02-20-01

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

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

REMEDIAL ACTION COMPLETION CERTIFICATION

February 9, 2001

Greg Keller
Herrington-Olson Photo
765 22nd Street
Oakland, California 94612

Dear Mr. Keller:

Subject: Herrington-Olson Photo, 765 22nd Street, Oakland, California 94612
StId 3919

This letter confirms the completion of site investigation and remedial action for the one (1) 1,000 gallon gasoline underground storage tank formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank are greatly appreciated.
Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

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

Please contact Don Hwang at (510) 567-6746 if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung, Director

c: Chuck Headlee, RWQCB
Dave Deaner, SWRCB
Hernan Gomez, OFD
Robert Schultz, Cambria Environmental Technology, Inc , 1144-65th St , Suite B, Oakland, CA 94608
file

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February 20, 2001

Greg Keller
Herrington-Olson Photo
765 22nd Street
Oakland, California 94612

Dear Mr. Keller:

Subject: Herrington-Olson Photo, 765 22nd Street, Oakland, California 94612
StId 3919

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 1,600 ppm Total Petroleum Hydrocarbons as gasoline (TPHg), up to 5 ppm Benzene, up to 5.5 ppm Toluene, up to 29 ppm Ethyl benzene, and up to 110 ppm Xylene (BTEX), exists in soil beneath the site. (sampled June 9, 1993, September 12, 1994)
- up to 25,000 ug/l TPHg, up to 6,400 ug/l TPHd, up to 2,600 ug/l Benzene, up to 2,400 ug/l Toluene, up to 1,000 ug/l Ethyl benzene, and up to 3,000 ug/l Xylene (BTEX), exists in groundwater beneath the site. (sampled November 3, 1999)

If you have any questions, please contact me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

Enclosures: 1. Remedial Action Completion Certificate 2. Case Closure Summary

C: Frank Kliewer, City of Oakland, Planning Dept., 1330 Broadway, 2rd Floor, Oakland, CA 94612

file

HEADLEE

RB# 01-1710

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: **September 12, 2000**

Agency name: **Alameda County-HazMat** Address: **1131 Harbor Bay Pkwy**
City/State/Zip: **Alameda, CA 94502** Phone: **(510) 567-6700**
Responsible staff person: **Don Hwang** Title: **Hazardous Materials Spec.**

II. CASE INFORMATION

Site facility name: **Herrington-Olson Photo**
Site facility address: **765 22nd Street, Oakland, California 94612**
RB LUSTIS Case No: **01-1710** Local Case No./LOP Case No.: **STID #3919**
URF filing date: **June 24, 1993** SWEEPS No: **N/A**

Responsible Parties:	Addresses:	Phone Numbers:
Mr. Greg Keller	**765 22nd Street, Oakland, CA 94612**	**(510) 655-1897**

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1 (S)	**1,000**	**Gasoline**	**Removed**	**5/21/1993**

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **Unknown, tank leak**
Site characterization complete? **Yes**
Date approved by oversight agency: **5/2/2000**
Monitoring Wells installed? **Yes** Number: **5**
Proper screened interval? **Yes**
Highest GW depth below ground surface: **8.96 ft** Lowest depth: **13.49 ft**
Flow direction: **Northwest**
Most sensitive current use: **Commercial facility: photography studio**
Are drinking water wells affected? **No** Aquifer name: NA
Is surface water affected? **No** Nearest affected SW name: NA
Off-site beneficial use impacts (addresses/locations): **None**
Report(s) on file? YES Where is report(s) filed? Alameda County, 1131 Harbor Bay Pkwy, Alameda, CA 94502 and Oakland Fire Dept, 1605 MLKing Jr Dr, Oakland, CA 94612

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment or Disposal w/destination)	Date
Tank	1	**Disposed. Erickson, Richmond, CA**	**5/21/93**
Soil	**1.25 yd^3**	**Soil cuttings from monitoring well installation disposed of at Altamont Landfill.**	**6/1/1999**
Groundwater	**110 gals.**	**Monitoring well purge water recycled at Alviso Independent Oil, Alviso, CA.**	**8/16/99**

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm) Before	Soil (ppm) After	Water (ppb) Before	Water (ppb) After
TPH (Gas)	1,600[1]		82,000[6]	25,000[12]
TPH (Diesel)	<1.0[2]		21,000[7]	6,400[13]
MTBE	<5.0[2]		<1,200[8]	<400[12]
Benzene	5.0[1]		16,000[9]	2,600[12]
Toluene	7.3[4]	5.5[5]	3,700[10]	2,400[12]
Ethylbenzene	29[1]		3,900[11]	1,000[12]
Xylenes	110[1]		11,000[11]	3,000[12]
Oil & Grease	---		---	---
Heavy metals	---		---	---
Lead	ND[3,4]		---	---

[1] 9/12/94, MW-1, 14.5 ft. bgs
[2] 4/27/99, MW-4, SB-5, SB-6
[3] 5/21/93, #3 north 9 ft. bgs, removal
[4] 5/21/93, #4 fill end
[5] 6/9/93, #1 WW-15.5 ft. bgs, overexcavation
[6] 3/16/95, MW-3
[7] 5/18/99, MW-3
[8] 9/22/95, MW-1
[9] 12/23/94, 3/16/95 MW-3
[10] 5/18/99, MW-3
[11] 6/27/95, MW-3
[12] 11/3/99, MW-3
[13] 11/3/99, MW-2
ND=NonDetectable

Comments (Depth of Remediation, etc.):

The site consists of a photo processing facility and an asphalt parking lot located in a residential and light industrial area.

The soil boring logs indicates the stratigraphy beneath the site consists of clay from the ground surface to a depth of 14 feet. Beneath the clay, saturated sand was encountered to a depth of 20 to 21 feet. The sand is underlain by clay to the total depth of wells, MW-1 and MW-2, which were 21.5 feet below ground surface (bgs) for both. In well, MW-3, the lower clay was underlain by saturated sand at 26 feet to the total depth of 26.5 feet.

The 1,000 gallon gasoline tank was removed on May 21,1993. No holes were apparent although the tank had some rust. Petroleum hydrocarbons were detected in soil and groundwater samples collected from the tank excavation, so soil was overexcavated from the tank pit area.

On September 12, 1994, monitoring wells, MW-1, MW-2, and MW-3, were drilled.

On May 22, 1996, soil borings, SB-1, SB-2, SB-3, and SB-4, were drilled.

Since the tank was removed, bio-remediation and natural attenuation have significantly reduced petroleum hydrocarbon concentrations in site groundwater. No petroleum hydrocarbons have been detected in offsite soil borings or in offsite groundwater samples. No Methyl Tertiary-Butyl Ether (MTBE) has ever been detected at the site. However, the minimum detection levels (MDL) of MTBE have been as high as 2,500 ug/l but for the most recent sample date, November 3, 1999, the highest MDL was 400 ug/l. Monitoring wells fully define plume hydrocarbon concentrations to non-detect levels, and the plume is not migrating. The site is not located in a groundwater recharge zone or other vulnerable area.

A tier 2 Risk Based Corrective Action (RBCA) analysis for the chemicals of concern (COC), BTEX, determined that representative concentrations in soil and groundwater were less than the residential and commercial Oakland tier 2 Site-Specific Target Levels (SSTL) for inhalation of indoor air vapors. The representative concentrations in soil were also less than the ASTM Default Tier 1 Risk-Based Screening Levels (RBSL) for the same exposure pathway. The results of the RBCA analysis indicate that petroleum hydrocarbons in soil and groundwater beneath the subject site do not pose a significant health risk to onsite commercial or adjacent residential receptors.

Also, a Risk Management Plan (RMP) has been produced for this site. The RMP requires that in the event of any change in land use, and prior to the production of soil or groundwater on the site, Alameda County Environmental Health must be contacted to determine if additional assessment of residual contamination at the site is required.

Removal of the remaining drummed well purge water and destruction of site monitoring wells is pending.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? **Yes**
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? **Yes**
Does corrective action protect public health for current land use? **Yes**
Site management requirements: **refer to Risk Management Plan, additionally, no water supply or irrigation wells are allowed to be installed at this site.**
Should corrective action be reviewed if land use changes? **Yes**
Monitoring wells Decommissioned:
Number Decommissioned: Number Retained: **5 (destruction of all wells is pending)**
List enforcement actions taken: **none**
List enforcement actions rescinded: **none**

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: **Don Hwang** Title: **Haz Mat Specialist**

Signature: Don Hwang Date: 9/12/00

Reviewed by

Name: **Eva Chu** Title: **Haz Mat Specialist**

Signature: Eva Chu Date: 9/12/00

Name: **Thomas Peacock** Title: **Supervisor**

Signature: Thomas Peacock Date: 10-10-00

VI. RWQCB NOTIFICATION

Date Submitted to RB: 10/10/00 RB Response: Concur

RWQCB Staff Name: **Chuck Headlee** Title: **AEG**

Signature: Chuck Headlee Date: 10/11/00

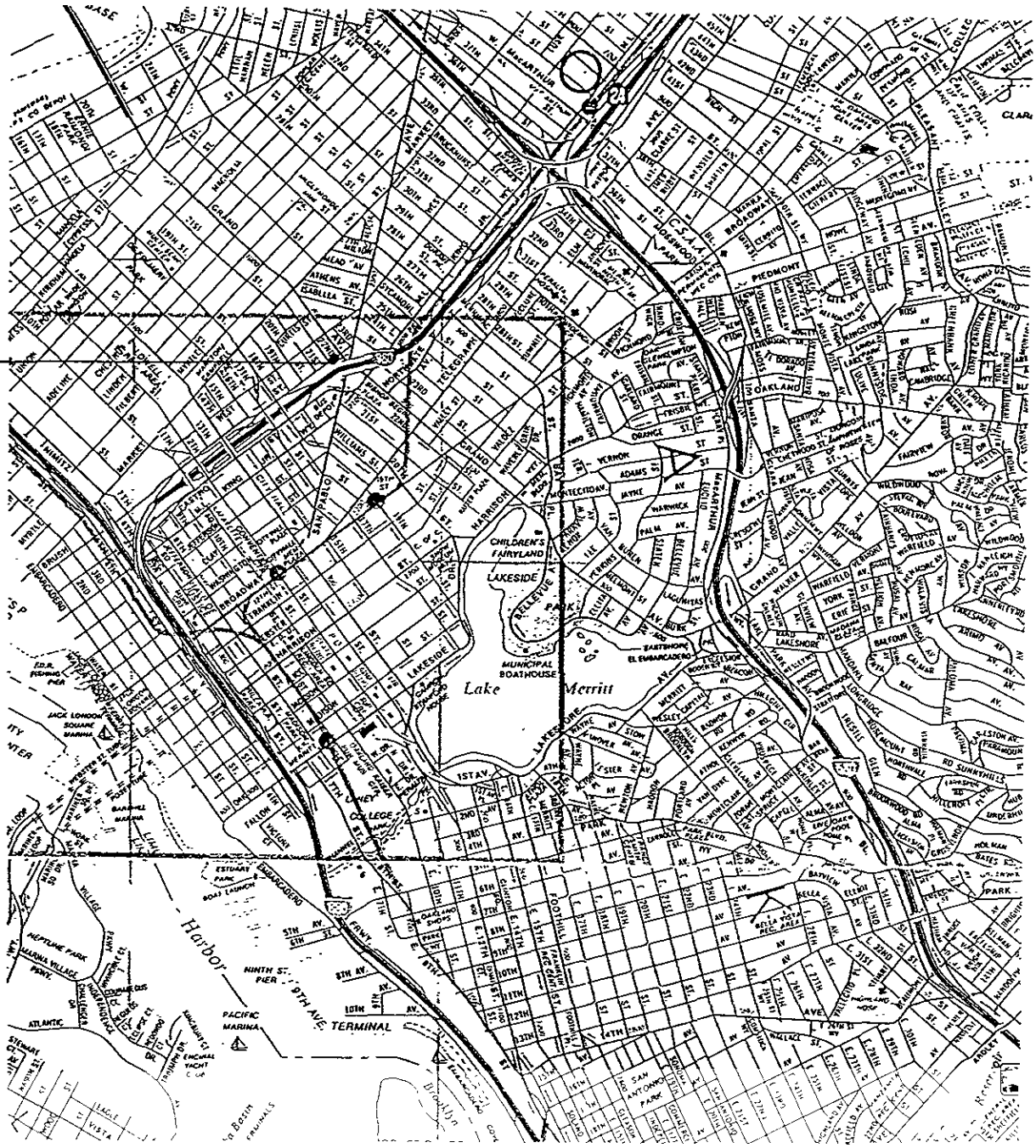
VII. ADDITIONAL COMMENTS, DATA, ETC.

In summary, case closure is recommended because:

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

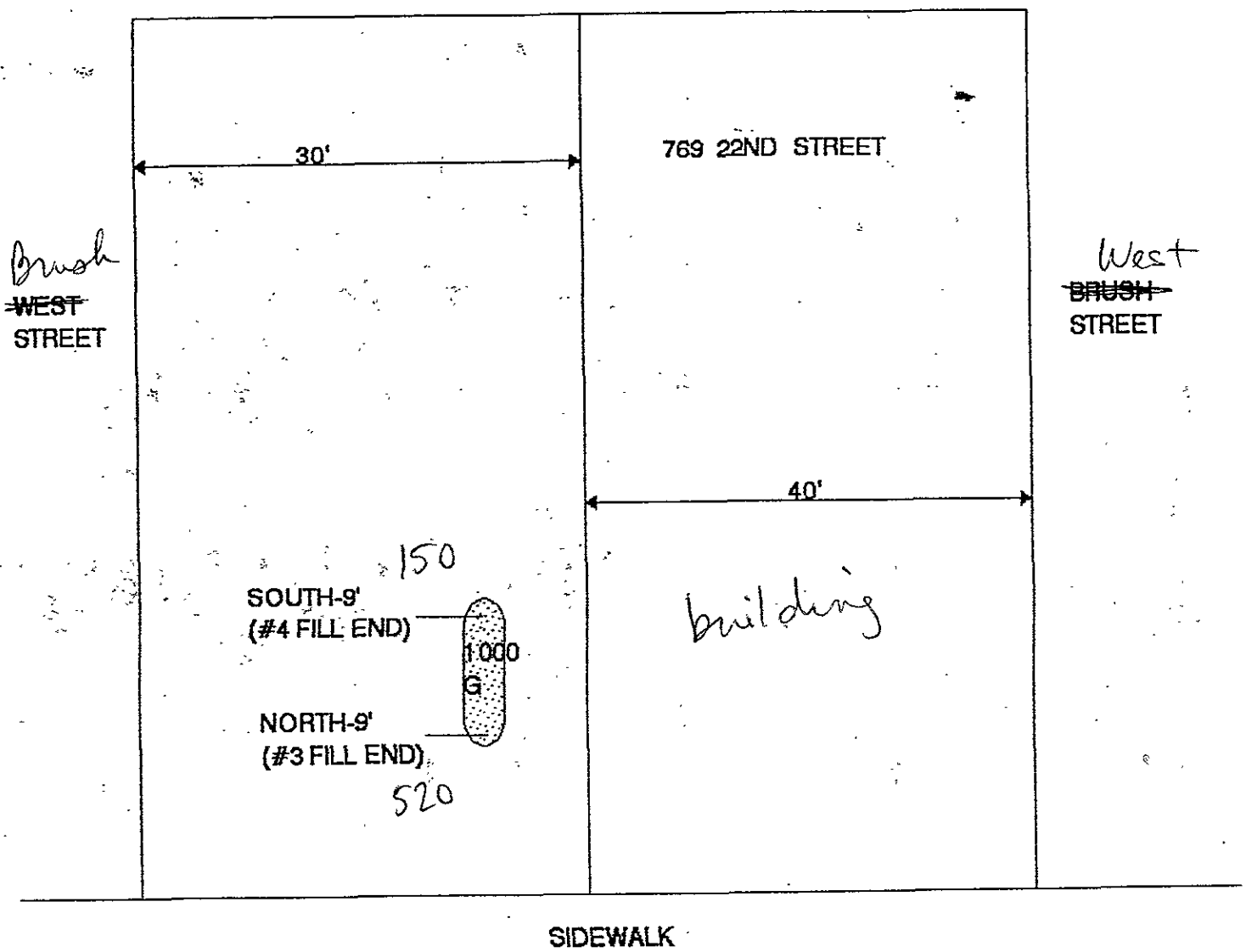
SITE LOCATION MAP

SITE



SAMPLING LOCATION MAP

-TANK PULL



SEMCO

769 22ND STREET
OAKLAND

NOT TO SCALE

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

SEMCO
JUN 1 - 1993
Received

SEMCO
Attn: CHUCK KIPER

original

Project HARRINGTON & OLSON
Reported 05/27/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
56496- 1	COMP	05/21/93	05/25/93	Soil
56496- 2	#3 ~~-FILL END~~ North-9'	05/21/93	05/25/93	Soil
56496- 3	#4-FILL END South-9'	05/21/93	05/25/93	Soil

RESULTS OF ANALYSIS

Laboratory Number:	56496- 1	56496- 2	56496- 3
Gasoline:	33	520	150
Benzene:	ND<.003	0.57	ND<.030
Toluene:	0.03	7.3	0.24
Ethyl Benzene:	0.17	7.8	1.5
Xylenes:	1.1	38	0.83
Concentration:	mg/kg	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

SEMCO
JUN 3 - 199
Received

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 88713
CLIENT: SEMCO
CLIENT JOB NO.: HARRINGTON & OLSON

DATE RECEIVED: 05/24/93
DATE REPORTED: 05/27/93
DATE SAMPLED: 05/21/93

ANALYSIS FOR TOTAL LEAD
by SW-846 Method 6010

LAB #	Sample Identification	Concentration (mg/Kg) Total Lead
1	COMP	44
2	#3-FILL END	ND
3	#4-FILL END	ND

mg/kg - parts per million (ppm)

Method Detection Limit for Lead in Soil: 5 mg/kg

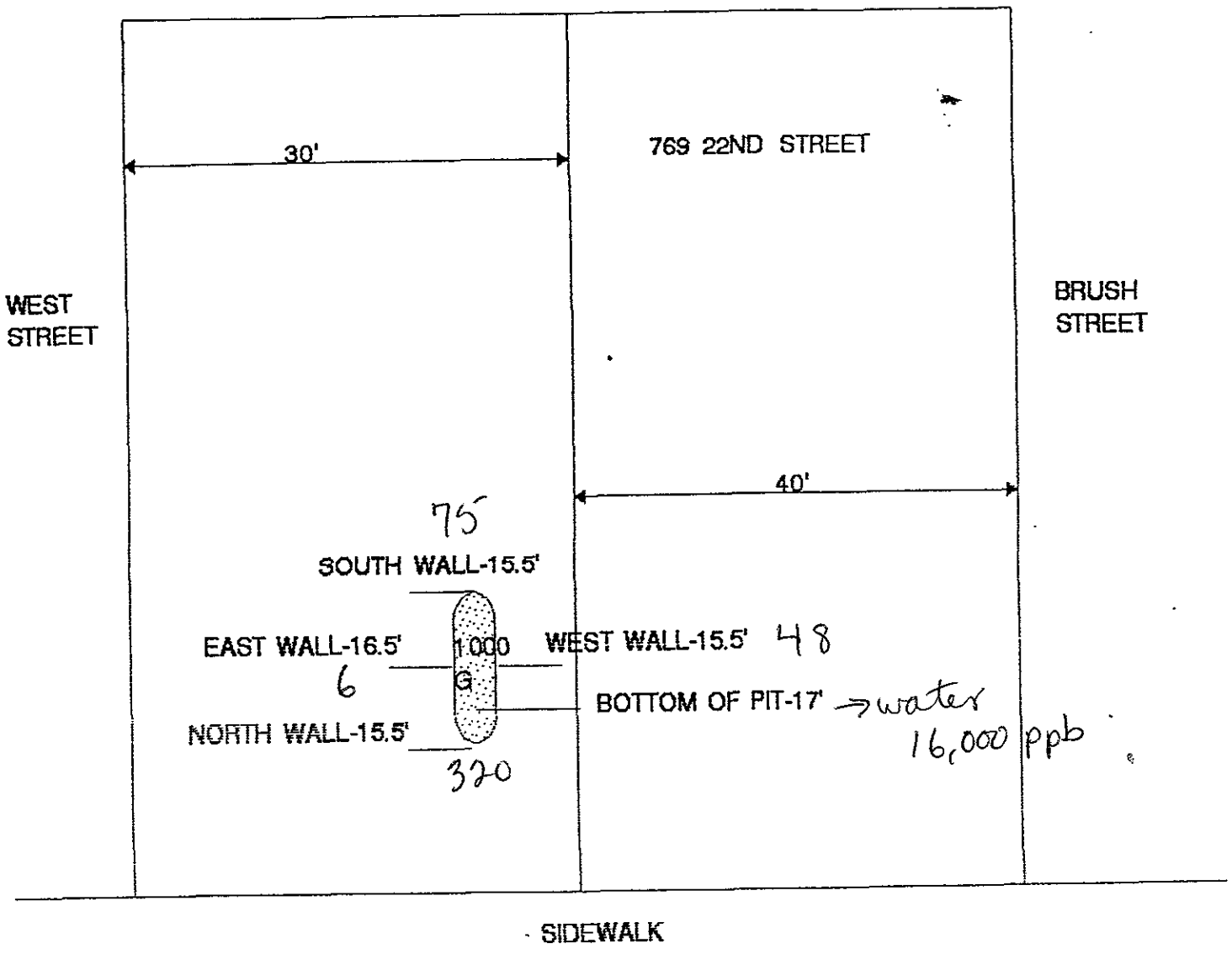
QAQC Summary: MS/MSD Spike Recovery : 89/92%
Duplicate RPD : 3%

Richard Srna, Ph.D.

Laboratory Manager

SAMPLING LOCATION MAP

-RE-EXCAVATION



TPHg (ppm)

NOT TO SCALE

S E M C O

769 22ND STREET
OAKLAND

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

overex

SEMCO
Attn: CHUCK KIPER

Project HARRINGTON & OLSON
Reported 06/14/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
56592- 1	#1 WW-15.5	06/09/93	06/11/93	Soil
56592- 2	#2 SW-15.5	06/09/93	06/11/93	Soil
56592- 3	#3 NW-15.5	06/09/93	06/11/93	Soil
56592- 4	#4 EW-16.5	06/09/93	06/11/93	Soil
56592- 5	BOTTOM OF PIT-17'	06/09/93	06/10/93	Water

RESULTS OF ANALYSIS

Laboratory Number:	56592- 1	56592- 2	56592- 3	56592- 4	56592- 5
Gasoline:	48	75	320	6	16000
Benzene:	0.33	1.4	0.23	0.62	1800
Toluene:	5.0	1.0	2.8	0.72	500
Ethyl Benzene:	8.7	1.8	6.2	0.20	720
Xylenes:	47	9.1	31	0.91	2300
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	ug/L

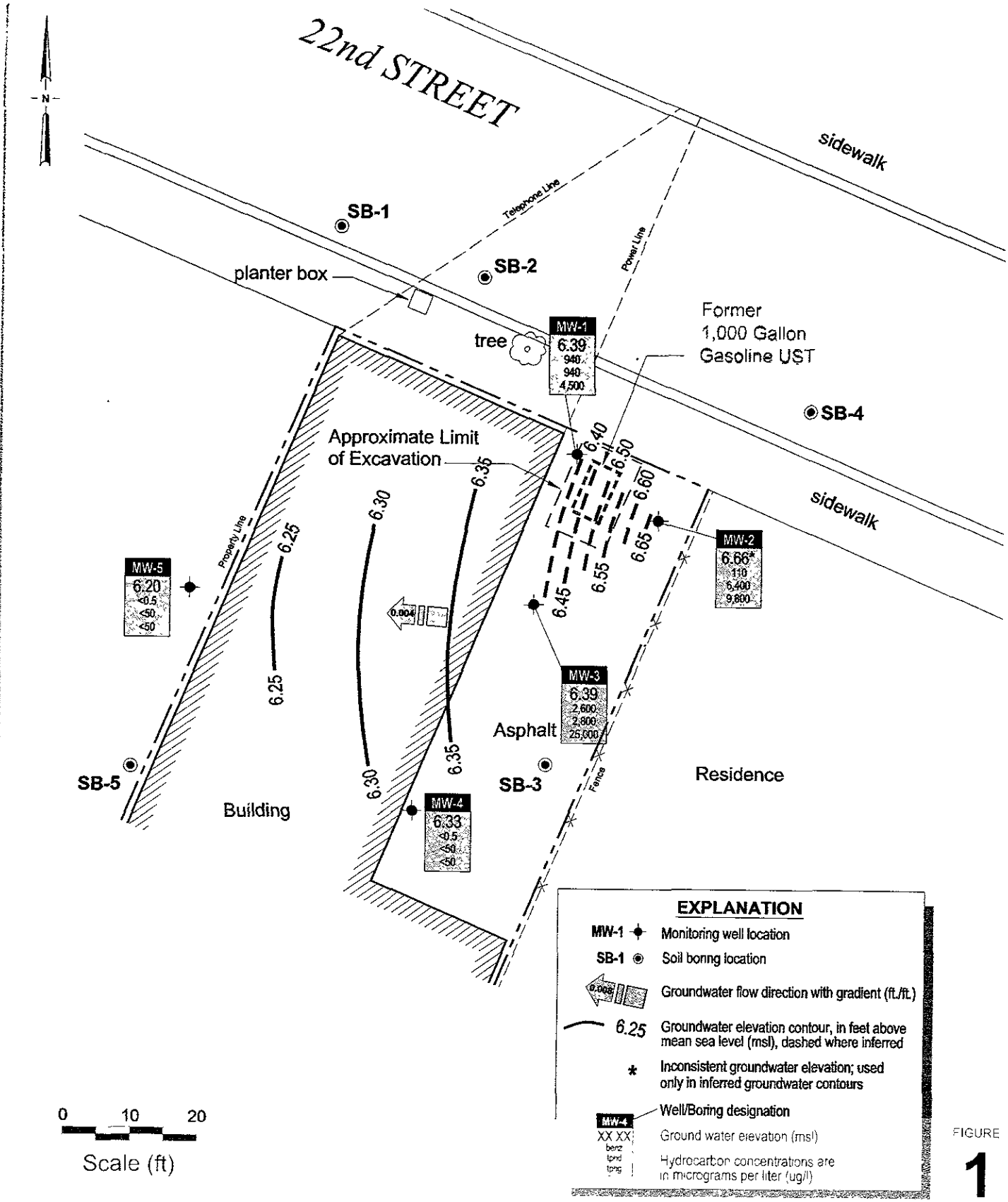


FIGURE
1

Herrington-Olson Photo

769 22nd Street
Oakland, California 94612

CAMBRIA

Groundwater Elevations and Hydrocarbon Concentrations

November 3, 1999

CAMBRIA

Table 1. Soil Analytical Data - 769 22nd Street, Oakland, California

Sample ID	Date Sampled	Sample Depth (ft bgs)	Depth to Water (ft bgs)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
				<----------(mg/kg)---------->						
*Historical Samples**										
MW-1	9/12/94	6.0	--	--	55	0.18	<0.30	1.1	<0.090	--
MW-1	9/12/94	11.0	--	--	87	0.52	<0.140	2.3	1.5	--
MW-1	9/12/94	14.5	--	--	1,600	5.0	1.5	29	110	--
MW-2	9/12/94	6.0	--	--	<0.5	<0.005	<0.005	<0.005	<0.015	--
MW-2	9/12/94	11.0	--	--	<0.005	<0.005	<0.005	<0.005	<0.015	--
MW-2	9/12/94	14.5	--	--	<0.5	0.014	0.0069	0.009	0.038	--
MW-3	9/12/94	6.0	--	--	<0.5	<0.005	<0.005	<0.005	<0.015	--
MW-3	9/12/94	11.0	--	--	26	0.12	0.037	0.14	0.17	--
MW-3	9/12/94	16.0	--	--	<0.5	<0.005	<0.005	0.0066	<0.015	--
SB-1	5/22/96	11.0	--	--	<1.0	<0.005	<0.005	<0.005	0.0098	<0.005
SB-1	5/22/96	15.6	--	--	<1.0	<0.005	<0.005	<0.005	0.013	<0.005
SB-2	5/22/96	6.0	--	--	<1.0	<0 005	<0.005	<0.005	<0.005	<0.005
SB-2	5/22/96	11.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
SB-2	5/22/96	15.5	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
SB-3	5/22/96	6.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
SB-3	5/22/96	11.0	--	--	88	0.042	0.018	0.054	0.084	<0.005
SB-3	5/22/96	16.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
SB-4	5/22/96	16.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005
Current Investigation Samples										
MW-4	4/27/99	12.0	12.57	<1.0	<1.0	<0.5	<0.5	<0.5	<0.5	<5.0
SB-5	4/27/99	11.5	12.21	<1.0	<1.0	<0.5	<0.5	<0.5	<0.5	<5.0
SB-6	4/27/99	11.5	12	<1.0	<1.0	<0.5	<0.5	<0.5	<0.5	<5.0

CAMBRIA

Table 1. Groundwater **Elevation and Analytical Data** - 769 22nd Street, Oakland, California

Well ID TOC (ft*)	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft above msl)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				<---------- (ug/L) ---------->							
Grab Groundwater Samples											
SB-1	5/22/96	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1,2
SB-2	5/22/96	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1,2
SB-3	5/22/96	--	--	--	18,000	220	49	47	360	<0.5	1,2
SB-4	5/22/96	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1,2
SB-6-W	4/27/99	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	2
Monitoring Well Samples											
MW-1	9/23/94	13.13	5.69	--	560	170	3.3	30	60	--	1
18.82	12/23/94	12.46	6.36	--	20,000	6,200	190	1,200	1,000	--	1
	3/16/95	9.27	9.55	--	30,000	6,000	<500	1,300	1,600	--	1
	6/27/95	11.86	6.96	--	50,000	7,500	230	1,400	2,700	--	1
	9/22/95	12.65	6.17	--	17,000	2,500	<120	650	1,200	<1,200	1
	12/27/95	11.97	6.85	--	9,200	2,100	60	540	840	<250	1
	5/24/96	11.01	7.81	--	30,000	84	17	68	100	<0.5	1
	9/9/98	12.55	6.27	1,600	3,700	820	25	50	330	<30	
	5/18/99	11.54	7.28	5,800	20,000	2,200	140	1,300	1,900	<200 (<7)	
	8/19/99	12.77	6.05	1,300	2,100	460	9.8	52	78	<20	
	11/3/99	**12.43**	**6.39**	**940**	**4,500**	**940**	**24**	**350**	**220**	**<50**	
MW-2	9/23/94	13.04	5.76	--	14,000	1,000	860	820	3,300	--	1
18.80	12/23/94	11.15	7.65	--	18,000	1,500	230	1,200	3,400	--	1
	3/16/95	8.96	9.84	--	21,000	980	440	1,400	4,300	--	1
	6/27/95	11.72	7.08	--	28,000	570	340	1,100	3,400	--	1
	9/22/95	12.54	6.26	--	8,200	68	100	270	960	<250	1
	12/27/95	11.82	6.98	--	20,000	140	360	900	3,500	<250	1
	5/24/96	10.84	7.96	--	19,000	17	11	24	49	<0.5	1
	9/9/98	12.17	6.63	2,200	7,100	71	160	300	1,500	<50	
	5/18/99	11.32	7.48	9,300	13,000	30	58	510	1,800	<100 (<5)	
	8/19/99	11.96	6.84	3,300	5,500	<0.5	50	160	1,500	<10	
	11/3/99	**12.14**	**6.66**	**6,400**	**9,800**	**110**	**53**	**340**	**1,300**	**<40**	

CAMBRIA

Table 1. Groundwater **Elevation and Analytical Data** - 769 22nd Street, Oakland, California

Well ID TOC (ft)	Date Sampled	Depth to Water (ft)	Groundwater Elevation (ft above msl)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
				<---------- (ug/L) ---------->							
Grab Groundwater Samples											
MW-3	9/23/94	13.06	5.72	--	1,900	710	33	75	180	--	1
18.78	12/23/94	11.64	7.14	--	64,000	16,000	1,500	2,700	6,400	--	1
	3/16/95	9.17	9.61	--	82,000	16,000	2,500	3,500	9,500	--	1
	6/27/95	11.76	7.02	--	76,000	9,100	3,300	3,900	11,000	--	1
	9/22/95	12.55	6.23	--	36,000	3,900	870	1,200	3,300	<2,500	1
	12/27/95	11.86	6.92	--	48,000	7,000	2,200	2,300	7,000	<2,500	1
	5/24/96	10.90	7.88	--	54,000	160	99	99	200	<0.5	1
	9/9/98	12.26	6.52	7,800	23,000	2,200	1,800	1,200	4,600	<100	
	5/18/99	11.50	7.28	21,000	44,000	3,600	3,700	2,400	6,800	<660 (<20)	
	8/19/99	12.31	6.47	12,000	19,000	1,400	1,600	410	2,300	<200	
	11/3/99	**12.39**	**6.39**	**2,800**	**25,000**	**2,600**	**2,400**	**1,000**	**3,000**	**<400**	
MW-4	5/18/99	12.57	7.25	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
19.82	8/19/99	13.32	6.50	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/3/99	**13.49**	**6.33**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	
MW-5	5/18/99	12.21	7.01	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
19.22	8/19/99	12.86	6.36	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	11/3/99	**13.02**	**6.20**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5.0**	
Trip Blank	9/23/94	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	--	1
	12/23/94	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	--	1
	3/16/95	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	--	1
	6/27/95	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	--	1
	9/22/95	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<5.0	1
	12/27/95	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<5.0	1
	5/24/96	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1
	9/9/98	--	--	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	5/18/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	

CAMBRIA

Table 1. Groundwater **Elevation and Analytical Data** - 769 22nd Street, Oakland, California

Well ID	Date	Depth	Groundwater	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
TOC	Sampled	to Water	Elevation	<---------- (ug/L) ---------->							
(ft²)		(ft)	(ft above msl)								

Grab Groundwater Samples

Abbreviations and Methods:

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

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

Benzene, toluene, ethylbenzene and xylenes by EPA Method 8020

MTBE = Methyl tert-butyl ether by EPA Method 8020

(xxx) = MTBE concentration in parentheses confirmed using EPA Method 8260

ug/L = Micrograms per liter, equivalent to parts per billion (ppb)

TOC = Top of casing elevation

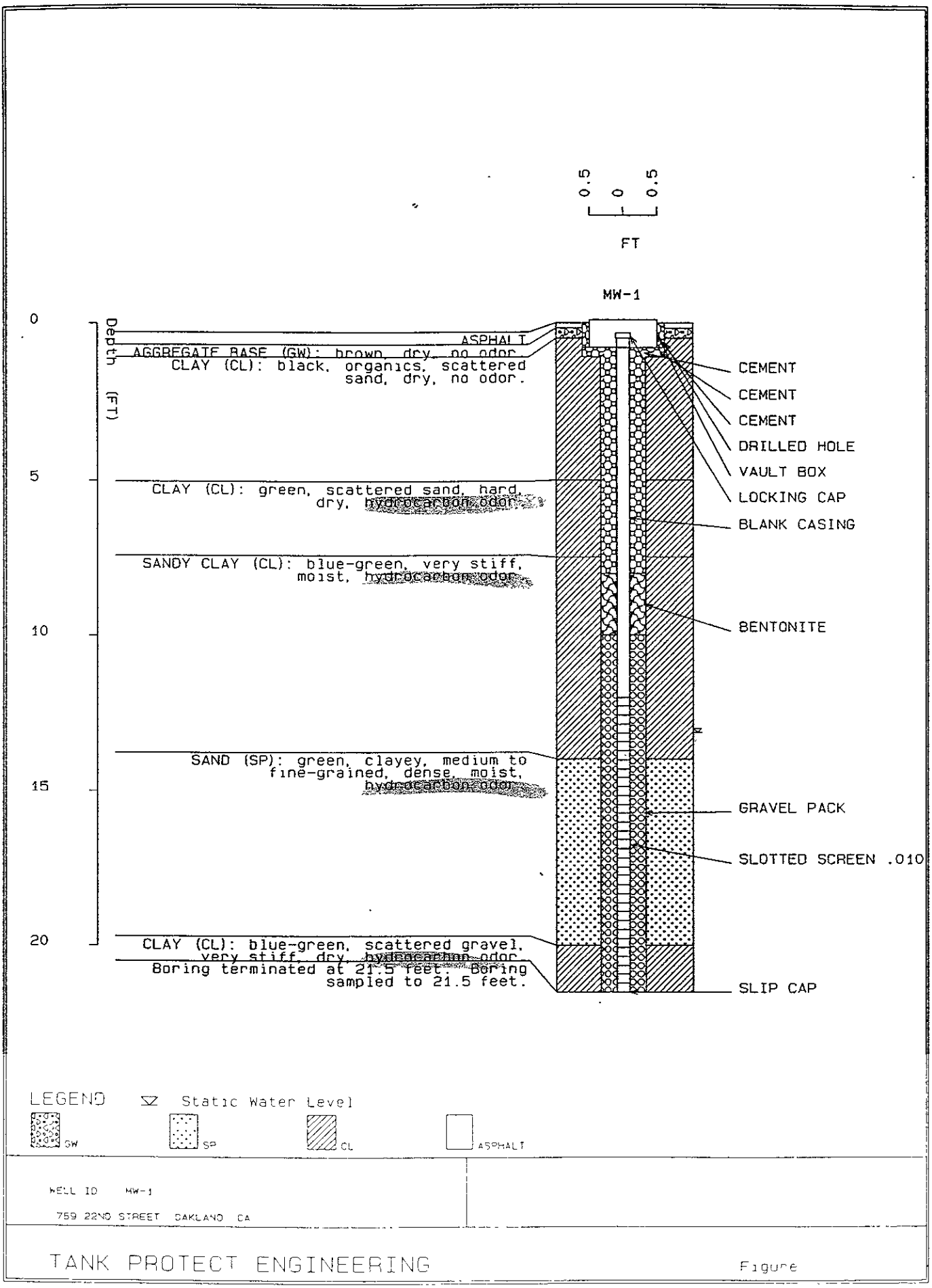
-- = Not available, not analyzed, or does not apply

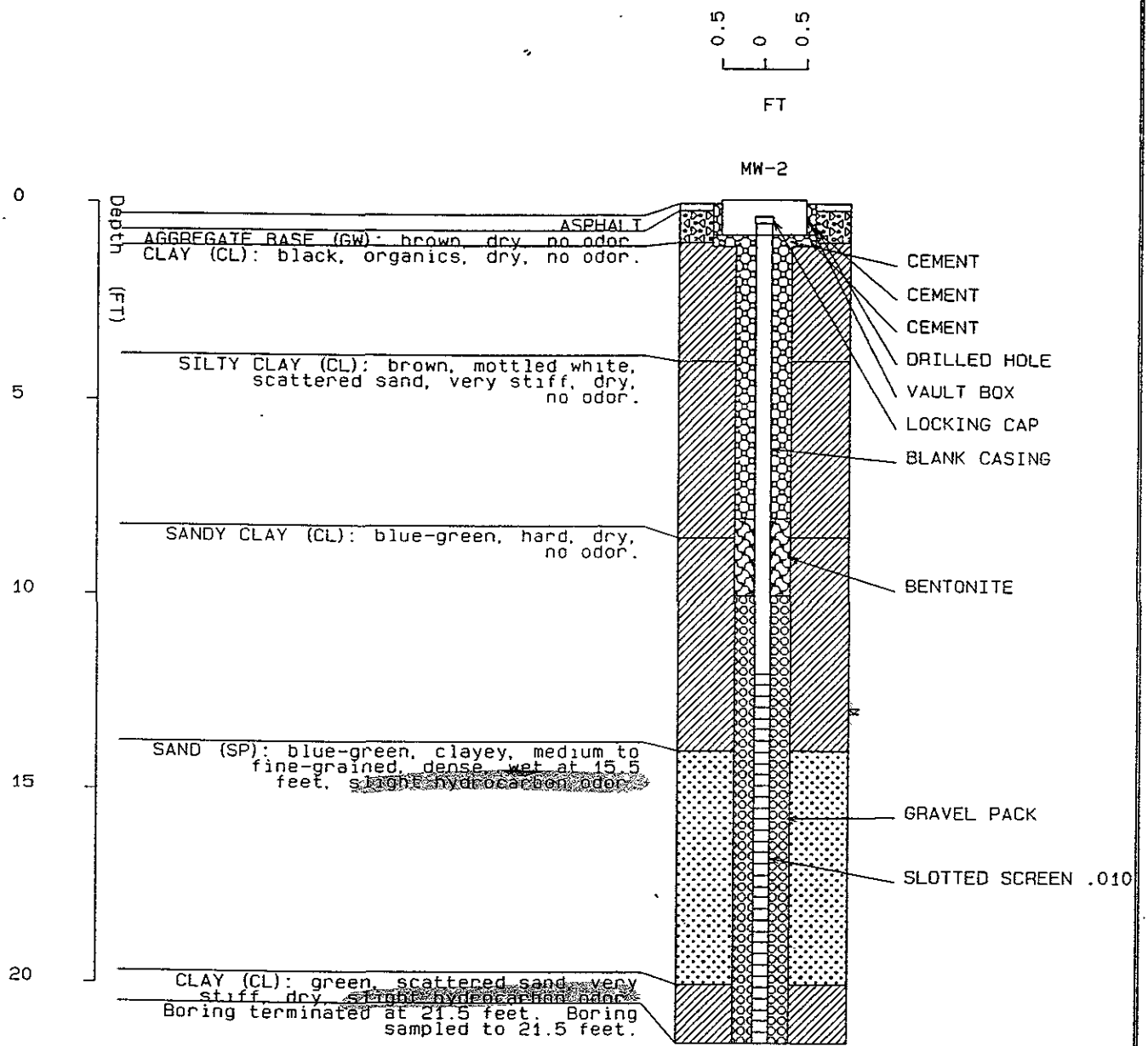
msl = mean seal level

Bold = current investigation results.

1 = Historical data from Tank Project Engineering's August 7, 1996 *Site Assessment Report*

2 = Grab groundwater sample


0.5
0
0.5
FT
MW-1
Depth (FT)
0
5
10
15
20
ASPHALT
AGGREGATE BASE (GW): brown, dry, no odor.
CLAY (CL): black, organics, scattered sand, dry, no odor.
CLAY (CL): green, scattered sand, hard, dry, hydrocarbon odor.
SANDY CLAY (CL): blue-green, very stiff, moist, hydrocarbon odor.
SAND (SP): green, clayey, medium to fine-grained, dense, moist, hydrocarbon odor.
CLAY (CL): blue-green, scattered gravel, very stiff, dry, hydrocarbon odor.
Boring terminated at 21.5 feet. Boring sampled to 21.5 feet.
CEMENT
CEMENT
CEMENT
DRILLED HOLE
VAULT BOX
LOCKING CAP
BLANK CASING
BENTONITE
GRAVEL PACK
SLOTTED SCREEN .010
SLIP CAP
LEGEND
Static Water Level
GW
SP
CL
ASPHALT
WELL ID MW-1
759 22ND STREET OAKLAND CA
TANK PROTECT ENGINEERING
Figure



LEGEND ▽ Static Water Level

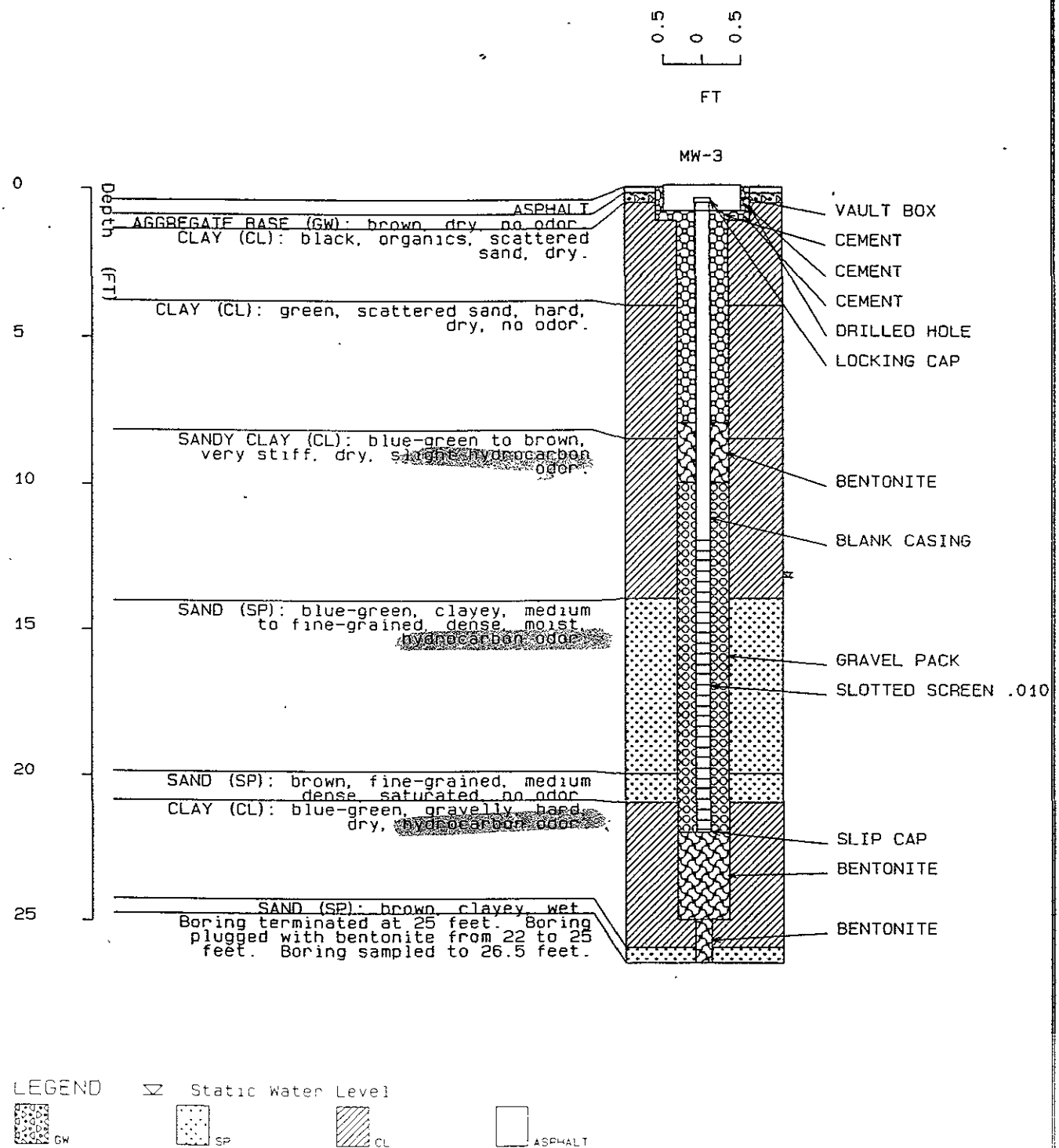
GW SP CL ASPHALT

WELL ID MW-2

769 22ND STREET OAKLAND CA

TANK PROTECT ENGINEERING

Figure



WELL ID MW-3

769 22nd Street Oakland, CA

TANK PROTECT ENGINEERING

Figure

Cambria Environmental Technology, Inc.
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Oakland, CA 94608
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Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Herrington Olson	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Herrington Olson	**DRILLING STARTED**	27-Apr-99
LOCATION	769 22nd Street, Oakland, California	**DRILLING COMPLETED**	27-Apr-99
PROJECT NUMBER	159-1267	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER		**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	8"	**SCREENED INTERVAL**	8 to 23 ft bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	12.3 ft (27-Apr-99)
REVIEWED BY	R. Schultz	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 5' bgs; located in back of parking lot onsite.		

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
								ASPHALT.	0.3	Portland Type I/II
								Debris Fill.	1.5	
								Clayey SILT; (ML); grey; firm; damp; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability; rootlets and organic matter.		2" diam., Schedule 40 PVC
					5					
			MW-4 -6'			ML		@ 6' - very stiff; ~1mm diameter nodules, possibly organic.		Bentonite Seal
										Monterey Sand #2/16
					10			@ 10' - very stiff; moist.		
			MW-4 -11'					4/27/99 ▽	12.0	
			MW-4 -12'			SM		**Silty SAND**; (SM); brown; medium dense; moist; 5% clay, 15% silt, 80% sand; no plasticity; medium to high estimated permeability.	14.0	
					15	SM / ML		**Interbedded Silty SAND and Clayey SILT**; (SM/ML): Silty SAND; (SM); orangish brown; medium dense; moist; 5% clay, 15% silt, 80% sand; no plasticity; moderate to high estimated permeability. Clayey SILT; (ML); grey; very stiff; moist; 30% clay, 60% silt, 10% clay; medium to high plasticity; low estimated permeability.		2"-diam., 0.010" Slotted Schedule 40 PVC
			MW-4 -16'						18.0	
					20	ML		**Clayey SILT**; (ML); grey; very stiff; moist; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability.		
			MW-4 -21'						23.0	Bottom of Boring @ 21.5 ft

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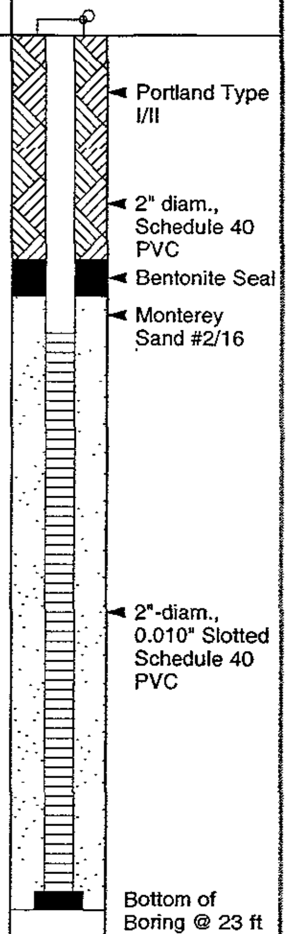
BORING/WELL LOG

CLIENT NAME	Herrington Olson	**BORING/WELL NAME**	MW-5
JOB/SITE NAME	Herrington Olson	**DRILLING STARTED**	27-Apr-99
LOCATION	769 22nd Street, Oakland, California	**DRILLING COMPLETED**	27-Apr-99
PROJECT NUMBER	159-1267	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER		**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	DPT; Hollow-stem auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	8 to 23 ft bgs
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	12.0 ft (27-Apr-99) ∇
REVIEWED BY	R. Schultz	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 4' bgs; located adjacent to property, nearest street; over dilled with HSA to install well and collect 20' sample.

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
								ASPHALT.	0.2
								Debris Fill.	1.5
			SB-5 -5'		5	ML		**Clayey SILT**; (ML); grey; stiff; damp; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability; dark colored ~1mm diameter nodules, possibly organic.	
			SB-5 -7.5'						10.0
			SB-5 -11.5'		10	SM		**Silty SAND**; (SM); grey; medium dense; moist; 5% clay, 15% silt, 80% sand; slight plasticity; moderate to high estimated permeability. ∇	13.0
						ML		**Clayey SILT**; (ML); grey; very stiff; damp; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability.	14.0
			SB-5 -15.5'		15	SW		**SAND**; (SW); grey; medium dense; moist; 5% clay, 10% silt, 85% fine grained sand; no plasticity; moderate to high estimated permeability.	17.5
			SB-5 -21'		20	ML		**Sandy SILT**; (ML); brownish grey; very stiff; moist; 10% clay, 60% silt, 30% sand; medium plasticity; low estimated permeability.	21.5

WELL DIAGRAM



LOG OF EXPLORATORY BORING

PROJECT NUMBER 321 BORING NO. SB-1

PROJECT NAME 769 22ND STREET, OAKLAND PAGE

BY MRV DATE 5/22/96 SURFACE ELEV. 18 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
							AGGREGATE BASE (GW): Brown, dry, no odor.
				2			CLAY (CL): Dark brown to gray, scattered sands, moist, no odor.
				3			CLAY (CL): Greenish-gray, scattered sands, moist, no odor.
				4			
1.3/1.5	15	21		5			CLAY (CL): Brown, mottled light brown, scattered sands, very stiff, dry, no odor.
				6			
				7			
				8			
				9			
1.5/1.5	20	17		10			
			▽	11			SANDY CLAY (CL): Gray, mottled brown, very stiff, wet, no odor.
				12			
				13			CLAYEY SAND (SC): Brown to gray, fine to medium-grained, very dense, wet, no odor.
				14			
1.0/1.0	33	50/0.5		15			
				16			Boring terminated at 15 feet. Boring sampled to 16 feet.
				17			
				18			
				19			
				20			

REMARKS Borings drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 321

PROJECT NAME 769 22ND STREET, OAKLAND

BORING NO. SB-2

BY MRV

PAGE

DATE 5/22/96

SURFACE ELEV. 18 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
				2			AGGREGATE BASE (GW): Brown, dry, no odor.
				3			CONCRETE
				4			SANDY CLAY (CL): Dark brown, dry, no odor.
1.5/1.5	45	35		5			CLAY (CL): Light brown, scattered sands, hard, dry to moist, no odor.
				6			
				7			
				8			CLAYEY SAND (SC): Light brown to gray, fine-grained, medium dense, moist, no odor.
1.5/1.5	35	22		9			
				10			
				11			
			▽	12			
				13			SAND (SP): Brown, fine to medium-grained, very dense, wet, no odor.
				14			
1.0/1.0	740	50/0.5		15			
				16			Boring terminated at 15 feet. Boring sampled to 16 feet.
				17			
				18			
				19			
				20			

REMARKS. Borings drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2 0-inch I.D. California sampler.

of 1

LOG OF EXPLORATORY BORING

PROJECT NUMBER 321 BORING NO. SB-3

PROJECT NAME 769 22ND STREET, OAKLAND PAGE

BY MRV DATE 5/22/96 SURFACE ELEV. 19 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
				2			AGGREGATE BASE (GW): Brown, dry, no odor.
				3			CLAY (CL): Black, scattered sands, moist, no odor.
				4			CLAY (CL): Brown, mottled light brown, scattered sand, organics, hard, dry to moist, no odor.
1.5/1.5	47	39		5			
				6			
				7			
				8			CLAY (CL): Brown, mottled green, scattered sands, very stiff, moist, hydrocarbon odor.
				9			
1.5/1.5	360	29		10			
				11			
				12			CLAYEY SAND (SC): Gray, fine-grained, dense, dry to moist, hydrocarbon staining and odor.
				13			SAND (SP): Light brown, mottled gray, silty, clayey, fine to medium-grained, dense, dry to moist, hydrocarbon odor.
			⊠	14			
1.5/1.5	53	30		15			
				16			
				17			Boring terminated at 15 feet. Boring sampled to 16.5 feet.
				18			
				19			
				20			

REMARKS Borings drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 321 BORING NO. SB-4

PROJECT NAME 769 22ND STREET, OAKLAND PAGE

BY MRV DATE 5/22/96 SURFACE ELEV. 18 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				1			ASPHALT
				2			AGGREGATE BASE (GW): Brown, dry, no odor.
				3			CLAY (CL): Dark brown, dry, no odor.
				4			CLAY (CL): Greenish-gray, scattered sands, moist, no odor.
1.5/1.5	18	51		5			
				6			CLAY (CL): Brown, mottled gray, scattered sands, hard, dry to moist, no odor.
				7			
				8			
				9			
0.0/1.5	–	36		10			
				11			
0.0/1.0	--	50/0.5		12			CLAYEY SAND (SC): Greenish-brown, fine-grained, very dense, moist, no odor.
				13			SAND (SP): Brown, fine to medium-grained, very dense, wet, no odor.
				14			
1.5/1.5	63	57	⊠	15			
				16			
				17			Boring terminated at 15 feet. Boring sampled to 16.5 feet.
				18			
				19			
				20			

REMARKS: Borings drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.

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BORING/WELL LOG

CLIENT NAME	Herrington Olson	**BORING/WELL NAME**	SB-6
JOB/SITE NAME	Herrington Olson	**DRILLING STARTED**	27-Apr-99
LOCATION	769 22nd Street, Oakland, California	**DRILLING COMPLETED**	27-Apr-99
PROJECT NUMBER	159-1267	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER		**GROUND SURFACE ELEVATION**	NA
DRILLING METHOD	DPT	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	R. Schultz	**DEPTH TO WATER (First Encountered)**	12.0 ft (27-Apr-99)
REVIEWED BY	R. Schultz	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 4' bgs; located in rear corner of aihacent property.		

TPHg (mg/kg)	BLOW COUNTS	RECOVERY	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
								ASPHALT.	0.2	
								Debris Fill.	1.0	
								Clayey SILT; (ML); grey; very stiff; damp; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability; dark ~1mm nodules, possibly organic.		
					5	ML				
			SB-6 -7.5'							
					10					
								4/27/99	11.5	
			SB-6 -11.5'			SW		**SAND**; (SW); orangish brown; dense; moist; 5% clay, 10% silt, 85% fine grained sand; no plasticity; moderate to high estimated permeability.	12.0	
						ML		**Clayey SILT**; (ML); grey; very stiff; moist; 30% clay, 60% silt, 10% sand; medium to high plasticity; low estimated permeability.	14.5	
					15	SM		**Silty SAND**; (SM); orangish brown; medium dense; moist; 10% clay, 15% silt, 75% sand; very low plasticity; moderate estimated permeability.	16.0	Bottom of Boring @ 16 ft
			SB-6 -15.5'							