



KAPREALIAN ENGINEERING, INC.

Consulting Engineers

PO. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581

90 MAR 26 AM 9:11

March 21, 1990

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Mr. Scott Seery

RE: Unocal Service Station #3072
2445 Castro Valley Blvd.
Castro Valley, California

Dear Mr. Seery:

Per the request of Mr. Ron Bock of Unocal Corporation, enclosed please find our report dated March 6, 1990, for the above referenced site.

Should you have any questions, please feel free to call our office at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.

Judy A. Dewey

jad\82

Enclosure

cc: Ron Bock, Unocal Corporation



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KEI-J89-1106.R5

March 6, 1990

Unocal Corporation
2175 N. California Blvd., Suite #650
Walnut Creek, CA 94596

Attention: Mr. Tim Ross

RE: Follow-up Soil Sampling Report
Unocal Service Station #3072
2445 Castro Valley Blvd.
Castro Valley, California

Dear Mr. Ross:

This follow-up report summarizes the additional soil sampling performed by Kaprealian Engineering, Inc. (KEI) at the referenced site. All work was performed in compliance with the guidelines established by the Regional Water Quality Control Board (RWQCB), and the Alameda County Health Care Services (ACHCS).

The scope of the work performed by KEI consisted of the following:

Coordination with regulatory agencies.

Collection of samples of native soil from the product pipe trenches.

Delivery of samples, including proper Chain of Custody documentation, to a certified analytical laboratory.

Technical review of field data and laboratory analyses, and preparation of this report.

SITE DESCRIPTION AND BACKGROUND

The subject site is presently used as a gasoline station. The service station site occupies the southwest corner at the intersection of Castro Valley Boulevard and Strobridge Avenue in Castro Valley, California. A Site Location Map and Site Plans are attached.

On November 14, 1989, KEI collected soil samples following the removal of three fuel storage tanks and one waste oil tank at the referenced site. The soil samples under the fuel storage tanks were collected at a depth of 13.5 feet. The soil sample under the waste oil tank was collected at a depth of 10.5 feet. All soil samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California. The samples under the fuel storage tanks were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, xylenes and ethylbenzene (BTX&E). In addition, the two samples from under the diesel tank were analyzed for TPH as diesel. Analytical results showed TPH as gasoline ranging from non-detectable to 11 ppm, with non-detectable BTX&E concentrations in each case. TPH as diesel concentrations were non-detectable for the two diesel tank bottom samples. The soil sample from under the waste oil tank was analyzed for TPH as gasoline, BTX&E, TPH as diesel, TOG, EPA method 8010, 8270 compounds, and the metals cadmium, chromium, lead and zinc. Laboratory analyses showed TPH as gasoline at 5.9 ppm, metals ranging from non-detectable to 45 ppm, 55 ppb of 1,1-dichloroethene, and non-detectable levels of all other constituents analyzed.

On November 16, 1989, KEI collected six sidewall soil samples, designated as SW1 through SW6, and a water sample, designated as W1, from the fuel tank pit. The tank pit water level was measured to be 11.5 feet below the ground surface. The sidewall soil samples were collected approximately 6 to 12-inches above the tank pit water level. All samples were analyzed for TPH as gasoline and BTX&E. Three of the six sidewall soil samples (labeled SW2, SW3 and SW4) and the water sample were also analyzed for TPH as diesel. Laboratory analyses of the soil samples showed TPH as gasoline ranging from non-detectable to 29 ppm for four of the six samples, with samples SW1 and SW4 showing 140 and 160 ppm, respectively. TPH as diesel levels were non-detectable for two of the sidewall samples with sample SW4 showing 24 ppm. Analyses of the water sample showed 11,000 ppb TPH as diesel, 26,000 ppb TPH as gasoline, and 670 ppb benzene. Soil sample point locations are shown on the attached Site Plan, Figure 1. Laboratory results are summarized in Tables 1 and 2. Laboratory analyses and Chain of Custody documentation are also attached.

On November 28, 1989, KEI returned to the site to meet with the representative of the Alameda County Health Agency (ACHA) to clarify ACHA guidelines as applied to the subject site for fuel tank pit excavation and sampling. In response to the meeting, KEI submitted a Phase I work plan (KEI-P89-1106.P1) dated November 30, 1989, to define the extent of contamination in the

vicinity of the tank pit. The work plan was approved by the ACHA in a letter dated December 8, 1989.

On December 22, 1989, KEI returned to the site to collect additional sidewall soil samples after further excavation. Soil was excavated from the north, east and south sides of the pit. Sidewall soil samples were collected at depths of approximately 9 or 11 feet, and analyzed on-site by Mobile Chem Labs, Inc., of Lafayette, California, a state-certified mobile laboratory. After excavation, TPH as gasoline was detected at concentrations of 1,500 and 1,900 ppm on the northerly wall of the pit, at concentrations ranging from 3.0 to 1,700 ppm on the easterly wall, and at 410 ppm on the southerly wall. Results of the laboratory analyses are summarized in Table 3. Laboratory analyses and Chain of Custody documentation are attached. The additional areas excavated and sample point locations are as shown on the attached Site Plan, Figure 2.

On January 18 and 19, 1990, three monitoring wells were drilled at the site in order to establish ground water flow direction. Water level data acquired indicate ground water flows generally in the south-southeasterly direction. Well locations are shown on the attached Site Plan, Figure 3.

FIELD ACTIVITIES

KEI's field work was conducted on February 14, 1990, when three samples, labeled P1, P2 and P3, were collected of native soil from the product pipe trenches at depths ranging from 2.5 to 4.0 feet. Samples were collected using a driven tube-type sampler. Samples were placed in clean, two-inch diameter brass tubes, sealed with aluminum foil, plastic caps and tape, and stored in a cooled ice chest for delivery to a certified laboratory. Sample locations are as shown on the attached Site Plan, Figure 4. Soil sampling was witnessed by Mr. Scott Seery of the ACHCS.

SUBSURFACE CONDITIONS

The subsurface soils exposed in the pipe trench excavations consisted primarily of clay materials.

ANALYTICAL RESULTS

The pipe trench samples were analyzed by Sequoia Analytical Laboratory in Redwood City, California and were accompanied by properly executed Chain of Custody documentation. All soil samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline using EPA method 5030 in conjunction with modified 8015, and benzene, toluene, xylenes and ethylbenzene (BTX&E) using EPA method 8020.

Analytical results of the soil samples, (P1, P2 and P3), collected from the product pipe trench, indicate levels of TPH as gasoline ranging from 6.0 to 87 ppm. The analytical results are summarized in Table 4. Copies of the laboratory analyses and the Chain of Custody documentation are attached to this report.

RECOMMENDATIONS

The recommended additional work outlined in KEI's work plan (KEI-P89-1106.P2) dated January 8, 1990, remains unchanged. KEI is actively working toward obtaining permission from Caltrans for the installation of exploratory borings.

DISTRIBUTION

A copy of this report should be sent to Mr. Scott Seery of the ACHCS, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

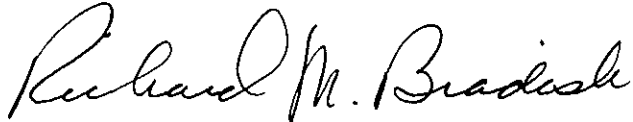
The results of this study are based on the data obtained from the field and laboratory analyses obtained from a state certified laboratory. We have analyzed this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services have been performed in accordance with generally accepted professional principles and practices existing for such work.

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March 6, 1990
Page 5

Should you have any questions regarding this report, please feel free to call me at (707) 746-6915.

Sincerely,

Kaprealian Engineering, Inc.



Richard M. Bradish
Staff Engineer



Don R. Braun
Certified Engineering Geologist

License No. 1310
Exp. Date 6/30/90



Mardo Kaprealian
President

jad

Attachments: Tables 1, 2, 3 & 4
Location Map
Site Plans - Figures 1, 2, 3 & 4
Laboratory Analyses
Chain of Custody documentation

KEI-J89-1106.R5
 March 6, 1990

TABLE 1

SUMMARY OF LABORATORY ANALYSES
 SOIL

(Samples collected on November 14 & 16, 1989)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
A1	13.5	ND	2.4	ND	ND	ND	ND
A2	13.5	ND	ND	ND	ND	ND	ND
B1	13.5	--	1.9	ND	ND	ND	ND
B2	13.5	--	11	ND	ND	ND	ND
C1	13.5	--	1.5	ND	ND	ND	ND
C2	13.5	--	7.5	ND	ND	ND	ND
SW1	10.5	--	140	0.31	0.12	3.0	0.88
SW2	10.5	ND	ND	ND	ND	ND	ND
SW3	10.5	ND	ND	ND	ND	ND	ND
SW4	9.5	24	160	0.33	6.4	30	9.4
SW5	9.5	--	3.5	0.06	0.27	0.76	0.19
SW6	10	--	29	0.12	0.21	2.0	0.58
WO1(11)*	11	ND	5.9	ND	ND	ND	ND
Detection Limits		1.0	1.0	0.05	0.1	0.1	0.1

* TOG and all 8270 constituents were non-detectable. All 8010 constituents were non-detectable except 1,1-dichloroethene at 55 ppb. Metals concentrations were as follows: cadmium 2.5 ppm, chromium 39 ppm, lead 1.1 ppm, and zinc 45 ppm.

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

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March 6, 1990

TABLE 2

SUMMARY OF LABORATORY ANALYSES
WATER

(Sample collected on November 16, 1989)

<u>Sample #</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-benzene</u>
W1	11,000	26,000	670	1,100	9,100	120
Detection Limits	50.0	30.0	0.3	0.3	0.3	0.3

Results in parts per billion (ppb), unless otherwise indicated.

KEI-J89-1106.R5
March 6, 1990

TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

(Samples collected on December 22, 1989)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
SW1(17)	11	ND	1,900	14	24	120	28
SW2(17)	11	ND	1,500	17	29	92	23
SW7	9	ND	1,700	16	33	110	26
SW8	9	ND	200	2.6	0.9	7.7	5.0
SW3(13)	9	ND	690	11	11	28	11
SW9	9	ND	3.0	0.2	0.1	0.1	ND
SW10	9	ND	500	4.0	5.9	22	6.9
SW4(11)	9	ND	410	2.7	3.9	19	3.8
Detection Limits		1.0	1.0	0.1	0.1	0.1	0.1

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-J89-1106.R5
March 6, 1990

TABLE 4

SUMMARY OF LABORATORY ANALYSES

(Samples collected on February 14, 1990)

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethylbenzene</u>
P1	4.0	87	0.33	0.17	10	2.3
P2	2.5	6.0	0.23	ND	0.33	0.11
P3	3.0	10	0.47	0.11	1.1	0.32
Detection Limits		1.0	0.05	0.1	0.1	0.1

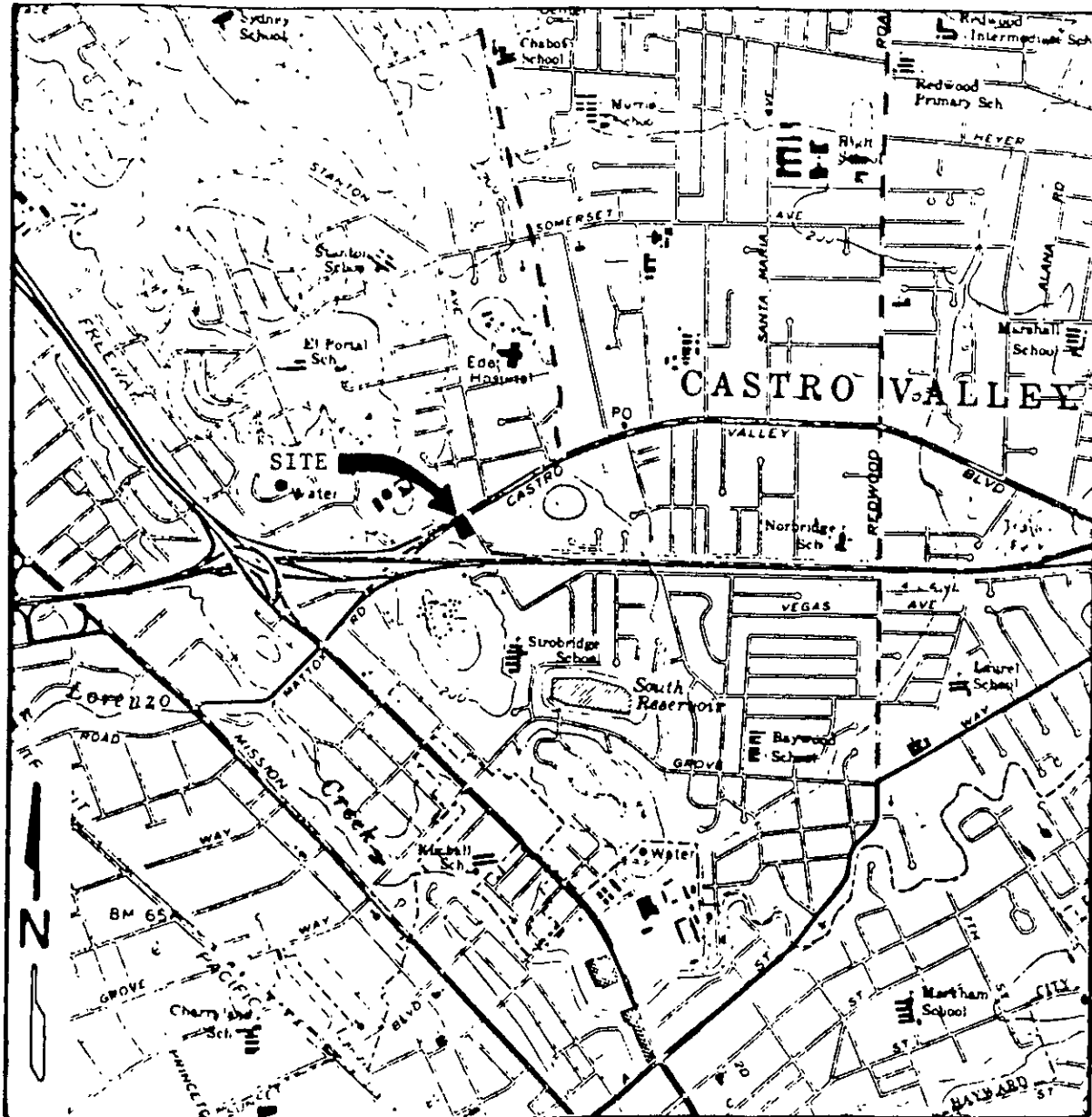
ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.



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Consulting Engineers

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LOCATION MAP

Unocal Service Station #3072
2445 Castro Valley Blvd.
Castro Valley, California

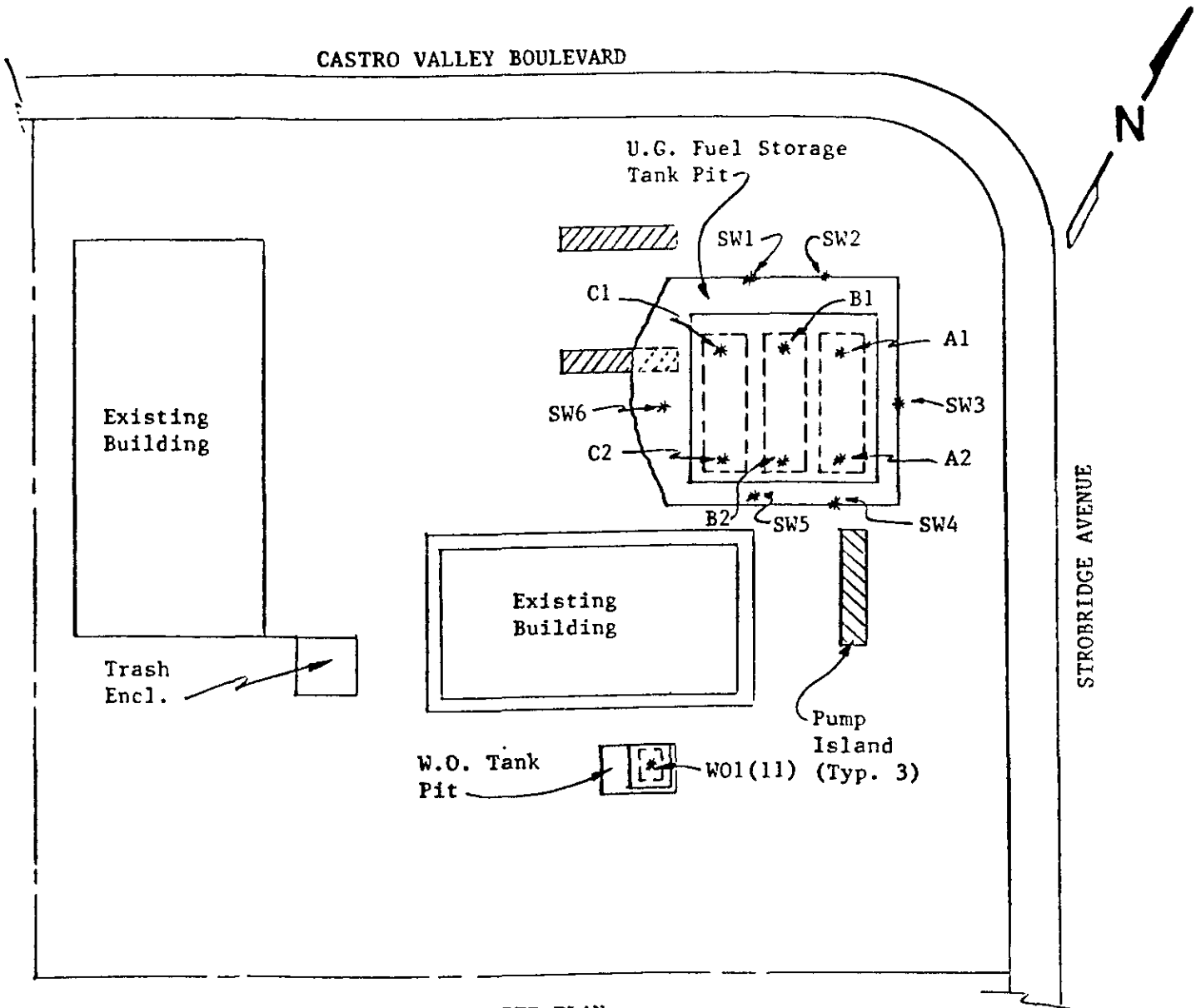


KAPREALIAN ENGINEERING, INC.

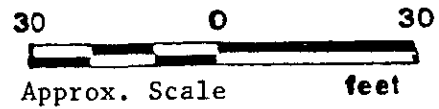
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SITE PLAN
Figure 1



LEGEND

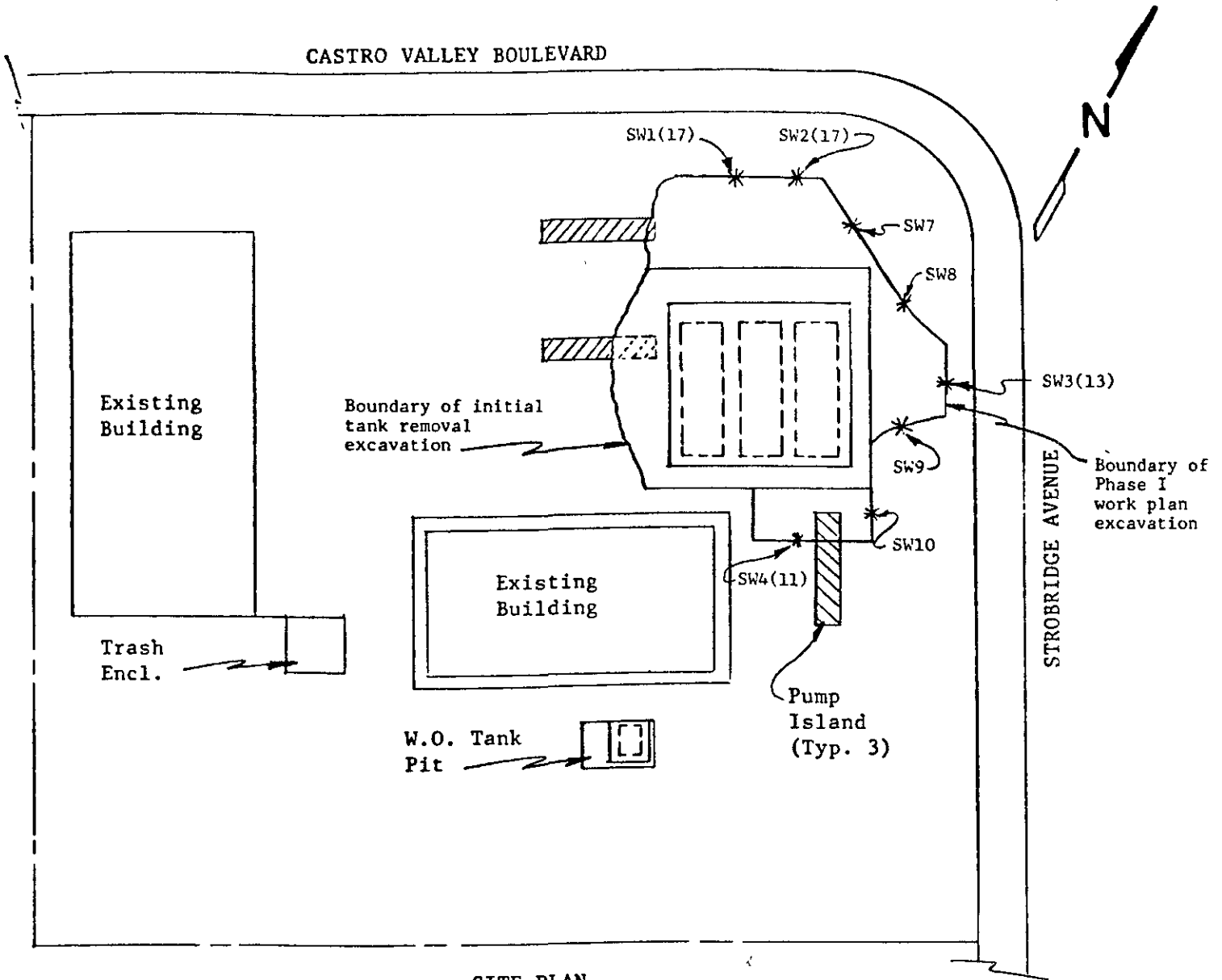
* Sample Point Location

Unocal S/S #3072
2445 Castro Valley Blvd.
Castro Valley, CA

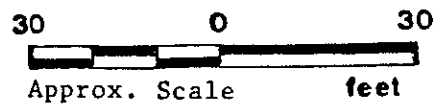


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SITE PLAN
Figure 2



LEGEND

* Sample Point Location

Unocal S/S #3072
2445 Castro Valley Blvd.
Castro Valley, CA

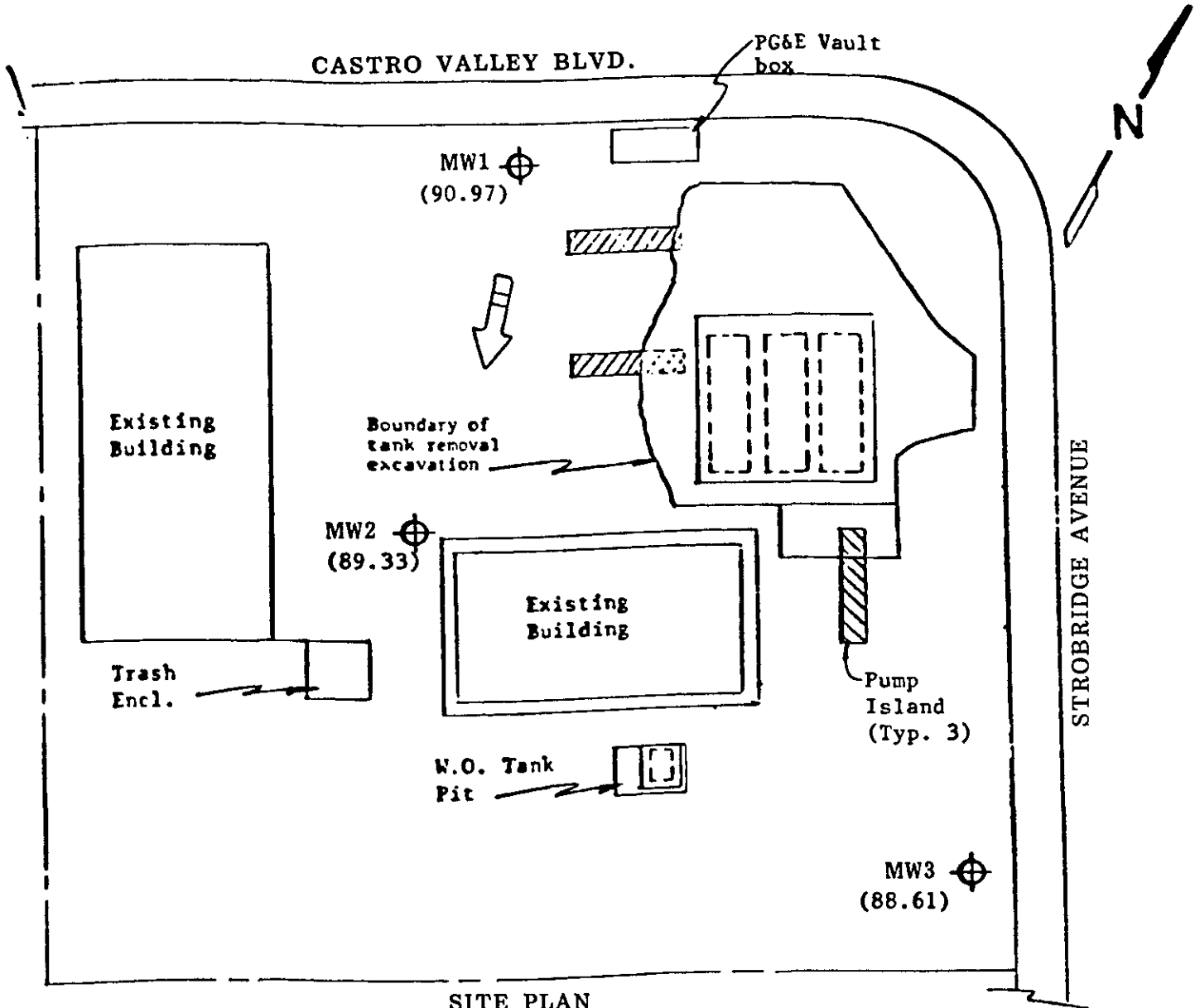


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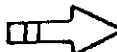


SITE PLAN

Figure 3

LEGEND

-  Monitoring Well
- () Ground water elevation on 1/24/90. Elevation at top of MW1 well cover assumed 100.00' as datum.

 Direction of ground water flow



Unocal Service Station #3072
2445 Castro Valley Blvd.
Castro Valley, California

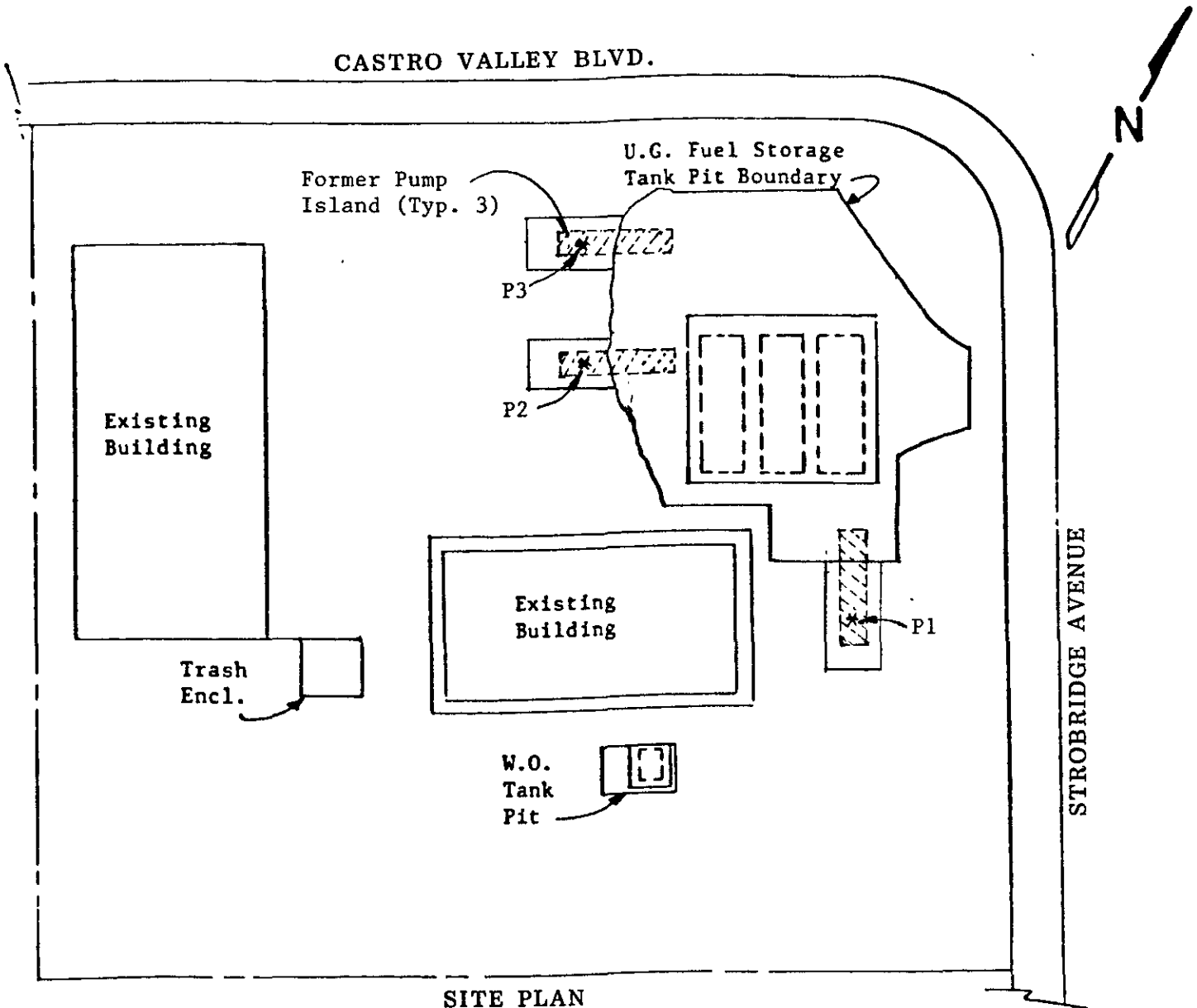


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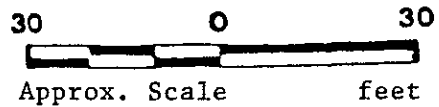


SITE PLAN

Figure 4

LEGEND

* Sample Point Location



Unocal Service Station # 3072
2445 Castro Valley Blvd.
Castro Valley, California



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID: Unocal #3072, Castro Valley, 2445 C V Blvd.	Sampled: Feb 14, 1990
P.O. Box 996	Matrix Descript: Soil	Received: Feb 14, 1990
Benicia, CA 94510	Analysis Method: EPA 5030/8015/8020	Analyzed: Feb 15, 1990
Attention: Mardo Kaprealian, P.E.	First Sample #: 002-1879	Reported: Feb 16, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS with BTEX DISTINCTION (EPA 8015/8020)

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
002-1879	P1	87	0.33	0.17	2.3	10
002-1880	P2	6.0	0.23	N.D.	0.11	0.33
002-1881	P3	10	0.47	0.11	0.32	1.1

Detection Limits:	1.0	0.050	0.10	0.10	0.10
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Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Belinda C. Vega
Project Manager



KAPREALIAN ENGINEERING, INC.

CHAIN OF CUSTODY

SAMPLER		SITE NAME & ADDRESS							ANALYSES REQUESTED				TURN AROUND TIME:
R.M. Bradish		Unocal SS# 3072 2445 Castro Valley Blvd Castro Valley							TPH-G & BTEX				24 HR
WITNESSING AGENCY SLOTT SEERY ALAMEDA COUNTY HEALTH													
SAMPLE ID NO.	DATE	TIME	SOIL	WATER	GRAB	COMP	NO. OF CONT.	SAMPLING LOCATION			REMARKS		
P1	2-14-90		✓		✓		1	PRODUCT PIPE TRENCH				0021879	
P2	"		✓		✓		1	" " "				0021880	
P3	"		✓		✓		1	" " "				0021881	
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		The following MUST BE completed by the laboratory accepting samples for analysis: 1. Have all samples received for analysis been stored in ice? 2. Will samples remain refrigerated until analyzed? 3. Did any samples received for analysis have head space? 4. Were samples in appropriate containers and properly packaged?							
R.M. Bradish		5:53 PM 2/14/90		[Signature]									
Relinquished by: (Signature)		Date/Time		Received by: (Signature)									
[Signature]				[Signature]									
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Signature		Title		Date			
[Signature]		2/14/90 1920		[Signature]		[Signature]		Loggin		2/14/90			