KAPREALIAN ENGINEERING
INCORPORATED

KEI-P93-0603.QR4
December 4, 1995

Paradiso Mechanical, Inc.
P.O. Box 1836
2600 Williams Street
San Leandro, California 94577

Attention: Mr. Rick Montesano

RE: Quarterly Report
Berkeley Land Company
51st Street & Telegraph Avenue
Oakland, California

Dear Mr. Montesano:

This Kaprealian Engineering, Inc. (KEI) report presents the results of the recent quarter of monitoring and sampling of the monitoring wells at the referenced site. The wells are currently monitored and sampled on a quarterly basis. This report covers the work performed by KEI during October of 1995.

BACKGROUND

The subject property was reported to have contained a 'street car barn' for the "Key System," a former regional public transit system. All buildings and above ground improvements have been removed from the property. Five on-site monitoring wells (MW1 through MW5) have been installed. Twenty-one exploratory borings (EB1 through EB6A, and EB6B through EB20) were drilled and sampled by KEI at the site on July 26 through July 30, 1993. Soil sampling and excavation was conducted by KEI at and around the locations of seven of these exploratory borings (EB3, EB6A, EB6B, EB8, EB15, EB16, and EB20) during September and October of 1993. Approximately 1,500 gallons of ground water were pumped from the excavation in the vicinity of exploratory boring EB3. The water was properly transported and disposed of off-site.

KEI's extensive file reviews at the Regional Water Quality Control Board (RWQCB) and site reconnaissance indicate that a number of nearby sites, including two dry cleaners, two service stations, and a public utility facility, are situated within 100 to 1,000 feet of the subject Berkeley Land Company (BLC) site. The file reviews indicate that a regional volatile organic compounds (VOC) problem appears to exist in the upgradient vicinity of the subject BLC property.

A site description, detailed background information including a summary of all of the soil and ground water subsurface investiga-

2401 Stanwell Drive, Suite 400
Concord, California 94520
Tel: 510.602.5100 Fax: 510.687.0602

tion/remediation work conducted to date, site hydrogeologic conditions, and tables that summarize all of the soil and ground water sample analytical results are presented in KEI's reports (KEI-P93-0603.R2 and "Site Investigation Summary Report") dated November 9, 1993, and February 8, 1994, respectively.

In a letter dated March 2,1994, the Alameda County Health Care Services (ACHCS) Agency noted that the site no longer posed a threat to human health. The ACHCS also acknowledged the potential for a regional VOC contaminant plume upgradient of the BLC property and directed the implementation of a quarterly ground water monitoring and sampling plan for the subject site, for one year, in order to address this issue. On March 16, 1994, KEI submitted a work plan/proposal (KEI-P93-0603.P3) for the implementation of a ground water monitoring and sampling program.

RECENT FIELD ACTIVITIES

The five wells (MW1 through MW5) were monitored and sampled once during the quarter by MPDS Services, Inc. of Concord, California. During monitoring, the wells were checked for depth to water and the presence of any free phase product. Prior to sampling, the wells were also checked for the presence of a sheen. No free product or sheen was noted in any of the wells during the quarter. The monitoring data collected this quarter are summarized in Table 1.

Water samples were collected from the wells on October 6, 1995. Prior to sampling, the wells were each purged of between 4.5 and 12 gallons of water by the use of a pump. During purging operations, the field parameters pH, temperature, and electrical conductivity were recorded and are presented in Table 2. Once the field parameters were observed to stabilize and a minimum of approximately four casing volumes had been removed from each well, water samples were then collected by the use of a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps and stored in a cooler, on ice, until delivery to the state-certified laboratory.

HYDROLOGY

The measured depth to ground water at the site on October 6, 1995, ranged between 12.39 and 17.02 feet below the top of the well casings. Based on the water level data gathered on that date, the ground water flow direction appeared to be west-southwest, as shown on the attached Figure 1. The flow direction reported this quarter is generally similar to the previous four quarters. The hydraulic gradient at the site on October 6, 1995, was approximately 0.02 in

the predominant direction of flow, based on the water level data collected from the monitoring wells prior to purging.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA method 8020, total oil and grease (TOG) by Standard Methods 5520B&F, and EPA method 8010 constituents.

The ground water sample analytical results are summarized in Tables 3 and 4. Copies of the laboratory analytical results and Chain of Custody documentation are attached to this report.

DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of the ground water samples collected and evaluated to date, and no evidence of free product or sheen in any of the wells, KEI recommends the continuation of the current monitoring and sampling program. The five wells (MW1 through MW5) are monitored and sampled quarterly. Ground water samples are analyzed for TPH as gasoline, BTEX, TOG, and EPA method 8010 constituents.

Berkeley Land Company is currently in the process of commercial development of the subject property with the building of a shopping center. Redevelopment of this property was previously approved by the ACHCS in their letter dated March 2, 1994.

As recommended in KEI's previous report, ground water monitoring and sampling was conducted earlier in the fourth quarter of 1995 than previously scheduled. This was done in accordance with the verbal recommendations of the ACHCS, as a contingency in the event that the wells would be inaccessible on the scheduled sampling date as a result of site development.

Lastly, during site grading activities, three 500 gallon underground fuel storage tanks were encountered by the contractor. The tanks were made of steel and were apparently used for kerosene storage. Another consultant was present during the removal of the initial two tanks encountered, and KEI was present during the third tank removal. KEI will submit a technical report in the near future, which will summarize the results of our sampling activities, and include recommendations for any additional work, as warranted.

DISTRIBUTION

A copy of this report should be sent to Ms. Madhulla Logan of the ACHCS, and to the RWQCB, San Francisco Bay Region.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing 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 these 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.

If you have any questions regarding this report, please do not hesitate to call me at (510) 602-5100.

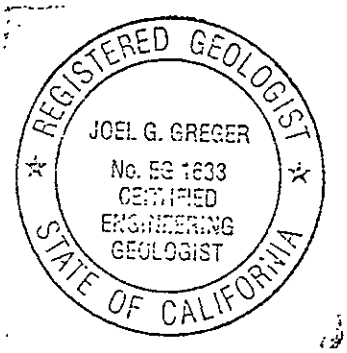
Sincerely,

Kaprealian Engineering, Inc.

Armond A. Balaian
Staff Engineer

Joel G. Greger, C.E.G.
Senior Engineering Geologist

License No. EG 1633
Exp. Date 8/31/96



Robert H. Kezerian
Project Manager

/jad

Attachments: Tables 1 through 4
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

KEI-P93-0603.QR4
December 4, 1995

TABLE 1

SUMMARY OF MONITORING DATA

Well #	Ground Water Elevation (feet)	Depth to Water (feet)♦	Product Thickness (feet)	Sheen	Water Purged (gallons)	Well Depth (feet)♦
(Monitored and Sampled on October 6, 1995)						
MW1	98.99	16.17	0	No	5.5	23.95
MW2	95.86	14.91	0	No	6.5	24.10
MW3	94.82	17.02	0	No	4.5	23.65
MW4	95.61	12.39	0	No	12	29.08
MW5	93.94	13.02	0	No	11	28.62

Well #	Top of Casing Elevation (feet)*
MW1	115.16
MW2	110.77
MW3	111.84
MW4	108.00
MW5	106.96

♦ The depth to water level and total well depth measurements were taken from the top of the well casings.

* Based on the City of Oakland Benchmark #2874 (elevation = 116.41 feet MSL).

KEI-P93-0603.QR4
December 4, 1995

TABLE 2

RECORD OF THE TEMPERATURE, CONDUCTIVITY, AND pH VALUES
IN THE MONITORING WELLS DURING PURGING AND PRIOR TO SAMPLING

(Measured on October 6, 1995)

Well #	Gallons per Casing Volume	Time	Gallons Purged	Casing Volumes Purged	Temperature (°F)	Conductivity ([µmhos/cm]x1000)	pH
MW1	1.32	12:22	0	0	68.8	1.18	7.58
			1.5	1.14	69.0	1.20	7.50
			3	2.27	69.0	1.16	7.32
			4.5	3.41	69.8	1.17	7.30
		12:35	5.5	4.17	69.9	1.20	7.27
MW2	1.56	8:30	0	0	69.2	1.45	7.83
			1.5	0.96	69.1	1.50	7.41
			3	1.92	69.2	1.60	7.32
			4.5	2.88	69.3	1.58	7.30
		8:42	6.5	4.17	69.3	1.52	7.28
MW3	1.13	9:25	0	0	70.1	1.22	7.58
			1	0.88	69.8	1.25	7.42
			2	1.77	69.8	1.26	7.31
			3	2.65	69.7	1.27	7.20
		9:33	4.5	3.98	69.8	1.28	7.17
MW4	2.83	10:20	0	0	69.9	1.03	7.29
			3	1.06	69.2	0.95	7.35
			6	2.12	69.5	0.98	7.18
			9	3.18	69.2	0.96	7.15
		10:52	12	4.24	69.2	0.92	7.15
MW5	2.65	11:25	0	0	70.1	1.12	7.39
			3	1.13	69.2	1.15	7.40
			6	2.26	70.1	1.15	7.22
			9	3.40	70.2	1.14	7.18
		11:40	11	4.15	70.3	1.14	7.15

KEI-P93-0603.QR4
December 4, 1995

TABLE 3

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	TOG	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes
10/06/95	MW1	ND	69♦	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND
9/18/95▲	MW1	ND	81♦	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND
8/24/95▲	MW1	--	63	ND	1.1	ND	0.86
	MW2	--	ND	ND	0.57	ND	0.56
	MW3	--	ND	ND	0.50	ND	0.70
	MW4	--	ND	ND	0.53	ND	0.60
	MW5	--	ND	ND	0.81	ND	0.72
5/23/95	MW1	ND	100♦	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND
2/25/95	MW1	ND	81♦	ND	ND	ND	ND
	MW2	ND	ND	ND	ND	ND	ND
	MW3	ND	ND	ND	ND	ND	ND
	MW4	ND	ND	ND	ND	ND	ND
	MW5	ND	ND	ND	ND	ND	ND
6/29/93	MW1*	ND	76♦	ND	ND	ND	ND
	MW2*	ND	ND	ND	ND	ND	ND
	MW3*	ND	ND	ND	ND	ND	ND
	MW4*	ND	ND	ND	ND	ND	ND
	MW5*	ND	ND	0.64	ND	ND	ND

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

♦ Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

* TPH as diesel and all EPA method 8270 constituents were non-detectable.

▲ TOG was sampled on September 8, 1995, instead of August 24, 1995. Furthermore, the analytical results of the ground water samples (toluene and xylenes) collected on August 24, 1995, were inconsistent with the previous analytical results for these wells. Therefore, MPDS re-sampled these wells on September 18, 1995.

ND = Non-detectable.

-- Indicates analysis was not performed.

Results are in micrograms per liter (µg/L), except for TOG, which is in milligrams per liter (mg/L).

KEI-P93-0603.QR4
December 4, 1995

TABLE 4

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	cis-1,2-Dichloro-ethene	Tetrachloro-ethene	Trichloro-ethene	Vinyl Chloride	Chloroform
10/06/95	MW1	1.7	19	3.7	ND	1.3
	MW2	ND	8.9	1.0	ND	5.9
	MW3	5.7	13	6.2	ND	1.1
	MW4	5.4	12	6.1	ND	0.53
	MW5	9.1	8.2	5.3	ND	ND
8/24/95	MW1	3.4	240	5.0	ND	3.2
	MW2▲	ND	28	1.1	ND	15
	MW3▲▲	5.1	50	9	ND	0.78
	MW4	ND	9.7	ND	ND	2.4
	MW5▲▲	17	49	11	ND	ND
5/23/95	MW1	ND	450	ND	ND	ND
	MW2	ND	45	ND	ND	ND
	MW3	5.1	74	9.1	ND	ND
	MW4	ND	8.8	ND	ND	ND
	MW5	16	58	11	ND	ND
6/29/93	MW1	ND	250	ND	ND	ND
	MW2	ND	78	ND	ND	ND
	MW3	5.5	130	11	ND	ND
	MW4	ND	16	0.68	ND	ND
	MW5	24	17	5.9	3.0	ND

KEI-P93-0603.QR4
December 4, 1995

TABLE 4 (Continued)

SUMMARY OF LABORATORY ANALYSES
WATER

Date	Sample Number	cis-1,2-Dichloro-ethene	Tetrachloro-ethene	Trichloro-ethene	Vinyl Chloride	Chloroform
2/25/95	MW1	ND	360	ND	ND	ND
	MW2	ND	41	1.9	ND	ND
	MW3	6.9	52	9.4	ND	ND
	MW4	ND	6.4	ND	ND	ND
	MW5	8.3	25	6.6	ND	ND

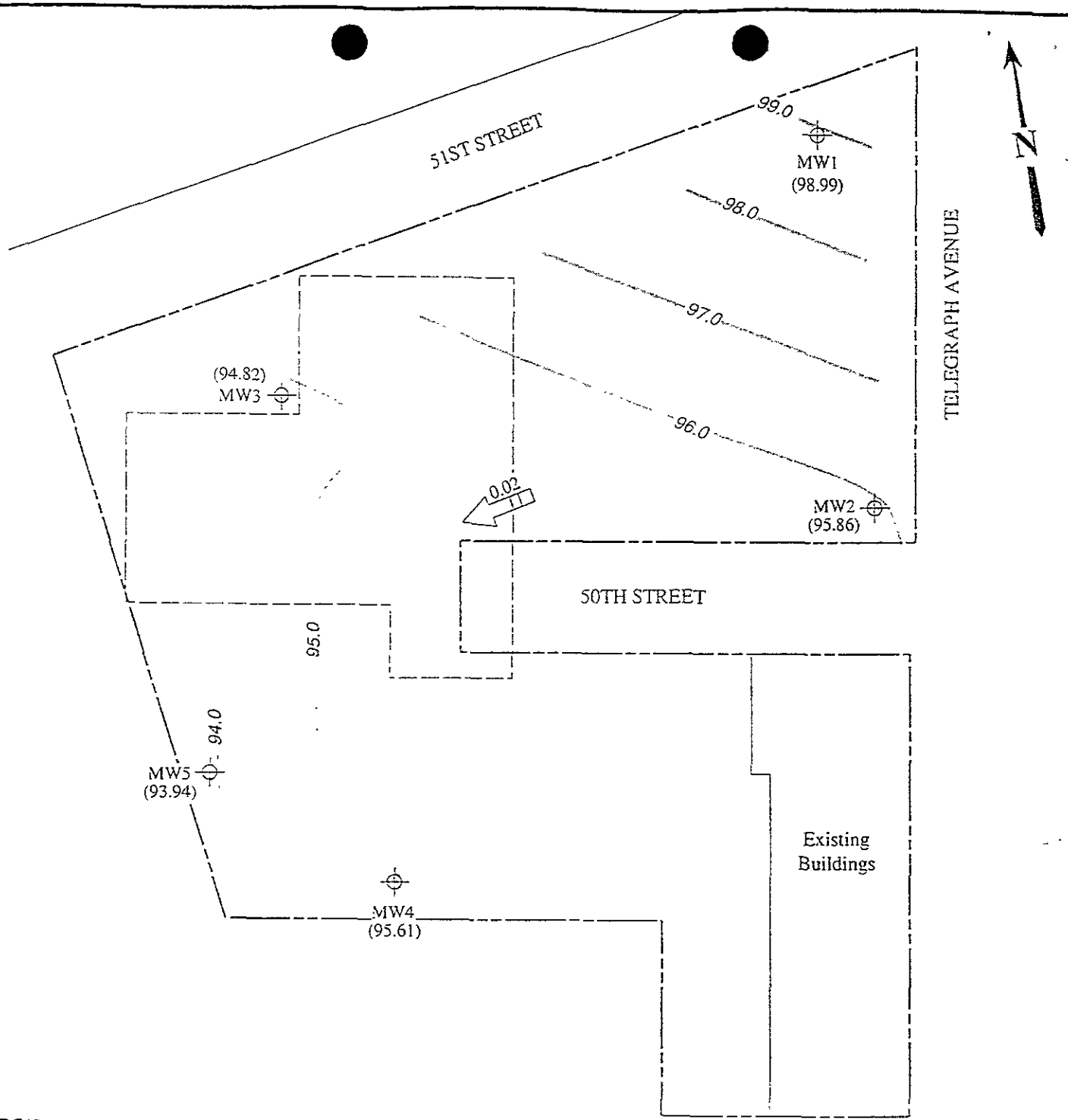
All EPA method 8010 constituents were non-detectable, except for the above compounds.

▲ 1,1,1-Trichlorethane was detected at a concentration of 0.73 µg/L.

▲▲ Trans-1,2-Dichlorethene was detected at concentrations of 0.59 µg/L and 0.76 µg/L in MW3 and MW5, respectively.

ND = Non-detectable.

Results are in micrograms per liter (µg/L), unless otherwise indicated.



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

0 60 120

Approx. scale feet

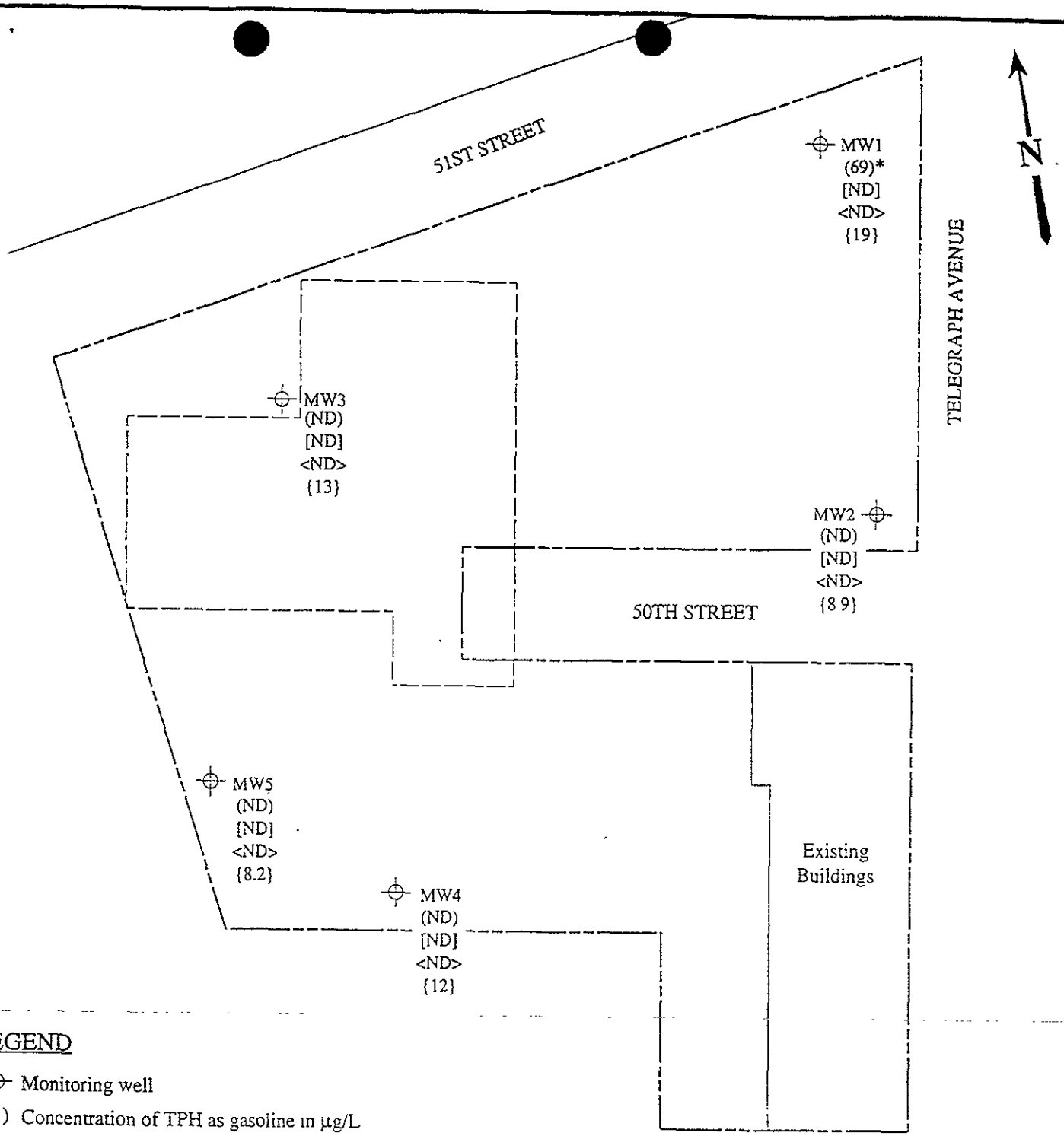
Base map modified from an Advanced Soil Technology Inc. site plan

POTENTIOMETRIC SURFACE MAP FOR THE OCTOBER 6, 1995 MONITORING EVENT

KAPREALIAN ENGINEERING
INCORPORATED

BERKELEY LAND COMPANY
51ST STREET & TELEGRAPH AVE.
OAKLAND, CALIFORNIA

FIGURE
1



LEGEND

- ⊕ Monitoring well
- ( ) Concentration of TPH as gasoline in µg/L
- [ ] Concentration of benzene in µg/L
- < > Concentration of TOG in mg/L
- { } Concentration of tetrachloroethene in µg/L
- ND Non-detectable

* The lab reported that the hydrocarbons detected did not appear to be gasoline.

0 60 120

Approx. scale feet

Base map modified from an Advanced Soil Technology Inc. site plan

PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUND WATER ON OCTOBER 6, 1995

KAPREALIAN ENGINEERING
INCORPORATED

BERKELEY LAND COMPANY
51ST STREET & TELEGRAPH AVE.
OAKLAND, CALIFORNIA

FIGURE
2