

29 December 1992
Project 1736.11

Ms. Juliet Shin
Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Groundwater Monitoring Program
1020 Atlantic Avenue (Formerly 2051 Sherman Street)
Marina Village Development
Alameda, California

Dear Ms. Shin:

On behalf of Alameda Real Estate Investments, Inc. (AREI), Geomatrix Consultants, Inc. (Geomatrix), has prepared a groundwater monitoring program that involves installing three monitoring wells and conducting quarterly groundwater monitoring at the subject property in the Marina Village Development in Alameda, California (Figure 1). The purpose of the program is to comply with Alameda County Department of Environmental Health (ACDEH) requirements for closure of underground storage tank (UST) sites.

Based on discussions with you and Mr. Rich Hielt of the Regional Water Quality Control Board during our meeting of 3 September 1992, we developed this groundwater monitoring program specifically to evaluate groundwater quality downgradient of two former USTs at the subject site and to obtain data for eventual site closure.

BACKGROUND

Background information on removing the two tanks and remediating soil at the site was summarized in our letter to you dated 1 September 1992. A copy of that letter is appended to this work plan as Attachment A. The tanks, which apparently were installed at least 15 years ago by former property owners, were used to store diesel fuel and possibly gasoline. AREI removed the tanks in 1988, as described in the Levine•Fricke, Inc. 25 April 1988 report entitled, "Removal of Petroleum-Affected Soils in the Vicinity of the Rigging International Building, 2051 Sherman Street, Alameda, California."

Ms. Juliet Shin
Alameda County Health Care Services Agency
29 December 1992
Page 2

SCOPE OF WORK

To meet ACDEH requirements for eventual site closure, we propose the following scope of work.

- Task A: Install Three Groundwater Monitoring Wells
- Task B: Determine Groundwater Flow Direction and Develop One Well
- Task C: Sample Groundwater and Chemically Analyze Groundwater Samples
- Task D: Prepare Four Quarterly Monitoring Reports

These tasks are described below in detail.

Task A: Install Three Groundwater Monitoring Wells

We propose to install three wells in the vicinity of the former tanks at the locations shown on Figure 2. The wells will be positioned in a triangle geometry around the former tank locations so the groundwater flow direction can be determined. The wells will be installed after obtaining monitoring well installation permits from the Alameda County Flood Control and Waste Conservation District, Zone 7, and after conducting an underground utility check at the proposed well locations.

The monitoring wells will be installed according to Geomatrix protocol No. 5, which appears in Attachment B. The borings for the monitoring wells will be drilled to a maximum depth of 15 feet using an 8-inch-diameter hollow-stem auger. The wells will be constructed using 2-inch-diameter, flush-threaded, schedule-40 polyvinyl chloride (PVC) pipe. A 10-foot-long screened section of the PVC pipe, having 0.010-inch slots, will be positioned in each well to intersect the surface of the groundwater, which is expected to be encountered about 5 to 10 feet below current grade. The well annulus will be backfilled with a filter pack of Lonestar 0/30 sand to one foot above the slotted section, and a minimum 6-inch-thick bentonite seal will be placed above the filter pack. The remaining annulus will be backfilled with a 10-percent bentonite grout seal to protect against surface water infiltration through the sandpack. A locking cap and traffic-rated cover will be placed over each monitoring well at the ground surface.

Task B: Determine Groundwater Flow Direction and Develop One Well

Following well completion, the top of the each well casing will be surveyed by a licensed land surveyor to establish its elevation. Groundwater elevations will be determined in accordance with Geomatrix protocol No. 6 (included in Attachment B) by measuring the distance from the top of the well casings to the groundwater surface with a Teflon or steel tape graduated in increments of one-tenth of a foot. Groundwater levels will be measured to the nearest 0.01 foot. Direction of groundwater flow then will be estimated by

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Ms. Juliet Shin
Alameda County Health Care Services Agency
29 December 1992
Page 3

interpolation between the three wells. The well most directly downgradient of the former UST locations will be selected for development and sampling.

The downgradient well will be developed to loosen debris, stabilize the sandpack, and establish communication with the surrounding water bearing sediments. The well will be developed in accordance with Geomatrix protocol No. 6, which prescribes pumping, bailing, and/or surging until the well produces little or no fines or until water quality parameters (pH, conductivity, temperature) stabilize. Groundwater purged from the monitoring well during development will be stored on site in 55-gallon drums and will be appropriately disposed of after analytical test results are received.

Task C: Sample Groundwater and Chemically Analyze Groundwater Samples

At least 72 hours after developing the downgradient well, we will perform the first of four quarterly monitoring events. Groundwater levels will be measured in the three new wells as described above, and a groundwater sample will be collected from the downgradient monitoring well in accordance with Geomatrix protocol No. 7 (included in Attachment B). Before sampling, at least three well casing volumes of groundwater will be purged from the well, and water temperature, pH, and specific conductance will be measured periodically with field equipment. A submersible pump or a positive air-displacement pump will be used to purge groundwater from the monitoring well casing. The sample will be collected only when the temperature, pH, and specific conductance stabilize. Sampling procedures will include using a Teflon bailer or a stainless steel positive-displacement Teflon bladder pump with Teflon tubing to collect water samples for chemical analysis. The sample will be placed in one-liter amber glass bottles for analysis of total petroleum hydrocarbons as diesel (TPHd), and in 40-ml volatile organic analysis vials for analysis of TPH as gasoline (TPHg), and volatile organic compounds (VOCs).

Groundwater generated during sampling and well development will be temporarily stored on site in 55-gallon drums; AREI will be responsible for appropriate disposal based on analytical results.

After the groundwater sample is collected from the well, it will be transported under Geomatrix chain-of-custody procedures to a state-certified analytical laboratory. As agreed during our 3 September 1992 meeting, the sample will be analyzed for TPHd and TPHg by U.S. Environmental Protection Agency (EPA) Modified Method 8015 and for benzene, toluene, xylenes, and ethylbenzene (BTXE) compounds by EPA Method 8020.

Task D: Prepare Quarterly Monitoring Reports

On behalf of AREI, Geomatrix will prepare an initial letter report that describes the drilling, well installation, well development, and first quarter sampling activities and

Ms. Juliet Shin
Alameda County Health Care Services Agency
29 December 1992
Page 4

results. A site plan, potentiometric surface map, and tables presenting the ground water level measurements and analytical results will be included. Following the initial report, letter reports will be prepared and forwarded to the ACDEH after each quarterly sampling event to summarize direction of groundwater flow and chemical analytical data collected during each event. At the end of four quarters of monitoring, the need for additional periodic monitoring will be evaluated.

SITE HEALTH AND SAFETY PLAN

As required by California's Occupational Safety and Health Administration (OSHA), all work at the site will be performed under a site health and safety plan (HSP). The HSP will incorporate safeguards against chemical and physical hazards associated with drilling and sampling. Personnel working on the site will be required to read and adhere to the plan. The Project Manager will be responsible for implementing the HSP.

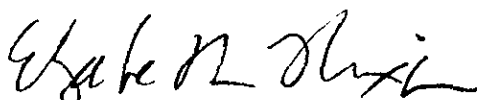
SCHEDULE

We anticipate initiating the groundwater monitoring program at the beginning of January 1993. The initial report will be submitted to the ACDEH in February 1993. Subsequent quarterly sampling will be performed in April, July, and October 1993; quarterly reports will be submitted to the ACDEH in May, August, and November 1993.


If you have any questions regarding this groundwater monitoring program, please call either of the undersigned.

Sincerely,

GEOMATRIX CONSULTANTS, INC.



Elizabeth Nixon
Project Manager

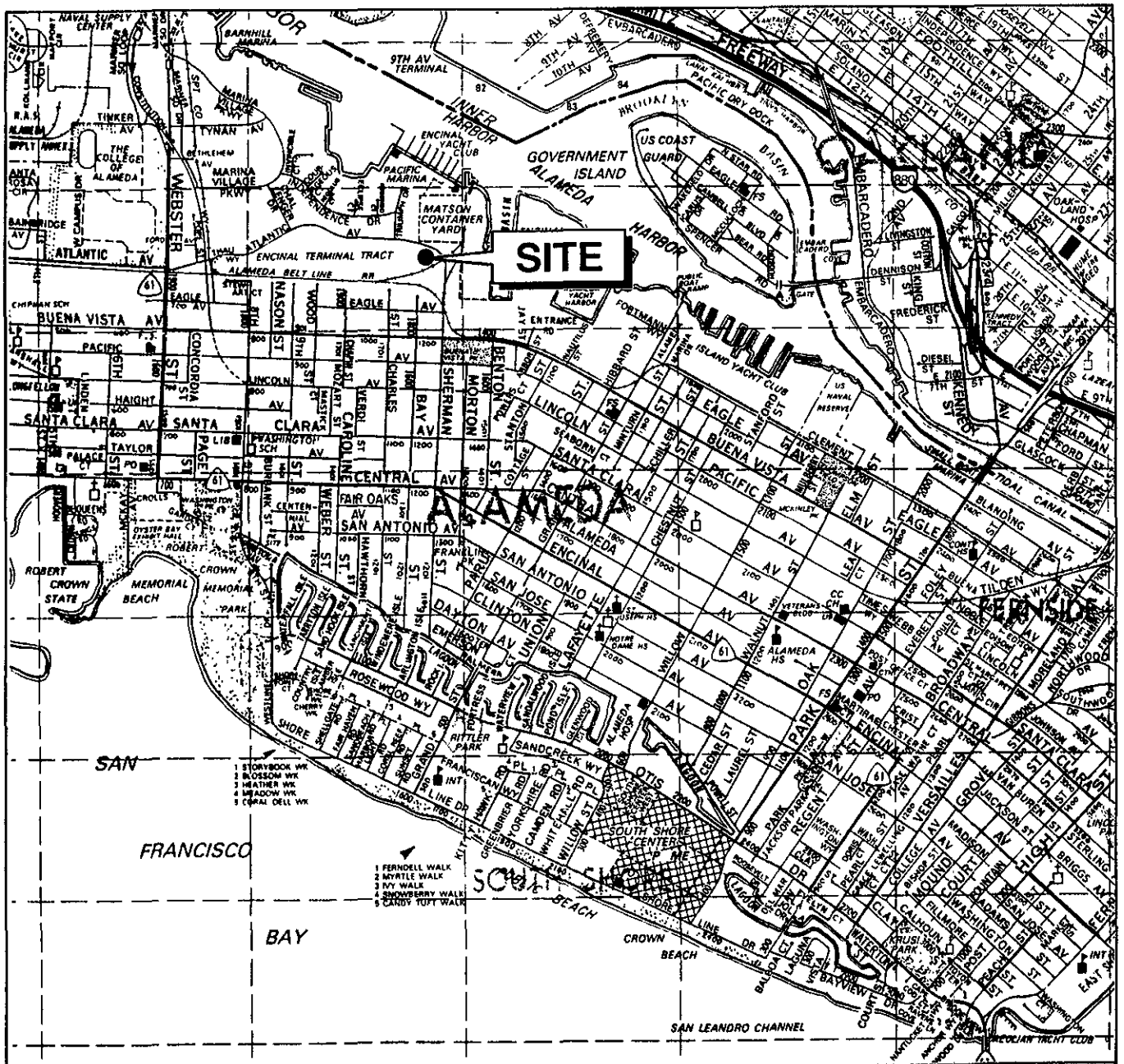


Tom Gray, P.E.
Vice President

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Attachments: A - Geomatrix letter to ACDEH dated 1 September 1992
 B - Geomatrix Protocols

cc: Ms. Cathy Luck, AREI

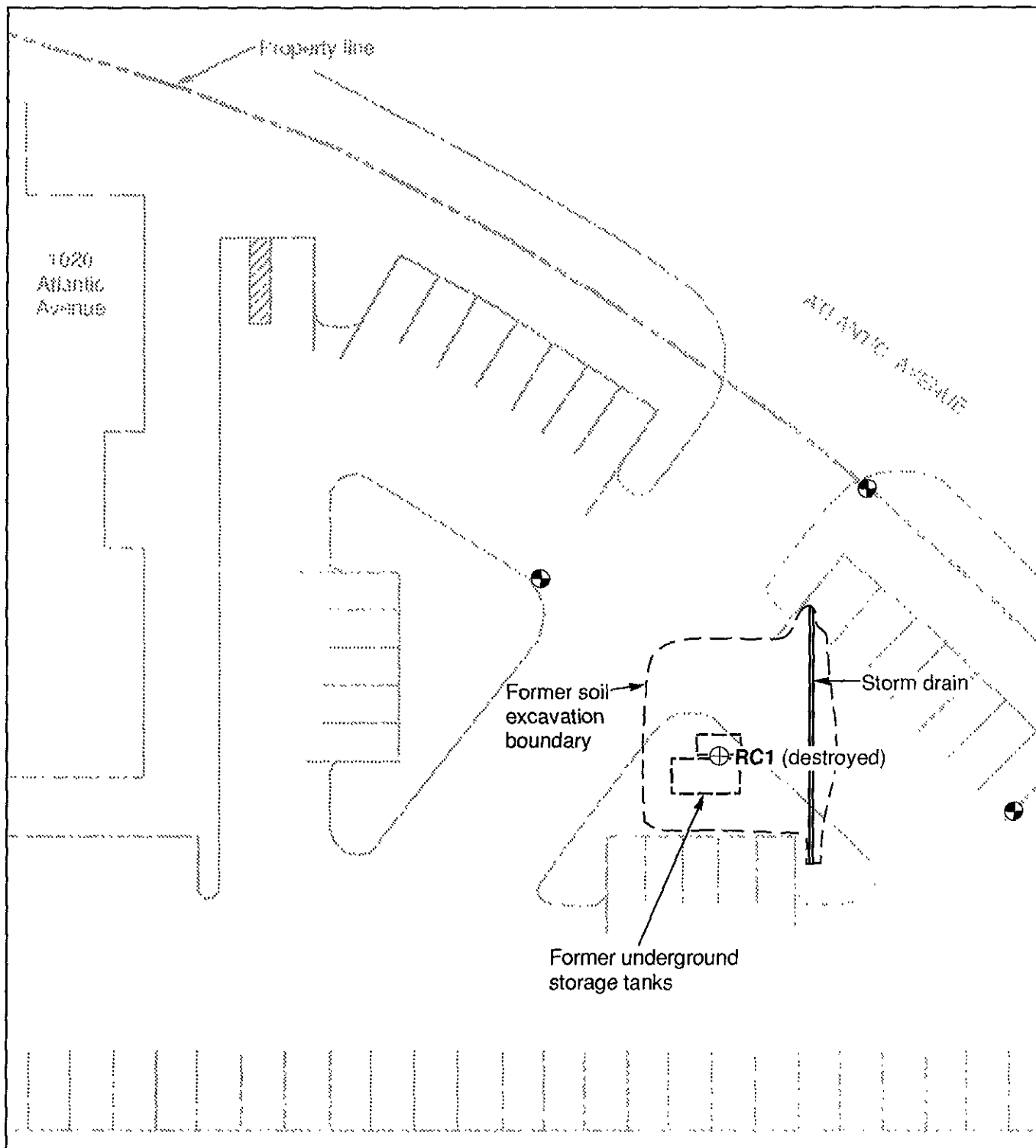


SITE VICINITY MAP
 1020 Atlantic Avenue (Formerly 2051 Sherman Street)
 Rigging International Building)
 Marina Village Development
 Alameda, California



Figure
 1
 Project No
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EXPLANATION

- ⊕ Proposed groundwater monitoring well locations
- ⊕ Former groundwater monitoring well location



SITE PLAN SHOWING PROPOSED MONITORING WELL LOCATIONS
 1020 Atlantic Avenue (Formerly 2051 Sherman Street
 Rigging International Building)
 Marina Village Development
 Alameda, California

Figure
 2
 Project No.
 1736.11