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GEOMATRIX

13 September 1994
Project No. 2530.02

Ms. Madhulla Logan
Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
1131 Harbour Bay Parkway
Alameda, CA 94502

Subject: 5 May 1994 Meeting Summary
Conceptual Approach for Proposed Encinal Marina Landing
2020 Sherman Avenue
Alameda, California

Dear Ms. Logan:

Thank you for meeting with Geomatrix Consultants, Inc. (Geomatrix) and Mr. Richard Hiett from the Regional Water Quality Control Board - San Francisco Bay Region on 5 May 1994 to discuss the subject property. The meeting was held on behalf of Mr. Peter Wang, owner of the subject property. This letter is intended to summarize that meeting and to outline our conceptual approach toward addressing human health and environmental issues associated with 1,1-dichloroethane (1,1-DCA) that is present in shallow groundwater beneath a portion of the property.

MEETING SUMMARY

The purposes of the meeting were the following:

- to present groundwater quality data obtained during two phases of shallow groundwater surveys to the RWQCB, and obtain input from the RWQCB regarding an acceptable approach toward remediating or managing the 1,1-DCA-affected groundwater

- to obtain input from the Alameda Health Care Services Agency (ACHCSA) regarding human health considerations associated with the proposed residential development in the vicinity of the 1,1-DCA-affected groundwater, and develop an acceptable approach toward remediating or managing the DCA-affected groundwater and overlying shallow soil.

We presented shallow groundwater survey data that was obtained according to our 5 April 1994 Revised Workplan for Additional Site Characterization, Proposed Encinal Marina Landing, 2020 Sherman Avenue, Alameda, California, submitted to the ACHCSA. Figure 1, attached, shows sample locations and presents 1,1-DCA concentrations for groundwater samples analyzed in April 1994. Figure 2 shows shallow groundwater data obtained in January 1994 that were summarized in the 5 April 1994 Work Plan. Results indicate that the lateral extent of the 1,1-DCA in groundwater in the vicinity of the southeast corner the warehouse building is limited to west of the Encinal Terminals/Belt Line Railroad Co. property boundary, with the exception of one data point, GW-21, which contained 21 micrograms per liter (μg/L) 1,1-DCA.

Ms. Logan requested that we compile a chronological list of reports that have been prepared at the site for ACHCSA records, including documentation of well installation performed by others, if it was available. This list was compiled by Geomatrix and submitted to ACHCSA under separate cover on 13 May 1994. However, well installation documentation was not available from Mr. Wang and was not included in the submittal.

The following points were discussed regarding groundwater quality:

- Mr. Hiett indicated that the primary RWQCB concern is the potential affect that groundwater containing 1,1-DCA may have on the Alameda Harbor, located approximately 250 feet east of the affected area. Mr. Hiett indicated that the RWQCB would not view the groundwater as a potential drinking water source, as long as the background quality of the groundwater, as measured by criteria such as total dissolved solids (TDS), general minerals, or odor and taste criteria rendered the water non-potable.

- The concentration of 1,1-DCA in groundwater that would trigger a response from the RWQCB, should it reach the Alameda Harbor, could be below the typical NPDES discharge criteria of 5 μg/l. Possible RWQCB responses for groundwater discharging to the Harbor that contains relatively low 1,1-DCA concentrations include requirements for a discharge permit issued by the RWQCB.

- The site is a likely candidate for the RWQCB "non-attainment" policy. The basic criteria of applicability include: the chemical release is limited; chemical migration is slow, based on naturally occurring groundwater flow parameters, such as a flat hydraulic gradient and low-permeability sediments; and chemical migration does not occur beyond property boundaries. The non-attainment policy generally allows a

groundwater monitoring program to be the primary mechanism for site management. Typically, a groundwater monitoring network is established that contains a "trigger point", located downgradient of the affected groundwater, that can be used to monitor chemical migration. Only if chemicals are observed to be migrating beyond a specified monitoring point are mitigation requirements triggered.

- The RWQCB's primary concern regarding the presence of chemicals in soil above the 1,1-DCA-affected groundwater is whether the chemicals are a continuing source to underlying groundwater. The RWQCB considers results of solubility tests to be a good indicator of whether chemicals in soil are a continuing source to underlying groundwater. Establishing if 1,1-DCA is present in shallow soil at leachable concentrations likely will influence long-term monitoring requirements and eventual site closure -- i.e., if solubility tests indicate that a continuing source of chemical is present in soil, then monitoring may be required for a longer period compared to solubility test results that indicate little or no soluble chemical remains in the soil.

The following points were discussed regarding human health considerations:

- Screening-level health risk calculations performed by Geomatrix indicate that the 1,1-DCA in shallow groundwater will not present an unacceptable level of risk to public health, based on the future use scenario of residential development. We will document the methodology and toxicological parameters used to calculate the risk in a future submittal to the ACHCSA.

- ACHCSA agreed that a human-health risk approach to soil, as well as groundwater, was acceptable to establish the need for either soil or groundwater remediation. Review of published guidelines from the U.S. Environmental Protection Agency (EPA) Region IX Preliminary Remediation Goals, First Half, 1994, suggest that remediation goals for 1,1-DCA in soil for residential uses are relatively high, at about 400 milligrams per kilogram (mg/kg). Ms. Logan noted that ACHCSA also may have some guidelines, and would check on this.

- We discussed two approaches to shallow soil above the 1,1-DCA-containing groundwater. Because the distribution of 1,1-DCA is limited in the shallow groundwater, the distribution of residual 1,1-DCA that may remain in overlying soil probably also is quite limited. Additionally, a significant source of 1,1-DCA likely does not remain in the soil for the following reasons: the release probably occurred

years ago; the soil is only about five feet thick above the groundwater; and concentrations of 1,1-DCA detected in underlying groundwater do not suggest a high concentration source in the soil. Therefore, ACHCSA agreed that either of the following would be an acceptable approach toward the soil: excavate a limited area at the time of building demolition activities and provide confirmatory sampling and analysis after the removal; or, perform a soil sampling and analysis program to evaluate the need for remediation based on health risk cleanup guidelines.

CONCEPTUAL APPROACH

Based on issues raised and topics discussed during the meeting, we have developed the following conceptual approach toward the site.

- A shallow groundwater survey will be used to identify the location of groundwater between former sample point GW-21 and the Harbor that does not contain detectable concentrations of 1,1-DCA. The survey will require at least two additional points, one to the north and one to the northeast of sample location GW-21.

- Based on results of the survey, a groundwater monitoring network will be proposed that includes at least one downgradient well (depending on the variability of groundwater flow direction, a second well may be proposed) that will be used to monitor whether 1,1-DCA is migrating toward the Harbor. This well will be considered the "trigger" point that will serve as the basis for future discharge permit requirements or mitigation, should 1,1-DCA begin to migrate past this point toward the Harbor. Existing wells will be used in conjunction with the new well to monitor groundwater flow direction and gradient.

- We will perform analyses for general minerals and TDS on groundwater samples beneath the site to evaluate applicability of drinking water standards.

- We will identify health-risk cleanup goals for 1,1-DCA in soil from ACHCSA guidelines, if available, or, if not available, we will use U.S. EPA sources or perform a screening-level risk calculation based on available toxicity data. This concentration will be used as a guideline for evaluating the need for soil removal, or as the criteria for post-removal confirmatory sampling.

- We will submit to the ACHCSA for their review and concurrence our screening-level health risk calculations for 1,1-DCA in groundwater.

- We will confirm with ACHCSA that no other volatile organic compound (VOC) detected in groundwater to date will require a health-risk analysis.

- Our long-term management plan for the site consists of the following components:

  - groundwater monitoring to evaluate the potential for migration of 1,1-DCA toward the Harbor;

  - a notice mechanism that would convey information on site conditions to future site owners. Information would include items such as procedures for handling materials that contain 1,1-DCA, should the need arise (i.e., dewatering during construction activities; handling of soil that may contain 1,1-DCA, should it be excavated)

  - a contingency plan, should unacceptable concentrations of 1,1-DCA in groundwater be observed migrating toward the Harbor

We anticipate that once this conceptual approach is agreed to by the ACHCSA and the RWQCB and a detailed Work Plan and schedule are approved, then residential development for the subject property can proceed. After we have performed the shallow groundwater survey outlined above, we will prepare a detailed Work Plan for your review and approval that describes our proposed groundwater monitoring network, our selected approach toward soil, our proposed long-term management plan for the site, and the proposed plans for site development. Thank you again for your attention toward these matters. Please call either of the undersigned if you have any questions.

Sincerely,
GEOMATRIX CONSULTANTS, INC.

for

Cheri Y. Page, R.G.
Project Manager

Elizabeth A. Nixon
Senior Engineer

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Attachments: Table 1 - Groundwater Grab Sample Results - April 1994
Figure 1 - Soil and Groundwater Sample Locations, January and April 1994
Figure 2 - 1,1-DCA Concentrations in Groundwater, January 1994

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

TABLE 1

GROUNDWATER GRAB SAMPLE RESULTS
JANUARY AND APRIL 1994[1]
Encinal Real Estate
2020 Sherman
Alameda, California

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
January 1994															
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	160	1800	<14	<2	74	<0.6	2	<1	8	<3	<8	NA	NA	NA	NA
GW-4	2	110	<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	390	<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
April 1994															
GW-18[2]	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA
GW-19[2]	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA
GW-20[2]	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA
GW-21[2]	<5	22	<5	<5	<5	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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

[1] 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.
[2] Vinyl cholride results for these samples were not detected (<5 ppb).

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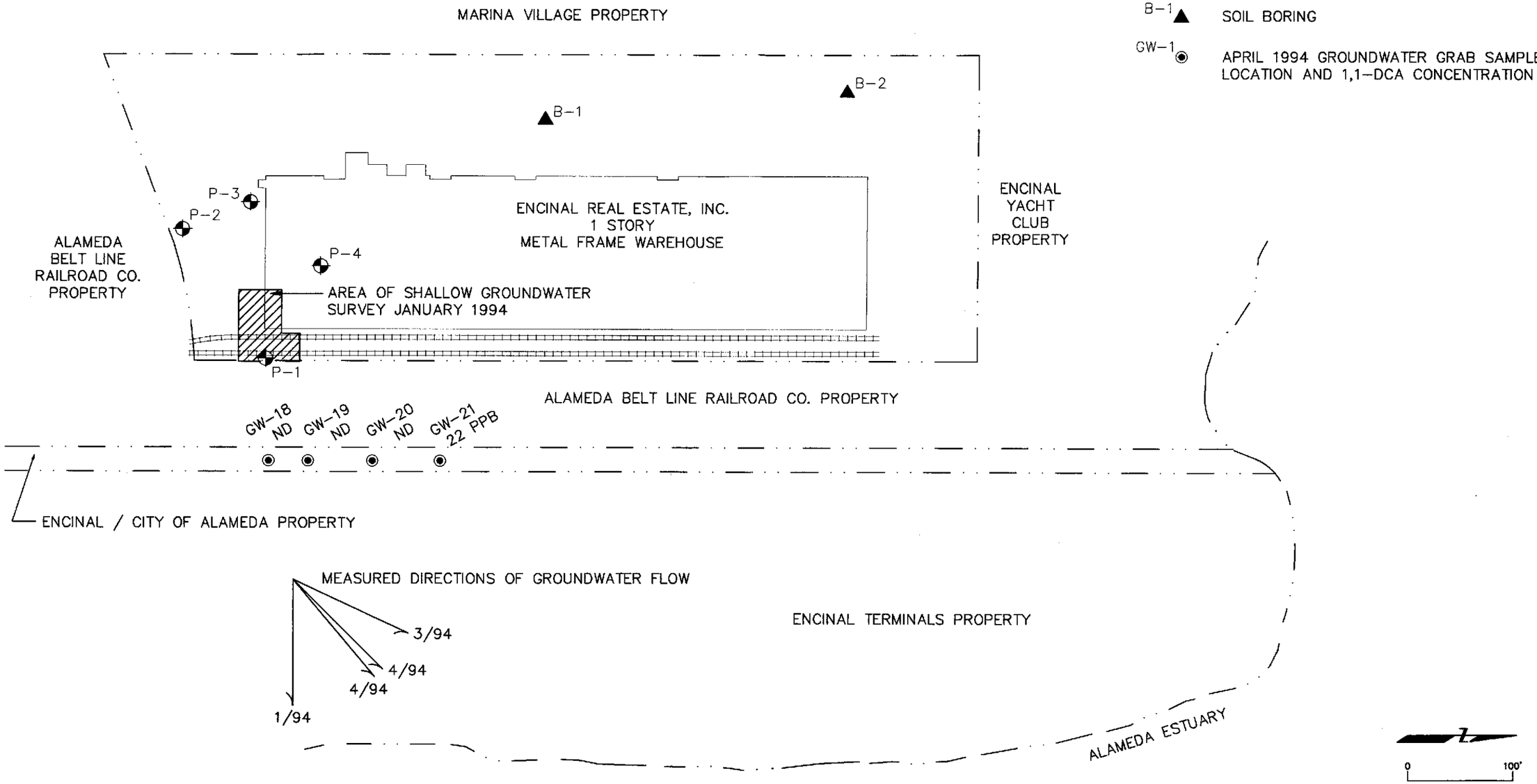
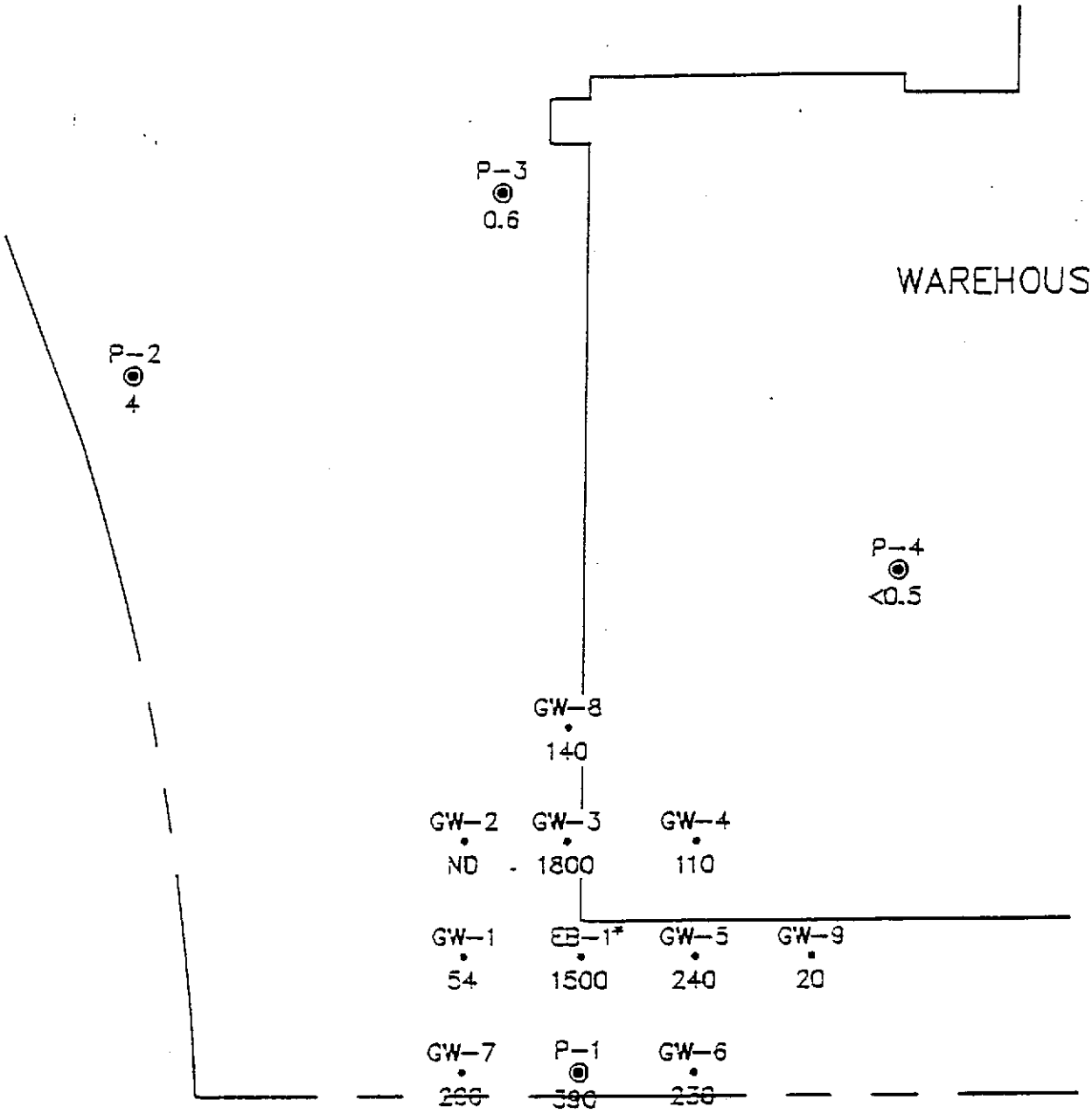
EXPLANATION

- APPROXIMATE PROPERTY LINE
- P-1 TEMPORARY PIEZOMETER LOCATIONS
- B-1 SOIL BORING
- GW-1 APRIL 1994 GROUNDWATER GRAB SAMPLE LOCATION AND 1,1-DCA CONCENTRATION



GEOMATRIX	Revisions	**SOIL AND GROUNDWATER SAMPLE LOCATIONS JANUARY AND APRIL 1994**	**ENCINAL REAL ESTATE 2020 SHERMAN AVE. ALAMEDA, CALIFORNIA**	Figure 1
				Project No. 2530 A



EXPLANATION

P-1 ◉ 390 — TEMPORARY PIEZOMETER LOCATION AND 1,1 – DICHLORCETHANE CONCENTRATION (1,1 – DCA) IN GROUNDWATER GRAB SAMPLE IN PARTS PER BILLION.

GW-1 • 54 — SHALLOW GROUNDWATER SURVEY POINT AND 1,1 – DCA CONCENTRATION IN GROUNDWATER GRAB SAMPLE IN PARTS PER BILLION

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

APPROX.

0 30'

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1,1 - DCA CONCENTRATIONS IN GROUNDWATER
JANUARY 1994
ENCINAL REAL ESTATE - 2020 SHERMAN AVE.
ALAMEDA, CALIFORNIA

Figure 2

Project No. 2530 A