aqua science engineers inc.

May 16, 1994

Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, CA 94621

ATTENTION: Ms. Juliet Shin

SUBJECT: WORKPLAN #2750
SOIL AND GROUNDWATER ASSESSMENT
2110 Santa Clara Avenue
Alameda, CA 94501

Dear Ms. Shin:

On behalf of our client, Mr. Michael Ghidella, Aqua Science Engineers, Inc. is pleased to submit this workplan for assessment of the soil and groundwater downgradient of the former UST at the subject site. Being that the subject site is currently in escrow, our client greatly appreciates your time and effort in reviewing this workplan. ASE hopes to install the monitoring well described within on Friday, May 20, pending the County's approval.

Mr. Ghidella's address is:

45750 San Louis Ray Avenue, Unit 158
Palm Desert, CA 92260

If you have any questions or comments, please feel free to give us a call at (510) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

David Allen
Project Manager

Attachment: Workplan #2750

cc: Mr. Rich Hiett, RWQCB - San Francisco Bay Region

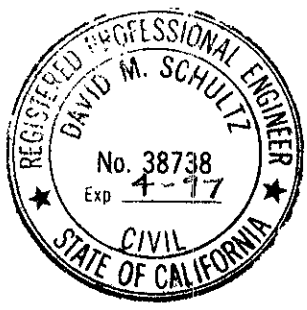
WE'VE MOVED TO
2411 OLD CROW CANYON RD #4
SAN RAMON, CA 94583
510-820-9391

Aqua Science Engineers Inc., CA 94583 • 415-820-9391 • FAX 415-837-4853

aqua science engineers inc.

May 16, 1994

WORKPLAN
for
SOIL AND GROUNDWATER
ASSESSMENT, NO. 2750
at
2110 Santa Clara Avenue
Alameda, California



Submitted by:
AQUA SCIENCE ENGINEERS, INC.
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
(510) 820-9391

INTRODUCTION

This submittal outlines Aqua Science Engineer's, Inc. (ASE) proposed workplan for environmental activities at 2110 Santa Clara Avenue in Alameda, California (Figure 1). The proposed site assessment activities were initiated by the property owner, Mr. Michael Ghidella, in accordance with a recent telephone conversation with Ms. Juliet Shin from the Alameda County Health Care Services Agency (ACHCSA). Presented below are a site history summary and an outline of ASE's proposed scope of work.

SITE HISTORY

See ASE UST Removal Report, dated May 9, 1994

On May 3, 1994 one (1) 1,500 gallon diesel-fuel UST was removed from the subject site by ASE. Two soil samples were collected from beneath the UST and chemically analyzed for total petroleum hydrocarbons as diesel (TPH-D) and BTEX. Results of the chemical analyses indicated moderate TPH-D concentrations (1,900 mg/kg) from the sample collected beneath the east end of the UST; however no BTEX constituents were detected.

Overexcavation of stained soil was attempted by ASE; however, shallow groundwater appeared to be seeping into the excavation making further soil-removal impossible.

Approximately 5 cubic yards of diesel-contaminated soil was overexcavated and stockpiled on site. The stockpile will be removed and disposed of at a local Class III recycling facility upon completion of monitoring well installation activities. The excavation was backfilled immediately with clean, overburden and clean, imported material.

PROPOSED SCOPE OF WORK (SOW)

Based on the site history and requirements discussed with Ms. Shin by telephone, ASE proposes a soil and groundwater assessment which includes the installation of one (1) soil boring, later converted to a 2-inch groundwater monitoring well, in the downgradient direction of the former UST. ASE reviewed files at the RWQCB office and found two sites on Santa Clara Avenue (2244 and 2501) that contain recent groundwater direction data. A copy of the most current potentiometric surface maps of the two sites are included in Appendix A. Both sites show consistent groundwater flow directed toward the north/northeast. Therefore, ASE plans to use this data in positioning the soil boring/monitoring well north/northeast of the former UST - in the parking area of Santa Clara Avenue (see Figure 2).

& Also 2200 Central located near site showed product moving north/northeast.

The task list will be as follows:

1) Obtain all necessary permits from the appropriate agencies to to install a soil boring/monitoring well in the right-of-way on Santa Clara Avenue.

2) Drill one (1) soil boring to approximately 20-feet below ground surface (bgs) at the location shown on Figure 2.

3) Collect one (1) soil sample at the capillary fringe from the boring and analyze it for TPH-D and BTEX.

4) Complete the boring described in task 2 as a 2-inch diameter groundwater monitoring well.

5) Develop the monitoring well.

6) Collect groundwater samples for chemical analyses of TPH-D and BTEX.

7) Report the subsurface investigation results.

Each of these items are described in detail below.

1) ASE will obtain a Zone 7 - Alameda County Water District permit for the installation of one (1) monitoring well. ASE will also apply for and receive a City of Alameda Excavation Permit for the installation of the well in a public street. ASE will also send a notification card to the California Department of Water Resources (DWR). ASE will contact Underground Service Alert (USA) to mark all known utilities in the immediate site vicinity. After the well is completed, ASE will send a well completion report to the DWR as required.

2) ASE will drill one (1) soil boring at the site in the location shown on Figure 2. The boring will be drilled with an 8-inch diameter, hollow-stem auger, limited-access drill rig. The drilling will be directed by a qualified ASE geologist. Undisturbed soil samples will be collected at the capillary fringe (assumed to be 6-8 feet bgs) for subsurface hydrogeologic description and chemical analyses. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in stainless steel tubes using a split-barrel drive sampler advanced ahead of the auger tip by successive blows from a pneumatic. Each sample will be

every 5' & at lithologic changes.

immediately removed from the sampler, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will be placed into an ice chest containing ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory. Soil from the remaining tubes not sealed for laboratory analysis will be removed for hydrogeologic description and will be screened for volatile compounds with an OVM. The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the OVM will measure the vapor through a small hole, punched in the bag. These OVM readings will be used to decide which samples will be analyzed at the analytical laboratory. Soil cuttings will be stockpiled on and covered with plastic sheeting. Soil disposal will be arranged by the client at a later date.

All sampling equipment will be cleaned in buckets with brushes and a TSP or Alconox solution, then rinsed twice with tap water. The drill rig and augers will be steam cleaned prior to departure. Rinsates will be contained on-site in sealed and labeled Department of Transportation approved 55-gallon (DOT 17H) drums for disposal by the client at a later date.

3) At least one (1) soil sample will be collected and analyzed at a CAL-EPA certified environmental laboratory for TPH-D and BTEX.

4) ASE will complete the soil boring described above as a 2-inch diameter groundwater monitoring well. The well will be constructed with 2-inch diameter, flush-threaded, schedule 40, O.010-inch slotted PVC well screen and blank casing. The well casing will be lowered through the augers and #2/12 sand will be placed in the annular space between the well casing and the borehole to about 2-feet above the screened interval. Approximately 2 feet of bentonite pellets will be placed on top of the sand pack and hydrated with deionized water. This bentonite layer will prevent the cement sanitary seal from infiltrating into the sand pack. Cement mixed with 3 to 5 percent bentonite powder by volume will be used to fill the annular space between the bentonite layer and the surface to prevent surface water from infiltrating into the well. The well head will be protected by a locking well plug and an at-grade, traffic-rated well box .

The well will be screened to monitor the first water-bearing zone encountered. The well will typically be screened with 2-5 feet of screen above the water table and 10-15 feet of screen below the water table. If a confining layer is encountered below the first water bearing zone, its thickness will be confirmed by sampling with decreasing diameter split barrel samplers. The sampling hole through the underlying confining layer will be sealed with bentonite pellets. ASE will not cross-screen two or more water-bearing zones separated by confining layers.

5) The monitoring well will be developed after waiting at least 72 hours after well construction. The well will be developed using at least two episodes of surge block agitation and bailer evacuation. At least ten well casing volumes of water will be removed during the development, and development will continue until the water appears to be reasonably clear.

6) After waiting 72 hours after the well development, ASE will sample the well. Prior to purging and sampling, the groundwater will be checked for sheen and free product. Free product and sheen will be measured with an acrylic bailer which will be lowered slowly to the groundwater surface and filled approximately half full for direct observation. ASE will also measure the depth to groundwater in the well prior to the well being purged. Prior to sampling, the well will be purged of at least four well casing volumes of groundwater. Temperature, pH and electrical conductivity will be monitored during well purging, and purging will continue beyond four well casing volumes if these parameters have not stabilized. Groundwater samples will be collected from the well using a disposable polyethylene bailer. Groundwater will be decanted from the bailer into two 40-ml glass volatile organic analysis (VOA) vials and two 1-liter amber glass bottle. These samples will be preserved as necessary, labeled with the site location, sample designation, date and time the samples were collected, and the initials of the person collecting the samples. The samples will be placed in an ice chest containing ice for transport to the analytical laboratory under chain of custody. Purged groundwater will be stored on-site in sealed and labeled DOT 17H drums for disposal by the client at a later date.

7) All groundwater samples will be analyzed for TPH-D, BTEX, pH and conductivity.

8) ASE will submit a subsurface investigation report outlining the methods and findings of this investigation. The report will be submitted under the seal of State Registered Civil Engineer, Mr. David Schultz (#38738). This report will include a summary of the results, the site background and history, the topographic and geologic setting, rational for well placement and design, description of the well construction, development and sampling, tabulated soil and groundwater analytical results, and data collected during the well development and sampling including estimated flow rate, pH, temperature, and electrical conductivity on the initial sampling, and conclusions. Formal boring logs, analytical reports, and chain of custodies will be included as appendices.

SCHEDULE

We anticipate beginning work at this site upon approval of the workplan by the ACHCSA; drilling is tentatively scheduled for Friday, May 20.

Aqua Science Engineers appreciates the opportunity to assist you with you environmental needs. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

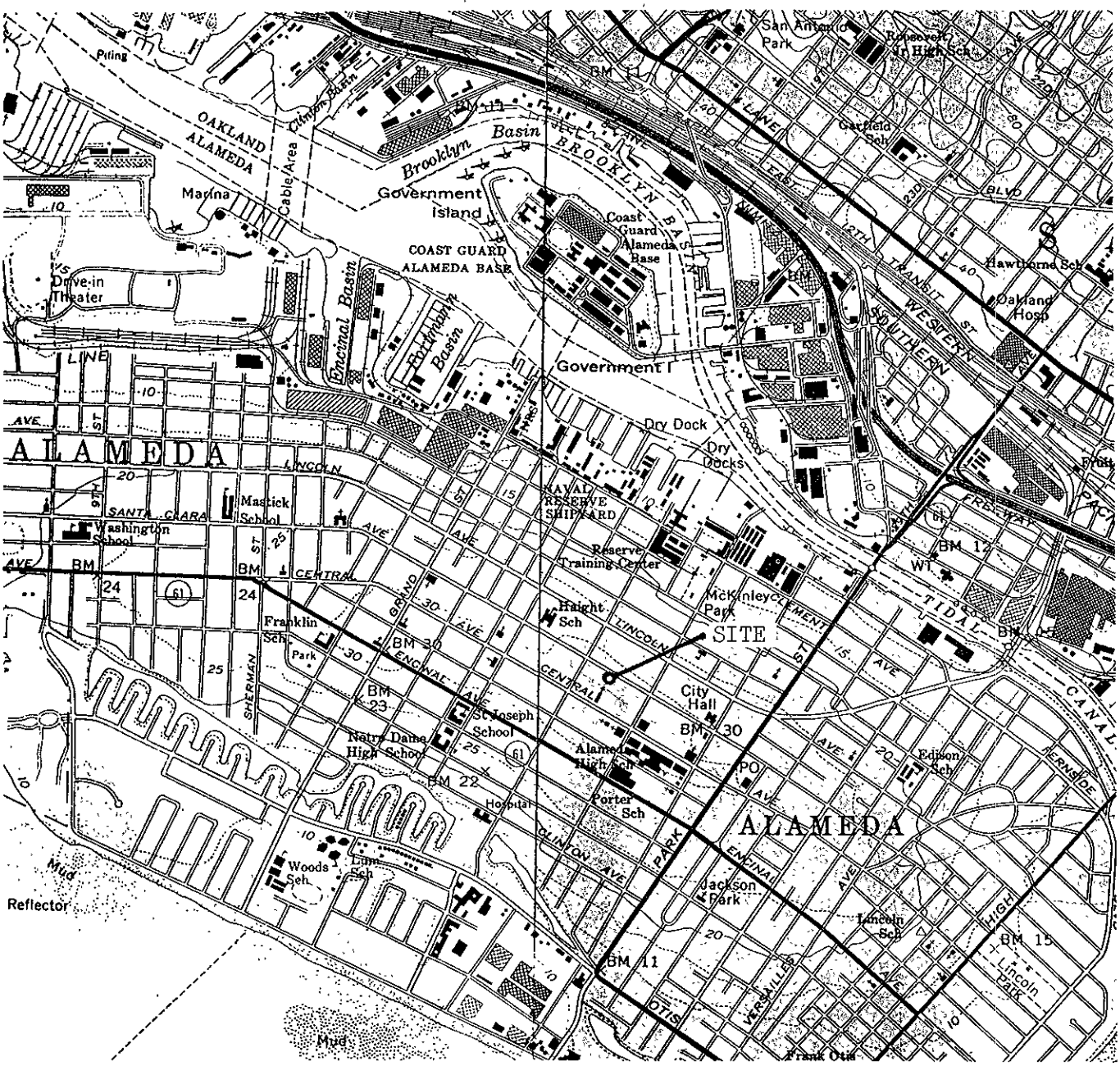
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

David Allen
Project Manager

Attachments: Figures 1 & 2
Appendix A

cc: Ms. Juliet Shin, ACHCSA
Mr. Rich Hiett, RWQCB, San Francisco Bay Region

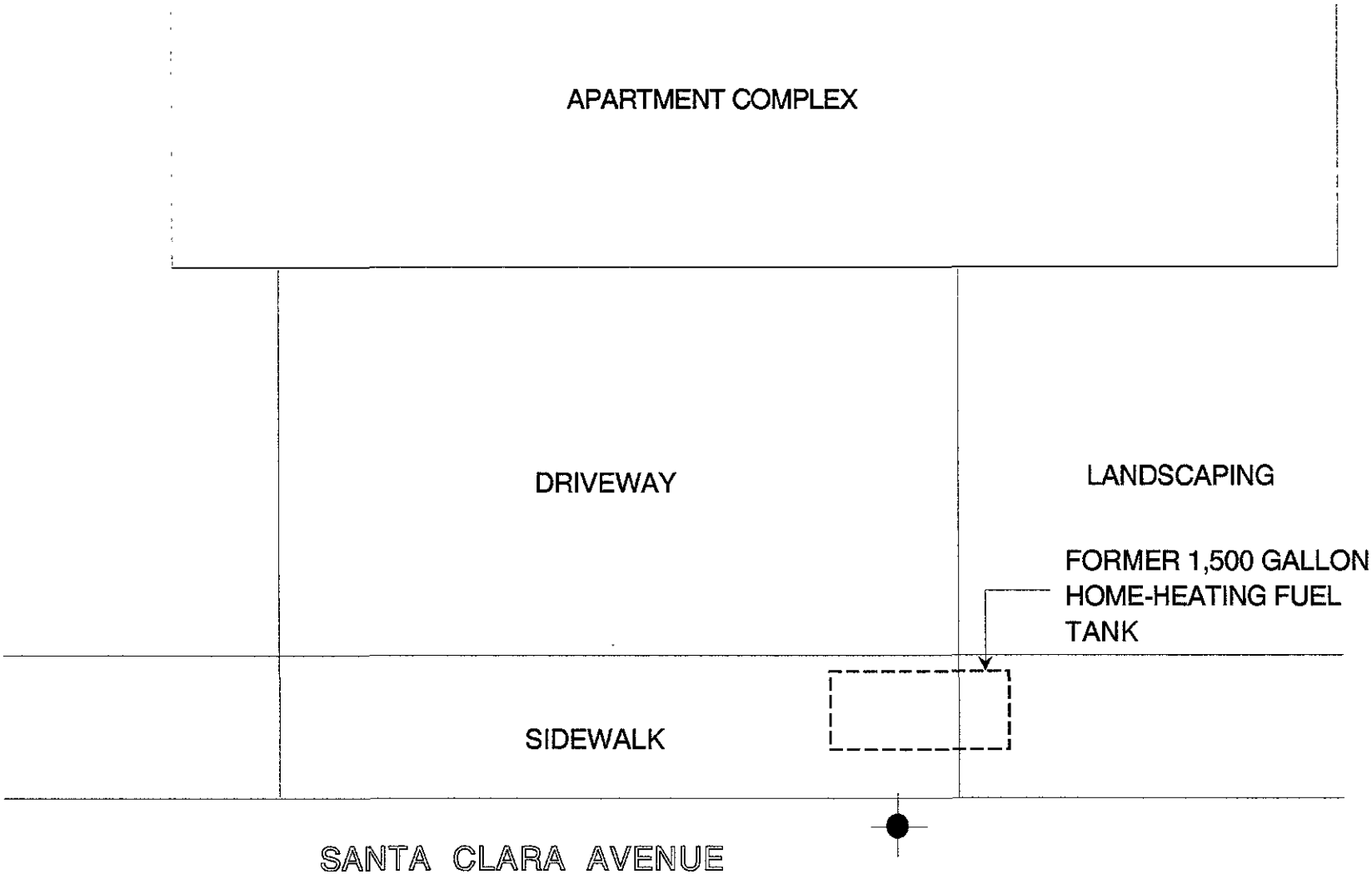


BASE: Oakland East and Oakland West 7.5 minute quadrangle topographic map, dated 1980, scale 1:24,000.

LOCATION MAP

Ghidella Property
2110 Santa Clara Avenue
Alameda, California

Aqua Science Engineers | Figure 1



PROPOSED MONITORING WELL LOCATION MAP

Ghidella Property
2110 Santa Clara Avenue
Alameda, California

LEGEND

Proposed Groundwater Monitoring Well

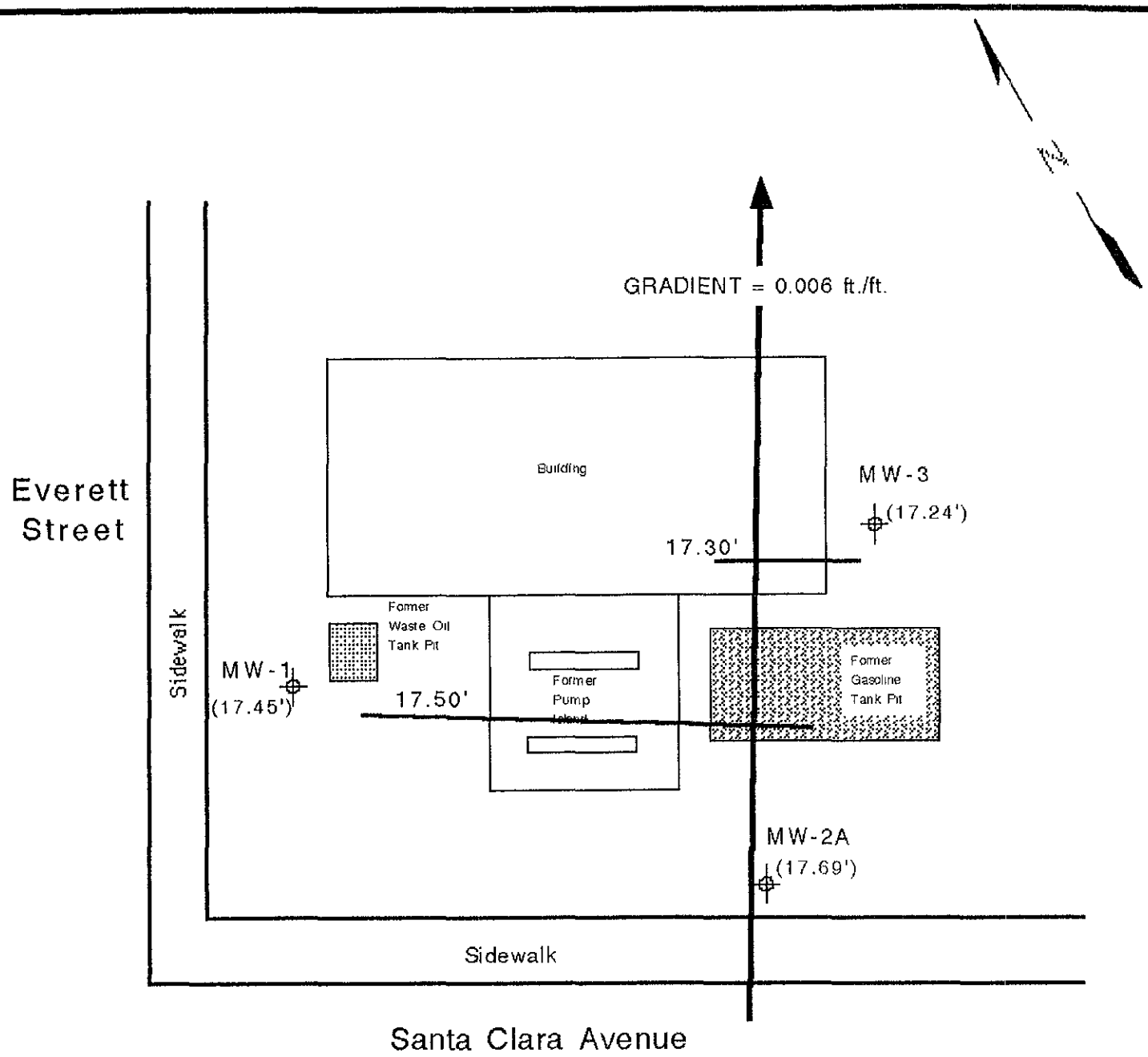
NORTH

NO SCALE

AQUA SCIENCE ENGINEERS, INC. | Figure 2

APPENDIX A

Potentiometric Surface Maps for
2244 Santa Clara Avenue
and
2501 Santa Clara Avenue



0 ft. 30 ft.

SCALE

LEGEND

MW-1
(17 45') Monitoring Well with groundwater depth in feet above mean sea level

Groundwater Gradient direction

GROUNDWATER GRADIENT MAP
(AS OF 7/27/93)

Goodman Property
2501 Santa Clara Avenue
Alameda, California

Aqua Science Engineers | Figure 2

ENVIRONMENTAL TECHNICAL SERVICES

For ZACCOR CORPORATION, at: 2244 Santa Clara Street, Alameda, California