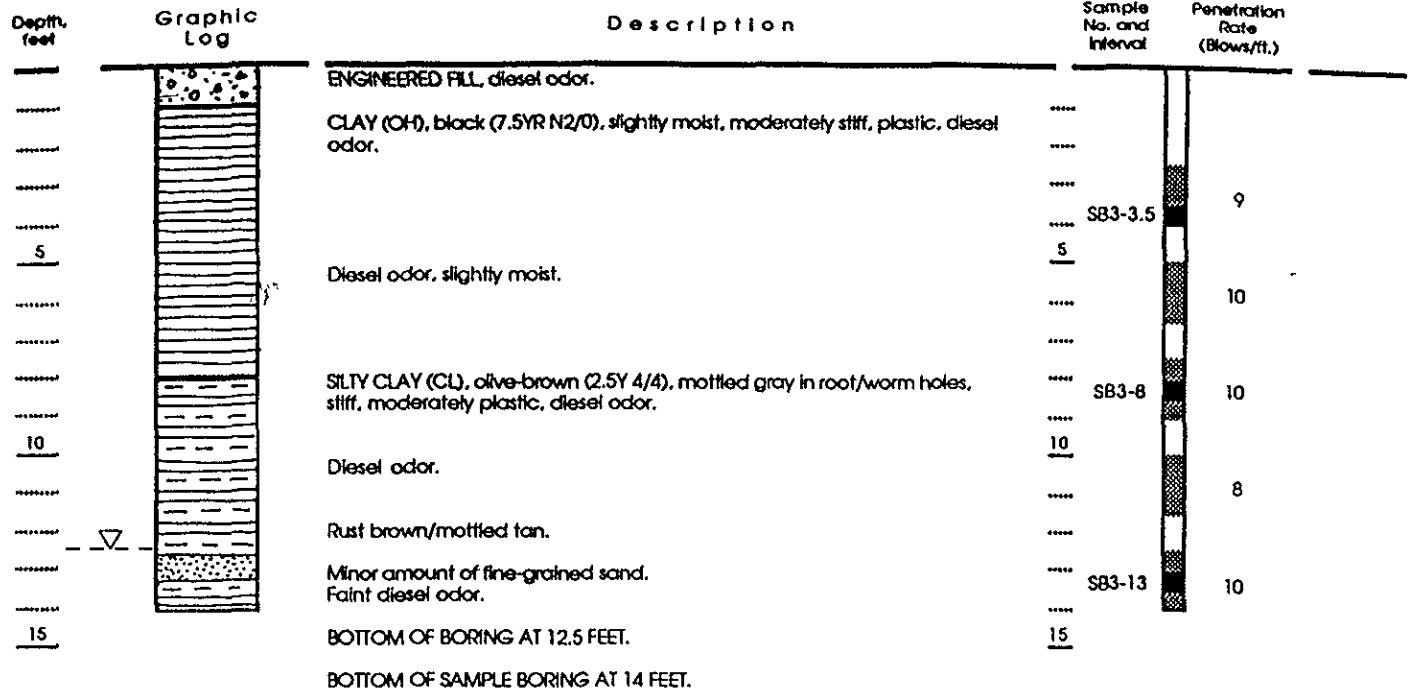
Project No. 1836

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**LEVINE-FRICKE**  
 CONSULTING ENGINEERS AND HYDROGEOLOGISTS

LITHOLOGY

SAMPLE DATA



Date boring drilled: 2 August 1989

Hammer weight: 140 lbs/30-inch drop

LF Geologist: Craig Benson

EXPLANATION

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-3 Aug 1989

LITHOLOGY

SAMPLE DATA

Depth, Feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		CLAYEY GRAVEL (Road Fill), rust color, slight diesel odor.		
5		CLAY (OH), black (7.5YR N2/D), moderately stiff, highly plastic, fractured (slicken sides), slight diesel odor, organic matter.  Diesel odor.	SB4-3 5	8
10		SILTY CLAY (CL), olive-brown (2.5Y 4/4), stiff, root/worm holes with gray mottling, holes are moist (diesel ?), diesel odor.  Strong diesel odor.	SB4-8.5 10	12
15		SILTY CLAY (CL), light olive-brown (2.5Y 5/6), stiff, high plasticity, root/worm holes. Minor clayey sand lens, fine-grained.  No detectable diesel odor.  Dark tan, root/worm holes, no odor.  BOTTOM OF BORING AT 15 FEET.  BOTTOM OF SAMPLE BORING AT 16.5 FEET.	SB4-13 15	11
20				

EXPLANATION

Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

- Clay
- Silt
- Sand
- Gravel
- Modified California Sampler
- Sample retained for chemical analysis
- Water level at time of drilling

Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-4 *Aug 1989*

LITHOLOGY

SAMPLE DATA

Depth, feet	Graphic Log	Description	Sample No. and Interval	Penetration Rate (Blows/ft.)
0		SILTY CLAY (CL), black (7.5YR N2/0), slightly moist, stiff, moderately plastic, diesel odor.		
5		CLAY (OH), black (7.5YR N2/0), soft, plastic, some organic matter, diesel odor.	SB1-3.5	5
		No detectable diesel odor.		9
10		SILTY CLAY (CL), olive-brown (2.5Y 4/4), moist in some area (diesel ?), stiff, plastic, gray mottling in root/worm holes, diesel odor.	SB1-8.5	11
		Diesel (?) in worm/root holes.		
		SILTY SAND (SM), olive, wet, fine-grained, no diesel odor.		
15		SILTY CLAY (CL), light olive-brown (2.5Y 5/6), mottled tan, slightly moist, stiff, plastic.	SB1-13.5	11
		BOTTOM OF BORING AT 12.5 FEET.		
		BOTTOM OF SAMPLE BORING AT 14 FEET.		

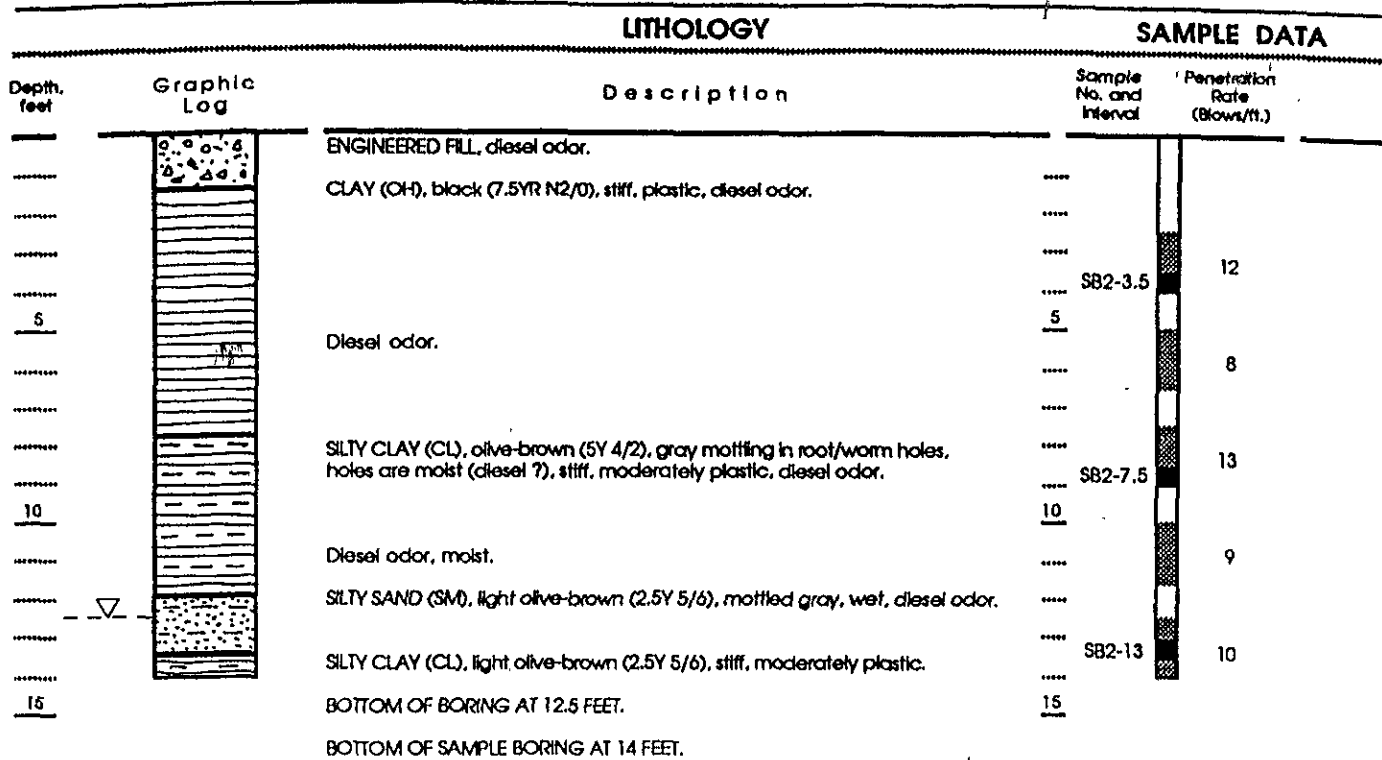
Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson

- EXPLANATION
- Clay
  - Silt
  - Sand
  - Gravel
  - Modified California Sampler
  - Sample retained for chemical analysis
  - Water level at time of drilling

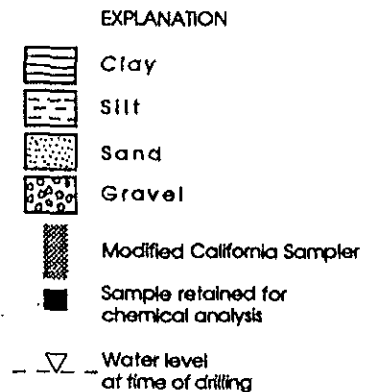
Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-1 Aug 1989





Date boring drilled: 2 August 1989  
 Hammer weight: 140 lbs/30-inch drop  
 LF Geologist: Craig Benson



Approved by:

Figure : LITHOLOGY AND SAMPLE DATA FOR SOIL BORING SB-2

Aug 1989