

MARINA VILLAGE
A L A M E D A C A L I F O R N I A

89 DEC -5 AM 11:43

November 30, 1989

Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Katherine Chesick


Reference: Tank Removal - Marina Village
1150 Marina Village Parkway, Alameda

Dear Ms. Chesick:

Enclosed is a work plan proposed by Levine-Fricke to monitor the groundwater in the area of the removed tank which we are considering. Please review and forward to me any comments that you may have.

Sincerely,

ALAMEDA REAL ESTATE INVESTMENTS
By: Vintage Properties - Alameda Commercial


By: Stephen C. Getty
Construction Manager

SCG:ls

Enclosure

LF 89P-276
November 20, 1989

**WORK PLAN FOR
HYDROGEOLOGIC INVESTIGATION
MARINA VILLAGE DEVELOPMENT
1150 MARINA VILLAGE PARKWAY
ALAMEDA, CALIFORNIA**

The following text describes the Scope of Work, Schedule, and Estimated Budget for installation of two shallow ground-water monitoring wells in the vicinity of a former underground fuel storage tank located in the Marina Village Development in Alameda, California (the "Site", Figures 1 and 2). This Work Plan was prepared at the request of Vintage Properties/Alameda Commercial (Vintage), current owner of the property, and is being submitted to the Alameda County Health Agency (ACHA) and Regional Water Quality Control Board (RWQCB) for their review.

BACKGROUND

A 15,000-gallon capacity fuel storage tank was removed from the Site in January of 1989 by Safety Specialists of Santa Cruz, California. The tank was out of service for a number of years (at least since the acquisition of the property by Vintage in the 1970's), but reportedly may have been installed as early as the 1940's. At the time of the tank removal, indications of petroleum hydrocarbons in subsurface soils and ground water in the vicinity of the tank were reportedly observed. Removal of these petroleum-affected soils was reportedly performed by Vintage subsequent to the tank removal in July, 1989.

In a letter dated August 11, 1989 from the ACHD to Vintage, the ACHD requested that a ground-water monitoring program be implemented in the vicinity of the former tank to address potential impacts of petroleum on Site ground water. In response to this request, Vintage retained Levine-Fricke to prepare this Work Plan.

SCOPE OF WORK

The purposes of the proposed Scope of Work are to provide data to:

- o evaluate ground-water flow direction and gradient
- o evaluate ground-water quality regarding petroleum hydrocarbons

- o evaluate potential migration of petroleum-affected ground water, if present

The proposed Scope of Work includes the following tasks:

- Task 1: Obtain Permits and Obtain Utility Clearances
- Task 2: Install Shallow Ground-Water Monitoring Wells
- Task 3: Well Development and Sampling
- Task 4: Laboratory Analyses
- Task 5: Data Analysis and Report Preparation
- Task 6: Project Management and Meetings

A detailed description of these tasks follows.

Task 1: Obtain Permits and Obtain Utilities Clearances

Well drilling permits will be obtained, as required, from the Alameda County Flood Control and Water Conservation District for the installation of proposed monitoring wells.

Utility clearances will be obtained for areas selected for monitoring well installations. Underground Service Alert (USA) will be contacted prior to drilling for public utility locations. Private utilities will be identified by Vintage.

Task 2: Install Shallow Ground-Water Monitoring Wells

Depth to ground water in this area of the Marina Village Development is less than approximately 10 feet below grade. The general ground-water flow direction is reported to be to the northeast, in the direction of the Alameda Inner Harbor. The Harbor is located approximately 400 feet northeast of the former tank location.

During previous work performed by Levine-Fricks, one shallow ground-water monitoring well (LF-1) was installed southwest and on the opposite side of Marina Village Parkway (Figure 2). This well provides data upgradient with respect to ground-water flow direction from the former tank area. In conjunction with data from the two proposed monitoring wells, this existing well can be used to assess localized ground-water flow direction. Another shallow ground-water monitoring well (WC-3), previously installed by Woodward Clyde Consultants (Figure 2) and located approximately 350 northwest of the former tank location, can also be utilized to provide data to evaluate ground-water flow in the area.

Two shallow (approximately 15 feet deep) monitoring wells will be installed within 10 feet of the northeastern edge of the former excavation edge. Approximate locations of proposed monitoring

NOV 20 1989 12:16

wells are shown in Figure 2. Since the depth to ground water is anticipated to be shallow (less than 10 feet) the proposed wells will be completed to a depth of about 15 feet. The actual length and depth of perforated intervals in each well will be determined in the field, based on the depth to ground water and the types, depths and thicknesses of sediments encountered. The bottom of each well will be placed in a lower-permeability zone, if possible. The perforated interval will be selected to sample ground water from shallower and more permeable sediments. The well will be constructed so that the shallow ground-water surface will be below the top of the perforated section of the well to provide for measurement of floating product, if present.

After the well casing has been placed in the completed borehole, the well annulus opposite the perforated interval will be back-filled with an appropriately-sized sand pack to approximately two feet above the perforations. Bentonite will be placed above the sand pack to isolate the perforated interval from the material above. Cement-bentonite grout will then be placed above the bentonite seal to the land surface to seal the remainder the bentonite interval from surface water. A protective, locking steel cover will then be placed over the top of the casing to protect the well's integrity. A weatherproof and tamperproof metal or concrete box and cover will then be cemented in place, flush with the surface grade over the top of the well.

All newly-installed wells will be surveyed to the nearest 0.01 foot and related to the City of Alameda Datum to allow accurate ground-water elevation measurement.

Water-level measurements will be collected from monitoring wells at the site to evaluate shallow ground-water flow direction and gradients. At each monitoring well, thickness of the free product (if any) will be measured.

Task 3: Well Development and Sampling

Newly-installed monitoring wells will be developed by pumping, surging and/or bailing to remove finer particles near the well screen and improve hydraulic communication with the surrounding formation. Parameters such as water clarity, pH, temperature, specific conductance and volume extracted will be measured during development. Development will terminate when the well visually produces little or no sediment and water-quality indicators measured during development and sampling stabilize. All water will be stored in temporary holding tanks pending receipt of the water-quality results.

One round of samples will be collected from each newly installed monitoring well. The wells will be sampled after at least three well casing volumes have been withdrawn from each well. Samples

will be collected using a Teflon bailer. The bailer will be cleaned with laboratory-grade detergent, followed by a deionized water rinse between each sampling. Samples will be decanted from the bailer into laboratory-supplied glass or plastic bottles and 40-ml VOA vials with Teflon septa, then stored in a chilled cooler for shipment to the laboratory.

Duplicate and field blank samples will be collected and analyzed during each round of sampling for quality control purposes. The second round of samples will be collected within approximately one week after the first round is collected to confirm initial laboratory results. Samples will be collected and transported using strict chain of custody protocol.

The ACHA has required that ground-water sampling be performed quarterly for at least one year in order to provide ground-water quality data and to establish ground-water elevation levels, gradient and flow direction. Therefore, for budgetary purposes, four rounds of water sampling have been included.

Task 4: Laboratory Analysis

Five ground-water samples (one sample from each of three wells, a blank and a duplicate) per sampling event will be analyzed for total petroleum hydrocarbon (TPH) as both gasoline and diesel and BTX compounds using modified EPA Methods 8015 and 602.

All analyses have been budgeted for normal two-week laboratory turnaround time. All samples will be analyzed by a State-certified laboratory.

Task 5: Data Analysis and Report Preparation

Data gathered during the course of investigation will be evaluated, and a report will be prepared. The report will contain descriptions of methodologies used to collect and analyze data, include graphical representation of well locations, ground-water elevation contours, ground-water quality data, and product thickness data (if present), the interpretations of such data, and the technical rationale for the conclusions reached.

Subsequent to the initial report, three additional reports (one per quarter) will be prepared to present data gathered during each sampling event.

Task 6: Project Management and Meetings

Ms. Elizabeth Nixon, Project Geotechnical Engineer, will be the project manager. As such, she will be the primary contact for Vintage and will be responsible for technical and administrative aspects of the project. Mr. Charles Pardini, Senior Staff

NO. 20 '89 12:18

P.7

Hydrogeologist, will assist with project management duties and responsibilities, and will be responsible for the field investigations and hydrogeologic evaluations. Mr. Thomas Johnson, R.G. and Principal Hydrogeologist, will be the project's peer reviewer and will participate in the technical, administrative and regulatory aspects of the project.

NOV 20 '89 12:18

P.8

SCHEDULE

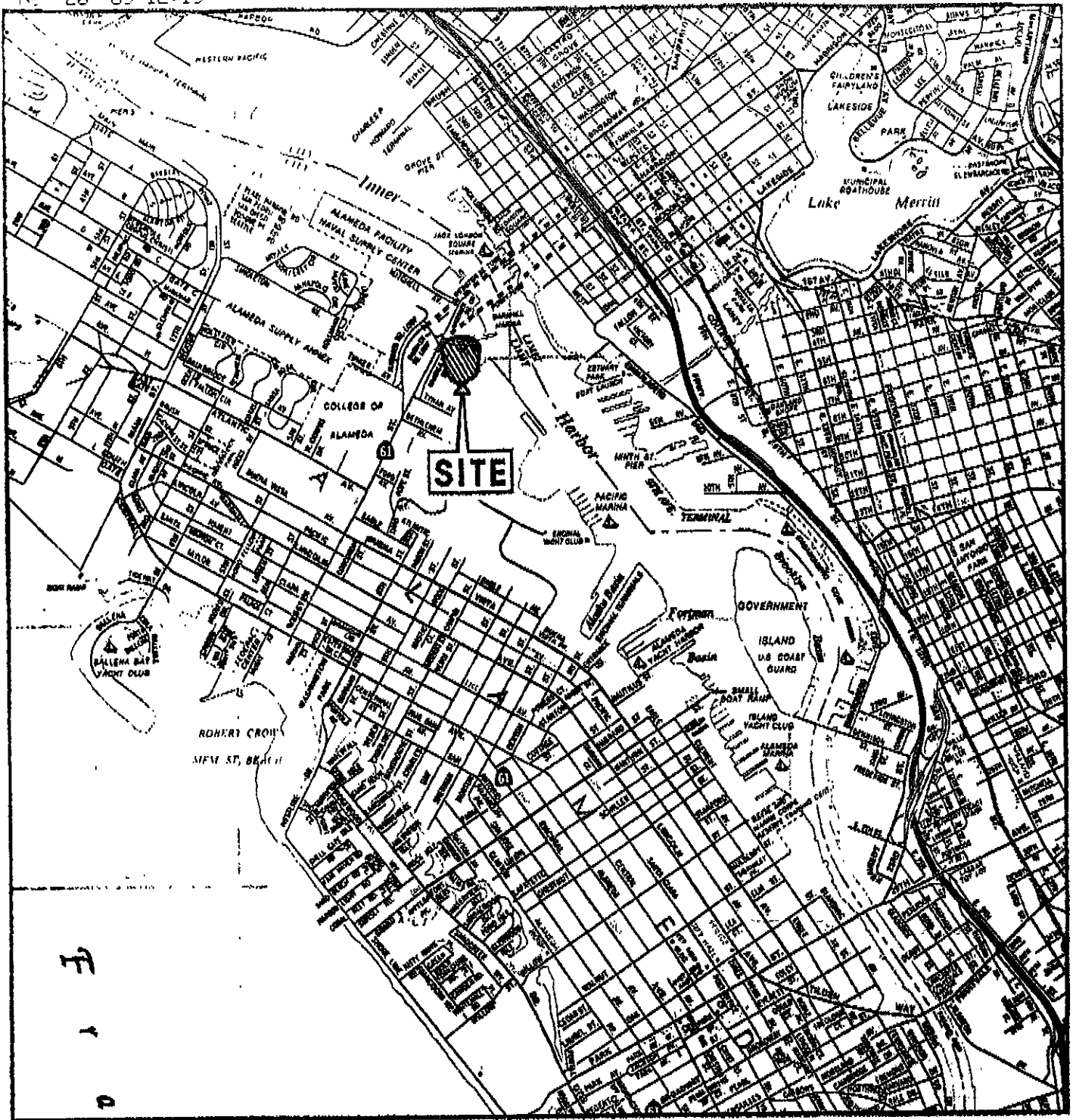
Levine-Fricke can begin this work within one month after receiving authorization to proceed from Vintage Properties, depending on subcontractor availability and the acquisition of drilling permits from the ACFCWCD.

We estimate that drilling and surveying can be completed within approximately two weeks after beginning work. Based on a standard laboratory turnaround time of two weeks, it is estimated that a draft report can be completed within approximately eight weeks after initiation of drilling at the site. After receipt of review comments from Vintage, a final report will be submitted to the RWQCB and the ACHA.

ESTIMATED BUDGET

Work will be conducted on a time-and-materials basis in accordance with our current Schedule of Charges. We estimate the time requirements and subsequent costs of this proposed Scope of Work based upon a level of effort deemed appropriate for the investigation. Any anticipated modifications to this estimate will be discussed with Vintage representatives as they become evident. The estimated total budget will not be exceeded without prior authorization from those representatives.

Task 1:	Obtain Permits and Obtain Utility Clearances	\$ 800
Task 2:	Install Two Shallow (15-foot deep) Ground-Water Monitoring Wells (includes drilling subcontractor, survey contractor and Levine-Fricke personnel)	4,500
Task 3:	Well Development and Sampling (Four sampling events)	4,000
Task 4:	Laboratory Analysis (20 water samples using modified EPA Method 8015 and EPA Method 602)	6,000
Task 5:	Data Analysis and Report Preparation (Four quarterly reports)	9,000
Task 6:	Project Management and Meetings	3,000
	Estimated Total	\$ 27,300



MAP SOURCE:
 California State Automobile Association
 Oakland/Berkeley/Alameda
 June 1982

Figure 1 : SITE LOCATION MAP

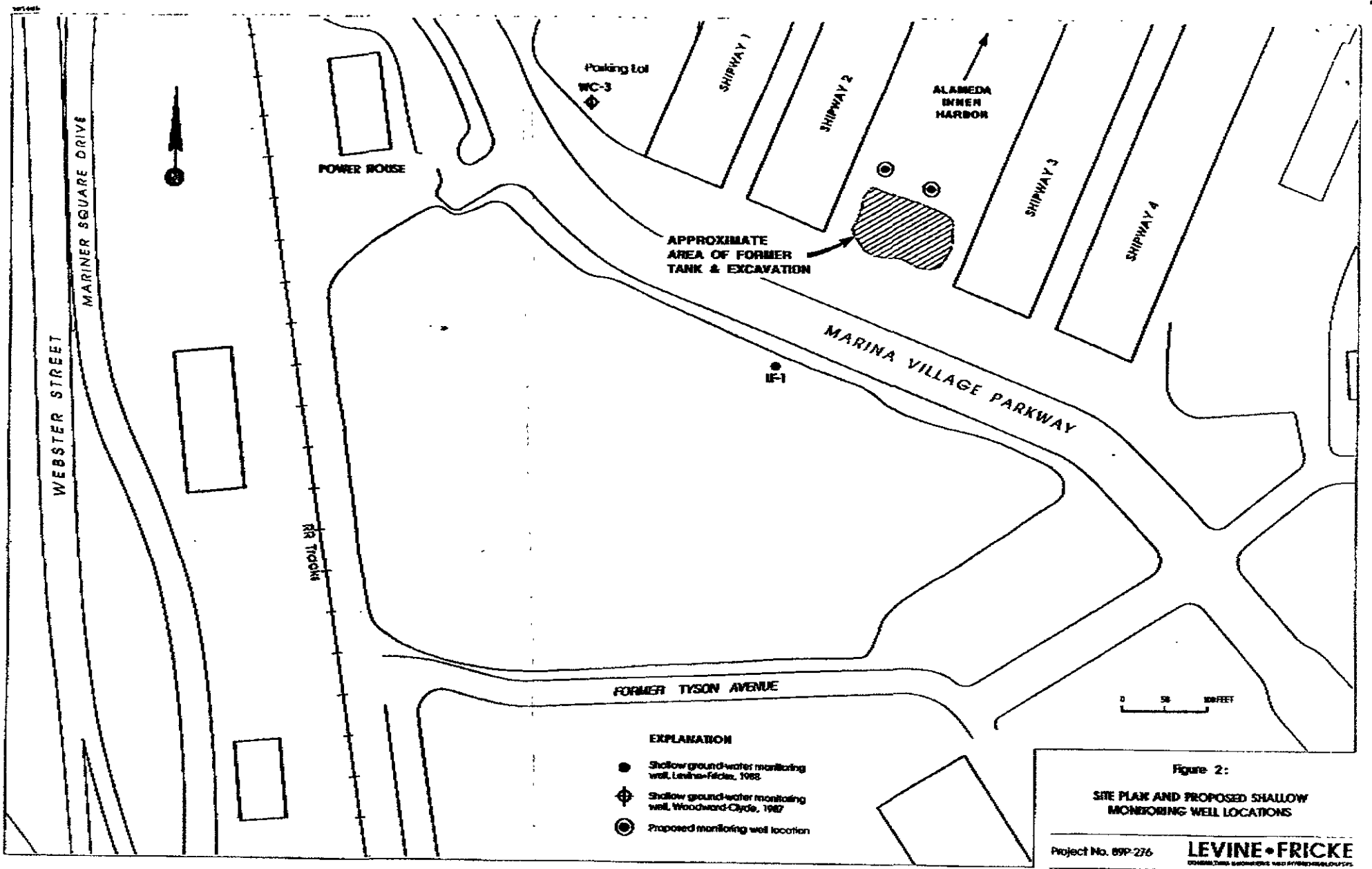


Figure 2:
 SITE PLAN AND PROPOSED SHALLOW
 MONITORING WELL LOCATIONS

Project No. 89P-276
LEVINE • FRICKE
CONSULTING ENGINEERS AND HYDROGEOLOGISTS
 EAM12NOV89jc