MW-4
SCIC RO 2656
HUNTING AREA

aqua science engineers inc.

ENVIRONMENTAL PROTECTION
96 DEC -3 PM 1:19

December 2, 1996

WORKPLAN
for
SOIL AND GROUNDWATER ASSESSMENT
at
Emeryville Properties
1400 Park Avenue
Emeryville, California

REGISTERED PROFESSIONAL ENGINEER
DAVID M. SCHULTZ
No. 38738
Exp. 4-97
CIVIL
STATE OF CALIFORNIA

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

2411 Old Crow Canyon Road, Suite 4, San Ramon, CA 94583 • 510-820-9391 • Fax 510-837-4853

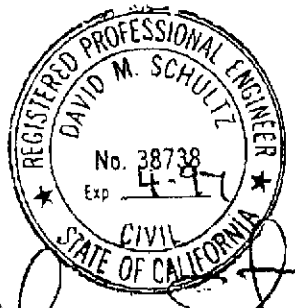
aqua science engineers inc.

Post-it® Fax Note 7671	Date 12-2-96	# of pages ▶ 10
To MS. SUSAN HUGO	From DAVID ALLEN	
Co./Dept. LOP	Co. AQUA SCIENCE	
Phone #	Phone # 820.9391	
Fax #	Fax # 837.4853	

December 2, 1996

Gwen Tellegen
Manager
Environmental Engineering and Compliance
17910 S. Central Ave
Compton CA 90220
~~2300 East Imperial Highway · El Segundo, California 90245~~
Tel. # (310) 640-9100 Fax # (310) 640-3341
(310) 920-4779

WORKPLAN
for
SOIL AND GROUNDWATER ASSESSMENT
at
Emeryville Properties
1400 Park Avenue
Emeryville, 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 a soil and groundwater assessment at the Emeryville Properties property located at 1400 Park Avenue in Emeryville, California (Figure 1). The proposed site assessment activities were initiated by Emeryville Properties as required by 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

The portion of the site that will be investigated during this assessment deals with the former honing process used by the previous occupant of the building. On July 21, 1995 ASE excavated 112.36 tons of petroleum-hydrocarbon contaminated soil from below a truck dock that was fitted with a honing machine and honing oil used to polish metal parts. Analytical results of sidewall excavation soil samples (6-feet below ground surface (bgs)) indicated the presence of hydrocarbons from C8 to C44 as high as 870 ppm and oil and grease concentrations as high as 1,600 ppm. Bottom of excavation soil samples collected 10-feet bgs were N.D. for hydrocarbons from C8 to C44 and only 20 ppm oil and grease. A grab groundwater sample collected from within the pit contained 7,000 ppb total hydrocarbons and 11,000 ppb total oil and grease. Soil and water samples were also analyzed for VOCs by EPA method 8010. None of the soil samples contained VOC concentrations above reporting limits. However, the water sample contained PCE, TCE, Vinyl Chloride and other breakdown compounds as high as 100 ppb.

Further overexcavation of contaminated soil was not possible due to the position of the excavation in proximity to the building walls and the adjacent Horton Street and sidewalk.

The excavation was backfilled with clean, imported soil, and the contaminated soil was transported to and disposed of at the Forward, Inc. non-hazardous landfill in Manteca, CA on July 13, 1995.

For further details regarding the honing process excavation activities, see the ASE Project Report dated August 3, 1995.

PROPOSED SCOPE OF WORK (SOW)

Based on the requirements of the ACHCSA, ASE's proposed SOW is as follows:

1) Obtain an encroachment permit from the City of Emeryville to install a groundwater monitoring well in the city's right of way and a subsurface drilling permit from the Alameda County Flood Control and Water Conservation District (Zone 7). The health and safety plan already prepared for this site will be used during this phase of work.

2) Drill one soil boring in Horton Street west/downgradient of the former honing process area (Figure 2). Collect soil samples for hydrogeologic description and analysis.

3) Construct a groundwater monitoring well in the boring.

4) Develop the monitoring well using surge block agitation and bailer evacuation.

5) Collect groundwater samples for analysis.

6) Analyze one (1) soil and one (1) groundwater sample at a CAL-EPA certified analytical laboratory for total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 5030/8015, total petroleum hydrocarbons as diesel (TPH-D) and motor oil (TPH-MO) by modified EPA Method 3510/8015, volatile organic compounds (VOCs) by EPA Method 8240 and Pb and Cr by EPA Method 6010. In addition, if TPH-D or TPH-MO are detected in any of the samples, those samples will also be analyzed for polynuclear aromatic compounds (PNAs) by EPA Method 8310.

7) Survey the top of casing elevation of the well relative to the existing on-site wells and determine the groundwater flow direction and gradient beneath the site.

8) Present a report outlining the methods and findings of this assessment.

TASK 1 - OBTAIN ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES FOR MONITORING WELL INSTALLATION

ASE will obtain an encroachment permit from the City of Emeryville to install a well in the city's right-of-way. In addition, ASE will obtain a well construction permit from the Alameda County Flood Control and Water Conservation District (Zone 7) and will send a notification card to the California Department of Water Resources (DWR). ASE will also contact Underground Service Alert (USA) to mark all known utilities in the immediate site vicinity. After the well is completed, ASE will send well completion reports to Zone 7 and the DWR as required.

TASK 2 - DRILL ONE SOIL BORING AND COLLECT SOIL SAMPLES

ASE will drill one soil boring with an 8-inch diameter hollow-stem auger drill rig within 10-feet of the former honing process location in the assumed downgradient direction (Figure 2). The drilling will be directed by a qualified ASE geologist. Undisturbed soil samples will be collected at least every 5-feet, at lithographic changes, and from just above the water table for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System. The samples will be collected in brass tubes using a split-barrel drive sampler advanced ahead of the auger tip by successive blows from a 140-lb. hammer dropped 30-inches. The samples will be immediately removed from the sampler, trimmed, sealed with Teflon tape, plastic end caps and duct tape, labeled, placed into plastic bags and placed on ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory. Soil from the remaining brass 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 brass 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 to analyze at the analytical laboratory. Soil cuttings will be placed in Department of Transportation (DOT) approved 55-gallon DOT 17H drums. 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 on-site before departure. Rinsates will be

contained on-site in sealed and labeled 55-gallon DOT 17H drums for disposal by the client at a later date.

TASK 3 - COMPLETE THE BORING AS A MONITORING WELL

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.020-inch slotted PVC well screen and blank casing. The well casing will be lowered through the augers and #3 Monterey sand will be placed in the annular space between the well casing and the borehole to about 2-feet above the screened interval. Approximately 1 foot 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 (Figure 3).

The well will be screened to monitor the first water-bearing zone encountered. Wells will typically be screened with 5-feet of screen above the water table and 10 to 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.

TASK 4 - DEVELOP THE MONITORING WELL

Prior to well development, the groundwater will be checked for sheen or free-floating hydrocarbons. Free-floating hydrocarbons and sheen will be measured with an acrylic bailer which will be lowered slowly to the groundwater surface and filled about half full for direct observation. 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.

TASK 5 - COLLECT GROUNDWATER SAMPLES FROM THE MONITORING WELL

Prior to sampling, the groundwater will be checked for sheen or free-floating hydrocarbons. Free-floating hydrocarbons and sheen will be measured with an acrylic bailer which will be lowered slowly to the groundwater surface and filled about half full for direct observation. The well will then be purged of at least four well casing volumes of groundwater. The pH, temperature and conductivity of the purge water will be monitored during purging and samples will not be collected until these parameters stabilize. Groundwater samples will be collected from the well using a disposable polyethylene bailer. Ground water will be decanted from the bailer into 40-ml glass volatile organic analysis (VOA) vials and 1-liter amber glass bottles. These samples will be preserved with hydrochloric acid, labeled and stored on wet 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.

TASK 6 - ANALYZE THE SOIL AND GROUNDWATER SAMPLES

At least one soil sample as well as the groundwater sample will be analyzed at a CAL-EPA certified analytical laboratory for TPH-D and TPH-MO by modified EPA Method 3510/8015, TPH-G by modified EPA Method 5030/8015, VOCs by EPA Method 8240, and Cr and Pb by EPA Method 6010. If necessary, the samples will also be analyzed for PNAs by EPA method 8310.

TASK 7 - SURVEY THE TOP OF CASING ELEVATION OF THE MONITORING WELL

The top of casing of the new monitoring well will be surveyed relative to the elevations of the existing site monitoring wells. This survey data will be used to determine the groundwater flow direction and gradient beneath the site.

TASK 8 - PREPARE A SUBSURFACE INVESTIGATION REPORT

ASE will prepare a subsurface assessment report outlining the methods and findings of this assessment. The report will be submitted under the seal of a state registered civil engineer or geologist. This report will include a summary of the results, the site background and history, 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, conclusions and recommendations. Formal boring logs, analytical reports, and chain of custodies will be included as appendices.

SCHEDULE

We anticipate beginning work at this site immediately following the receipt of a letter approving this workplan by the Alameda County Health Care Services Agency. Drilling is expected to take place during the first two weeks of December 1996.

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, R.E.A.
Senior Project Manager

Attachments: Figures 1, 2 & 3

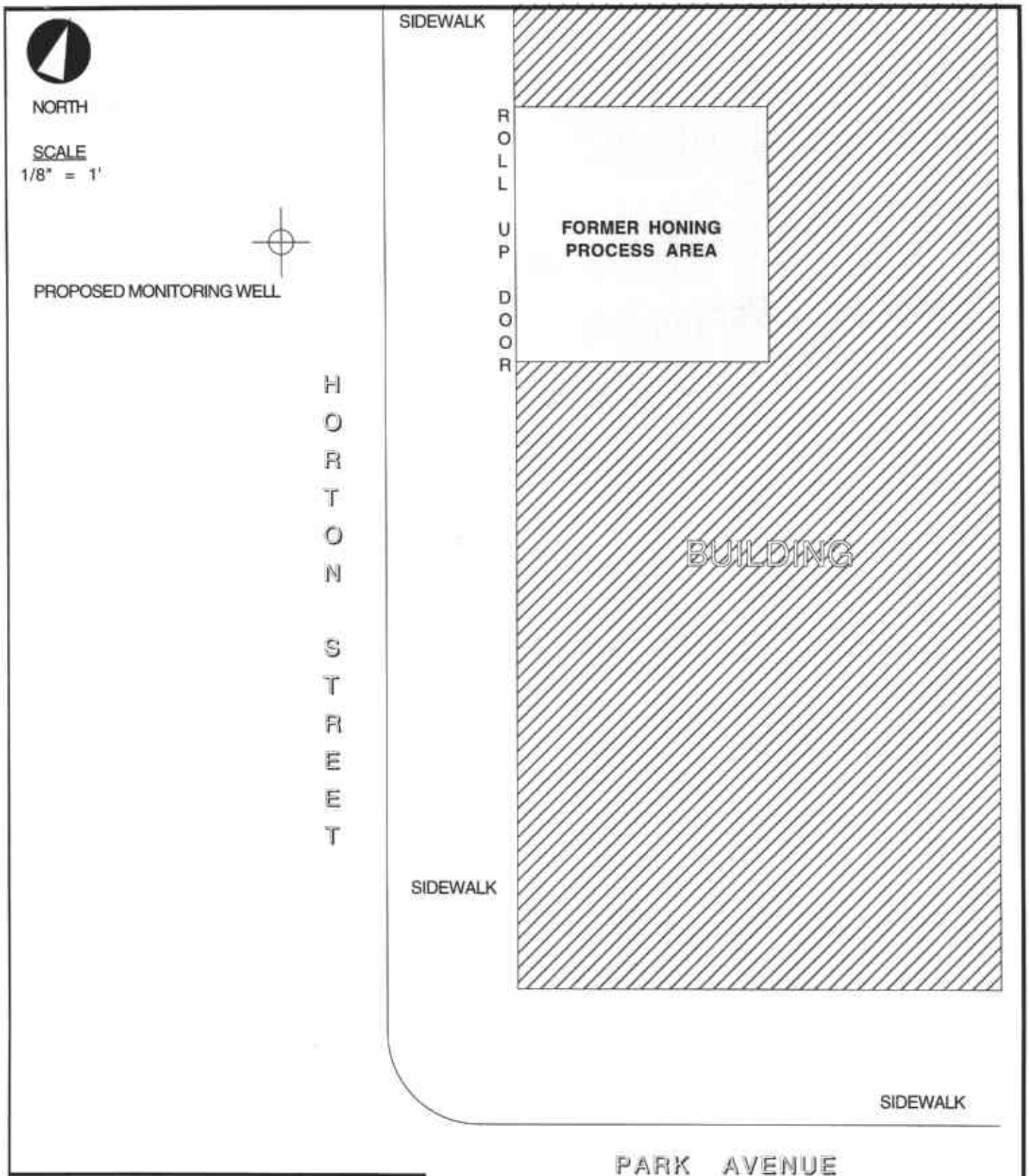
cc: Ms. Gwen Tellegen, Emeryville Properties representative
Ms. Susan Hugo, Alameda County Health Care Services Agency
Mr. Kevin Graves, RWQCB, San Francisco Bay Region

NORTH

LOCATION MAP

Emeryville Properties Facility
1400 Park Avenue
Emeryville, California

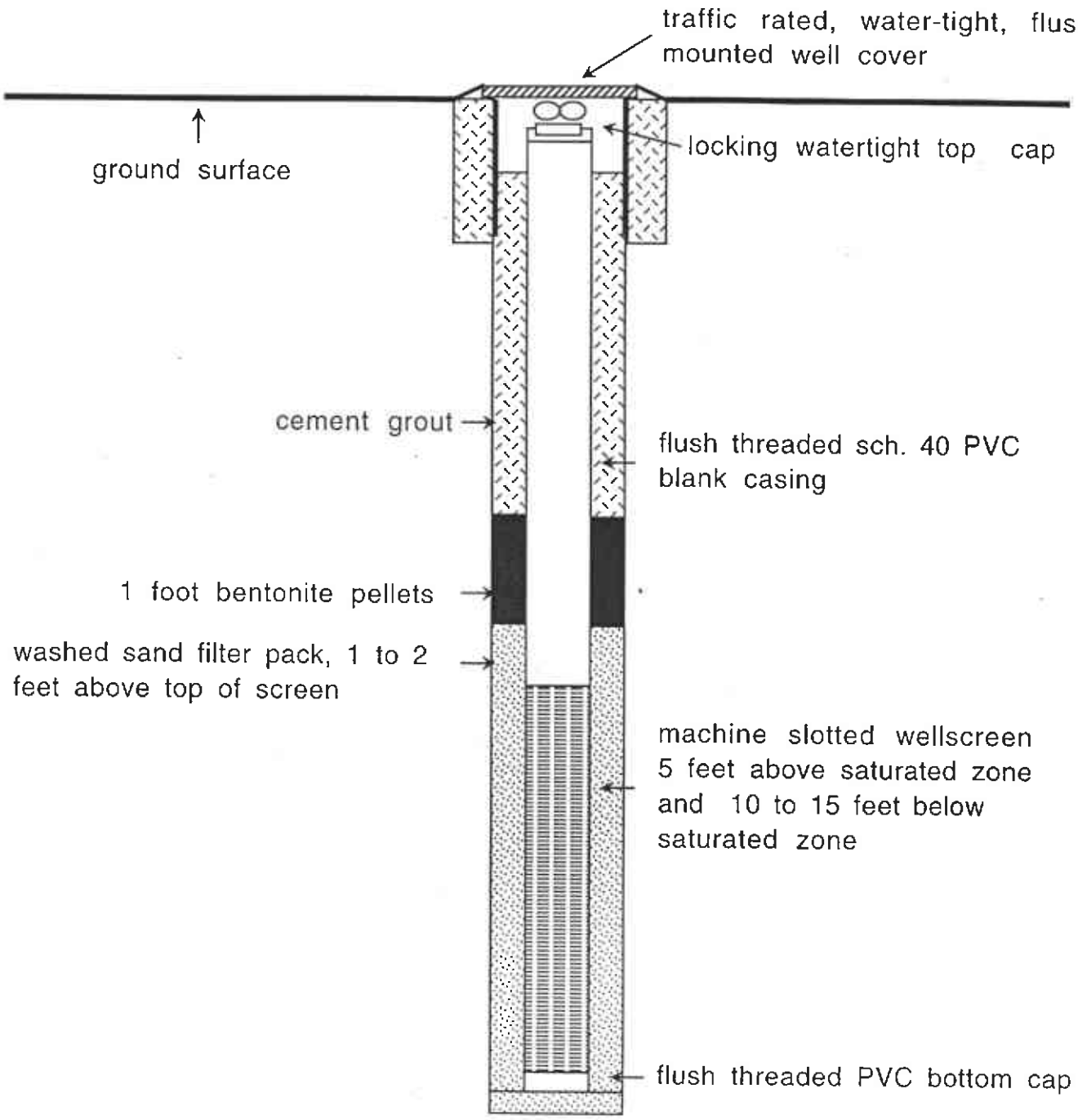
Aqua Science Engineers | Figure 1



SITE PLAN

Emeryville Properties
1400 Park Avenue
Emeryville, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2



TYPICAL
MONITORING WELL CONSTRUCTION
IN CROSS SECTION

Aqua Science Engineers | Figure 3