



ALL ENVIRONMENTAL, INC.

Environmental Engineering & Construction

May 21, 1999

Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: **Workplan**
 807 75th Avenue
 Oakland, California
 AEI Project No. 3190

Dear Mr. Chan:

Enclosed is the revised workplan for the installation of four groundwater monitoring wells at the Omega Termite site in Oakland. We look forward to getting started on this project.

Please contact me at (925) 283-6000 if you need any further clarification or have any questions.

Sincerely,
ALL ENVIRONMENTAL, INC.

Peter McIntyre
Project Geologist

99 MAY 26 AM 9:12
ENVIRONMENTAL
PROTECTION

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May 21, 1999

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: **Workplan**
807 75th Avenue
Oakland, California
Project No. 3190

Dear Mr. Chan:

The following workplan is in response to your request for groundwater monitoring at the above referenced site. The workplan describes activities to conduct a subsurface investigation as requested in your February 10, 1999 letter. AEI is providing environmental consulting services to Mr. Allen Kanady, and is submitting this letter on his behalf.

Site Description and Background

The subject property currently supports the operation of Omega Termite Control (Figure 1: Site Location Map).

In September 15, 1996, three gasoline underground storage tanks were removed from the property (Reference 1 - Underground Storage Tank Removal Final Report, October 10, 1996). The tanks consisted of one 500 gallon, one 1,000 gallon and one 8,000 gallon tank. The previous locations of the tanks are shown in Figure 2.

Soil samples were collected from beneath the 500 gallon and 1,000 gallon gasoline tanks and from the three sidewalls of the 8,000 gallon tank excavation. Concentrations of total petroleum hydrocarbons (TPH) as gasoline were present in the soil beneath the 500 gallon UST at concentrations of 4,300 mg/kg. Minor concentrations (41 mg/kg) of TPH as gasoline were present beneath the 1,000 gallon tank. Three sidewall samples were collected following the tank removals. Concentrations of TPH as gasoline above 100 mg/kg were present in the western and northwestern sidewall samples.

Groundwater was encountered during the excavation of the 8,000 gallon tank. A grab groundwater sample collected from the excavation indicated significant concentrations of petroleum hydrocarbon contaminants within the groundwater.

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AEI issued a workplan, dated January 10, 1997, to the Alameda County Health Care Services Agency (ACHCSA). The workplan was designed to define the extent and magnitude of petroleum hydrocarbon contamination in the vicinity of the former tanks. Six soil borings were advanced on January 31, 1997. This investigation indicated groundwater was impacted with up to 27,000 µg/l of TPH as gasoline and 5,000 µg/l of benzene. Significant concentrations of TPH as gasoline were also detected in the soil up to ten feet from the excavation (Reference 2 – Phase II Soil and Groundwater Investigation Report, March 17, 1997).

The tank excavation has not been backfilled at this time and the soil removed from the tank pit has been moved to the northwest of the excavation for aeration, until it is deemed suitable for reuse or is disposed of at an approved facility. Standing water was present in the excavation at 7 feet below ground surface in March 1999.

The ACHCSA has requested further investigation into the extent of impacted soil and groundwater, including the installation of three groundwater monitoring wells. The following workplan describes the installation of four monitoring wells by AEI.

Geologic Conditions

The native soil beneath the site encountered during the previous subsurface investigation consisted generally of clay to depths of up to 20 feet below ground surface (bgs) with silt, sand, and gravel locally. Groundwater was encountered at between 4 and 15 feet bgs during this investigation, however static groundwater level is expected to be approximately 11 feet bgs. The topography of the area is generally flat, sloping very gently to the southwest. The nearest significant surface water is a creek located approximately 300 feet southwest of the property. Groundwater beneath the site is expected to flow to the southwest.

Scope of Work

AEI proposes to advance four soil borings (AEI-1, AEI-2, AEI-3 and AEI-4) at the site in the locations shown on Figure 2. The soil borings will be converted to two inch groundwater monitoring wells (MW-1, MW-2, MW-3 and MW-4).

TABLE 1 – Soil Boring/Monitoring Well Information

SOIL BORING/ MONITORING WELL	LOCATION	RATIONAL	DEPTH (FT)
SB-1/AEI-1	Southwest of tank excavation	Assess westerly extent of soil and groundwater impact, determine groundwater flow direction and gradient	25
SB-2/AEI-2	North of tank excavation	Assess northerly extent of soil and groundwater impact, determine groundwater flow direction and gradient	25
SB-3/AEI-3	West of tank excavation	Assess westerly extent of soil and groundwater impact, determine groundwater flow direction and gradient	25
SB-4/AEI-4	South of tank excavation and Property building	Assess southerly extent of soil and groundwater impact under building, determine groundwater flow direction and gradient	25

A Mobile B-57 or CME 75 hydraulic rotary drill with 6.25" I.D. by 10.5" O.D. hollow stem augers will be used to drill the borings. The borings will be drilled to first encountered groundwater plus approximately 10 feet, corresponding to a maximum depth of approximately 25 feet bgs.

The soil borings will be logged on-site by an AEI geologist using the Unified Soil Classification System. Undisturbed soil samples will be collected at 5 foot intervals, starting at 5 feet bgs until groundwater is encountered, for visual classification and chemical analysis. Two soil samples from each boring will be analyzed at a state certified laboratory as determined by the on-site geologist. Soil samples obtained during drilling will be screened in the field via portable organic vapor meter.

All soil samples will be secured using teflon tape and plastic caps. All samples will be put on ice and transported, under chain of custody procedures to McCampbell Analytical, Inc. of Pacheco, California. Selected soil samples will be analyzed for TPH as gasoline (EPA method 3550/8015), benzene, toluene, ethylbenzene and xylenes (BTEX) methyl tertiary butyl ether (MTBE) (EPA method 5030/8020), and total lead (EPA method 6010).

All sampling equipment will be cleaned in buckets with brushes with a TSP or Alconox solution, then rinsed twice with tap water. The drilling augers will be steam cleaned prior to drilling. Rinsate will be contained on-site in sealed, labeled drums.

Cuttings generated during drilling will be stored on-site in 55 gallon drums. The soil will be sampled, analyzed and disposed of in a local landfill unless deemed suitable for re-use on-site.

The monitoring wells will be constructed of 2" flush threaded Schedule 40 PVC casing, with up to 15 feet of .01" or .02" factory-slotted well screen. The top of the well screen

will extend up to 6 feet above the encountered groundwater level to account for static water level establishment and seasonal fluctuations. The well casing will be inserted through the augers to a point a few inches above the borehole terminus where it will be suspended until the well is secured within the sand pack. Sand (#2 or #3) will be poured through the augers in one- to two-foot lifts up to two feet above the top of the perforated casing. Two feet of bentonite pellets will be placed above the sand and activated with tap water. The seal will be finished up to the surface with cement/bentonite grout. A locking top cap and a flush-mounted, traffic rated, watertight well cover will be installed.

The wells will be developed by bailing water into a DOT 17H drum until the water appears to be reasonably clear with a minimum of 10 well volumes removed. Well development will take place no less than 72 hours after installation of the wells.

Prior to obtaining water samples from the monitoring wells, no less than 3 well volumes of water will be bailed from the wells. Groundwater will be checked for sheen and free product prior to purging and sampling. Samples will be obtained in plastic disposable bailers, secured in 40-milliliter volatile organic analysis vials and amber liter bottles, placed in a cooler with wet ice and transported, under chain of custody procedures to the laboratory. Water samples will be analyzed for TPH as gasoline, BTEX and MTBE, and dissolved lead.

The three wells will be surveyed to Mean Sea Level, with an accuracy of 0.01 foot for calculation of groundwater flow direction and gradient.

Site Safety

Prior to commencement of field activities, a site safety meeting will be held at a designated command post near the working area. Emergency procedures will be outlined at this meeting. Also, the hazards of the known or suspected chemicals of interest will be explained. Level D personal protection equipment is the anticipated maximum amount of protection needed. A site safety plan conforming to Part 1910.120 (i) (2) of 29 CFR will be on site at all times during the project.

A working area will be established with barricades and warning tape to delineate the zone where hard hats and steel-toed shoes must be worn, and where unauthorized personnel will not be allowed. If, during drilling, fuel product odors are deemed to be substantial, half-face respirators with organic vapor cartridges will be worn.

A nearby hospital will be designated in the site safety plan as the emergency medical facility of first choice. A map with a course plotted to the hospital will be on-site.

Estimated Schedule

Work will commence within two weeks after approval of this workplan by the ACHCSA. The ACHCSA will be given adequate notification of the scheduled day of drilling to schedule field inspectors if desired. Laboratory analytical results will be obtained within one week of collection. The final report will be prepared promptly, and copies will be delivered to the client and the ACHCSA.

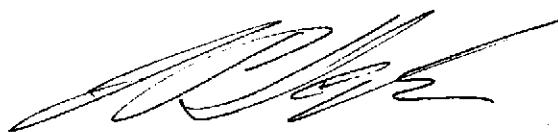
AEI will monitor the wells and analyze groundwater samples on a quarterly basis for the next year. This will document the depth, gradient and concentrations of dissolved hydrocarbons in the groundwater beneath the site. Quarterly monitoring reports will be submitted to the ACHCSA following each sampling episode.

AEI requests your approval to proceed with this project. Please let me know if you need additional information and please do not hesitate to call me at (925) 283-6000 if you have any questions.

Sincerely,



Peter McIntyre
Project Geologist



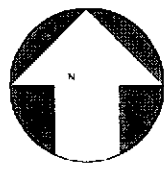
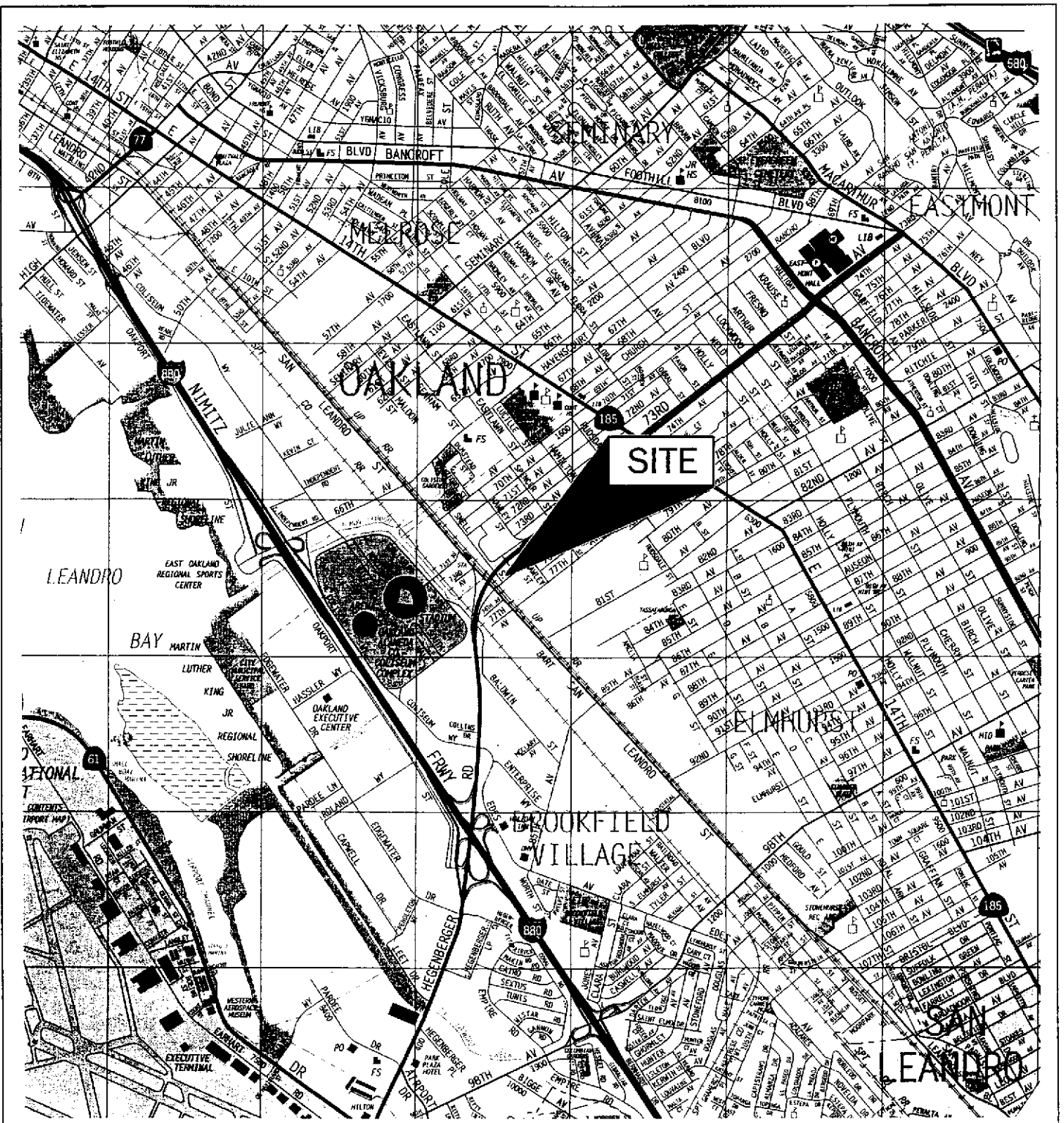
Joseph P. Derhake, PE, CAC
Principal



Figure 1 – Site location map

Figure 2 – Previous Sample Results

Figure 3 – Site Plan and Proposed Well Locations



SOURCE:
 THOMAS GUIDE, 1997
 SCALE : 1in. = 2,400 ft.

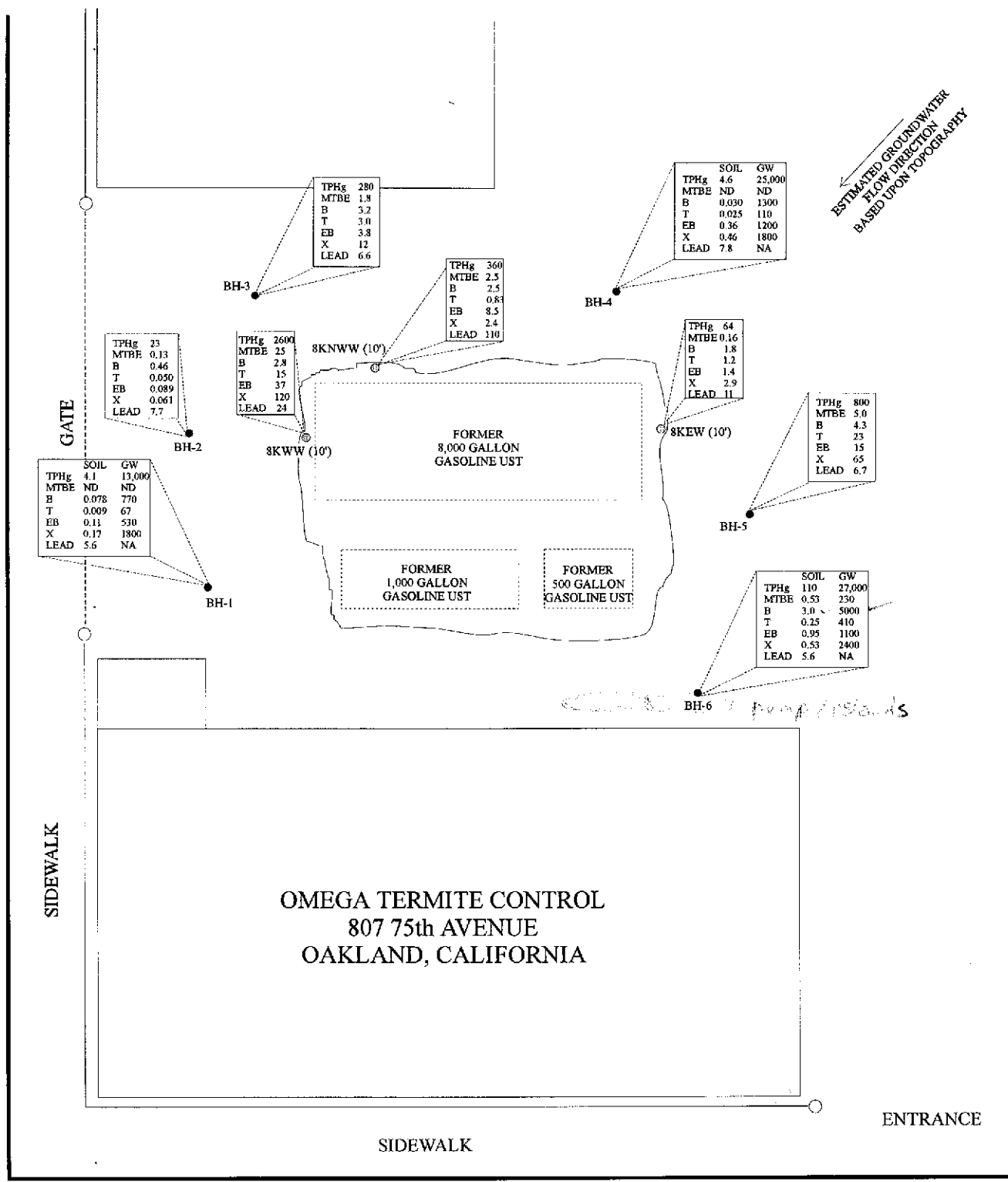
ALL ENVIRONMENTAL, INC.
 901 MORAGA ROAD, SUITE C, LAFAYETTE, CA

SITE LOCATION MAP

807 75th AVENUE
 OAKLAND, CALIFORNIA

FIGURE 1

ESTIMATED GROUNDWATER FLOW DIRECTION BASED UPON TOPOGRAPHY



SOIL		GW	
TPHg	280	4.6	25,000
MTBE	1.8	ND	ND
B	5.2	0.030	1300
T	3.0	0.025	110
EB	3.8	0.36	1200
X	12	0.46	1800
LEAD	6.6	7.8	NA

SOIL		GW	
TPHg	360	2.5	25,000
MTBE	2.5	ND	ND
B	2.5	0.030	1300
T	0.83	0.025	110
EB	8.5	0.36	1200
X	2.4	0.46	1800
LEAD	110	7.8	NA

SOIL		GW	
TPHg	23	0.13	770
MTBE	0.13	0.078	770
B	0.46	0.009	67
T	0.030	0.11	530
EB	0.089	0.17	1800
X	0.061	5.6	NA
LEAD	7.7		

SOIL		GW	
TPHg	2600	25	25,000
MTBE	25	2.8	5000
B	2.8	15	410
T	15	37	1100
EB	37	120	2400
X	120	24	NA
LEAD	24		

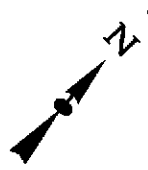
SOIL		GW	
TPHg	64	1.8	27,000
MTBE	0.16	1.2	230
B	1.8	0.25	410
T	1.2	0.95	1100
EB	1.4	0.53	2400
X	2.9	5.6	NA
LEAD	11		

SOIL		GW	
TPHg	800	5.0	27,000
MTBE	5.0	4.3	230
B	4.3	23	410
T	23	15	1100
EB	15	65	2400
X	65	6.7	NA
LEAD	6.7		

SOIL		GW	
TPHg	4.1	13,000	27,000
MTBE	ND	ND	230
B	0.078	770	5000
T	0.009	67	410
EB	0.11	530	1100
X	0.17	1800	2400
LEAD	5.6	NA	NA

BH-6 pump islands

← TO SAN LEANDRO AVENUE 75th AVENUE



⊙ SIDEWALL SOIL SAMPLES COLLECTED 9/15 AND 9/16/97

● SOIL BORING SAMPLES COLLECTED 1/13/97

ALL ANALYSES ARE SOIL UNLESS OTHERWISE NOTED

SOIL SAMPLES ARE LISTED AS MG/KG AND GROUNDWATER SAMPLES ARE LISTED AS UG/L

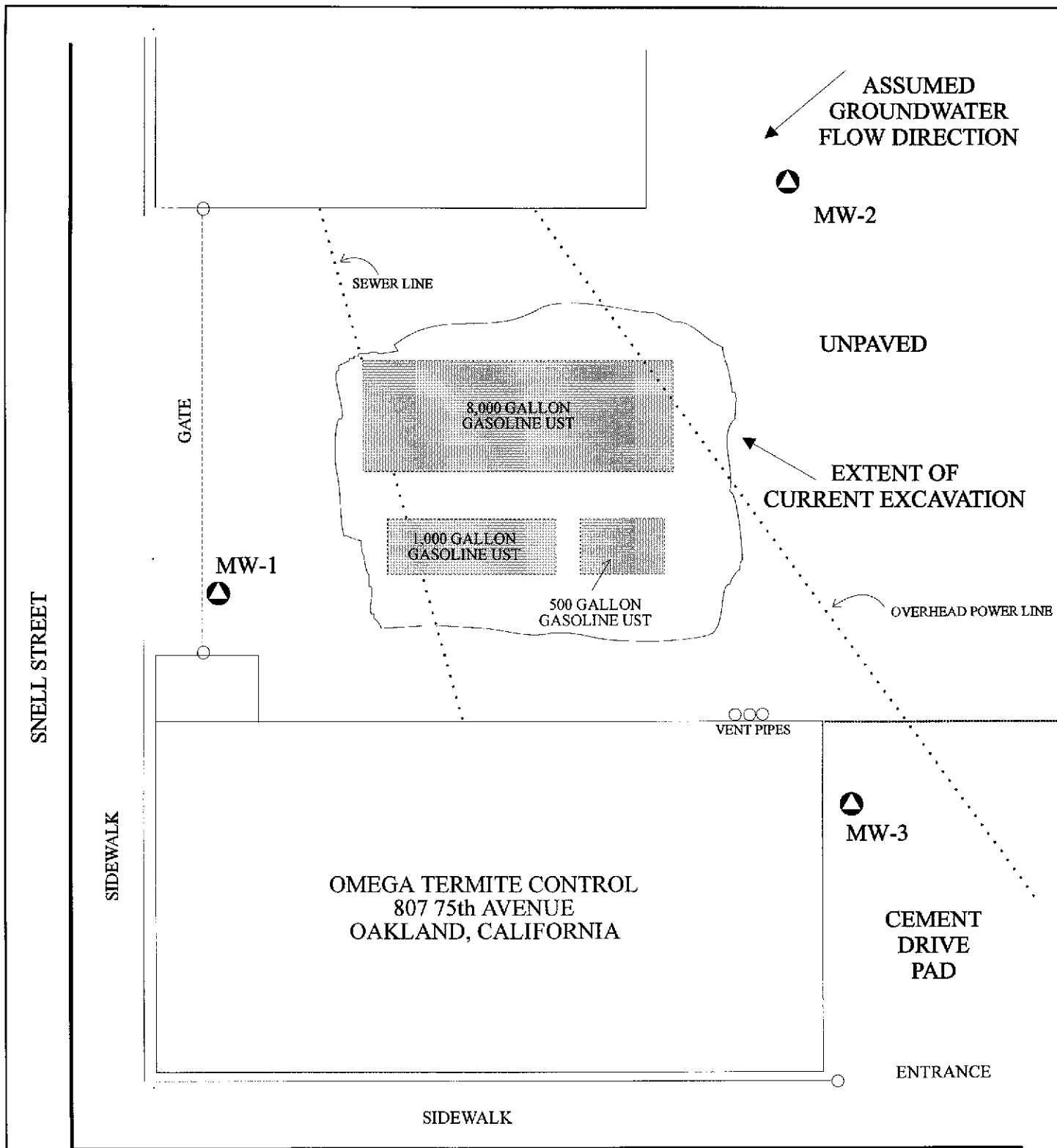
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SCALE: 1 IN = 10 FT

PREVIOUS SAMPLE RESULTS

807 75th AVENUE
OAKLAND, CALIFORNIA

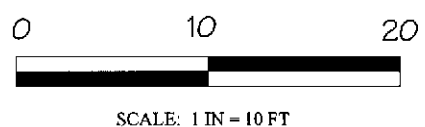
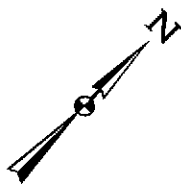
FIGURE 2



← TO SAN LEANRO AVENUE

▲ 75th AVENUE

▲ MW-4



▲ PROPOSED WELL LOCATIONS

ALL ENVIRONMENTAL, INC. 901 MORAGA ROAD, SUITE C, LAFAYETTE, CA	
PROPOSED WELL LOCATIONS	
807 75th AVENUE OAKLAND, CALIFORNIA	FIGURE 3