

April 23, 2004

Mr. Don Hwang  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Re: **Response to Agency Letter – Technical Comments**  
Douglas Parking Company  
1721 Webster Street  
Oakland, California  
StID 4070  
Cambria Project No. 580-0197



Accepted  
APR 23 2004  
B...

Dear Mr. Hwang:

On behalf of Douglas Parking Company, Cambria Environmental Technology, Inc. (Cambria) is submitting this response to your letter dated September 23, 2003 (attached) relating to the above referenced site.

#### TECHNICAL COMMENTS

1. **Site Characterization - In the Cambria report, TPH-G grab groundwater concentrations, the depth at which the samples were collected, and boring logs were not provided. Please provide.**

The hydropunch borings (HP-1 and HP-2) relate an investigation performed by Applied Geosciences, Inc. (API) on the neighboring Prentiss Properties. There are no borings logs for the hydropunch borings and only grab groundwater samples were collected from these borings at depths ranging from 20.5 to 24.5 ft bgs. Please note that the locations of HP-1 and HP-2 relative to the site were incorrectly plotted by API in 1993 and by Cambria in 1996 and have since been corrected (see attached Site Plan). Details of HP-1 and HP-2, and SB-1 through SB-4 are described by API in the *Results of a Geophysical Survey and Groundwater Investigation* (reports) dated April 1, 1993 and June 1, 1993 (attached).

2. **Source Characterization – The soil sample locations and boring logs [for Hp- and HP-2] were not provided. Please provide.**

As noted above, no soil samples were collected from borings HP-1 and HP-2 and therefore of likely no use in source characterization. The soil borings near HP-1 and HP-2 referenced by Cambria relate to an investigation performed by API on the neighboring Prentiss Properties. Details of borings G-1 through G-12 are described by API in the attached *Soil and Groundwater Investigation Report* (attached).

**Cambria  
Environmental  
Technology, Inc.**

5900 Hollis Street  
Suite A  
Emeryville, CA 94608  
Tel (510) 420-0700  
Fax (510) 420-9170

**3. *Preferential Pathway Survey - We request that you perform a preferential pathway study.***

Cambria has already performed a preferential pathway study which was presented in our *Conduit Study and File Review Report* dated August 8, 2000. The conclusion of the report was that the subsurface utilities were not acting as preferential pathways for the migration of hydrocarbons because the utilities were located significantly above the depth to groundwater (20 ft bgs).

**4. *Well Survey – Please locate wells within a quarter mile radius of the site.***

The hydrocarbon plume is adequately characterized in all directions. The site and surrounding vicinity, near downtown Oakland, is highly developed and the likelihood of any nearby domestic or municipal wells is very low. A well survey does not appear to be warranted at this time.

**5. *Historical Hydraulic Gradients – Please show using a rose diagram with magnitude and direction.***

A rose diagram with magnitude and direction is being presented in all quarterly monitoring reports. Historical information shows the groundwater direction and gradient has been consistent.

**6. *Groundwater Analyses – We request that you include fuel oxygenates and lead scavengers for analysis.***


Cambria will perform one-time analysis for fuel oxygenates and lead by EPA Method 8260 during the second quarter 2004 groundwater sampling event.

**7. *Proposed Feasibility Testing***

The SVE/AS pilot test as described in Cambria's *Work Plan Addendum* dated August 12, 2003 was conducted in the fourth quarter of 2003 and results are presented in a *Feasibility Test Report* dated April 22, 2004.

If you have any questions regarding these issues, please call me at (510) 420-3327.

Sincerely,  
**Cambria Environmental Technology, Inc.**



Ron Scheele, R.G.  
Senior Geologist

Attachments – Agency Letter dated September 23, 2003  
Site plan – Douglas Parking Facility, 1721 Webster Street, Oakland  
Historical Reports for the Prentiss Properties, 1750 Webster Street, Oakland

cc: Mr. Leland Douglas, Douglas Parking Company, 1721 Webster Street, Oakland, California 94612

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

September 23, 2003

Lee Douglas  
Douglas Parking  
1721 Webster Street  
Oakland, CA 94612-3411

Dear Mr. Douglas:

Subject: Fuel Leak Case No. RO0000129, Douglas Parking, 1721 Webster Street,  
Oakland, CA 94612-3411

Alameda County Environmental Health (ACEH) staff has reviewed the Leaking Underground Storage Tank Oversight Program file including "Work Plan Addendum - Proposed Feasibility Testing" dated August 12, 2003 by Cambria Environmental Technology. We request that you address the following technical comments and send us the technical reports requested below.

#### TECHNICAL COMMENTS

1. Site Characterization – 16,000 micrograms/liter (ug/l) Total Petroleum Hydrocarbons-Gasoline (TPH-G), 20,000 ug/l TPH-G, and 16,000 ug/l TPH-G, were detected in soil borings, SB-A, SB-B, and SB-C, respectively, located east of the former underground tanks, on February 22, 1996. East of these borings, grab groundwater samples, HP-1 and HP-2, detected 18,000 ug/l and 46 ug/l benzene, respectively, on March 19, 1993. The HP-1 and HP-2 samples were noted in "Subsurface Investigation Report" dated July 16, 1996 by Cambria Environmental Technology. These samples were collected by Applied Geosciences, Inc. In the Cambria report, TPH-G grab groundwater concentrations, the depths at which the samples were collected, and boring logs were not provided. The missing information will help determine if the plume needs to be further defined east of the borings. Please provide.
2. Source Characterization – 580 mg/kg and 680 mg/kg TPH-G were detected at soil borings, SB-B, and SB-D, located east and northeast of the former underground tanks, respectively. "Subsurface Investigation Report" dated July 16, 1996 by Cambria Environmental Technology, noted that soil samples collected near the grab groundwater samples HP-1 and HP-2 on May 18, 1993, did not detect TPH-G or benzene at a depth of 20 ft. However, the soil sample locations and boring logs were not provided. The missing information will help determine if the soil contamination needs to be further defined east of the borings. Please provide.

3. Preferential Pathway Survey – We request that you perform a preferential pathway study that details the potential migration pathways and potential conduits (wells, utilities, pipelines, etc.) for horizontal and vertical migration that may be present in the vicinity of the site. Please submit map(s) and cross-sections showing the location and depth of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s). Evaluate the probability of the contaminant plumes encountering preferential pathways and conduits that could spread the contamination, particularly in the vertical direction to deeper water aquifers. Please submit. *See the Corlett study*
4. Well Survey – Locate wells within a quarter mile radius of the site. Show the location of the wells and the site on a map and tabulate well construction details for each well. Please submit.
5. Historical Hydraulic Gradients – Please show using a rose diagram with magnitude and direction; include cumulative groundwater gradients in all future reports submitted for this site. *in ASR 2003 report*
6. Groundwater Analyses – We request that you include the other fuel oxygenates Tertiary Amyl Methyl Ether (TAME), Ethyl Tertiary Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), and Tertiary Butyl Alcohol (TBA), Ethanol by EPA Method 8260 and the lead scavengers, Ethylene Dibromide (EDB), Ethylene Dichloride (EDC) for analyses of grab and monitoring well groundwater samples, and for the lead scavengers, EDB and EDC, also perform analyses on soil samples. If any of the latter compounds are detected, and are determined to be of concern (poses a risk to human health, the environment, or water resources) it is to be incorporated into your regular monitoring plan.
7. Proposed Feasibility Testing – A diagram of and procedures for the previously approved soil vapor extraction and air sparging tests have been provided.

#### TECHNICAL REPORT REQUEST

Please submit the following technical reports to Alameda County Environmental Health (Attention: Don Hwang), according to the following schedule:

October 31, 2003 - Groundwater Monitoring Report, Third Quarter 2003

November 23, 2003 - HP-1 and HP-2 grab groundwater concentrations, depths, and boring logs.

November 23, 2003 - May 18, 1993 soil sample locations and boring logs

→ November 23, 2003 - Preferential Pathway Survey

→ November 23, 2003 - Well Survey

November 23, 2003 - Soil vapor extraction and air sparging test results

January 31, 2004 - Groundwater Monitoring Report, Fourth Quarter 2003

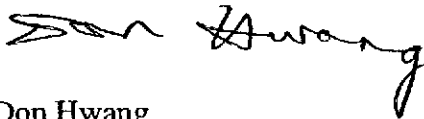
April 30, 2004 - Groundwater Monitoring Report, First Quarter 2004

July 31, 2004 - Groundwater Monitoring Report, Second Quarter 2004

Mr. Douglas  
September 23, 2003  
Page 3 of 3

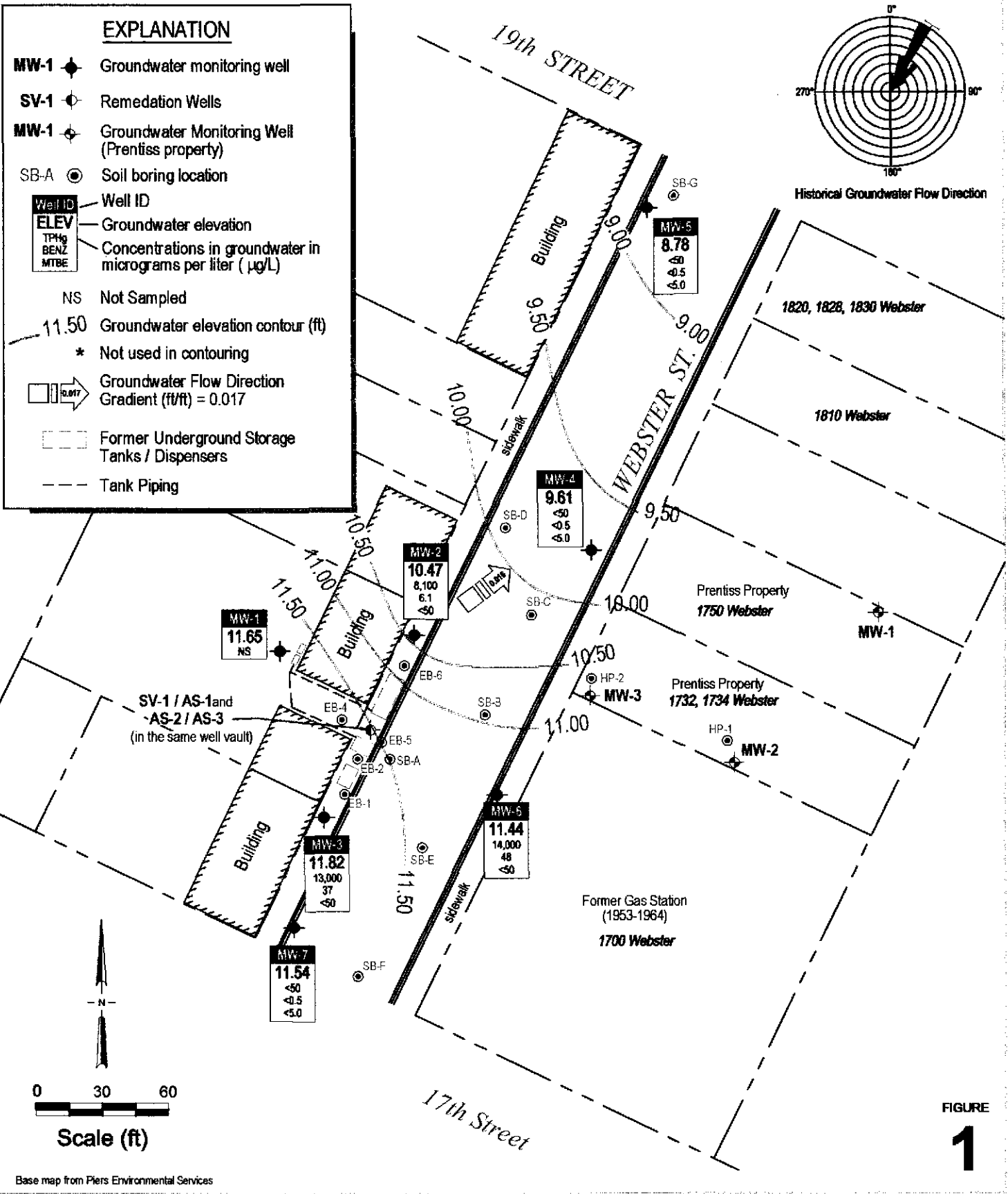
These reports are being requested pursuant to the Regional Water Quality Control Board's (Regional Board) authority under Section 13267 of the California Water Code. If you have any questions, please call me at (510) 567-6746.

Sincerely,



Don Hwang  
Hazardous Materials Specialist  
Local Oversight Program

✓ c: Mary C. Holland-Ford, Cambria Environmental Technology, Inc., 5900 Hollis St., Suite A,  
Emeryville, CA 94608  
Donna Drogos  
File



H:\SB-2004\DOUGLAS PARKIN\G1721 WEBSTER\FIGURE51\DWG03-IMP III.DWG

**FIGURE 1**

**Douglas Parking Facility**  
 1721 Webster Street  
 Oakland, California



**Groundwater Elevation and Hydrocarbon Concentration Map**  
 January 15, 2004



**APPLIED  
GEOSCIENCES  
INC.**

*Environmental Consultants*

1641 North First Street  
Suite 235  
San Jose, CA 95112  
TEL: 408/452-0262  
FAX: 408/452-0265

1 April 1993  
A932558

Prentiss Properties  
4675 MacArthur Boulevard, Suite 320  
Newport Beach, California 92660

Attention: Mr. Bill Shubin

**SUBJECT: RESULTS OF A GEOPHYSICAL SURVEY AND GROUNDWATER INVESTIGATION AT THREE PARCELS LOCATED ON THE BLOCK BOUNDED BY 19<sup>TH</sup> STREET, HARRISON STREET, 17<sup>TH</sup> STREET, AND WEBSTER STREET, OAKLAND, CALIFORNIA**

Dear Mr. Shubin:

This letter report presents the results of the geophysical survey and groundwater investigation conducted by Applied Geosciences Inc. at three parcels located on the block bounded by 19<sup>th</sup> Street, Harrison Street, 17<sup>th</sup> Street, and Webster Street (site) in Oakland, California (Figure 1). This work was conducted in general accordance with Attachment 1 to the contract between Prentiss Properties and Applied Geosciences Inc. The work was requested by Prentiss Properties in order to implement recommendations presented in the environmental assessment prepared by Applied Geosciences Inc. for Terracorp Properties Inc., dated 6 January 1993, for the site.

The environmental assessment report prepared by Applied Geosciences Inc. made several recommendations for further work at the site. Based on information reviewed during the environmental assessment, it was interpreted that the parcel located at the corner of 19<sup>th</sup> Street and Harrison Street (Parcel 1; Figure 2) may have been used as a gasoline station sometime between 1911 and 1947. No information was available during the environmental assessment concerning the presence or removal of underground tanks on this parcel. Applied Geosciences Inc. therefore concluded that there was not enough information to assess the likelihood that underground tanks from this potential gasoline station were present in the subsurface of Parcel 1. Applied Geosciences Inc. recommended that a geophysical survey be conducted to evaluate the presence of underground tanks.

Data reviewed for the environmental assessment indicated that elevated concentrations of gasoline were present in the soil at a facility located at 1721 Webster Street, across Webster Street and in the interpreted upgradient groundwater flow direction from the parcels located on the east side of Webster Street (Parcels 2 and 3; Figure 2). The presence of gasoline within the groundwater had not yet been investigated at that facility and it was Applied Geosciences Inc.'s judgment that groundwater may have been impacted by the release at 1721 Webster Street. Based on the information reviewed and the professional judgment of Applied Geosciences Inc., it was concluded that there was a moderate likelihood that the gasoline released at 1721 Webster

Other Offices:

29B Technology Drive • Suite 100 • Irvine, CA 92718 • TEL: 714/453-8545 • FAX: 714/453-0510  
San Diego Area: 5375 Mira Sorrento Place • Suite 150 • San Diego, CA 92121 • TEL: 619/558-0600 • FAX: 619/558-7180

Street may be present in the subsurface of the site. It was therefore recommended that groundwater samples be collected to assess the presence of gasoline in the groundwater beneath Parcel 3.

## OBJECTIVES

The objectives of the work presented in this report were to (1) evaluate the presence of underground tanks at Parcel 1, and (2) assess the likelihood that petroleum hydrocarbons were present in the shallow groundwater beneath Parcel 3.

## SCOPE OF WORK

To meet these objectives, the following scope of work was performed:

- Performance of a geophysical survey utilizing a magnetometer to evaluate the presence of geophysical anomalies that may indicate the presence of underground tanks at Parcel 1.
- Collection of up to three groundwater samples from the site utilizing a Hydropunch groundwater sampling device. Analysis of collected samples by a State-certified hazardous waste laboratory.
- Data evaluation and preparation of this report.

## GEOPHYSICAL SURVEY

A geophysical survey was conducted on Parcel 1 on 13 March 1993 by Cruz Brothers Sub-Surface Locators, of Milpitas, California, under the observation of Applied Geosciences Inc. The geophysical survey was conducted utilizing a metal detector. Locations where responses to metallic objects in the subsurface were measured by the instrument were marked. Following the survey, the geophysical data were evaluated. The results of the survey are presented on Figure 3.

Several linear trends were noted during the geophysical survey. The responses and trends are interpreted to be the result of metallic utilities within the subsurface (Figure 3). An area of random, weak responses to the metal detector was noted in the central portion of Parcel 1 (Figure 3). This area was located within a circular portion of asphalt interpreted to be newer than the asphalt over the majority of the parcel. This circular area of asphalt is in the general area of the former circular restaurant observed on-site in aerial photographs reviewed for the environmental assessment.

## GROUNDWATER ASSESSMENT

The groundwater investigation was conducted on 19 March 1993. Groundwater samples were collected using a Hydropunch II groundwater sampling device in general accordance with a



drilling permit obtained from the Alameda County Flood Control and Water Conservation District. Hydropunch sampling services were provided by VBI In-Situ Testing, Inc., of Oakland, California. All sampling equipment was washed at the site using a hot water pressure washer. The sampling was performed under the observation of Applied Geosciences Inc. Up to three groundwater samples were planned to be collected from the site. However, conditions encountered during the sampling only allowed for the collection of two samples by the end of the day. Upon completion, each hole was grouted with a bentonite-cement grout placed through a tremie pipe. The surface was patched with either cement or asphalt.

### Conditions Encountered

Hydropunch sample locations were selected to assess the likelihood that gasoline released at 1721 Webster Street had migrated on the site within the shallow aquifer zone beneath the site. The sample locations selected were located on the eastern and southeastern portions of Parcel 3 (Figure 2). The locations were selected based on their proximity to the release at 1721 Webster Street to the west-southwest of the site and the groundwater gradient at the site, which was interpreted to slope to the east (Applied Geosciences Inc., 1993).

Prior to groundwater sampling, a cone penetrometer test (CPT) was performed to assess the stratigraphy beneath the site and evaluate the depth to groundwater. The CPT was conducted near HP-1. Very soft, fine-grained material (silt and/or clay) is interpreted to have been encountered to a depth of approximately 5 feet below the ground surface. This fine-grained material was interpreted to be firmer between approximately 5 and 13 feet and between approximately 21 and 22 feet below the ground surface. Dense sandy material is interpreted to have been encountered between approximately 13 and 21 feet below the ground surface and from approximately 22 feet to the terminal depth of the CPT at approximately 24 feet below the ground surface.

Groundwater is interpreted to have been encountered at approximately 19 feet below the ground surface. Based on the measured dissipation of the pore water pressure, the groundwater is interpreted to have been slightly confined by a zone within the subsurface interpreted to have been cemented between approximately 16 and 19 feet below the ground surface. This zone interpreted to be cemented was very difficult to hydraulically push the CPT equipment through, and refused penetration of the Hydropunch sampler on the initial attempt. Further efforts succeeded in hydraulically pushing the Hydropunch sampler through this zone; however, the time required did not allow for the collection of the third groundwater sample.

At the location of the final HP-1 sample attempt, the cemented zone was not encountered at 16 feet below the ground surface. The Hydropunch sampler was hydraulically pushed with very little effort at this depth. The interval of very soft material was encountered to approximately 24 feet below the ground surface, where the material encountered was very resistant to further penetration by the Hydropunch. The soft material was interpreted to have had the consistency of a slurry and may have been a sandy material that was under a hydraulic head.

### Groundwater Sample Collection

Groundwater samples were collected from HP-1 and HP-2 locations from screened intervals of approximately 20.5 to 24.5 feet below the ground surface. The sample collected from HP-1 was noted to have a very strong gasoline odor. The sample collected from HP-2 was noted to have a slight hydrocarbon odor. At the CPT location and during initial attempts to obtain a groundwater sample from HP-1, gasoline odors were noted on equipment inserted into the subsurface and on soil brought up on the equipment. The gasoline odors were noted on equipment that had not been exposed to groundwater.

### Laboratory Analyses

Groundwater samples were collected and retained using chain-of-custody procedures, including chain-of-custody forms. The groundwater samples were placed into laboratory-supplied volatile organic analysis (VOA) vials and retained on blue ice in an insulated chest cooled to approximately 4 degrees Celsius. The samples were submitted to Superior Precision Analytical, Inc., of San Francisco, California, a State-certified hazardous waste laboratory. The samples were analyzed for total petroleum hydrocarbons as gasoline (gasoline) with quantification of benzene, toluene, xylene, and ethylbenzene (BTXE) in general accordance with Environmental Protection Agency (EPA) Method No. 8015 (modified). The reported analytical results are presented below in micrograms per liter ( $\mu\text{g/l}$ ; approximately equivalent to parts per billion). The laboratory report and chain-of-custody form are contained in Attachment 1.

<u>Sample No.</u>	<u>Constituent</u>	<u>Concentration (<math>\mu\text{g/l}</math>)</u>
HP-1	Gasoline	200,000
	Benzene	18,000
	Toluene	24,000
	Ethyl Benzene	2,900
	Xylenes	13,000
HP-2	Gasoline	42,000
	Benzene	46
	Toluene	900
	Ethyl Benzene	2,200
	Xylenes	5,500

## DISCUSSION

### Geophysical Survey

No geophysical anomalies judged to be large metallic objects were measured during the geophysical survey. An area of weak response was measured in the central portion of the site, but was judged to be too weak and dispersed to have been the result of a metal underground

tank. Based on these results, it is the judgment of Applied Geosciences Inc. that there is a low likelihood that underground tanks are present at Parcel 1.

### Groundwater Assessment

Groundwater is interpreted to have been encountered at Parcel 3 at a depth of approximately 20 feet below the ground surface. The groundwater may have been slightly confined by locally cemented zones within the subsurface.

Concentrations of up to 200,000  $\mu\text{g}/\text{l}$  of gasoline and petroleum hydrocarbons were reported in the groundwater samples collected from the site. The concentrations are above levels generally used as action levels for remediation of gasoline and associated constituents within the groundwater. A commonly used cleanup level for gasoline is 1,000  $\mu\text{g}/\text{l}$ . The State action level for benzene in drinking water is 1  $\mu\text{g}/\text{l}$ .

It is judged that there is a moderately high likelihood that a source for the gasoline reported in the groundwater is located on-site. This judgment is based on the high concentration of gasoline reported in groundwater sample HP-1 (in the experience of Applied Geosciences Inc., concentrations of that order are typically encountered in the vicinity of a source), the observation of gasoline odors on sampling equipment that had not been exposed to groundwater, and the presence of a rectangular asphalt patch near HP-1 that could possibly be the former location of an underground tank. Based on the high concentrations of gasoline reported in the groundwater sample collected from HP-1 and the possibility that a source for gasoline exists on the site, a conclusion regarding the likelihood that gasoline has migrated onto the site cannot be made with the existing data.

### CONCLUSIONS

Based on the material presented in this report, current regulatory guidelines, and the professional judgment of Applied Geosciences Inc., the following conclusions have been made:

- There is a low likelihood that underground tanks are present at Parcel 1;
- Concentrations of up to 200,000  $\mu\text{g}/\text{l}$  of gasoline and petroleum hydrocarbons were reported in the groundwater samples collected from the site. The concentrations are above levels generally used as action levels for remediation of gasoline and associated constituents within the groundwater;
- It is judged that there is a moderately high likelihood that a source for the gasoline and petroleum hydrocarbons reported in the groundwater is located on-site; and
- A conclusion regarding the likelihood that gasoline and petroleum hydrocarbons have migrated onto the site cannot be made with the existing data.

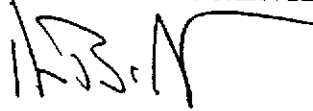
**RECOMMENDATIONS**

Based on the conclusions presented in this report, the following recommendations are presented:

- Further subsurface investigation should be performed to evaluate the source for the gasoline and petroleum hydrocarbons reported in the groundwater samples collected. This investigation could consist of a geophysical survey, collection of soil samples from the vicinity of HP-1 and the rectangular asphalt patch, and further CPT/Hydropunch sampling and/or installation of groundwater monitoring wells.

If you have any questions concerning the material presented in this report, please feel free to contact me at your convenience.

Very truly yours,  
APPLIED GEOSCIENCES INC.



DONALD P. BRANSFORD, R.G. 5621  
Project Manager

Attachments

**REFERENCE**

Applied Geosciences Inc., 1993, Environmental assessment for three parcels located in Oakland, California: dated 6 January 1993, 18 p.



OFFICE/RETAIL BUILDING

WORLD SAVINGS CENTER

19TH STREET

RESTAURANTS/RETAIL/  
OFFICES

PARKING LOT

PARCEL 1

PARCEL 2

PARCEL 3

HP-2

HP-1

PARKING LOT

APARTMENTS

PARKING LOT

OFFICE/RETAIL BUILDINGS

WEBSTER STREET

HARRISON STREET

OFFICE BUILDING

PARKING GARAGE

EXPLANATION

HP-1



HYDROPUNCH SAMPLE LOCATION  
AND DESIGNATION



AREA OF PATCHED ASPHALT



CIRCULAR ASPHALT PATCH



FORMER TRANSFORMER LOCATION



SITE BOUNDARY



PARCEL BOUNDARY

NOTES:

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. BASE MAP MODIFIED FROM MAP PROVIDED BY TERRACORP PROPERTIES, INC.
3. NO SCALE

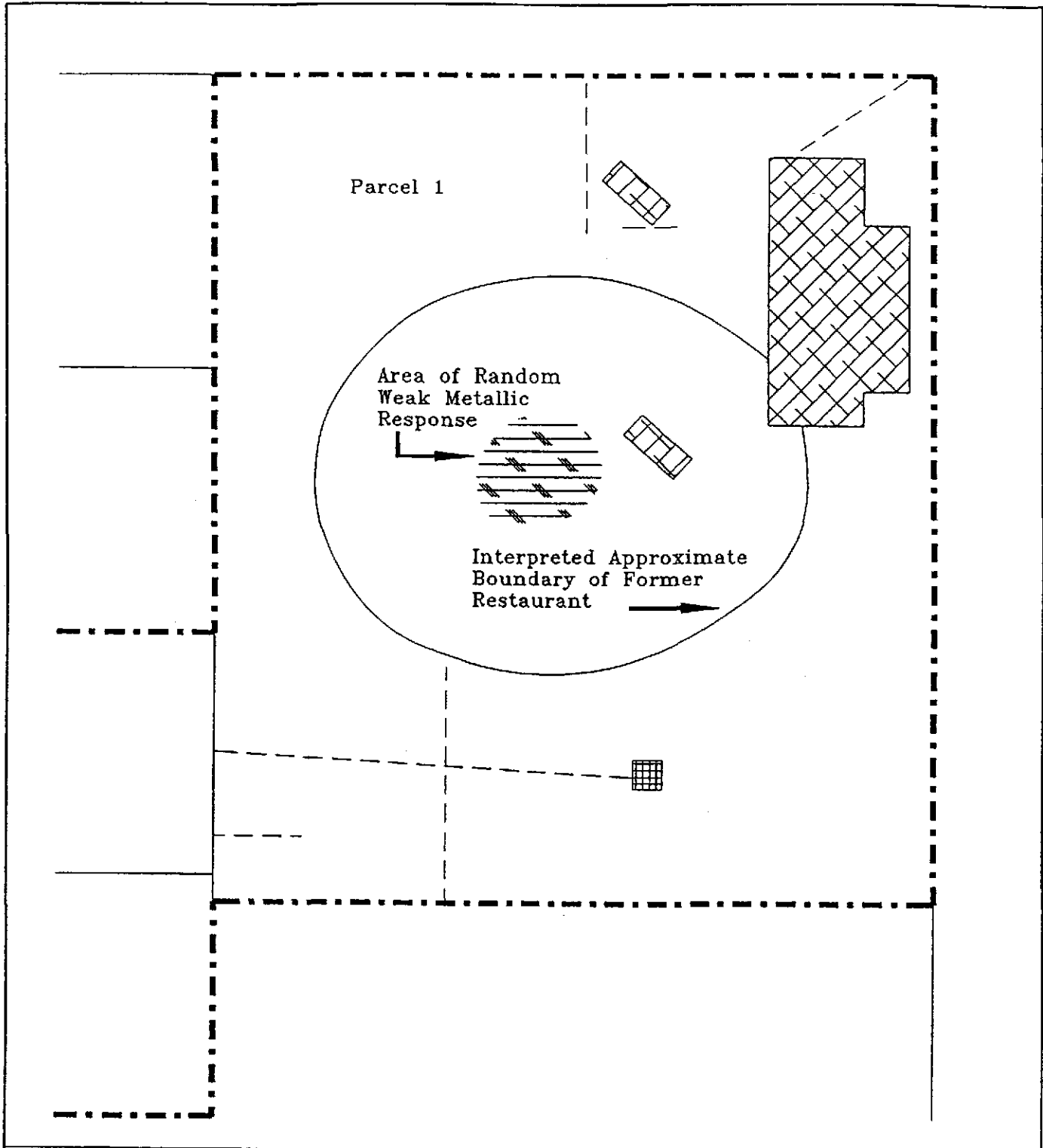
APPLIED GEOSCIENCES INC.

Environmental Consultants



SITE PLOT PLAN

PROJECT NO. A932558 | FIGURE 2



**EXPLANATION**

- - - - - Interpreted Underground Utility Location
- . - . - . - Approximate Site Boundary

**NOTES:**

1. All locations and dimensions are approximate.
2. Base map modified from map provided by Terracorp Properties Inc.
3. No scale.

APPLIED GEOSCIENCES INC.

Environmental Consultants



**RESULTS OF  
GEOPHYSICAL SURVEY**

PROJECT NO. A932558

FIGURE 3



# Superior Precision Analytical, Inc.

1555 Burke, Unit 1 • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

RECEIVED

APPLIED GEOSCIENCES  
Attn: DON BRANSFORD

MAR 29 1993

Project A932558  
Reported 03/25/93

BY: [Signature]  
Applied Geosciences Inc.

## TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed Matrix
56182- 1	HP-1	03/22/93	03/24/93 Water
56182- 2	HP-2	03/22/93	03/24/93 Water

## RESULTS OF ANALYSIS

Laboratory Number: 56182- 1 56182- 2

Gasoline:	200000	42000
Benzene:	18000	46
Toluene:	24000	900
Ethyl Benzene:	2900	2200
Xylenes:	13000	5500
Concentration:	ug/L	ug/L



C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2  
QA/QC INFORMATION  
SET: 56182

NA = ANALYSIS NOT REQUESTED  
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT  
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:  
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:  
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:  
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE  
Minimum Quantitation Limit in Water: 0.3ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	99/95%	4	76-111
Benzene:	82/79%	2	78-110
Toluene:	102/100%	2	78-111
Ethyl Benzene:	112/110%	2	78-118
Xylenes:	101/99%	2	73-113

Richard Srna, Ph.D.

*Cecilia Y. Gonzalez (for)*  
Laboratory Director





**APPLIED  
GEOSCIENCES  
INC.**

*Environmental Consultants*

*Soil invest.  
no tabulated data, no bore logs, no PID readings*

1641 North First Street  
Suite 235  
San Jose, CA 95112  
TEL: 408/452-0262  
FAX: 408/452-0265

1 June 1993  
A932558A

Prentiss Properties  
4675 MacArthur Boulevard, Suite 320  
Newport Beach, California 92660

Attention: Mr. Bill Shubin

SUBJECT: RESULTS OF GEOPHYSICAL SURVEY AND SUBSURFACE INVESTIGATION AT A PARCEL LOCATED ON THE EAST SIDE OF WEBSTER STREET BETWEEN 19<sup>TH</sup> STREET AND 17<sup>TH</sup> STREET, OAKLAND, CALIFORNIA *1750 Webster St.*

Dear Mr. Shubin:

This letter has been prepared to present the results of the geophysical survey and subsurface investigation conducted at a parcel located on the east side of Webster Street between 19<sup>TH</sup> Street and 17<sup>TH</sup> Street (site) in the city of Oakland, California (Figure 1). The work was performed by Applied Geosciences Inc. in May 1993 in general accordance with Revised Attachment 2, dated 22 April 1993, to the contract between Prentiss Properties and Applied Geosciences Inc. dated 12 February 1993. The work was conducted at the request and authorization of Mr. Bill Shubin of Prentiss Properties.

Applied Geosciences Inc. has previously conducted an environmental assessment for three parcels of land that included the site (Applied Geosciences Inc., 1993a). The environmental assessment concluded that there was a moderate likelihood that hazardous materials reported to have been released at an upgradient property were present in the subsurface of the site. Based on the results of the environmental assessment, Applied Geosciences Inc. conducted a groundwater investigation using Hydropunch groundwater sampling equipment to assess the presence of gasoline in the subsurface of the site from releases at the upgradient property (Applied Geosciences Inc., 1993b). Elevated concentrations of gasoline were reported in the groundwater samples collected. Based on the location of the groundwater samples and concentrations of gasoline reported in the groundwater samples, it was concluded that there was a moderate likelihood that the source for the gasoline was located on-site. It was recommended that further subsurface investigation be performed at the site to investigate the source and extent of the gasoline within the subsurface of the site (Applied Geosciences Inc., 1993b).

**OBJECTIVES**

The objectives of the scope of work was to (1) assess the likelihood that a source for petroleum hydrocarbons is present at the site, and (2) assess the extent of the petroleum hydrocarbons, if present, within the soil.

Other Offices:

298 Technology Drive • Suite 100 • Irvine, CA 92718 • TEL: 714/453-8545 • FAX: 714/453-0510  
San Diego Area: 5375 Mira Sorrento Place • Suite 150 • San Diego, CA 92121 • TEL: 619/558-0600 • FAX: 619/558-7180



## SCOPE OF WORK

In order to meet the objective, the following scope of work was performed:

- Geophysical Survey
- Subsurface Investigation
- Data Evaluation

## GEOPHYSICAL SURVEY

A geophysical survey utilizing a metal detector was performed to evaluate geophysical anomalies on the site that may indicate the presence of underground tanks at the site. Anomalies interpreted to indicate the presence of steel underground tanks were not encountered. The site is reported to have historically been used as a residence prior to use for a parking lot. Permits for the installation of underground tanks at the site were not present in materials reviewed at the Oakland Fire Department (Applied Geosciences Inc., 1993). Based on this information and interpretations from the geophysical survey, it is the judgment of Applied Geosciences Inc. that there is a low likelihood that underground storage tanks are present at the site.

## SUBSURFACE INVESTIGATION

Four soil borings were drilled on the site to evaluate the presence of elevated concentrations of petroleum hydrocarbons within the soil. Boring SB-1 was located in the area where elevated concentrations of gasoline were reported in a groundwater samples collected using a Hydropunch groundwater sampling devise and boring SB-2 was located in the vicinity of a rectangular patch of asphalt that was interpreted to have been a potential location for an underground tank (Figure 2). These borings were located to evaluate the presence of a source for potentially hazardous materials on the site. The remaining borings were located laterally away from borings SB-1 and SB-2 to evaluate the lateral extent of potentially hazardous materials in the subsurface, if present.

The borings were advanced to a depth of approximately 20 feet below the ground surface. The borings were drilled using a truck-mounted drill rig equipped with 6-inch diameter hollow-stem auger. Soil samples were collected on 5-foot sample intervals beginning at 5 feet below the ground surface to evaluate soil materials and for chemical analyses. Two soil samples per boring were submitted for analysis for total petroleum hydrocarbons as gasoline (TPHg) with quantification of benzene, toluene, xylene, and ethylbenzene (BTXE) and total petroleum hydrocarbons as diesel (TPHd) in general accordance with modified Environmental Protection Agency (EPA) Method No. 8015. One sample per boring will be analyzed for total lead in general accordance with EPA Method No. 6010. The samples were analyzed by Superior Precision Analytical, Inc., of San Francisco, California, a State-certified hazardous waste laboratory. The borings were backfilled with cement grout. Wastes generated during the

investigation were placed into labeled 55-gallon drums and stored in the southeast corner of the site. A permit to drill the borings was obtained from Zone 7 Water Agency.

In general, the soils encountered consisted of silty and clayey sand with lesser amounts of sandy clay. No materials interpreted to be imported fill were observed in the materials encountered during drilling. The soil was observed to become wet below approximately 20 feet below the ground surface. Staining, odors, or other evidence for the presence of petroleum hydrocarbons were not observed during drilling, except for some yellowish gray soil encountered at the bottom of boring SB-4 (Figure 2). This was the only location that a grayish color was observed in the soil. The grayish color may have resulted from chemical reduction caused by biodegradation of petroleum hydrocarbons within the groundwater. Based on the observations made during the drilling, soil samples collected from approximately 10 and 20 feet below the ground surface were selected for analysis.

Lead, TPHg, TPHD, benzene, toluene, and ethylbenzene were not reported in the soil samples analyzed in concentrations exceeding the method detection limit for the analytical methods used. Xylene was reported in three of the soil samples analyzed (Attachment). The concentrations are presented below.

<u>Boring No.</u>	<u>Approximate Sample Depth</u>	<u>Reported Xylene Concentration</u>
SB-3	20 feet ✓	0.057 milligrams per kilogram (mg/kg)
SB-4	10 feet ✓	0.020 mg/kg
SB-4	20 feet	0.022 mg/kg

The reported concentrations are judged by Applied Geosciences Inc. to be low and not indicative of a source for this constituent in the soil. Based on the lack of fill material and the absence of metallic anomalies that may have indicated the former presence of underground tanks, and the laboratory analytical data, it is the judgment of Applied Geosciences Inc. that there is a low likelihood that a source for the gasoline previously reported in the groundwater is present at the site.

## CONCLUSIONS

Based on the material presented in this letter, current regulatory guidelines, and the professional judgment of Applied Geosciences Inc., the following conclusions have been made:

- There is a low likelihood that underground storage tanks are present at the site; and
- There is a low likelihood that a source for the gasoline previously reported in the groundwater is present at the site.

**RECOMMENDATION**

Based on the conclusions presented in this letter and the professional judgment of Applied Geosciences Inc., the following recommendation is presented:

- Legal counsel familiar with environmental issues should review this letter to evaluate regulatory agency reporting requirements and the issue of on-site migration of hazardous materials onto the site from a potential off-site source.

If you have any questions concerning the material presented in this letter, please feel free to contact either of us at your convenience.

Very truly yours,  
APPLIED GEOSCIENCES INC.



DONALD P. BRANSFORD, R.G.  
Project Manager



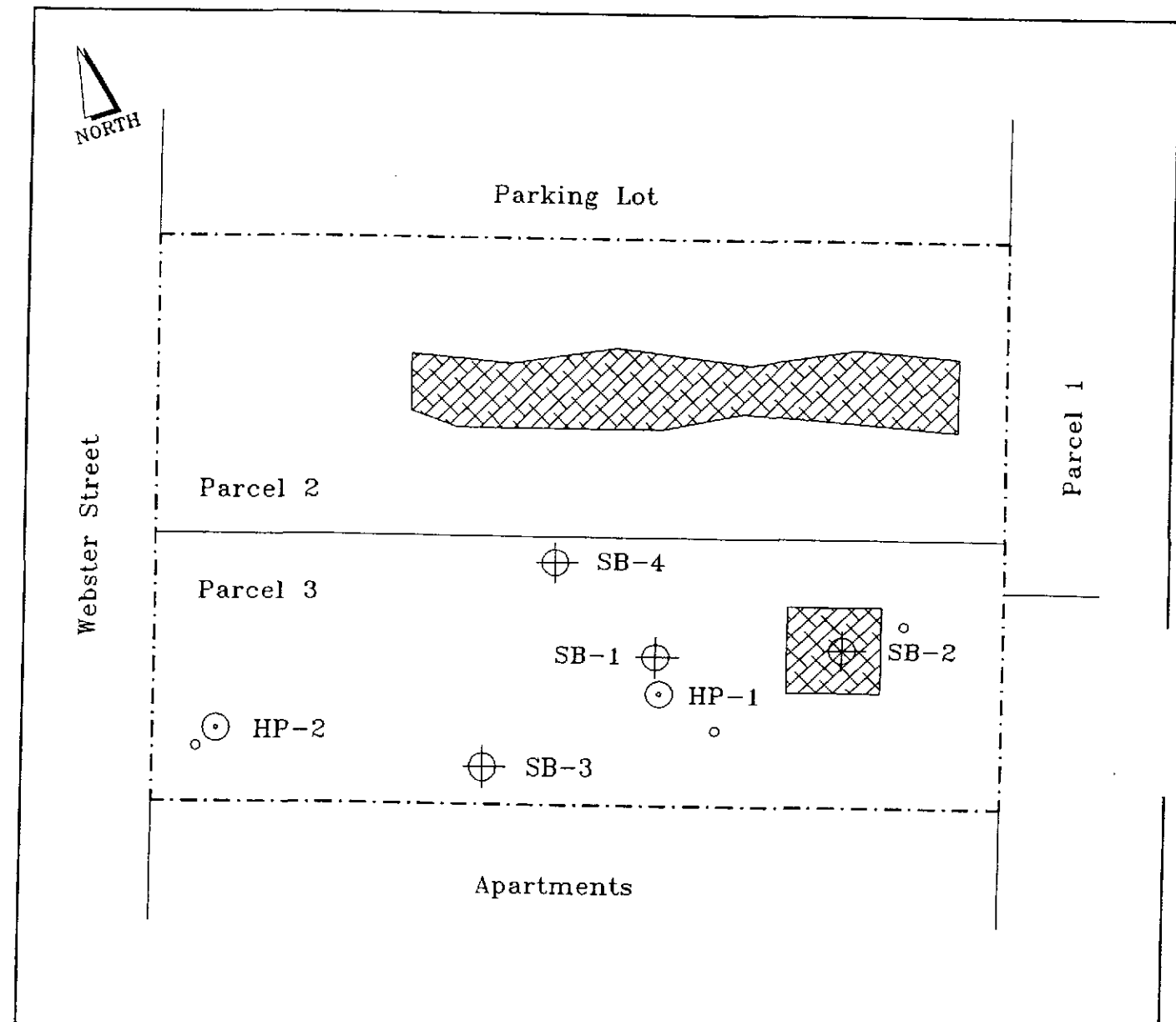
FRED R. CONWELL, C.E.G.  
Associate

Attachments

**REFERENCES**

Applied Geosciences Inc., 1993a, Environmental assessment for three parcels located in Oakland, California; dated 6 January 1993, 18 p.

\_\_\_\_\_, 1993b, Results of a geophysical survey and groundwater investigation at three parcels located on the block bounded by 19<sup>TH</sup> Street, Harrison Street, 17<sup>TH</sup> Street, and Webster Street, Oakland, California; dated 1 April 1993, 6 p.



**EXPLANATION**

- |      |  |   |  |                        |
|------|--|---|--|------------------------|
| SB-1 |  | Boring Location and Designation               |  | Circular Asphalt Patch |
| HP-1 |  | Previous Hydro-punch Location and Designation |  | Site Boundary          |
|      |  | Area of Patched Asphalt                       |  | Parcel Boundary        |

**Notes:**

1. All locations and dimensions are approximate.
2. Base map modified from map provided by Terracorp Properties, Inc.
3. No scale.

**APPLIED GEOSCIENCES INC.**

Environmental Consultants



**BORING LOCATION MAP**

PROJECT NO. A932558A

FIGURE 2



APPLIED GEOSCIENCES  
Attn: DON BRANSFORD

Project A932558A  
Reported 05/26/93

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed Matrix
56476- 2	SB1-2 16'	05/18/93	05/25/93 Soil
56476- 4	SB1-4 20'	05/18/93	05/25/93 Soil
56476- 6	SB2-2 10'	05/18/93	05/25/93 Soil
56476- 8	SB2-4 20'	05/18/93	05/25/93 Soil
56476-10	SB3-2 10'	05/18/93	05/25/93 Soil
56476-12	SB3-4 20'	05/18/93	05/25/93 Soil
56476-15	SB4-2 10'	05/18/93	05/25/93 Soil
56476-17	SB4-4 20'	05/18/93	05/25/93 Soil

RESULTS OF ANALYSIS *SB2-10'* *SB2-20'*

Laboratory Number: 56476- 2 56476- 4 56476- 6 56476- 8 56476-10

Gasoline:	ND<1	ND<1	ND<1	ND<1	ND<1
Benzene:	ND<.003	ND<.003	ND<.003	ND<.003	ND<.003
Toluene:	ND<.003	ND<.003	ND<.003	ND<.003	ND<.003
Ethyl Benzene:	ND<.003	ND<.003	ND<.003	ND<.003	ND<.003
Xylenes:	ND<.009	ND<.009	ND<.009	ND<.009	ND<.009
Diesel:	ND<10	ND<10	ND<10	ND<10	ND<10
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Laboratory Number: 56476-12 56476-15 56476-17

Gasoline:	ND<1	ND<1	ND<1
Benzene:	ND<.003	ND<.003	ND<.003
Toluene:	ND<.003	ND<.003	ND<.003
Ethyl Benzene:	ND<.003	ND<.003	ND<.003
Xylenes:	0.057	0.020	0.022
Diesel:	ND<10	ND<10	ND<10
Concentration:	mg/kg	mg/kg	mg/kg



CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

Page 2 of 2
QA/QC INFORMATION
SET: 56476

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.003mg/kg

Table with 4 columns: ANALYTE, MS/MSD RECOVERY, RPD, CONTROL LIMIT. Rows include Gasoline, Benzene, Toluene, Ethyl Benzene, Xylenes, Diesel with their respective values.

Richard Srna, Ph.D.
Laboratory Director



# Superior Precision Analytical, Inc.

1120 Arnold Drive, Suite 111 • La Brea, California 94702 • (510) 270-1517 • Fax (510) 270-1711

## C E R T I F I C A T E   O F   A N A L Y S I S

LABORATORY NO.: 88670  
CLIENT: APPLIED GEOSCIENCES INC.  
CLIENT JOB NO.: AG32558A

DATE RECEIVED: 05/19/93  
DATE REPORTED: 05/26/93  
DATE SAMPLED: 05/18/93

### ANALYSIS FOR TOTAL LEAD by SW-846 Method 6010

LAB #	Sample Identification	Concentration (mg/Kg) Total Lead
1	SB1-2	ND
2	SB2-4	ND
3	SB3-2	ND
4	SB4-4	ND

mg/kg - parts per million (ppm)

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

QAQC Summary: MS/MSD Spike Recovery : 90/90%  
Duplicate RPD : 0%

Richard Srna, Ph.D.

*Steph Carroll* For  
Laboratory Manager



4617

## SOIL AND GROUNDWATER INVESTIGATION

PRENTISS PROPERTIES LTD. INC.

1750 WEBSTER STREET

OAKLAND, CALIFORNIA

### 1.0 EXECUTIVE SUMMARY

On behalf of Prentiss Properties LTD Inc., ATC Associates Inc. (ATC) has completed a soil and groundwater investigation for the property located at 1750 Webster Street in the City of Oakland, California (Site), (see Figure 1, the Site Vicinity Map). The results of the investigation are presented in this report.

An Environmental Assessment (Phase I) of the 1750 Webster Street site was prepared by Applied Geosciences, Inc. (1993a). The report described a number properties in an up-gradient direction from the Site which have been identified as releasing petroleum hydrocarbons to groundwater. Possible migration of groundwater containing petroleum hydrocarbons to locations beneath the Site was identified as a concern. The existence of on-site underground storage tanks (USTs) was also identified as a concern. A geophysical survey and groundwater investigation were performed at the site in March 1993 (Applied Geosciences, 1993b). No USTs were identified by the geophysical survey, but the two groundwater samples collected (HP-1 and HP-2) had concentrations of total petroleum hydrocarbons as gasoline (TPH-G), and the gasoline related compounds benzene, toluene, ethylbenzene, and total xylenes (BTEX). In May of 1993, a follow-up investigation was performed which included another geophysical survey, and the collection of soil samples (Applied Geosciences, 1993c). Again, no USTs were identified by the geophysical survey. Four soil borings were drilled to depths of approximately 20 feet below ground surface (bgs), and two samples were analyzed from each boring. No significant concentrations of TPH-G or BTEX were detected in any of the soil samples.

The purpose of the current investigation is to confirm that no USTs exist at the site, and to determine whether the source of the groundwater contamination is off-site, or on-site. This was accomplished by performing a more extensive geophysical survey, installing twelve borings

throughout the site, and collecting soil and groundwater samples for analysis. A magnetometer survey indicated four anomalies which could possibly represent possible USTs. However, due to heavy rains during the geophysical survey, the magnetometer anomalies could not be confirmed with ground penetrating radar (GPR), as planned. Despite this, the soil boring locations were adjusted to locations adjacent to the magnetometer anomalies.

The twelve soil borings were advanced using a Geoprobe sampling rig. Two samples were collected from each boring and analyzed for TPH-G, BTEX and methyl tert-butyl ether (MTBE). One groundwater grab sample was also collected from each boring and analyzed for TPH-G, BTEX and MTBE. Groundwater samples from five of the borings were also analyzed for halogenated volatile organic compounds (HVOCs). Groundwater was detected at a depth of approximately 20 feet bgs. None of the soil samples collected from above that depth had detectable concentrations of TPH-G, BTEX or MTBE. All of the groundwater samples did have detectable concentrations of TPH-G, BTEX and MTBE, and three had detectable concentrations of HVOCs.

Based on the established northwest groundwater gradient in the vicinity of the site, and the results of our investigation as summarized above, it appears that the source, or sources, of the groundwater contamination at the site is located off-site to the south and/or southwest. A number of potential off-site sources were identified in the Environmental Assessment of the site prepared by Applied Geosciences, Inc. (1993a), including the Douglas Parking site located at 1721 Webster Street, and the former Chevron site located at the southwest corner of 19<sup>th</sup> Street and Harrison. Both of these sites have been identified as sources of groundwater petroleum hydrocarbon contamination, and are located up-gradient of the 1750 Webster Street site. Groundwater samples from the Chevron site also contained concentrations of HVOCs. Other potential off-site sources of groundwater contamination may be as-of-yet unidentified.

TABLE 1

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS  
 PRENTISS PROPERTIES LTD. INC.  
 1750 WEBSTER STREET SITE  
 OAKLAND, CA 94612

Sample ID	Date Sampled	TPH-G (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Total Xylenes (ug/l)	MTBE (ug/l)	Detected VOCs (EPA 8010)		
								Cis-1,2-DCE (ug/l)	TCE (ug/l)	PCE (ug/l)
G-1	02/07/98	700	4.1	9	140	63	50	NR	NR	NR
G-2	02/07/98	7,300	69	870	660	1,350	510	NR	NR	NR
G-3	02/07/98	20,000	210	1,300	1,300	3,120	560	ND 1.0	13	1.2
G-4	02/07/98	36,000	1,900	3,100	1,400	4,700	620	ND 1.0	11	1.1
G-5	02/07/98	32,000	6,500	9,600	1,100	5,000	390	8.2	4.2	1.0
G-6	02/08/98	760,000	340	730	5,800	13,400	2,000	NR	NR	NR
G-7	02/08/98	46,000	1,600	670	2,700	7,600	1,100	NR	NR	NR
G-8	02/08/98	51,000	10,000	7,200	2,300	9,900	930	NR	NR	NR
G-9	02/08/98	19,000	7,200	7,900	490	2,370	<200	NR	NR	NR
G-10	02/08/98	280,000	7,700	29,000	3,600	17,500	2,900	NR	NR	NR
G-11	02/08/98	17,000	6,000	4,600	740	2,760	420	ND 4.0	ND 4.0	ND 4.0
G-12	02/08/98	78,000	7,800	8,500	2,200	9,200	1,300	ND 10	ND 10	ND 10

Notes:

TPH-G denotes total petroleum hydrocarbons as gasoline  
 MTBE denotes methyl-tert-butyl ether  
 Cis-1,2-DCE denotes Cis-1,2-dichloroethylene  
 TCE denotes Trichloroethylene  
 PCE denotes Tetrachloroethylene  
 ug/l denotes micrograms per liter  
 ND 1.0 denotes not detected at or above practical quantitation limit of 1.0 ug/l for the method  
 NR indicates analysis not requested  
 For detection limits listed as ND, refer to laboratory reports

TABLE 2

**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS  
PRENTISS PROPERTIES LTD. INC.  
1750 WEBSTER STREET SITE  
OAKLAND, CA 94612**

Sample ID	Date Sampled	TPH-G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
G-1-10FT	02/07/98	<1	<5	<5	<5	<5	<20
G-1-24FT	02/07/98	200	250	310	1,700	1830	1,000
G-2-10FT	02/07/98	<1	<5	<5	<5	6.5	<20
G-2-22-FT	02/07/98	4	6.6	8.7	87	82	27
G-3-10FT	02/07/98	<1	<5	<5	<5	<5	<20
G-3-16FT	02/07/98	<1	<5	<5	<5	<5	<20
G-4-12FT	02/07/98	<1	<5	<5	<5	<5	<20
G-4-22FT	02/07/98	17	<5	20	110	304	<20
G-5-11FT	02/07/98	<1	<5	<5	<5	<5	<20
G-5-21FT	02/07/98	<1	<5	8.2	<5	<5	<20
G-6-10FT	02/08/98	<1	<5	<5	<5	<5	<20
G-6-15FT	02/08/98	<1	<5	<5	<5	<5	<20
G-7-15FT	02/08/98	<1	<5	<5	<5	<5	<20
G-7-19FT	02/08/98	<1	<5	<5	<5	<5	<20
G-8-12FT	02/08/98	<1	<5	<5	<5	<5	<20
G-8-16FT	02/08/98	<1	<5	<5	<5	<5	<20
G-9-11FT	02/08/98	<1	<5	<5	<5	<5	<20
G-9-16FT	02/08/98	<1	<5	<5	<5	<5	<20
G-10-10FT	02/08/98	<1	<5	<5	<5	<5	<20
G-10-17FT	02/08/98	<1	<5	<5	<5	<5	<20
G-11-11FT	02/08/98	<1	<5	<5	<5	<5	<20
G-11-16FT	02/08/98	<1	<5	<5	<5	<5	<20
G-12-11-FT	02/08/98	<1	<5	<5	<5	<5	<20
G-12-16FT	02/08/98	<1	<5	<5	<5	<5	<20

## Notes:

TPH-G denotes total petroleum hydrocarbons as gasoline

MTBE denotes methyl-tert-butyl ether

Cis-1,2-DCE denotes Cis-1,2-dichloroethylene

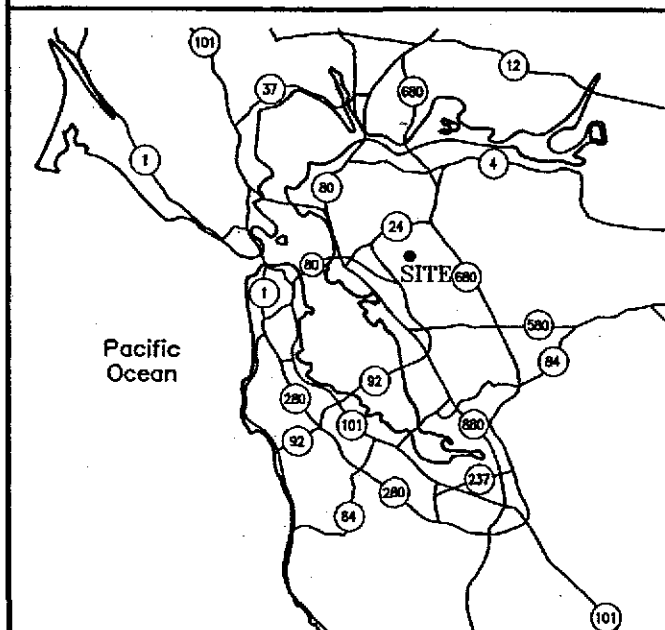
TCE denotes Trichloroethylene

PCE denotes Tetrachloroethylene

mg/kg denotes milligrams per kilogram (ppm)

ND 1.0 denotes not detected at or above practical quantitation limit of 1.0 ug/l for the method

For detection limits listed as ND, refer to laboratory reports



**Notes:**

- 1) All locations and dimensions are approximate.
- 2) Base map from City Of Oakland, Office of Planning & Building Dept. date of photography 3-31-94.

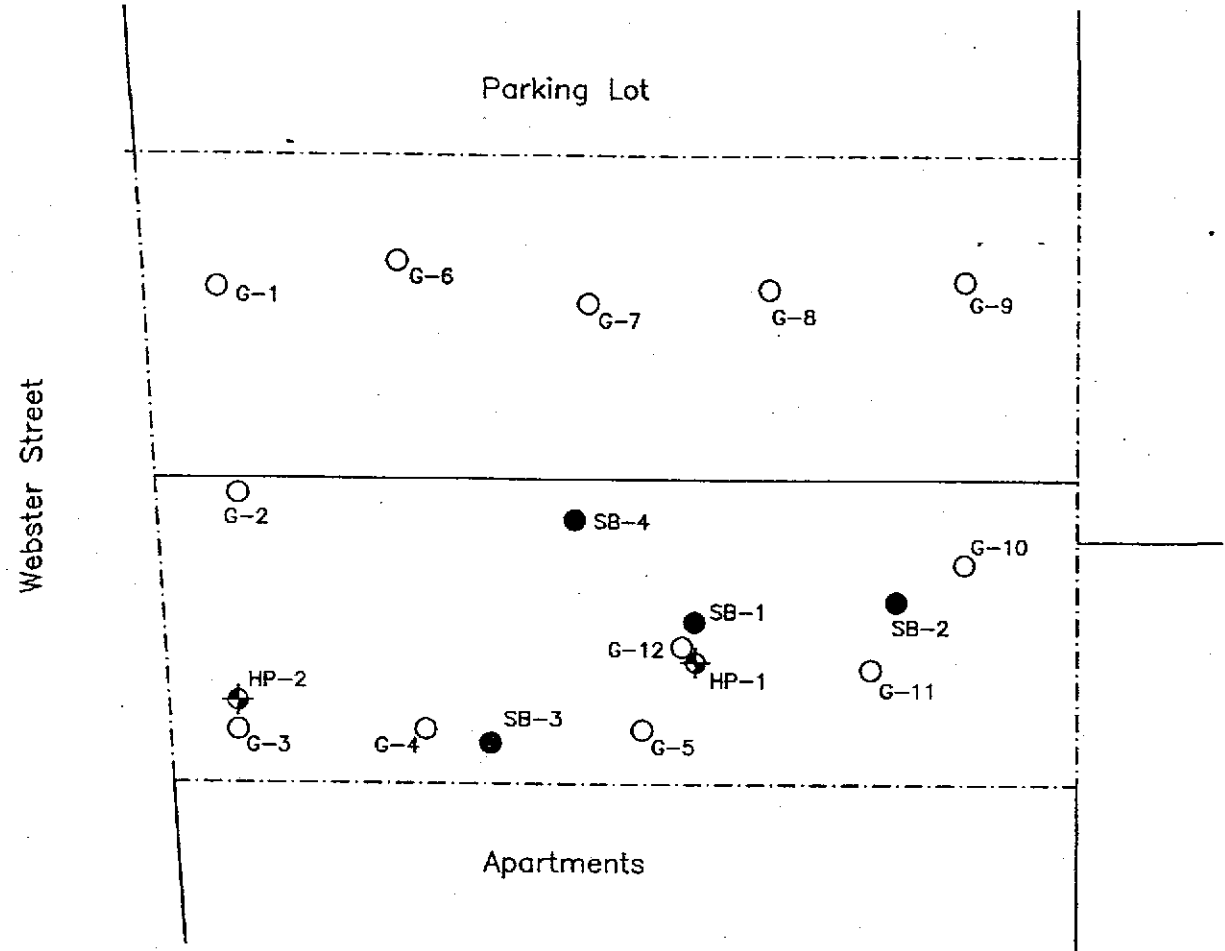
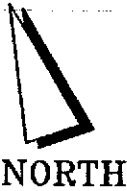
APPROXIMATE SCALE: 1" = 200'

**ATC ASSOCIATES INC.**  
Environmental, Geotechnical and Materials Professionals

**SITE VICINITY MAP**  
**1750 WEBSTER STREET**  
**OAKLAND, CALIFORNIA**

**PROJECT NO. 61877.0001**

**FIGURE 1**

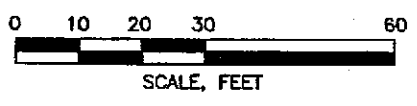


**EXPLANATION**

- GeoProbe soil and groundwater sampling location (2-7 & 2-8-98)
- ◆ HP-1 Previous Hydropunch Location and Designation
- SB-1 Previous Soil Boring Location and Designation

**NOTES**

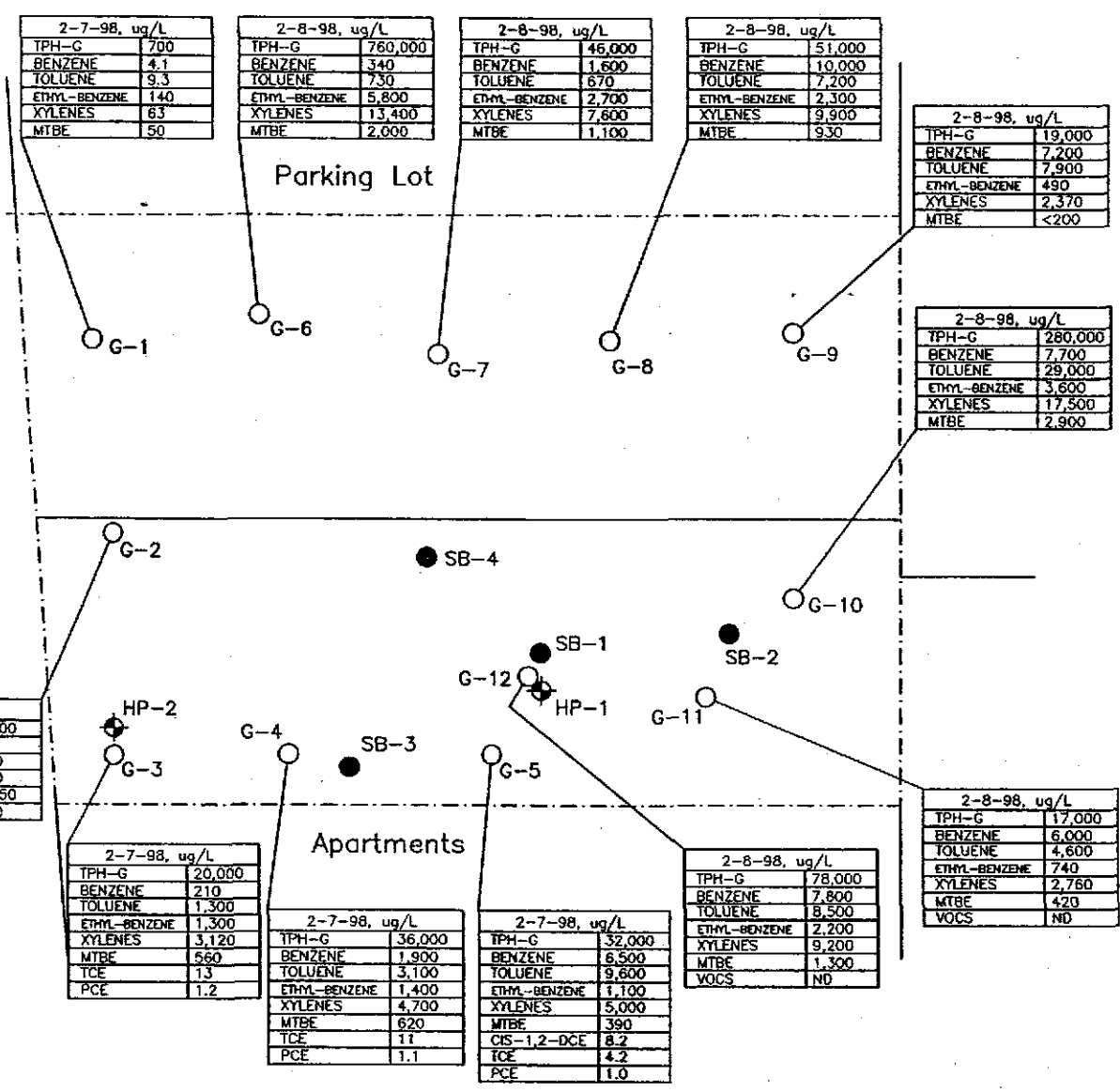
1) All locations and dimensions are approximate.



<b>VATC ASSOCIATES INC.</b> <small>ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS</small>	
<b>SITE PLAN</b> <b>1750 WEBSTER STREET</b> <b>OAKLAND, CALIFORNIA</b>	
<b>PROJECT NO. 61877.0001</b>	<b>FIGURE 2</b>



Webster Street



2-7-98, ug/L	
TPH-G	700
BENZENE	4.1
TOLUENE	9.3
ETHYL-BENZENE	140
XYLENES	63
MTBE	50

2-8-98, ug/L	
TPH-G	760,000
BENZENE	340
TOLUENE	730
ETHYL-BENZENE	5,800
XYLENES	13,400
MTBE	2,000

2-8-98, ug/L	
TPH-G	46,000
BENZENE	1,600
TOLUENE	670
ETHYL-BENZENE	2,700
XYLENES	7,600
MTBE	1,100

2-8-98, ug/L	
TPH-G	51,000
BENZENE	10,000
TOLUENE	7,200
ETHYL-BENZENE	2,300
XYLENES	9,900
MTBE	930

2-8-98, ug/L	
TPH-G	19,000
BENZENE	7,200
TOLUENE	7,900
ETHYL-BENZENE	490
XYLENES	2,370
MTBE	<200

2-8-98, ug/L	
TPH-G	280,000
BENZENE	7,700
TOLUENE	29,000
ETHYL-BENZENE	3,600
XYLENES	17,500
MTBE	2,900

2-7-98, ug/L	
TPH-G	7,300
BENZENE	69
TOLUENE	870
ETHYL-BENZENE	660
XYLENES	1,350
MTBE	510

2-7-98, ug/L	
TPH-G	20,000
BENZENE	210
TOLUENE	1,300
ETHYL-BENZENE	1,300
XYLENES	3,120
MTBE	560
TCE	13
PCE	1.2

2-7-98, ug/L	
TPH-G	36,000
BENZENE	1,900
TOLUENE	3,100
ETHYL-BENZENE	1,400
XYLENES	4,700
MTBE	620
TCE	11
PCE	1.1

2-7-98, ug/L	
TPH-G	32,000
BENZENE	6,500
TOLUENE	9,600
ETHYL-BENZENE	1,100
XYLENES	5,000
MTBE	390
CIS-1,2-DCE	8.2
TCE	4.2
PCE	1.0

2-8-98, ug/L	
TPH-G	78,000
BENZENE	7,800
TOLUENE	8,500
ETHYL-BENZENE	2,200
XYLENES	9,200
MTBE	1,300
VOCS	ND

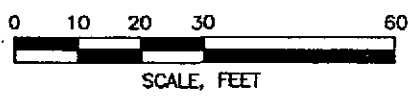
2-8-98, ug/L	
TPH-G	17,000
BENZENE	6,000
TOLUENE	4,600
ETHYL-BENZENE	740
XYLENES	2,760
MTBE	420
VOCS	ND

**EXPLANATION**

- GeoProbe soil and groundwater sampling location (2-7 & 2-8-98)
- ◆ HP-1 Previous Hydropunch Location and Designation
- SB-1 Previous Soil Boring Location and Designation

**NOTES**

1) All locations and dimensions are approximate.



**VATC ASSOCIATES INC.**  
 ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

**SUMMARY OF CONCENTRATIONS  
 IN GROUNDWATER  
 1750 WEBSTER STREET  
 OAKLAND, CALIFORNIA**

PROJECT NO. 61877.0001	FIGURE 3
------------------------	----------



Webster Street

2-7-98	10 FT	24 FT
TPH-G	ND	200
B	ND	<250
T	ND	310
E	ND	1700
X	ND	1830
MTBE	ND	<100

2-8-98	10 FT	15 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	15 FT	19 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	12 FT	16 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	11 FT	16 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	10 FT	17 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	11 FT	16 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-7-98	10 FT	22 FT
TPH-G	ND	4.3
B	ND	6.6
T	ND	8.7
E	ND	87
X	6.5	82
MTBE	ND	27

2-7-98	10 FT	16 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-7-98	12 FT	22 FT
TPH-G	ND	17
B	ND	ND
T	ND	20
E	ND	110
X	ND	304
MTBE	ND	ND

2-8-98	11 FT	21 FT
TPH-G	ND	ND
B	ND	ND
T	ND	8.2
E	ND	ND
X	ND	ND
MTBE	ND	ND

2-8-98	11 FT	16 FT
TPH-G	ND	ND
B	ND	ND
T	ND	ND
E	ND	ND
X	ND	ND
MTBE	ND	ND

Parking Lot

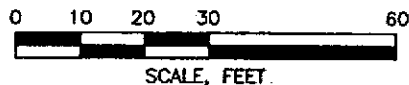
Apartments

**EXPLANATION**

- GeoProbe soil and groundwater sampling location (2-7 & 2-8-98)
- B Benzene
- T Toluene
- E Ethyl-Benzene
- X Total Xylenes
- ⊕ HP-1 Previous Hydropunch Location and Designation
- SB-1 Previous Soil Boring Location and Designation

**NOTES**

- 1) All locations and dimensions are approximate.
- 2) Concentrations in mg/kg (ppm).



**VATC ASSOCIATES INC.**  
 ENVIRONMENTAL, GEOTECHNICAL AND MATERIALS PROFESSIONALS

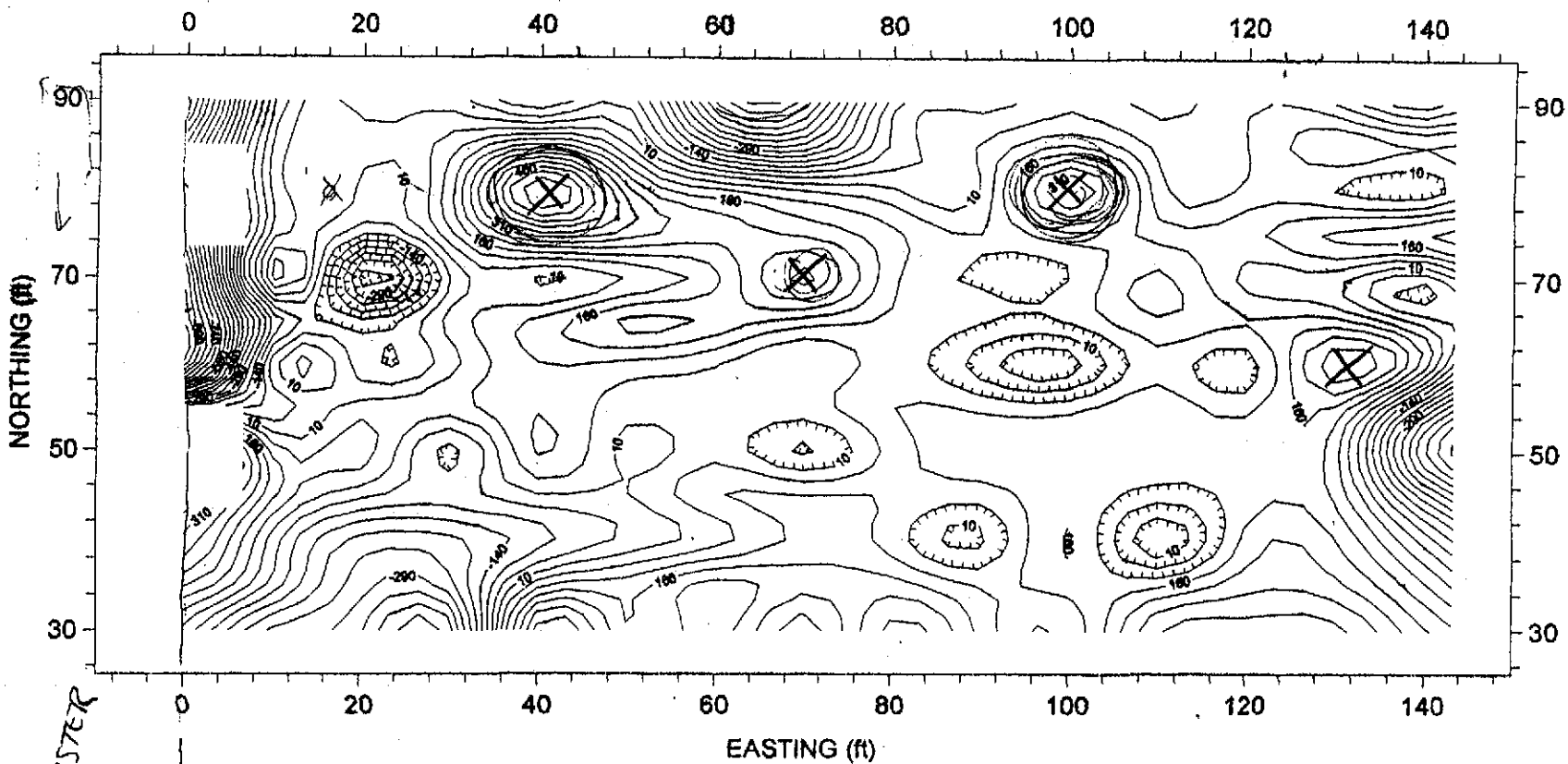
**SUMMARY OF CONCENTRATIONS  
 IN SOIL  
 1750 WEBSTER STREET  
 OAKLAND, CALIFORNIA**

PROJECT NO. 61877.0001

FIGURE 4



VMG Contour Map, Parcel 1 & 2, 50 nT/m



WEBSTER

