7/25/89

Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (415) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Marketing Operations
D. Moller
Division Manager, Operations
S. L. Patterson
Area Manager, Operations
C. G. Trimbach
Manager, Engineering

July 14, 1989

Dennis Byrne
Alameda County
Division of Environmental Health
470 27th Street, Room 324
Oakland, California 94612

Re: Former Chevron Bulk Plant #1001067
1520 Powell Street
Emeryville, California

Dear Mr. Byrne:

Enclosed are the results of the soil sampling conducted by Western Geologic Resources, Inc. (WGR) at the former Chevron Asphalt Plant. The scope of work included drilling 40 to 50 soil boring beneath and in the immediate vicinity of the former barrel platform at depths of 3 and 5 ft.

I declare under penalty of perjury that the information contained in the attached report is true and correct, and that any recommended actions are appropriate under the circumstances, to the best of my knowledge. If you have any questions or require additional information, please contact Lisa Marinaro at (415) 842-9527.

Sincerely,
D. Moller

By Lisa Marinaro
Lisa Marinaro, Engineer

cc: Tom Callaghan
California Regional Water
Quality Control Board
1111 Jackson Street
Oakland, California 94607

WESTERN GEOLOGIC RESOURCES, INC.

2160 E. FRANCISCO BOULEVARD, SUITE B
SAN RAFAEL, CALIFORNIA 94901
415/457-7595 FAX: 415/457-8521

27 February 1989

Lisa Marinaro
Chevron USA
2410 Camino Ramon
San Ramon, CA 94583

Re: Chevron Asphalt Plant
1520 Powell Street
Emeryville, CA
WGR Job# 1-045.02

Dear Ms. Marinaro:

This letter presents the results of soil sampling conducted by Western Geologic Resources, Inc. (WGR) at the former Chevron Asphalt Plant located at 1520 Powell Street in Emeryville California (Figures 1 and 2).

As requested the following scope of work was performed:

1) Drill 40 to 50 soil borings beneath and in the immediate vicinity of the former barrel platform (Figure 2);

2) Collect soil samples at 3 and 5 ft intervals and analyze the soil samples by EPA methods 8015/8020; and

3) Review results and prepare a report.

BACKGROUND

March 1985 - 9 groundwater monitoring wells installed by Harding Lawson Associates (HLA). Low levels of hydrocarbons detected in groundwater samples.

October 1987 - Above ground tanks and associated piping removed.

July 1988 - 2 additional wells installed by HLA; soil sampling indicates hydrocarbons and trichloroethylene (TCE) present in soil. Hydrocarbons and other regulated compounds were present in water samples from some wells.

August-September 1988 - Loading dock removed, additional piping removed.

SOIL BORINGS AND HYDROGEOLOGY

Barrel Storage Area

Twenty one soil borings were drilled with 6 in diameter solid flight stem augers by Exploration Geoservices on 7 September 1988. Borings were logged by WGR geologist Thomas Howard. Borings were spaced on 20 ft centers in a grid pattern across the former barrel platform. The WGR standard operating procedure for soil sampling is included in Attachment A. A lead auger was used to drill to 3 ft, then clean, 2-in split barrel samplers were advanced from 3 to 4.5 ft and from 4.5 to 6 ft for the purpose of collecting soil samples. For borings B-1 to B-20, one clean lead auger was used for each set of five borings which were grouped for compositing. The 2-in split barrel samplers were cleaned in a solution of Tri-Sodium-Phosphate (TSP) between sampling runs. Locations of these borings are shown in Figure 3.

The site is predominantly underlain by fill and bay mud (low estimated-permeability clayey silts and silty clays, with occasional sands). Groundwater was encountered in most borings at approximately 3.5 ft below ground surface. The borings were allowed to stand open until the end of the day at which time they were checked for fluid levels and any indication of product(see below). All borings were then backfilled with Hole-Plug (unrefined bentonite chips).

Soil samples were collected at 3 and 5 ft in all borings except B-19 and B-19A. No samples were recovered from B-19 and only one sample was recovered from 6 ft in B-19A, which was drilled adjacent to B-19. These borings were drilled in the vicinity of a rusted out pipe (product line).

Odors were noted in 11 borings except B-9, B-10, B-11, and B-12. Soil staining was noted in borings B-18 and B-19A. Some free-phase material was observed as a spotty, oily sheen or foam on top of the water in borings B-3, B-7, and B-8.

Periphery and Offsite Area

In an attempt to define the lateral extent of the hydrocarbons detected beneath the barrel storage area, an additional twenty two soil borings, B-21 - B-28, B-30, B-31, B-33, B-34, B-37, B-38,

B-42, B-45 - B-47, were drilled by Exploration Geoservices and logged by WGR geologist Thomas Howard on 30 September 1988 (Figure4). As before, the borings were drilled with 6-in solid stem flight augers to approximately 3 ft, and then advanced by 2-in continuous sampling to 6 ft. Soil samples were collected from approximately 3 ft and 5 ft whenever possible. For these borings, a clean lead auger was used for each boring, since the samples were not to be composited. All 2-in samplers were cleaned before use, each time, in TSP solution. The borings were spaced on 20 ft center grids, where possible, outside the original grid on the former barrel platform, and as far out as determined by field personnel. Fourteen borings were drilled on site and the remaining 8 were drilled offsite, approximately 10 ft west of the west property line. Many of the samples became damp or wet at approximately 3.5 ft. The boreholes were allowed to stand open until the end of the day. Fluid did not appear to fill any of the open boreholes. Again the boreholes were backfilled with Hole-Plug. Similar lithologic materials were encountered on site as those in the initial set of borings. However more gravel and fill (probably railroad bed) was encountered in the offsite borings. Samples were collected from all borings except B-39; samples could not be collected in B-39 because of caving. Boring logs are included in Attachment B.

Odors were noted in samples from borings B-24, B-25, B-26, B-27, B-28, B-30, B-31, B-33, B-34, B-37, B-38, B-41, and B-47. Odors were noted in cuttings from B-39.

Miscellaneous Observations

Product, which had an odor and registered in the 100's of parts per million by volume (ppmv) on a Thermoenvironmental OVM 580A photo-ionization detector (PID) meter, was observed in the unsaturated zone approximately 1 ft. below ground surface, on the walls of two shallow trenches dug in the former barrel platform (See figure 4) during its removal.

ANALYTIC RESULTS

Soil samples were collected according to WGR SOP-1. They were sent to Brown and Caldwell Analytical Laboratory of Emeryville, California (B&C), under strict chain-of-custody. The chain-of-custody forms and laboratory reports are included in Attachments C and D, respectively.

Barrel Storage Area

Analytic results for soil borings are tabulated in Table 1 and 2. Soil samples from B-1 to B-20, beneath the former barrel platform, were composited in groups of five for the 3.0 and 5.0 ft samples. TFH ranged from <10 ppm (detection limit) to 2100 ppm, characterized as diesel and gas. Benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations ranged from <0.3 to 20 ppm.

Periphery and Offsite Area

Samples from all other borings were analyzed individually; fuel characterizations were predominantly diesel and oil, with concentrations ranging from <10 to 2700 ppm. BTX concentrations ranged form <0.3 to 20 ppm.

SUMMARY

Barrel Storage Area

TFH, reported predominantly as diesel, were detected in concentrations ranging from <10 ppm to 2100 ppm in composited soil samples from 21 borings beneath the former barrel platform from depths of 3 ft to 6 ft. BTEX were detected in concentrations ranging from <0.3 ppm to 18 ppm for samples from beneath the former barrel platform. Free product was observed in the soil beneath the former barrel platform.

Periphery and Offsite Area

TFH, also reported predominantly as diesel, were detected in concentrations ranging from <10 ppm to 2700 ppm in soil samples collected from depths of 3 ft to 6 ft in twenty one borings drilled on and off site. BTX were detected in concentrations from <0.3 ppm to 20 ppm and ethylbenzene was below detection limit <0.3 ppm for these samples.

We appreciate the opportunity to provide geologic and environmental consulting services to Chevron and trust this report meets your needs. If you have any questions please call us at (415)457-7595.

Sincerely
Western Geologic Resources, Inc.

Thomas M. Howard
Project Geologist

Sherwood Lovejoy, Jr.
Senior Hydrogeologist

REGISTERED PROFESSIONAL ENGINEER
DON M. EISENBERG
36387
CIVIL
STATE OF CALIFORNIA

Don M. Eisenberg
Senior Engineer

at/TMH/SL/DME

045L1Fe9

FIGURES:

1. Site Location Map
2. Site Map
3. Boring Locations B-1 through B-20
4. Boring Locations B-21 through B-47

TABLES:

1. Analytic Results for Composite Soil Samples
2. Analytic Results for Soil Samples

ATTACHMENTS:

A. SOP: Soil Sampling
B. Boring Logs
C. Chain-of-Custody Forms
D. Laboratory Reports

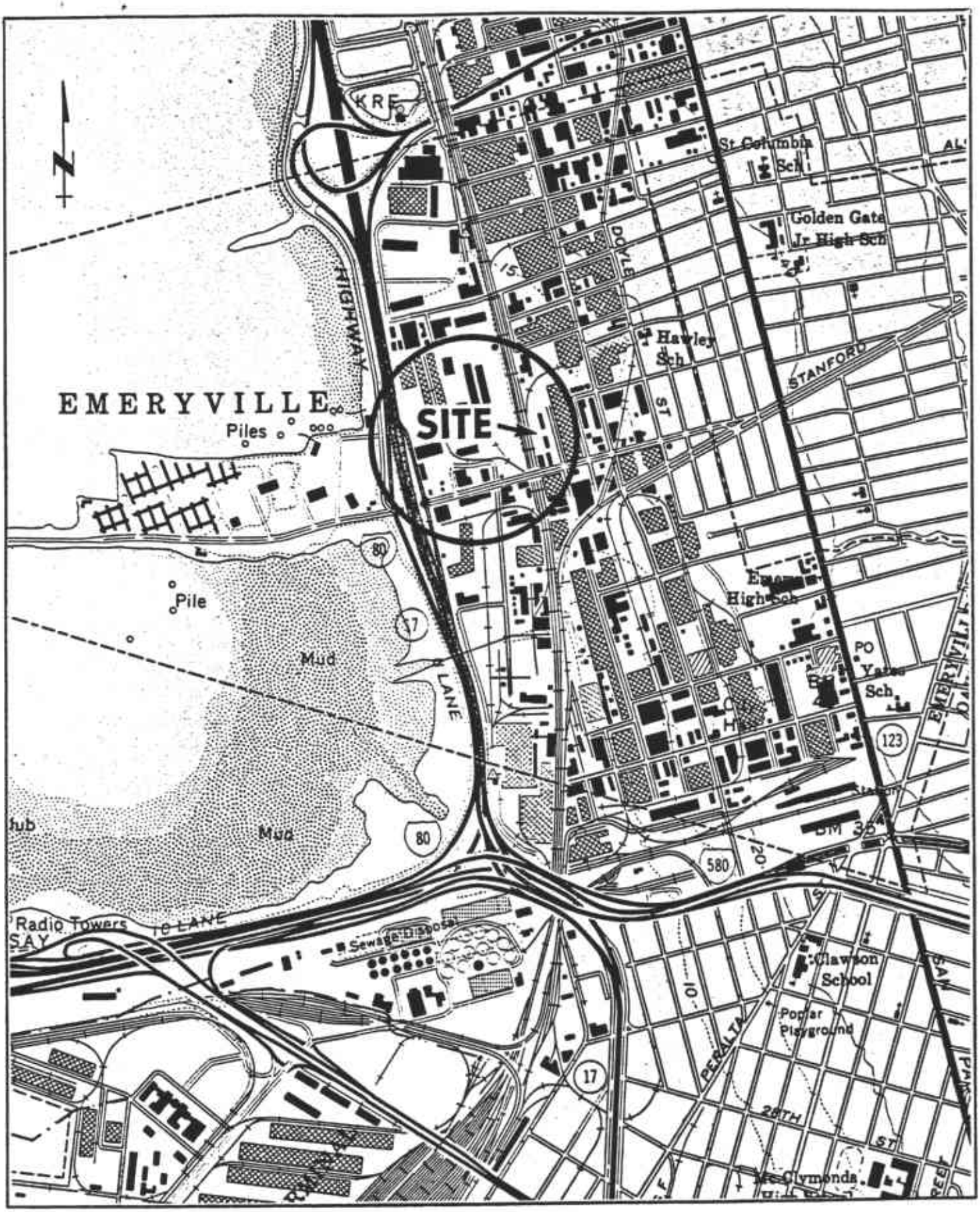


Figure 1. Site Location Map,
Former Chevron Asphalt Plant
1520 Powell Street, Emeryville, California.

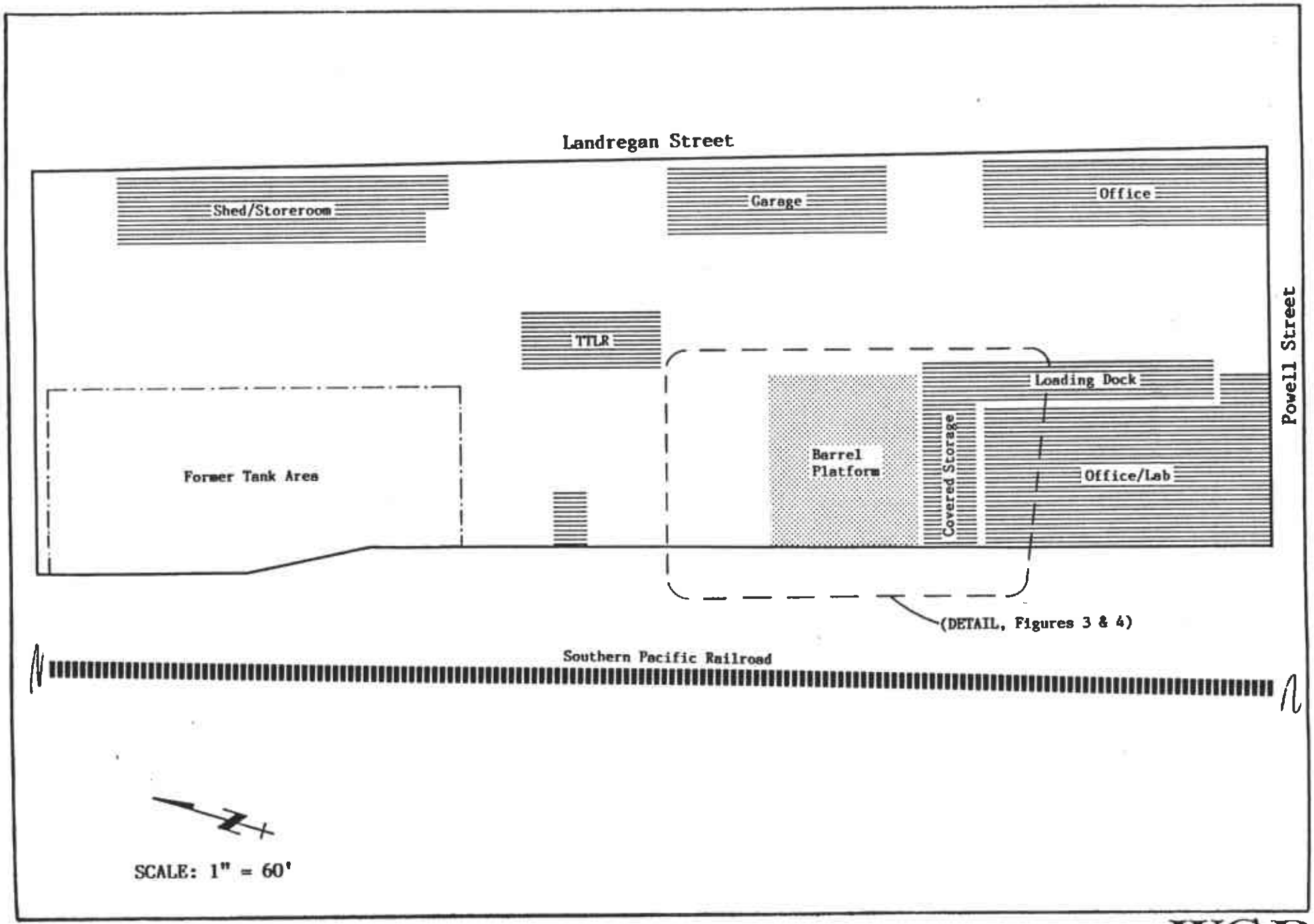


Figure 2. Site Map,
Former Chevron Asphalt Plant
1520 Powell Street, Emeryville, California.

WGR

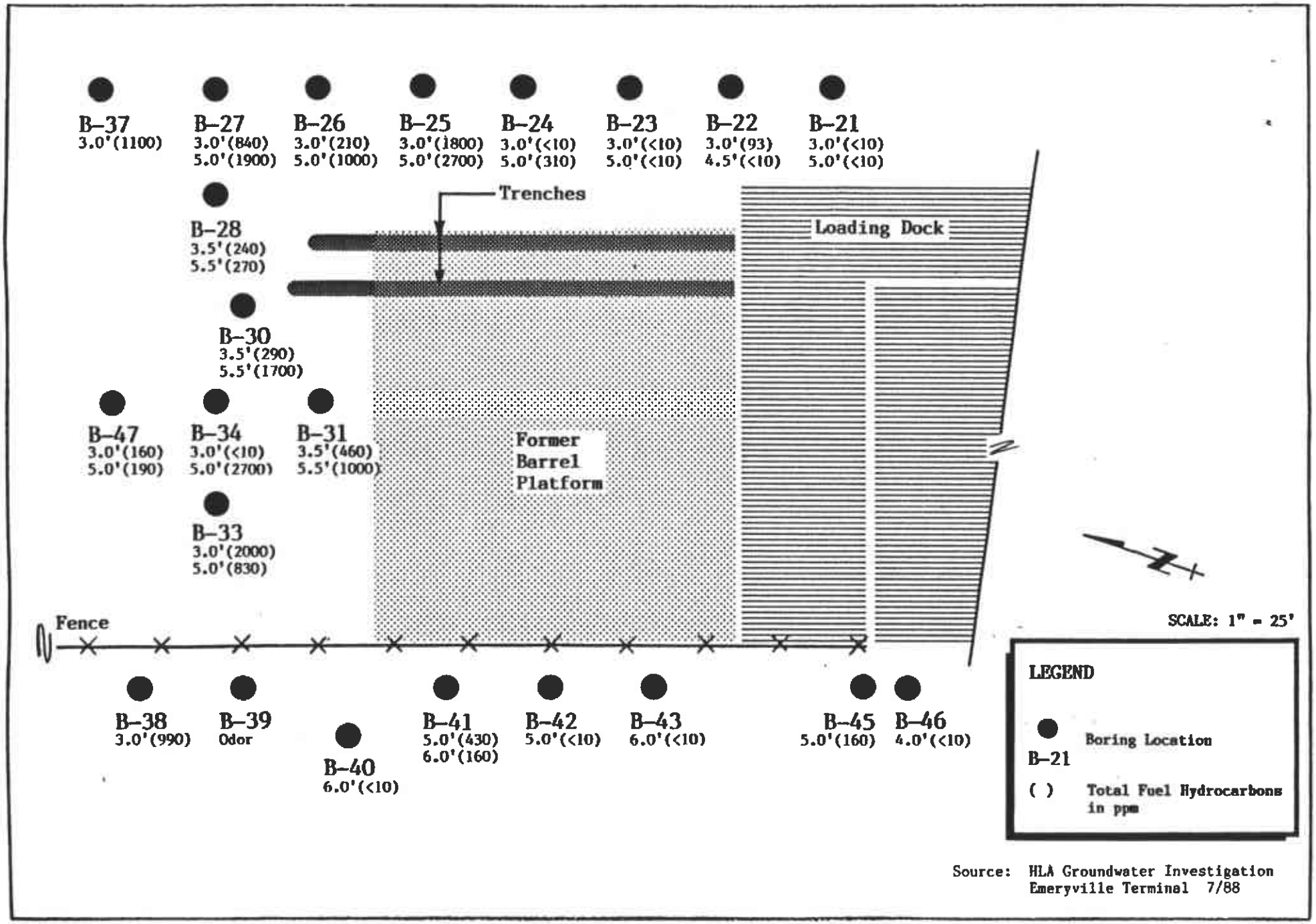


Figure 4. Boring Locations for B-21 through B-47;
Total Fuel Hydrocarbons at Depths in Feet.
Former Chevron Asphalt Plant
1520 Powell Street, Emeryville, California.

WGR

TABLE 1. Analytic Results For Composite Soil Samples
1520 Powell Street
Emeryville, California

Bore Holes	Depth (ft.)	Date	TFH	FC	Benzene	Toluene	Xylenes	E-Benzene
			<----------ppm---------->					
B-1 to B-5	3.0	07 Sep 88	1700	D	<0.3	<0.3	<0.3	<0.3
	5.0	07 Sep 88	1700	D	0.5	0.5	<0.3	0.9
B-6 to B-10	3.0	07 Sep 88	490	D	<0.3	<0.3	<0.3	<0.3
	5.0	07 Sep 88	640	D	0.5	<0.3	<0.3	0.5
B-11 to B-15	3.0	07 Sep 88	1900	D	0.3	<0.3	<0.3	5.4
	5.0	07 Sep 88	1000	D	0.6	1.3	<0.3	3.3
B-16 to B-20	3.0	07 Sep 88	1700	G&D	1.4	6.1	1.4	18
	5.0	07 Sep 88	2100	G&D	1.4	1.3	7.8	13

Notes:
Xylenes = Sum of xylene isomers
E-Benzene = Ethyl benzene
TFH = Total fuel hydrocarbons
FC = Fuel characterization
D = Diesel
O = Oil
G = Gas
--- = Not characterized
METHOD(S) = EPA 8015/8020

TABLE 2 Analytic Results For Soil Samples
1520 Powell Street
Emeryville, California

Bore Hole	Depth (ft.)	Date	TFH	FC	Benzene	Toluene	Xylenes	E-Benzene
			<----------ppm---------->					
B-21	3	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-21	5	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-22	3	30 Sep 88	93	D	<0.3	<0.3	<0.3	<0.3
B-22	4.5	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-23	3	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-23	5	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-24	3	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-24	5	30 Sep 88	310	D	<0.3	<0.3	2	<0.3
B-25	3	30 Sep 88	1800	D	<0.3	<0.3	7	<0.3
B-25	5	30 Sep 88	2700	D	<0.3	<0.3	20	<0.3
B-26	3	30 Sep 88	210	D	<0.3	<0.3	2	<0.3
B-26	5	30 Sep 88	1000	D	<0.3	<0.3	4.2	<0.3
B-27	3	30 Sep 88	840	D	<0.3	<0.3	7.4	<0.3
B-27	5	30 Sep 88	1900	D	<0.3	<0.3	16	<0.3
B-28	3.5	30 Sep 88	240	D	<0.3	<0.3	2.5	<0.3
B-28	5.5	30 Sep 88	270	D	<0.3	<0.3	1.3	<0.3
B-30	3.5	30 Sep 88	290	D	<0.3	<0.3	1.4	<0.3
B-30	5.5	30 Sep 88	1700	D	<0.3	<0.3	6.2	<0.3
B-31	3.5	30 Sep 88	460	D+O	<0.3	<0.3	<0.3	<0.3
B-31	5.5	30 Sep 88	1000	D+O	<0.3	<0.3	2.6	<0.3
B-33	3	30 Sep 88	2000	D+G	0.7	<0.3	9.6	<0.3
B-33	5	30 Sep 88	830	D+G	<0.3	0.9	4.2	<0.3
B-34	3	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-34	5	30 Sep 88	2700	D+G	0.9	<0.3	12	<0.3
B-37	3	30 Sep 88	1100	D	<0.3	<0.3	5.4	<0.3
B-38	3	30 Sep 88	990	D+G	0.5	0.9	2.2	<0.3
B-40	4	30 Sep 88	180	O	<0.3	<0.3	<0.3	<0.3
B-40	6	30 Sep 88	<10	---	<0.3	<0.3	<0.3	<0.3
B-41	5	30 Sep 88	430	G	<0.3	<0.3	4.7	<0.3
B-41	6	30 Sep 88	160	G	<0.3	<0.3	<0.3	<0.3

ATTACHMENT A

STANDARD OPERATING PROCEDURE FOR SOIL SAMPLING

WESTERN GEOLOGIC RESOURCES, INC.
STANDARD OPERATING PROCEDURES
RE: SOIL SAMPLING
SOP-2

Soil samples for chemical analysis are collected in thin-walled brass tubes, 4-inches long by 2-inches outside diameter. Four of these tubes and a spacer tube are set in a 2-inch inside diameter 18-inch split-barrel sampler.

The split-barrel sampler is driven its entire length either hydraulically or using a 140 pound drop hammer. The sampler is extracted from the borehole and the brass tubes, containing the soil samples, are removed. Upon removal from the sampler, the selected brass tubes are immediately trimmed and capped with aluminum foil and plastic caps. They are then hermetically sealed with duct tape, labeled and refrigerated for delivery, under chain-of-custody, to the analytic laboratory. These procedures minimize the potential for cross-contamination and volatilization of volatile organic compounds (VOC) prior to chemical analysis.

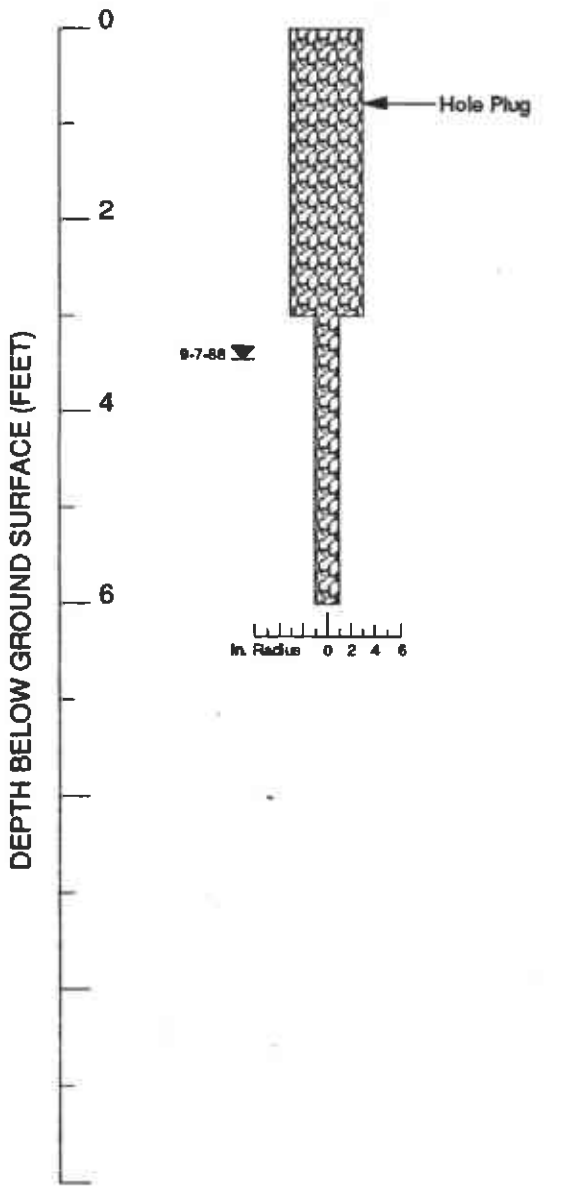
One soil sample collected at each sampling interval is analyzed in the field using either a photoionization detector (PID), a flame ionizing detector (FID), or an explosimeter. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The soil sample is sealed in a zip-lock plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the soil sample. The data is recorded on the drill logs at the depth corresponding to the sampling point.

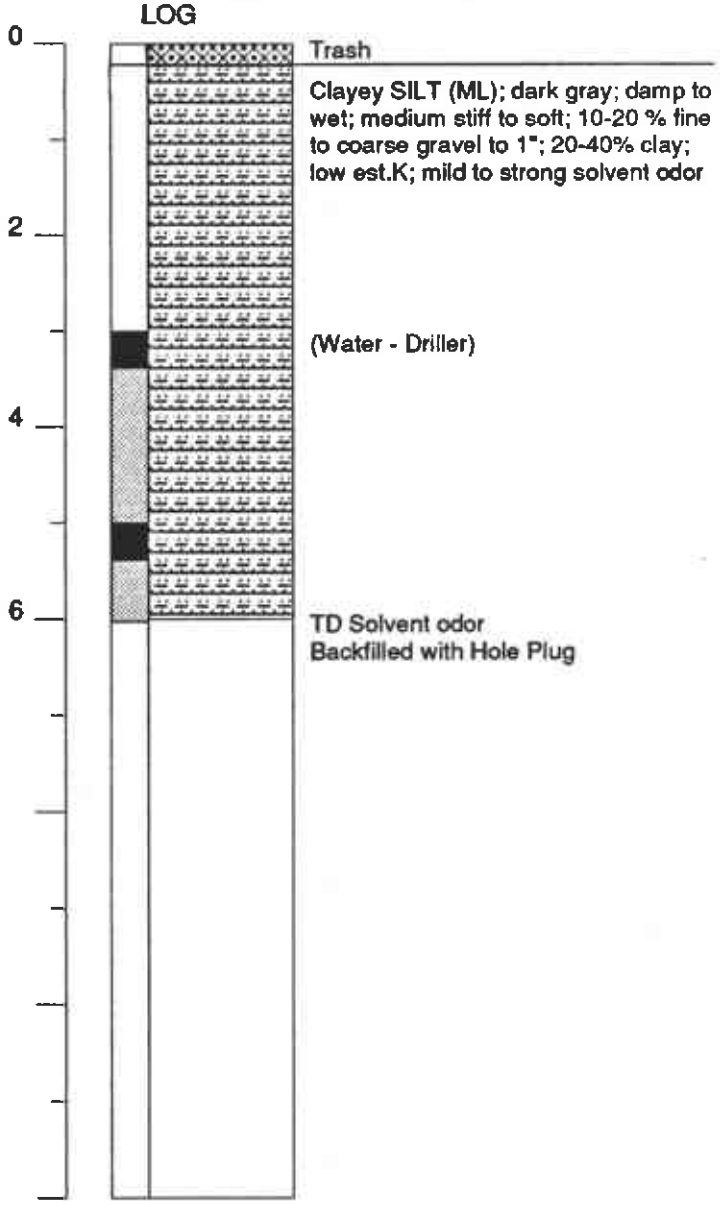
Other soil samples are collected to document the stratigraphy and estimate relative permeability of the subsurface materials. All drilling and sampling equipment are steam-cleaned prior to use at each site and between boreholes to minimize the potential for cross-contamination.

ATTACHMENT B

BORING LOGS

BORING B-1





EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

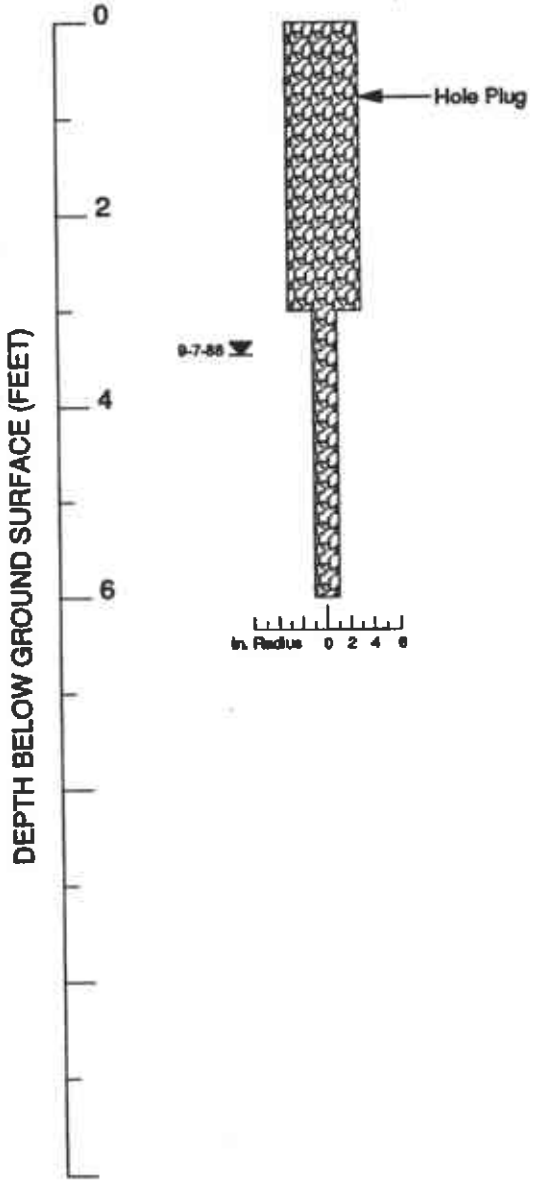
est K = Estimated permeability (hydraulic conductivity)

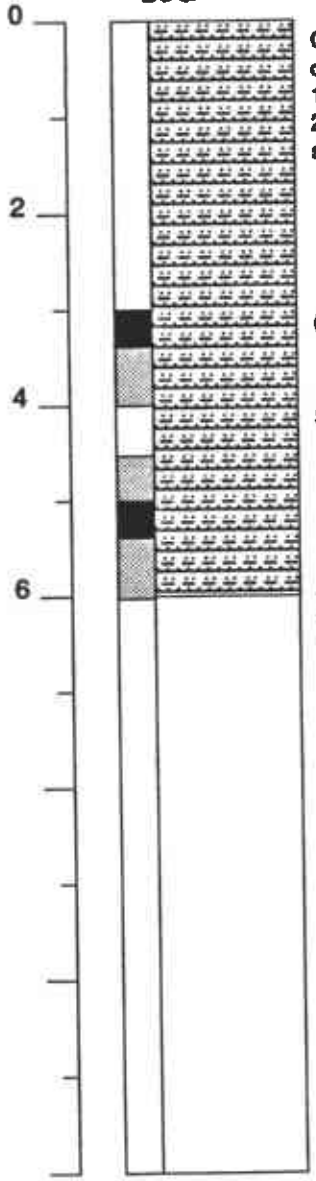
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-1
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-2





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine to coarse gravel to 1"; 20-40% clay; low est.K; mild to strong solvent odor

(Water - Driller)

Solvent odor

TD Solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
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- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

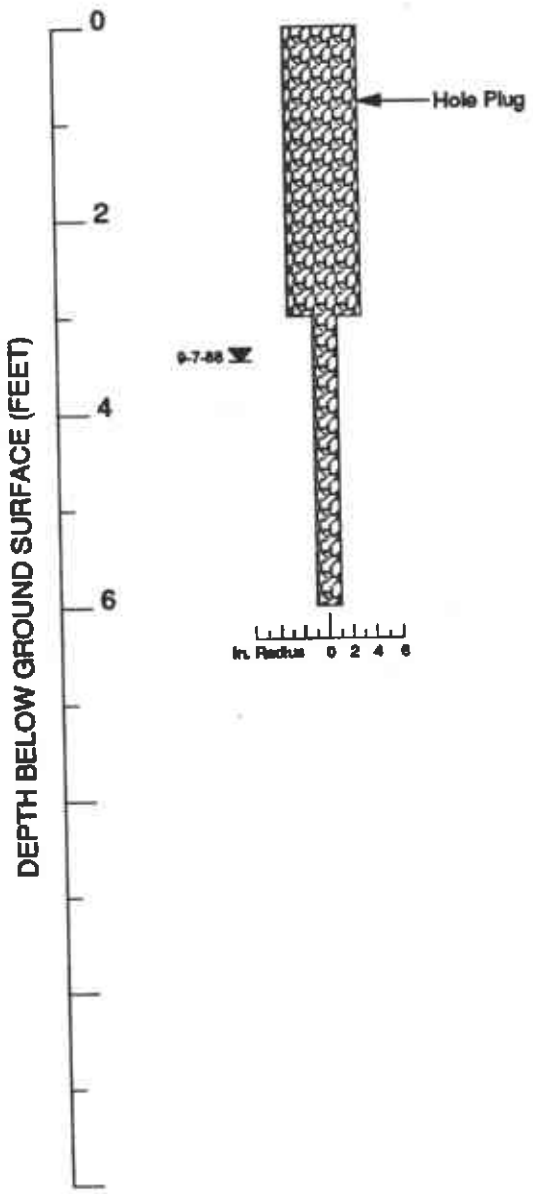
est K = Estimated permeability (hydraulic conductivity)

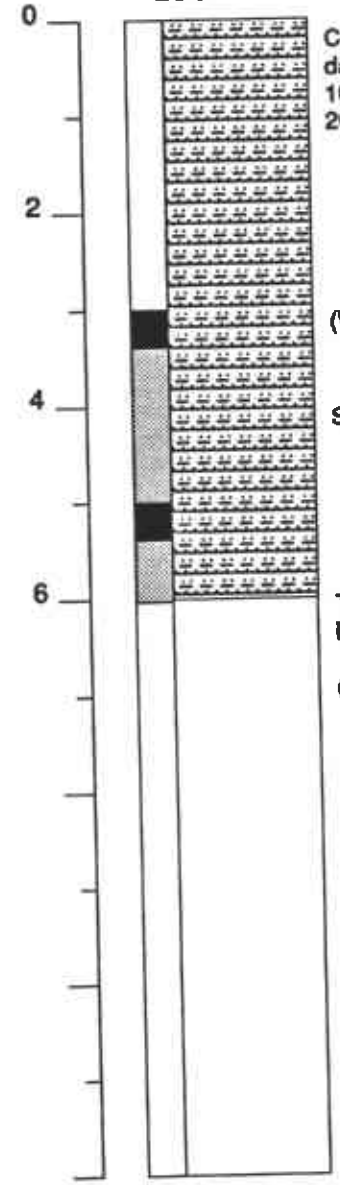
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-2
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-3





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine to coarse gravel to 1"; 20-40% clay; low est.K

(Water - Driller)

Solvent odor

TD Strong solvent odor
Backfilled with Hole Plug

(Product sheen noted in open hole)

EXPLANATION

- Water level during drilling (date)
- Water level (date)
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- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

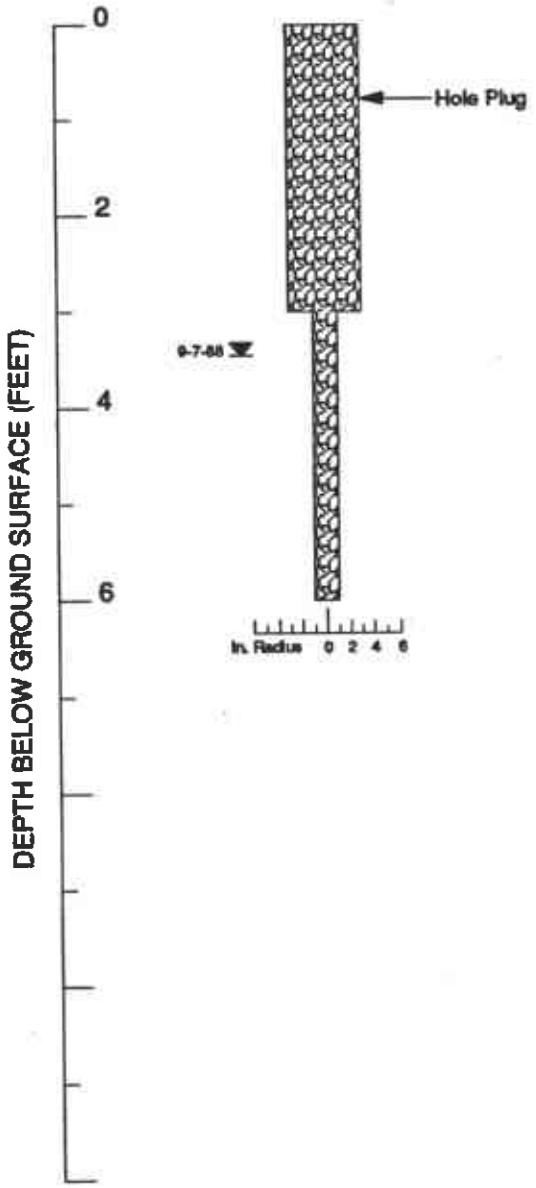
est K = Estimated permeability (hydraulic conductivity)

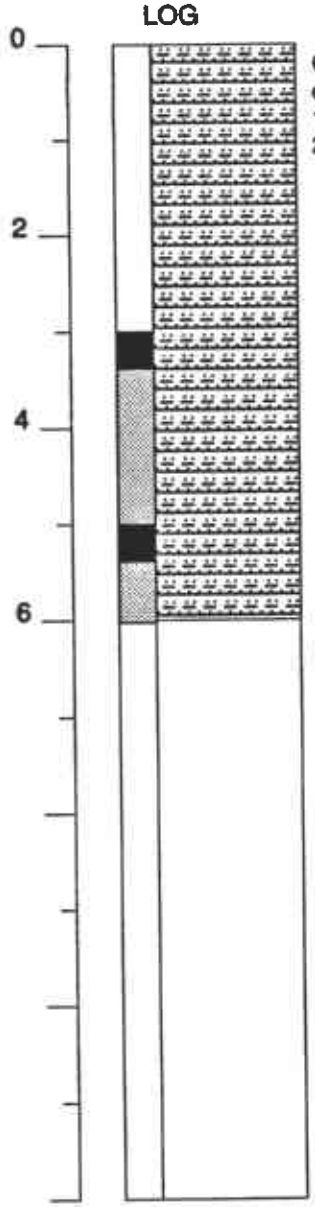
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-3
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-4





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(Water - Driller)

Solvent odor

TD Solvent odor
Backfilled with Hole Plug

EXPLANATION

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- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

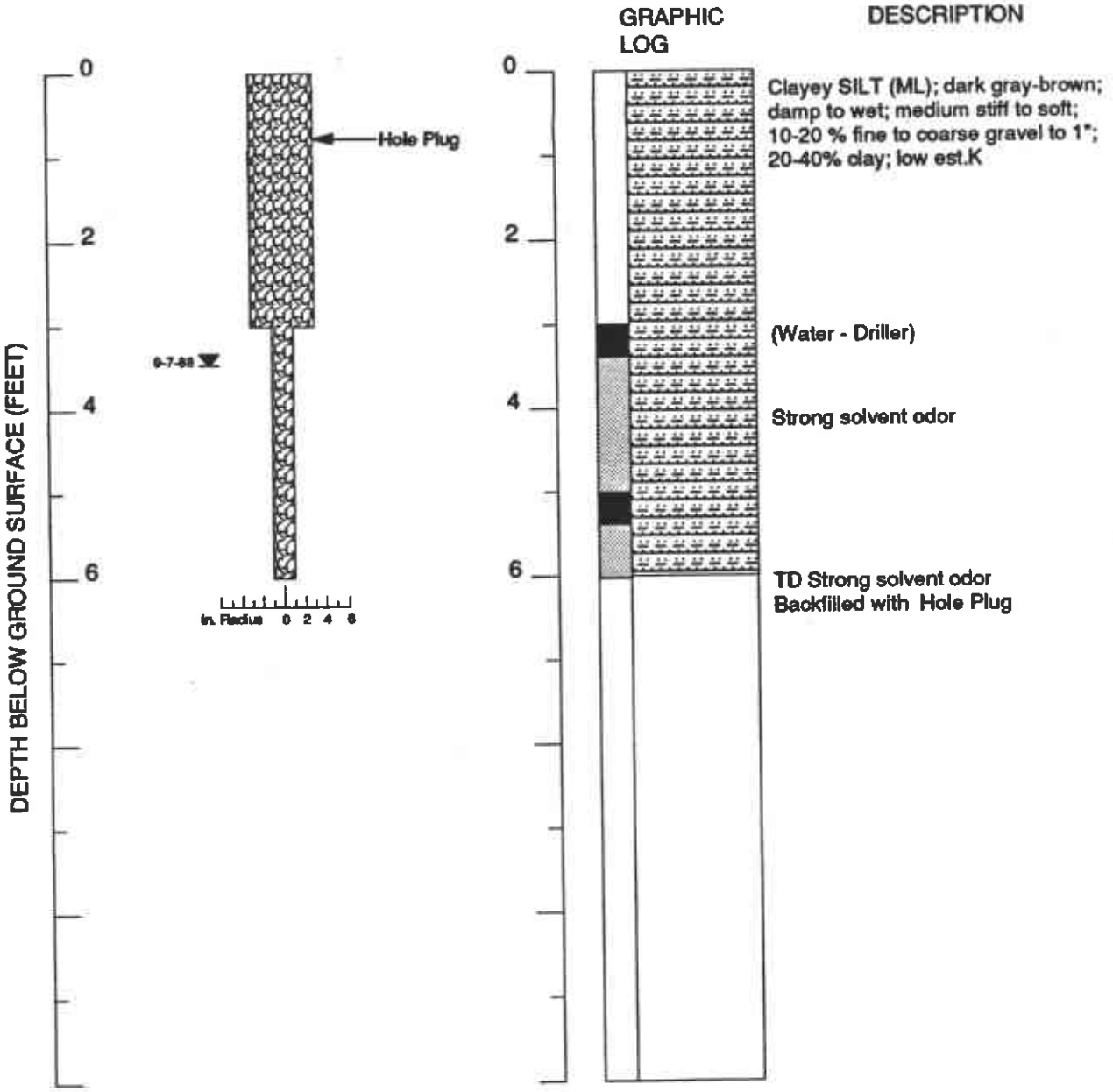
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-4
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-5



EXPLANATION

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- Location of drive sample sealed for chemical analysis
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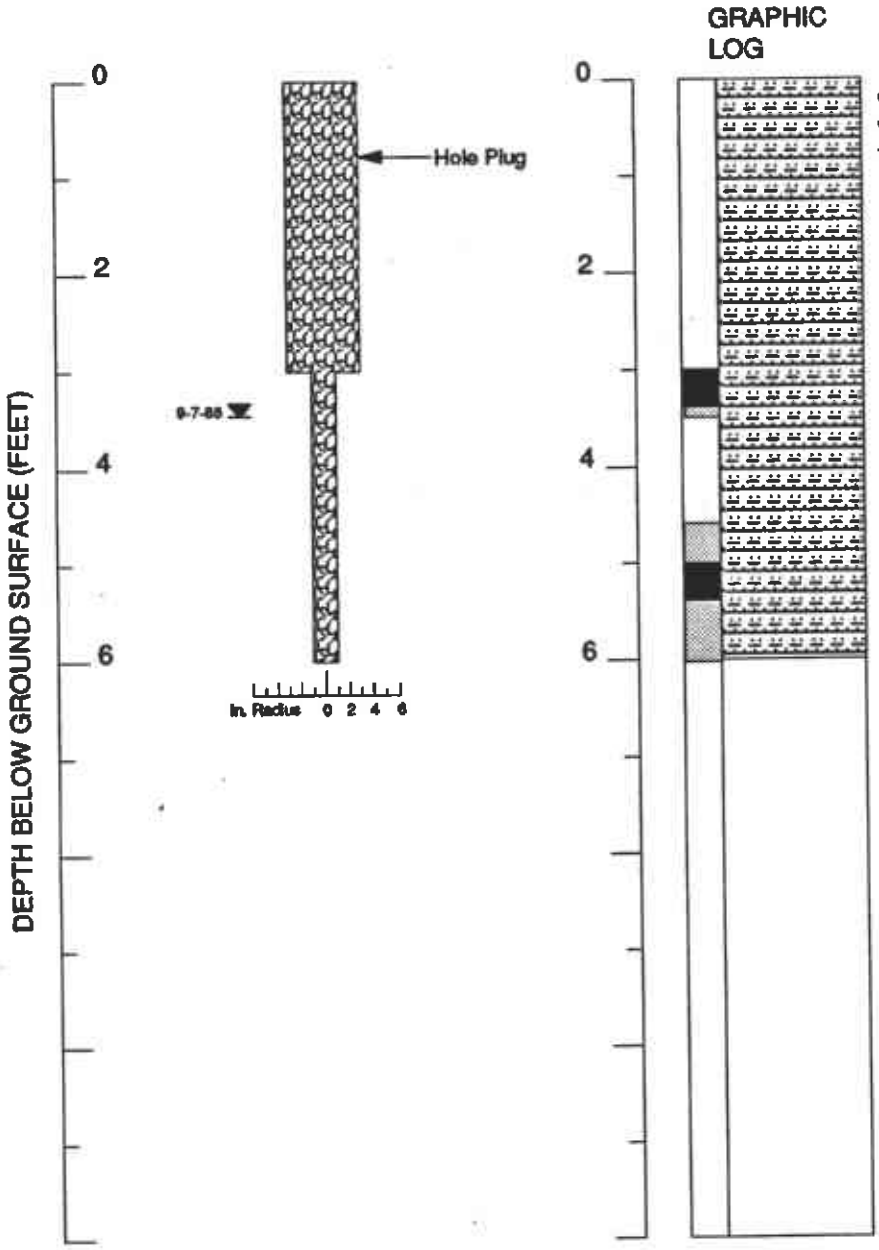
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-5
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-6



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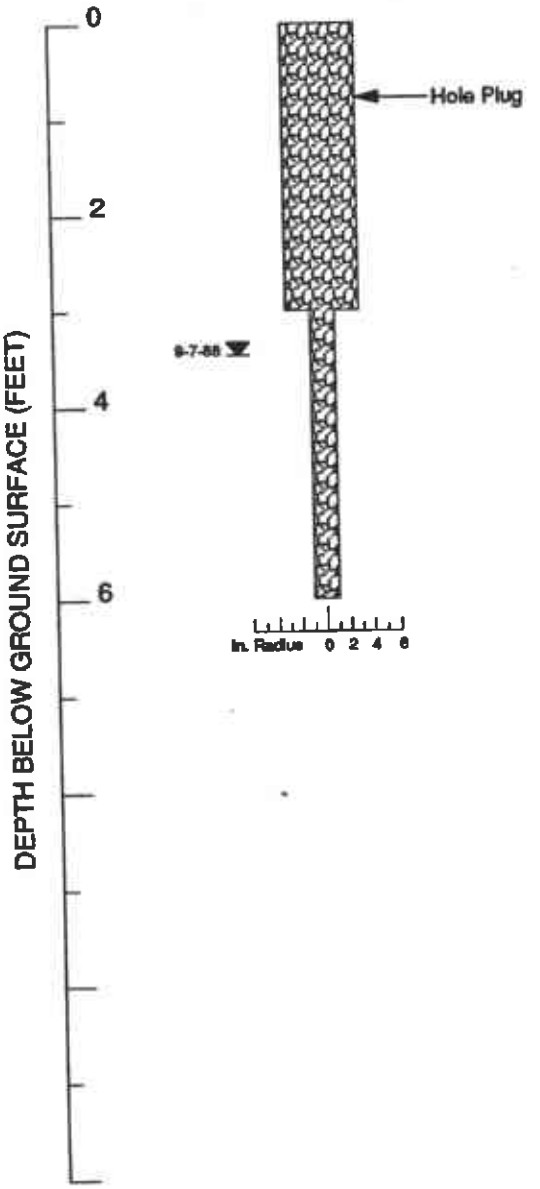
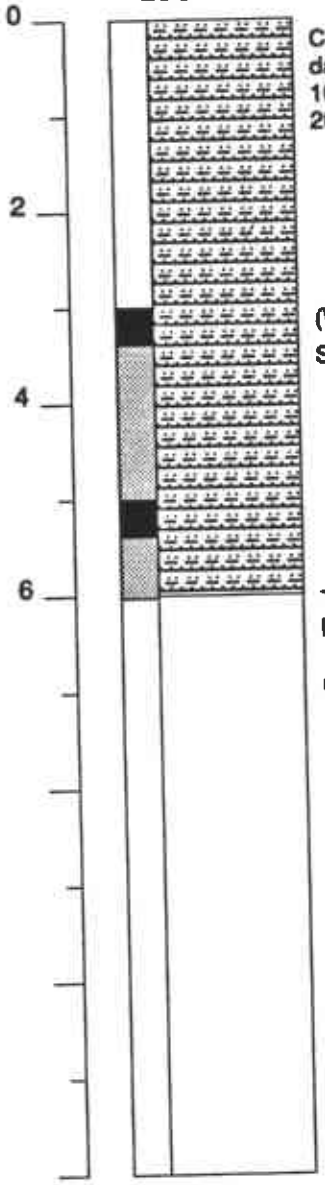
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-6
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-7





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- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

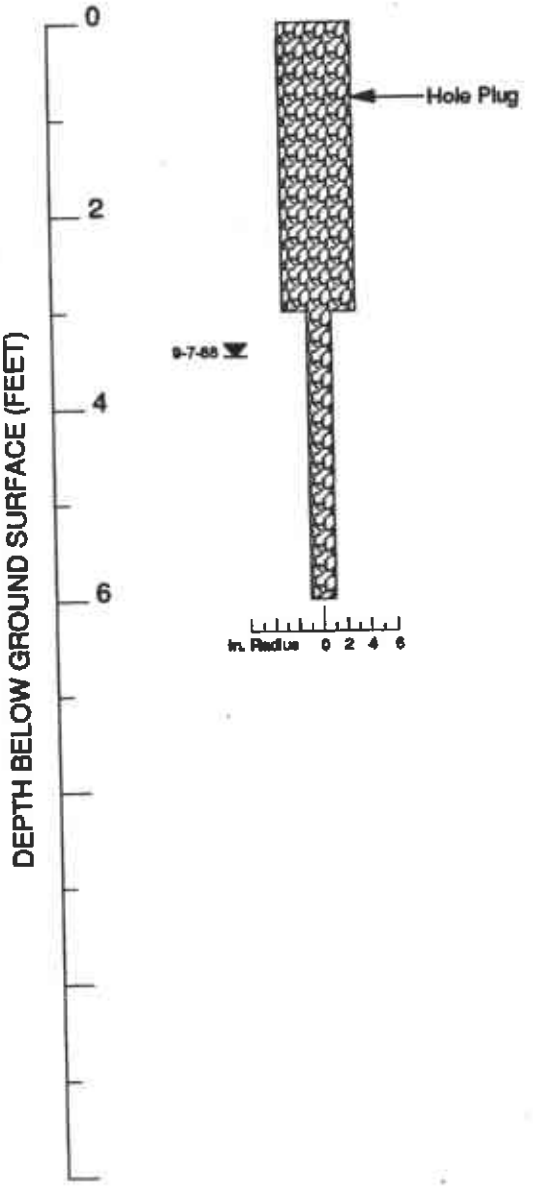
est K = Estimated permeability (hydraulic conductivity)

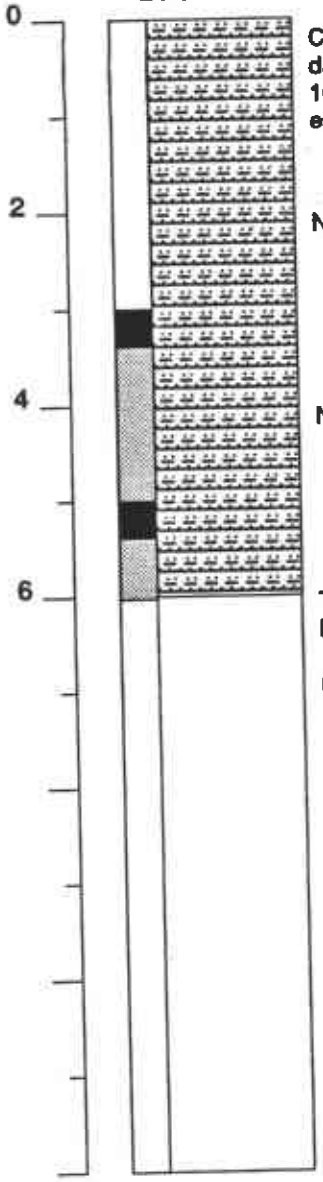
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-7
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-8





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

Note: oily sheen on samples

No (?) odor

TD Slight solvent odor
Backfilled with Hole Plug

(Product sheen noted in open hole)

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

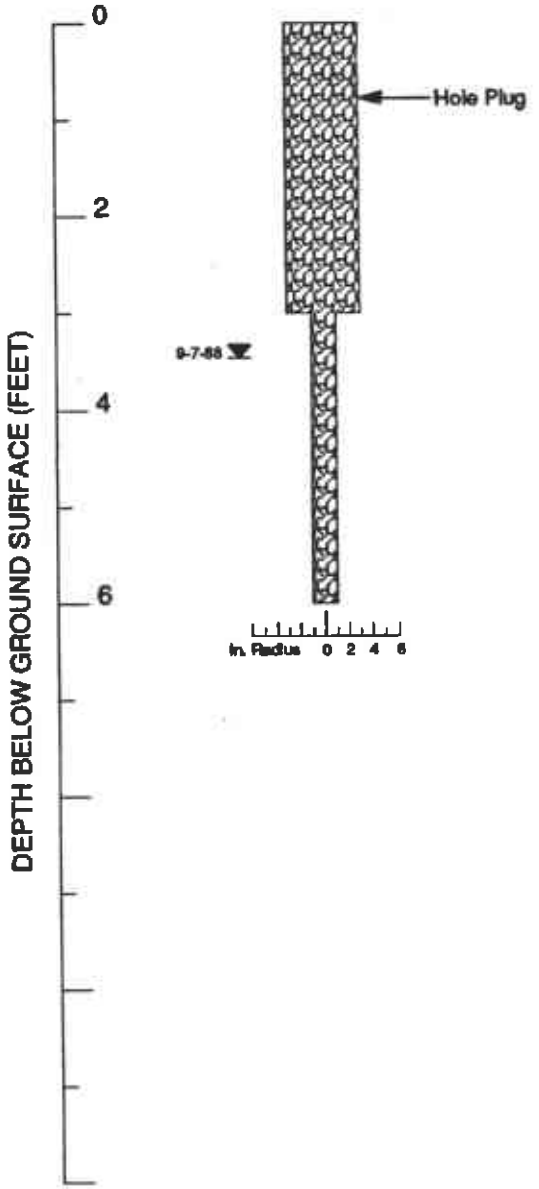
est K = Estimated permeability (hydraulic conductivity)

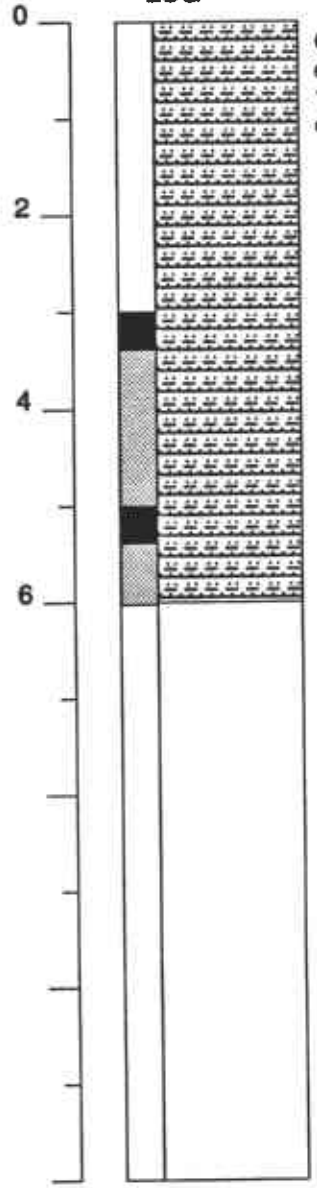
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-8
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-9





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

(Water - Driller)

No odor

TD no odor
Backfilled with Hole Plug
(Product sheen noted in open hole)

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

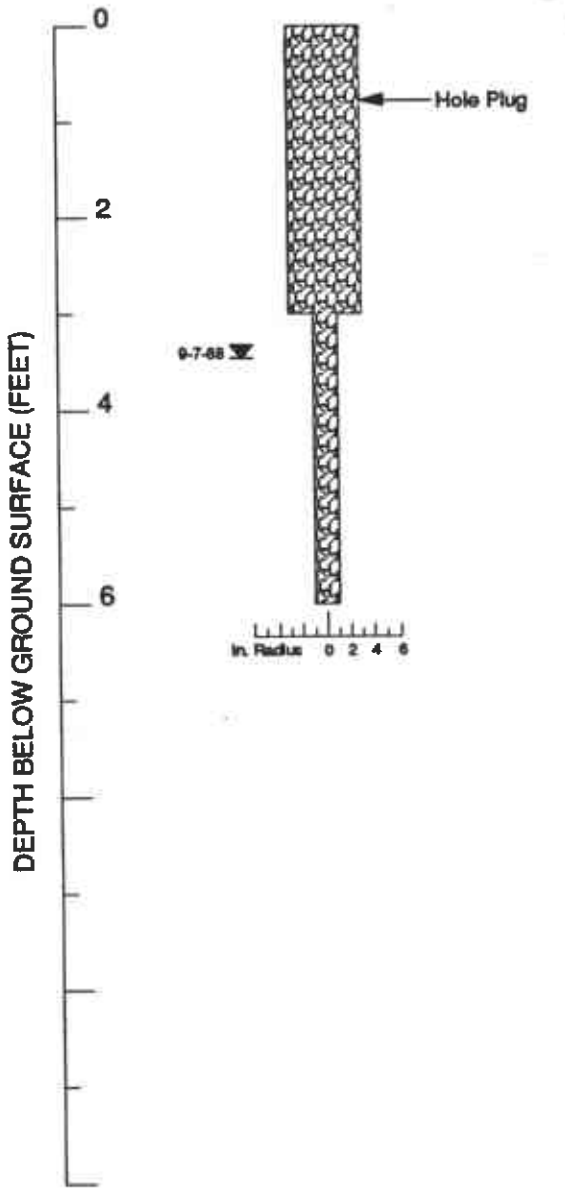
est K = Estimated permeability (hydraulic conductivity)

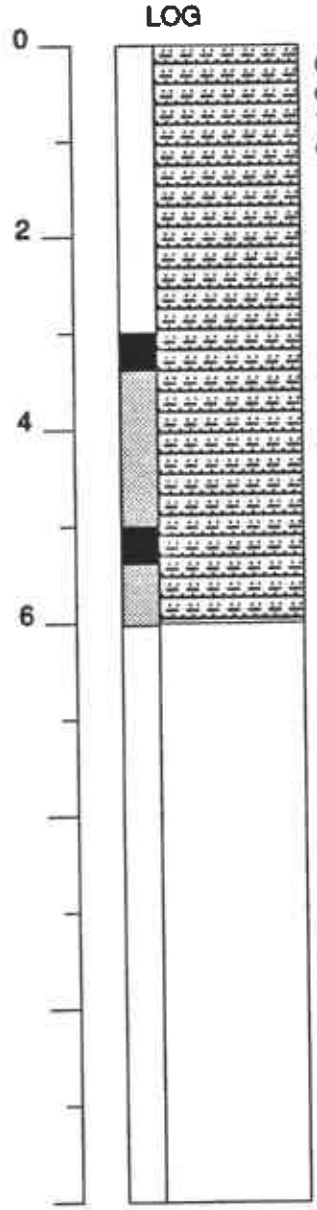
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-9
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-10





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

(Water - Driller)

No odor

TD no odor
Backfilled with Hole Plug

(Product sheen noted in open hole)

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

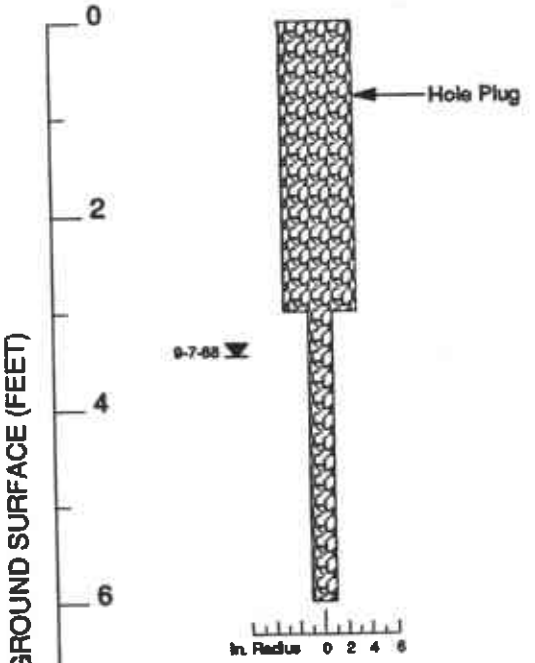
est K = Estimated permeability (hydraulic conductivity)

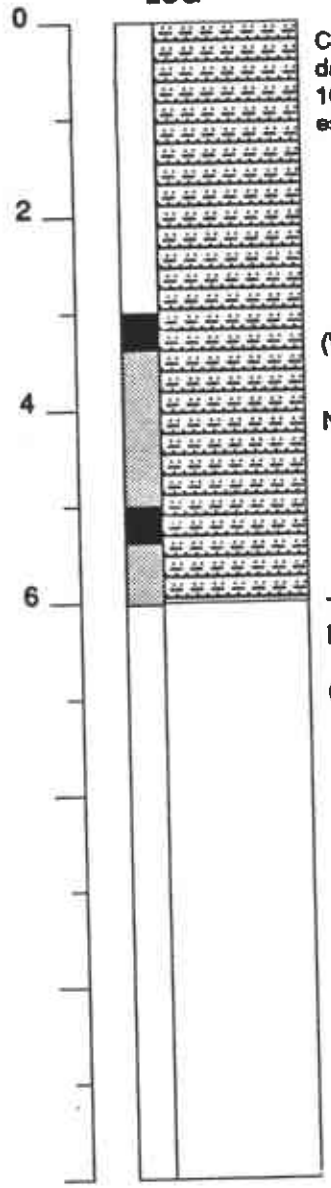
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-10
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-11





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

(Water - Driller)

No (?) odor

TD no (?) odor
Backfilled with Hole Plug

(Product sheen noted in open hole)

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

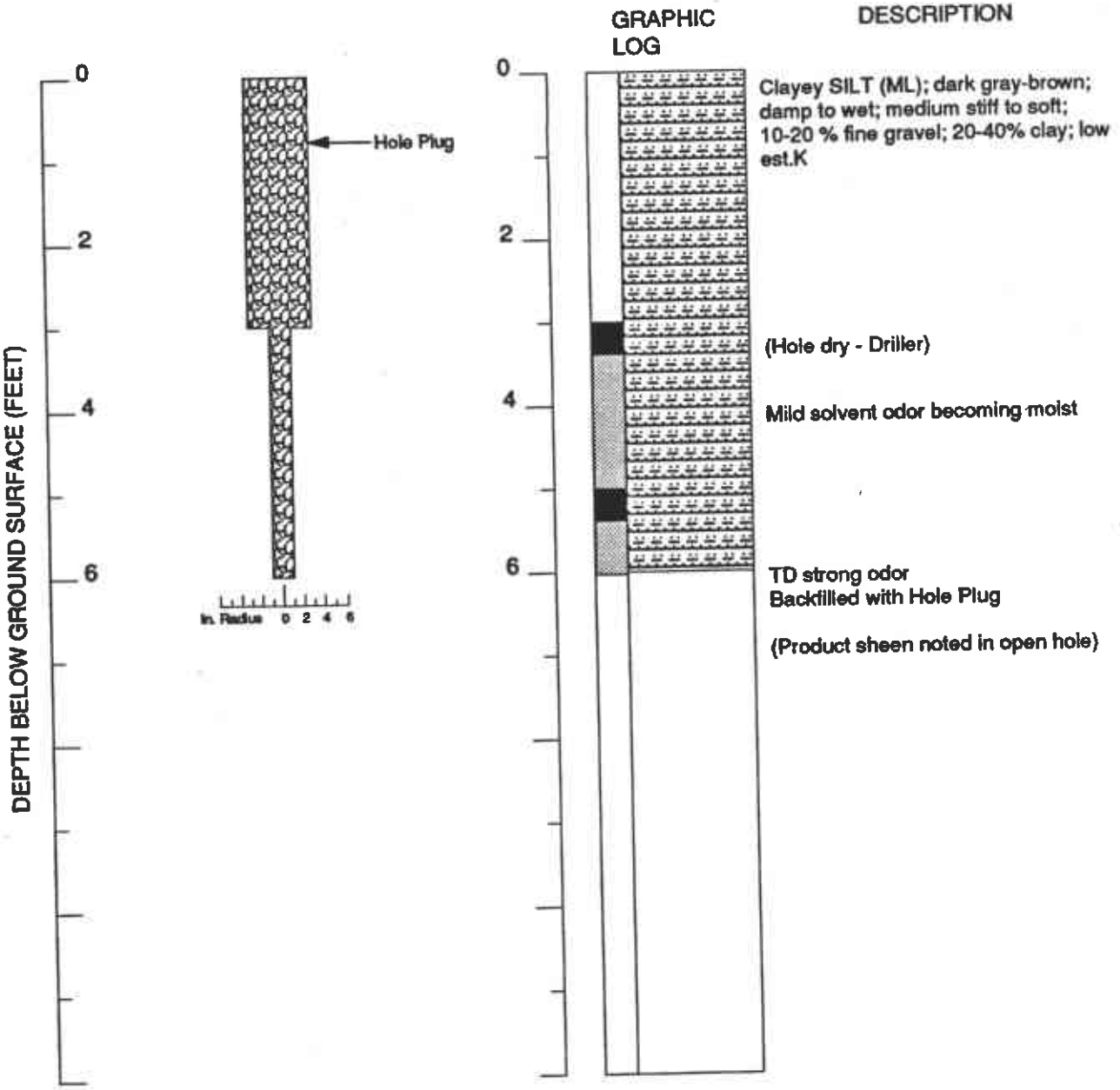
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-11
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-12



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

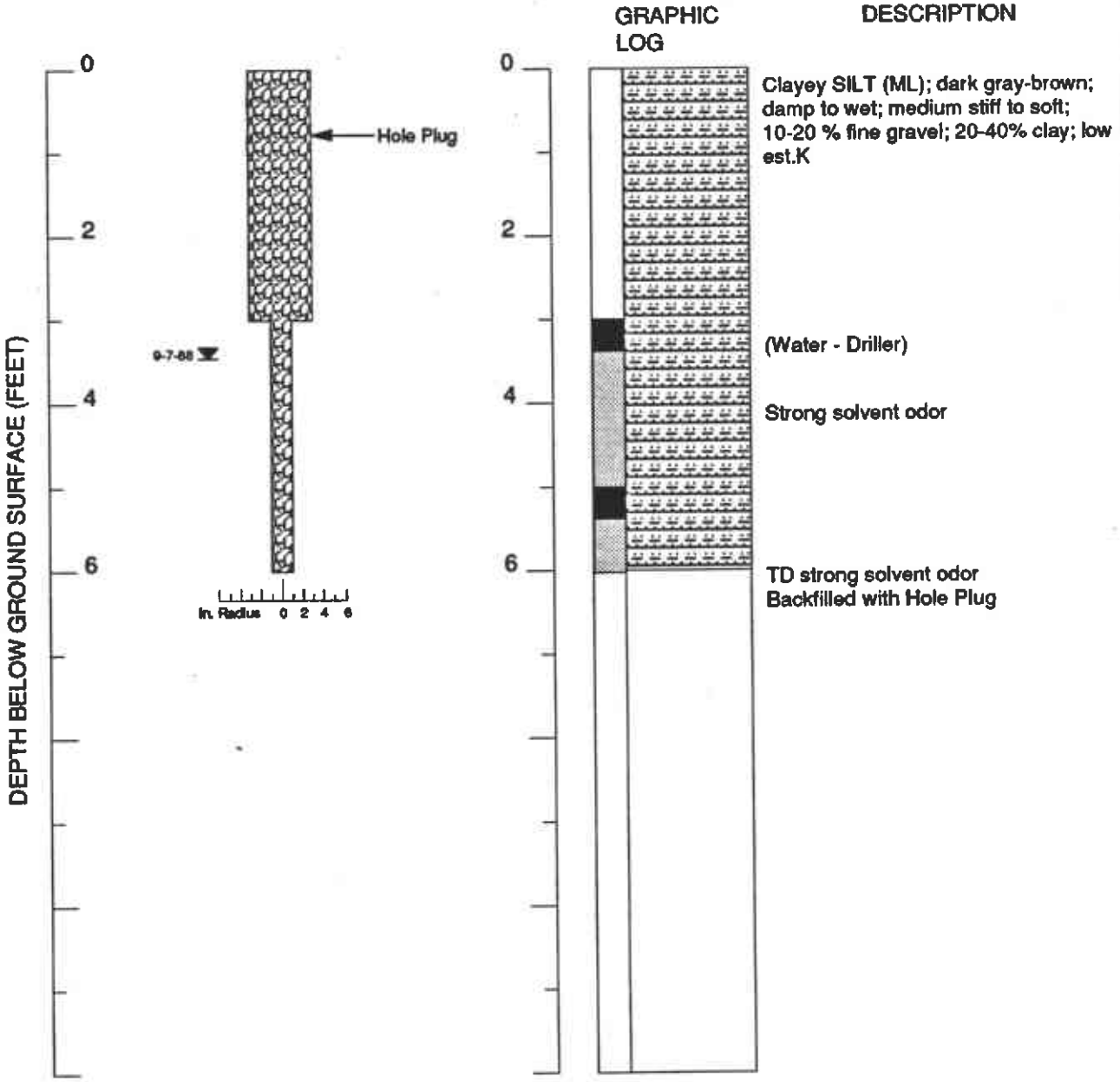
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-12
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-13



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

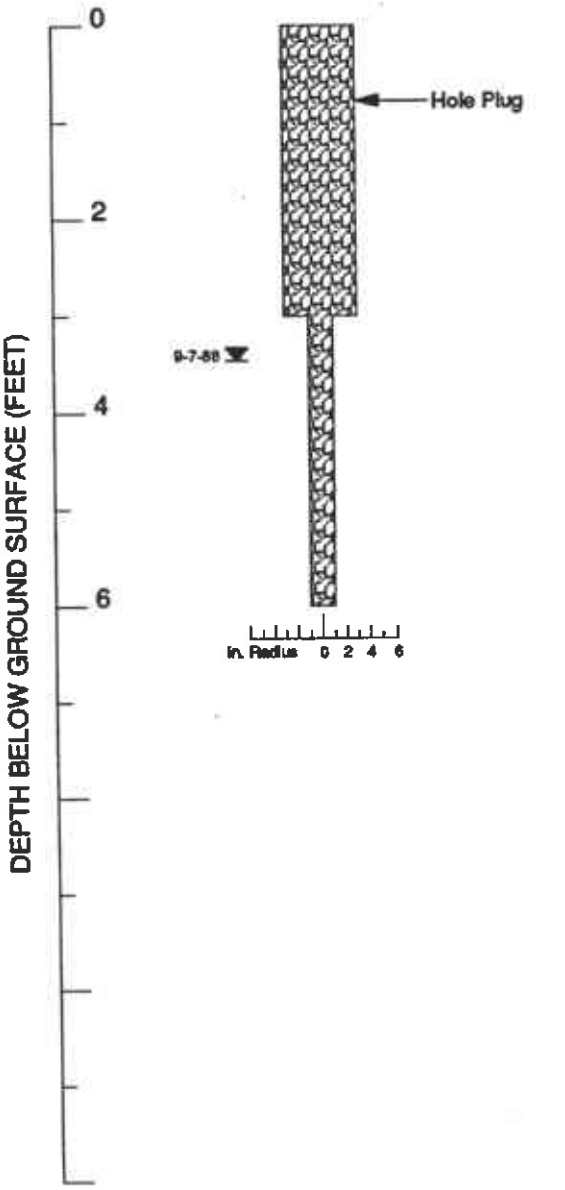
est K = Estimated permeability (hydraulic conductivity)

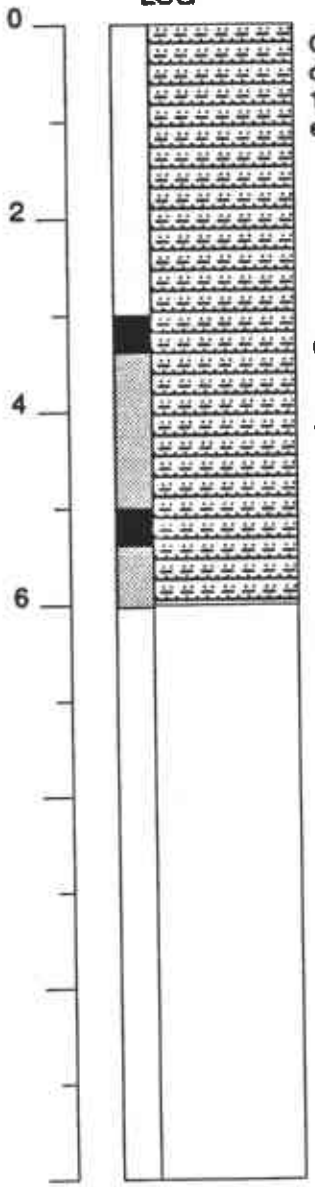
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-13
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-14





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

(Water - Driller)

Strong solvent odor

TD strong solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

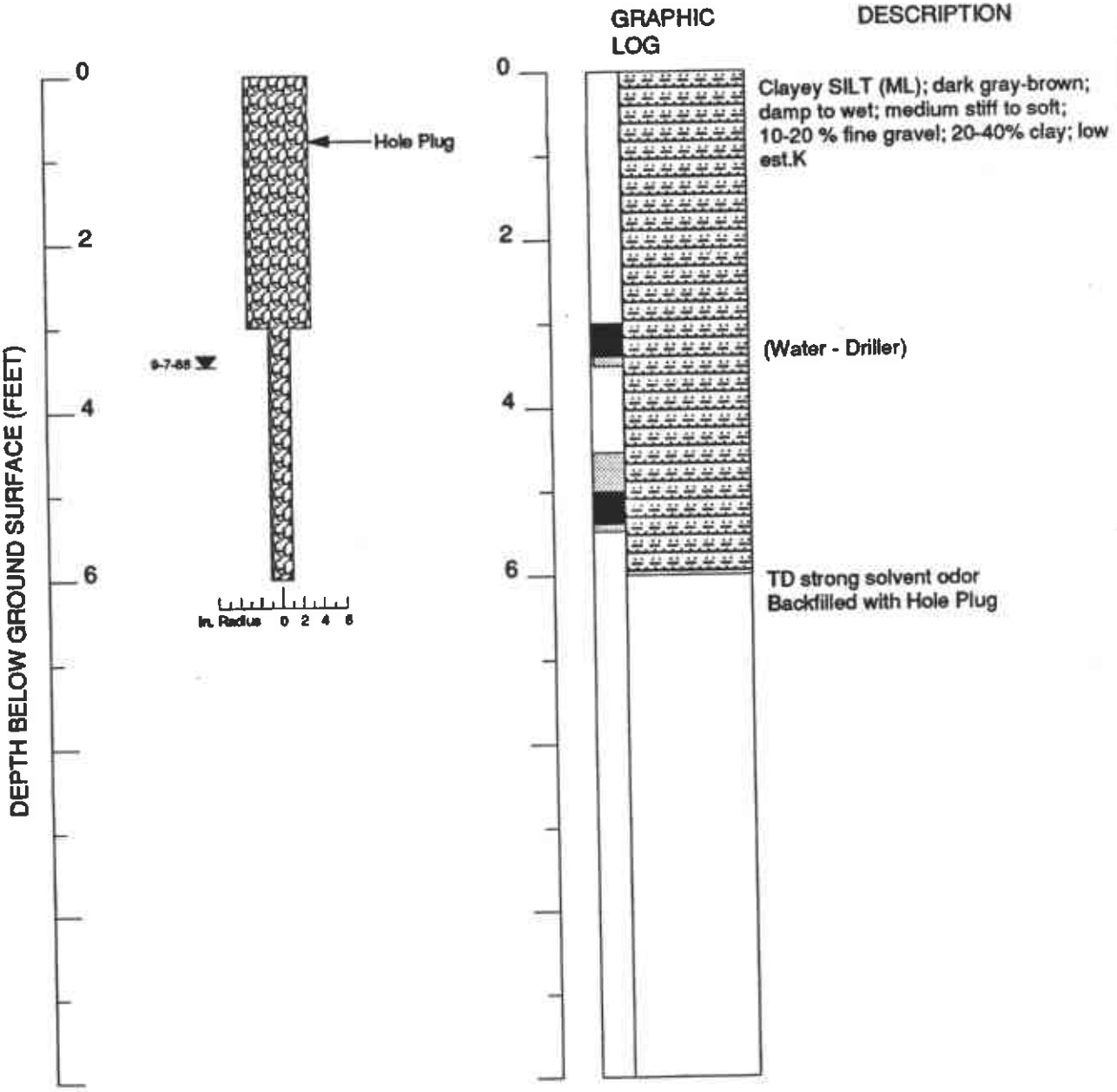
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-14
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-15



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

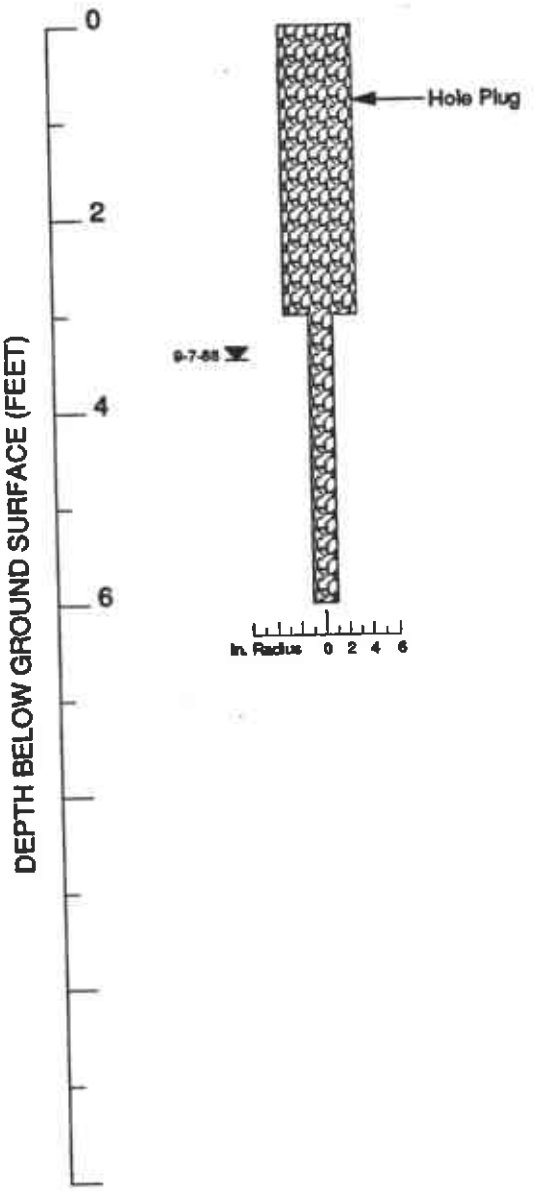
est K = Estimated permeability (hydraulic conductivity)

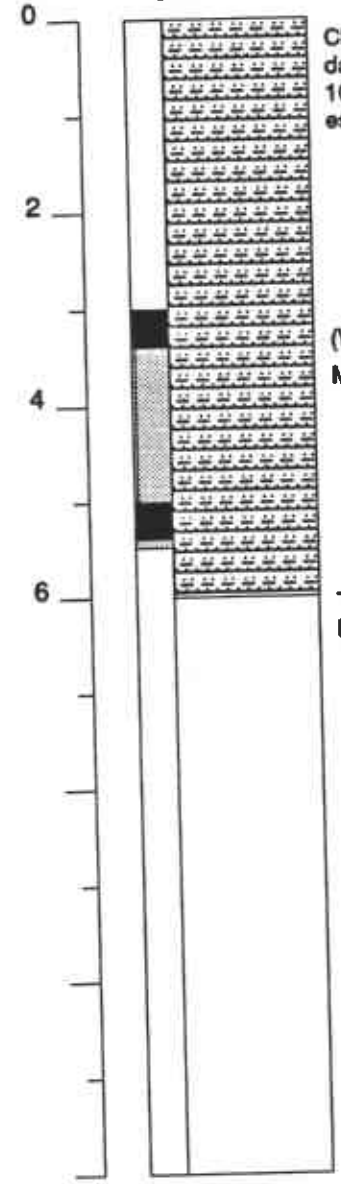
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-15
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-16





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

(Water - Driller)

Moderate solvent odor

TD moderate solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

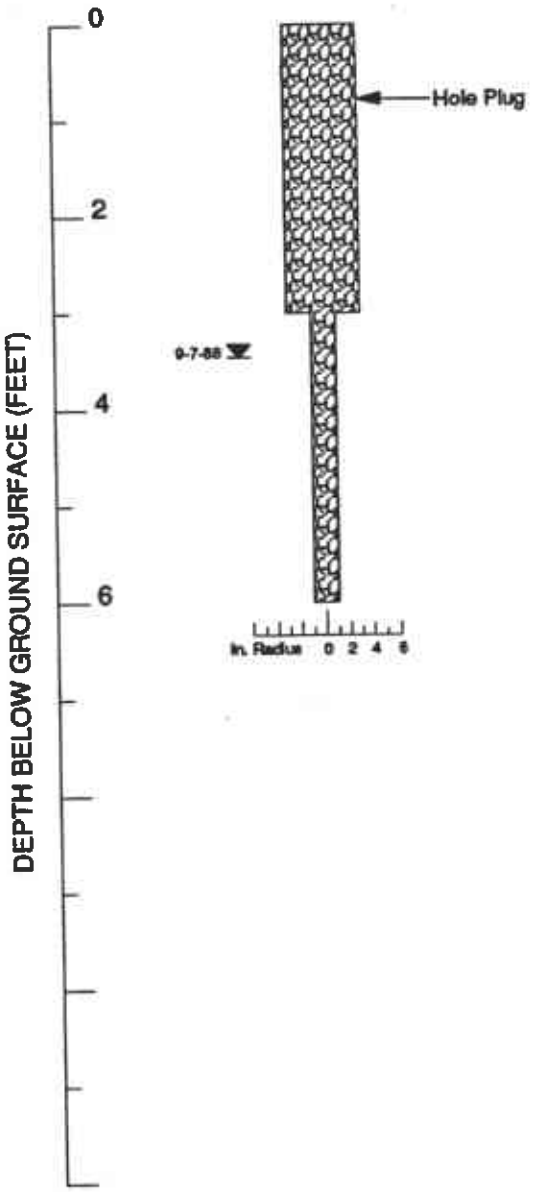
est K = Estimated permeability (hydraulic conductivity)

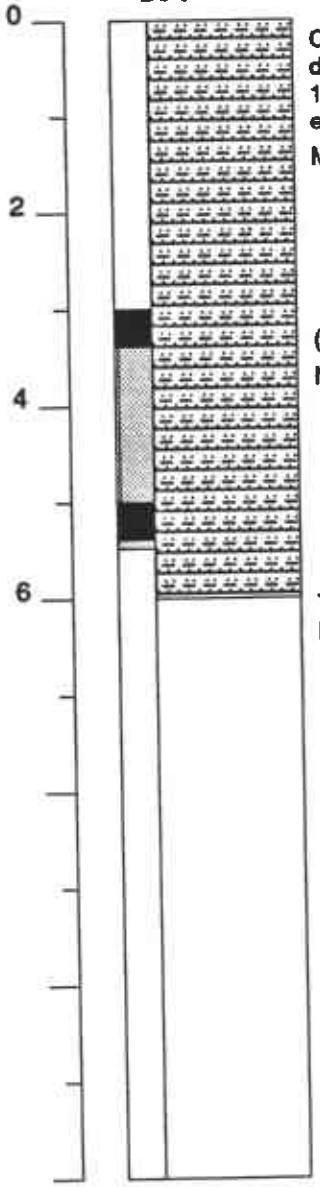
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-16
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-17





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

Mild hydrocarbon odor (cuttings)

(Water - Driller)

No (?) odor

TD No (?) odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

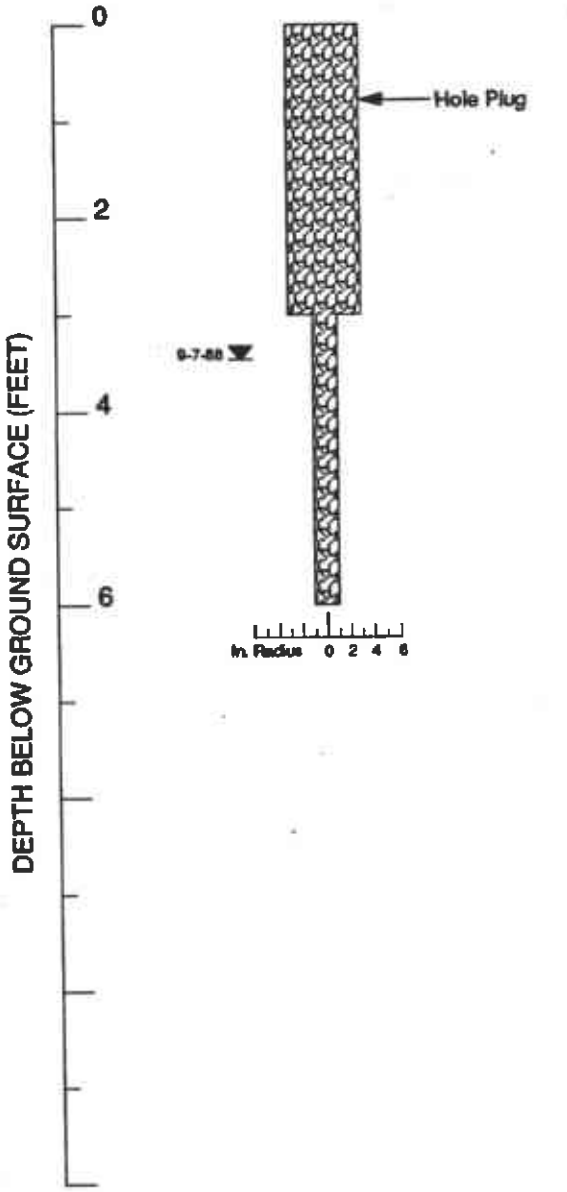
est K = Estimated permeability (hydraulic conductivity)

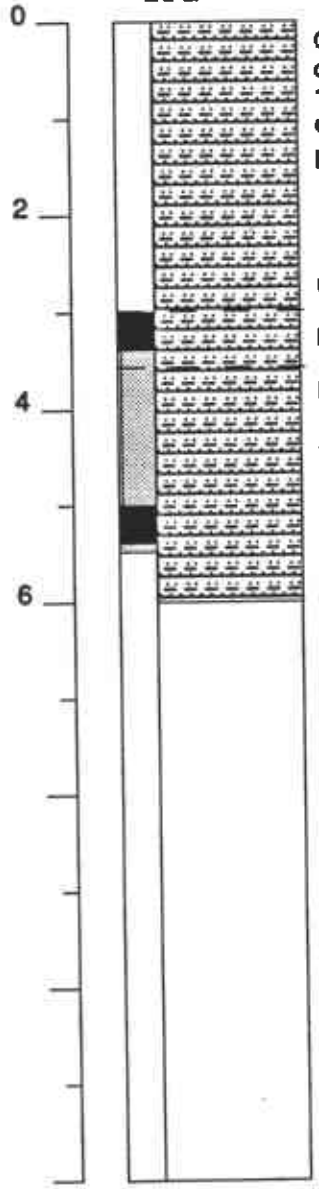
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-17
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-18





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

Mild hydrocarbon odor (cuttings)

(Water - Driller)

Becomes light blue

Becomes dark brown

Strong solvent odor

TD Strong solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

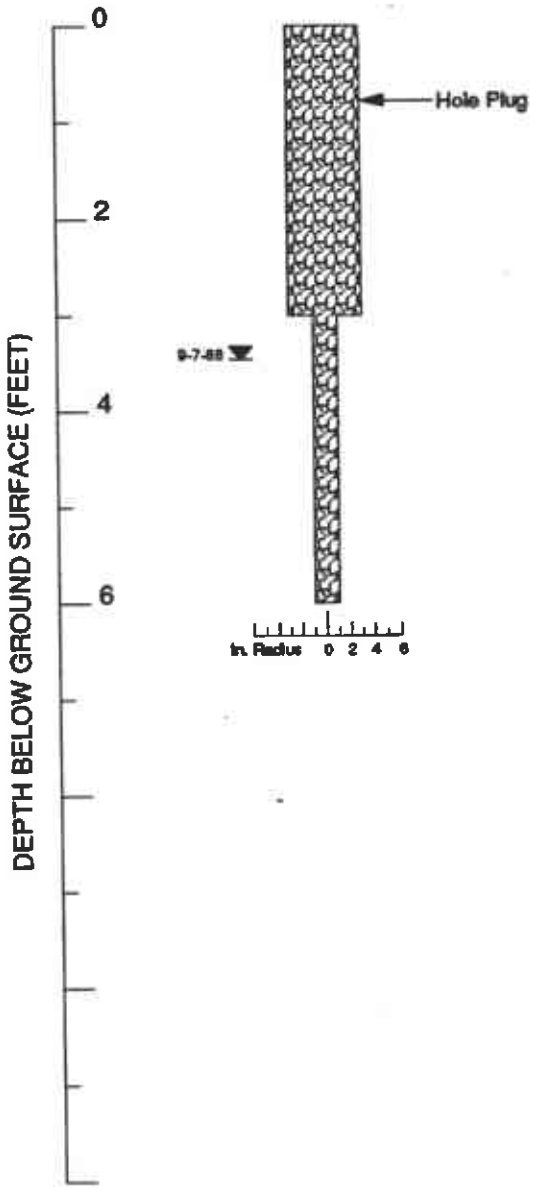
est K = Estimated permeability (hydraulic conductivity)

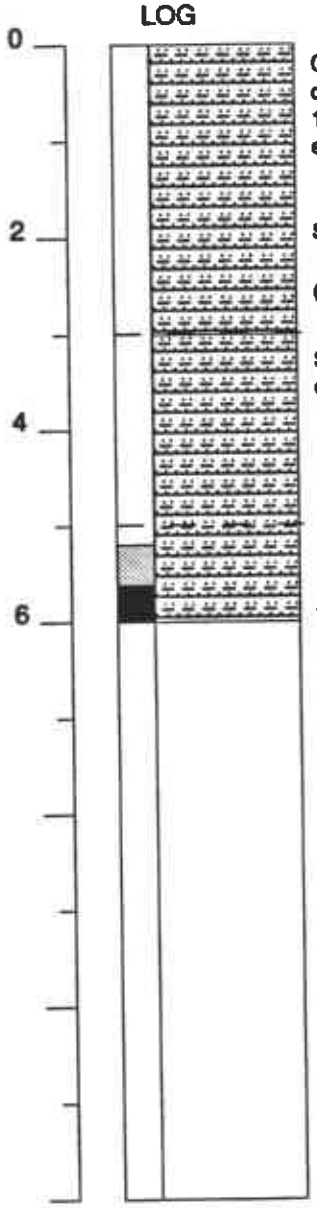
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-18
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-19





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K

Strong hydrocarbon odor (cuttings 2-3')

(Soft, wet-Driller; may have been sandy)

Sandy SILT (ML) very strong solvent odor

TD Strong solvent odor; sample depth uncertain; placed at bottom of sampling interval
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

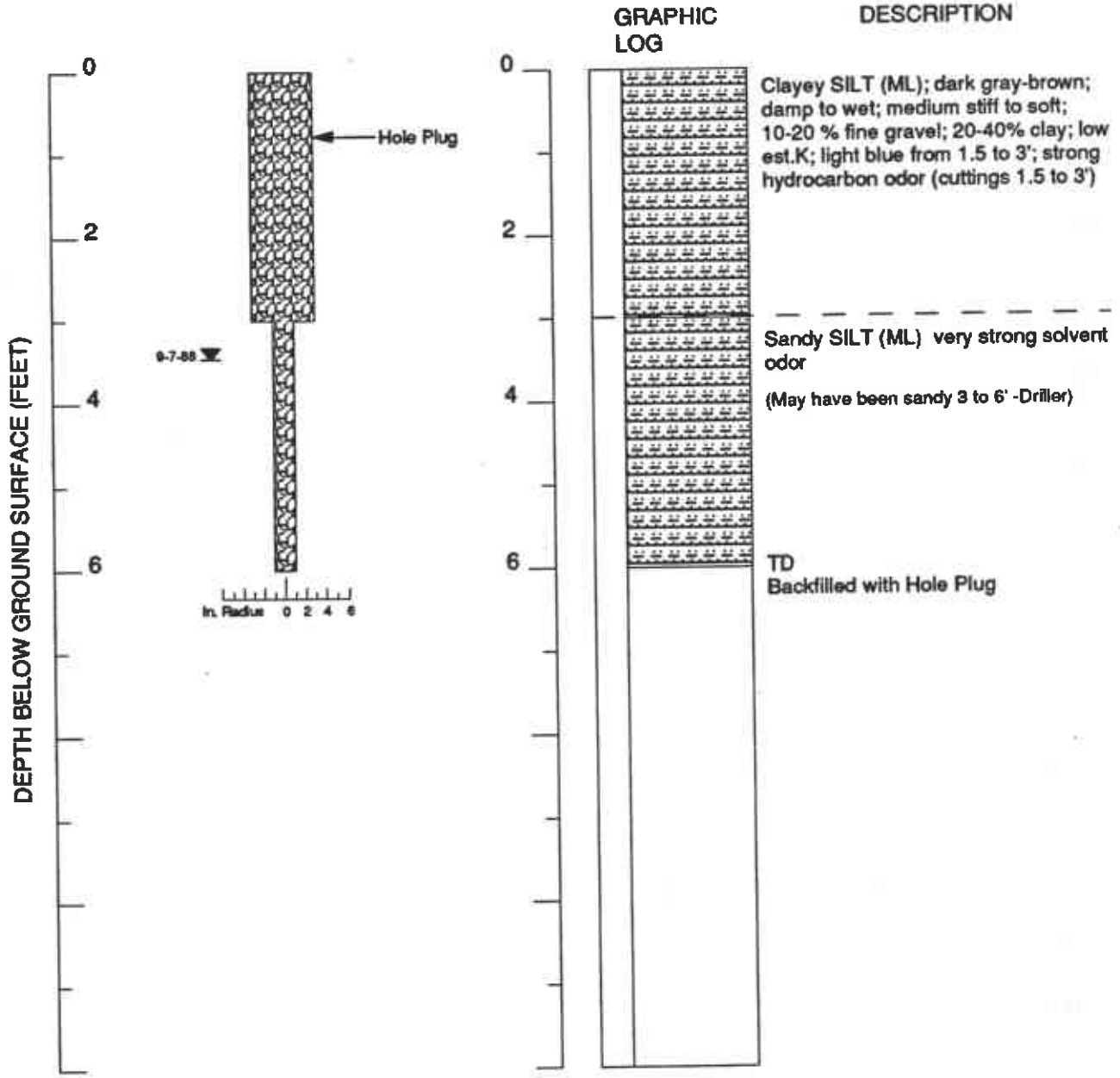
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-19
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-19-A



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

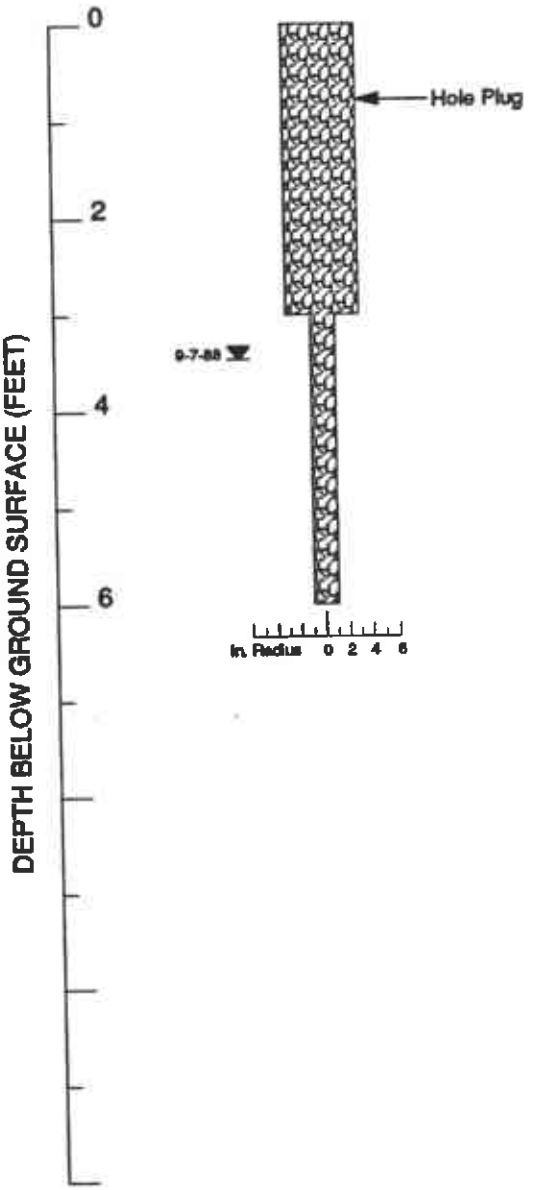
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

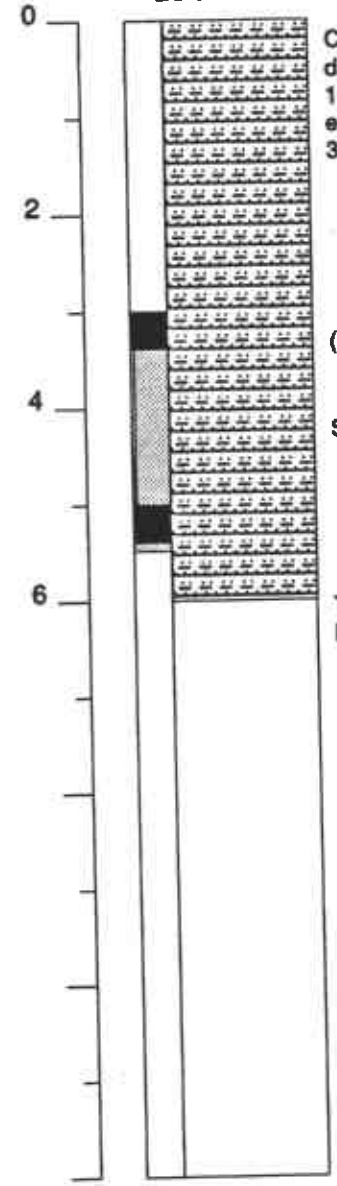
Boring Log B-19-A
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-20





DESCRIPTION

Clayey SILT (ML); dark gray-brown; damp to wet; medium stiff to soft; 10-20 % fine gravel; 20-40% clay; low est.K; hydrocarbon odor (cuttings 2 to 3')

(Water - Driller)

Strong solvent odor

TD strong solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

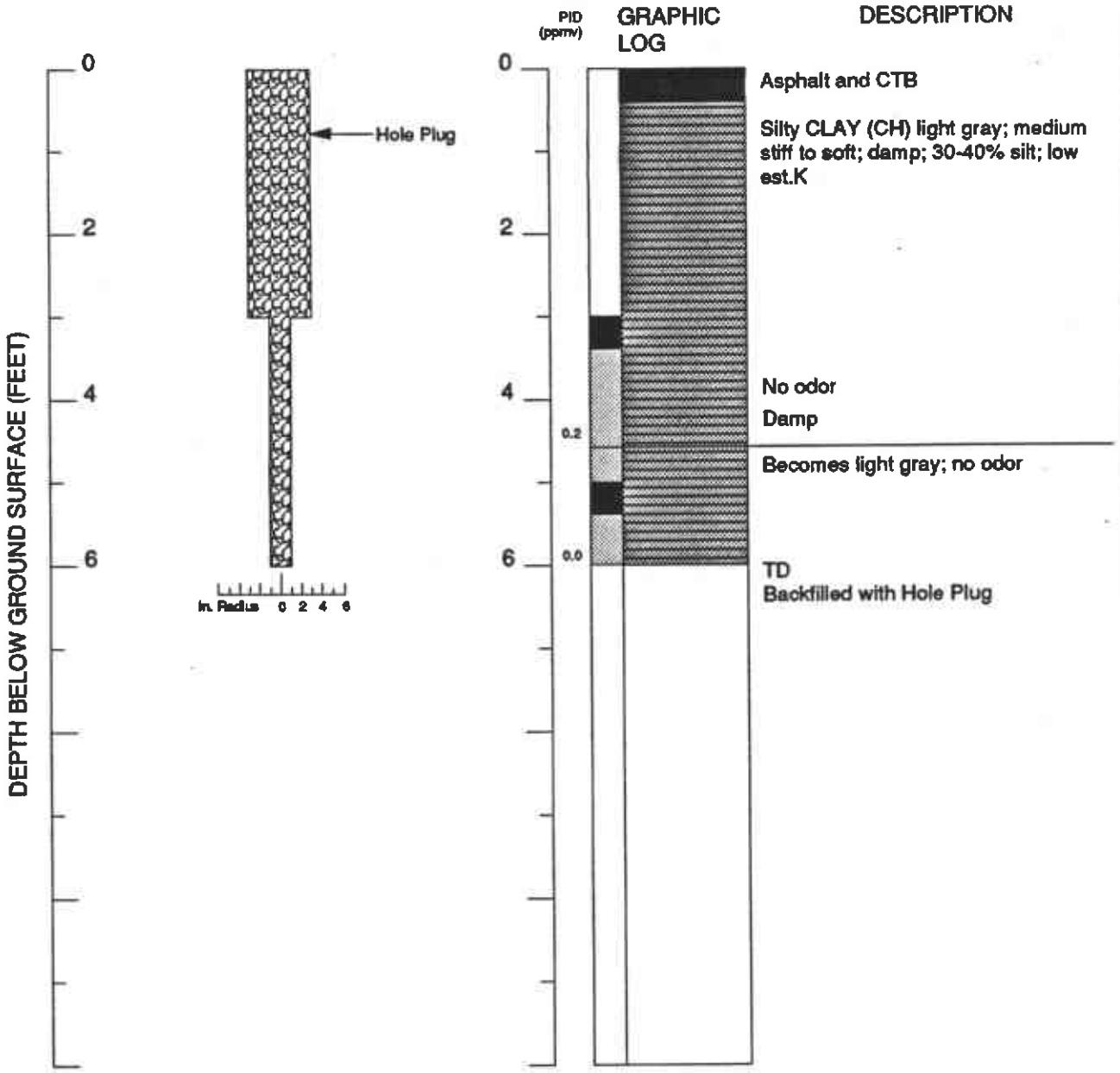
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim/Tim
Drilling Method: Solid stem auger
Dates Drilled: 9-7-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-20
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-21



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

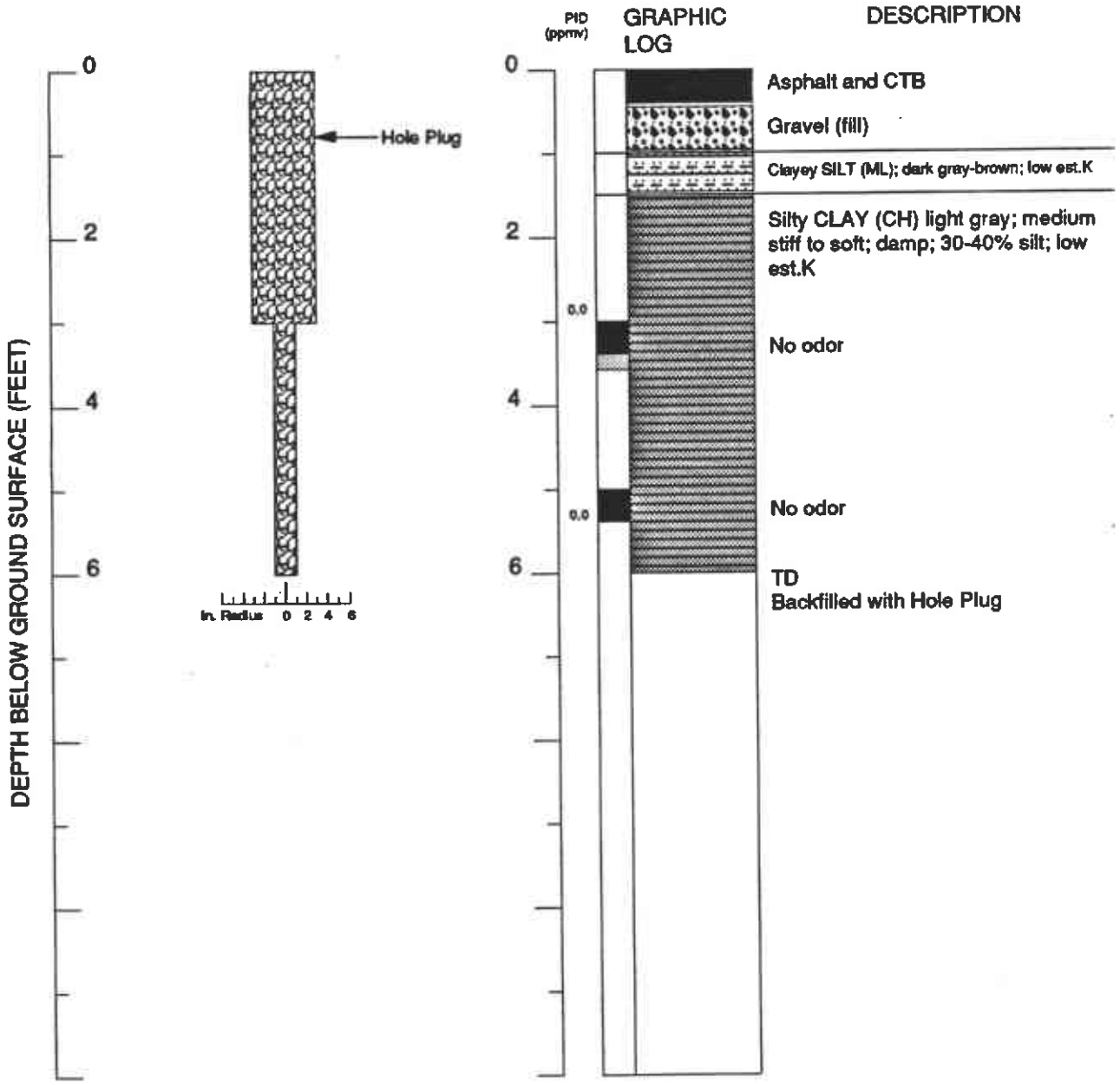
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-21
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-22



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

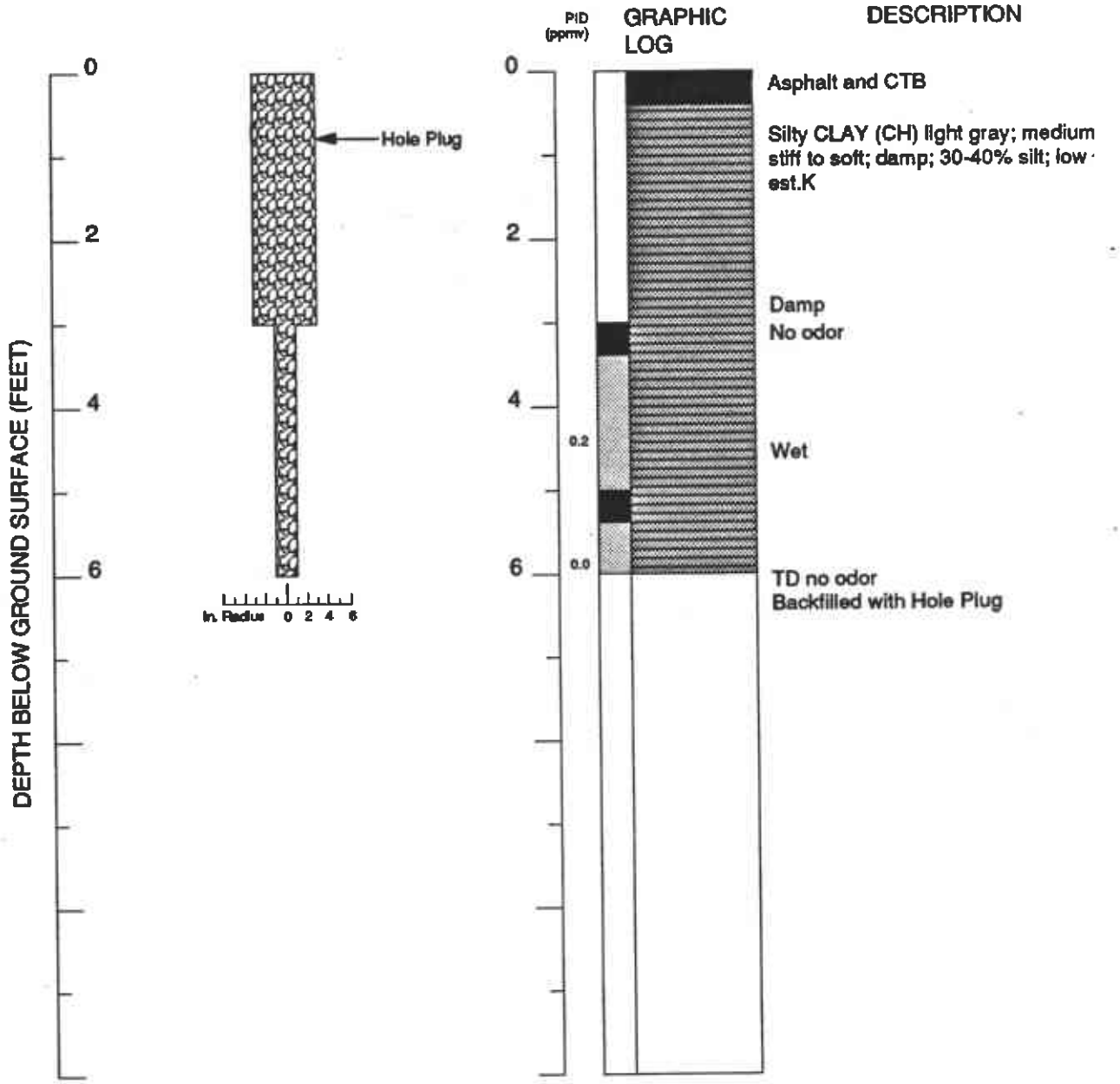
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-22
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-23



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

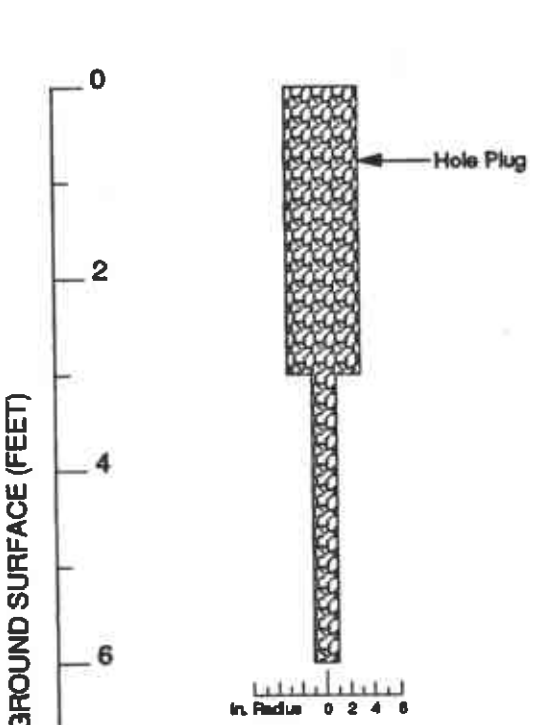
est K = Estimated permeability (hydraulic conductivity)

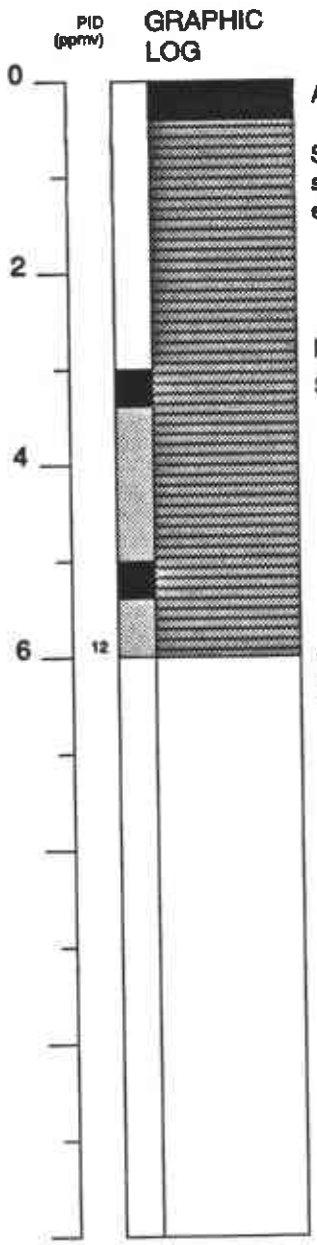
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-23
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-24





EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

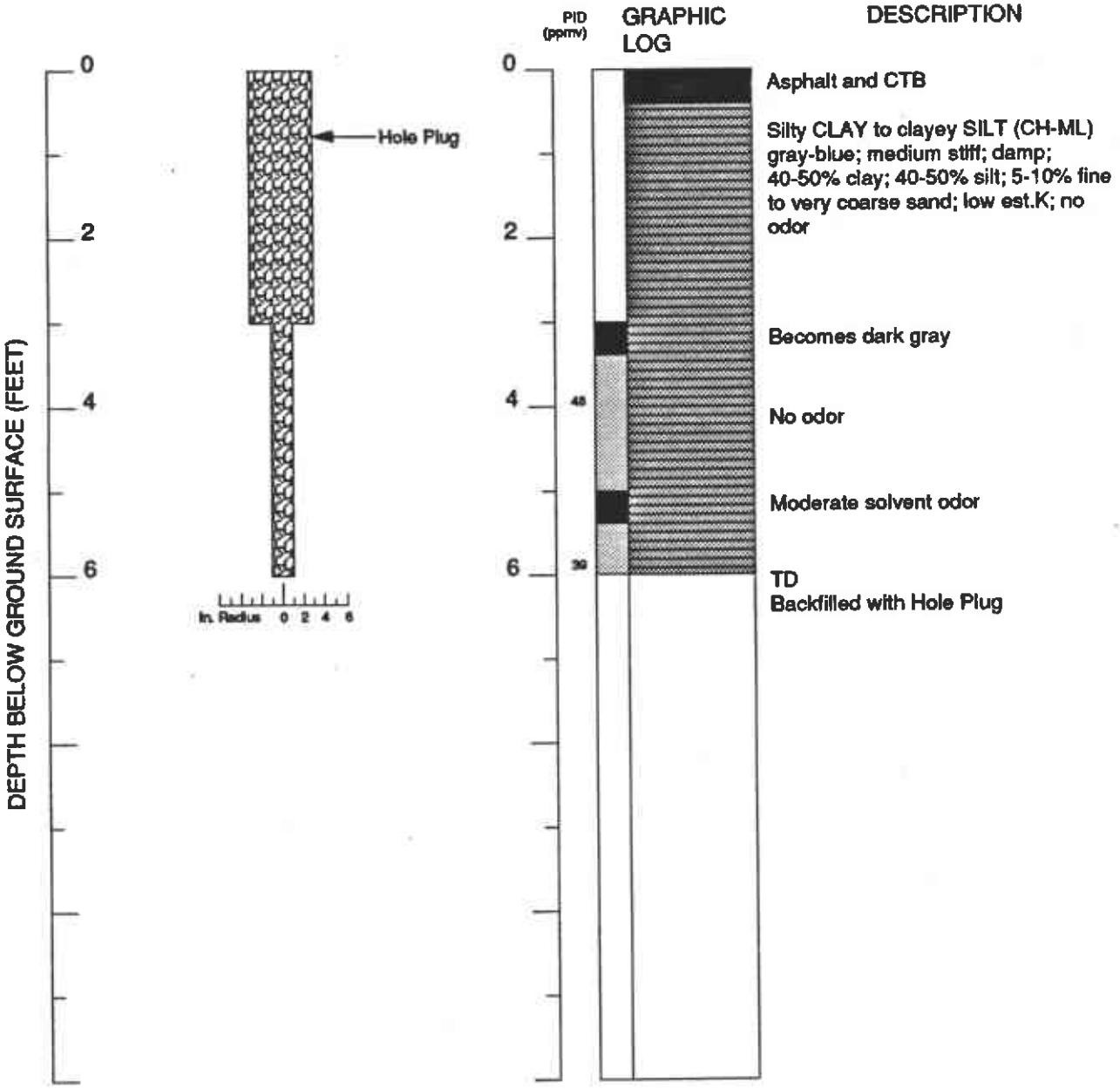
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-24
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-25



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
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- Grab sample

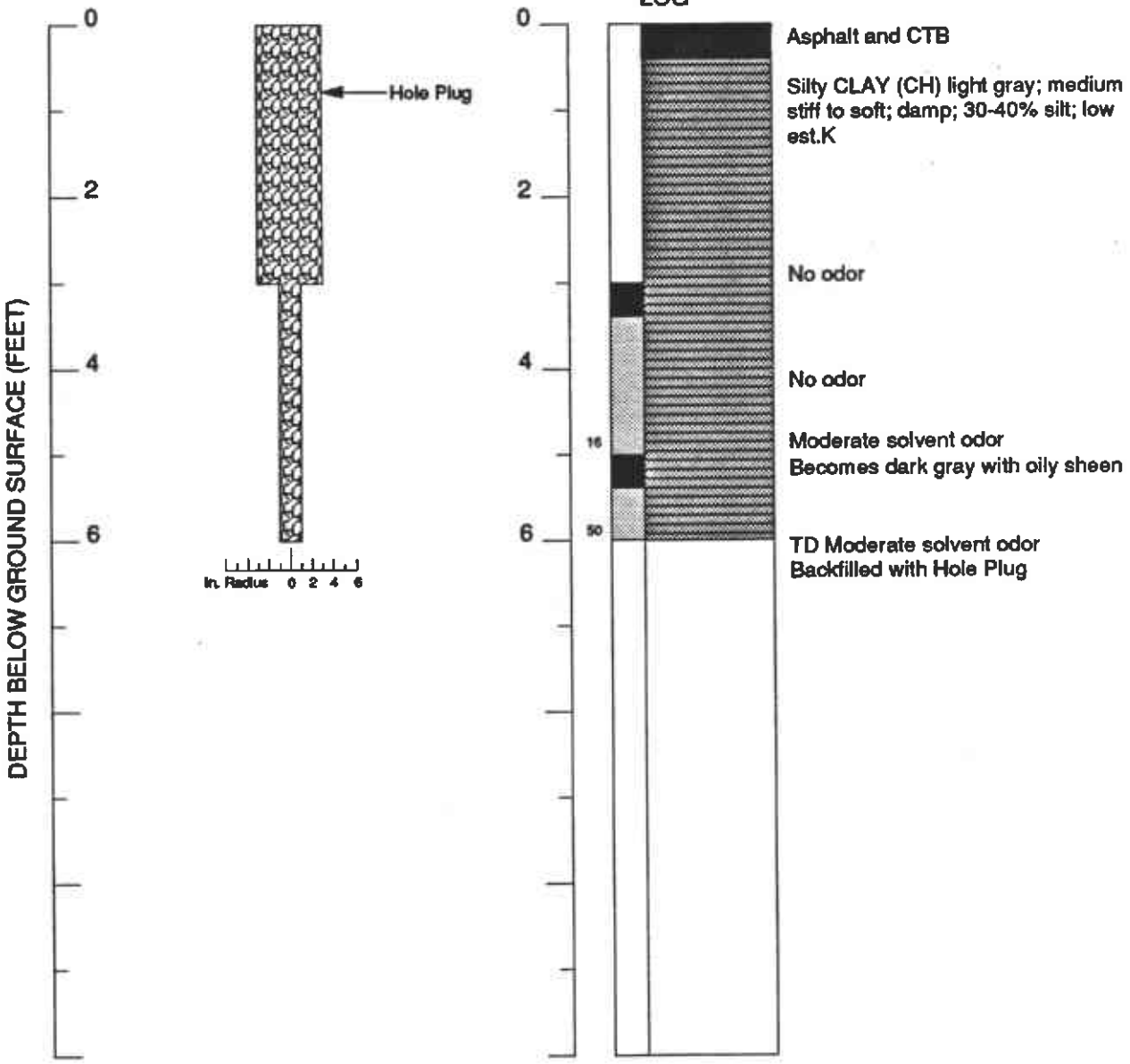
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-25
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-26



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

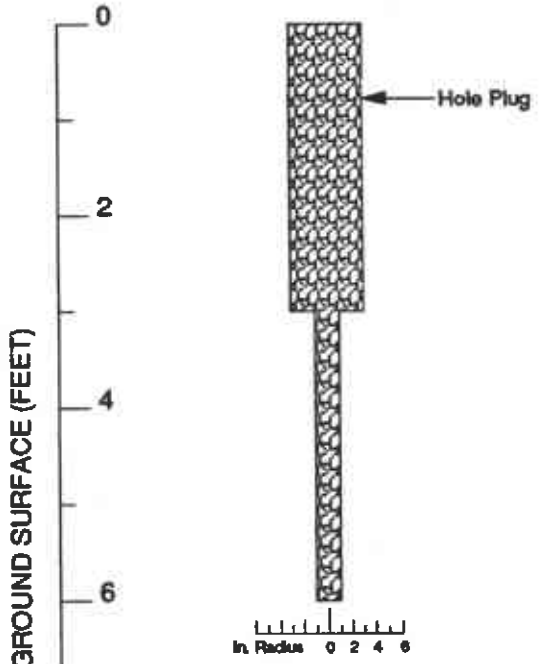
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

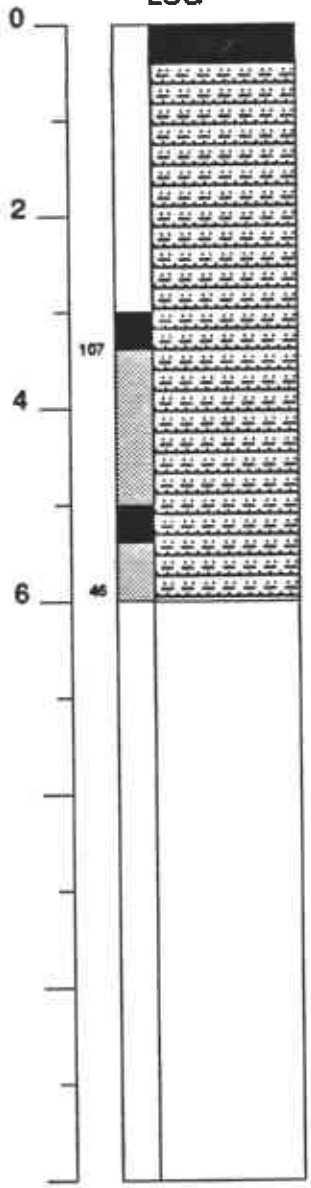
Boring Log B-26
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-27





DESCRIPTION

Asphalt and CTB

Clayey SILT (ML) gray; damp; 30-40% clay; low est K

Moderate solvent odor

Strong solvent odor

Moderate solvent odor
Becomes dark gray with oily sheen

TD Moderate solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

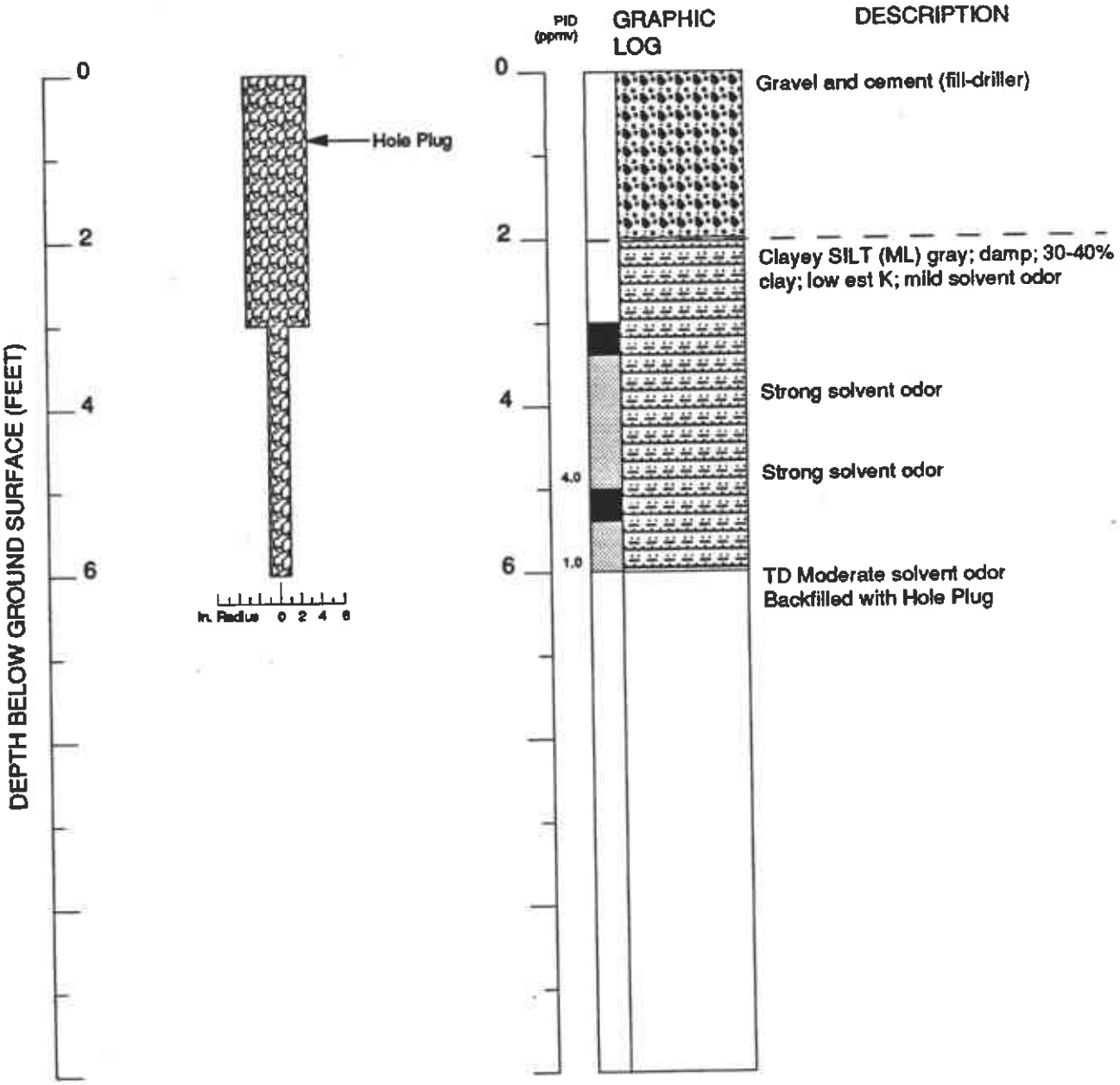
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-27
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-28



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

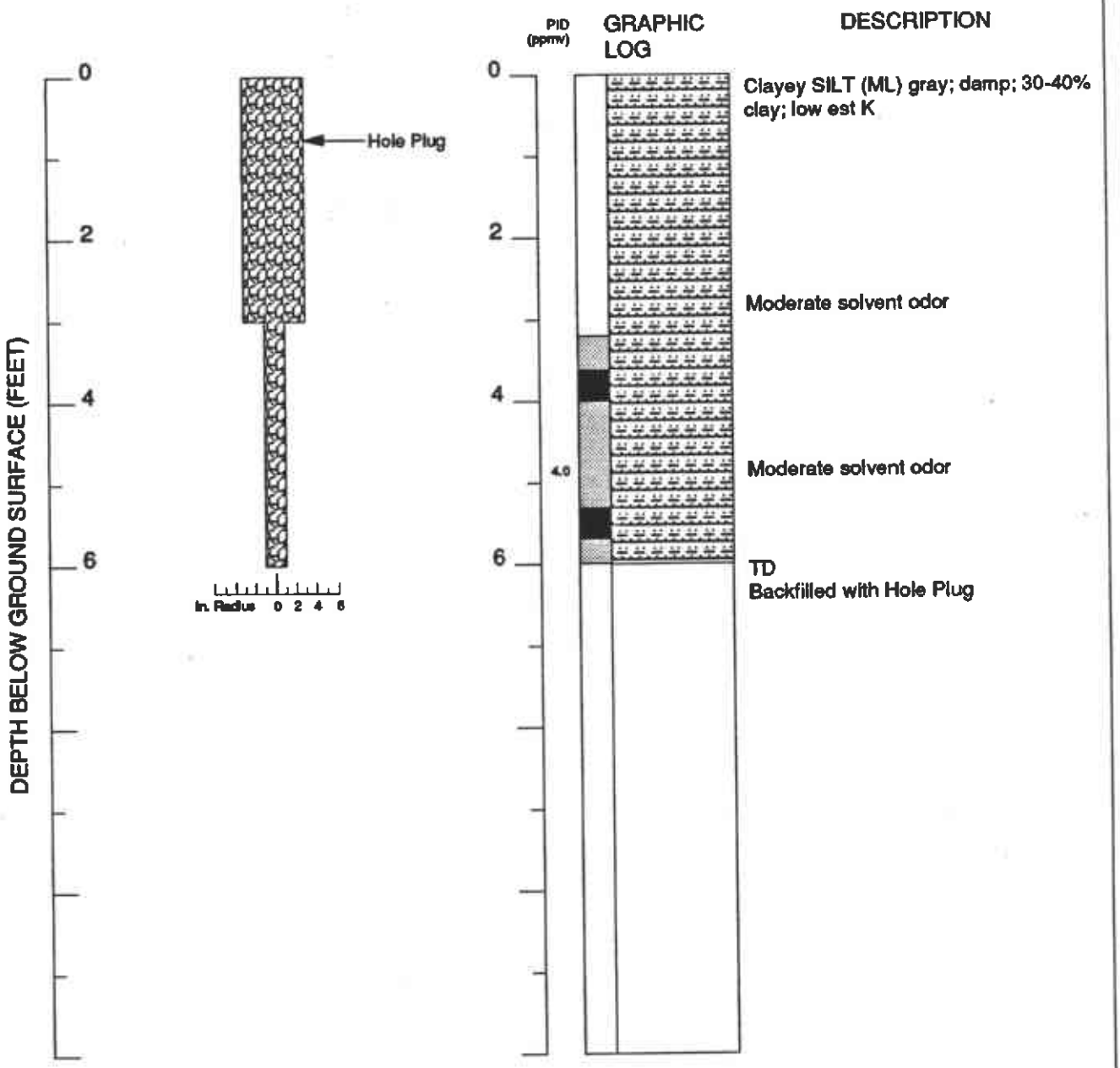
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-28
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-30



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

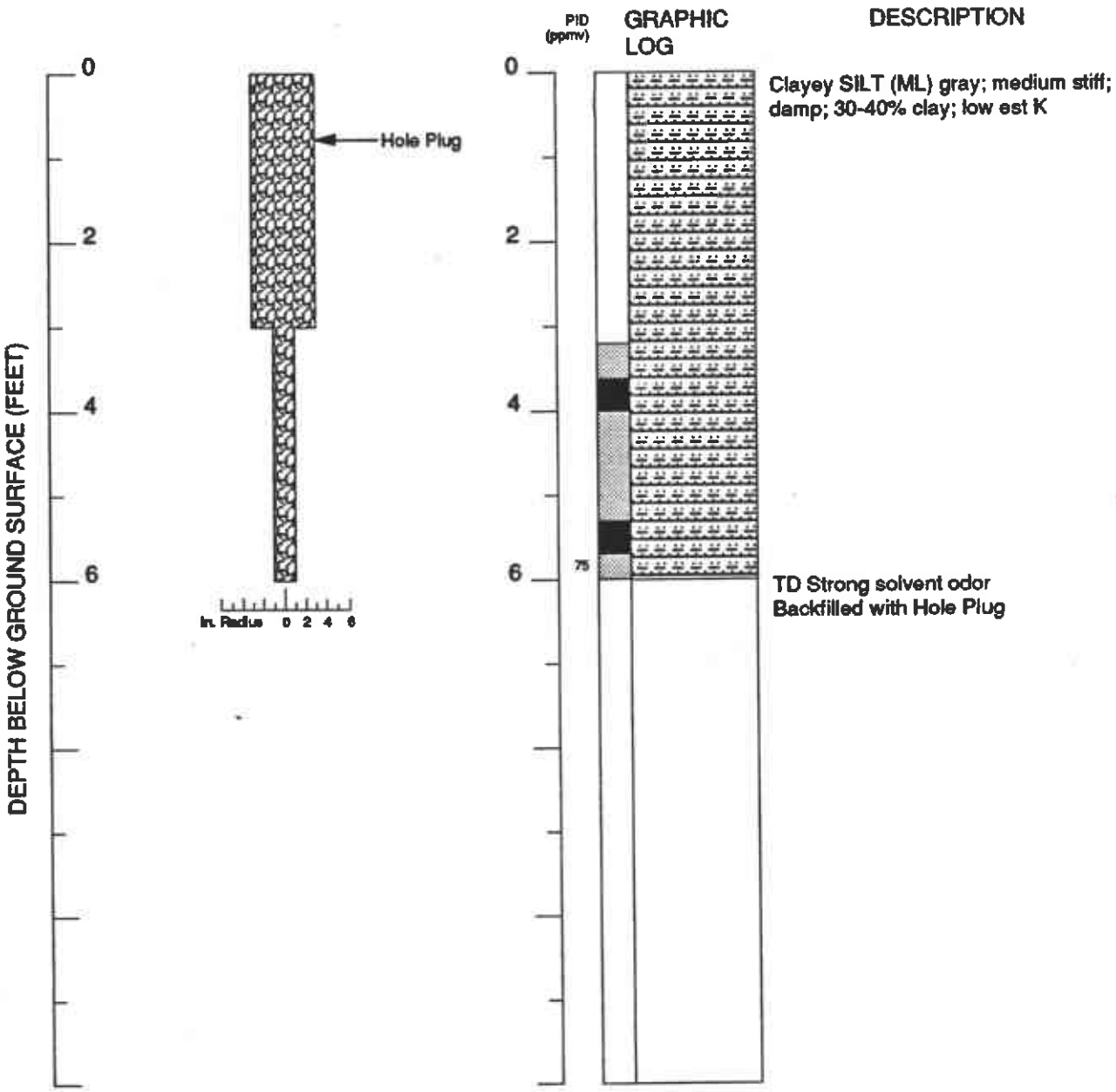
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-30
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-31



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

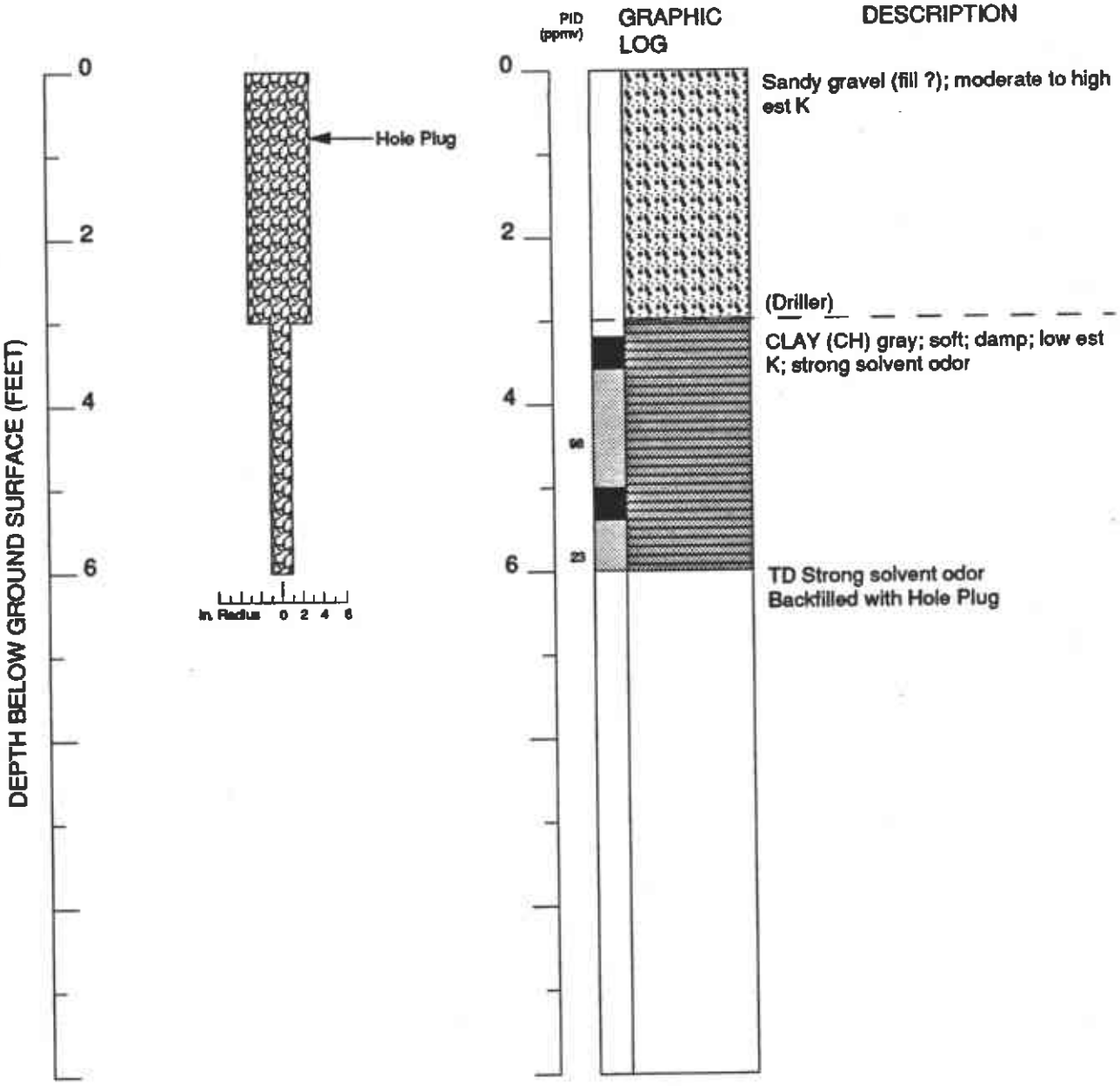
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-31
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-33



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

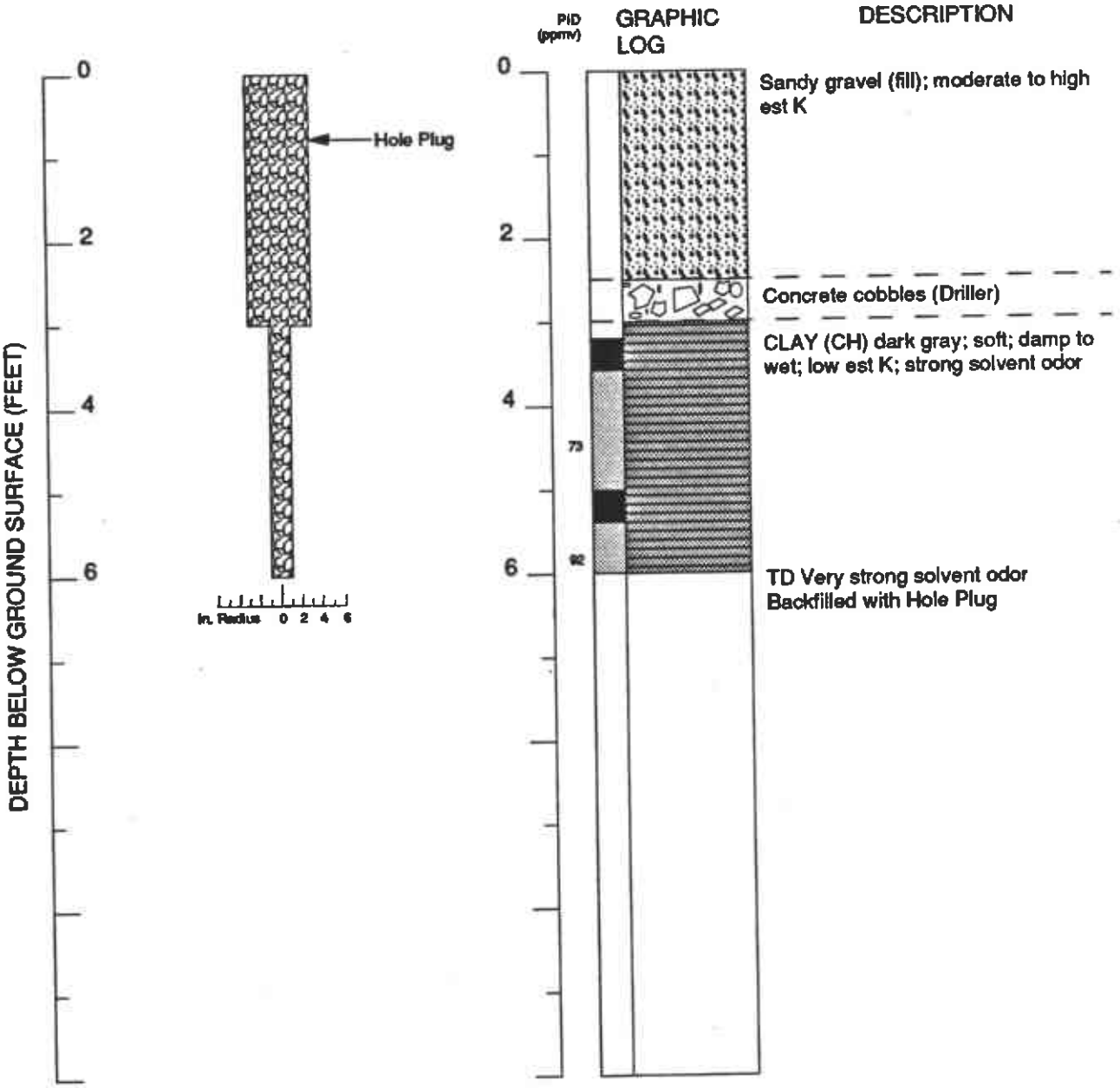
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-33
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-34



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

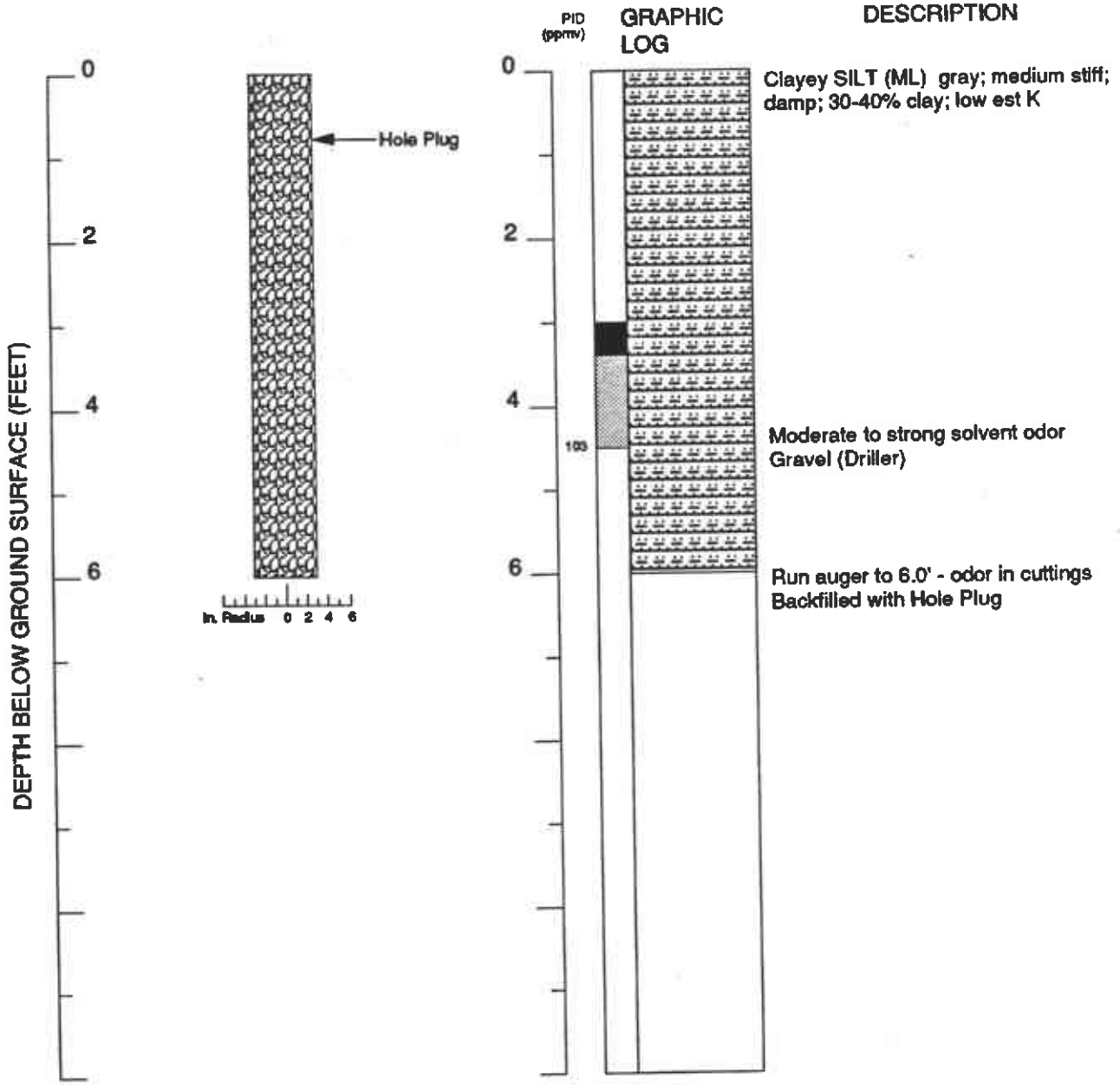
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-34
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-37



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

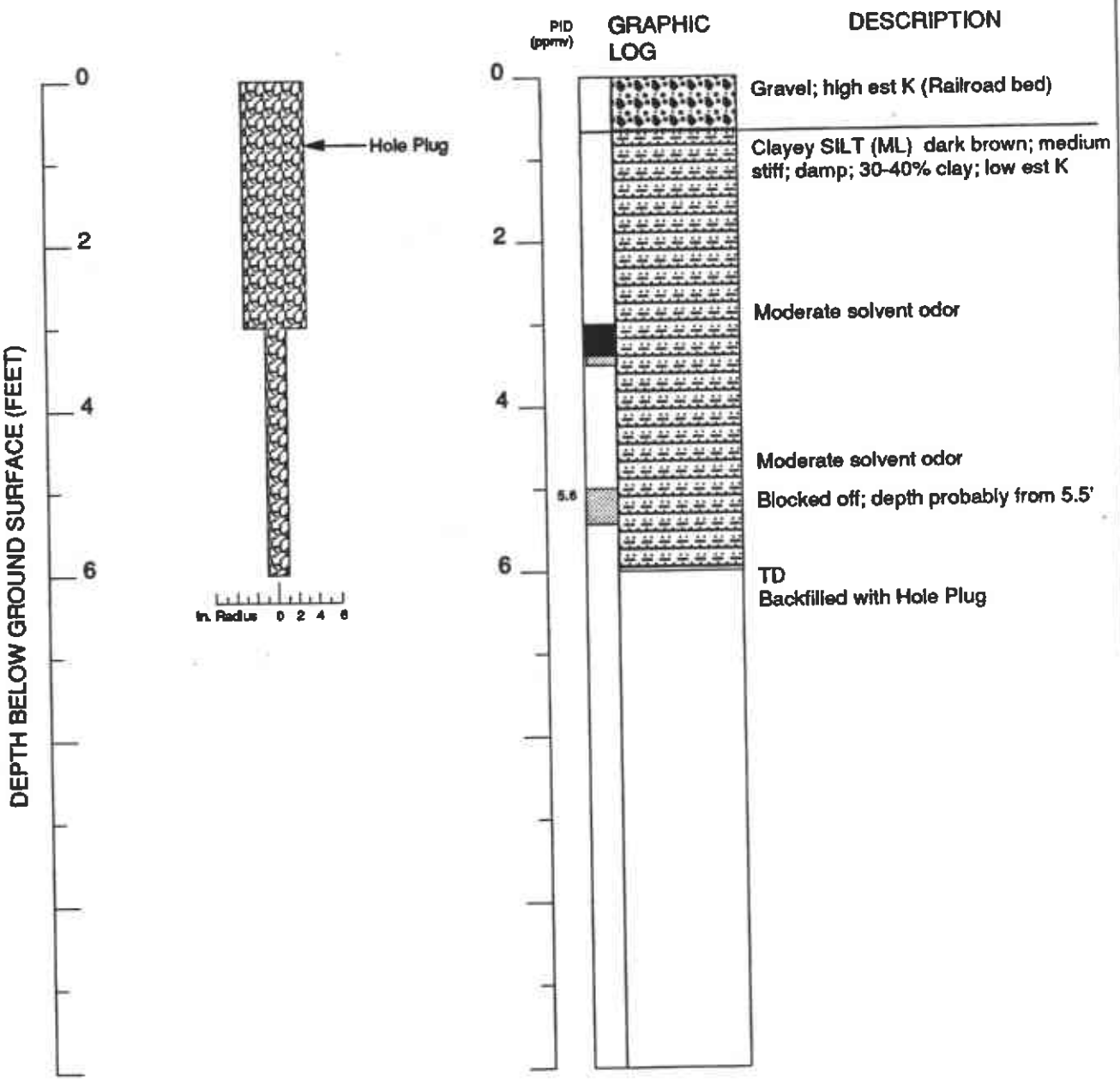
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-37
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-38



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

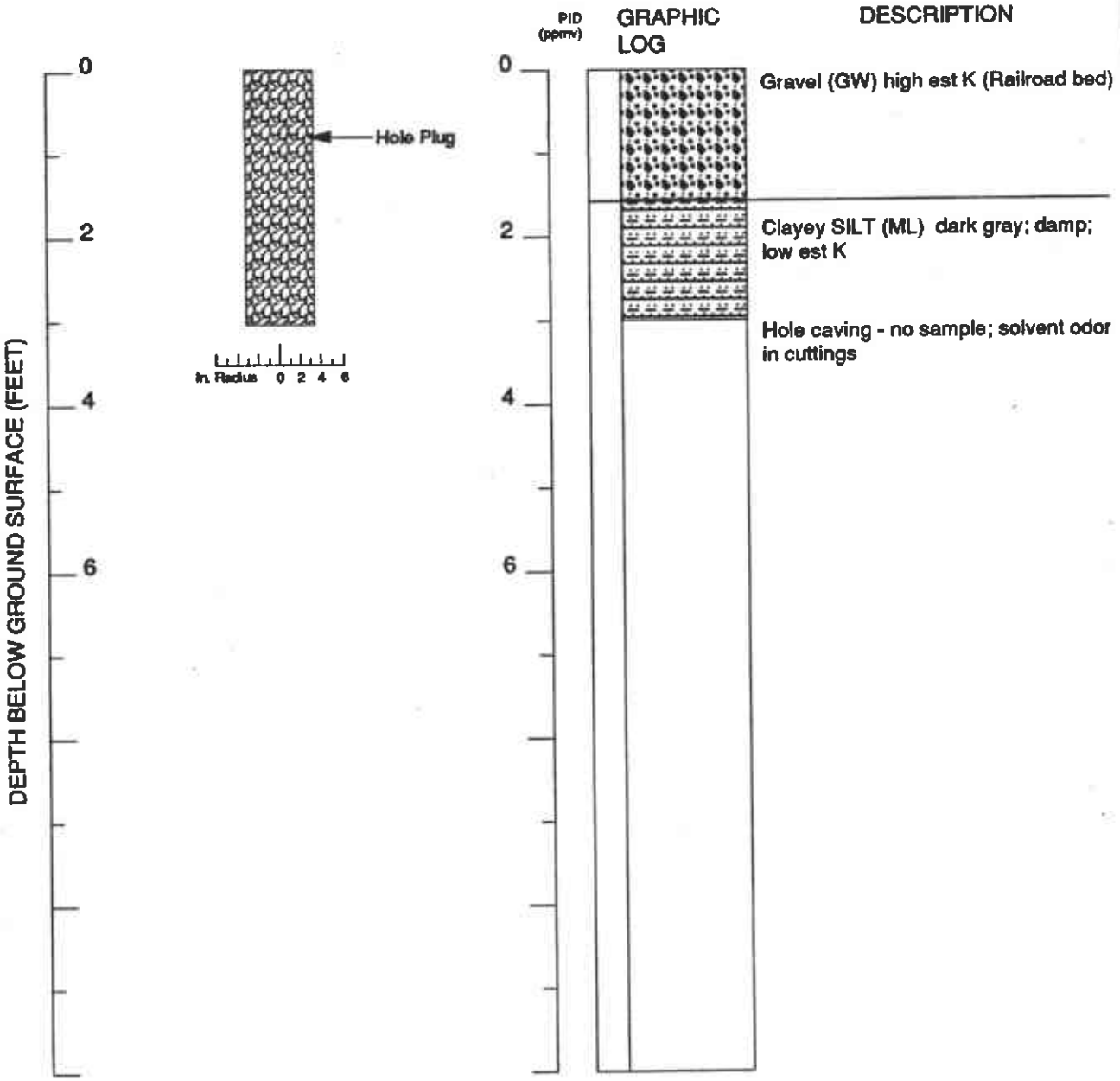
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-38
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-39



EXPLANATION

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- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
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- Grab sample

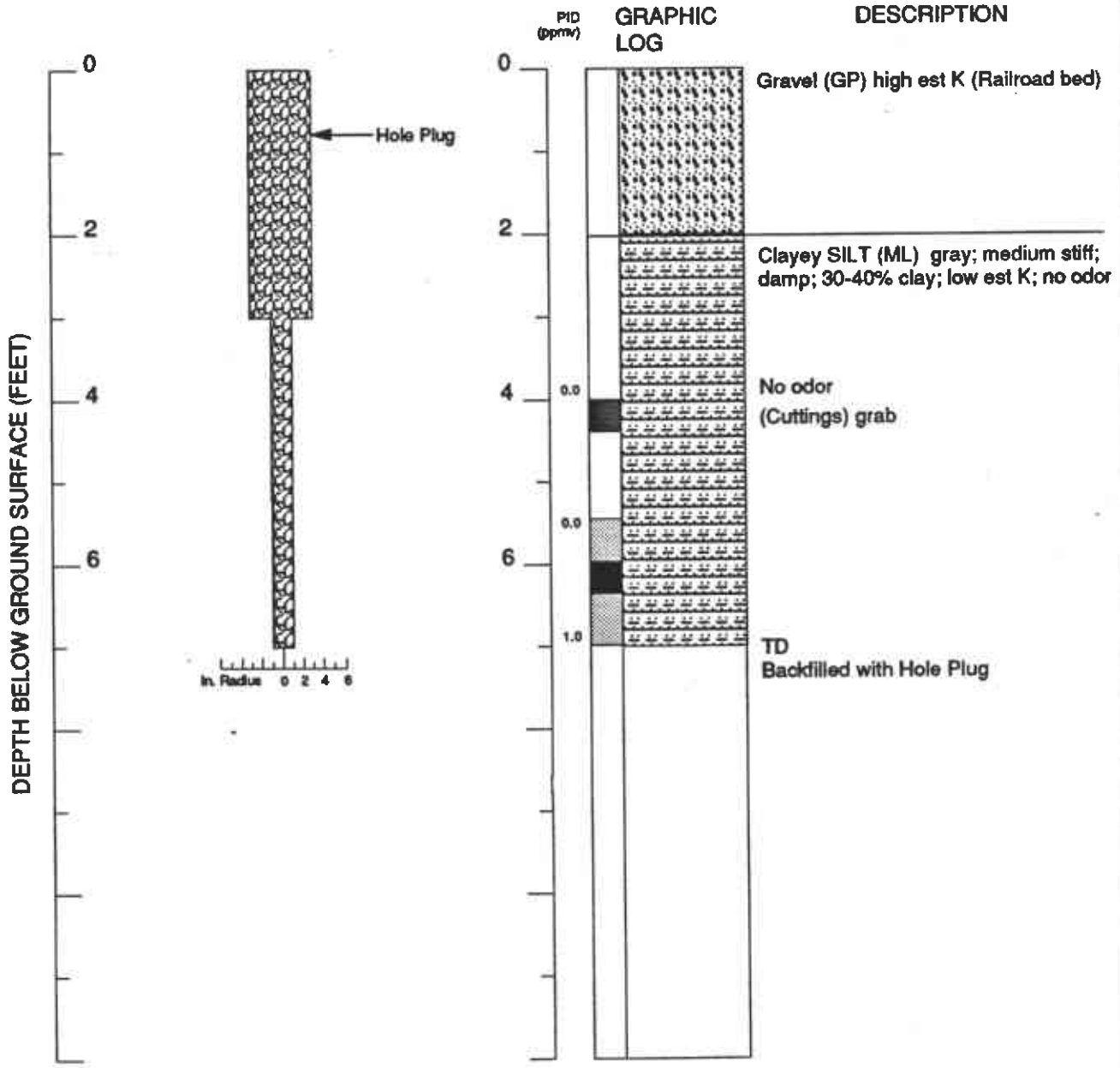
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-39
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-40



EXPLANATION

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- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

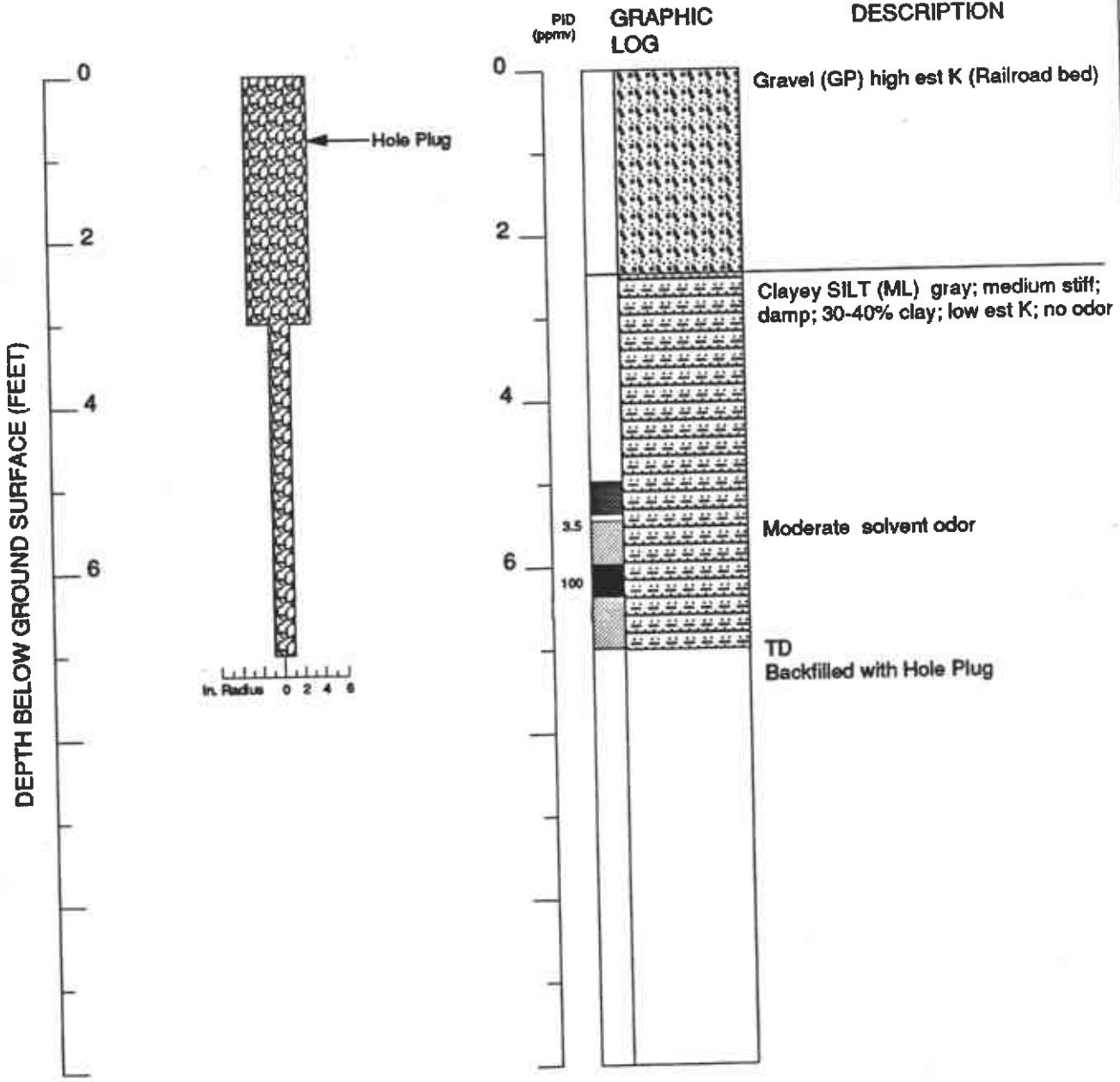
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-40
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-41



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

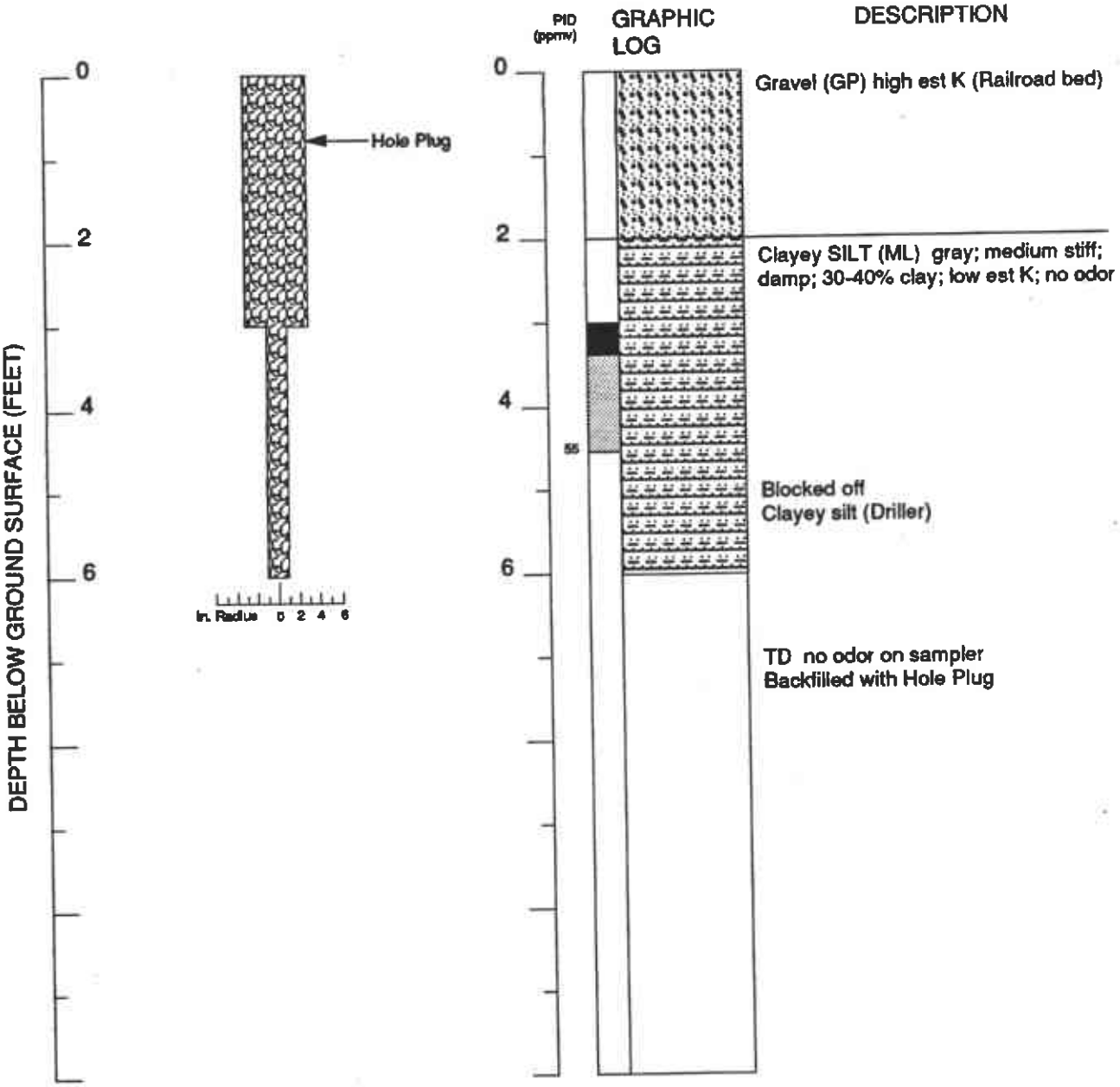
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-41
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-42



EXPLANATION

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- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
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- Grab sample

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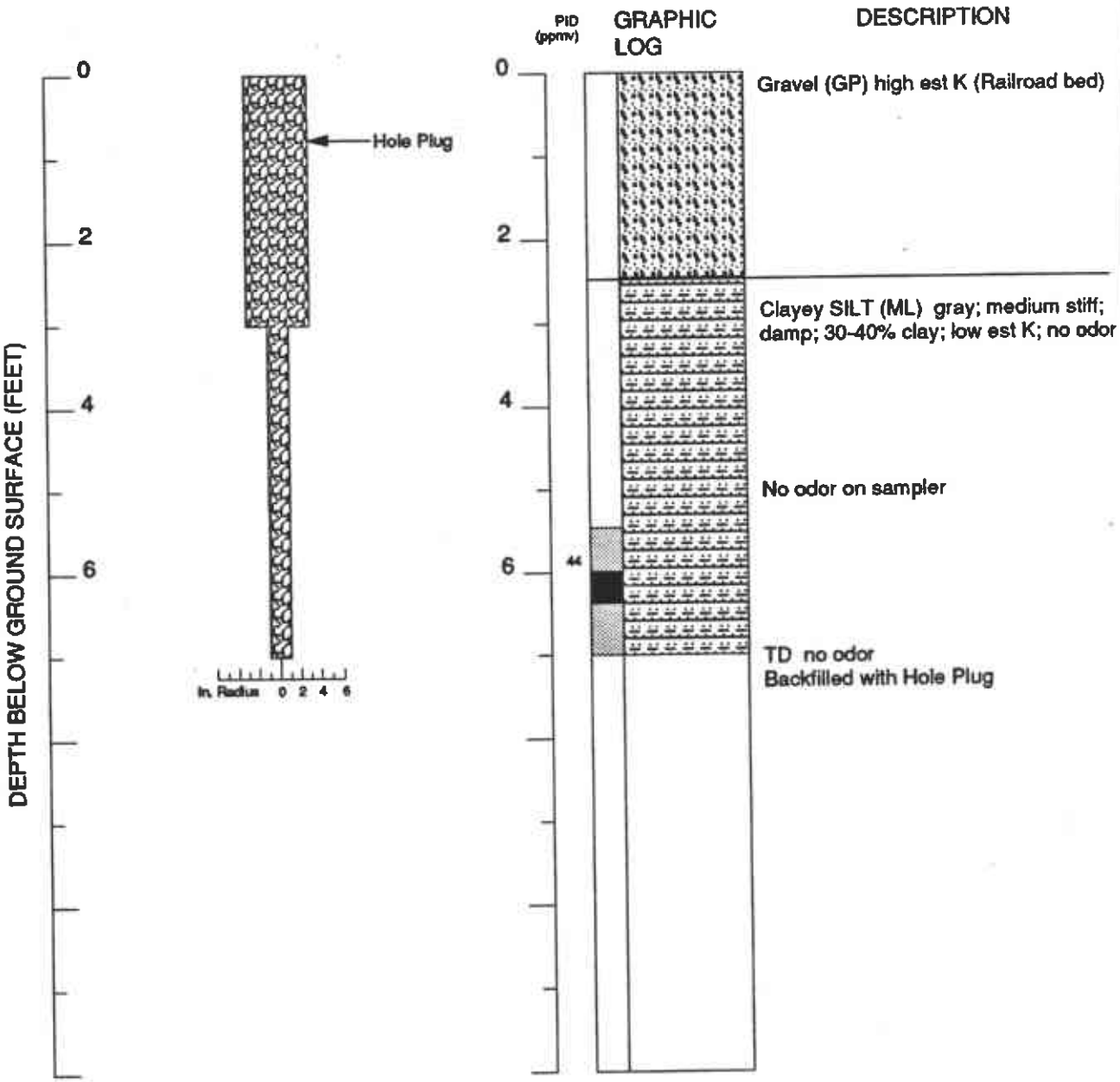
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-42
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-43



EXPLANATION

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- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
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- Grab sample

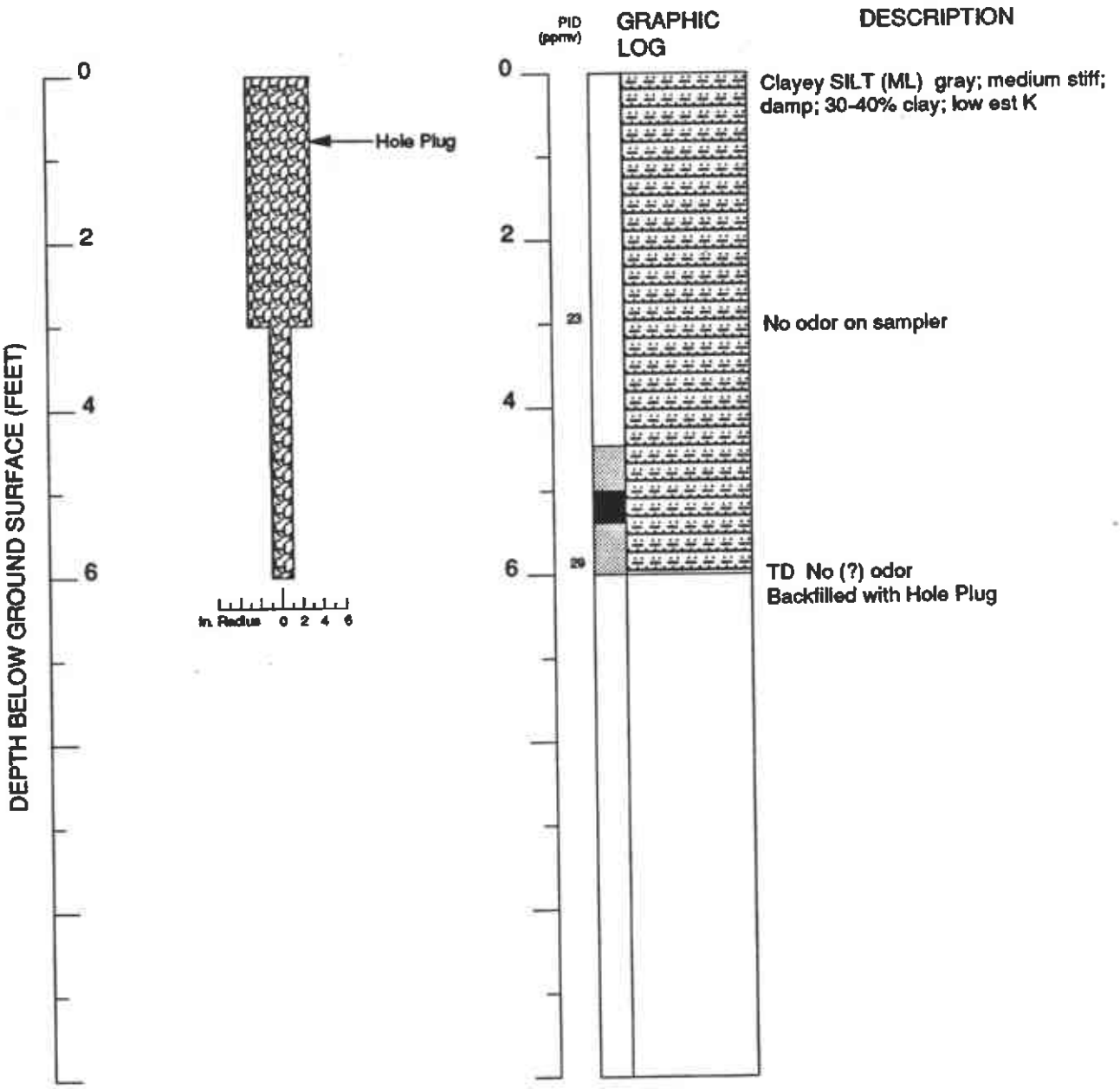
est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-43
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-45



EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
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- Grab sample

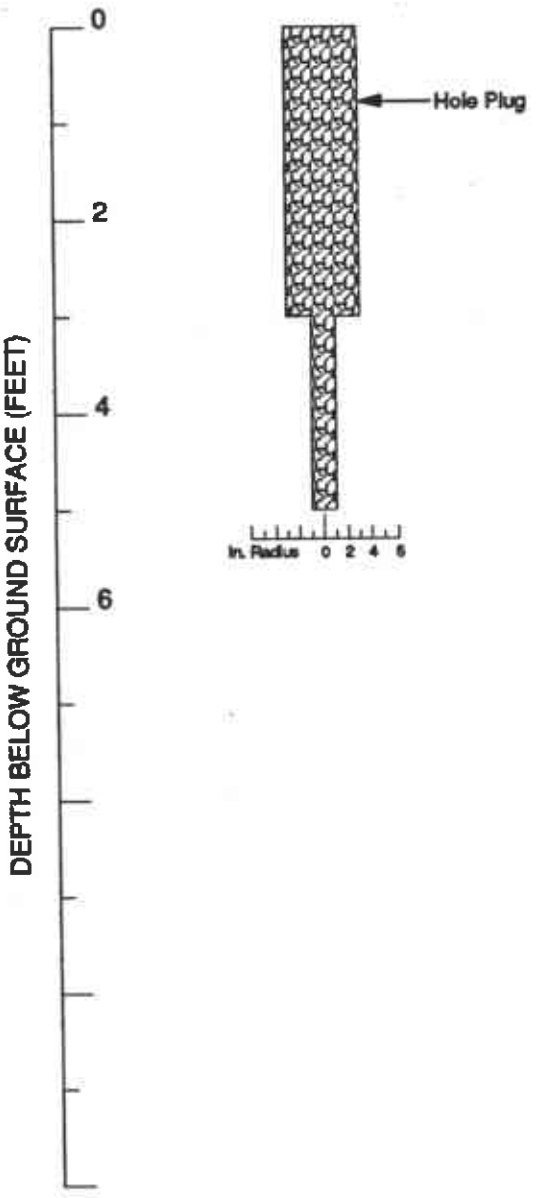
est K = Estimated permeability (hydraulic conductivity)

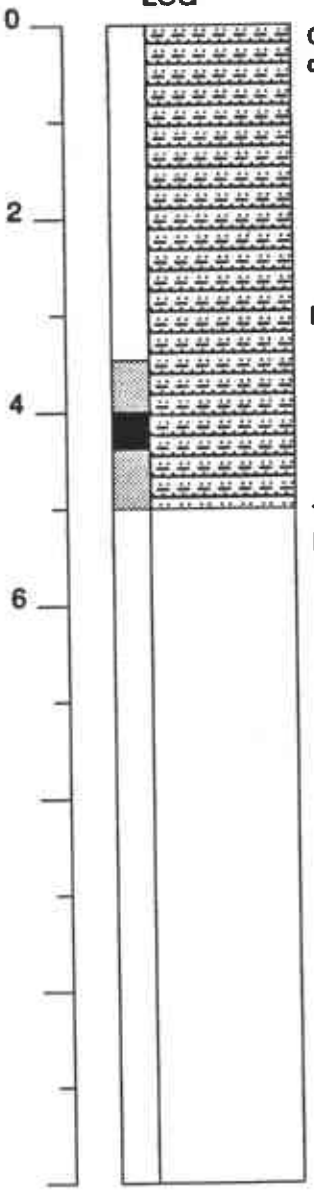
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-45
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

BORING B-46





DESCRIPTION

Clayey SILT (ML) gray; medium stiff; damp; 30-40% clay; low est K

Moderate to strong solvent odor

TD Moderate to strong solvent odor
Backfilled with Hole Plug

EXPLANATION

- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
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- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

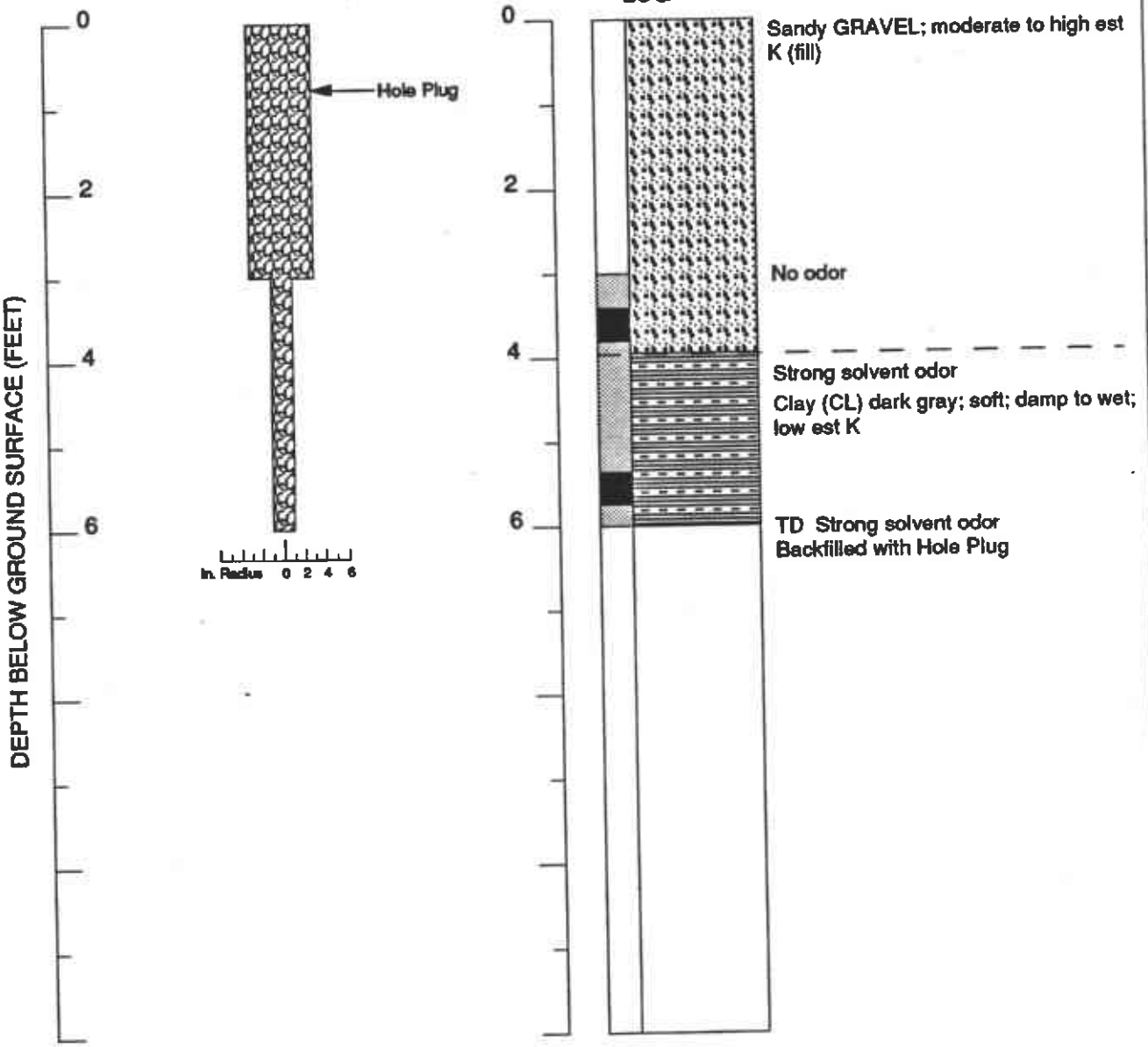
Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-46
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

WGR

BORING B-47



EXPLANATION

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- Water level (date)
- Contact (dotted where approx.)
- Gradational (hachured), uncertain (dashed) contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Grab sample

est K = Estimated permeability (hydraulic conductivity)

Logged by: Tom Howard
Supervisor: Woody Lovejoy
Drilling Company: Exploration Geo Services
Driller: Jim Kirschner
Drilling Method: Solid stem auger
Dates Drilled: 9-30-88
Well Head Completion: NA
Type of Sampler: 2" split barrel

Boring Log B-47
WGR Project No.: 1-045.02

Chevron Asphalt Plant
Emeryville, CA

ATTACHMENT C
Chain-of-Custody Forms

457 8521 **BC Log Number** 8809147

CHAIN OF CUSTODY RECORD

Client name	WESTERN GEOLOGIC RESOURCES	Project or PO#	1-045-02
Address	2169 E. FRANCISCO BLVD SUITE B	Phone #	415 457 7595
City, State, Zip	SAN RAFAEL CA 94901	Report attention	Tom Howard / Hillary Hunt [illegible]

Sampled by: Tom Howard

Analyses required: 8015/8020; TOTAL LEAD; TCLP LEAD [illegible]; BTX; Hazardous sample Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	8015/8020	TOTAL LEAD	TCLP LEAD	BTX				Hazardous sample Special handling required	Remarks
	9/7/88		SO	B-1-3.0	1									COMPOSITE INTO: C-1
	↓		↓	B-2-3.0	1							1		
				B-3-3.0	1									
				B-4-3.0	1									
				B-5-3.0	1									
				B-6-3.0	1									COMPOSITE INTO: C-2
				B-7-3.0	1							2		
				B-8-3.0	1									
				B-9-3.0	1									
				B-10-3.0	1									1 of 2

	Signature	Print Name	Company	Date	Time
Relinquished by	[signature]	THOMAS H. HOWARD	WESTERN GEOLOGIC	9/7/88	15:00
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	[signature]	E. E.	BCE	9/7/88	15:00

BROWN AND CALDWELL LABORATORIES

☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300

☐ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553

☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD

BC Log Number 8804147

Client name	WESTERN GEOLOGIC	Project or PO#	1-045.02
Address	7166 So. Francisco Blvd Suite B	Phone #	415 457 7575
City, State, Zip	San Rafael CA 94901	Report attention	Tom Howard / Woody Lovejoy

Sampled by: Tom Howard

Analyses required: Soil 8020, TPH, Total Alkalinity, BTX, Hazardous sample / Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	Analyses required	Remarks
	9/7/88		SO	B-11-3.0	1		
				B-12-3.0	1		Composite into
				B-13-3.0	1	3	C-3
				B-14-3.0	1		
				B-15-3.0	1		
				B-16-3.0	1		
				B-17-3.0	1	4	Composite into
				B-18-3.0	1		C-4
				B-20-3.0	1		
							2/2

	Signature	Print Name	Company	Date	Time
Relinquished by	[signature]	Thomas M Howard	Western Geologic	9/7/88	15:00
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	[signature]	E.E.	BCL	9/7/88	15:00

BROWN AND CALDWELL LABORATORIES

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Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD

BC Log Number _____

Client name: [illegible]	Project or PO#: [illegible]
Address: [illegible]	Phone #: [illegible]
City, State, Zip: [illegible]	Report attention: [illegible]

Analyses required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Hazardous sample / Special handling required	Remarks
	9/7/88		SO	B-1-S.O	1		HOLD
				B-7-S.O	1		
				B-2-S.O	1		
				B-4-S.O	1		
				B-5-S.O	1		
				B-6-S.O	1		
				B-7-S.O	1		
				B-8-S.O	1		
				B-9-S.O	1		
				B-10-S.O	1		
				B-11-S.O	1		
	V			B-12-S.O	1		V 1/2

	Signature	Print Name	Company	Date	Time
Relinquished by	[signature]	THOMAS M HOWARD	[illegible]	9/7/88	18:00
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	[signature]	E.E.	BCL	9/7/88	18:35

BROWN AND CALDWELL LABORATORIES

- ☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
- ☐ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553
- ☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD

BC Log Number

Client name: WESTERN GEOLOGIC	Project or PO#: 1 045.02
Address: 2167 E. FRANCISCO SUITE D	Phone #: 415 457 7595
City, State, Zip: SAN RAFAEL 94901	Report attention: TOM HOWARD / MOODY

Sampled by: TOM HOWARD

Analyses required: Hazardous sample; Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sample description	Number of containers	Remarks
	4/7/88		SO	B-13-5.0	1	HOLD
	↓		↓	B-14-5.0	1	
				B-15-5.0	1	
				B-16-5.0	1	
				B-17-5.0	1	
				B-18-5.0	1	
				B-19-6.0	1	
				B-20-5.0	1	

2 of 2

	Signature	Print Name	Company	Date	Time
Relinquished by	[signature]	THOMAS M. HOWARD	WESTERN GEOLOGIC	4/7/88	18:00
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	[signature]	EZ	BCL	4/7/88	18:30

BROWN AND CALDWELL LABORATORIES

- ☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
- ☐ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553
- ☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD RUSH!

BC Log Number 8809686

Client name WGR		Project or PO# 1-045.02
Address		Phone# 457 7595
City, State, Zip	Report attention Tom Howard	

Analyses required: 8015/8020 FUEL CHAR; Hazardous sample; Special handling required

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by 11 — Sample description	Number of containers	8015/8020 FUEL CHAR								Remarks
1	9/30/88		SO	B-21-3.0										MAY BE
2	↓		↓	B-21-5.0										SATURATED
3	↓		↓	B-22-3.0										
4	↓		↓	B-22-4.5										RUSH!
5	↓		↓	B-23-3.0										
6	↓		↓	B-23-5.0										
7	↓		↓	B-24-3.0										
8	↓		↓	B-24-5.0										
9	↓		↓	B-25-3.0										
10	↓		↓	B-25-5.0										
11	↓		↓	B-26-3.0										
12	↓		↓	B-26-5.0										

	Signature	Print Name	Company	Date	Time
Relinquished by	[signature]	Tom Howard	WGR	09/30/88	[illegible]
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory	[signature]	E.E.	BCE	9/30/88	18:35

BROWN AND CALDWELL LABORATORIES

☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300

☐ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553

☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD

RUSH

BC Log Number 88096886

Client name WGR	Project or PO# P-045.02
Address	Phone# 457 7595
City, State, Zip	Report attention Tom Howard

Analyses required: 8015 | 8020 | Fuel Ethers | Hazardous sample / Special handling required

	Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by / Sample description	Number of containers	Remarks
13	1	9/30		SO	B-27-3.0		MAY BE
14	2				B-27-5.0		SATURATED
15	3				B-28-3.5		
16	4				B-28-5.5		
17	5				B-30-3.5		
18	6				B-30-5.5		
19	7				B-31-3.5		
20	8				B-31-5.5		
21	9				B-33-3.0		
22	10				B-33-5.0		
23	11				B-34-3.0		
24	12				B-34-5.0		

	Signature	Print Name	Company	Date	Time
Relinquished by		Tom Howard	WGR	9/30/88	6:25
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory		E.E.	PCE	9/30/88	18:25

BROWN AND CALDWELL LABORATORIES

155 Powell Street, Emeryville, CA 94608 (415) 428-2300
South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553
Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

CHAIN OF CUSTODY RECORD

RUSH

BC Log Number 8804004

Client name: WESTECH GEOLOGIC	Project or PO#: 1-045.02
Address: 2169 E. FRANCISCO SUITE B	Phone #: 457-7595
City, State, Zip: SAN RAFAEL CA 94901	Report attention: Tom Holmgren

Lab Sample number	Date sampled	Time sampled	Type* See key below	Sampled by: Tom Holmgren / Sample description	Number of containers	8015/8020	Fuel Class	Hazardous sample / Special handling required	Remarks
25 13	9/30		SO	B-37-3.0					MAY BE
26 14				B-38-3.0					SATURATED
27 15				B-40 4.0					RUSH
28 16				B-40 6.0					
29 17				B-41, 5.0					
30 18				B-41 6.0					
31 19				B-42 5.0					
32 20				B-43 6.0					
33 21				B-45. 5.0					
34 22				B-46 - 4.0					
35 23				B-47-3.5					
36 24				B-47-5.5					

	Signature	Print Name	Company	Date	Time
Relinquished by		Tom Holmgren	WGR	9/30/88	6:20
Received by					
Relinquished by					
Received by					
Relinquished by					
Received by Laboratory		E.E.	BCL	9/30/88	18:20

BROWN AND CALDWELL LABORATORIES

- ☐ 1255 Powell Street, Emeryville, CA 94608 (415) 428-2300
- ☐ 373 South Fair Oaks Avenue, Pasadena, CA 91105 (818) 795-7553
- ☐ 1200 Pacifico Avenue, Anaheim, CA 92805

Note:
Samples are discarded 30 days after results are reported unless other arrangements are made.
Hazardous samples will be returned to client or disposed of at client expense.

*KEY: AQ—Aqueous NA—Nonaqueous SL—Sludge GW—Groundwater SO—Soil OT—Other PE—Petroleum

ATTACHMENT D
Laboratory Reports

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-236

Received: 07 SEP 88
Reported: 14 SEP 88

Mr. Woody Lovejoy
Western Geological Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: T. Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-236-1	B1-B5 Composite FROM 5.0'	07 SEP 88
09-236-2	B6-B10 Composite "	07 SEP 88
09-236-3	B11-B15 Composite "	07 SEP 88
09-236-4	B16-B20 Composite "	07 SEP 88

PARAMETER	09-236-1	09-236-2	09-236-3	09-236-4
BTX by PID (EPA-8020)				
Benzene, mg/kg	0.5	0.5	0.6	1.4
Ethylbenzene, mg/kg	0.5	<0.3	1.3	1.3
Toluene, mg/kg	<0.3	<0.3	<0.3	7.8
Total Xylene Isomers, mg/kg	0.9	0.5	3.3	13
Total Fuel Hydrocarbons				
Date Analyzed	09.12.88	09.12.88	09.12.88	09.12.88
Fuel Characterization	DIESEL	DIESEL	DIESEL	GAS+DIESEL
Total Fuel Hydrocarbons, mg/kg	1700	640	1000	2100

Hedy J. Ficklin for
Sim D. Lessley, Ph.D., Laboratory Director

RECEIVED
SEP 20 1988
Approved
Job # 1-045.02
Copy To T.H.

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-147

Received: 07 SEP 88
Reported: 09 SEP 88

Mr. Woody Lovejoy
Western Geological Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-147-1	B-1,2,3,4,5-3.0	07 SEP 88
09-147-2	B-6,7,8,9,10-3.0	07 SEP 88
09-147-3	B-11,12,13,14,15-3.0	07 SEP 88
09-147-4	B-16,17,18,20-3.0	07 SEP 88

PARAMETER	09-147-1	09-147-2	09-147-3	09-147-4
BTX by PID (EPA-8020)				
Benzene, mg/kg	<0.3	<0.3	0.3	1.4
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	6.1
Toluene, mg/kg	<0.3	<0.3	<0.3	1.4
Total Xylene Isomers, mg/kg	<0.3	<0.3	5.4	18
Total Fuel Hydrocarbons				
Date Analyzed	09.07.88	09.07.88	09.07.88	09.07.88
Fuel Characterization	DIESEL	DIESEL	DIESEL	GAS+DIESEL
Total Fuel Hydrocarbons, mg/kg	1700	490	1900	1700

Sim D. Lessley, Ph.D., Laboratory Director

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-1	B-21-3.0	30 SEP 88
09-686-2	B-21-5.0	30 SEP 88
09-686-3	B-22-3.0	30 SEP 88
09-686-4	B-22-4.5	30 SEP 88
09-686-5	B-23-3.0	30 SEP 88

PARAMETER	09-686-1	09-686-2	09-686-3	09-686-4	09-686-5
BTX by PID (EPA-8020)					
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Fuel Hydrocarbons					
Date Analyzed	10.02.88	10.02.88	10.02.88	10.02.88	10.02.88
Fuel Characterization, .	---	---	DIESEL	---	---
Total Fuel Hydrocarbons, mg/kg	<10	<10	93	<10	<10

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-6	B-23-5.0	30 SEP 88
09-686-7	B-24-3.0	30 SEP 88
09-686-8	B-24-5.0	30 SEP 88
09-686-9	B-25-3.0	30 SEP 88
09-686-10	B-25-5.0	30 SEP 88

PARAMETER	09-686-6	09-686-7	09-686-8	09-686-9	09-686-10
BTX by PID (EPA-8020)					
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	<0.3	<0.3	2.0	7.0	20
Total Fuel Hydrocarbons					
Date Analyzed	10.02.88	10.02.88	10.02.88	10.02.88	10.02.88
Fuel Characterization, .	---	---	DIESEL	DIESEL	DIESEL
Total Fuel Hydrocarbons, mg/kg	<10	<10	310	1800	2700

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-11	B-26-3.0	30 SEP 88
09-686-12	B-26-5.0	30 SEP 88
09-686-13	B-27-3.0	30 SEP 88
09-686-14	B-27-5.0	30 SEP 88
09-686-15	B-28-3.5	30 SEP 88

PARAMETER	09-686-11	09-686-12	09-686-13	09-686-14	09-686-15
BTX by PID (EPA-8020)					
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	2.0	4.2	7.4	16	2.5
Total Fuel Hydrocarbons					
Date Analyzed	10.02.88	10.02.88	10.02.88	10.02.88	10.02.88
Fuel Characterization, .	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
Total Fuel Hydrocarbons, mg/kg	210	1000	840	1900	240

BROWN AND CALDWELL LABORATORIES
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ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-16	B-28-5.5	30 SEP 88
09-686-17	B-30-3.5	30 SEP 88
09-686-18	B-30-5.5	30 SEP 88
09-686-19	B-31-3.5	30 SEP 88
09-686-20	B-31-5.5	30 SEP 88

PARAMETER	09-686-16	09-686-17	09-686-18	09-686-19	09-686-20
BTX by PID (EPA-8020)					
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	1.3	1.4	6.2	<0.3	2.6
Total Fuel Hydrocarbons					
Date Analyzed	10.03.88	10.02.88	10.03.88	10.02.88	10.03.88
Fuel Characterization, .	DIESEL	DIESEL	DIESEL	DIESEL+OIL	DIESEL+OIL
Total Fuel Hydrocarbons, mg/kg	270	290	1700	460	1000

BROWN AND CALDWELL LABORATORIES
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ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-21	B-33-3.0	30 SEP 88
09-686-22	B-33-5.0	30 SEP 88
09-686-23	B-34-3.0	30 SEP 88
09-686-24	B-34-5.0	30 SEP 88
09-686-25	B-37-3.0	30 SEP 88

PARAMETER	09-686-21	09-686-22	09-686-23	09-686-24	09-686-25
BTX by PID (EPA-8020)					
Benzene, mg/kg	0.7	<0.3	<0.3	0.9	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	0.9	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	9.6	4.2	<0.3	12	5.4
Total Fuel Hydrocarbons					
Date Analyzed	10.03.88	10.03.88	10.03.88	10.03.88	10.03.88
Fuel Characterization, .	DIESEL+GAS	DIESEL+GAS	---	DIESEL+GAS	DIESEL
Total Fuel Hydrocarbons, mg/kg	2000	830	<10	2700	1100

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-26	B-38-3.0	30 SEP 88
09-686-27	B-40-4.0	30 SEP 88
09-686-28	B-40-6.0	30 SEP 88
09-686-29	B-41-5.0	30 SEP 88
09-686-30	B-41-6.0	30 SEP 88

PARAMETER	09-686-26	09-686-27	09-686-28	09-686-29	09-686-30
BTX by PID (EPA-8020)					
Benzene, mg/kg	0.5	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	0.9	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	2.2	<0.3	<0.3	4.7	<0.3
Total Fuel Hydrocarbons					
Date Analyzed	10.03.88	10.03.88	10.04.88	10.04.88	10.04.88
Fuel Characterization, .	DIESEL+GAS	OIL	---	GAS	GAS
Total Fuel Hydrocarbons, mg/kg	990	180	<10	430	160

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-31	B-42-5.0	30 SEP 88
09-686-32	B-43-6.0	30 SEP 88
09-686-33	B-45-5.0	30 SEP 88
09-686-34	B-46-4.0	30 SEP 88
09-686-35	B-47-3.5	30 SEP 88

PARAMETER	09-686-31	09-686-32	09-686-33	09-686-34	09-686-35
BTX by PID (EPA-8020)					
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	<0.3	<0.3	<0.3	<0.3	1.3
Total Fuel Hydrocarbons					
Date Analyzed	10.04.88	10.04.88	10.04.88	10.04.88	10.04.88
Fuel Characterization, .	---	---	DIESEL	---	DIESEL
Total Fuel Hydrocarbons, mg/kg	<10	<10	160	<10	160

BROWN AND CALDWELL LABORATORIES
1255 POWELL STREET EMERYVILLE, CA 94608 • (415) 428-2300

ANALYTICAL REPORT

LOG NO: E88-09-686

Received: 30 SEP 88
Reported: 05 OCT 88

Mr. Tom Howard
Western Geologic Resources, Inc.
2169 East Francisco, Suite B
San Rafael, California 94901
CC: Mr. Tom Howard

Project: 1-045.02

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
09-686-36	B-47-5.5	30 SEP 88

PARAMETER	09-686-36
BTX by PID (EPA-8020)	
Benzene, mg/kg	<0.3
Ethylbenzene, mg/kg	<0.3
Toluene, mg/kg	<0.3
Total Xylene Isomers, mg/kg	2.0
Total Fuel Hydrocarbons	
Date Analyzed	10.04.88
Fuel Characterization, .	DIESEL
Total Fuel Hydrocarbons, mg/kg	190

Sim D. Lessley, Ph.D., Laboratory Director