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 19TH STREET, HARRISON STREET, 17TH 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 19th Street, Harrison Street, 17th 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 19th 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

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HP invest.

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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

only - not parcel 3

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 Hydropunch sampling, a cone penetrometer test (CPT) was performed to assess the subsurface lithology at the site and evaluate the depth to groundwater. The CPT was conducted at 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 (μg/l; approximately equivalent to parts per billion). The laboratory report and chain-of-custody form are contained in Attachment 1.

3-22-93

Sample No.	Constituent	Concentration (μg/l)
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 µg/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 µg/l. The State action level for benzene in drinking water is 1 µg/l. This is totally wrong

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 µg/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.

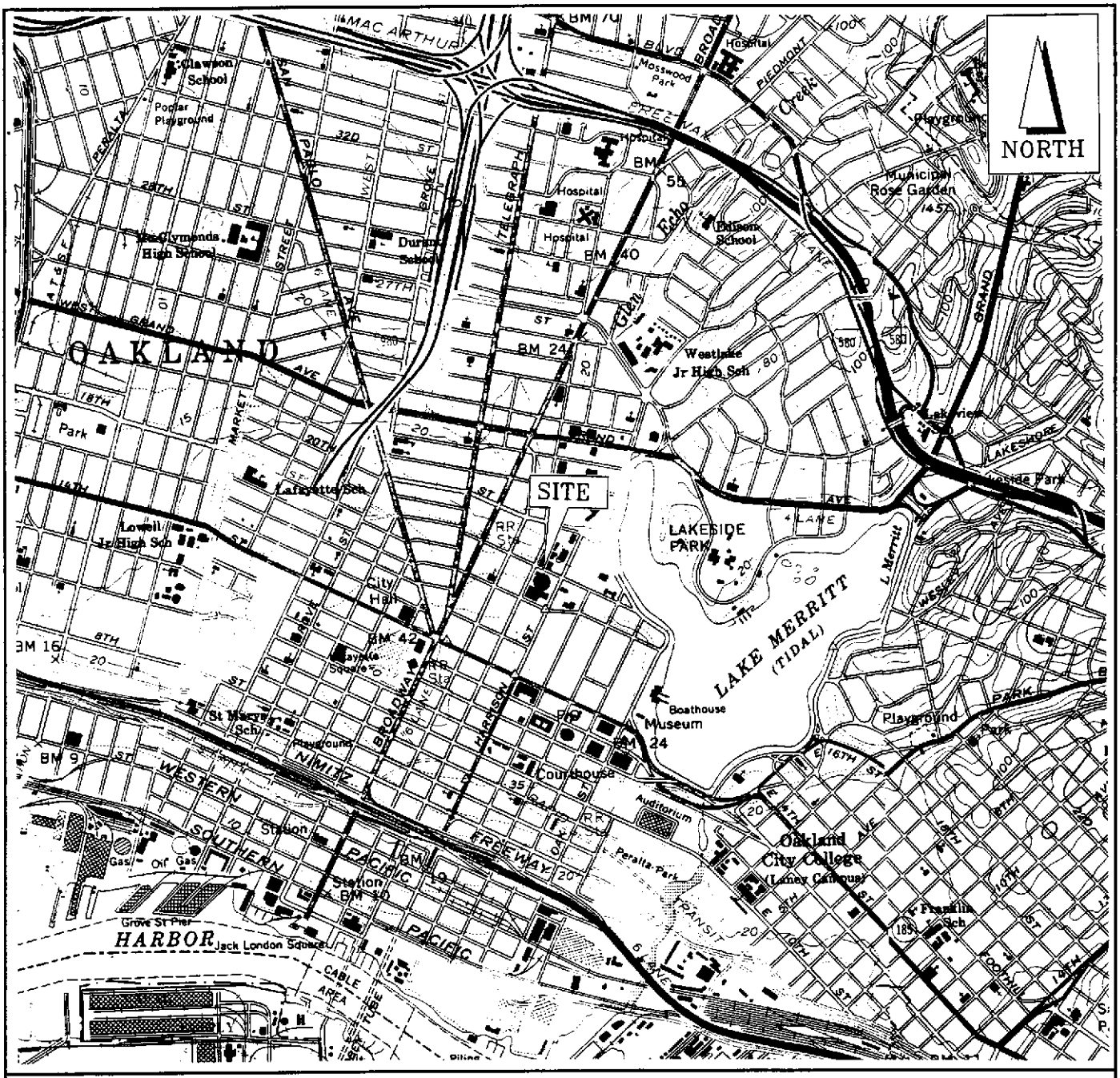
Very truly yours,
APPLIED GEOSCIENCES INC.

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.



Quadrangle Location

0 1/4 1/2 1

SCALE, MILES

Notes:
1. Base map from U.S.G.S. Oakland East and Oakland West, California Quadrangles, 7.5-Minute Series (Topographic), 1959, Photorevised 1980.
2. All locations and dimensions are approximate.

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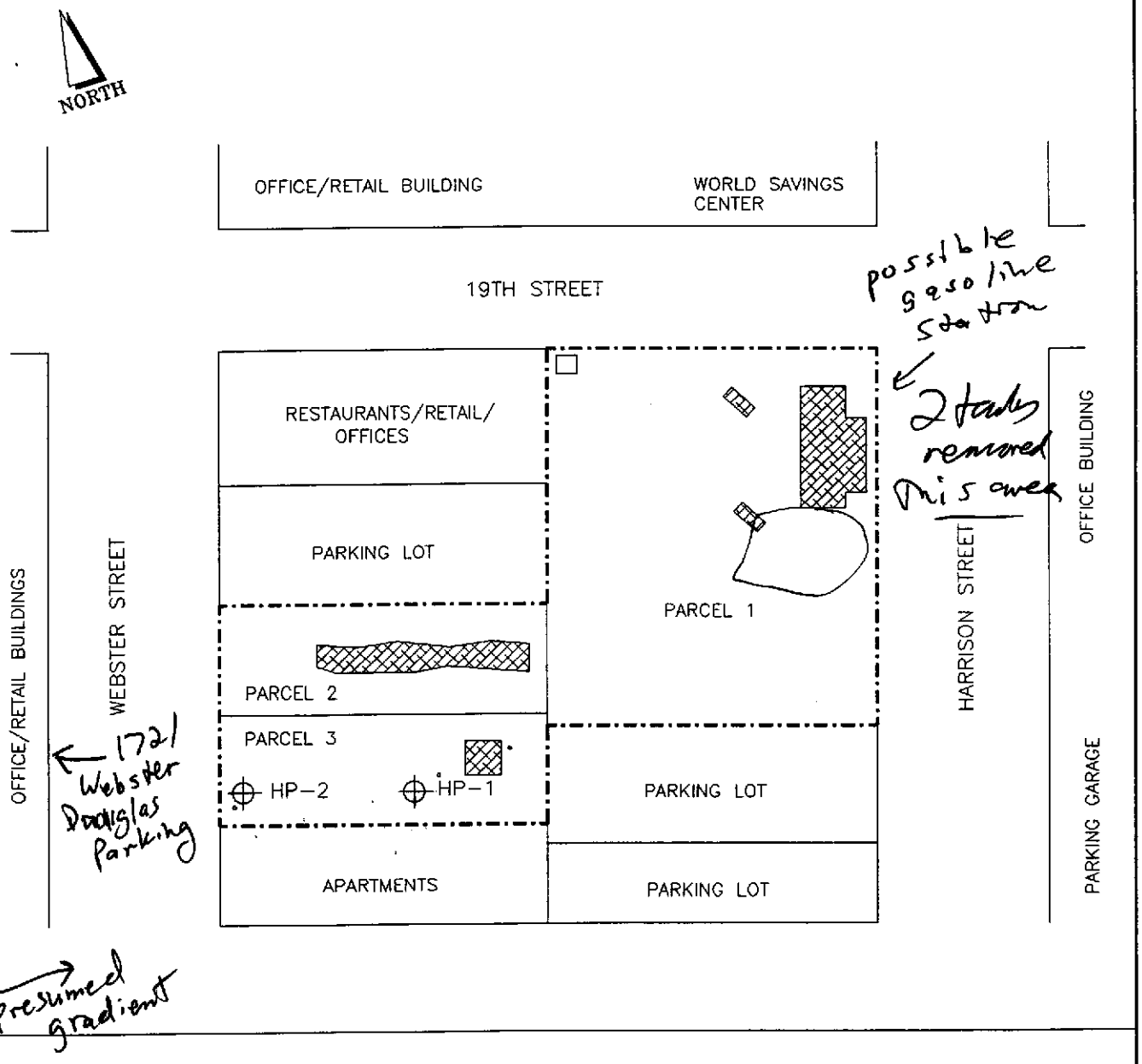
Environmental Consultants

SITE LOCATION MAP

PROJECT NO. A932558 | FIGURE 1



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

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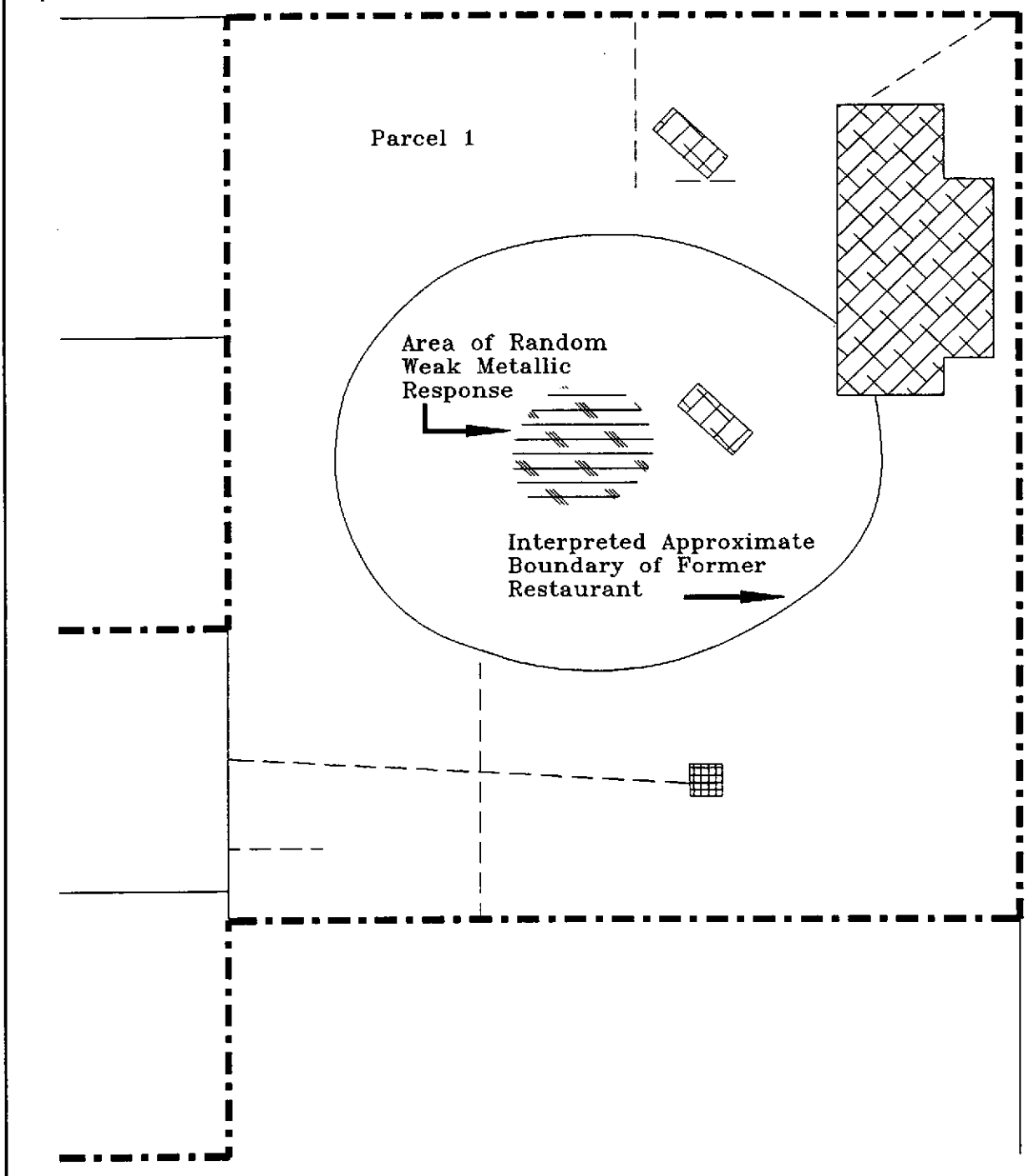
SITE PLOT PLAN

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.

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RESULTS OF
GEOPHYSICAL SURVEY

PROJECT NO. A932558 | FIGURE 3

ATTACHMENT 1

LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY FORM

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

RECEIVED
MAR 29 1993
BY:
Applied Geosciences Inc.

APPLIED GEOSCIENCES
Attn: DON BRANSFORD

Project A932558
Reported 03/25/93

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

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

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

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 G. Joaquin (for)
Laboratory Director

APPLIED GEOSCIENC INC.

Engineering Geology and Hazardous Materials Consultants

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2185

SHIPMENT NO. _____
PAGE 1 OF 1
DATE 3/22/93

CHAIN OF CUSTODY RECORD

PROJECT NAME: TERRACORP II
PROJECT NO.: A932558
CONTACT: DON BRAUSFORD

le Number	Location	Type of Sample		Type of Container	Type of Preservation		Analysis Required*
		Material	Method		Temp	Chemical	
-1	HP-1	WATER	GRAB	3x 40ml VOA	4°C	HCL	TPH gas + BTEX
2	HP-2	"	"	"	"	"	"

~~lease initial:~~
~~amples Stored in ice~~
~~ppropriate containers~~
~~amples preserved~~
~~OA's without headspace~~
~~omments:~~

Number of Samples Shipped: 2 | Sampler's Signature: Alex Galleg

quished By: ature Alex Galleg ted Name ALEX GALLEGO pany APPLIED GEOSCIENCES INC son DEL: YOU AIR	Received By: Signature [illegible] Printed Name [illegible] Company EXPRESS/AIR	Date 3/22/93 Time 1230
quished By: ature [illegible] ted Name [illegible] pany [illegible] son [illegible]	Received By: Signature [illegible] Printed Name [illegible] Company EXPRESS AIR	Date 3/22/93 Time 1807
quished By: ature [illegible] ted Name [illegible] pany EXPRESS AIR son Delivery	Received By: Signature F. Romero Printed Name FILENA ROMERO Company SPL	Date 3/24/93 Time 7:15 PM
quished By: ature ted Name pany son	Received By: Signature Printed Name Company	Date / / Time

al Shipment / Handling / Storage Requirements:

ote — This does not constitute authorization to proceed with analysis