A·C·C
ENVIRONMENTAL
CONSULTANTS

PRELIMINARY SITE ASSESSMENT WORK PLAN PROPOSAL
GROUNDWATER INVESTIGATION
PERALTA COMMUNITY COLLEGE DISTRICT - MAINTENANCE YARD
501 5TH AVENUE
OAKLAND, CALIFORNIA

Prepared for:

Mr. Thomas Peacock
Alameda County Health Care Services Agency
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

April 1993

Prepared by:

Misty Kaltreider
Geologist

Reviewed by:

Elizabeth Herbert, RG
Registered Geologist

REGISTERED GEOLOGIST
ELIZABETH HERBERT
4819
STATE OF CALIFORNIA

1000 Atlantic Avenue, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731

TABLE OF CONTENTS

PRELIMINARY SITE ASSESSMENT WORK PLAN
PERALTA COMMUNITY COLLEGE DISTRICT - MAINTENANCE YARD
501 5TH AVENUE

1.0 INTRODUCTION

ACC Environmental Consultants, Inc. ("ACC") has prepared this preliminary Site Assessment (PSA) proposal for Peralta Community College District - Maintenance Yard, 501 5th Avenue, Oakland, California (Figure 1). The scope and purpose of the project is to evaluate the type and extent of groundwater contamination from underground fuel storage by performing a site assessment.

2.0 BACKGROUND

The property is owned by Peralta Community College District which uses the site as its maintenance yard. Five underground storage tanks have been on-site prior to 1960. The tanks consisted of two 6,000-gallon gasoline, one 2,000-gallon diesel, one 2,000-gallon ethyl (premium) gasoline and one 550-gallon waste oil tank. Between 1960 and 1980, the property was owned by the City of Oakland and the site was used by the City as a corporation yard.

On September 3, 1992, R.S. Eagan, contractor, excavated and removed the underground storage tanks. Water was observed within the excavation at approximately seven feet below the ground surface.

A total of eight soil samples and one water sample were collected from the excavation. Laboratory analysis of the soil indicated up to 228 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as diesel, and 134 ppm of TPH as gasoline. In additon, the soil contained a maximum of 2,407 parts per billion (ppb) benzene, 4,617 ppb toluene, 7,170 ppb ethylbenzene, 6,147 ppb total xylenes and 5,477 ppm oil and grease. Laboratory analysis of the water indicated maximum levels of 170 ppm TPH as diesel, 15 ppm TPH as gasoline, 286 ppb benzene, 698 ppb toluene, 300 ppb ethylbenzene, 808 ppb total xylenes and 284 ppm oil and grease.

Sample results from under the fuel lines and the dispenser island indicated levels of constituents above the detection limits.

A preliminary study performed by Environ of Emeryville in September of 1992 evaluated the soil and groundwater conditions on the site and on neighboring sites. This study indicated that hydrocarbons constituents are present beyond the immediate tank excavation and may have resulted from alternate sources.

In November of 1992, ACC performed a site assessment of the soil around the former tank excavation. Hydrocarbons as gasoline and motor oil were observed in the soil and groundwater collected from the borings. Laboratory analysis of the soil indicated up to 370 ppm of TPH as gasoline, 12 ppm TPH as diesel, 5,342 ppm motor oil, 76.94 ppm benzene, 73.9 ppm

toluene, 30.4 ppm ethylbenzene and 95.41 ppm xylenes.

Per request of Alameda County Health Care Services - Hazardous Materials Division, a Preliminary Site Assessment will be conducted to evaluate the extent of contaminants within the groundwater.

3.0 SCOPE OF WORK

ACC will drill three borings at the site in the vicinity of the previous tank excavation. The borings will be converted into 2-inch monitoring wells. One monitoring well will be located within 10 feet of the previous tank excavation. The other two monitoring wells will located within 300 feet of the previous tank excavation. Figure 2 shows the proposed well locations on-site.

During drilling, undisturbed soil samples will be obtained for chemical analysis and geotechnical classification at five-foot intervals, distinct lithologic changes and at the soil/groundwater interface, beginning at five feet below grade and continuing to the bottom of the boring (see Appendix A, "Soil Sampling in Boreholes and During Construction of Monitoring Wells").

Lithologic logs from nearby wells, if available, will be reviewed to determine the potential for encountering a shallow aquiclude greater than three feet in thickness. If a shallow aquiclude is anticipated, soil samples will be collected at one and one-half foot intervals. The collection of these samples will start three feet above the expected depth of the top of the aquiclude.

The total depth of the wells will be contingent upon the lithology encountered during drilling operations. However, it is estimated that the total depth of the wells will be approximately 15 feet below ground surface. The well installations will be conducted in a manner consistent with Regional Water Quality Control Board requirements. See Appendix B, "Well Construction" for procedures to be followed by ACC and subcontractor personnel.

Soil and groundwater samples will be submitted to a CAL-EPA certified accredited analytical testing laboratory for analysis of Total Petroleum Hydrocarbons (TPH) as gasoline, TPH as diesel by EPA Modified Test Method 8015, oil and grease by EPA Test Method 5520 and benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Test Method 8020/602.

In the event that the groundwater flow direction measured from the newly installed wells is determined to flow differently than expected, one additional monitoring well will be installed to verify direction of on-site groundwater flow. An amended PSA proposal will be sent to the client for review and approval, prior to submitting to the Alameda County Environmental Health Services Agency.

4.0 DRILLING AND MONITORING WELL INSTALLATION

Drilling permits will be obtained from the Alameda County Water Conservation and Flood Control District - Zone 7 prior to drilling and sampling activities. The locations of the proposed borings will be marked with white paint. The District, Alameda County Health Department-Environmental Health Division and Underground Service Alert (USA) will be notified at least 48 hours prior to commencing work.

At least two soil samples collected from each boring will be analyzed. During drilling, cuttings will be placed in capped drums, labeled and left on-site pending the analytical results.

The specifics of the construction and development of the monitoring wells are discussed in detail in Appendix B, "Well Construction". Per Alameda County's Monitoring Well Guidelines, the wells will not be developed until at least 72 hours have elapsed after completion of construction.

After development of each well, water samples will be collected and analyzed for TPH as gasoline, diesel, motor oil, and BTEX (see Appendix C, "Water Sampling in Wells and Boreholes"). Additionally, as specified in Alameda County regulations, the wells will not be sampled until at least 72 hours have elapsed following completion of well development. All purge water generated during the sampling process will be contained on site in DOT-approved 55-gallon drums. Disposal of purge water will be governed by the laboratory results for the associated groundwater sample and will be responsibility of the property owner.

4.1 Groundwater Monitoring

Subsequent to installation, the monitoring wells will be surveyed to an established benchmark, with an accuracy of 0.01 foot. Groundwater elevation and collection of samples will be conducted quarterly. Groundwater samples will be collected and analyzed quarterly by an EPA/CAL accredited analytical laboratory for TPH as gasoline, diesel, and motor oil by EPA Modified Test Method 8015 and BTEX by EPA Test Method 602.

Prior to each sampling event, the groundwater elevation in the wells will be measured. Groundwater samples will be collected, stored, and transported in accordance with existing regulatory guidelines (see Appendix C, "Water Sampling in Wells and Boreholes").

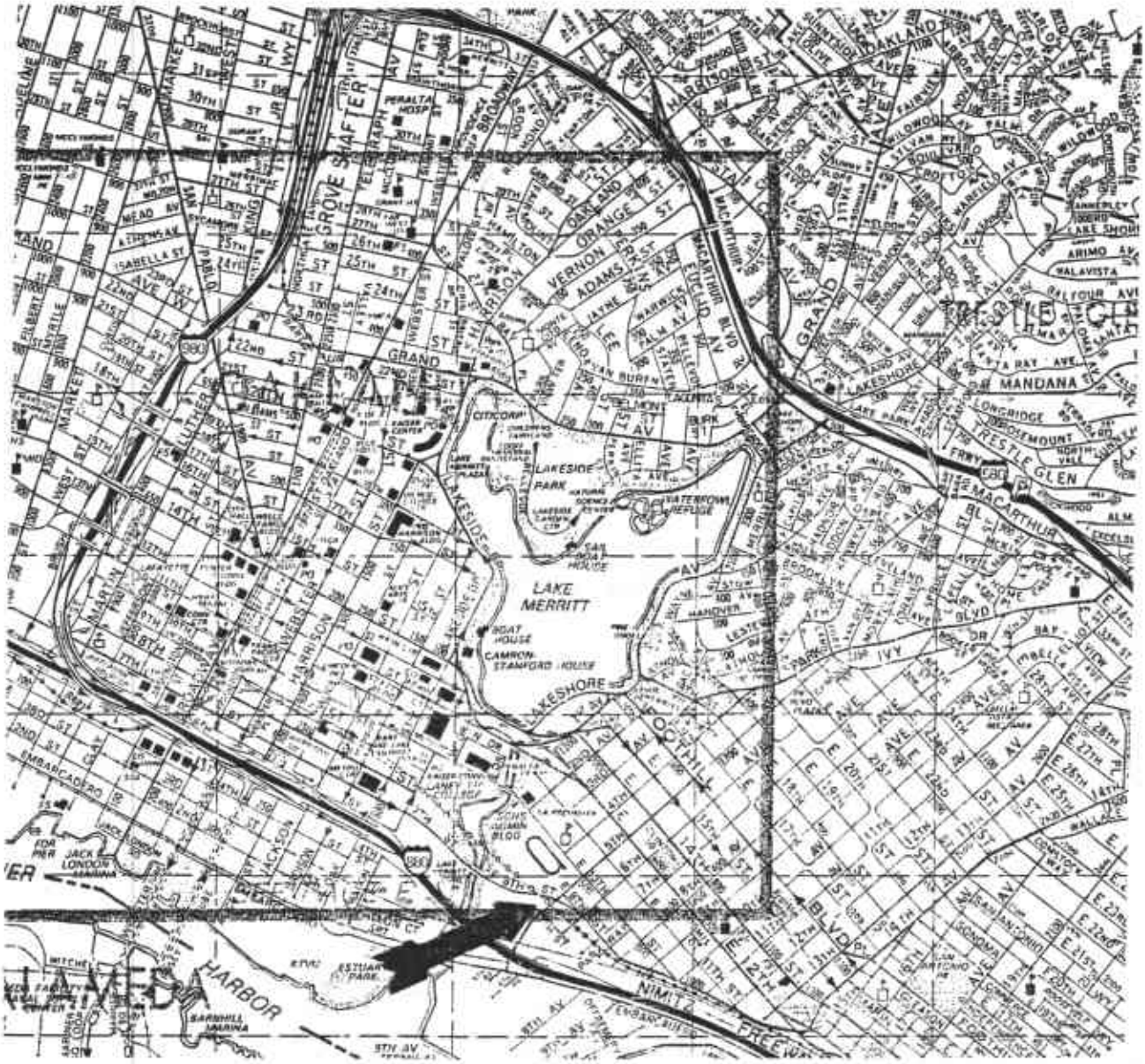
5.0 HEALTH AND SAFETY PLAN

A site health and safety plan which encompasses the proposed work at the site and complies with the requirements of 29 CFR Part 1910.120 is presented in Appendix D. The plan will be present on-site during field operations and will be stored at the office of ACC.

6.0 TECHNICAL REPORTS

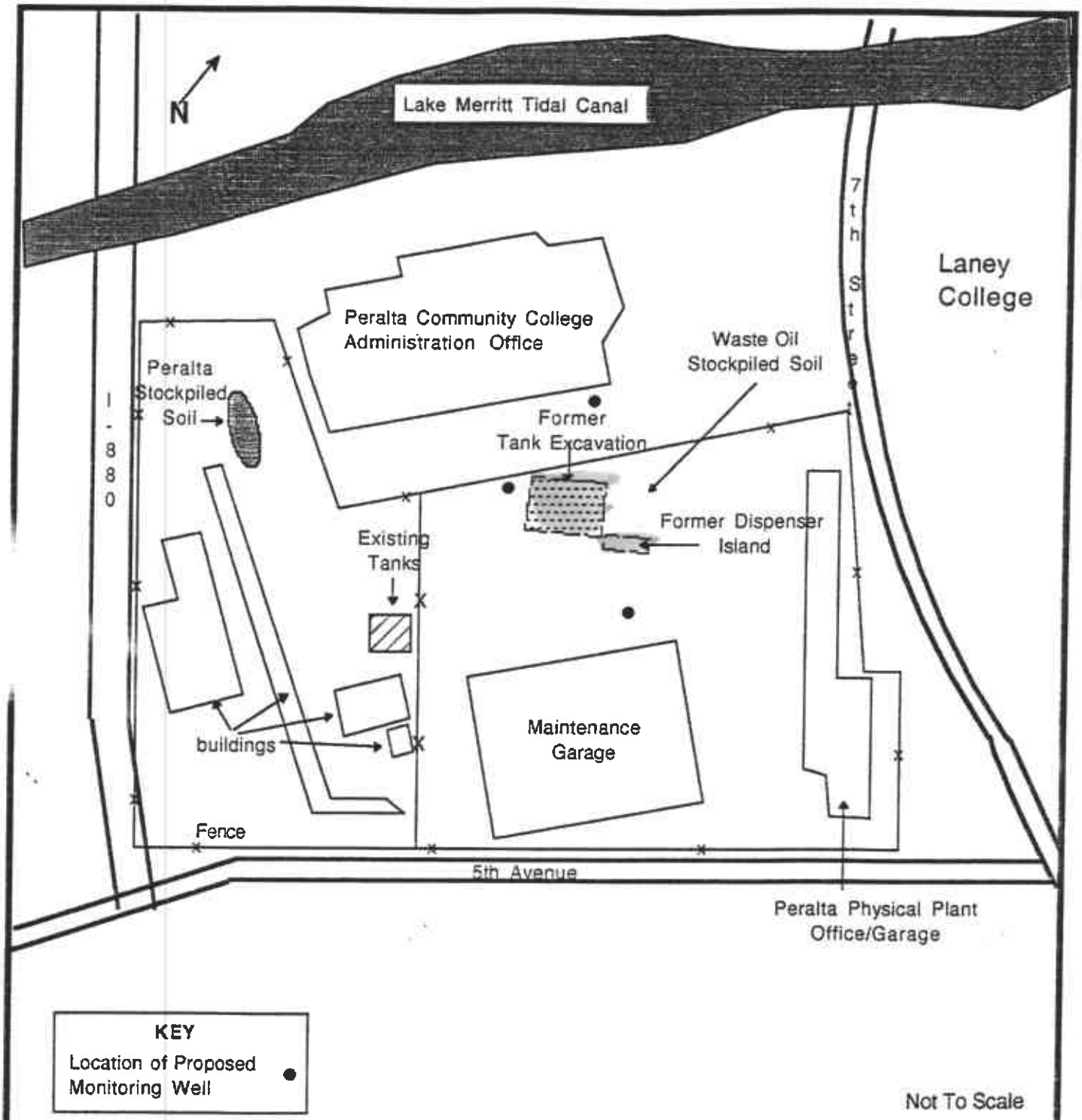
A technical report discussing the monitoring well installation and the initial groundwater sampling event at the site will be submitted to Peralta Community College District. Following review and acknowledgement, the report will be sent to Alameda County Health Service Agency and the Regional Water Quality Control Board. Additional reports detailing groundwater monitoring activities and results will be submitted on a quarterly basis thereafter.

A report containing the analytical results will be submitted to Alameda County Health Services Agency and the Regional Water Quality Control Board on a quarterly basis. The quarterly report will also include figures illustrating groundwater gradient and extent of contamination, if present.



(Source: Thomas Bros. Guide)

ACC Environmental Consultants, Inc. 1000 Atlantic Avenue, Suite 110 Alameda, California 94501		Vicinity Map Maintenance Yard Peralta Community College Oakland, California	
Project No. 6045-1	Date: 9/29/92	Dn by: CS	Figure 1



ACC Environmental Consultants, Inc. 1000 Atlantic Avenue, Suite 110 Alameda, California 94501	Site Plan Maintenance Yard Peralta Community College Oakland, California

Project No. 6045-2	Date: 4/29/93	Dn by: MCK	Figure 2

APPENDIX A

SOIL SAMPLING IN BOREHOLES AND DURING CONSTRUCTION OF MONITORING WELLS

SOIL SAMPLING IN BOREHOLES AND DURING CONSTRUCTION OF MONITORING WELLS

U.S. Environmental Protection Agency standards serve as the foundation for all field sampling operations performed by ACC. EPA SW 846 is the primary publication from which procedures are derived. While some aspects of field and laboratory work may be delegated to the CAL EPA-Department of Toxic Substances Control (DTSC), the Bay Area Regional Water Quality Control Board, and the Health Services Agency - Department of Environmental Health establish the general and specific criteria for sampling.

SAMPLE INTERVALS

Undisturbed soil samples will be obtained for chemical analysis and geotechnical classification at five-foot intervals or at distinct lithologic changes, beginning at five feet below grade.

COLLECTION DEVICES

Samples will be collected using a 2-inch or 2.5-inch inside diameter Modified California Split Spoon Sampler containing three, six-inch-long or two three-inch-long between two six-inch-long brass tubes. The sample collection device and tubes will be decontaminated before and after each use by steam cleaning or by an Alconox solution wash, tap water rinse and deionized water rinse. The sampler will be driven ahead of the auger using a 140-pound drop hammer. The average blow counts required to drive the sampler the last 18 inches will be recorded on the boring logs.

PRESERVATION AND HANDLING

After collection, sample tubes will be labeled, sealed at each end with Teflon sheeting and PVC end caps, placed in ziplock bags and stored in an ice filled cooler to be delivered under chain-of-custody to a State-certified laboratory by the next business day.

SOILS CLASSIFICATION

Soil exposed at the ends of each brass tube will be examined by a geologist for obvious signs of contamination and classified according to the Unified Soil Classification System. These observations will be recorded in the boring logs.

Selection of samples for laboratory analysis will be based primarily on headspace readings using a Photo ionization device (PID) and position within the boring. In general, samples with headspace readings over 50 ppm or that have visual or olfactory indications of contamination will be submitted for analysis. One sample will also be selected from one or two sampling intervals below the apparent lower limit of contamination to obtain a "zero line" value. In addition, the sample closest to the depth of the storage tank invert will be submitted for analysis. If the water table is above the tank invert, the sample closest to the water table will be selected.

SAMPLE LABELING AND CHAIN OF CUSTODY

Samples selected for analysis will be labeled with self-adhesive, pre-printed labels indicating project name (or number), sample number, boring/well number, sample depth, date and time of sample collection, and required analyses. The same information will be recorded on the chain of custody.

APPENDIX B

WELL CONSTRUCTION

GENERAL PRACTICES

Each monitoring well will be designed to register the potentiometric surface, facilitate soil sampling, and permit water sampling. ACC's standard procedures for well installation and soil/water sampling meet or exceed guidelines set forth by the EPA, California State Regional Water Quality Control Board, and the Alameda County Department of Environmental Health. Drilling, construction, and completion of all exploratory borings and monitoring wells will be in conformance with procedures in this appendix.

DRILLING PROCEDURES

Monitoring wells will be drilled with a hollow-stem, continuous-flight auger. All boring and logging will be supervised by a geologist with special attention given to the avoidance of cross contamination of underlying aquifers. The following procedures used by ACC geologist prevent pollution of clean aquifers underlying contaminated zones:

1. Drilling will cease if five feet of saturated impermeable material is encountered. It will be assumed that any significant saturated, impermeable layer, such as a clay layer, is an aquitard separating the shallow and deep aquifers and should not be penetrated.

2. Drilling will be terminated 20 feet below any perched or unconfined water table.

3. Drilling will be terminated at 45 feet below ground surface if groundwater is not encountered. This is above nearly all deep aquifers currently supplying groundwater in the Bay Area.

The drill rig operator and ACC geologist will discuss significant changes in material penetrated by the drill, changes in drilling conditions, hydraulic pressure, and drilling action. The ACC geologist will be present during the drilling of exploratory borings and will observe and record changes by time and depth, evaluate the relative moisture and content of the samples, and note water producing zones. This record will be used later to prepare a detailed lithologic log. Lithologic descriptions will include soil or rock type, color, grain size, texture, hardness, degree of induration, carbonate content, presence of fossils or other materials (gypsum, hydrocarbons), and other pertinent information. A copy of the logs will be retained in the field file for the project site.

Soil Cuttings

Soil cuttings generated during drilling will be placed in steel, DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name and phone number of technical contact, and name of generator. Drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results.

SCREEN AND CASING

The monitoring well assembly will consist of new schedule-40, flush-threaded, polyvinyl chloride (PVC) casing from the bottom of the boring to the ground surface. Casing will be shipped in protective wrappers.

From the base of the well to approximately five feet above the ground water surface, casing will consist of perforated casing (well screen); the remainder of the well will be solid PVC casing. Perforated casing (well screen) will be factory slotted. Screen sizes are intended to facilitate hydraulic connection between the monitoring well and the surrounding aquifer while retaining 70 to 90 percent of the filter pack material.

Upon completion of drilling, well casing will be assembled and lowered to the bottom of the boring. Since using glue to connect casing sections could cause false analytical interpretations of water quality, the casing will be connected with dry threads or slip joints. The bottom of the casing will be approximately flush with the bottom of the boring and will be capped with a threaded PVC cap or plug. Using the lithologic log for control, the ACC geologist will specify the exact depths of screened intervals so that the well screen is approximately opposite the water-bearing zone to be monitored.

Where possible, the casing will extend six inches above the ground surface. When monitoring wells are placed in traffic areas where they cannot extend above the surface, locking, pre-cast concrete or cast iron boxes and covers will be installed.

FILTER PACK

After the monitoring well assembly has been lowered to the specified depth, filter pack will be placed in the annular space between the well casing and borehole from the bottom of the well to approximately two feet above the top of the well screen. The depth to the top of the filter pack will be verified using the tremie pipe or a weighted steel tape. Filter pack will be at least 95% silica sand. Sand will be hard, durable, well-rounded, spherical grains that have been washed until free of dust and contamination.

American Society for Testing and Materials (ASTM) recommends the following guidelines for screen slot and filter pack selection based on the anticipated strata:

Anticipated Soil Type	Recommended Well Screen Slot Size (inches)	Recommended Filter Pack Material (U.S. sieve sizes)
Sand & Gravel	0.030	20 to 4
Silt & Sand	0.020	30 to 8
Clay & Silt	0.010	50 to 16

Reference: Development Methods for Water Wells: An Anthology: NWWA Water Well Journal, June 1988.

GROUT SEAL

A layer of bentonite pellets approximately one foot thick will be placed above the filter pack and charged with water. The depth to the top of the bentonite pellets layer will be verified using the tremie pipe or a weighted steel tape.

A cement-bentonite grout mixture will be tremied into the annular space from the bentonite seal to the top of the well. The grout material will be a mixture of Portland Type I/II cement (94 lb.) to five gallons of clean water or a sand-cement slurry with a minimum of 11 sacks of portland Type I/II cement per cubic yard. Only clean water from a municipal supply shall be used to prepare the grout. Well development will not begin until the grout has set for a minimum of 72 hours.

CAPPING WELLS

Following well construction, a steel or pre-cast concrete wall vault (or valve box) will be installed below ground surface. A metal tag containing well number and construction data will be permanently attached to the well vault. A steel well cover clearly marked "monitoring well" will be bolted to the vault. A suitable watertight, locking well cap will be fitted to the riser casing to prevent the entry of surface runoff or foreign matter.

WELL DEVELOPMENT

When well installation is complete, the well will be developed by surging, and/or bailing, and/or pumping to remove fines from the formation and filter pack. Well development generally restores natural hydraulic properties to the adjacent soils and improves hydraulic properties near the borehole so the water flows more freely in the well. At least three well volumes

casing volumes will be removed from the wells. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. (2) Monitor the temperature, pH and conductivity of the water while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and that most of the water is coming from the aquifer. ACC will use the latter method. During development, pH, specific conductance, and temperature of the return water from the water pump will be measured. Well development will proceed until these field-measured water quality parameters have stabilized and the water is, in the judgement of the geologist, at its greatest possible clarity.

Temperature, pH and specific conductance meters will be calibrated per manufacturer's guidelines. Calibration shall be documented in the field log book or data sheets and will include a description of the calibration method, identification number of equipment, and/or regents used in calibration.

Temperature will be measured with a mercury-filled, Centigrade-scaled, bimetallic-element thermometer, or electronic thermistor.

Measurements of pH will be made shortly after collection of the sample, preferably within a few minutes.

Conductivity will be measured by dipping the conductivity probe in the water source or sample. The probe must be immersed above the vent. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Conductivity will be reported in units of micromhos per centimeter (mmho/cm) at $25^{o}C$.

WELL PURGING AND WATER SAMPLING

Purging and sampling will not begin for at least 72 hours following construction to allow grout to set. Purging and sampling will be in accordance with procedures in Appendix D, Water Sampling in Wells, and Boreholes.

DOCUMENTATION

A well construction diagram for each monitoring well will be completed by the geologist and submitted to the project manager when the work has been completed. In addition, the details of well installation, construction, development, and field measurements of water quality parameters will be summarized as daily entries in a field notebook or data sheets which will be submitted to the project manager when the work has been completed.

DRILLING EQUIPMENT DECONTAMINATION PROCEDURES

The sampler and liners will be decontaminated before and after each use by steam cleaning or washing in an Alconox solution, followed by tap water and deionized water rinses. Only clean water from a municipal supply will be used for decontamination of drilling equipment. Sampler and liners will be sealed in plastic bags or other sealed containers to prevent contact with solvents, dust or other contamination.

All rinsate used in the decontamination process will be stored on site in steel DOT approved drums. Drums will be labeled as to contents, suspected contaminants, date container was filled, expected removal date, company name, contact and phone number. These drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results.

APPENDIX C

WATER SAMPLING IN WELLS AND BOREHOLES

GENERAL CONSIDERATIONS

In general, the composition of water within the well casing and in close proximity to the well is not representative of groundwater quality. This may be due to contamination by drilling fluids or equipment or disparities between the oxidation-reduction potential in the well and the redox potential in the aquifer. To obtain a representative sample of groundwater, the well should be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. One common procedure is to pump or bail the well until a minimum of three boring volumes (or alternatively, 10 well volumes) have been removed.

At the least, pumping should continue until water in casing storage has been removed. There are at least two common methods for determining that water in casing storage has been removed and water is flowing freely from the aquifer: (1) Monitor water level while pumping. When the pumping water level has "stabilized," it is likely that little or no water from casing storage is being pumped. (2) Monitor the temperature, pH and conductivity of the water while pumping. When these parameters "stabilize," it is probable that little or no water from casing storage is being pumped and that most of the water is coming from the aquifer. ACC utilizes the latter method.

PURGING

During each round of sampling, static water level will be measured prior to purging using an electronic sounder. All water-level measurements will be recorded to the nearest 0.01 foot with respect to mean sea level.

A minimum of three bore volumes will be purged from the well prior to sampling. Bore and well volumes will be calculated using the table in this Appendix. To ensure that water in the well has been exchanged, pumping or bailing shall commence at the top and work downward. The well will be allowed to return to 80% of the original water level before sampling.

Temperature, pH and specific conductance will be measured for each boring volume pumped. Purging will continue until these field-measured water quality parameters have stabilized and the water is, in the judgment of the geologist, representative of water in the aquifer. Data obtained from field water quality measurements will be recorded in the field log book or data sheets. A separate allotment of groundwater collected from the purge water outlet stream will be used for field measurements; samples intended for laboratory analysis will not be used.

Temperature, pH and specific conductance meters will be calibrated per manufactures guidelines. Calibration will be documented in the field log book or data sheets and will include a description of the calibration method, identification number of equipment, and/or regents used in calibration.

VOLUME OF WATER IN CASING OR HOLE

Diameter of Casing or Hole (inches)	Gallons per foot of Depth	Cubic Feet per foot of Depth	Liters per Meter of Depth	Cubic Meters per Meter of Depth
1	0.041	0.0055	0.509	0.509×10^{-3}
1.5	0.092	0.0123	1.142	1.142×10^{-3}
2	0.163	0.0218	2.024	2.024×10^{-3}
2.5	0.255	0.341	3.167	3.167×10^{-3}
3	0.367	0.0491	4.558	4.558×10^{-3}
3.5	0.500	0.0668	6.209	6.209×10^{-3}
4	0.653	0.0873	8.110	8.110×10^{-3}
4.5	0.826	0.1104	10.26	10.26×10^{-3}
5	1.020	0.1364	12.67	12.67×10^{-3}
5.5	1.234	0.1650	15.33	15.33×10^{-3}
6	1.469	0.1963	18.24	18.24×10^{-3}
7	2.000	0.2673	24.84	24.84×10^{-3}
8	2.611	0.3491	32.43	32.43×10^{-3}
9	3.305	0.4418	41.04	41.04×10^{-3}
10	4.080	0.5454	50.67	50.67×10^{-3}
11	4.937	0.6600	61.31	61.31×10^{-3}
12	5.875	0.7854	72.96	72.96×10^{-3}
14	8.000	1.069	99.35	99.35×10^{-3}
16	10.44	1.396	129.65	129.65×10^{-3}
18	13.22	1.767	164.18	164.18×10^{-3}
20	16.32	2.182	202.68	202.68×10^{-3}
22	19.75	2.640	245.28	245.28×10^{-3}
24	23.50	3.142	291.85	291.85×10^{-3}
26	27.58	3.687	342.52	342.52×10^{-3}
28	32.00	4.276	397.41	397.41×10^{-3}
30	36.72	4.909	456.02	456.02×10^{-3}
32	41.78	5.585	518.87	518.87×10^{-3}
34	47.16	6.305	585.68	585.68×10^{-3}
36	52.88	7.069	656.72	656.72×10^{-3}

1 Gallon = 3.785 Liters
1 Meter = 3.281 Feet
1 Gallon Water Weighs 8.33 lbs. = 3.785 Kilograms
1 Liter Water Weighs 1 Kilogram = 2.205 lbs.

Temperature will be measured with a mercury-filled, Centigrade-scaled, bimetallic-element thermometer, or electronic thermistor.

Acidity/alkalinity (pH) will be measured by dipping the pH probe in the water source or sample; pH will be measured soon after collection of the sample, preferably within a few minutes.

Conductivity will be measured by dipping the conductivity probe in the water source or sample. The temperature of the sample will be used to calculate specific conductance from the conductivity measurement. Measurements shall be reported in units of micromhos per centimeter at 25^{o}C.

SAMPLE COLLECTION

Wells and borings will be sampled using a new, clean, disposable Teflon bailer attached to new, clean string. Sample vials and bottles will be filled to overflowing and sealed so that no air is trapped in the vial or bottle. Once filled, samples shall be inverted and tapped to test for air bubbles. Samples will be contained in vials and bottles approved by the US EPA and the Regional Water Quality Control Board. Some analyses may require separate sample containers in accordance with EPA methods described in 40 CFR Part 136 and SW-846.

Water samples intended for volatile hydrocarbon analysis will be contained in 40 ml VOA vials prepared according to EPA Method 602 will contain a small amount of preservative (HCL) in the voa. Samples intended for analysis by EPA Method 601 and EPA 624 GCMS procedures will not be preserved. Water samples intended for low level diesel analysis will be stored in amber glass 1-liter bottles to reduce degradation by sunlight. Antimicrobial preservative (HCL) may be added to the sample if a prolonged holding time is expected prior to analysis.

Sample containers will be labeled with self-adhesive, pre-printed tags. Labels will contain the following information in waterproof ink:

- Project number (or name)
- Sample number (or name)
- Sample location (Well number, etc.)
- Date and time samples were collected
- Treatment (preservative added, filtered, etc.)
- Name of sample collector

All samples will stored in ice filled coolers to be delivered to an EPA/CAL accredited laboratory for analysis.

All purged water will be stored on site in steel, DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number. The drums will be left on-site for subsequent disposal pending receipt of analytical results.

DOCUMENTATION

Sampling information will be recorded in ink in a bound notebook with consecutively numbered pages. Pages will not be removed for any reason. Alternatively, specially formatted field data sheets may be used to record the information collected during water quality sampling. Errata may be marked out with a single line and initialed by the person making the change. The log book and data sheets will be placed in the project file when sampling is completed.

FIELD EQUIPMENT DECONTAMINATION PROCEDURES

Bailers and string will remain on-site. All other sampling equipment, such as buckets and stands, will be decontaminated after each use by washing in an Alconox solution, followed by tap water and deionized water rinses. Equipment will be sealed in plastic bags or sealed containers to prevent contact with solvents, dusts, or other types of contamination.

All rinsate used in the decontamination process will be stored on-site in steel DOT-approved drums. Drums will be labeled as to contents, suspected contaminants, date container filled, expected removal date, company name, contact and phone number. These drums will be sealed and left on-site for subsequent disposal pending receipt of analytical results.

APPENDIX D

SITE SPECIFIC
HEALTH AND SAFETY PLAN

ACC

SITE SAFETY PLAN

A. GENERAL INFORMATION

Project Title: **Peralta Community College - Maintenance Yard**

Project No.: **6045-2**

Project Manager: **Misty Kaltreider**

Location: **501 5th Street, Oakland, California**

Prepared by/date: **Misty Kaltreider**

Approved by/date: _____

Scope of Work/Objective(s): **Soil Borings, monitoring well installation**

Proposed Date of Field Activities: _____

Documentation/Summary:

Overall Chemical Hazard:	Serious [ ]	Moderate [ ]
	Low [X]	Unknown [ ]
Overall Physical Hazard:	Serious [ ]	Moderate [ ]
	Low [x]	Unknown [ ]

- -

B. SITE/WASTE CHARACTERISTICS

Waste Types(s):

Liquid [X] Solid [X] Sludge [ ] Gas/Vapor [ ]

Characteristics:

Flammable/ Ignitible	[ ]	Volatile	[X]	Corrosive	[ ]	Acutely Toxic	[ ]
Explosive	[ ]	Reactive	[ ]	Carcinogen	[X]	Radio-active	[ ]

Other: _____

Physical Hazards:

Overhead [X] Confined Space [ ] Below Grade [ ] Trip/ Fall [X]

Puncture [ ] Burn [ ] Cut [ ] Splash [ ] Noise [X]

Other: **Hazards with Drilling**

Site History/Description and Unusual Features:
Drilling and Sampling within the Vicinity of Tank Excavations.

Locations of Chemicals/Waste: **In soil and water**

Estimated Volume of Chemicals/Waste: **Unknown**

Site Currently in Operation: Yes [X] No [ ]

- -

C. HAZARD EVALUATION

List and Evaluate Hazards By Task (ie. sampling/ drilling)

Physical Hazard Evaluation	Anticipated Level of Protection
Task 1. **Drilling**	**D**
Task 2. **Sampling**	**D**
Task 3. **Monitoring Well Installation**	
Task 4. **Groundwater Sampling**	

Modifications: _____

Chemical Hazard Evaluation:

Compound	PEL/TWA	Route of Exposure	Acute Symptoms	Odor Threshold/Desc.
gasoline	**300 ppm**	**inhalation**	**skin blisters,**	**Characteristic**
diesel	**300 ppm**	**dermal,**	**nausea, central**	**odor**
motor oil	**300 ppm**	**ingestion**	**nervous system disorder**	

D. SITE SAFETY AND WORK PLAN

Site Control: Attach map of the site.

Perimeter identified? [Y] Site secured? [Y] Work areas identified? [Y]

Zone(s) of contamination identified? [N]

Air Monitoring:

Contaminant of Interest	Type of Sample	Monitoring Equipment	Frequency of Sampling
Gasoline	**air**	**HNu**	**Continous - as needed**
diesel	**air**	**HNu**	**Continous - as needed**
motor oil	**air**	**HNu**	**Continous - as needed**

Decontamination procedures and solutions:

Tri-sodium phosphate and water, triple rinsed

Special Site Equipment: (Sanitary facilities, lighting, etc)

None anticipated

Site Entry Procedures and Special Considerations

Underground Services Alert (USA) notified to avoid underground utilities

Work Limitations (time of day, weather conditions, etc.)

None anticipated

General Spill Control, if applicable: **N/A**

Investigation-Derived Material Disposal (expendables, cuttings, etc.)

Drum cuttings and rinsate water in covered, labeled 55-gallon DOT certified drums.

Sample Handling Procedures:

Soil samples collected in brass tubes, teflon tape and plastic end caps taped to each end. Water samples collected in VOA vials without headspace and liter jars. All samples will be placed in ice-filled coolers until pick-up by laboratory.

E. EMERGENCY INFORMATION

Ambulance **911**

Hospital Emergency Room **(510) 534-0855**

Directions to Hospital (attach map) **Highland General Hospital - 1411 E. 31st Street -- From Site, South on E 8th Street, left on 14th Street (19 blocks) Left on Vallencito. Hospital is on Corner of Vallecito, E 31 Street and 14th Street.**

Poison Control Center **911**

Police **911**

Fire Department **911**

Laboratory **ChromaLab**

UPS/Fed. Express **N/A**

Client Contact **Mr. Robert Mibach (510) 466-7200**

Site Contact **Mr. Robert Mibach (510) 466-7200**

SITE RESOURCES

Water Supply Source **On-site**

Telephone **On-site**

Cellular Phone, if available ---

Other ---

EQUIPMENT CHECKLIST

Protective Gear	Quantity	Instrumentation	Quantity
Respirator	[1]	O2/Explosimeter	[ ]
Cartridges(OVA)	[2]	PID (HNu)	[1]
Protective Suit type: **Tyvek**	[1]	Draeger Pump (tubes)	[ ]
Gloves (pr) type: **Nitrile**	[1]	Heat Stress Monitor	[ ]
Steel Toed Boots	[1]	Personal Sampling Pumps	[ ]

Hard Hat	[1]
Safety Glasses	[1]
Ear Plugs	[1]

First Aid Equipment	Quantity
First Aid Kit	[1]
Portable eye wash	[ ]
Blood pressure monitor	[ ]
Fire extinguisher	[ ]

Miscellaneous	Quantity
Surveyor's tape	[1]
Fiberglass tape	[ ]
Rope/string (100')	[3]
Surveying Flags	[ ]
Camera/film	[1]
Banner tape	[ ]
Coolers	[1]
Teflon tape (roll)	[1]
Bottle labels (set)	[1]
Baggies (set)	[1]
Custody seals	[ ]
Chain of custody forms	[1]
Federal Express forms	[ ]
Bubble wrap	[ ]
Trash bags	[1]
Paper towels (roll)	[1]
Detergent/TSP (box)	[1]
Buckets	[3]
Brushes	[2]

Sampling Equipment	Quantity
Liter bottles	[6]
Half gallon bottles	[ ]
VOA bottles	[6]
String	[ ]
Hand bailers	[3]
Spoons	[ ]
Personal sampling pump supplies	[ ]
Shovel	[ ]

SITE SAFETY REVIEW

General Information

Date _____ Time _____ Project No. 6045-2

Site **Peralta Community College - Maintenance Yard**

Location **501 5th Street, Oakland, California**

Client Contact **Mr. Robert Mibach (510) 466-7200**

Objectives **Soil Borings**

Types of Chemicals Anticipated **Gasoline, Diesel, and Motor oil**

Topics Discussed

Physical Hazards **Typical Hazards assciated with drilling**

Chemical Hazards **Gasoline, Diesel, and Motor oil**

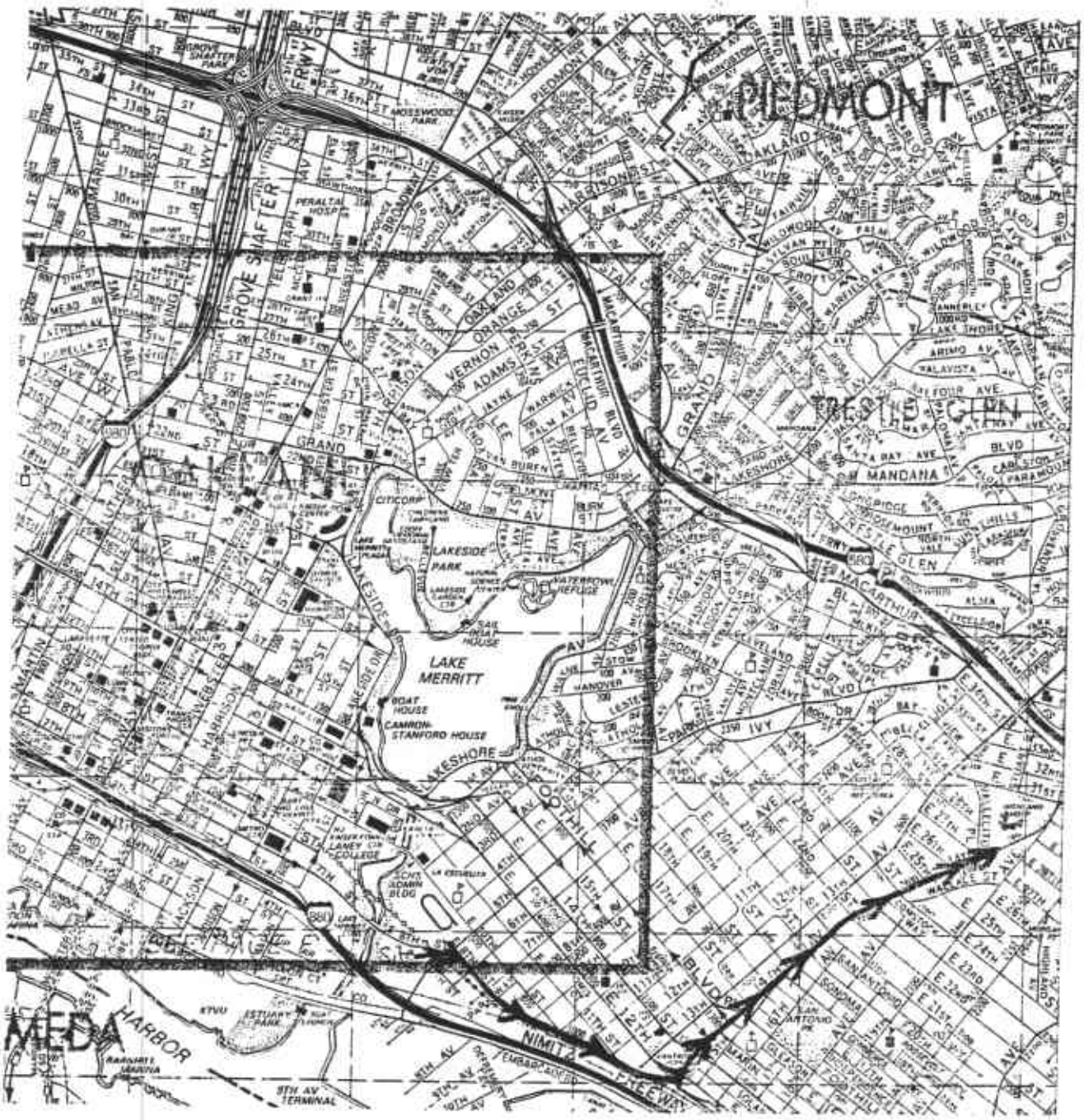
Personal Protection **Level D, modified as required**

Decontamination **Equipment to be decontaminated after each boring. Rinsate water will be drumed**

Special Site Considerations **None anticipated**

ATTENDEES

Name Printed	Signature



HOSPITAL LOCATION MAP