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San Francisco, CA 94111  
(415) 434-9400 • FAX (415) 434-1385

10 March 1994  
Project 2530A



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HAZMAT

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same as  
Feb 1994*

Ms. Madhulla Logan  
Alameda County Health Care Services Agency  
80 Swan Way, Room 200  
Oakland, California 94621

Subject: Revised Workplan for Additional Site Characterization  
Proposed Encinal Marina Landing  
2020 Sherman Avenue  
Alameda, California

Dear Ms. Logan:

This workplan has been prepared by Geomatrix Consultants, Inc. (Geomatrix), at the request of Encinal Real Estate, Inc. (Encinal), for additional site characterization of the former warehouse site (originally owned by Alameda Marina Village Associates) located at 2020 Sherman Avenue in Alameda, California (Figure 1). The purpose of conducting the site characterization described in this workplan is to evaluate the extent of VOC - affected groundwater downgradient of the site.

#### INVESTIGATION SUMMARY

Previous site investigations completed by others are described and the results are presented in our 30 December 1993 workplan. Geomatrix Consultants has completed the work described in that workplan which was approved by the county. The purpose of the work was to:

- Assess the lateral extent of chlorinated VOCs in groundwater in the area of EB-1.
- Measure groundwater gradient at the site.
- Confirm that evaluated metal concentrations in groundwater are due to suspended sediment in samples.
- Confirm that petroleum hydrocarbons in soil are not a concern at the site.

The results are summarized below.

A shallow groundwater survey was completed by Tracer Research Corporation (Tracer) of Tucson, Arizona on 24 January 1994. Nine groundwater samples were collected by pushing a one-inch diameter rod 5 to 7 feet into the ground. The rod was then withdrawn

**Geomatrix Consultants, Inc.**  
Engineers, Geologists, and Environmental Scientists

*Check of EB area  
this is only concern*

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several inches to allow groundwater to enter the hole, and samples were acquired by vacuum through a 1/4-inch disposable polyethylene tube. Sample locations surrounded previous boring EB-1 following a 20-foot grid, as shown on Figures 2 and 3. The groundwater samples were analyzed in the field for BTEX, 1,1-dichloroethene (1,1-DCE), 1,2-DCE, 1,1-dichloroethane (1,1-DCA), 1,2-DCA, 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), and tetrachloroethene (PCE). 1,1-DCA was detected in 8 of the 9 locations at concentrations below 300  $\mu\text{g/l}$  except for location GW-3 where 1800  $\mu\text{g/l}$  1,1-DCA were reported. Relatively low concentrations of 1,1-DCE were reported in 7 of the 9 sampling points, and low concentrations of TCA, TCE, and PCE were reported in 1 to 2 sampling points. Analytical results for the shallow groundwater survey are presented in Table 1 and Figure 3.

Four temporary piezometers were installed in borings created by continuous 2.5-inch diameter sampling to a depth of 10 to 12 feet. Samples taken from these piezometers through 1-inch diameter screened pipe before sandpack was placed were also analyzed for the VOCs listed above. The sample from piezometer P-1 was analyzed by Tracer on 24 January 1994. Samples from piezometers P-2, P-3, and P-4 were analyzed by EPA Method 8010 by AEN laboratory of Pleasant Hill, California. Samples from piezometers P-2 and P-3 had very low detections of 1,1 DCA, and P-1 located at the eastern property boundary had a concentration of 390  $\mu\text{g/l}$  (Table 1 and Figure 3).

Groundwater depths were measured on 20 January 1994 in the 4 locatable monitoring wells installed by a previous consultant and the groundwater elevations were calculated. The well heads were surveyed by Bates and Bailey of Berkeley, California. A groundwater elevation map is presented as Figure 4, and shows the groundwater direction to the east-north-east.

Groundwater samples from piezometer P-2 and boring B-1 were filtered and acidified in the field before sending them to AEN laboratory for metals analysis. These samples were acquired because the results reported by previous consultants were within background concentrations for soil, but were anomalously high for groundwater. We suspected the groundwater samples had not been filtered before analysis, and therefore did not represent dissolved metals concentrations. Based on the very low to non-detectable filtered sample results, the target metals do not appear to be a concern at the site (Table 1).

Soil samples from borings P-1, P-3, B-1, and B-2 were composited into two samples representing depth intervals of approximately 2 and 6 feet. These samples were analyzed for BTEX, gasoline, diesel, and oil. The only detection in the 2-foot sample was oil at a concentration of 610 mg/kg. In the 6-foot sample, oil was detected at 20 mg/kg, and diesel was reported at 5 mg/kg. Based on these results, no additional soil testing for petroleum hydrocarbons is recommended at this time (Table 2).

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The results for all samples collected according to our 30 December workplan are presented in Tables 1 and 2, and the analytical laboratory reports and their chain-of-custody forms are attached. The locations of shallow groundwater survey points, borings, piezometers, and previously installed monitoring wells are shown on Figure 2.

## **OBJECTIVES**

Evaluation of previous reports and the sampling results presented above does not indicate significant chemical impact to soil at the site, except in the area of previous boring EB-1 where elevated concentrations of chlorinated solvents were detected. Chemically affected groundwater appears to be limited to within 60 to 80 feet of EB-1 on the site, but appears to move offsite to the east-north-east. The objectives of the 30 December 1993 workplan have been met with the exception of assessing the lateral extent of chlorinated VOCs in groundwater in the area of EB-1. Additional sampling in the area off-site and to the east is proposed to better assess the extent of VOC concentrations in groundwater. Specific recommendations for monitoring well placement and laboratory analysis of groundwater samples will be developed based upon previous data and data collected during this phase of investigation.

## **PROPOSED GROUNDWATER CHARACTERIZATION**

A one-day shallow groundwater survey will be performed in the approximate area shown on Figure 2 to assess the lateral extent of 1,1-DCA in shallow groundwater. This area is located off-site to the east, and outside of the area proposed for residential development. In general, sample locations will follow a grid pattern. The survey will be conducted by Tracer under Geomatrix supervision by pushing a 1-inch diameter steel rod into the ground to the expected depth of groundwater, previously found at 5 to 7 feet. The rod will be withdrawn several inches to allow groundwater to enter the boring, and the samples will be collected by vacuum using disposable 1/4-inch tubing. The samples will be analyzed in the field by Tracer using a screening technique for chlorinated halogens including 1,1-DCA. Additional sampling points will be chosen in a progressive manner.

## **HEALTH AND SAFETY**

A health and safety plan for site characterization work performed by Geomatrix was submitted to the county with our 30 December 1993 workplan. This health and safety plan will also be used for the work described in this workplan.

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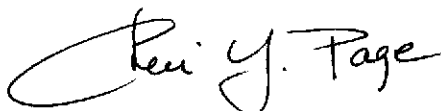
## SCHEDULE AND REPORTING

After evaluation of current and previous site data, a report will be prepared summarizing field activities, analytical results, groundwater gradient information, soil types, and our evaluation of environmental site characteristics that could potentially impact residential development. The work is expected to require one day of field time, and is tentatively scheduled for March 1994. The actual schedule will depend on approval of the workplan by the ACHCSA. A report presenting the results of the site characterization work with recommendations will be completed within four weeks of the fieldwork.

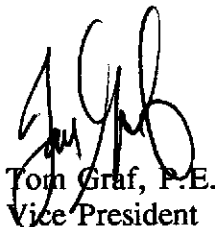
Thank you for this opportunity to be of service. If you have any questions, please call either of the undersigned.

Sincerely,

GEOMATRIX CONSULTANTS, INC.



Cheri Y. Page, R.G.  
Project Geologist



Tom Graf, P.E.  
Vice President

CYP/TEG/lam  
CONTR2530WASC.LTR

Attachments: Table 1 - Groundwater Grab Sample Results - January 1994  
Table 2 - Soil Sample Results - January 1994  
Table 3 - Groundwater Elevations  
Figure 1 - Location Map  
Figure 2 - Site Plan  
Figure 3 - DCA Concentrations in Groundwater Grab Samples - January 1994  
Figure 4 - Groundwater Elevation Map  
Analytical Laboratory Reports

cc: Mr. Peter Wang - Encinal Real Estate, Inc.

TABLE 1

GROUNDWATER GRAB SAMPLE RESULTS

24 JANUARY 1994<sup>1</sup>

Encinal Real Estate

2020 Sherman

Alameda, California

*Handwritten notes:*  
 0.07 DCE  
 PROG 15  
 4/10  
 2.50  
 0.84  
 0.5  
 0.80 1.750 50 50 50  
 x5 1

Sample	1,1-DCE µg/l	1,1-DCA µg/l	1,2-DCE µg/l	1,2-DCA µg/l	TCA µg/l	TCE µg/l	PCE µg/l	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Xylenes µg/l	Arsenic mg/l	Chromium mg/l	Lead mg/l	Thallium mg/l
GW-1	3	54	<6	<0.9	<0.02	<0.07	<0.02	<0.5	<0.8	<1	<3	NA	NA	NA	NA
GW-2	<0.07	<0.2	<3	<0.4	<0.01	<0.03	<0.01	<0.2	<0.4	<0.7	<2	NA	NA	NA	NA
GW-3	100	300	<14	<2	74	<0.6	2	<1	8	<3	<8	NA	NA	NA	NA
GW-4	2	610	<3	<0.4	6	0.7	0.05	<0.2	<0.4	<0.7	<2	NA	NA	NA	NA
GW-5	4	240	<3	<0.4	<0.01	<0.03	<0.01	<0.2	<0.4	<0.7	<2	NA	NA	NA	NA
GW-6	1	230	<6	<0.9	<0.02	<0.07	<0.02	<0.5	<0.8	<1	<3	NA	NA	NA	NA
GW-7	1	200	<6	<0.9	<0.02	<0.07	<0.02	<0.5	<0.8	<1	<3	NA	NA	NA	NA
GW-8	11	140	<3	<0.4	<0.01	<0.03	<0.01	<0.2	<0.4	<0.7	<2	NA	NA	NA	NA
GW-9	<0.07	20	<3	<0.4	<0.01	<0.03	<0.01	<0.2	<0.4	<0.7	<2	NA	NA	NA	NA
P-1	4	700	<6	<0.9	<0.02	<0.07	<0.02	<0.5	<0.8	<1	<3	NA	NA	NA	NA
P-2	<0.5	4	0.6	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	0.009	<0.01	<0.04	<0.1
P-3	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
P-4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA
B-1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.01	<0.04	<0.1

Notes:

- NA - not analyzed
- DCA - dichloroethane
- TCA - trichloroethane
- DCE - dichloroethene
- TCE - trichloroethene
- PCE - tetrachloroethene

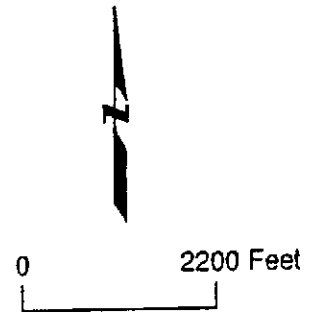
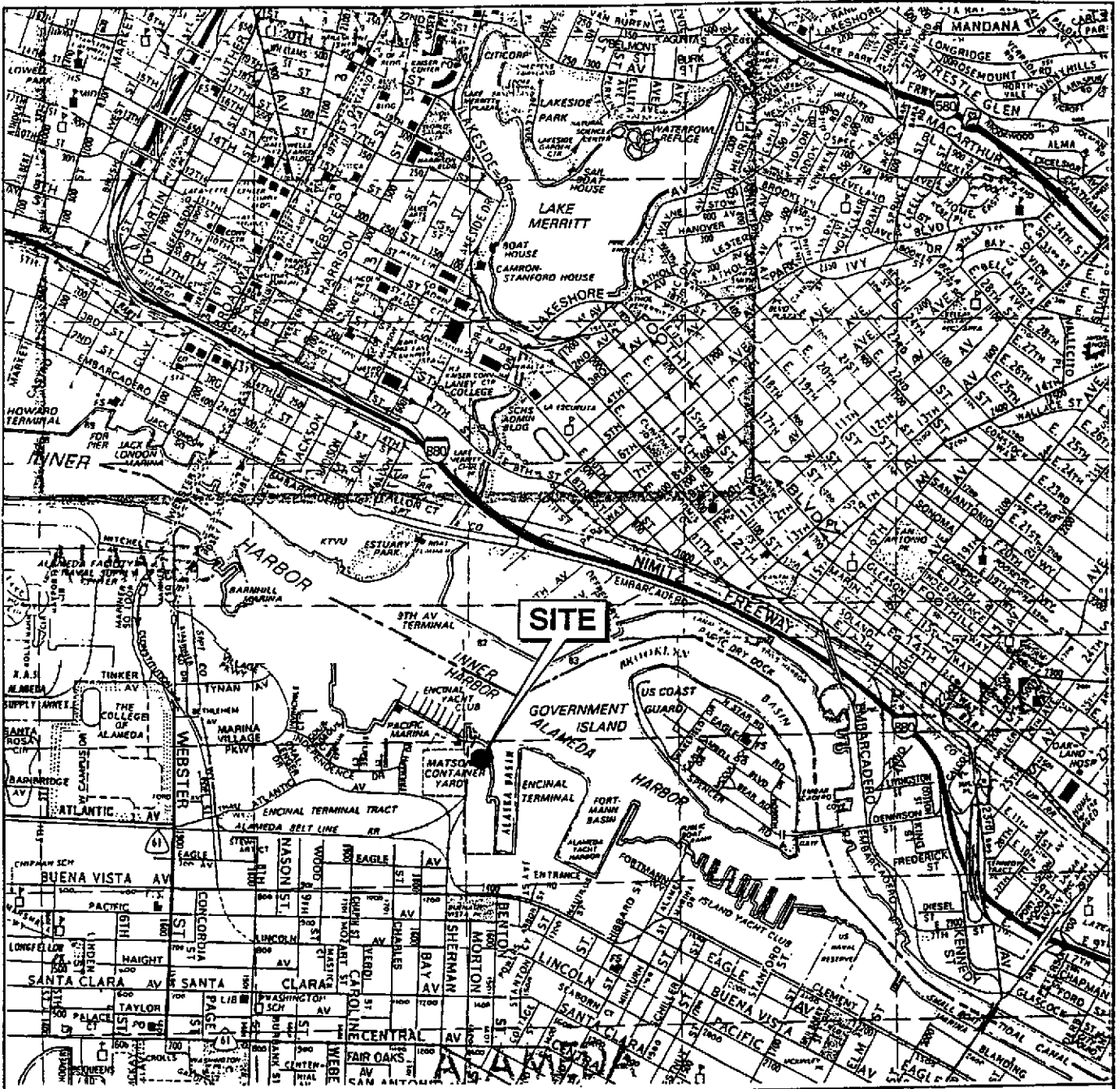
<sup>1</sup> Volatile organic analysis for samples P-1 and GW-1 through GW-9 were performed in the field by Tracer Research Corporation. All other analyses were performed by AEN laboratory.

**TABLE 2**  
**SOIL SAMPLE RESULTS**  
**JANUARY 1994**  
 Encinal Real Estate  
 2020 Sherman  
 Alameda, California

Composite Sample Identification <sup>1</sup>	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	Xylene µg/l	Gasoline mg/kg	Diesel mg/kg	Oil mg/kg
P-1-2.5, P-3-2.0, B-1-2.0, B-2-2.0	<5	<5	<5	<5	<0.2	<10	610
P-1-6.0, P-3-4.5, B-1-6.0, B-2-6.0	<5	<5	<5	<5	<0.2	5	20

Note:

<sup>1</sup> Composite sample identification is comprised of the boring number and its depth below ground surface.



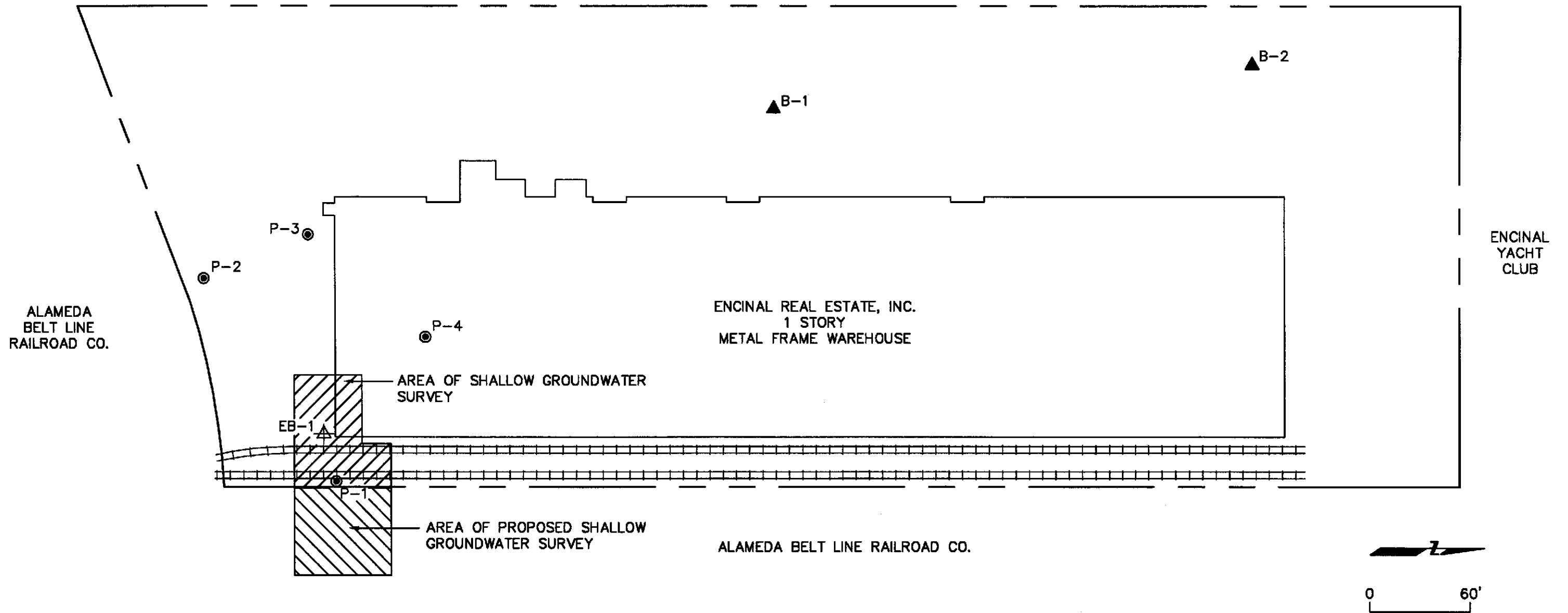
SITE LOCATION MAP  
 2020 Sherman  
 Alameda, California

Figure  
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EXPLANATION

- PROPERTY LINE
- ▲ APPROXIMATE PREVIOUS GROUNDWATER GRAB SAMPLING LOCATION WITH DETECTABLE VOC'S
- P-1 ● TEMPORARY PIEZOMETER LOCATIONS
- B-1 ▲ SOIL BORING

MARINA VILLAGE



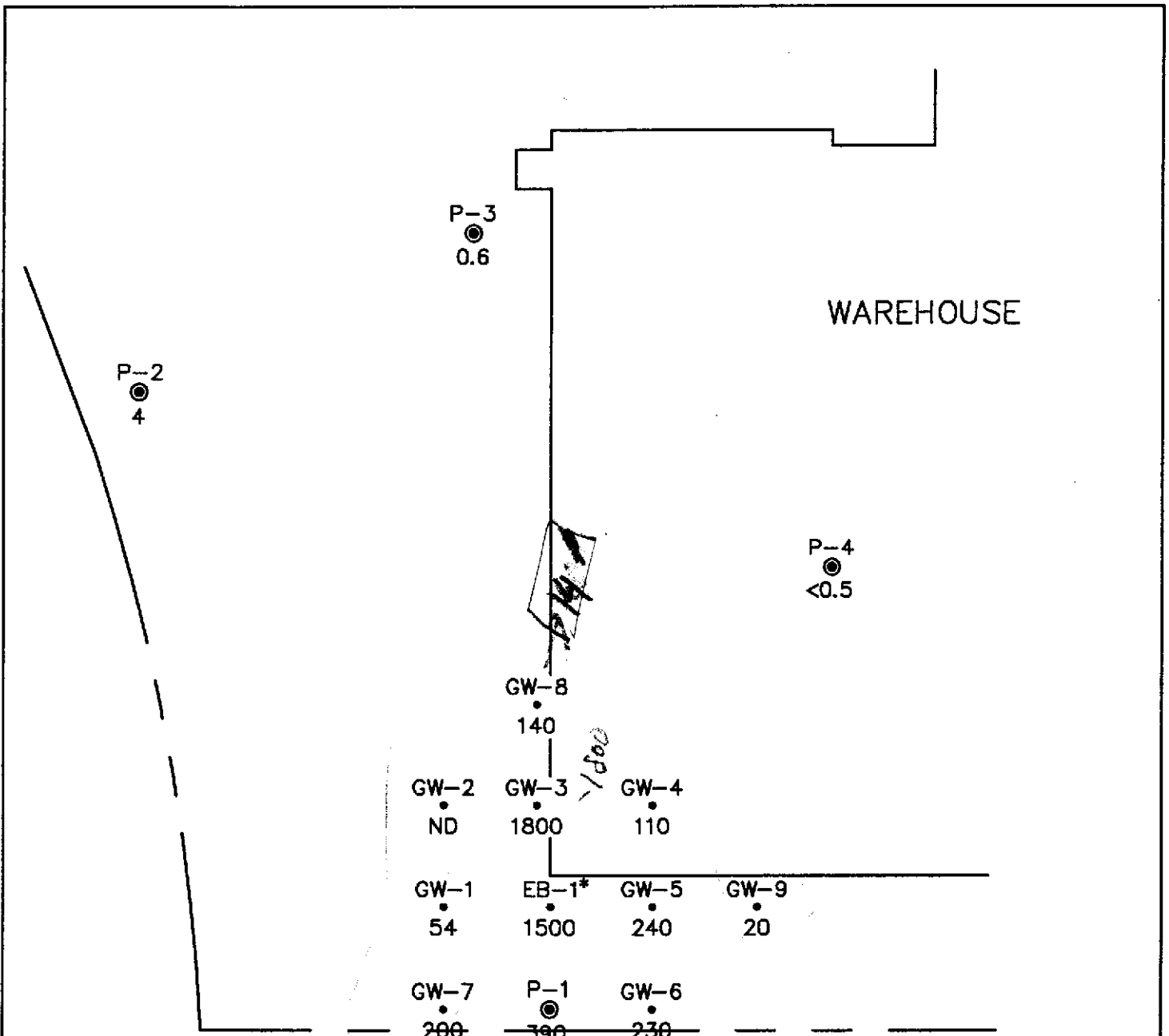
Revisions

**SOIL AND GROUNDWATER SAMPLE LOCATIONS  
JANUARY 1994**

**ENCINAL REAL ESTATE  
2020 SHERMAN AVE.  
ALAMEDA, CALIFORNIA**

Figure  
2  
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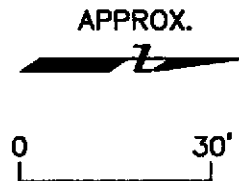


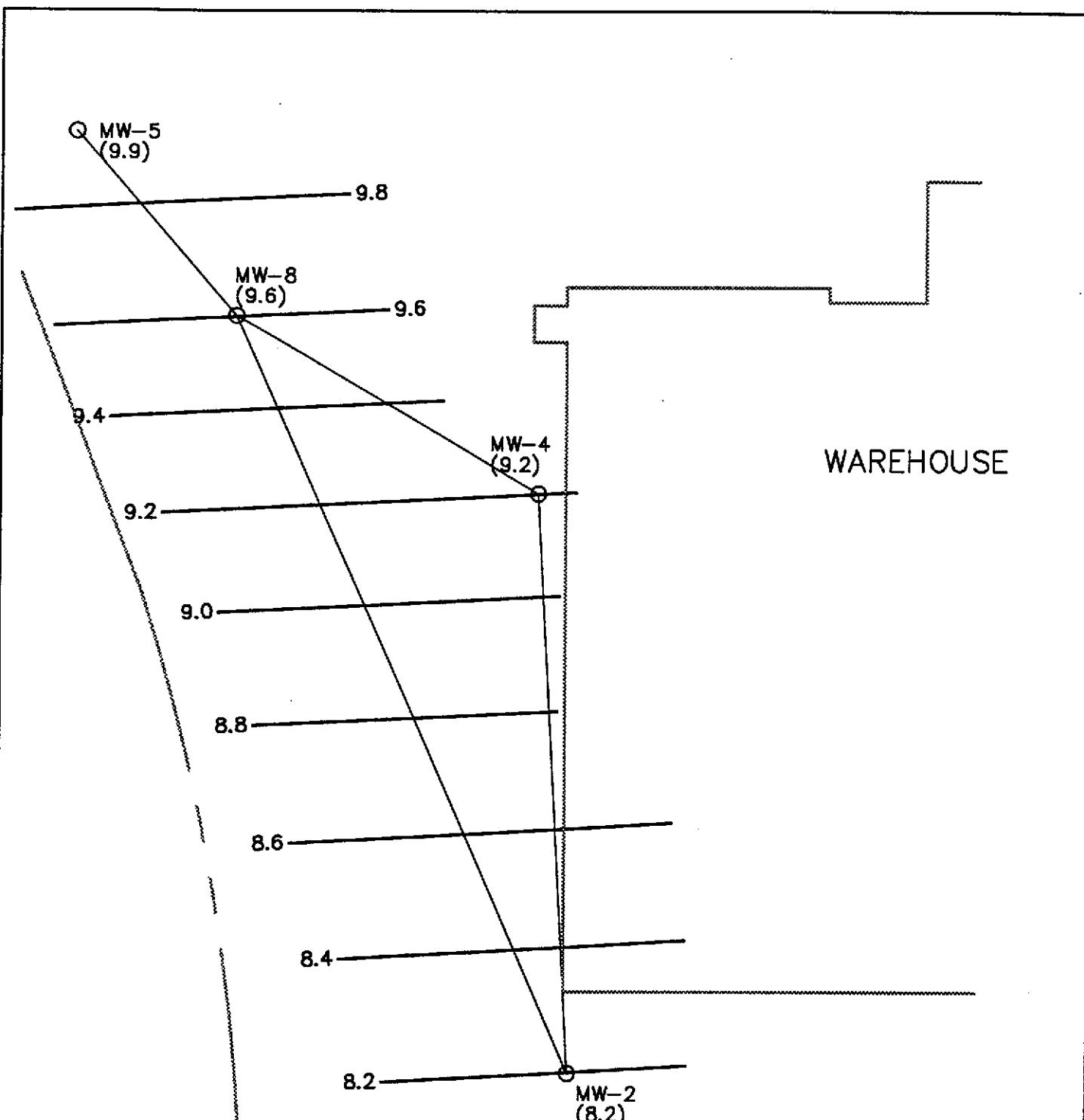
**EXPLANATION**

P-1 ● 1,1 - DICHLOROETHANE CONCENTRATION  
390 (1,1 - DCE) IN GROUNDWATER GRAB SAMPLE  
IN PARTS PER BILLION.

GW-1 ● SHALLOW GROUNDWATER SURVEY POINT  
54 AND 1,1 - DCE CONCENTRATION IN GROUNDWATER  
GRAB SAMPLE IN PARTS PER BILLION

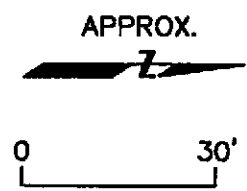
\*GROUNDWATER GRAB SAMPLE FROM BORING  
EB-1 WAS COLLECTED AND ANALYZED BY OTHERS  
IN 1990.





**EXPLANATION**

- MW-2 (8.2) MONITORING WELL WITH GROUNDWATER ELEVATION IN FEET
- 8.2 — LINE OF EQUAL GROUNDWATER ELEVATION WITH ELEVATION NOTED IN FEET



**GROUNDWATER ELEVATION MAP - JANUARY 1994**  
**ENCINAL REAL ESTATE**  
**2020 SHERMAN AVE.**  
**ALAMEDA, CALIFORNIA**

Figure  
 4  
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