A·C·C
ENVIRONMENTAL
CONSULTANTS

December 12, 1994
Project No. 94-6039-5

Alameda Cellars
1702 Lincoln Avenue
Alameda, California 94501

Re: **Errata for "Corrective Action Plan"**
2425 Encinal Avenue
Alameda, California

Attn: Mr. Steve Chrissanthos

Dear Mr. Chrissanthos,

ACC Environmental Consultants has discovered that an inadvertent error has occurred in the Corrective Action Plan dated August, 1994 for the above referenced site. The third sentence on Page 10 under section 3.3.2.1) should read, "The effectiveness of groundwater extraction in relatively low permeability sediments may not be increased by enlarging the well diameter." A replacement page is attached for your use and should be substituted in your copy of the report.

If you have any questions, please call Ms. Misty Kaltreider.

Sincerely,
ACC Environmental Consultants

Misty Kaltreider
Misty Kaltreider
Project Geologist

Christopher M. Palmer
Christopher M. Palmer
C. E. G. 1262

REGISTERED GEOLOGIST
CHRISTOPHER M. PALMER
Nº 1262
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

attachment: Revised Page 10 of Corrective Action Plan contaminated soil, and is not likely to achieve cleanup levels as that of vapor extraction. Vapor extraction in combination with groundwater extraction or air sparging is the most feasible technology to achieve the soil cleanup level (less than 10 ppm TPHg), because the impacted soil is relatively shallow and permeable to be cost effective. The treatment type should be based on pilot studies of site specific soils. As with bioventing, airsparging has physical and hydrogeological limitations. Airsparging is considered potentially feasible because of the permeable subsurface soils which could disperse oxygen through the water table and enhance hydrocarbon volatilization and recovery by vapor extraction.

3.3 Groundwater remedial Alternatives

Remedial alternatives for groundwater include no action and active treatment. Active treatment alternatives reduce hydrocarbon concentrations or minimize the continued migration of the dissolved hydrocarbon plume. Preliminary aquifer test and permeability tests of soil are necessary to properly characterize subsurface conditions for potential recovery and treatment alternatives. Data from the adjacent Arco station indicate that nearby saturated soils have transmissivity values of 3,300 to 3,900 gallons per day/foot and storativity values of 2.1×10^{-2} to 3.5×10^{-3}.

3.3.1 No Action Alternative

The no action response for groundwater is similar to the no action response discussed for soil. Under this alternative, groundwater monitoring would probably continue for an indefinite period of time. Implementation of the no action response for groundwater requires delineation of the dissolved hydrocarbon plume and evaluation of the risks to human health. Advantages and disadvantages of the no action response for groundwater are similar to those previously discussed in Section 3.2.1.

3.3.2 Recovery/Containment Alternatives

Groundwater recovery or containment can be implemented by extraction wells, horizontal subsurface drains, dewatering of pits, or low permeability barriers. A discussion of the four methods is presented below.

1) Groundwater pumping from one or more extraction wells involves the active manipulation and management of groundwater to contain, divert, or remove impacted groundwater. Pumping is most effective in high permeability sediments. The effectiveness of extraction in relatively low permeability sediments may not be increased by enlarging the well diameter. Hydraulic control may be achieved as a result of extraction or as a result of extraction (and injection when approved by RWQCB).

2) Horizontal subsurface drains include any type of buried conduit (i.e., perforated pipe) used to convey and collect aquifer discharges by gravity. Subsurface drains function like an infinite line of extraction wells by introducing a continuous zone of influence within which groundwater flows toward the drain. A system of drains are installed to direct water flow toward an extraction point or points. Drains are generally applicable to shallow depths to groundwater. The most widespread use of drains is to intercept a contaminant plume hydraulically downgradient from a source.

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ALCO
HAZMAT
94 NOV 28 PM 2:39

September 8, 1994

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

RE: Corrective Action Plan
2425 Encinal, Alameda, California

Dear Mr. Chrissanthos:

Enclosed please find the Corrective Action Plan for the purpose of identifying and evaluating the appropriate corrective action based on the results of site investigations and tasks completed at 2425 Encinal, Alameda, California.

If you should have any questions regarding this plan, please do not hesitate to contact me.

Sincerely,

Misty Kaltreider

Misty Kaltreider
Project Manager

cc: Mr. Richard Hiett - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Care Services - Division of Hazardous Materials

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

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CORRECTIVE ACTION PLAN
2425 ENCINAL
ALAMEDA, CALIFORNIA

August 1994

Report Prepared for:

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

Prepared by:

ACC Environmental Consultants, Inc
ACC Project No. 6039-5

Prepared by: ______________________
Misty Kaltreider
Project Geologist

Keith McVicker
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Senior Geologist

Reviewed by: Christopher M Palmer
Christopher M. Palmer, CEG #1262
Certified Engineering Geologist

CHRISTOPHER M. PALMER
№ 1262

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CORRECTIVE ACTION PLAN
2425 ENCINAL AVENUE, ALAMEDA, CALIFORNIA

1.0 INTRODUCTION

At the request of Alameda Cellars, ACC Environmental Consultants, Inc (ACC) is pleased to present this Corrective Action Plan (CAP) to the Alameda County Health Services Agency (ACHSA) for the purpose of identifying and evaluating the appropriate corrective action at 2425 Encinal Avenue, Alameda, California (Figure 1). Previous environmental investigations identified petroleum hydrocarbons in the subsurface beneath the site. The CAP is based upon the findings of site investigations completed after removal of the on-site underground storage tanks (USTs). Additional data are needed to confirm assumptions that are incorporated into this CAP.

1.1 Background

The site is presently occupied by Alameda Cellars, a commercial liquor store, located on the northwestern corner of Park Avenue and Encinal Avenue (Figure 2). On March of 1990, two 10,000-gallon gasoline tanks were removed from the above-referenced site. According to a ACHCSA letter, dated October 7, 1992, analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 1,500 parts per million (ppm) of Total Petroleum Hydrocarbons as gasoline (TPHg). In addition, groundwater was observed in the tank pit during excavation, but no groundwater samples were collected.

1.2 Initial Site Investigation

Between December 23, 1992 and January 6, 1993, ACC Environmental Consultants, Inc, (ACC) performed an environmental subsurface investigation (Appendix A). Five soil borings were drilled on-site, three of which were converted to groundwater monitoring wells. The screen interval of well MW-2 was damaged during well development, and therefore was properly destroyed and replaced by well MW-2a. A maximum of 1,365 ppm TPHg was detected in soil at a depth of 10 feet below ground surface (bgs) in boring B-2. Benzene was detected at a concentration of 18.9 ppm in the same sample. Initial groundwater sampling from January 9, 1993, indicated up to 5,680 ppb TPHg in well MW-2a, and 1,560 ppb benzene in well MW-1.

1.3 Additional Investigations

An additional investigation was conducted on May 11, 1993 (Appendix C). Nine exploratory boring (S1 through S9) were drilled to evaluate the extent of petroleum hydrocarbons in the soil and groundwater on-site and off-site along Park Avenue (Appendix B). Trace concentrations of petroleum hydrocarbons were detected in soil borings S5 and S6 only, collected from just above the soil/water interface or approximately 10 feet bgs; TPHg was found in boring S6 at a concentration of 8.7 ppm, and benzene (0.13 ppm) was detected in boring S5. Hydrocarbon-impacted soil appeared to be primarily concentrated to the area around the former tank excavation and dispenser island at a depth of approximately 4 to 10 feet below the ground surface (bgs).

Laboratory analysis of "grab" groundwater samples collected from borings S1, S4, S5, and S6 indicated detectable levels of TPHg with BTEX constituents. The highest concentration of TPHg was reported in sample S6-H20 at 18,000 ppb. Concentrations of benzene at 230 and 200 ppb were reported in samples S4-H20 and S1-H20, respectively. Other BTEX compounds were reported in samples S1-H20, S4-H20, and S5-H20 below the maximum contaminant levels

(MCLs) established by Title 22 of the California Code of Regulations or action levels recommended by the California Department of Health Services.

ACC installed additional wells (MW-4 through MW-6) in December 1993. Laboratory analysis of soil samples collected between 5.5 and 11 feet bgs indicated below detectable levels of gasoline hydrocarbon constituents. Analysis of water samples collected from the newly installed wells showed dissolved gasoline compounds (580 ppb TPHg) in well MW-4 only. Analytical results of water from wells MW-5 and MW-6 suggest delineation of gasoline hydrocarbons to the northeast and southwest of the former tank excavation.

1.4 Groundwater Monitoring and Sampling

A periodic monitoring program was initiated by ACC in January 1993. Depth to water was measured in each well on a monthly basis, and groundwater samples from these wells were collected quarterly. Free-phase hydrocarbons or sheen has not been observed in the site wells. Groundwater is interpreted to flow toward the west-southwest, toward Encinal Avenue with an average gradient of approximately 0.01 (Appendix C, Table 3).

The most recent groundwater sampling results from on-site wells indicated detectable concentrations of petroleum hydrocarbons in wells MW-1 through MW-4; the highest concentrations were noted in MW-1 at 18,000 ppb TPH-g and 570 ppb benzene, located directly downgradient of the former UST pit (Appendix C, Table 2). Since January 1993, varying concentrations of hydrocarbons in wells MW-1 through MW-4 appear to be a result of residual hydrocarbons from former excavations that continue to be "washed out" of the soil by fluctuating groundwater levels.

1.5 Regional Geology and Hydrogeology

The site is located within the Bay Plain. The Bay Plain is a geomorphic terrain which is the gently bayward sloping alluvial plain of Alameda County adjacent to the east shore of San Francisco Bay. The Bay Plain is situated on the eastern side of the San Francisco Bay depression. This depression is an irregular warpage of the earth's crust resulting principally from downward movement along northwest-trending faults at its edge (California Department of Water Resources, 1963). The regional topography slopes toward the west southwest, which is the interpreted direction of regional groundwater movement. The nearest marine water is approximately 2/3 mile southwest of the site.

1.6 Groundwater Well Inventory

An inventory of wells located within a one-mile radius of the subject property identified 61 operating wells (Appendix B). Of the wells, one is listed as used for domestic purposes. The domestic well is located on Alameda Historical High School campus. According to Alameda Unified School District personnel the well is not in use. There are 15 wells in the area that are listed as irrigation wells. Many of the irrigation wells were drilled during the 1976-77 drought and are believed to be relatively shallow. It is unknown how many wells are still in use today. No wells with one mile of the study area are used for municipal purposes. There are 32 listed wells within one mile of the site which are reportedly used for monitoring. Total depths of the wells in the area range from 15 to 325 feet below ground surface.

2.0 SUBSURFACE CHARACTERISTICS

2.1 Site Geology and Hydrogeology

During drilling activities, the site was observed to be covered with a baserock/asphalt cap. Beneath the cap, subsurface soils consisted of fine grained sand to an explored depth of 18 feet. The sand is part of the Merritt Sand Formation. A report by the Alameda County Flood Control and Water Conservation District (ACFCWCD), dated June 1988, describes the Merritt Sand as consisting of loose, well-sorted, fine to medium grained sand and silt, with lenses of sandy clay and clay. The sand was a wind and water deposited beach and near-shore deposit and is exposed only in the Alameda and Oakland areas.

Discharge from groundwater aquifers consists of natural and artificial discharge. Natural discharge includes evapotranspiration, groundwater discharge to streams, and underflow to San Francisco Bay. Artificial discharge comprises pumping from wells. Water pumped from wells is used for irrigation and industrial use. Domestic water to the site is supplied by the East Bay Municipal Utility District from surface water sources. The sources are from outside of the Alameda area and include the Hetch-Hetchy Reservoir system.

Groundwater beneath the site occurs at approximately 8 feet below grade in Merritt Sand. The shallow aquifer in the area is the Merritt Sand (ACFCWCD report, dated June 1988). Wells drilled within the Merritt Sand have the lowest groundwater specific capacity of all wells installed throughout Alameda County. The report states that salt-water intrusion has occurred on a limited basis within the Merritt Sand in Alameda.

2.2 Potential Sources of Hydrocarbons

Previous investigations indicate that the vadose zone and the groundwater beneath the site are impacted by petroleum hydrocarbons. Analysis of soil samples collected from beneath the former gasoline USTs indicated up to 1,500 ppm of TPH as gasoline. Water encountered in the UST pit was not sampled; however, groundwater samples collected during the initial site investigation indicated a maximum TPH-gasoline concentration of 5,680 ppb (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1). The distribution of hydrocarbons in soil and in groundwater appears to be consistent with possible releases from former USTs, dispensers, and product lines.

2.3 Hydrocarbons Occurrence in the Soil

The extent of hydrocarbon-impacted soil, while not delineated, appears to be primarily limited to the vicinity of the former UST pit. The estimated extent of TPH as gasoline greater than 10 ppm in the soil occurs between 5.5 and 10 feet bgs and includes an area extending from the former UST pit to the former dispensers. This estimate is based on results of analyses of soil samples, known releases, and field observations. Migration of hydrocarbons in soil from known source areas are assumed to have impacted soil to approximately 5 feet beyond the sidewalls of the UST pit, dispenser, and product-line trenches. The total volume of soil containing hydrocarbons greater than 100 ppm in this interval is estimated to be approximately 25 cubic yards. The volume of soil containing hydrocarbons greater than 10 ppm is estimated to be 50 cubic yards directly associated with the source areas.

The horizontal extent of hydrocarbon-impacted soil does not appear to extend beyond the property boundaries along the northern, western, and eastern sides (beyond borings S1, S2, S3, S4, S7, S8 and S9). However, along the southern side, hydrocarbon-impacted soil appears to extend toward Park and Encinal Avenues; the off-site occurrence of impacted soil is most likely a result of source migration in groundwater. The occurrence of impacted soil is most likely a result of source migration in groundwater. Indications of impacted soil were observed primarily at the soil/groundwater (capillary fringe) interface (about 10 feet bgs), with the exception of borings B2 and MW-2a where groundwater was encountered during drilling at approximately 15 bgs (Appendix B, Table 1).

2.4 Hydrocarbon Occurrence in the Groundwater

Free-phase product has not been observed, but dissolved hydrocarbons have been detected in groundwater beneath the site. Results of analyses of groundwater indicate the northwestern and northeastern extent of dissolved hydrocarbons is delineated by wells MW-5 and MW-6, respectively. The distribution of dissolved hydrocarbons in groundwater indicates that the hydrocarbon plume appears to be concentrated in the vicinity of the former UST pit and dispenser island, but extends off-site toward Park and Encinal Avenues. However, relatively low levels of hydrocarbons (74 ppb TPHg and 1.2 ppb benzene) were detected in the "grab" sample from boring S5 located south of the site near Encinal Avenue, suggests that the dissolved plume has not migrated appreciably south of the site.

Residual hydrocarbons from the former tank excavation and dispenser island appear to be migrating off-site in a west-southwesterly direction via the groundwater. The lighter and more mobile fractions of gasoline (benzene) tend to migrate more quickly than ethylbenzene, toluene, or xylene; therefore, the higher levels of benzene noted in samples S1-H20 and S4-H20 compared to xylenes may indicate a preferred path of plume migration within the groundwater.

2.5 Physicochemical Properties

Gasoline is a volatile, flammable liquid which as various constituents that include up to 200 petroleum-derived chemicals. Analysis of gasoline components is usually limited to detection of benzene, toluene, ethylbenzene, and xylene (BTEX). The BTEX components pose the most potential threat the human health and they have the potential to move through soil and contaminate groundwater.

2.5.1 Toxicity

Benzene is highly toxic and exposure to acute levels can irritate mucous membranes, cause restlessness, convulsions, excitement, depression and even death from respiratory failure. Chronic levels of benzene can cause bone marrow depression or leukemia. The Department of Health Services Action Levels for benzene is 0.7 ppb and the Maximum Contaminant Level (MCL) for drinking water is 1 ppb. Toluene, ethylbenzene and xylene are slightly less toxic than benzene with MCLs at 100 ppb, 680 ppb and 1,750 ppb respectively.

2.5.2 Persistence

The solubility of benzene in water at 23.1 °C is 0.188% (w/w) with a boiling point of 80°C. Toluene, ethylbenzene and xylene are slightly more soluble in water. These elements volatilize quickly in air. Research has indicated petroleum hydrocarbons are subject to degradation by the action of bacteria. Biodegradation can be enhanced by the presence of aerobic conditions and subsurface materials which provide a greater surface area for attachment of hydrocarbons.

2.5.3 Potential for Migration

The lighter fractions of gasoline (BTEX constituents) are more mobile than other fractions. BTEX can therefore migrate or dissipate away from the main hydrocarbon plume. Mobility can be reduced due to clayey layers in the Merritt Sand.

2.5.4 Exposure Assessment

Exposure routes for workers and public could be via dermal contact and inhalation of volatilized contaminants and windblown dust. Because the asphalt cap covers the site, the potential risk of exposure to subsurface hydrocarbons is low.

3.0 EVALUATION OF CORRECTIVE ACTION ALTERNATIVES

This section presents discussions on selection criteria and cleanup levels, available alternatives to treat gasoline hydrocarbons in soil and groundwater, and an initial screening to identify treatment alternatives that can be successfully applied to the site. Interim remedial measures and source control actions are not addressed. This rational assumes that a threat to public health and safety appears not to be imminent and we are aware of no continuous release of hydrocarbons at the site.

3.1 Protocol For Selection Of Corrective Action

Regulations CCR Title 23, Chapter 16, Articles 5, 7, and 11 of the UST regulations require that a soil and groundwater investigation phase be implemented to assess the nature of the release and to determine a method of cleanup. The regulations also specify that the CAP shall consist of those activities determined to be cost effective. "Cost-effective" is defined in the regulations as "actions that achieve similar or greater water quality benefits at an equal or lessor cost than other corrective actions."

Corrective Action Alternatives assume an assessment of impacts including:

1) the physical and chemical characteristics of the hazardous substances or its constituents, including toxicity, persistence, and potential for migration

2) hydrogeologic characteristics of the site and surrounding area

3) proximity and quality of surface water or groundwater, and the current or beneficial uses of the waters

4) the potential effects of residual contamination on nearby surface water and groundwater

The primary remedial objective is to minimize the impact of hydrocarbons to groundwater that is considered of potential beneficial use. Criteria used to evaluate treatment alternatives are effectiveness, treatment time, future liability, and cost. Proposed cleanup levels for soil and groundwater should be consistent with the primary objective and selection criteria.

3.2 Remedial Alternatives for Soil

Alternatives considered in regard to treatment of hydrocarbons in soil are no action and active treatment. Active treatment technologies include non-in situ, in situ and in situ removal with aboveground treatment. The primary advantages of the in situ technologies are minimal cost for excavation and soil is treated in place with minimal disruption to the surface. The primary disadvantages of in situ technologies are lower effectiveness in impermeable soil and residual concentrations of hydrocarbons commonly persist in the subsurface after treatment.

3.2.1 No Action alternative

The no action response results in continued migration of hydrocarbons from soil to the groundwater and continued expansion of the dissolved hydrocarbon plume. A pre-requisite of this alternative is delineation of the hydrocarbons in groundwater and identification of points of potential human impact. Continued migration of the plume is closely monitored to verify that hydrocarbons do not impact human health.

To implement the no action alternative, additional wells should be installed and an assessment of possible human health risks from dissolved plume movement should be conducted. Wells need to be installed south of the site along Encinal Avenue. A risk assessment may be conducted, but it may not conclusively identify the risk to human health as hydrocarbons in the subsurface have not been delineated. Disadvantages of the no action response are that hydrocarbons in the subsurface are not treated, implementation of the monitoring and health risk investigations require delineation of the plume, the property owner is not released from potential future liability, and no action may lengthen the site closure process.

3.2.2 Action or Treatment Alternatives for Soil

Non-in situ technologies require soil removal by excavation, and disposal at an appropriate landfill or treatment of the impacted soil by aeration, landfarming, fixation/solidification, or incineration. The effectiveness of excavation may be limited by the location of existing aboveground and belowground facilities. A disadvantage of excavation is that relatively clean overburden may have to be removed to reach impacted soil, and the overburden would most likely have to be disposed of at an appropriate landfill. Process descriptions of treatment technologies for excavated soil are described below.

1) Soil aeration is the process by which soil is spread out on the ground surface in 1 to 2 foot lifts and gasoline hydrocarbons are volatilized by incident solar radiation. The soil is turned or tilled to increase exposure of volatile hydrocarbons to the atmosphere. When hydrocarbon levels drop to acceptable concentrations, soils are then transported for appropriate disposal. Requirements for this technology are compliance with Bay Area Air Quality Management District (BAAQMD) atmospheric discharge rates and sufficient area for treatment.

   Primary advantages of this technology are relatively low capital and operation and maintenance (O & M) costs, simplified technology, and on-site treatment. Primary disadvantages are (1) treatment time is dependent upon weather conditions, (2) impermeable soil increases treatment time, (3) amount of soil aerating is dependent upon concentration levels and must be in compliance with BAAQMD requirements, and (4) after treatment, soil must be transported and disposed of at an appropriate facility.

2) Landfarming of hydrocarbon impacted soil is accomplished by spreading the soil in 1 to 2 foot lifts. Nutrients and microorganisms are periodically incorporated into the soil and the soil is turned or tilled frequently. The nutrients and tilling enhance biologic activity which decomposes the hydrocarbon chain links.

   Primary advantages of landfarming are low capital costs, on-site treatment, and the technology is well understood. Primary disadvantages are (1) extended treatment time, (2) labor intensive O & M, (3) volatile compound emissions must be in compliance with BAAQMD discharge requirements, (4) treated soil must be transported and disposed of at an appropriate facility, and (5) excavation of upper few feet of the aquifer material.

3) Fixation/solidification is the process in which materials (cement, lime, fly, ash, organic polymers, or other chemicals) are added to the impacted soils to produce a solid or convert the contaminants to a more chemically stable form. Primary advantages of this process are (1) complete containment of contaminants, (2) lower future liability, (3) effectiveness on all types of soil, and (4) short treatment time. Primary disadvantages are relative high process costs and transportation and disposal costs.

4) Incineration is the process by which soil is processed through a high temperature combustion chamber (rotary kiln, hearth, fluidized bed, etc.) where the organic compounds are incinerated and converted primarily to ash, carbon dioxide, and water. Thermal treatment is most cost effective on soil containing high levels of organic material (greater than 1,000 ppm). There are no permanent operating thermal treatment facilities in California; however, temporary (either stationary or mobile) treatment systems are available for either on-site or off-site remediation. Cement kilns are temporarily permitted for soil incineration. In the San Francisco Bay area, two thermal treatment facilities operate under temporary 90-day variances, can process only a designated volume of soil, and may not be available to treat soil promptly.

   Primary advantages of incineration are (1) effectiveness on all types of soil, (2) relative short treatment time, (3) relatively low future liability, and (4) treated soil may be used to backfill the excavation (upon approval by ACHSA). The primary disadvantage of thermal treatment is relatively high cost.

5) Disposal with no pretreatment is possible for soil excavated at the site. Soil containing hydrocarbons concentrations greater than 100 ppm may be transported to a Class II landfill. The primary advantage of the direct disposal of excavated soil is a short time of soil on-site; the primary disadvantages are cost and no release of potential future liability.

In situ technologies will include bioremediation and bioventing. Process descriptions of treatment technologies are described below.

1) Biological treatment uses the action of microorganisms to metabolize the hydrocarbon compounds present. Under aerobic conditions, contaminants may be completely converted to carbon dioxide, water, and additional bacterial matter. All of the compounds found in gasoline are degradable by bacteria; however, biotreatment methods usually require improvements in the subsurface growth environment surrounding the indigenous microorganisms.

   Primary advantages of bioremediation are (1) surface conditions are left relatively undisturbed, (2) low cost for system design and microorganisms that will work for varying site specific conditions. Primary disadvantages are (1) extended treatment time due to natural degradation and microbial growth, and (2) potential for costly O & M; oxygen and nutrients will be monitored for changes in subsurface environment, and (3) difficult treatment method in clayey soils.

2) Bioventing, involves aeration of contaminated soils to sustain respiration and thus biodegradation. Feasibility of the bioventing process is based on a sufficient baseline of natural hydrocarbon-degrading microorganisms and availability of nutrients. Bioventing utilizes low air flow rates to provide oxygen to indigenous (naturally occurring) microorganisms that degrade the fuel hydrocarbons by using them as a carbon source for cell production and carbon dioxide production during respiration. Enough oxygen is necessary to sustain microbial activity and minimizes the volatilization of hydrocarbons. Air injection can often be utilized for venting soils in lieu of air extraction, thereby eliminating off-gas treatment.

   Primary advantages of bioventing are low capital costs and on-site treatment. Primary disadvantages are (1) extended treatment time due to natural degradation and microbial growth, (2) the potential for emitting volatile compounds that must be in compliance with BAAQMD discharge requirements, and (3) difficult in injecting air into clayey soil.

The most common in situ removal with aboveground treatment is vapor extraction. In moderate to highly permeable soils, vapor extraction is an effective method for removal of liquid, residual, and vapor phase volatile hydrocarbons from subsurface soils and liquid phase volatile hydrocarbons floating on the groundwater. However, low permeable soil and high water saturation limits the effectiveness of the vacuum extraction process. High vacuum techniques or pneumatic soil fracturing can be used to enhance contaminant extraction rates.

1) The vapor extraction process involves the induction of air flow through soils by applying a vacuum within the soil matrix. Induction of air flow is typically accomplished with an extraction system coupled to vertical or horizontal extraction wells. As air flows through the soil void space, hydrocarbons are volatilized and the hydrocarbon vapors are purged from the soils into a vapor treatment unit via the extraction wells. Based on the hydrocarbon mass to be remediated, vapor treatment is accomplished by dispersion, adsorption of activated carbon, catalytic oxidation, or thermal incineration.

A) Adsorption on activated carbon involves passing hydrocarbons over activated carbon for adsorption and discharge of the clean air. Spent carbon can be regenerated or disposed of off-site. Typically, activated carbon is economic for low mass (contaminant) removal of less than 25 to 50 pounds per day.

B) Catalytic oxidation involves heating of the contaminant vapors at 500 to 700 °F, then passing the hydrocarbon vapors over a catalyst bed for oxidation. Catalytic oxidation is generally economic for mass (contaminant) removal of between 25 and 50 pounds per day, but less than 50 milligrams per liter for most of the operation.

C) Thermal incineration involves heating of the contaminant vapors at 1,500 to 1,800 °F for 1 to 2 seconds (residence time) for the oxidation of the hydrocarbon vapors. This process is economic for high hydrocarbon concentrations and removal rates of greater than 50 milligrams per liter for an extended period of time.

Primary advantages of vapor extraction are (1) well known technology, (2) effective in combination with other technologies (i.e., groundwater extraction, air sparging, and bioremediation), (3) on-site treatment, (4) relatively short treatment time in high permeable soil, and (5) relatively low future liability. Primary disadvantages are (1) relatively high capital and operation and maintenance (O & M) costs, (2) low permeable soil increases treatment time, and (3) must be in compliance with BAAQMD requirements. Especially with catalytic oxidation and thermal incineration, the primary disadvantage is the relatively high cost.

3.2.3 Screening Acceptable Treatment Alternatives for Soil

For non in situ technologies, excavation is the most cost effective technology to achieve a soil cleanup level of less than 10 ppm TPHg, because the impacted soil is relatively shallow (maximum depth of 10 feet and excavation will effectively remove impacted soil. The cost of excavating the soil is approximately $45 to $150 per cubic yards depending on the amount of soil to be removed and the type of equipment necessary to perform work. On-site treatment of the soil may cost $25 to $100 per cubic yard depending on the contaminant levels and the space available for treatment. Soil disposal can range from $35 upward depending of levels of contaminants, accepting disposal facility and the method of disposal. Excavation would remove the impacted source in the soil only. Other methods would have to be included with soil excavation to remediate the groundwater.

The no action alternative is not considered feasible because of lack of delineation of the dissolved hydrocarbon plume, and remaining liability of untreated soil. No action may jeopardize site closure. For treatment of the excavated soil, fixation/solidification is not appropriate, because this method requires heavy machinery for soil treatment and is only economically justified for a considerably large volume of soil. Landfarming will not significantly reduce the treatment time compared to aeration. The additional O & M cost associated with landfarming is judged to be unwarranted. Treatment technologies that can be successfully applied to the site are aeration, bioremediation, thermal treatment, and direct disposal. These alternatives are discussed in detail in Section 4.

For in situ technologies, bioventing is considered feasible in combination with water treatment; however, this technique applied to a small site may cost $60 to $75 per cubic yard of contaminated soil, and is not likely to achieve cleanup levels as that of vapor extraction. Vapor extraction in combination with groundwater extraction or air sparging is the most feasible technology to achieve the soil cleanup level (less than 10 ppm TPHg), because the impacted soil is relatively shallow and permeable to be cost effective. The treatment type should be based on pilot studies of site specific soils. As with bioventing, airsparging has physical and hydrogeological limitations. Airsparging is considered potentially feasible because of the permeable subsurface soils which could disperse oxygen through the water table and enhance hydrocarbon volatilization and recovery by vapor extraction.

3.3 Groundwater remedial Alternatives

Remedial alternatives for groundwater include no action and active treatment. Active treatment alternatives reduce hydrocarbon concentrations or minimize the continued migration of the dissolved hydrocarbon plume. Preliminary aquifer test and permeability tests of soil are necessary to properly characterize subsurface conditions for potential recovery and treatment alternatives. Data from the adjacent Arco station indicate that nearby saturated soils have transmissivity values of 3,300 to 3,900 gallons per day/foot and storativity values of 2.1×10^{-2} to 3.5×10^{-3}.

3.3.1 No Action Alternative

The no action response for groundwater is similar to the no action response discussed for soil. Under this alternative, groundwater monitoring would probably continue for an indefinite period of time. Implementation of the no action response for groundwater requires delineation of the dissolved hydrocarbon plume and evaluation of the risks to human health. Advantages and disadvantages of the no action response for groundwater are similar to those previously discussed in Section 3.2.1.

3.3.2 Recovery/Containment Alternatives

Groundwater recovery or containment can be implemented by extraction wells, horizontal subsurface drains, dewatering of pits, or low permeability barriers. A discussion of the four methods is presented below.

1) Groundwater pumping from one or more extraction wells involves the active manipulation and management of groundwater to contain, divert, or remove impacted groundwater. Pumping is most effective in high permeability sediments. The effectiveness of extraction in relatively low permeability sediments may be increased by enlarging the well diameter. Hydraulic control may be achieved as a result of extraction or as a result of extraction (and injection when approved by RWQCB).

2) Horizontal subsurface drains include any type of buried conduit (i.e., perforated pipe) used to convey and collect aquifer discharges by gravity. Subsurface drains function like an infinite line of extraction wells by introducing a continuous zone of influence within which groundwater flows toward the drain. A system of drains are installed to direct water flow toward an extraction point or points. Drains are generally applicable to shallow depths to groundwater. The most widespread use of drains is to intercept a contaminant plume hydraulically downgradient from a source.

3) Dewatering of open pits involves excavation to below the groundwater surface and removing fluids seeping into the pit. This method may be effective in areas of low permeability sediments by significantly increasing the surface area available for withdrawal. Dewatering would only be considered for the subject site if excavation took place. Under this option, dewatering is assumed to take place for approximately 1 month.

4) Low permeability barriers include a variety of methods whereby low-permeability cutoff walls or diversions are installed below grade to contain impacted groundwater or divert the flow of unaffected groundwater. The common subsurface barriers are slurry walls, grouted barriers, and sheet piling. Impacted groundwater can be either left untreated, if fully contained, or may be recovered and treated.

3.3.3 Treatment Alternatives

Groundwater impacted by petroleum hydrocarbons can be treated on-site or off-site. Onsite alternatives include the use of interim treatment units or the construction of stationary longer-term treatment systems. Interim treatment units are usually used for temporary groundwater containment or free-phase hydrocarbon recovery; while stationary systems, with some components installed underground, are used for longer-term cleanup of groundwater. The groundwater can be fully treated onsite and either reinjected to the subsurface, discharged to surface water, or discharged to a municipal wastewater treatment plant. Groundwater may also be collected and hauled to an off-site treatment facility. Off-site treatment is not cost effective for larger volumes of water because of high transportation and disposal costs.

In situ and in situ removal with aboveground treatment technologies. The commonly used treatment technologies are described below.

1) In situ technologies include biodegradation and chemical degradation.

   A) Biodegradation is the process in which naturally occurring soil microorganisms are stimulated to degrade dissolved hydrocarbons. Water is mixed in an aboveground tank with nutrients, oxygen, and pH neutralizers to support microbial growth. The enriched water is injected into the subsurface through injection wells or filtrating ponds. Stimulation of microbial growth and activity for hydrocarbon destruction is accomplished primarily through the addition of oxygen and nutrients. Treatability studies must be performed to refine operating parameter prior to applying this technology to the site.

   B) Chemical degradation is an oxidation technique that is used to detoxify hydrocarbons in the groundwater. Hydrogen peroxide or hypochlorite is usually incorporated into the saturated zone through injection wells and oxidizes hydrocarbons in the groundwater. As with in situ biodegradation, chemical degradation has physical and hydrogeological limitations.

2) In situ source removal technologies involve groundwater recovery, aboveground treatment of water with dissolved hydrocarbons, and fluid disposal. Selection of a treatment system depends on the contaminants to be removed and may consist of a combination of several technologies to effect a solution. We presently anticipate that

free-phase separation would not be needed at the site because not enough product has been detected in wells for separation to be effective or necessary.

Alternatives for removal of dissolved hydrocarbons in groundwater include air stripping, carbon adsorption, and biodegradation. These alternatives are discussed below.

A) Air stripping is useful for the removal of volatile organic compounds from water by transferring the dissolved hydrocarbons in the groundwater from the liquid phase into a flowing gas or vapor stream. Hydrocarbon-impacted water is pumped to the top of the air stripper tower and distributed uniformly across packing material. Water flows downward in a film layer along the packing material surfaces. Air blown into the base of the tower flows upwards, contacting the water. Volatile organics are transferred from the water to the air and carried to the top of the column. A properly designed and operated packed-tower air stripper can achieve greater than 95 percent removal of the volatile organics from water. Residuals from an air-stripping process include the treated water and the contaminated off-gas, which may be either discharged to the atmosphere in low volumes, or directed through carbon filtration units.

B) Carbon adsorption is used to remove the dissolved phase of petroleum products by adsorption to activated carbon. At least two carbon filtration units are placed in series. The efficiency of removal for aqueous phase carbon is 98 percent. Activated carbon is used as a primary or secondary treatment technology.

C) Biodegradation uses enhanced biologic activity to degrade dissolved hydrocarbons in groundwater. Impacted groundwater is pumped into a bioreactor and flows around a medium (typically plastic packing material) where bacteria grow on the surface of the medium. A typical bioreactor with proper maintenance can achieve a hydrocarbon destruction efficiency of greater than 85 percent. Removal of remaining hydrocarbons may be done using carbon filtration.

3.3.4 Screening Acceptable Alternatives

3.3.4.1 Recovery/Containment

Site-specific hydrogeologic data is necessary to evaluate if groundwater pumping from existing wells would yield sufficient water to control plume migration. Aquifer parameter data from beneath the subject site would be necessary to utilize groundwater pump and treat as a viable treatment alternative in a cost effective manner. Soil residual would need to be remediated using an appropriate method described in Section 3.2. Data from the adjacent Arco station reportedly indicates that an estimate of total recovery of fluids from a 6-inch-diameter well will yield 1 to 2 gallons per minute (GSI Report, August 1992). Similar data from the subject site may be sufficient to utilize groundwater pump and treat as a viable treatment alternative in a cost effective manner. Soil residual would need to be remediated using an appropriate method described in Section 3.2.

Dewatering of open pits during further excavation to below groundwater would effectively remove hydrocarbon impacted in the vicinity of the excavation; however, this method may not recover or contain the impacted groundwater in the southwestern portion (downgradient direction) of the site and is not considered a viable alternative.

Construction of low permeability barriers to contain plume migration is not considered appropriate for this site. The cost of construction a containment structure around the hydrocarbon plume would be high relative to installing drains or wells. A recovery system would additionally have to be installed if groundwater treatment were contemplated. If groundwater is not treated, owner liability would remain until concentrations were reduced through natural dispersion, dilution, and degradation.

Extracting groundwater via large diameter wells (6-inch optimum) and pumping the water through an air stripper and/or activated carbon canisters in series is a viable treatment alternative for the subject site. A residual of hydrocarbon-impacted soil will persist and specific soil treatment may be necessary to obtain contaminant levels for a no action site status.

3.3.4.2 Treatment

In situ technologies have a limited application for this site to treat the impacted groundwater, because the water bearing formation exhibits low permeability. Treatment of the entire impacted area would likely require installation of numerous closely spaced injection wells. Numerous injection points, a potentially extended treatment time, and the uncertainty of effective treatment do not make in situ methods technically or cost effective for the site. Non-in-situ treatment of groundwater appears to be a more effective alternative. Dissolved hydrocarbons can be treated using either an air stripper, carbon adsorption units, or a bioreactor.

4.0 CONCLUSIONS

The majority of hydrocarbon-impacted soil was removed from the site during removal of the former gasoline underground storage tanks, dispensers, and associated product lines. Residual hydrocarbons from the former source areas appear to be limited to the soil/water interface or approximately 10 feet bgs. The distribution of hydrocarbons in soil is apparently a result of source migration in groundwater.

The distribution of hydrocarbons in groundwater indicates that dissolved gasoline hydrocarbons may be migrating off-site toward the south-southwest. Off-site migration control and/or recovery of hydrocarbon-impacted groundwater in the area south-southwest of the site would entail an active groundwater pumping system.

At this time, an attempt to remediate the relatively thin layer of hydrocarbon-impacted soil beneath the site and control migration of the dissolved hydrocarbon plume would be effective (both technically and cost effectively) using a combination (dual) vapor extraction and groundwater extraction system. Dual extraction would effectively remediated hydrocarbons from the capillary fringe and control off-site plume migration. Vapor and water extracted from the wells would be separated and treated; water would most likely be treated by carbon adsorption and the vapors by carbon adsorption.

5.0 REFERENCES

California Department of Water Resources, 1960, Intrusion of salt water into groundwater basins of southern Alameda County: California Department Water Resources, Davis. Resources Plan. 81, 64 p.

Alameda County Health Care Services Letter, October 7, 1992, Site at 2425 Encinal Avenue, Alameda, California, and the Extension of the Field Work Due Date.

Alameda County Investigation: California Water Resources Board Bull. 13. 1963, 196 p.

Alameda County Flood Control and Water Conservation District, June 1988, Geohydrology and Groundwater - Quality Overview, of the East Bay Plain Area, Alameda County, California: 205 (j) Report.

TABLE 1
SOIL ANALYTICAL RESULTS
Alameda Cellars
2425 Encinal Avenue, Alameda, California
(page 1 of 1)

Sample Number	Date Sampled	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW1/B1-10.5'	12/23/92	314	4.3	3.8	6.8	11.6
MW1/B1-16'	12/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
B2-10'	12/23/92	1,365	18.9	37.0	28.4	56.0
B2-14'	12/23/92	26	0.7	0.5	1.2	2.3
MW2/B3-5.5'	12/23/92	121	0.8	0.7	4.6	10.2
MW2/B3-10.5'	12/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW3/B4-5.5'	12/23/92	10.1	0.4	0.4	0.5	0.8
MW3/B4-15.5'	12/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
B5-5'	12/23/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW2a-7'	01/06/93	24	0.8	0.6	0.6	1.1
MW2a-15'	01/06/93	7.9	0.5	0.4	0.2	0.5
S1-7'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S2-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S3-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S4-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S5-10'	05/12/93	<1.0	0.130	<0.005	<0.005	<0.005
S6-10'	05/12/93	8.7	0.130	<0.005	0.020	0.024
S7-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S8-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
S9-10'	05/12/93	<1.0	<0.005	<0.005	<0.005	<0.005
MW4-5.5'	12/10/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW4-11'	12/10/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW5-6'	12/10/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW5-11'	12/10/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW6-6'	12/14/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW6-10.5'	12/14/93	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

All results in mg/kg ≈ parts per million (ppm)

TPHg	Total petroleum hydrocarbons as gasoline
<	Less than listed detection limit established by the laboratory
MW1/B1-10.5'	Monitoring well/soil boring identification and sample depth (10.5 feet below ground surface)

TABLE 2
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS
Alameda Cellars
2425 Encinal Avenue, Alameda, California
(page 1 of 2)

Well Number	Date	Depth to Water	Groundwater Elevation	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1 (Elevation of Top of Casing-27.61 MSL)								
	01/09/93	6.75	20.86	5,360	1,560.0	1,026.0	641.0	2,706.2
	04/12/93	6.52	21.09	12,000	750.0	100.0	500.0	1,400.0
	07/13/93	8.68	18.93	720	119.6	32.7	70.8	262.0
	10/12/93	9.04	18.57	8,400	420.0	39.0	280.0	880.0
	12/20/93	7.87	19.74	5,200	270.0	58.0	170.0	590.0
	03/18/94	6.96	20.65	18,000	570.0	180.0	270.0	1,500.0
	04/08/94	7.69	19.92	NT	NT	NT	NT	NT
MW-2a (Elevation of Top of Casing-27.98 MSL). Replaced well MW-2.								
	01/09/93	7.06	20.92	5,680	801.6	598.6	840.2	2,196.1
	04/12/93	6.77	21.21	12,000	460.0	110.0	240.0	1,600.0
	07/13/93	8.94	19.04	550	145.2	47.5	126.8	127.4
	10/12/93	9.04	18.57	2,000	280.0	17.0	100.0	120.0
	12/20/93	8.24	19.74	3,300	450.0	40.0	200.0	350.0
	03/18/94	7.80	20.18	7,900	370.0	53.0	190.0	530.0
	04/08/94	7.67	20.31	NT	NT	NT	NT	NT
MW-3 (Elevation of Top of Casing-27.89 MSL)								
	01/09/93	6.68	21.21	<50	<0.5	<0.5	<0.5	<0.5
	04/12/93	6.41	21.48	1,500	95.0	30.0	46.0	85.0
	07/13/93	8.74	19.15	540	18.3	106.2	75.7	128.0
	10/12/93	9.20	18.69	3,500	290.0	230.0	210.0	460.0
	12/20/93	7.95	19.94	690	31.0	10.0	31.0	25.0
	03/18/94	6.60	21.29	450	9.6	11.0	5.5	23.0
	04/08/94	7.70	20.19	NT	NT	NT	NT	NT
S1	05/12/93	—	—	1,000	200	25	93	56
S4	05/12/93	—	—	710	230	2.7	7.8	3.4
S5	05/12/93	—	—	74	1.2	0.9	<0.5	1.4
S6	05/12/93	—	—	18,000	<5.0	58	120	150
MW-4 (Elevation of Top of Casing-26.97 MSL)								
	12/20/93	7.25	19.72	580	2.3	<0.5	1.4	1.1
	03/18/94	6.64	20.33	2,100	11.0	1.5	2.3	6.0
	04/08/94	7.12	19.85	NT	NT	NT	NT	NT
MW-5 (Elevation of Top of Casing-27.34 MSL)								
	12/20/93	8.01	19.33	<50	<0.5	<0.5	<0.5	<0.5
	03/18/94	7.80	19.54	<50	<0.5	<0.5	<0.5	<0.5
	04/08/94	7.82	19.52	NT	NT	NT	NT	NT

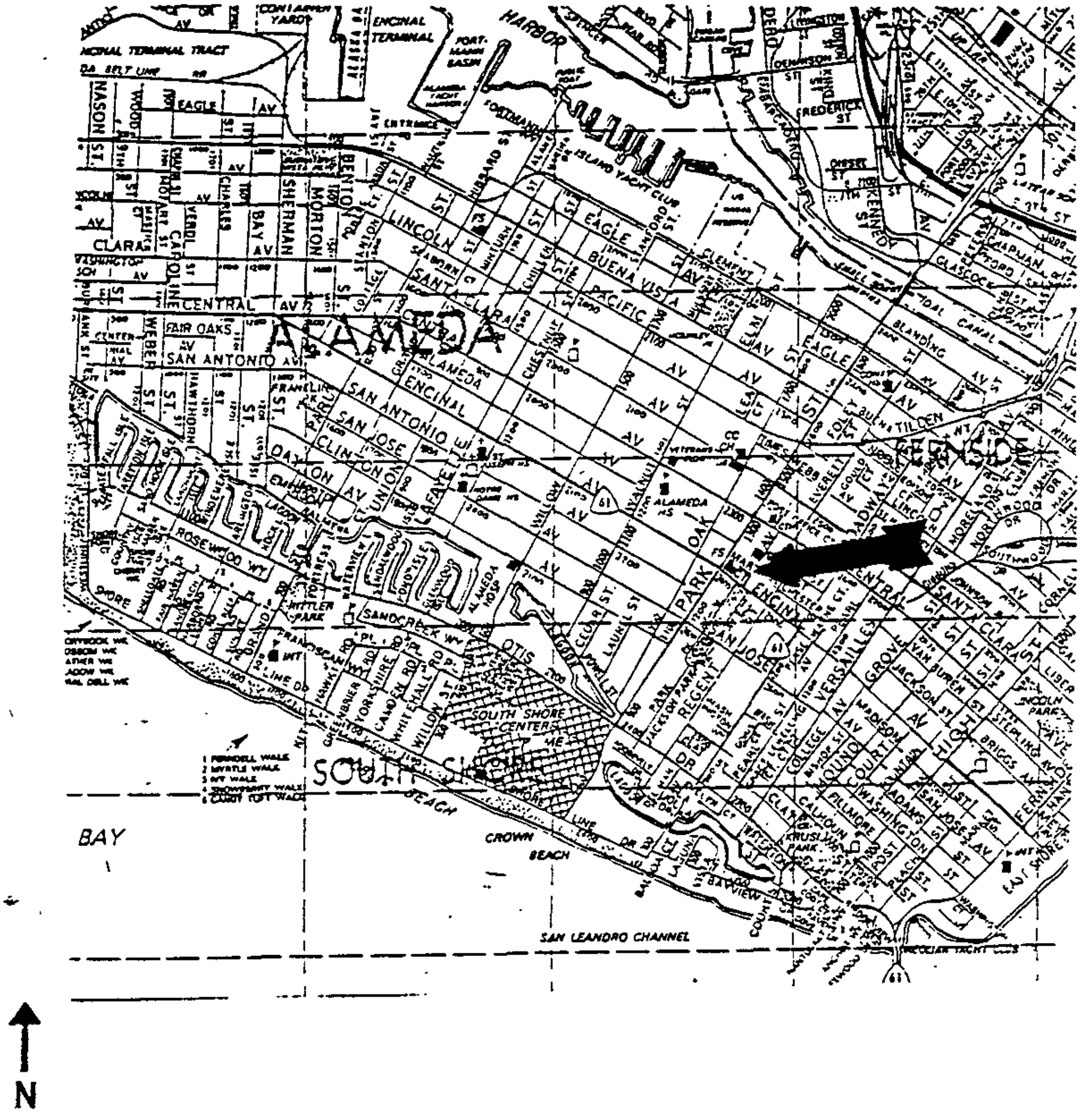
See page 2 of 2.

TABLE 2
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS
Alameda Cellars
2425 Encinal Avenue, Alameda, California
(page 2 of 2)

Well Number	Date	Depth to Water	Groundwater Elevation	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
MW-6 (Elevation of Top of Casing-28.03 MSL)								
	12/20/93	8.00	20.03	<50	<0.5	<0.5	<0.5	<0.5
	03/18/94	—	—	NT	NT	NT	NT	NT
	04/08/94	7.72	20.31	<50	<0.5	<0.5	<0.5	<0.5

Depth to water measured in feet below top of casing.
All results in μg/L ≈ parts per billion (ppb)

TPHg	Total petroleum hydrocarbons as gasoline
<	Less than listed detection limit established by laboratory
MSL	Mean Sea Level
NT	Not Tested



Source: Thomas Brothers

ACC Environmental Consultants, Inc.
1000 Atlantic Avenue, Suite 110
Alameda, California 94501

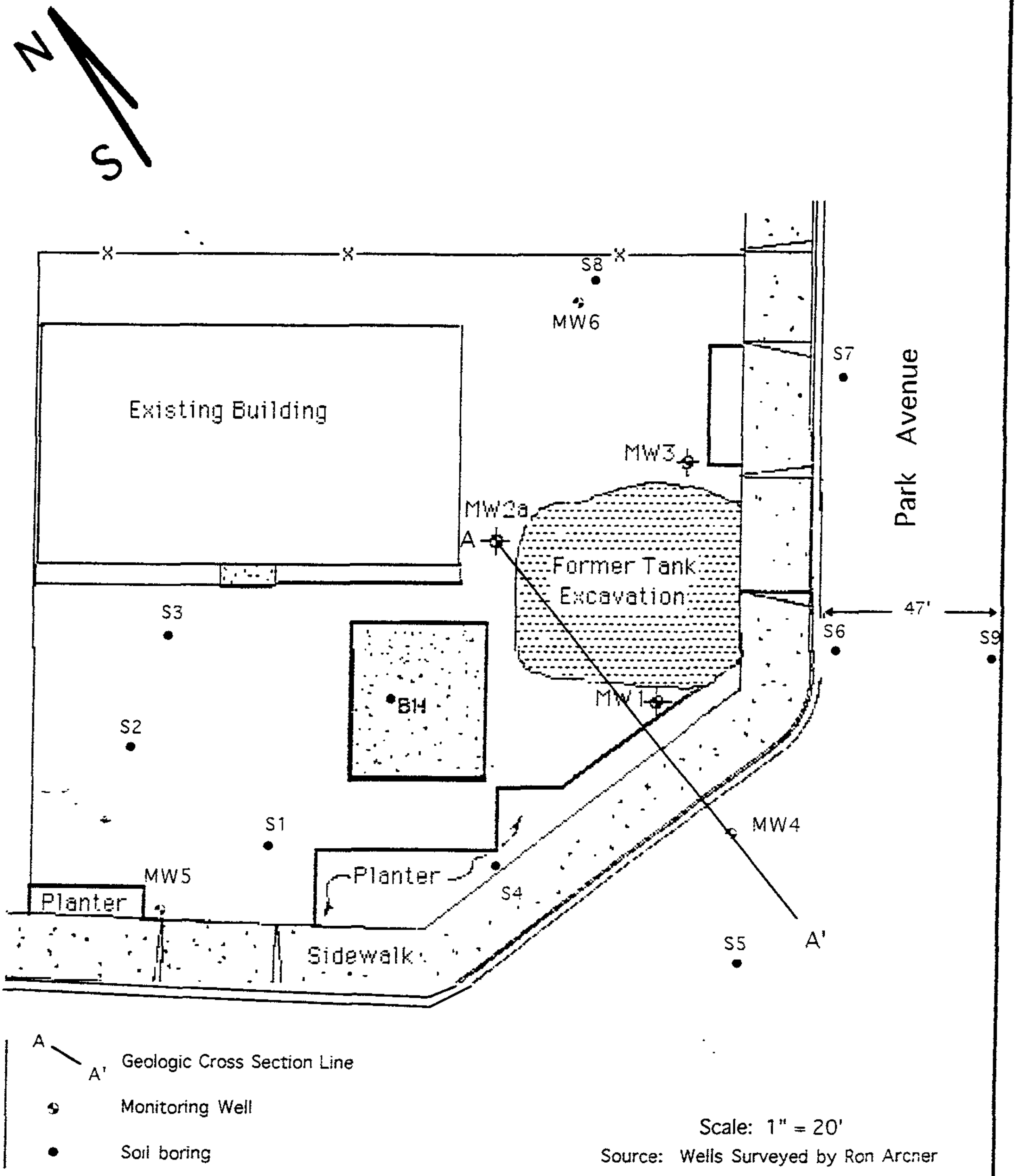
Location Map
2425 Encinal Avenue
Alameda, California

Project No. 6039-3

Date: 4/12/93

Dn by: MCK

Figure 1



Scale: 1" = 20'

Source: Wells Surveyed by Ron Archer

Project # 94-6039-5	09/01/94	Drawn By: MCK	**Figure 2 - Site Plan** 2425 Encinal Avenue Alameda, California

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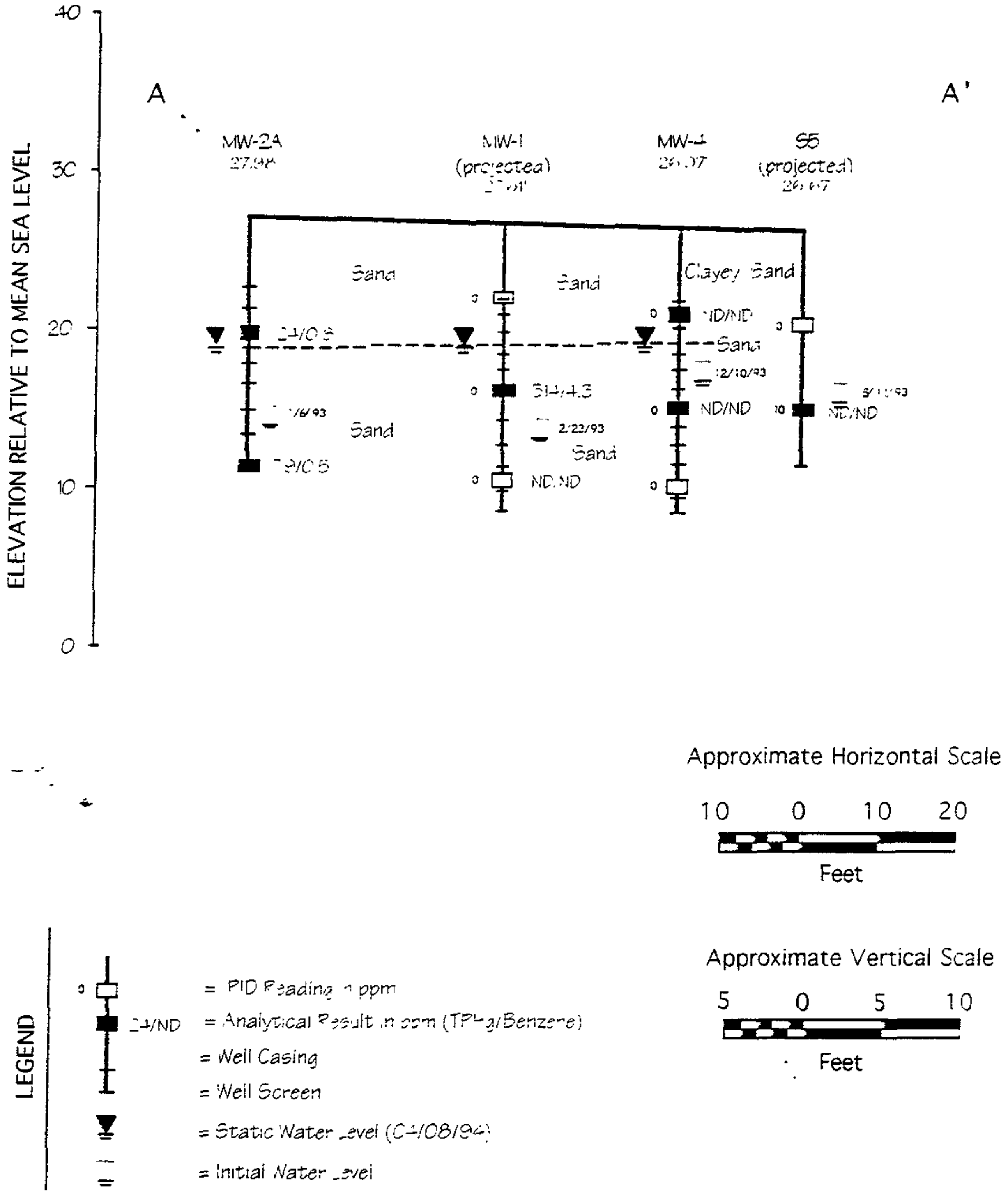

September 1, 1994	Drawn By: MCK	Project: 94-6039-5	**Figure 3**

Geologic Cross Section A - A'
2425 Encinal Avenue
Alameda, California

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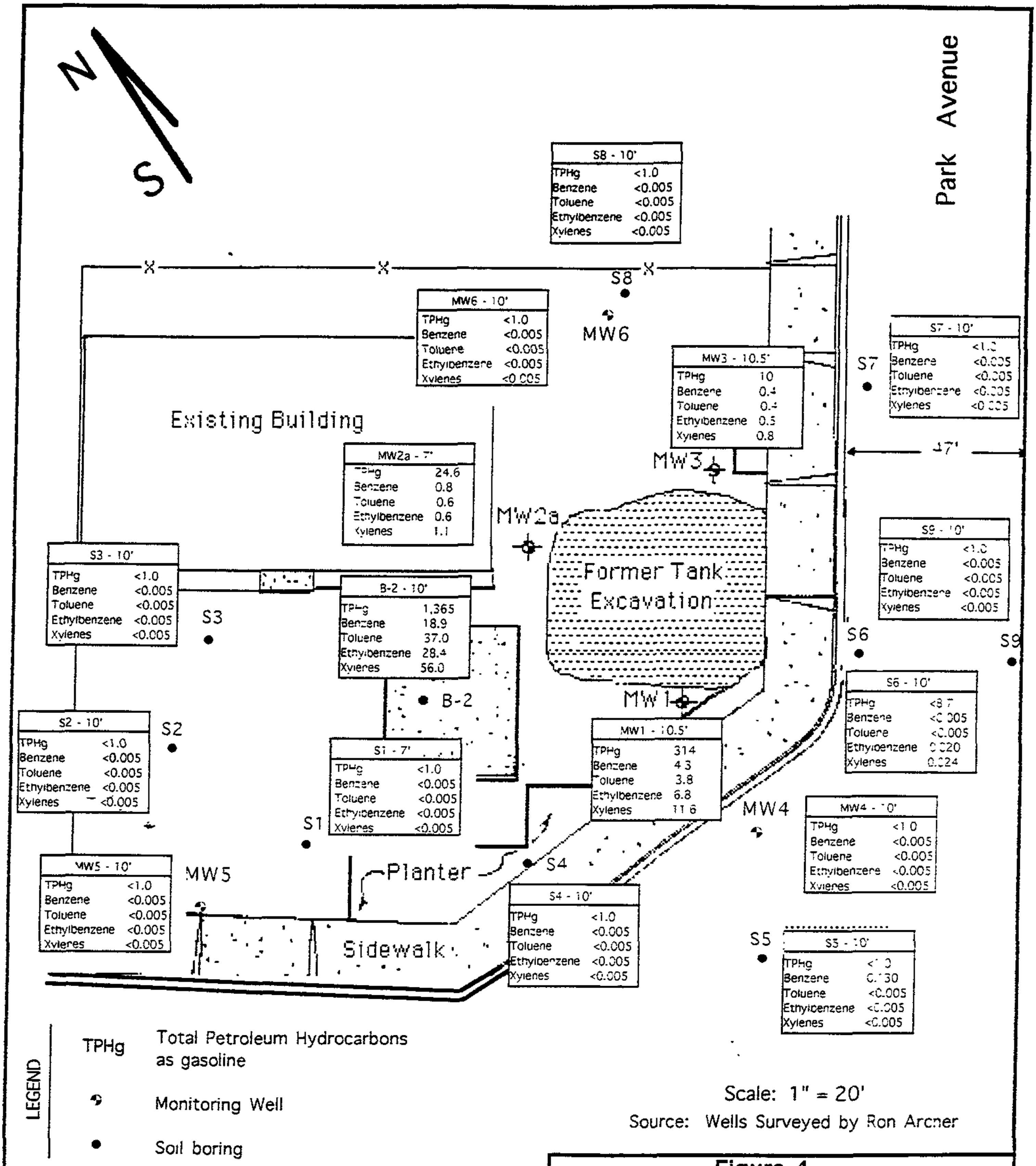

S8 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

MW6 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

MW3 - 10.5'	
TPHg	10
Benzene	0.4
Toluene	0.4
Ethylbenzene	0.3
Xylenes	0.8

S7 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

MW2a - 7'	
TPHg	24.6
Benzene	0.8
Toluene	0.6
Ethylbenzene	0.6
Xylenes	1.1

S3 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

B-2 - 10'	
TPHg	1,365
Benzene	18.9
Toluene	37.0
Ethylbenzene	28.4
Xylenes	56.0

S9 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

S6 - 10'	
TPHg	<3.7
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	0.020
Xylenes	0.024

S2 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

S1 - 7'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

MW1 - 10.5'	
TPHg	314
Benzene	4.3
Toluene	3.8
Ethylbenzene	6.8
Xylenes	11.6

MW4 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

MW5 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

S4 - 10'	
TPHg	<1.0
Benzene	<0.005
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

S5 - 10'	
TPHg	<1.0
Benzene	0.130
Toluene	<0.005
Ethylbenzene	<0.005
Xylenes	<0.005

Scale: 1" = 20'

Source: Wells Surveyed by Ron Archer

All results in Parts Per Million (ppm)

Project # 94-6039-5	09/01/94	Drawn By: MCK	**Figure 4** **Concentrations of TPHg/BTEX in Soil** 2425 Encinal Avenue Alameda, California

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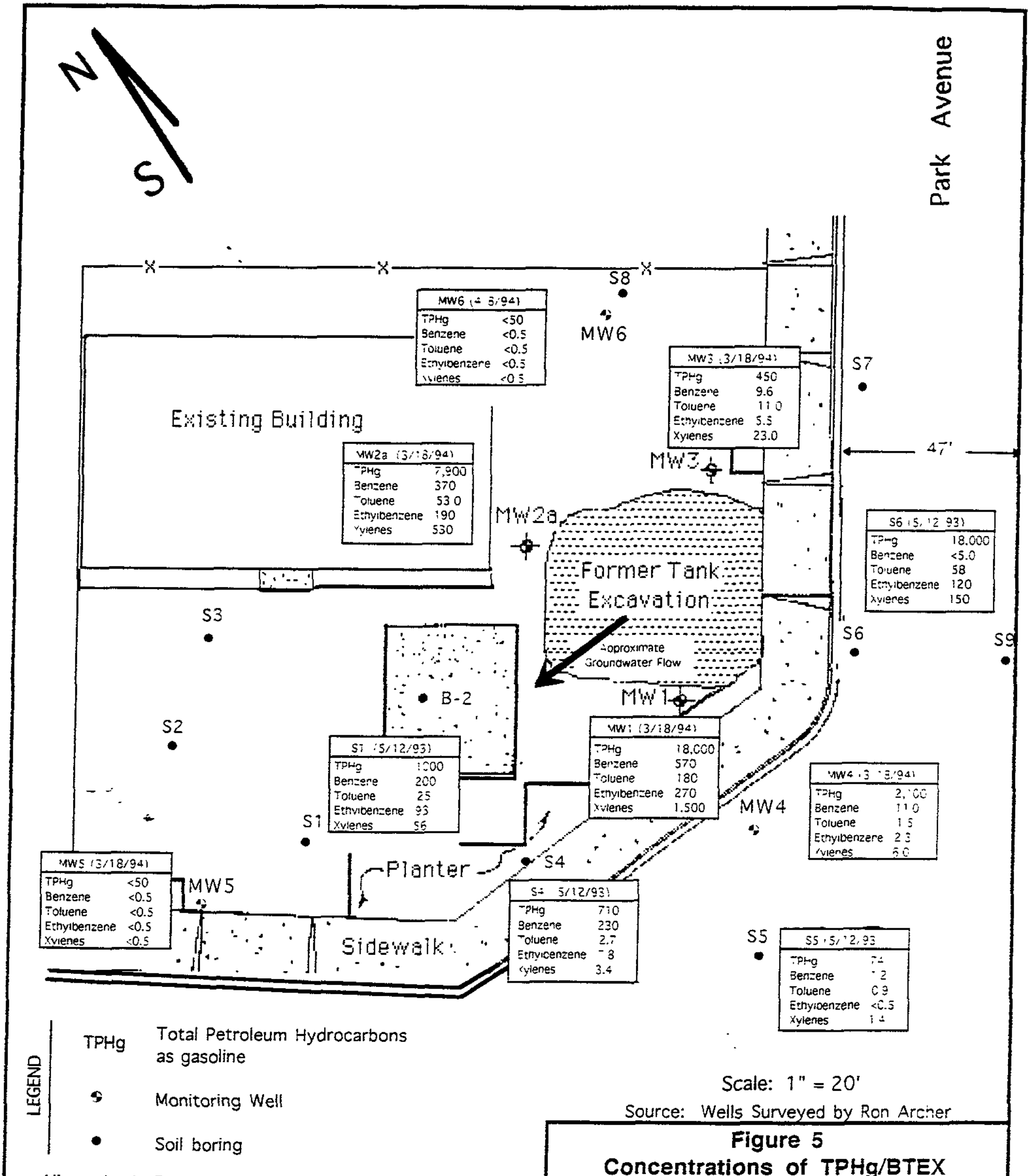

MW6 (4 6/94)	
TPHg	<50
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Xylenes	<0.5

MW3 (3/18/94)	
TPHg	450
Benzene	9.6
Toluene	11.0
Ethylbenzene	5.5
Xylenes	23.0

MW2a (3/18/94)	
TPHg	7,900
Benzene	370
Toluene	53.0
Ethylbenzene	190
Xylenes	530

S6 (5/12/93)	
TPHg	18,000
Benzene	<5.0
Toluene	58
Ethylbenzene	120
Xylenes	150

S1 (5/12/93)	
TPHg	1000
Benzene	200
Toluene	25
Ethylbenzene	93
Xylenes	56

MW1 (3/18/94)	
TPHg	18,000
Benzene	570
Toluene	180
Ethylbenzene	270
Xylenes	1,500

MW4 (3/18/94)	
TPHg	2,100
Benzene	11.0
Toluene	1.5
Ethylbenzene	2.3
Xylenes	6.0

MW5 (3/18/94)	
TPHg	<50
Benzene	<0.5
Toluene	<0.5
Ethylbenzene	<0.5
Xylenes	<0.5

S4 (5/12/93)	
TPHg	710
Benzene	230
Toluene	2.7
Ethylbenzene	7.8
Xylenes	3.4

S5 (5/12/93)	
TPHg	74
Benzene	1.2
Toluene	0.9
Ethylbenzene	<0.5
Xylenes	1.4

Source: Wells Surveyed by Ron Archer

All results in Parts Per Billion (ppb)

Project # 94-6039-5	09/01/94	Drawn By: MCK

Figure 5
Concentrations of TPHg/BTEX in Groundwater
2425 Encinal Avenue
Alameda, California

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APPENDIX A

ENVIRONMENTAL
CONSULTANTS

January 28, 1993

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

RE: Field Investigation
and Results of Groundwater Sampling at
2425 Encinal, Alameda, California
Permit No. 92659

Dear Mr. Chrissanthos:

Thank you for providing ACC with the opportunity to present this report. The enclosed report describes the materials and procedures used during a field investigation performed at 2425 Encinal, Alameda, California.

ACC's investigative approach was to drill five borings and convert three of them into groundwater monitoring wells. This work was performed to evaluate the lateral and vertical extent of soil contamination and to determine hydrocarbon concentrations in groundwater.

Soil samples collected during drilling were submitted to Geochem Environmental Laboratories for petroleum hydrocarbon analyses, in accordance with the "Tri Regional Guidelines for Underground Storage Tank Sites".

The results of the chemical analysis of the soil samples indicated elevated levels of Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) from all five of the borings.

Analysis of the groundwater samples from monitoring wells MW-1, MW-2 and MW-3 indicated elevated concentrations of hydrocarbons.

If you have any comments regarding this report, please call me.

Sincerely,

Misty C. Kaltreider
Geologist

cc: Mr. Richard Hiett - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Care Services - Division of Hazardous Materials
Mr. Wyman Hong - Alameda County Flood Control and Water Conservation District, Zone 7

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ENVIRONMENTAL
CONSULTANTS

SOIL AND GROUNDWATER INVESTIGATION

2425 ENCINAL
ALAMEDA, CALIFORNIA

January 1993

Prepared for:
Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

Prepared by:

Prepared by:	Reviewed by:
Misty Kaltreider, Project Geologist	Elizabeth Herbert, R.G. Registered Geologist

ELIZABETH
HERBERT
4819

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TABLE OF CONTENTS

TABLES

ATTACHMENTS

1.0 INTRODUCTION

This report presents the procedures and findings of a soil and groundwater investigation conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 2425 Encinal, Alameda, California. The project objective, as described in the Work Plan prepared on December 9, 1992, was to drill five soil borings to evaluate the extent of soil contamination. Three of the borings were converted into 2-inch diameter groundwater monitoring wells to determine if groundwater has been impacted from the previous underground storage of gasoline.

During the field investigation, four borings were drilled to evaluate the lateral extent of contamination near the previous tank excavation. A fifth boring was drilled beneath the former dispensing island. During drilling, groundwater was encountered approximately between 9 and 14 feet below present grade. Two of the three monitoring wells were completed to approximately 15 feet below present grade. The third well was completed to approximately 18 feet below grade. Groundwater samples from the wells were analyzed to determine what impact any release may have had on the groundwater.

2.0 BACKGROUND

The site is presently occupied by Alameda Cellars, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. On March of 1990, two 10,000-gallon gasoline tanks were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

Per request of Alameda County Health Care Services - Hazardous Materials Division, this preliminary Site Assessment was conducted to further evaluate the soil contamination from the gasoline release on-site.

ACC was retained by Mr. Chrissanthos, to perform the work requested by the Alameda County Health Care Services.

3.0 FIELD PROCEDURES

Borings B-1 through B-5 were drilled on December 23, 1992 using a B-53 mobile drill rig equipped with 6 to 8-inch outside diameter hollow-stem augers. Concurrent with drilling, subsurface soil samples were obtained with a Modified California Sampler equipped with three six-inch long brass liners. The sampler and brass liners were pre-cleaned prior to use and between sample drives by washing them with a trisodium phosphate (TSP) and potable water solution, a potable water rinse, and distilled water rinse. Soil samples were collected every five feet, at any noted changes in lithology, and at the approximate soil/groundwater interface. Subsurface

1.0 INTRODUCTION

This report presents the procedures and findings of a soil and groundwater investigation conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 2425 Encinal, Alameda, California. The project objective, as described in the Work Plan prepared on December 9, 1992, was to drill five soil borings to evaluate the extent of soil contamination. Three of the borings were converted into 2-inch diameter groundwater monitoring wells to determine if groundwater has been impacted from the previous underground storage of gasoline.

During the field investigation, four borings were drilled to evaluate the lateral extent of contamination near the previous tank excavation. A fifth boring was drilled beneath the former dispensing island. During drilling, groundwater was encountered approximately between 9 and 14 feet below present grade. Two of the three monitoring wells were completed to approximately 15 feet below present grade. The third well was completed to approximately 18 feet below grade. Groundwater samples from the wells were analyzed to determine what impact any release may have had on the groundwater.

2.0 BACKGROUND

The site is presently occupied by Alameda Cellars, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. On March of 1990, two 10,000-gallon gasoline tanks ~~and one 2,000-gallon diesel tank~~ were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

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Upon removal from the sampler, each end of the brass liner was covered with Teflon tape and plastic caps, labeled, and stored in an ice-filled cooler to be transported under chain of custody to Geochem Environmental Laboratories, a Cal-EPA certified laboratory.

A minimum of two soil samples were selected from each boring and submitted to Geochem Environmental Laboratories of San Jose, California for analysis according to the "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", dated August 10, 1990. Samples from the borings were submitted for analysis for Total Petroleum Hydrocarbons (TPH) as gasoline by EPA test method 5030 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA test method 8020. Copies of the analytical results and chain of custody forms are provided in Exhibit A.

The soil cuttings and samples were logged by an ACC geologist during drilling operations. Lithologic logs of the borings are shown in Figures 5 through 10, respectively. The soil cuttings are described in accordance with the Unified Soil Classification System, as shown in Figure 11. Soil cuttings were stored on-site in DOT approved drums.

3.1 Monitoring Well Construction and Development

Monitoring wells MW-1, MW-2 and MW-3 were installed within borings B-1, B-3 and B-4, respectively, upon completion of drilling. Well construction details are presented in Figures 12 through 14. Monitoring Wells MW-1 and MW-2 were installed with well casings consisting of 2-inch I.D. Schedule 40 PVC with 10 feet of 0.020-inch factory slotted screen below 8 feet of solid casing. Monitoring well MW-3 was installed with well casing consisting of 2-inch I.D. Schedule 40 PVC with 10 feet of 0.020-inch factory slotted screen below 5 feet of solid casing.

The wells were installed with Lonestar #2/12 sand used as annular fill to at least one foot above the top of the screen. One foot of 1/4-inch pelletized bentonite was placed between the annular sand and neat cement seal. "Christy" boxes were cemented over the tops of the PVC casings and set slightly above grade to drain surface waters away from the well head. Locking expansion plugs with locks were placed on each well.

The wells were developed on December 31, 1992 and January 5, 1993, using a double-ended rubber O-ring stopper followed by pumping, using a precleaned downhole pump. The wells were developed until pH and conductivity of development water had stabilized and was substantially free of fine material. Approximately 10 well casing volumes of water were removed from each well.

During development, Monitoring Well MW-2 was damaged. A hole developed in the PVC casing which resulted in sand pack filling the casing. Due to the questionable integrity of the well, Monitoring Well MW-2 was abandoned and Monitoring Well MW-2a was drilled and installed in a different location.

On January 6, 1993, Monitoring Well MW-2 was abandoned by overdrilling the well using eight-inch hollow stem augers to a depth of 18 feet. The well casing and well construction materials were removed and the hole was backfilled with neat cement. The cement consisted of one sack of Portland cement to five gallons of clean water. The mixture was then placed in the hole by means of a tremie pipe lowered to within three feet of the bottom of the well and was delivered in one continuous operation until the well was filled.

Monitoring Well MW-2a was drilled and installed on January 6, 1993. Grab soil samples were collected from the cuttings during drilling. Two samples were collected (at 7 and 15 feet below ground surface) in pre-cleaned brass sample tubes. The ends of the tubes were covered with Teflon tape and plastic caps. The tubes were labeled, and stored in an ice-filled cooler to be transported under chain of custody to Geochem Environmental Laboratories, a Cal-EPA certified laboratory.

The soil cuttings and samples were logged by an ACC geologist during drilling operations. Lithologic logs of the boring MW-2a is shown in Figure 10. The soil cuttings are described in accordance with the Unified Soil Classification System, as shown in Figure 11. Soil cuttings were stored on-site in DOT approved drums.

Monitoring Well MW-2a was installed in the boring upon completion of drilling. Well construction details are presented on Figure 15. Monitoring well MW-2a was installed with well casing consisting of 2-inch I.D. Schedule 40 PVC with 10 feet of 0.020-inch factory slotted screen below 5 feet of solid casing.

The well was installed with Lonestar #2/12 sand used as annular fill to at least one foot above the top of the screen. One foot of 1/4-inch pelletized bentonite was placed between the annular sand and neat cement seal. A "Christy" box was cemented over the top of the PVC casing and set slightly above grade to drain surface waters away from the well head. A locking expansion plug with lock was placed on the well.

Monitoring Well MW-2a was developed using a double-ended rubber O-ring stopper followed by pumping, using a precleaned downhole pump. The well was developed until pH and conductivity of development water had stabilized and was substantially free of fine material. Approximately 10 well casing volumes of water were removed.

3.2 Groundwater Sampling

Groundwater samples were taken on January 9, 1993 from monitoring wells MW-1, MW-2a, and MW-3. Prior to groundwater sampling the depth to the surface of the water table was measured from the top of the PVC casing using a Solinst Water Level Meter. Information regarding well elevations and groundwater level measurements is summarized below in Table 1.

TABLE 1
Groundwater Depth Information

Date Sampled	Depth to Groundwater (ft.)	Groundwater Elevation (ft.)
Well No. MW-1	Elevation of Top of Casing-27.78 MSL	
01/09/93	6.75	21.03
Well No. MW-2a	Elevation of Top of Casing-28.17 MSL	
01/09/93	7.06	21.11
Well No. MW-3	Elevation of Top of Casing-27.89 MSL	
01/09/93	6.68	21.21

Notes:
All measurements in feet
MSL = Mean Sea Level

After water-level measurements were taken, each on-site well was purged by hand using a designated disposable Teflon bailer for each well. Groundwater pH, temperature and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Four well volumes were removed to purge each well. See Exhibit B for worksheets of groundwater conditions monitored during purging.

After the groundwater level had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using the designated disposable Teflon bailer. Two 40 ml VOA vials, without headspace, were filled from the water collected from each monitoring well.

The samples were preserved on ice and submitted to Geochem Environmental Laboratories under chain of custody protocol (see Exhibit A for laboratory results and chain of custody).

4.0 FINDINGS

4.1 Subsurface Conditions

During drilling and sampling activities, the site was observed to be covered with a baserock/asphalt cap. Below the cap, the subsurface soils consisted of brown fine grained sand to an explored depth of 18 feet. The sand is part of the Merritt Sand.

A report by the Alameda County Flood Control and Water Conservation District Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California, 205 (J) Report, June 1988, describes the Merritt Sand as consisting of loose well-sorted, fine to medium grained sand and silt, with lenses of sandy clay and clay. The sand was a wind and water deposited beach and near-shore deposit and is exposed only in the

Alameda and Oakland areas.

Groundwater was encountered between 9 and 14 feet below ground surface (bgs) during drilling. Borings B-1 and B-3 were drilled to approximately 18 feet bgs. Borings B-2, B-4 and MW-2a were drilled to approximately 15 feet bgs. Boring B-5 was drilled to approximately 6 feet bgs until auger refusal.

Monitoring wells MW-1, MW-2, MW-2a, and MW-3 were completed at the drilled depths within borings B-1, B-3, MW-2a, and B-4, respectively.

During drilling and sampling field evidence of volatile organics (i.e. discoloration and odor) were detected from each boring. Table 2 below describes the intervals in each boring of which volatile organics were detected.

TABLE 2
Field Evidence of Volatile Organics

Boring No.	Odor	Discoloration	Depth Observed
B-1 (MW-1)	moderate	yes	8 to 9 feet bgs
B-2	slight to strong	yes	5 to 13 feet bgs
B-3 (MW-2)	slight to strong	yes	2 to 14 feet bgs
B-4 (MW-3)	strong	yes	3 to 13 feet bgs
B-5	slight	yes	4 to 6 feet bgs
MW-2a	strong	yes	2 to 14 feet bgs

4.2 Analytical Results - Soil

Analysis of soil collected from the borings B-1 through B-4 and MW-2a indicated elevated levels of Total Petroleum Hydrocarbons (TPH) as gasoline with BTEX. Analysis of soil from boring B-5 indicated levels of TPH as gasoline with BTEX that were below detectable levels. Laboratory results are presented in Exhibit A, Figure 2 and are summarized below.

TABLE 3
Analytical Results - Soil

Boring	Sample Number	Depth (feet)	TPH-gasoline (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)
B-1	B1-10.5	10.5	314	4.3	3.8	6.8	11.6
(MW-1)	B1-16	16	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
B-2	B2-10	10	1,365	18.9	37.0	28.4	56.0
	B2-14	14	26	0.6	0.5	1.2	2.3
B-3	B3-5.5	5.5	121	0.8	0.7	4.6	10.2
(MW-2)	B3-10.5	10.5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
B-4	B4-5.5	5.5	10	0.4	0.4	0.5	0.8
(MW-3)	B4-15.5	15.5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

TABLE 3 cont.
Analytical Results - Soil

Boring	Sample Number	Depth (feet)	TPH-gasoline (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)
B-5	B5-5	5	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-2a	MW-2A-7	7	24.6	0.8	0.6	0.6	1.1
	MW-2A-15	15	7.9	0.5	0.4	0.2	0.5

Notes:
1. mg/Kg = parts per million (ppm)
2. Samples B2-10, B3-10.5, and B4-5.5 were analyzed for total lead and contained concentrations of 22, <1 and 5 ppm, respectively.

4.3 Analytical Results - Groundwater

After well installation and development, one groundwater sample each from Monitoring Wells MW-1, MW-2a and MW-3 was collected and submitted to Geochem Environmental Laboratories for analysis for TPH as gasoline by EPA test method 5030 and BTEX by EPA test method 602. Analysis results from the groundwater samples are illustrated below and are shown in Figure 3. Copies of the analytical results are provided in Exhibit A.

TABLE 4
Analytical Results - Groundwater

Monitoring Well Number	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	5,360	1,560.0	1,026.6	641.0	2,706.2
MW-2a	5,680	801.6	598.6	840.2	2,196.1
MW-3	<50	<0.5	<0.5	<0.5	<0.5

Notes:
ug/L = parts per billion (ppb)

4.4 Groundwater Gradient

Prior to calculating the groundwater gradient, elevations for the on-site monitoring wells were surveyed by Ron Archer Civil Engineer, Inc. to an accuracy of one-hundredth of a foot. The well elevation was surveyed at the top of the PVC well casing. The elevations of the monitoring wells were established relative to a nearby benchmark located in the curb on the northwest corner of the intersection of Park and Encinal Avenues in Alameda, California. A site map and benchmark description from the surveying engineer is provided in Exhibit C.

The groundwater gradient was calculated using the on-site monitoring wells. The location of the wells is shown on Figure 1 - Site Plan. Groundwater elevations were taken from the wells on January 9, 1993. The gradient was evaluated by triangulation using the elevation of the potentiometric surface measured with respect to Mean Sea Level datum. As shown in Figure 4, the groundwater gradient was approximately 0.005 foot per foot with the general direction of flow being west-southwest.

5.0 CONCLUSION

The data and observations discussed herein indicate that groundwater has been impacted due to an unauthorized hydrocarbon release. The analytical parameters used for sampling performed in December 1992 and January 1993 were in accordance with the "Tri-Regional Water Quality Control Boards Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", dated August 10, 1990, for gasoline tanks.

The maximum soil concentration of Total Petroleum Hydrocarbons (TPH) as gasoline was 1,365 ppm and was in the sample collected at 10 feet below present grade in boring B-2. Benzene concentration was 18.9 ppm in the same sample. A maximum of approximately 12 feet of soil staining was observed in borings B-3 and MW-2a from 2 to 14 feet below ground surface.

The lateral extent of hydrocarbon impacted soil does not appear to extend east into boring B-5. However, boring B-5 could not be sampled below 5 feet due to auger refusal. Impacted soil was not detected below approximately 10 feet in boring B-1, indicating a possible vertical extent to hydrocarbon movement.

Groundwater samples indicated a maximum TPH-gasoline concentration of 5,680 ppb (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1).

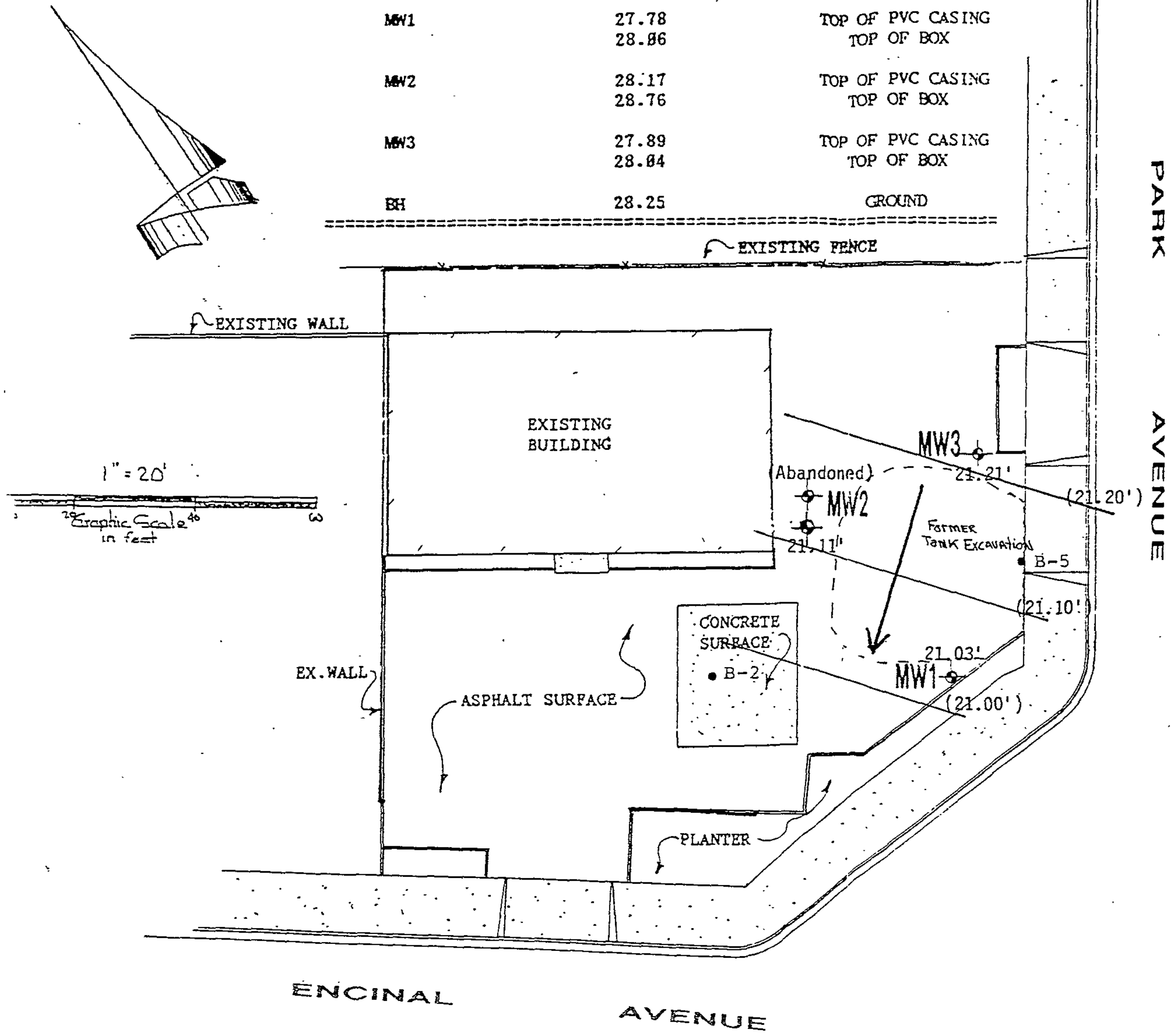
6.0 RECOMMENDATIONS

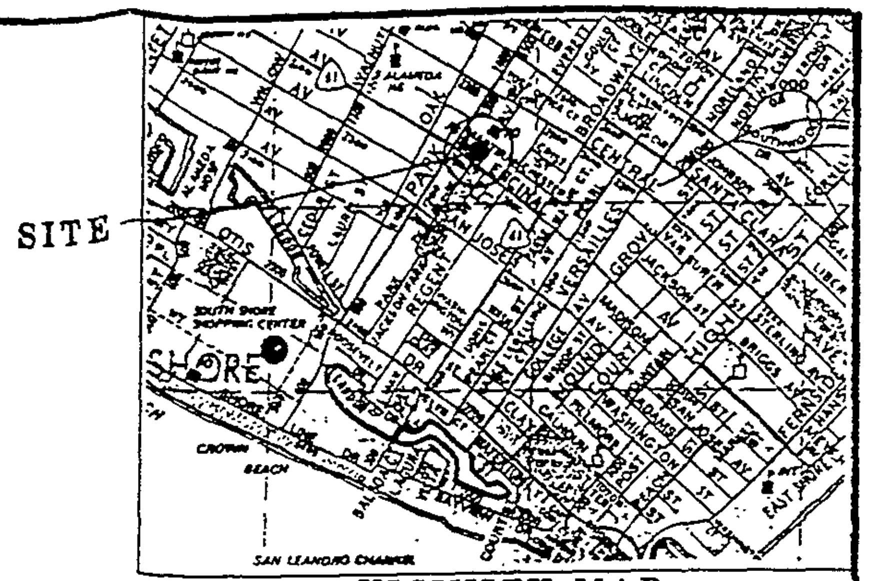
Pursuant to the Tri-Regional Board guidelines, groundwater sampling and monitoring of the on-site wells should continue on a quarterly basis.

Additional investigation of subsurface soil and groundwater will be required by regulatory agencies to evaluate the lateral extent of hydrocarbon impact. Due to the relatively high transmisivity of the underlying soil the potential exists for migration of hydrocarbons off-site. ACC recommends that a workplan be prepared to address regulatory concerns.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	27.78 28.06	TOP OF PVC CASING TOP OF BOX
MW2	28.17 28.76	TOP OF PVC CASING TOP OF BOX
MW3	27.89 28.04	TOP OF PVC CASING TOP OF BOX
BH	28.25	GROUND





VICINITY MAP
N.T.S

JANUARY 4, 1993

JOB NO. 1986

PLAT SHOWING EXISTING MONITOR WELLS AT THE ALAMEDA CELLARS LIQUOR STORE, LOCATED AT 2425 ENCINAL AVENUE AT PARK AVENUE CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA

FOR: ACC ENVIRONMENTAL CONSULTANTS, INC.
PROJECT NO. 6039-3

BENCHMARK:
A FOUND BRASS PLUG SET IN TOP OF CURB AT MID RETURN AT THE NORTHWESTERLY CORNER OF INTERSECTION OF PARK AVENUE AND ENCINAL AVENUE. ELEVATION TAKEN AS 27.63 M.S.L.

ACC ENVIRONMENTAL CONSULTANTS

Figure 4

Groundwater Gradient 1/9/93

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WELL DESIGNATION	ELEV	DESCRIPTION
MW1	27.78	TOP OF PVC CASING
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	28.76	TOP OF BOX
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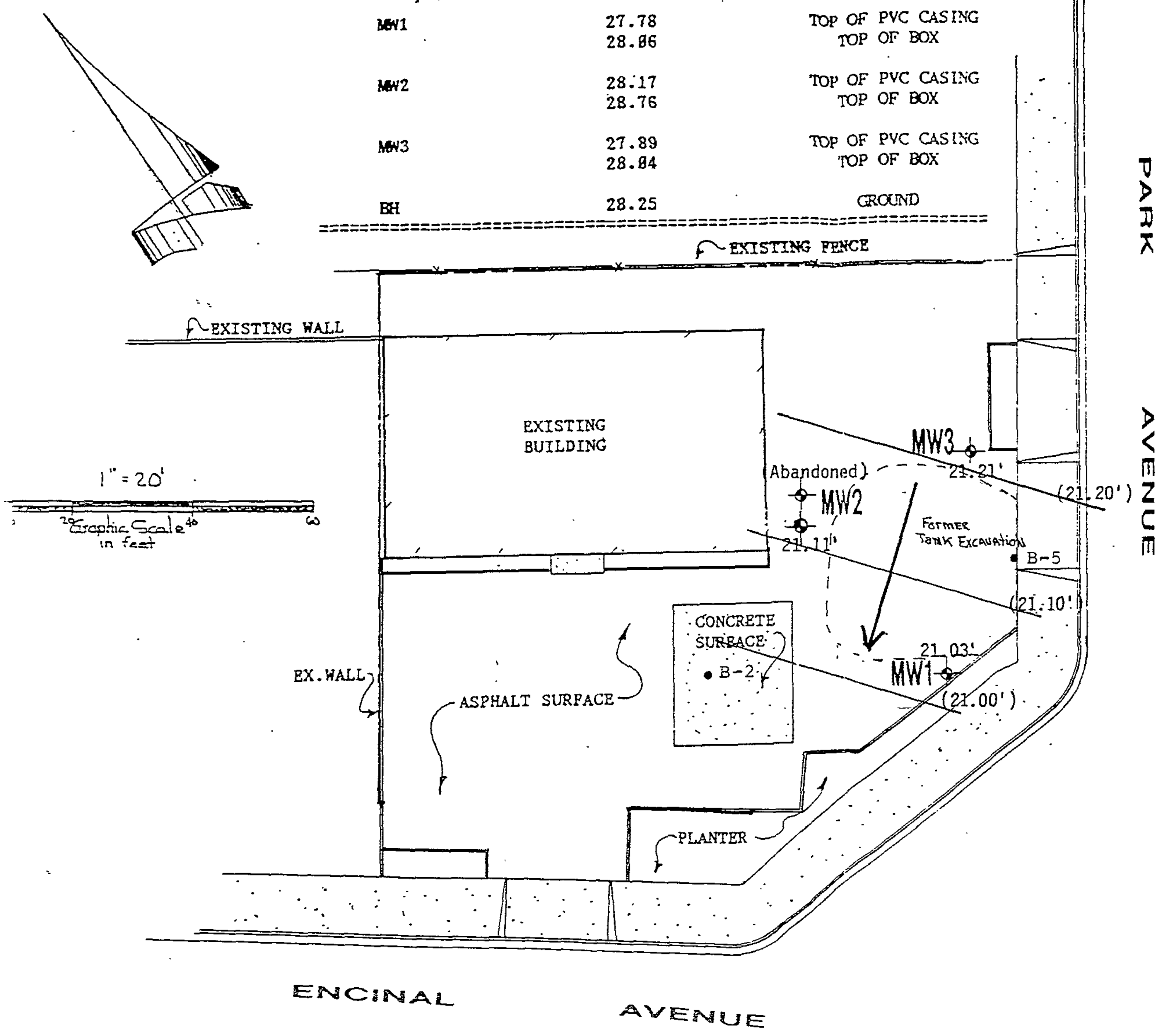
	28.04	TOP OF BOX
BH	28.25	GROUND



VICINITY MAP
N.T.S

JANUARY 4, 1993

JOB NO. 1986

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ACC ENVIRONMENTAL CONSULTANTS

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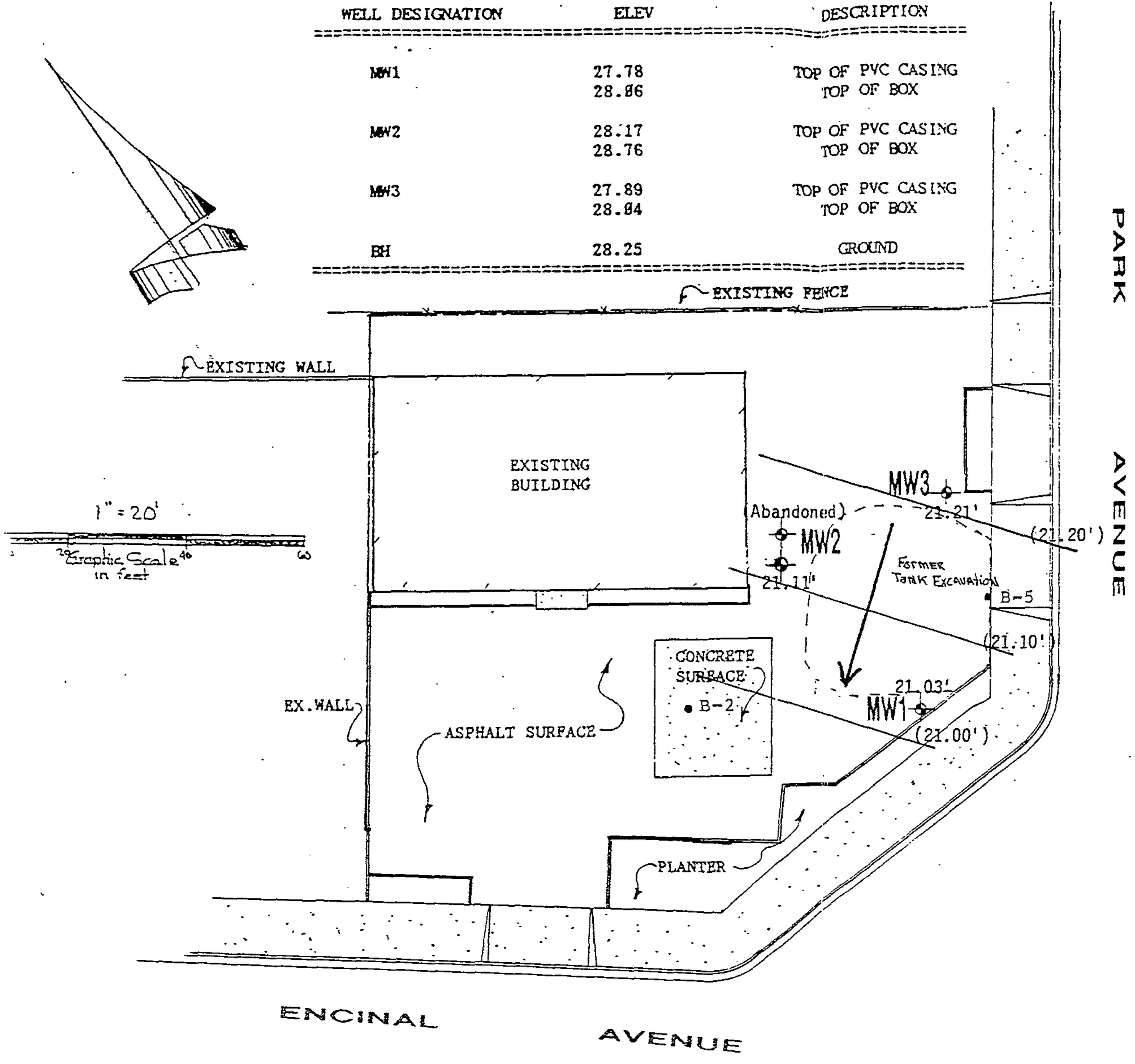

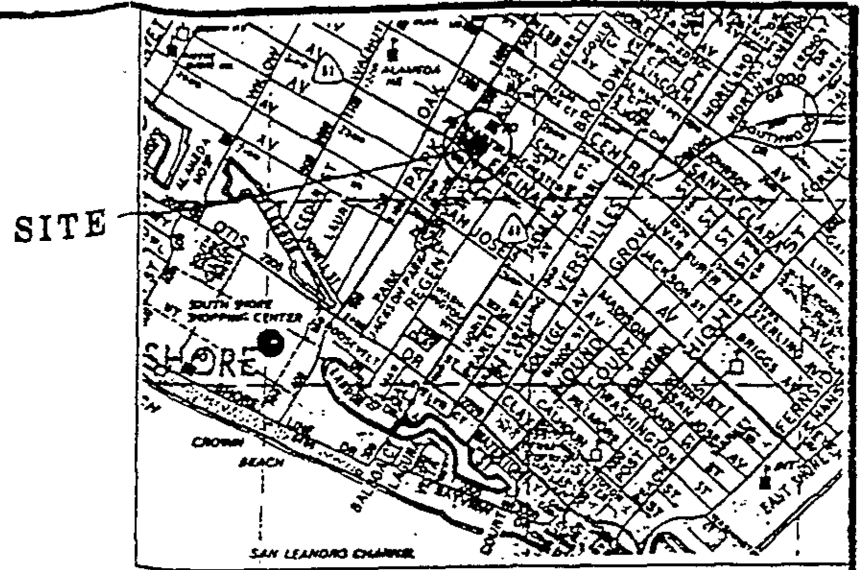

VICINITY MAP
N.T.S

JANUARY 4, 1993

JOB NO. 1986

PLAT SHOWING EXISTING MONITOR WELLS AT THE ALAMEDA CELLARS LIQUOR STORE, LOCATED AT 2425 ENCINAL AVENUE AT PARK AVENUE CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA

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ACC ENVIRONMENTAL CONSULTANTS

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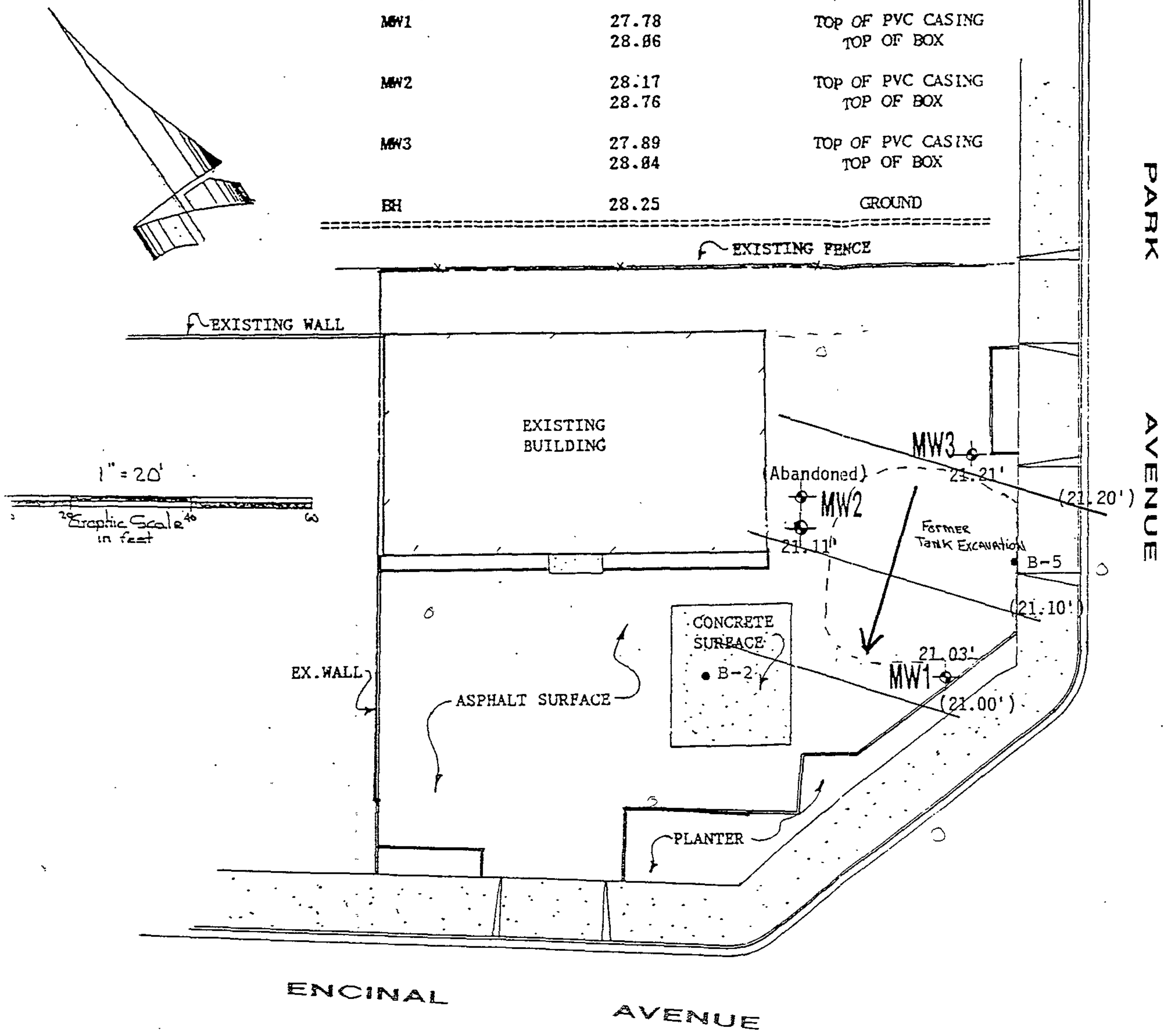

VICINITY MAP
N.T.S

JANUARY 4, 1993

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PLAT SHOWING EXISTING MONITOR WELLS AT THE ALAMEDA CELLARS LIQUOR STORE, LOCATED AT 2425 ENCINAL AVENUE AT PARK AVENUE CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA

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A·C·C
ENVIRONMENTAL
CONSULTANTS

Figure 4

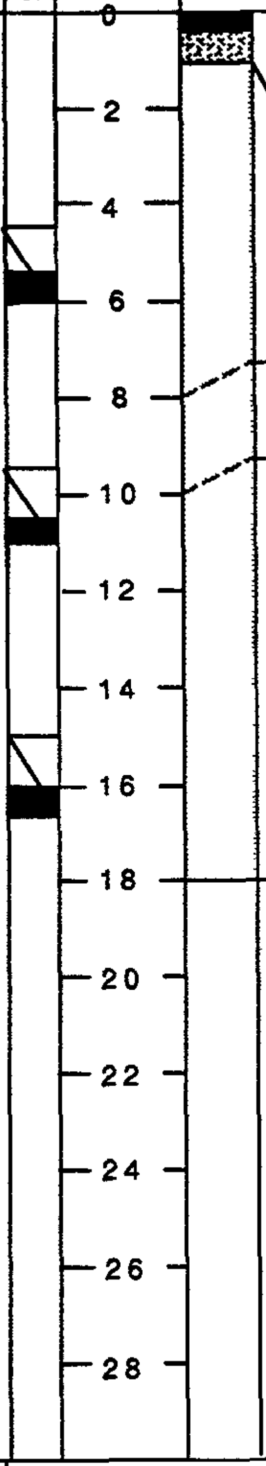
Groundwater Gradient 1/9/93

Bayland Drilling

B-53 Drill Rig.

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

Soil color described using Munsell soil color charts



Color code	HNu (ppm)	Blows/6 in.	SAMPLE #	Depth (feet)	Description
				0–2	Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained,dense (baserock)
(10YR-3/3)	0	12	B1-5.5	2–7.5	Dk. brown sand (SP). with gravel. moist, medium dense (Merritt Sand).
				7.5–9.5	Green sand (SP), moist, medium dense, slight odor.
(10YR-4/4)	0	13	B1-10.5	9.5–18	DK. yellowish brown sand (SP), very moist, loose. ▼ (groundwater 12/23/92)
(10YR-4/4)	0	13	B1-16		Same as above, saturated.
				18	BOTTOM OF BORING @ 18 FEET (Converted into Monitoring Well MW-1)

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 1/4/92

LOG OF BORING B-1
2425 Encinal Avenue

FIGURE: 5

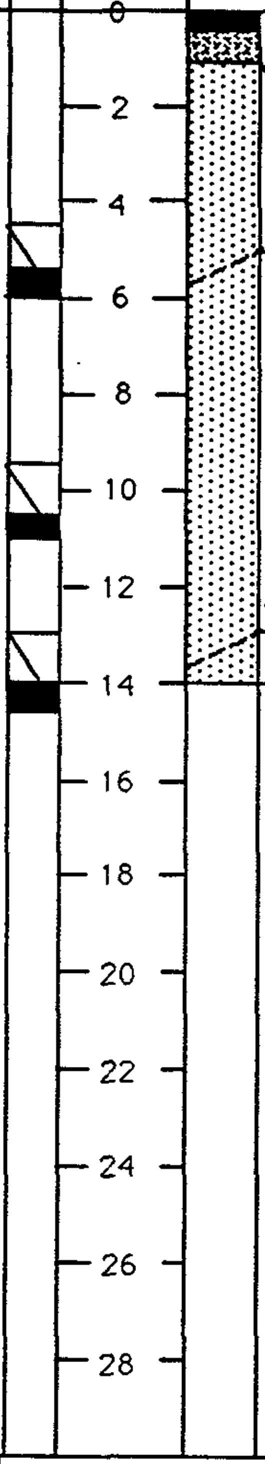
Bayland Drilling

B-53 Drill Rig.

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

Soil color described using Munsell soil color charts

Color code	Blows/6 in.	SAMPLE #
(10YR-3/2)	4	B2-5.5
(Gley 5G4-4/1)		
(Gley 5G4-4/1)	13	B2-10
(10YR-3/2)	13	B2-14



Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained,dense (baserock)

Dk. brown sand (SP), with gravel, moist, medium dense. (Merritt Sand)

Green sand (SP), moist, medium dense, strong odor.

(groundwater 12/23/92)

Brown sand (SP), saturated, loose.

BOTTOM OF BORING @ 14 FEET

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 1/4/92

LOG OF BORING B-2
2425 Encinal Avenue

FIGURE: 6

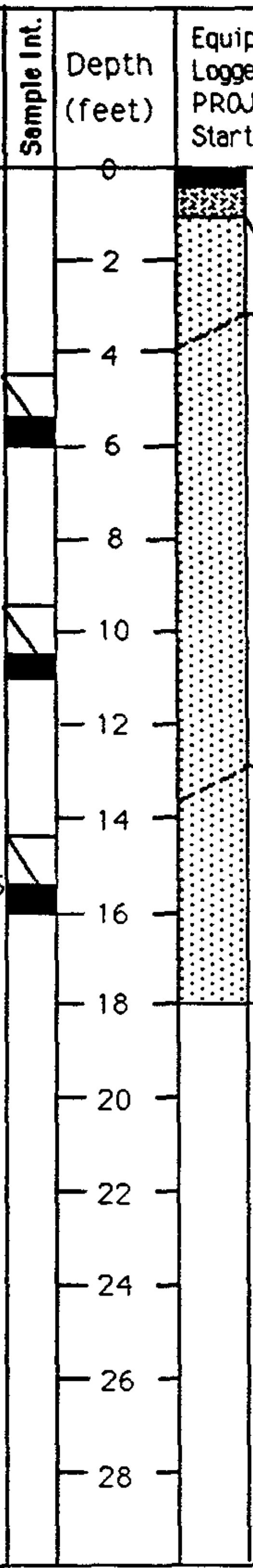
Bayland Drilling

B-53 Drill Rig.

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

Soil color described using Munsell soil color charts

Color code	Blows/6 in.	SAMPLE #	Depth (feet)	
			0	Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained,dense (baserock)
(10YR-3/2)			2	Brown sand (SP) (Merritt Sand).
			4	Green sand (SP), moist, loose, strong odor.
(Gley 5G4-4/1)	4	B3-5.5	6	
			8	
(Gley 5G4-4/1)	11	B3-10.5	10	Green sand (SP), moist, medium dense, strong odor.
			12	▼ (groundwater 12/23/92)
			14	Brown sand (SP), saturated, loose.
(2.5Y-4/2)	13	B3-15.5	16	
			18	BOTTOM OF BORING @ 18 FEET
			20	(Converted into Monitoring Well MW-2)
			22	
			24	
			26	
			28	



ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 1/4/92

LOG OF BORING B-3
2425 Encinal Avenue

FIGURE: 7

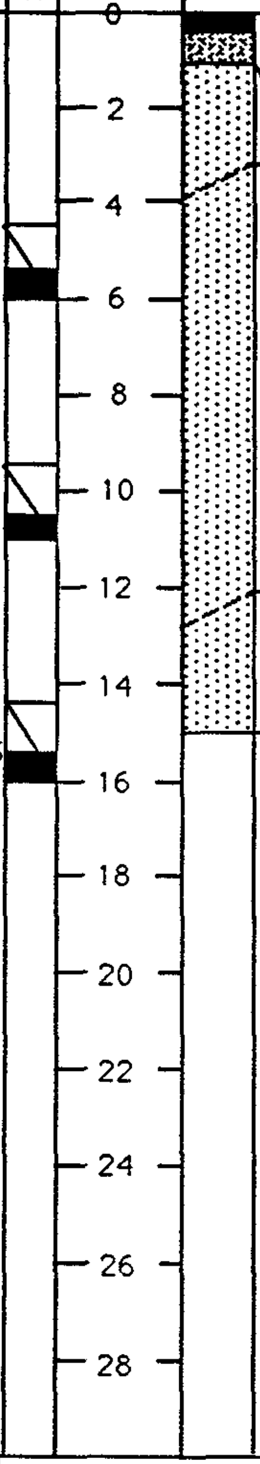
Bayland Drilling

B-53 Drill Rig.

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

Soil color described using Munsell soil color charts

Color code	Blows/6 In.	SAMPLE #
(10YR-3/2)		
(Gley 5G4-4/1)	2	B4-5.5
(Gley 5G4-4/1)	4	B4-10.5
(2.5Y-5/4)	13	B4-15.5



Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained,dense (baserock)

Brown sand (SP) (Merritt Sand).

Green sand (SP), moist, loose, strong odor.

▼ (groundwater 12/23/92)

Green sand (SP), saturated, loose, strong odor.

Brown sand (SP), saturated, loose

BOTTOM OF BORING @ 15 FEET

(Converted into Monitoring Well MW-3)

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 1/4/92

LOG OF BORING B-4
2425 Encinal Avenue

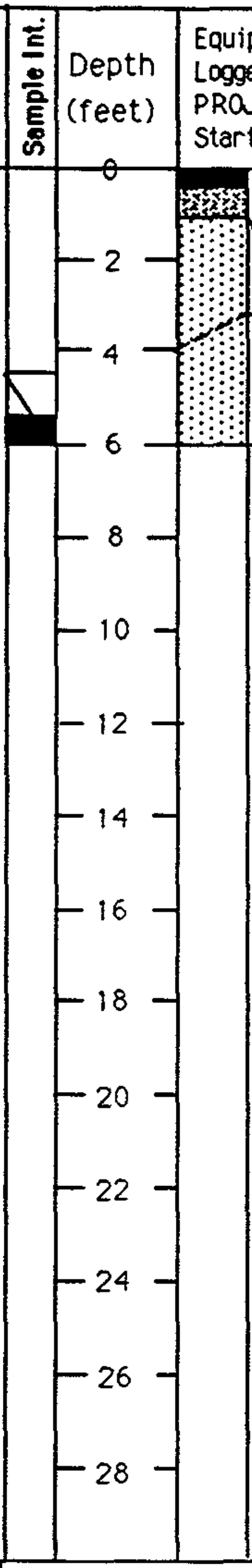
FIGURE: 8

Bayland Drilling

B-53 Drill Rig.

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

Soil color described using Munsell soil color charts Color code	Blows/6 in.	SAMPLE #
(10YR-3/2)		
(Gley 5G4-5/1)	8	B5-5



Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained, dense (baserock)

Brown sand (SP) (Merritt Sand).

Green sand (SP), moist, loose, strong odor.

BOTTOM OF BORING @ 6 FEET

(Refusal at 6 feet)

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO. 6039-3

DATE: 1/4/92

BORING B-5
2425 ENCINAL AVE.

FIGURE: 9

Bayland Drilling

B-53 Drill Rig.

Grab SAMPLE #

Sample Int.

Depth (feet)

Equipment: Hollow Stem Auger
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/23/92

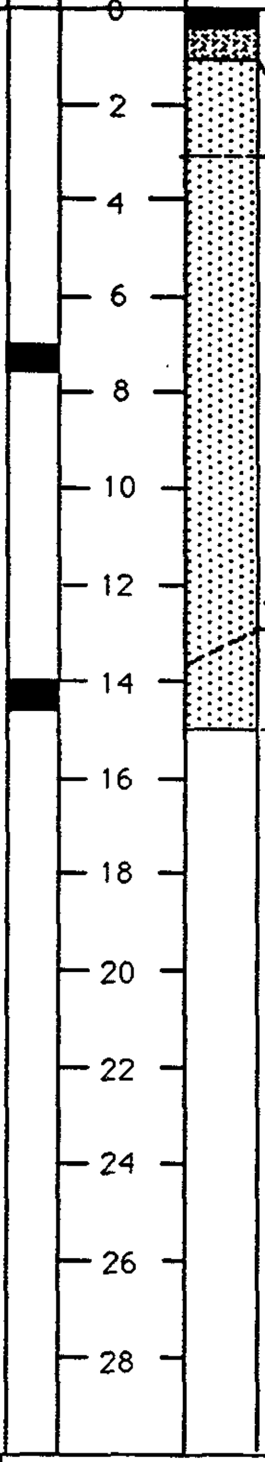
Soil color described using Munsell soil color charts

Color code

(10YR-3/2)

(Gley 5G4-4/1) MW-7

(2.5Y-4/2) MW-15



Asphalt: 4" lift. Lt. brown gravelly silt (GM) & gravelly clay (GC), med grained,dense (baserock)

Brown sand (SP) (Merritt Sand).

Green sand (SP), moist, loose, strong odor.

Green sand (SP), moist, medium dense, strong odor.

▼ (groundwater 1/6/93)

Brown sand (SP), saturated, loose.

BOTTOM OF BORING @ 15 FEET

(Converted into Monitoring Well MW-2a)

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 1/7/92

LOG OF BORING MW-2a
2425 Encinal Avenue

FIGURE: **10**

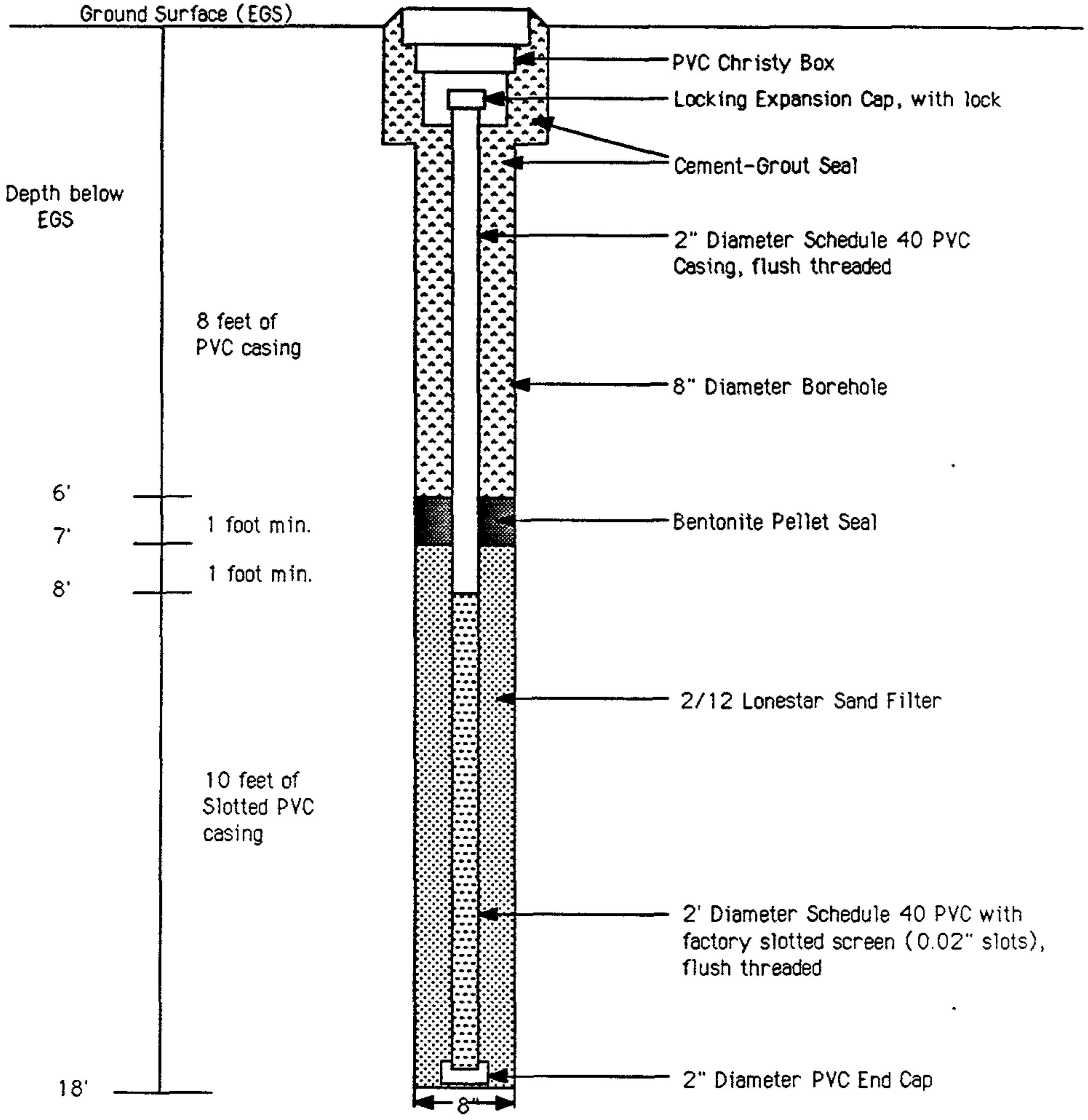
	MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS more than half > #200 sieve	GRAVELS more than half coarse fraction is larger than No. 4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES	G W	▓	well graded gravels, gravel-sand mixtures
			G P	▒	poorly graded gravels, gravel-sand mixtures
		GRAVELS WITH OVER 12% FINES	G M	▒	silty gravels, poorly graded gravel-sand silt mixtures
			G C	▓	clayey gravels, poorly graded gravel-sand clay mixtures
	SANDS more than half coarse fraction is smaller than No. 4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES	S W	░	well graded sands, gravelly sands
			S P	⁘	poorly graded sands, gravelly sands
		SANDS WITH OVER 12% FINES	S M	⁞	silty sands, poorly graded sand-silt mixtures
			S C	▨	clayey sands, poorly graded sand-clay mixtures
FINE GRAINED SOILS more than half < #200 sieve	SILTS AND CLAYS liquid limit less than 50		M L	▥	inorg. silts and v.fine sands, rock flour silty or clayey sands, or clayey silts w/sl. plasticity
			C L	▨	inorg. clays of low-med plasticity, gravelly clays, sandy clays, silty clays, lean clays
			O L	▨	organic clays and organic silty clays of low plasticity
	SILTY AND CLAYS liquid limit greater than 50		MH	┄	inorganic silty, micaceous or diatomacious fine sandy or silty soils, elastic silts
			C H	▨	inorganic clays of high plasticity, fat clays
			O H	▨	organic clays of medium to high plasticity organic silts
	HIGHLY ORGANIC SOILS		Pt	⌒	peat and other highly organic soils

UNIFIED SOIL CLASSIFICATION SYSTEM

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVENUE, SUITE 110
ALAMEDA, CA 94501

Soil Classification System

Project No. 6064-2	Date: 1/9/93	DRN: MCK	Figure No. **11**



Not to Scale

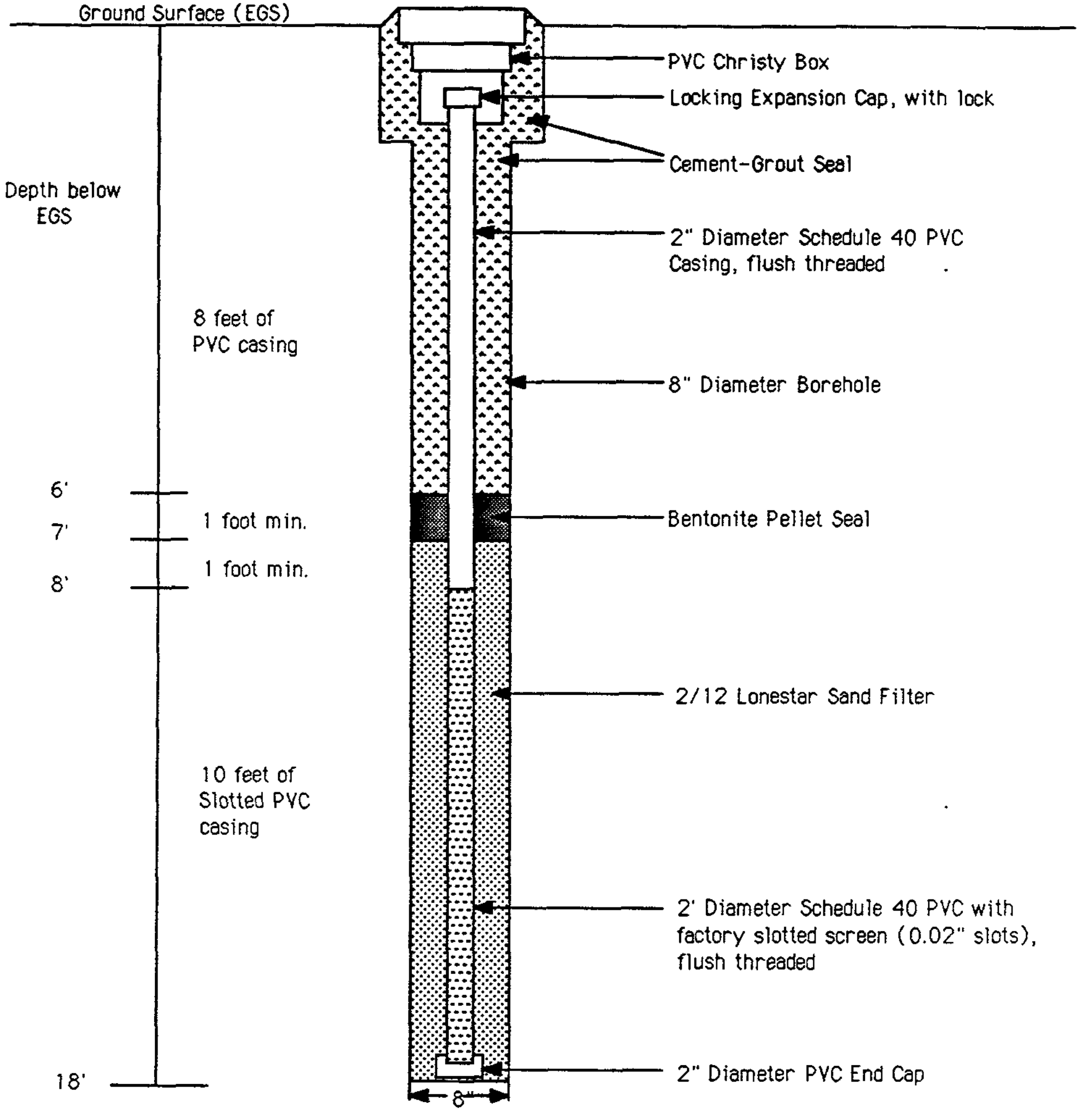
ACC Environmental Consultants
1000 Atlantic Avenue, Suite 110
Alameda, CA 94501

Job No.: 6039-3

Schematic of Monitoring Well No.: MW-1

Date: 1/7/93

Figure No.: **12**



(Abandoned 1/6/93)

Not to Scale

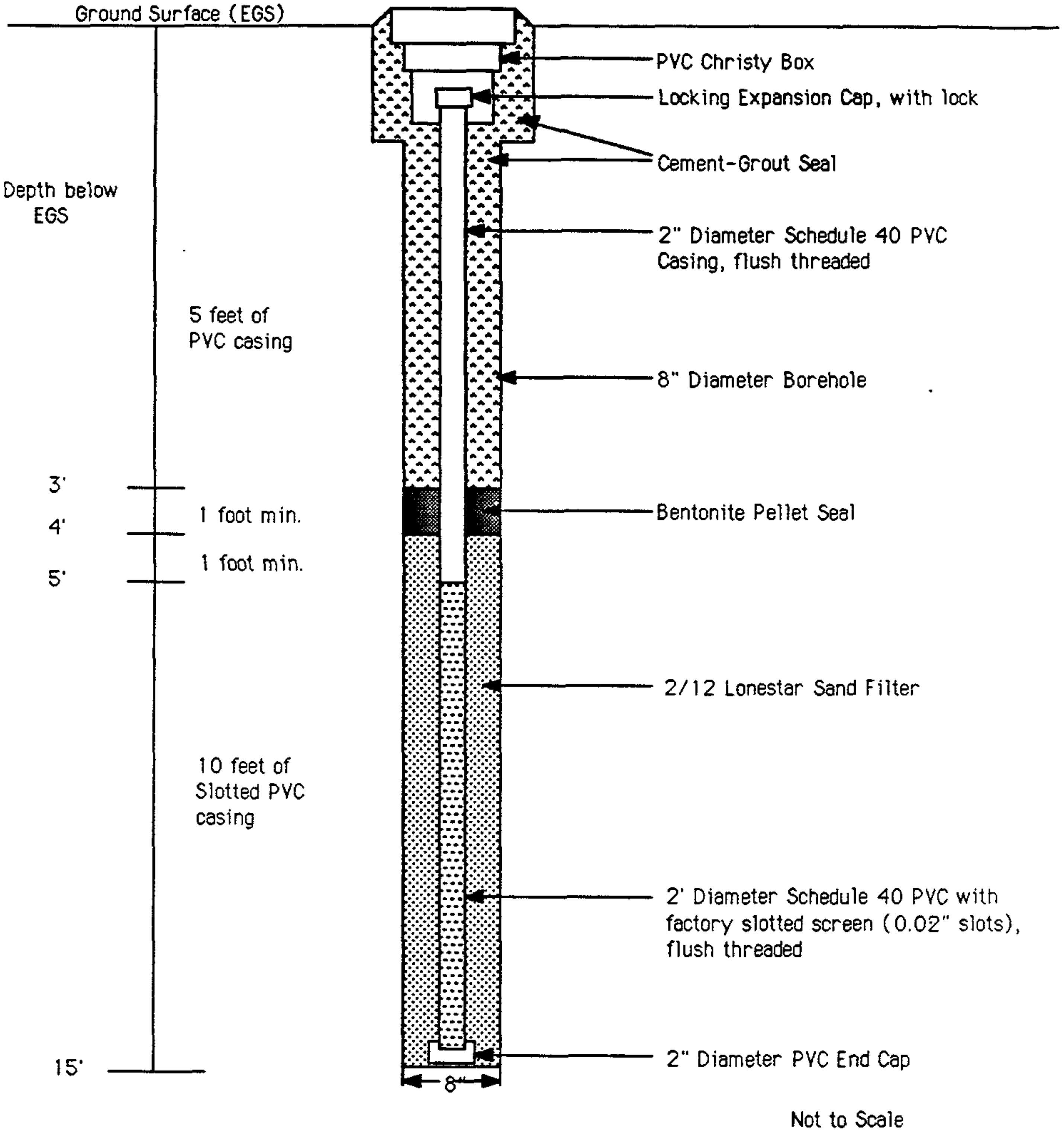
ACC Environmental Consultants
1000 Atlantic Avenue, Suite 110
Alameda, CA 94501

Job No.: 6039-3

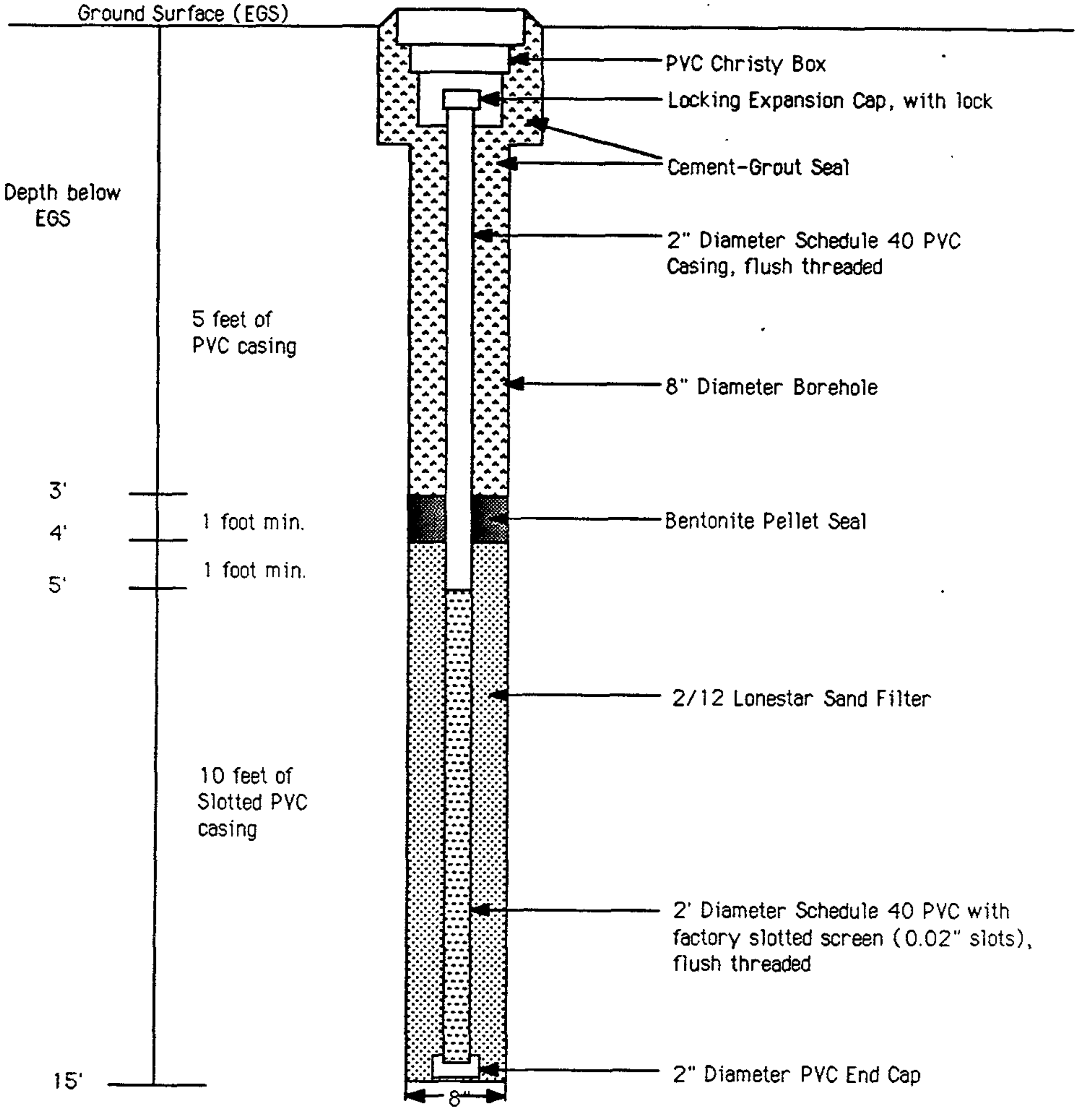
Date: 1/7/93

Schematic of Monitoring Well No.: MW-2

Figure No.: **13**



ACC Environmental Consultants 1000 Atlantic Avenue, Suite 110 Alameda, CA 94501	Job No.: 6039-3	Schematic of Monitoring Well No.: MW-3
	Date: 1/7/93	Figure No.: **14**



Not to Scale

ACC Environmental Consultants
1000 Atlantic Avenue, Suite 110
Alameda, CA 94501

Job No.: 6039-3

Date: 1/7/93

Schematic of Monitoring Well No.: MW-2a

Figure No.: **15**

EXHIBIT A

Geochem ENVIRONMENTAL LABORATORIES

Mobile & In-House Laboratories Certified by State of California
Phone: (408) 955-9988 / FAX: (408) 955-9538

ANALYTICAL REPORT

Page: 1 of 1

****

Client: ACC Environmental
1000 Atlantic Ave.
Alameda, CA 94501
Attn: Misty Kaltreider

Date Sampled: 12/23/92
Date Received: 12/28/92
Date Analyzed: 12/28/92
Batch:SD-057 Matrix: Soil
Conc. Unit ug/kg(ppb)

Project: 2425 Encinal

****

"**ND**" means "not detected" at indicated detection limit.
B:benzene, **T**:toluene, **E**:ethylbenzene & **X**:total xylenes.
Samples received chilled with a chain of custody record.

	8015M/TPH	8020			
SAMPLE I.D.	Gasoline	B	T	E	X
DETECTION LIMIT	50 ppb	0.5 ppb			
B1-10.5'	314410	4327.0	3758.1	6752.5	11568.1
B1-16'	ND	ND	ND	ND	ND
B2-10'	1365230	18890.6	37005.3	28431.3	56020.1
B2-14'	26170	568.8	507.2	1180.3	2301.1
B3-5.5'	120880	782.7	681.3	4577.2	10194.9
B3-10.5'	ND	ND	ND	ND	ND
B4-5.5'	10070	386.8	370.4	469.4	761.8
B4-15.5'	ND	ND	ND	ND	ND
B5-5'	ND	ND	ND	ND	ND

Reviewed and approved by George Tsai Dec. 28, 1992
George Tsai, Laboratory Director

Geochem ENVIRONMENTAL LABORATORIES
Mobile & In-House Laboratories Certified by State of California
Phone: (408) 955-9988 / FAX: (408) 955-9538

ANALYTICAL REPORT

Page: 1 of 1

****

Client: ACC Environmental
1000 Atlantic Ave.
Alameda, CA 94501
Attn: Misty Kaltreider

Date Sampled: 12/23/92
Date Received: 12/28/92
Date Analyzed: 12/28/92
Batch:SD-057 Matrix: Soil
Conc. Unit mg/kg(ppm)

Project: 2425 Encinal

****

"**ND**" means "not detected" at indicated detection limit.
B:benzene, **T**:toluene, **E**:ethylbenzene & **X**:total xylenes.
Samples received chilled with a chain of custody record.

SAMPLE I.D.	Total Lead
DETECTION LIMIT	1 ppm
B1-10.5'	
B1-16'	
B2-10'	22
B2-14'	
B3-5.5'	
B3-10.5'	ND
B4-5.5'	5
B4-15.5'	
B5-5'	

Reviewed and approved by DEC. 28, 1992
George Tsai, Laboratory Director

GEOCHEM Environmental Laboratories
780 Montague Expressway, Suite 404
San Jose, CA 95131
(408) 955-9988 • FAX (408) 955-9538

CHAIN OF CUSTODY RECORD

Date 12-28-92 Page 1 of 2

CLIENT ACC Environmental

ADDRESS
1000 Atlantic Ave Suite 110
Alameda, CA 95116

PROJECT NAME 2425 Encinal

PROJECT MANAGER M. Koltreider

PHONE NUMBER (510) 522-8188

TESTS REQUIRED

SAMPLE I.D.	LOCATION DESCRIPTION	DATE	TIME	MATRIX AIR	MATRIX WATER	MATRIX SOIL	NO. OF CTNR	418.1/TRPH	8010 (601)	8015 E/TPH-diesel	8015 M/TPH-gasoline	8020 (602) BTEX	7420/Total Lead	Organic Lead			Archive
B1-5.5		12/23/92				X	1										HOLD
B1-10.5										X	X						
B1-16										X	X						
B2-6.5																	Hold.
B2-10										X	X		X				
B2-14										X	X						
B3-5.5										X	X						
B3-10.5										X	X		X				
B3-15.5																	Hold
B4-5.5										X	X		X				

Sampled/Relinquished by: Misty Koltreider
Received by: Amelia Garza Date 12-28-92 Time 9:36

Relinquished by:
Received by: Date Time

Relinquished by:
Received by: Date Time

Turnaround time:
24 hr. 48 hr. Normal (3-5 days)

Special Instructions:

GEOCHEM Environmental Laboratories
780 Montague Expressway, Suite 404
San Jose, CA 95131
(408) 955-9988 • FAX (408) 955-9538

CHAIN OF CUSTODY RECORD

Date 12-28-92 Page 2 of 2

CLIENT ACC Environmental

ADDRESS 1000 ATLANTIC AVENUE
ALAMEDA, CA. 95116

PROJECT NAME 2425 Encinal

PROJECT MANAGER M. KALTREIDER

PHONE NUMBER (510) 522-8188

SAMPLE I.D.	LOCATION DESCRIPTION	DATE	TIME	MATRIX			NO. OF CTNR	TESTS REQUIRED									
				AIR	WATER	SOIL		418.1/TRPH	8010 (601)	8015 E/TPH-diesel	8015 M/TPH-gasoline	8020 (602) BTEX	7420/Total Lead	Organic Lead			Archive
B4-10.5		12/23/92				X	1										
B4-15.5											X	X					Hold
B5-5											X	X					

Sampled/Relinquished by: Misty Kaltreider

Received by: Amelia Garza Date 12-28-92 Time 9:36

Relinquished by:

Received by: Date Time

Relinquished by:

Received by: Date Time

Turnaround time:
24 hr. 48 hr. Normal (3-5 days)

Special Instructions:

Geochem ENVIRONMENTAL LABORATORIES

Mobile & In-House Laboratories Certified by State of California
Phone: (408) 955-9988 / FAX: (408) 955-9538

ANALYTICAL REPORT

Page: 1 of 1

****

Client: ACC Environmental
1000 Atlantic Ave.
Alameda, CA 94501
Attn: Misty Kaltreider

Date Sampled: 01/06/93
Date Received: 01/07/93
Date Analyzed: 01/07/93
Batch:SD-066 Matrix: Soil
Conc. Unit ug/kg(ppb)

Project: 2425 Encinal

****

"**ND**" means "not detected" at indicated detection limit.
B:benzene, **T**:toluene, **E**:ethylbenzene & **X**:total xylenes.
Samples received chilled with a chain of custody record.

	8015M/TPH	8020			
SAMPLE I.D.	Gasoline	B	T	E	X
DETECTION LIMIT	50 ppb	0.5 ppb			
MW-2A-7'	24590	768.2	584.9	566.8	1063.0
MW-2A-15'	7890	473.1	371.4	256.2	495.2

Reviewed and approved by JAN. 07, 1993
George Tsai, Laboratory Director

[redacted]
780 Montague Expressway, Suite 404
San Jose, CA 95131
(408) 955-9988 • FAX (408) 955-9538

CHAIN OF CUSTODY RECORD

Date 1/6/93 Page 1 of 1

CLIENT ACC Environmental

ADDRESS 1000 Atlantic Avenue
Suite 110
Alameda, CA 94501

PROJECT NAME 2425 Encinal

PROJECT MANAGER M. Kaltreider

PHONE NUMBER (510) 522-8198

TESTS REQUIRED

SAMPLE I.D.	LOCATION DESCRIPTION	DATE	TIME	MATRIX			NO. OF CTNR	418.1/TRPH	8010 (601)	8015 E/TPH-diesel	8015 M/TPH-gasoline	8020 (602) BTEX	7420/Total Lead	Organic Lead			Archive
				AIR	WATER	SOIL											
MW-2a - 7'	grab sample	1/6/93				X	1			~~X~~	X	X					
MW-2a - 15'	"					X	1			~~X~~	X	X					

Sampled/Relinquished by:	Received by:	Date	Time
Misty Kaltreider		01/07/93	9:00 am

Relinquished by:	Received by:	Date	Time

Relinquished by:	Received by:	Date	Time

Turnaround time:
24 hr. 48 hr. [✓ Normal (3-5 days)]

Special Instructions:

Geochem ENVIRONMENTAL LABORATORIES

Mobile & In-House Laboratories Certified by State of California
Phone: (408) 955-9988 / **FAX:** (408) 955-9538

ANALYTICAL REPORT

Page: 1 of 1

****

Client: ACC Environmental
1000 Atlantic Ave.
Alameda, CA 94501
Attn: Misty Kaltreider

Date Sampled: 01/09/93
Date Received: 01/11/93
Date Analyzed: 01/13/93
Batch:SD-068 Matrix: Water
Conc. Unit ug/kg(ppb)

Project: 2425 Encinal

****

"**ND**" means "not detected" at indicated detection limit.
B:benzene, **T**:toluene, **E**:ethylbenzene & **X**:total xylenes.
Samples received chilled with a chain of custody record.

SAMPLE I.D.	8015M/TPH Gasoline	602 B	T	E	X
DETECTION LIMIT	50 ppb	0.5 ppb			
MW-1	5360	1560.0	1026.6	641.0	2606.2
MW-2	5680	0801.6	598.6	840.2	2196.1
MW-3	ND	ND	ND	ND	ND

Reviewed and approved by JAN. 13, 1993
George Tsai, Laboratory Director

ACC ENVIRONMENTAL CONSULTANTS, INC.

1000 ATLANTIC AVENUE, SUITE 110
ALAMEDA, CA 94501
(415) 522-8188
FAX (415) 865-5731

CHAIN OF CUSTODY RECORD

PROJ. NO: 6039-3

PROJECT NAME: 2425 Encinal

SAMPLERS:(Signature) Carl Soane

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	TPH gas w/ BTEX							REMARKS
MW-1	1/9/93	2:10PM		X	Groundwater	2	X							Standard turnaround
MW-2	1/9/93	2:45PM		X	"	2	X							
MW-3	1/9/93	3:10PM		X	"	2	X							

Relinquished by:(Signature)	Date	Time	Received by:(Signature)	Relinquished by:(Signature)	Date	Time	Received by:(Signature)
Carl Soane	1/11/93	3:25					

Relinquished by:(Signature)	Date	Time	Received by:(Signature)	Relinquished by:(Signature)	Date	Time	Received by:(Signature)

Relinquished by:(Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks

EXHIBIT B

Well Sampling ☑ Well Development ☐ check one

Well Number: Mw -1

Job Number: 6039-3

Job Name: 2425 Encinal

2:10 pm

Date: 1/9/93

Sampler: Carl Soane

Depth to Water (measured from TOC): 6.75'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/[✓ purging]: Bailing

Amount of Water Bailed/Pumped from well: 5.2 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 7.10'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no	
froth		✓	
irridesence		✓	
oil		✓	
smell	✓		gas
product		✓	
other, describe		✓	

Gallons Removed	pH	EC	Temp
5			
10			
15			
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

- TPH (gasoline) ☑
- TPH (diesel) ☐
- TPH (motor oil) ☐
- BTXE ☑
- EPA 624 ☐
- EPA 625 ☐
- EPA 608 ☐
- PCBs only ☐
- Metals ☐
- Other, specify ☐
- Field Blank ☐

Well Sampling ☑ Well Development ☐ check one

2:45 PM

Well Number: MW-2

Job Number: 6039-3

Job Name: 2425 Encinal

Date: 1/9/93

Sampler: Carl Soane

Depth to Water (measured from TOC): 7.06'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/[✓ purging]? Bailing

Amount of Water Bailed/Pumped from well: 5.2 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 8.00'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no	
froth		✓	
irridesence		✓	
oil		✓	
smell	✓		gas
product		✓	
other, describe		✓	

Gallons Removed	pH	EC	Temp
5			
10			
15			
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	n/a
TPH (motor oil)	✓
BTXE	✓
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ Well Development ☐ check one

3:10 PM

Well Number: MW-3

Job Number: 6039-3

Job Name: 2425 Encinal Ave.

Date: 1/9/93

Sampler: Cal Soane

Depth to Water (measured from TOC): 6.68'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/[✓ purging:] Bailing

Amount of Water Bailed/Pumped from well: 5.2 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 7.60'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no	
froth		✓	
irridesence		✓	
oil		✓	
smell	✓		Gas
product		✓	
other, describe		✓	

Gallons Removed	pH	EC	Temp
5			
10			
15			
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

EXHIBIT C

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING • PLANNING • DESIGN • SURVEYING

4133 Mohr Ave., Suite E • Pleasanton, CA 94566
(510) 462-9372

RECEIVED
JAN 12 1993

REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL
STATE OF CALIFORNIA

JANUARY 8, 1993 JOB NO. 1986

ELEVATIONS OF EXISTING MONITOR WELLS AT THE ALAMEDA CELLARS LIQUOR STORE, LOCATED AT 2425 ENCINAL AVENUE AT PARK AVENUE CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA

FOR: ACC ENVIRONMENTAL CONSULTANTS, INC.
PROJECT NO. 6039-3

BENCHMARK:
A FOUND BRASS PLUG SET IN TOP OF CURB AT MID RETURN AT THE NORTHWESTERLY CORNER OF INTERSECTION OF PARK AVENUE AND ENCINAL AVENUE. ELEVATION TAKEN AS 27.63 M.S.L.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	27.78	TOP OF PVC CASING
	28.06	TOP OF BOX
MW2	28.17	TOP OF PVC CASING
	28.76	TOP OF BOX
MW3	27.89	TOP OF PVC CASING
	28.04	TOP OF BOX
BH	28.25	GROUND

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

APPENDIX B

A·C·C
ENVIRONMENTAL
CONSULTANTS

June 22, 1993

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

RE: Results of Additional Investigation at
2425 Encinal, Alameda, California

Dear Mr. Chrissanthos:

The attached report describes the materials and procedures used during additional investigation for the property located at 2425 Encinal, Alameda, California.

ACC's investigative approach was to drill nine borings and collect samples to evaluate the extent of petroleum hydrocarbons in the soil and groundwater both on and off site.

Soil samples collected during drilling were submitted to ChromaLab for petroleum hydrocarbon analyses, in accordance with the "Tri Regional Guidelines for Underground Storage Tank Sites.

The results of the chemical analysis indicated detectable concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene, toluene, ethylbenzene, and total xylenes (BTEX) in some of the samples analyzed. Analysis of other samples indicated below detectable levels of constituents (non-detect). The samples with non-detect levels define the extent of impact in the areas that the samples were collected.

If you have any comments regarding this report, please call me.

Sincerely,

Misty Kaltreider

Misty C. Kaltreider
Geologist

cc: Mr. Richard Hiett - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Care Services - Division of Hazardous Materials

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

A·C·C
ENVIRONMENTAL
CONSULTANTS

ADDITIONAL INVESTIGATION

2425 ENCINAL
ALAMEDA, CALIFORNIA

June 1993

Prepared for:
Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

Prepared by:

Misty Kaltreider,
Project Geologist

Reviewed by:

Elizabeth Herbert, R.G.
Registered Geologist

ELIZABETH
HERBERT
4819

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

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TABLES

ATTACHMENTS

1.0 INTRODUCTION

This report presents the procedures and findings of the additional subsurface investigation conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 2425 Encinal, Alameda, California. The project objective is to further evaluate the extent of soil and groundwater contamination.

During the field investigation, nine borings were drilled both on and off-site to evaluate the lateral extent of hydrocarbon impact in the soil and groundwater. During drilling, groundwater was encountered between 9 to 10 feet below present grade. Locations of the borings are illustrated on Figure 2.

2.0 BACKGROUND

The site is presently occupied by Alameda Cellars, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. On March of 1990, two 10,000-gallon fuel tanks were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

In December 1992, five borings were drilled on-site. Three of the borings were converted into monitoring wells MW-1, MW-2a, and MW-3. Analytical results of the soil collected during drilling and soil sampling indicated a maximum soil concentration of Total Petroleum Hydrocarbons (TPH) as gasoline as 1,365 ppm. Benzene concentration was 18.9 ppm in the same sample.

Initial groundwater samples collected in January 1993, from the monitoring wells indicated a maximum TPH-gasoline concentration of 5,680 ppb (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1).

Per request of Alameda County Health Care Services Agency - Hazardous Materials Division, this site investigation was conducted to evaluate the extent of soil contamination from gasoline releases on-site.

3.0 FIELD PROCEDURES

Borings S1 through S9 were drilled on May 11, 1993. The drilling method used a precision sampling tool equipped with 5-foot sections of 3/4-inch inside diameter galvanized steel probe pipe. The probe pipe was connected to a 1-foot long galvanized steel soil core tube. Stainless steel insert rods were placed through the probe pipe and sampling core tube. The probe pipe, soil core tube and insert rods were together pneumatically driven using a percussion hammer to the depth desired. The insert rods were removed and the probe pipe and core tube were driven one foot to obtain a soil sample. The probe pipe, insert rods, and sampling core tube were all pre-cleaned prior to use and between sample drives by washing with trisodium phosphate (TSP) and potable water solution, a potable water rinse, and distilled water rinse.

Soil samples were collected every five feet, at any noted changes in lithology, and at the approximate soil/groundwater interface. The samples were pre-screened with an HNu photoionization detector (PID) calibrated for Hexane. The soil samples were logged by Ms. Misty Kaltreider, ACC geologist, during drilling and sampling in accordance with the Unified Soil Classification System. Lithologic logs of the borings and the Unified Soil Classification System are attached in Exhibit A.

Upon collection, each end of the probe pipe was covered with Teflon tape and plastic caps, and labeled. All samples were stored in an ice-filled cooler and transported under chain of custody to ChromaLab, a Cal/EPA certified laboratory.

4.0 FINDINGS

4.1 Subsurface Conditions

During drilling and sampling activities, the site was observed to be covered with a baserock/asphalt cap. Below the cap, the subsurface soils consisted of brown fine grained sand to an explored depth of 12 feet. The sand is part of the Merritt Sand.

A report by the Alameda County Flood Control and Water Conservation District Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California, 205 (J) Report, June 1988, describes the Merritt Sand as consisting of loose, well-sorted, fine to medium grained sand and silt, with lenses of sandy clay and clay. The sand was a wind and water deposited beach and near-shore deposit and is exposed only in the Alameda and Oakland areas.

During drilling and sampling field evidence of volatile organic compounds (i.e. discoloration and odor) was detected in only two of the borings drilled. Table 1 below summarizes the intervals in each boring where volatile organic compounds were observed.

TABLE 1 - Field Evidence of Volatile Organic Compounds

Boring No.	Total Depth Feet (bgs)	Odor	Discoloration	Depth Observed
S1	12	none	no	Not Observed
S2	12	none	no	Not Observed
S3	12	none	no	Not Observed
S4	12	none	yes	9 to 10 feet
S5	12	moderate	yes	9 to 10 feet
S6	12	moderate	yes	4 to 10 feet
S7	12	none	no	Not Observed
S8	12	none	no	Not Observed
S9	12	none	no	Not Observed

Note: bgs = below ground surface

4.2 Analytical Results - Soil

One soil sample was selected from each boring at the soil/groundwater interface and submitted to ChromaLab for analysis according to the "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", August 10, 1990. The soil samples were analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline by EPA Test Method 8015 with benzene, toluene, ethylbenzene, and total xylenes by EPA Test Method 8020. Results of the soil sample analysis are illustrated in Table 2 and in Figure 3.

TABLE 2 - Analytical Results, Soil

Boring No.	Sample Number	Depth (feet)	TPH-g (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)
S1	S1-7	7	<1.0	<0.005	<0.005	<0.005	<0.005
S2	S2-10	10	<1.0	<0.005	<0.005	<0.005	<0.005
S3	S3-10	10	<1.0	<0.005	<0.005	<0.005	<0.005
S4	S4-10	10	<1.0	<0.005	<0.005	<0.005	<0.005
S5	S5-10	10	<1.0	0.130	<0.005	<0.005	<0.005
S6	S6-10	10	8.7	<0.005	<0.005	0.020	0.024
S7	S7-10	10	<1.0	<0.005	<0.005	<0.005	<0.005
S8	S8-10	10	<1.0	<0.005	<0.005	<0.005	<0.005
S9	S9-10	10	<1.0	<0.005	<0.005	<0.005	<0.005

Notes: TPH-g = Total Petroleum Hydrocarbons as gasoline
ppm = parts per million

4.3 Analytical Results - Groundwater

Grab groundwater samples were collected from each boring. Samples with indications of volatile organic constituents in the water were chosen for analysis. The water samples selected for analysis were collected from borings S1, S4, S5, and S6. These samples had some indication (i.e. odor) of volatile organics in the water and were also located downgradient of the former tank excavation. The samples were submitted to ChromaLab for analysis of TPH as gasoline with benzene, toluene, ethylbenzene, and total xylenes by EPA Test Method 5030/602. Analysis results from the groundwater samples are summarized in Table 3 and illustrated in Figure 4. Copies of the analytical results are provided in Exhibit B.

TABLE 3 - Analytical Results, Groundwater

Boring No.	Sample Number	TPH-g (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
S1	S1-H20	1,000	200	25	93	56
S4	S4-H20	710	230	2.7	7.8	3.4
S5	S5-H20	74	1.2	0.9	<0.5	1.4
S6	S6-H20	18,000	<5.0	58	120	150

Notes: ppb = parts per billion
TPH-g = Total Petroleum Hydrocarbons as gasoline

5.0 SUMMARY AND CONCLUSION

The maximum soil concentration of Total Petroleum Hydrocarbons (TPH) as gasoline was 8.7 ppm collected at the soil/groundwater interface level in boring S6. No benzene was reported in the same sample. In soil sample S5 collected at 10 feet below ground surface, the benzene concentration was 0.130 ppm. Gasoline, toluene, ethylbenzene, and xylenes concentrations were below detectable limits in sample S5-10.

The lateral extent of hydrocarbon impacted soil does not appear to extend beyond the property boundaries along the northern, western, and eastern sides (beyond borings S1, S2, S3, S4, S7, S8, and S9). However, along the southern side, the impacted soil appears to extend into Park and Encinal Avenues. Indications of impacted soil were not observed below the soil/groundwater interface level of approximately 10 feet below ground surface. The vertical limit of hydrocarbons in the soil appears to be the top of the present groundwater table.

Field observations of the soil and sample analysis indicates that the soil hydrocarbon plume is primarily around the former tank excavation and the former dispenser island.

During drilling, groundwater was encountered at approximately 10 feet below ground surface. Grab groundwater samples collected from borings S1, S4, S5, and S6 had an odor of gasoline. Laboratory analysis of the water samples indicated detectable levels of TPH as gasoline with BTEX. The maximum concentration of gasoline was reported in sample S6-H20 at 18,000 parts per billion (ppb). Concentrations of benzene at 230 and 200 ppb were reported in samples S4-H20 and S1-H20, respectively. Lower levels of toluene, ethylbenzene, and total xylenes were reported in samples S4-H20 and S1-H20.

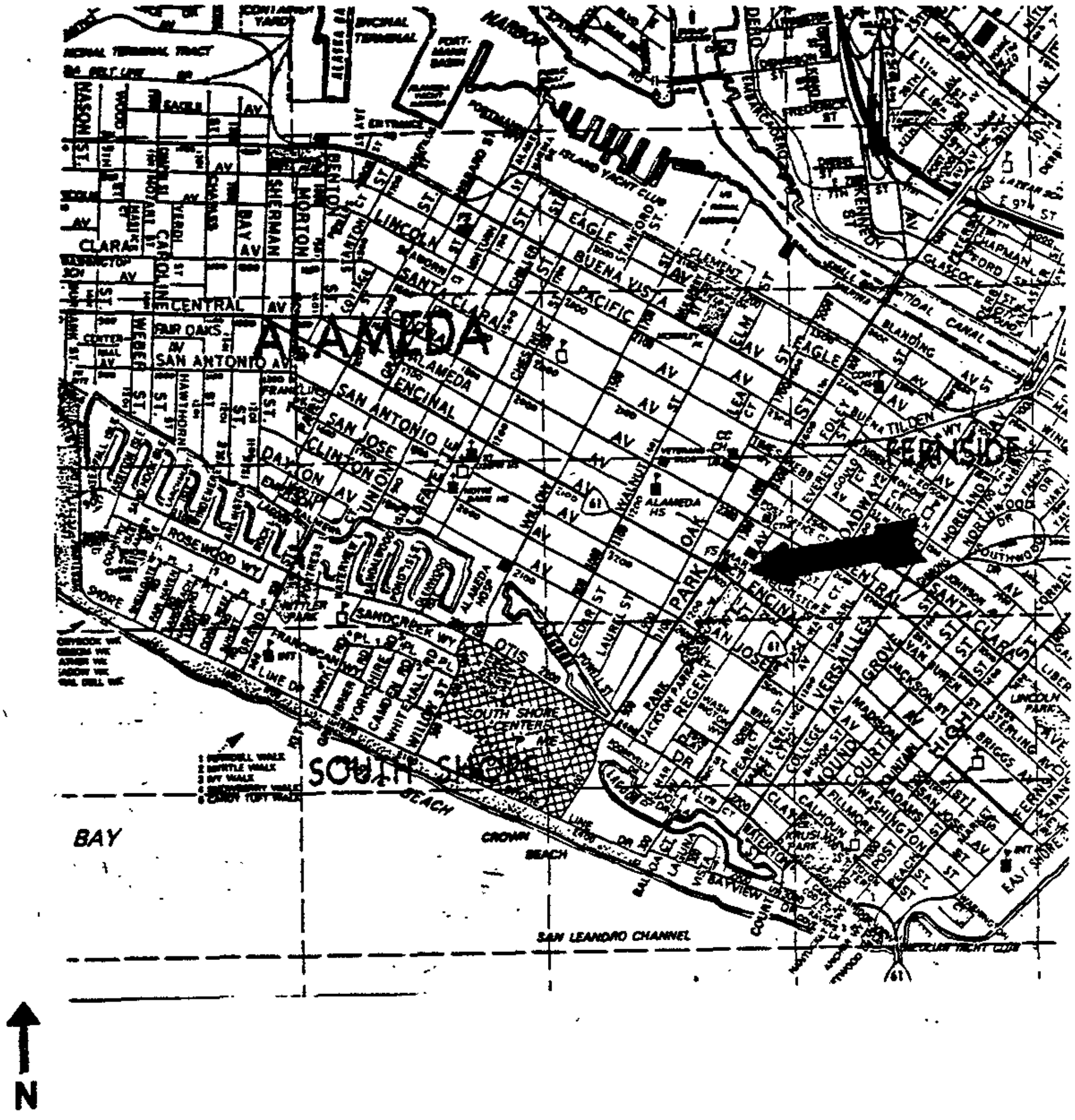
Recent groundwater monitoring of the three monitoring wells located on-site indicates that the direction of groundwater flow is west to southwest towards Encinal Avenue. Due to the relatively high transmissivity of the underlying soil, residual hydrocarbons from the former tank excavation and dispenser island appear to be migrating off-site via the groundwater.

The lighter and more mobile fraction of gasoline (benzene) migrates more quickly than ethylbenzene, toluene, or xylene. Evidence of higher levels of benzene compared to xylenes in samples S1-H20 and S4-H20 indicate the preferred path of contaminate migration and just behind the leading edge of the contaminate plume within the groundwater.

6.0 RECOMMENDATIONS

Pursuant to the Tri-Regional Board guidelines, groundwater sampling and monitoring of the on-site wells should continue on a quarterly basis. Further sampling and analysis of the groundwater will help in establishing the preferred path of groundwater and plume migration.

Pursuit to the CCR Title 23, Chapter 16, Articles 5, 7, and 11 of the Underground Storage Tank regulations a Corrective Action Plan shall be drafted to determine the method of cleanup. A Corrective Action Plan for the purpose of identifying and evaluating the appropriate corrective actions at 2425 Encinal Avenue is being drafted

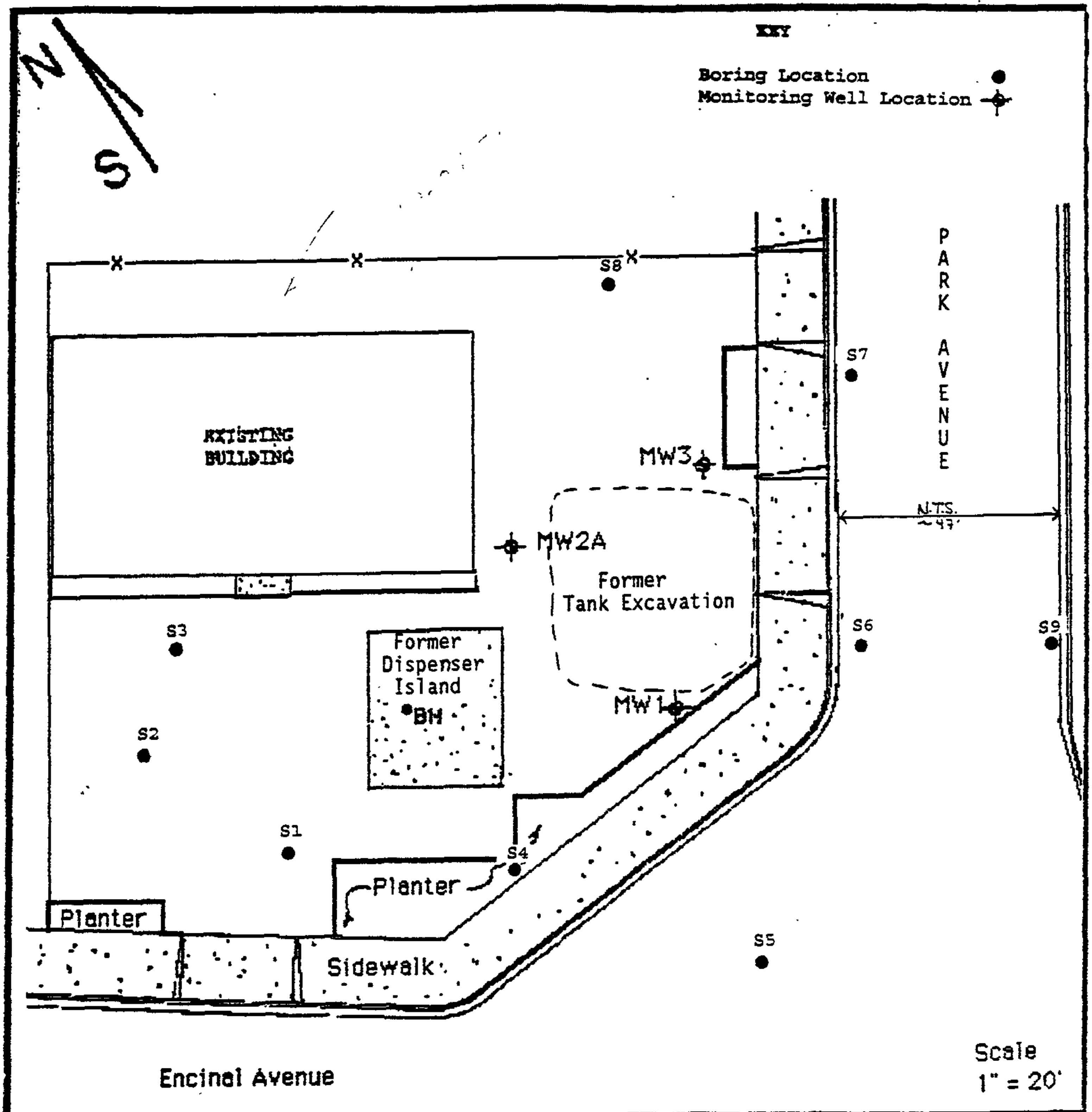


Source: Thomas Brothers

ACC Environmental Consultants, Inc.
1000 Atlantic Avenue, Suite 110
Alameda, California 94501

Location Map
2425 Encinal Avenue
Alameda, California

Project No. 6039-3	Date: 4/12/93	Dn by: MCK	Figure 1



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1000 Atlantic Avenue, Suite 110
Alameda, California 94501

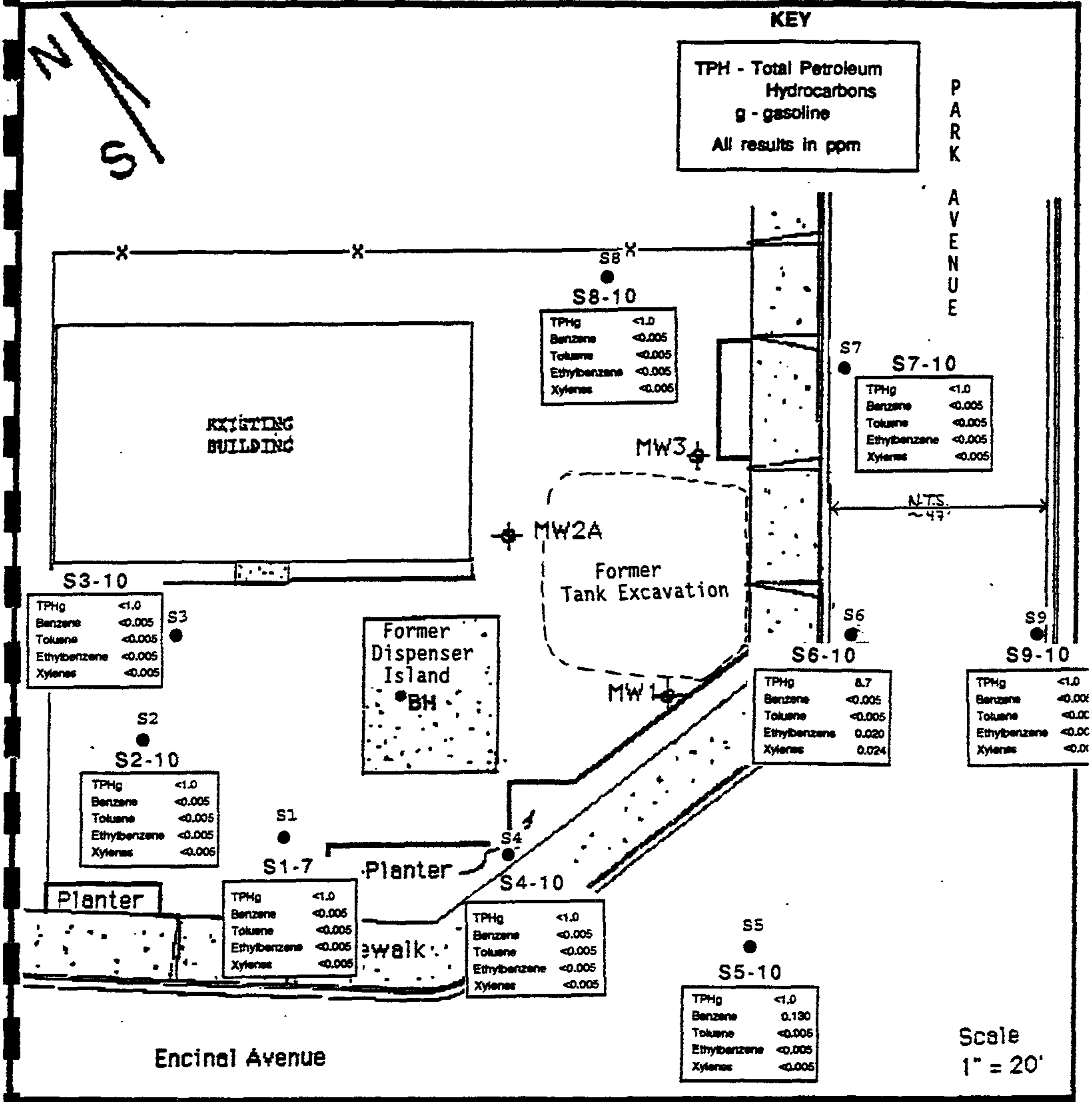
Boring Locations
Alameda Cellars
2425 Encinal Avenue
Alameda, California

Project No. 6039-4

Date: 6/11/93

Dn by: CM

Figure 2



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1000 Atlantic Avenue, Suite 110
Alameda, California 94501

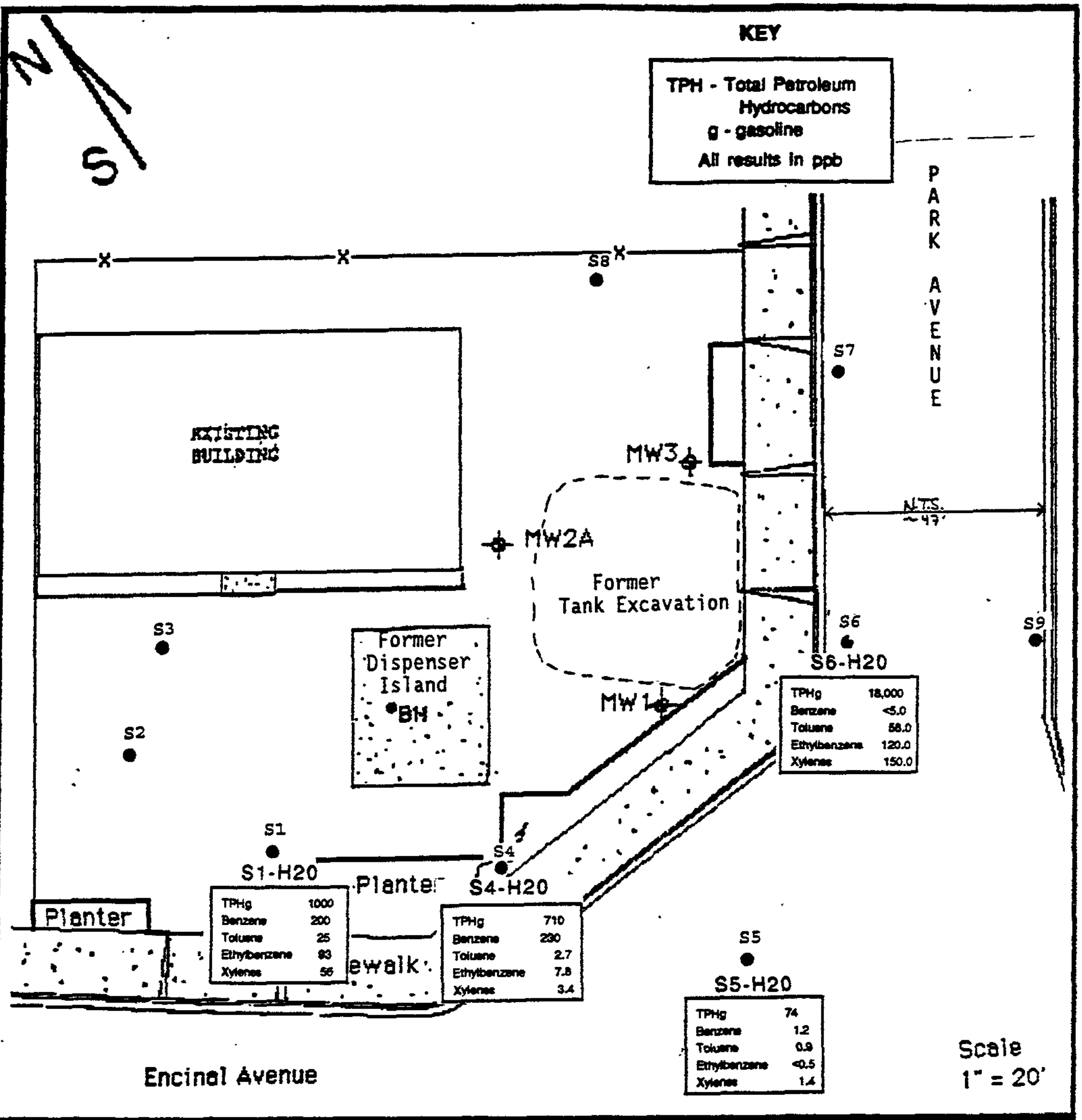
Sample Results - Soil
Alameda Cellars
2425 Encinal Avenue
Alameda, California

Project No. 6039-4

Date: 6/11/93

Dn by: CM

Figure 3



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Alameda, California 94501

Sample Results - Water
Alameda Cellars
2425 Encinal Avenue
Alameda, California

Project No. 6039-4

Date: 6/11/93

Dn by: CM

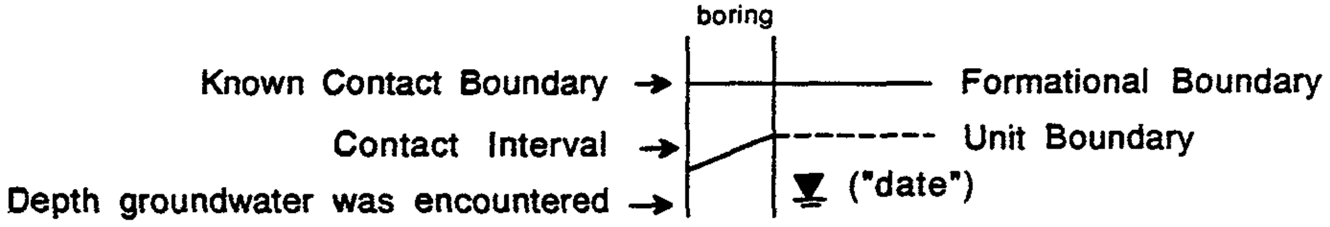
Figure 4

EXHIBIT A

UNIFIED SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS more than half > #200 sieve	GRAVELS more than half coarse fraction is larger than No. 4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	■	well graded gravels, gravel-sand mixtures
			GP	▒	poorly graded gravels, gravel-sand mixtures
		GRAVELS WITH OVER 12% FINES	GM	░	silty gravels, poorly graded gravel-sand silt mixtures
			GC	▓	clayey gravels, poorly graded gravel-sand clay mixtures
	SANDS more than half coarse fraction is smaller than No. 4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES	SW	░	well graded sands, gravelly sands
			SP	□	poorly graded sands, gravelly sands
		SANDS WITH OVER 12% FINES	SM	⁞	silty sands, poorly graded sand-silt mixtures
			SC	▨	clayey sands, poorly graded sand-clay mixtures
FINE GRAINED SOILS more than half < #200 sieve	SILTS AND CLAYS liquid limit less than 50		ML	▥	inorg. silts and v.fine sands, rock flour silty o clayey sands, or clayey silts w/sl. plasticity
			CL	▨	inorg. clays of low-med plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	▩	organic clays and organic silty clays of low plasticity
	SILTY AND CLAYS liquid limit greater than 50		MH	┅	inorganic silty, micaceous or diatomacious fine sandy or silty soils, elastic silts
			CH	▨	inorganic clays of high plasticity, fat clays
			OH	▧	organic clays of medium to high plasticity organic silts
	HIGHLY ORGANIC SOILS		Pt	≋	peat and other highly organic soils

LEGEND FOR BORING LOGS



ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVENUE, SUITE 110
ALAMEDA, CA 94501

Soil Classification System

Project No. 6039-2	Date: 6/9/93	DRN: MCK	2425 Encinal

Environmental Control Associates	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	Equipment: Pneumatic Sampler Logged By: M. Kaltreider PROJECT: 2425 Encinal Start Date: 5/11/93
Soil color described using Munsell soil color charts				0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
Color code				2	Merritt Sand: yellowish brown fine sand (SP) with some silt, loose to medium dense, very moist.
(10YR-5/6)	0	S1-4	■	4	
	0	S1-7	■	6	
				8	
		S1-H20		▼ 10	(slight hydrocarbon odor in water)
				12	BOTTOM OF BORING @ 12 FEET
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S1

2425 Encinal

Environmental Control Associates

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Soil color described using Munsell soil color charts

Color code	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	
				0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
				2	Merritt Sand: yellowish brown mottled red, very fine sand (SP) with some silt, loose, very moist.
(10YR-5/6)	0	S2-5	■	4	
				6	
				8	
(10YR/5/3)	0	S2-10 S2-H20	■	▼ 10	Same as above, saturated
				12	BOTTOM OF BORING @ 12 FEET
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S2

2425 Encinal

Environmental Control Associates

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Soil color described using Munsell soil color charts

Color code	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	
				0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
				2	Merritt Sand: yellowish brown silty sand (SM), medium dense to loose, very moist.
(10YR-5/4)	0	S3-5	■	4	
				6	
				8	
(10YR-5/3)	0	S3-10	■	10 ▼	Same as above, saturated
		S3-H20			
				12	BOTTOM OF BORING @ 12 FEET
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

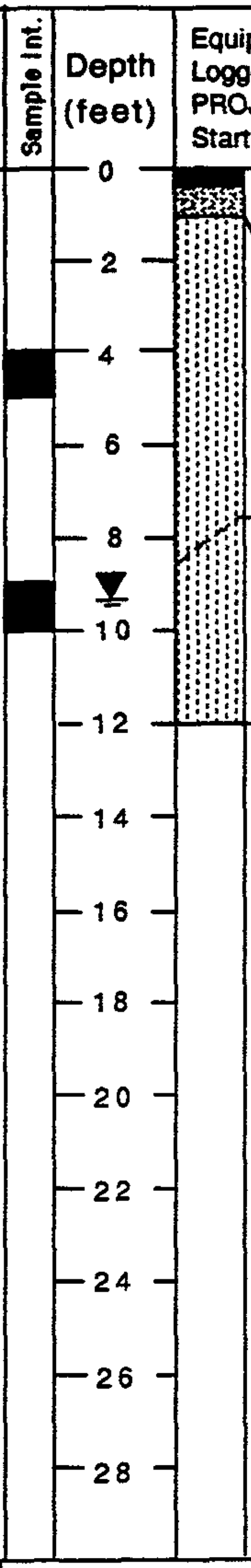
DATE: 5/11/93

LOG OF BORING S3

2425 Encinal

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Environmental Control Associates	HNu (ppm)	SAMPLE #
Soil color described using Munsell soil color charts		
Color code		
(10YR-5/4)	0	S4-5
(5G-4/1)	0	S4-10
		S4-H20



Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)

Merritt Sand: yellowish brown mottled red, silty sand (SM) to very fine sand (SP) with some silt, medium dense, very moist.

Dark greenish grey very fine sand (SM to SP) with some silt, medium dense, saturated.

Very slight hydrocarbon odor in water.

BOTTOM OF BORING @ 12 FEET

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S4

2425 Encinal

Environmental Control Associates	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	Equipment: Pneumatic Sampler Logged By: M. Kaltreider PROJECT: 2425 Encinal Start Date: 5/11/93
Soil color described using Munsell soil color charts Color code				0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
				2	Merritt Sand: dark yellowish brown/ mottled red clayey sand (SC) with trace silt, medium dense, very moist.
(10YR-4/4)	0	S5-5	■	4	
				6	
				8	Dark greenish grey very fine sand (SP) with some silt, loose, saturated, moderate hydrocarbon odor.
(5GY-4/1)	10	S5-10 S5-H20	■	▼ 10	
				12	BOTTOM OF BORING @ 12 FEET
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

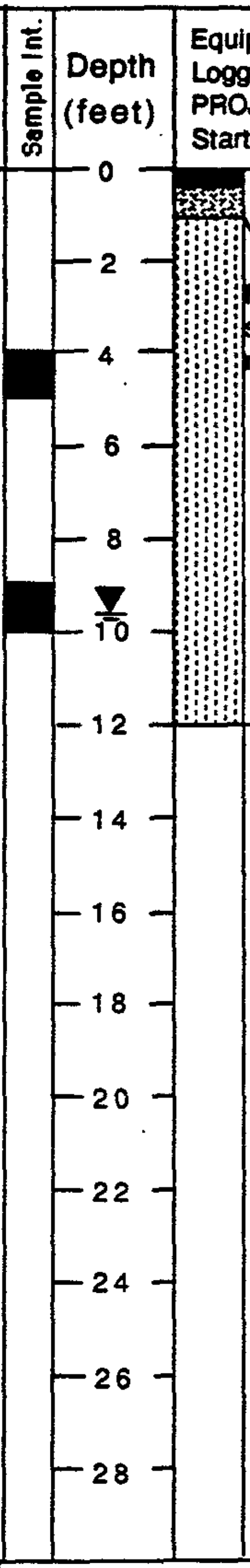
LOG OF BORING S5

2425 Encinal

Environmental Control Associates

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Soil color described using Munsell soil color charts Color code	HNu (ppm)	SAMPLE #	
			Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
			Merritt Sand: dark greenish grey silty sand (SM), medium dense, very moist, moderate hydrocarbon odor.
(5GY-4/1)	10	S6-5	
(5GY-4/1)	50	S6-10 S6-H20	Same as above, strong hydrocarbon odor, saturated.
			BOTTOM OF BORING @ 12 FEET



ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S6

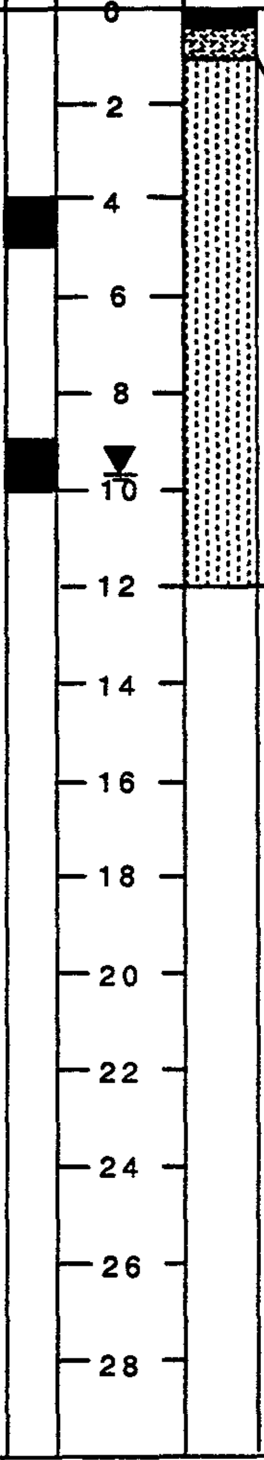
2425 Encinal

Environmental Control Associates

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Soil color described using Munsell soil color charts

Color code	HNu (ppm)	SAMPLE #
(10YR-4/5)	0	S7-5
(10YR-4/5)	0	S7-10
		S7-H20



Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)

Merritt Sand: yellowish brown silty sand (SM), medium dense to loose, very moist.

Same as above, saturated

BOTTOM OF BORING @ 12 FEET

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S7

2425 Encinal

Environmental Control Associates	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	Equipment: Pneumatic Sampler Logged By: M. Kaltreider PROJECT: 2425 Encinal Start Date: 5/11/93
Soil color described using Munsell soil color charts **Color code**				0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
				2	Merritt Sand: dark yellowish brown mottled black silty sand (SM), medium dense, very moist.
(10YR-3/4)	0	S8-5	■	4	
				6	
				8	
(10YR-3/4)	0	S8-10	■	▼ 10	Same as above, saturated
		S8-H20			
				12	BOTTOM OF BORING @ 12 FEET
				14	
				16	
				18	
				20	
				22	
				24	
				26	
				28	

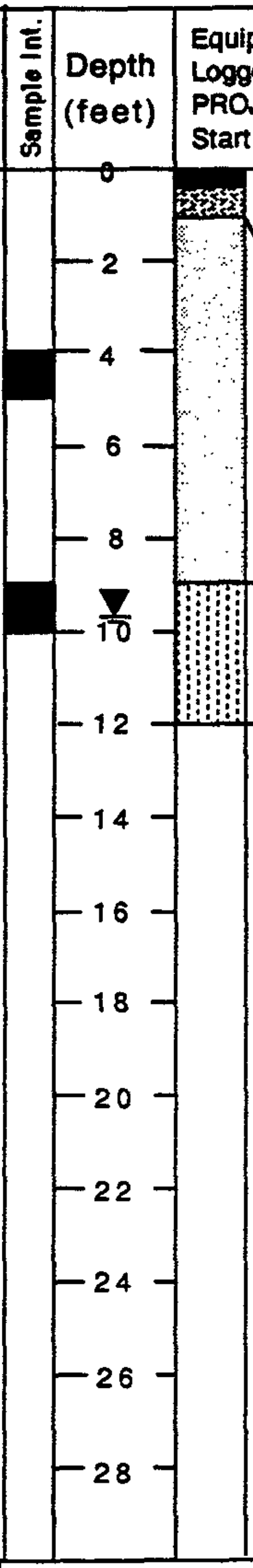
ACC ENVIRONMENTAL CONSULTANTS 1000 ATLANTIC AVEUNUE, SUITE 110 ALAMEDA, CA 94501	JOB NO: 6039-3	LOG OF BORING S8
	DATE: 5/11/93	2425 Encinal

Environmental Control Associates

Equipment: Pneumatic Sampler
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 5/11/93

Soil color described using Munsell soil color charts

Color code	HNu (ppm)	SAMPLE #
(10YR-3/3)	0	S9-5
(10YR-4/5)	0	S9-10 S9-H20



Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)

Merritt Sand: dark brown sand (SP), medium dense, very moist.

Yellowish brown silty sand (SM), medium dense, saturated

BOTTOM OF BORING @ 12 FEET

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-3

DATE: 5/11/93

LOG OF BORING S9

2425 Encinal

EXHIBIT B

CHROMALAB, INC.

DOHS 1094

2239 Omega Road, #1 • San Ramon, California 94583
510/831-1788 • Facsimile 510/831-8798

Chain of Custod

DATE 5/13/93 PAGE 3 OF 3

PROJ. MGR. Misty Kaltreider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave., Suit. 110
Alameda, CA, 94558

SAMPLERS (SIGNATURE) Misty Kaltreider (PHONE NO.) (510) 522-8188

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)			Hold	NUMBER OF CONTAINERS
S1-H_2O	5/12/93		Water			X																		X	3
S2-H_2O																								X	3
S3-H_2O																								X	3
S4-H_2O						X																		X	3
S5-H_2O						X																		X	3
S6-H_2O						X																		X	3
S7-H_2O																								X	3
S8-H_2O																								X	3
S9-H_2O																								X	3

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-4
P.O. # 6039-4

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	27
HEAD SPACE	No
REC'D GOOD CONDITION/COLD	Y
CONFORMS TO RECORD	Y

TAT	STANDARD 5-DAY	[✓ Hold]		24	48	72	OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
Misty Kaltreider
(SIGNATURE) (TIME)
Misty Kaltreider 5/13/93
(PRINTED NAME) (DATE)
ACC Environmental.
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
16:00
(SIGNATURE) (TIME)
T. [illegible] 5.13.93
(PRINTED NAME) (DATE)
ChromaLab
(LAB)

CHROMALAB, INC.
Environmental Laboratory (1094)

5 DAYS TURNAROUND

June 4, 1993

ChromaLab File No.: 0593135
Submission #: 9305000331

ACC ENVIRONMENTAL CONSULTANTS

Attn: Misty Kaltreider

RE: Four water samples for Gasoline and BTEX analysis

Project Name: 2425 ENCINAL
Project Number: 6039-4
Date Sampled: May 12, 1993
Date Submitted: May 27, 1993
Date Analyzed: June 4, 1993

RESULTS:

Sample I.D.	Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
B1-H2O	1000	200	25	93	56
B4-H2O	710	230	2.7	7.8	3.4
B5-H2O	74	1.2	0.9	N.D.	1.4
B6-H2O	18000	N.D.*	58	120	150
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	92%	104%	103%	103%	105%
DUP SPIKE RECOVERY	----	103%	105%	106%	108%
DETECTION LIMIT	50	0.5	0.5	0.5	0.5
METHOD OF ANALYSIS	5030/8015	602	602	602	602

*Detection limit = 5 µg/l due to dilution needed.

ChromaLab, Inc.

Jack Kelly
Analytical Chemist

Eric Tam
Laboratory Director

cc

2239 Omega Road,#1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157

CHROMALAB, INC.
Environmental Laboratory (1094)

5 DAYS TURNAROUND

May 20, 1993

ChromaLab File No.: 0593135
Submission #: 9305000152

ACC ENVIRONMENTAL CONSULTANTS

Attn: MISTY KALTREIDER

RE: Nine soil samples for Gasoline and BTEX analysis

Project Name: 2425 ENCINAL
Project Number: 6039-4
Date Sampled: May 12, 1993 Date Submitted: May 13, 1993
Date Analyzed: May 17, 1993

RESULTS:

Sample I.D.	Gasoline (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
S1-7	N.D.	N.D.	N.D.	N.D.	N.D.
S2-10	N.D.	N.D.	N.D.	N.D.	N.D.
S3-10	N.D.	N.D.	N.D.	N.D.	N.D.
S4-10	N.D.	N.D.	N.D.	N.D.	N.D.
S5-10	N.D.	130	N.D.	N.D.	N.D.
S6-10	8.7	N.D.	N.D.	20	24
S7-10	N.D.	N.D.	N.D.	N.D.	N.D.
S8-10	N.D.	N.D.	N.D.	N.D.	N.D.
S9-10	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	96%	94%	96%	100%	97%
DUP SPIKE RECOVERY	---	102%	101%	104%	103%
DETECTION LIMIT	1.0	5.0	5.0	5.0	5.0
METHOD OF ANALYSIS	5030/8015	8020	8020	8020	8020

ChromaLab, Inc.

Billy Thach

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

do

CHROMALAB, INC.

DOHS 1094

CHROMALAB FILE # 593135
ORDER # 11682

4583
93-5-152-/6552-6578

Chain of Custody

DATE 5/13/93 PAGE 1 OF 3

PROJ. MGR. Misty Kaltreider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave. Suit 110
Alameda, CA 94558

SAMPLERS (SIGNATURE) Misty Kaltreider
(PHONE NO.) (510) 522-8182

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)			HOLD	NUMBER OF CONTAINERS
S1-4'	5/12/93		Soil																					X	1
S1-7'						X																			1
S2-5'																								X	1
S2-10'						X																			1
S3-5'																								X	1
S3-10'						X																			1
S4-5'																								X	1
S4-10'						X																			1
S5-5'																								X	1

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-4
P.O. # 6039-4

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	9
HEAD SPACE	—
REC'D GOOD CONDITION/COLD	y
CONFORMS TO RECORD	y

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
Misty Kaltreider
(SIGNATURE) (TIME) 5/13/93
Misty Kaltreider
(PRINTED NAME) (DATE)
ACC Environmental.
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
11:00
(SIGNATURE) (TIME)
J. MONETTE 5.13.93
(PRINTED NAME) (DATE)
CHROMALAB
(LAB)

CHROMALAB, INC.

DOHS 1094

2239 Omega Road, #1 • San Ramon, California 94583
510/831-1788 • Facsimile 510/831-8798

Chain of Custody

DATE 5/13/93 PAGE 2 OF 3

PROJ. MGR. Misty Kaltreider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave. Sui 110
Alameda, CA 94558

SAMPLERS (SIGNATURE) Misty Kaltreider
(PHONE NO.) (510) 522-8188

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)			HOLD	NUMBER OF CONTAINERS
S5-10	5/12/93		Soil			X																			1
S6-5'																								X	1
S6-10						X																			1
S7-5'																								X	1
S7-10'						X																			1
S8-5'																								X	1
S8-10						X																			1
S9-5																								X	1
S9-10						X																			1

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-4
P.O. # 6039-4

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	9
HEAD SPACE	—
REC'D GOOD CONDITION/COLD	✓
CONFORMS TO RECORD	✓

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
Misty Kaltreider
(SIGNATURE) (TIME)
Misty Kaltreider 5/13/93
(PRINTED NAME) (DATE)
ACC Environmental
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
16:00
(SIGNATURE) (TIME)
R. MONETTE 5-13-93
(PRINTED NAME) (DATE)
CHROMALAB
(LAB)

APPENDIX C

A·C·C
ENVIRONMENTAL
CONSULTANTS

February 8, 1994

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

RE: Field Investigation
and Results of Groundwater Sampling at
2425 Encinal, Alameda, California
Permit No. 93681

Dear Mr. Chrissanthos:

Thank you for providing ACC with the opportunity to present this report.
The enclosed report describes the materials and procedures used during a field investigation performed at 2425 Encinal, Alameda, California. ACC's investigative approach was to drill and install three groundwater monitoring wells. This work was performed to evaluate the vertical extent of groundwater contamination.

Soil samples collected during drilling were submitted to Chromalab. Inc. for petroleum hydrocarbon analyses, in accordance with the "Tri Regional Guidelines for Underground Storage Tank Sites".

The results of the chemical analysis of the soil samples indicated below detectable levels of Total Petroleum Hydrocarbons (TPH) as gasoline and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) from the three borings.

Analysis of the groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4 indicated elevated concentrations of hydrocarbons. Analytical results of groundwater samples from monitoring wells MW-5 and MW-6 indicated below detectable levels of constituents indicating a lateral extent of contamination.

If you have any comments regarding this report, please call me.

Sincerely,

Misty Kaltreider

Misty C. Kaltreider
Geologist

cc: Mr. Richard Hiett - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Care Services - Division of Hazardous Materials
Mr. Wyman Hong - Alameda County Flood Control and Water Conservation District, Zone 7

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

A·C·C
ENVIRONMENTAL
CONSULTANTS

SOIL AND GROUNDWATER INVESTIGATION

2425 ENCINAL
ALAMEDA, CALIFORNIA

January 1994

Prepared for:
Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

Prepared by:

Prepared by: ______________________
Misty Kaltreider
Project Geologist

Reviewed by: ______________________
Christopher M. Palmer, CEG #1262
Certified Engineering Geologist

REGISTERED GEOLOGIST
CHRISTOPHER M. PALMER
№ 1262
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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

TABLE OF CONTENTS

TABLES

ATTACHMENTS

1.0 INTRODUCTION

This report presents the procedures and findings of a soil and groundwater investigation conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 2425 Encinal, Alameda, California. The project objective, as described in the Work Plan prepared on November 5, 1993, was to drill and install three groundwater monitoring wells to evaluate the extent of groundwater impact from the previous underground storage of gasoline.

2.0 BACKGROUND

The site is presently occupied by Alameda Cellars, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. In March, 1990, two 10,000-gallon gasoline tanks were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

In December 1992, five borings were drilled on-site. Three of the borings were converted into monitoring wells MW-1, MW-2a, and MW-3. Analytical results of the soil collected during drilling and soil sampling indicated a maximum soil concentration of Total Petroleum Hydrocarbons (TPH) as gasoline as 1,365 ppm. Benzene concentration was 18.9 ppm in the same sample.

Initial groundwater samples collected in January, 1993, from the monitoring wells indicated a maximum TPH-gasoline concentration of 5,680 ppb (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1).

Additional soil investigation was conducted in May, 1993 to evaluate the extent of contamination in the soil and groundwater. Findings of the additional investigation indicated the lateral extent of hydrocarbon impacted soil did not appear to extend beyond the property boundaries along the northern, western, and eastern sides. However, along the southern side, the impacted soil appears to extend into Park and Encinal Avenues. Field observations made during the additional investigation and soil sample analysis indicated the soil hydrocarbon plume is primarily around the former tank excavation and the former dispenser island. The vertical limit of hydrocarbons in the soil is estimated to occur at the present groundwater table.

Analysis of "grab" groundwater samples collected from borings drilled during the additional investigation indicate the residual hydrocarbons from the former tank excavation and dispenser island is migrating off-site via the groundwater.

Per request of Alameda County Health Care Services - Hazardous Materials Division, this preliminary Site Assessment was conducted to further evaluate the groundwater contamination from the gasoline release on-site.

ACC was retained by Mr. Chrissanthos, to perform the work requested by the Alameda County Health Care Services.

3.0 FIELD PROCEDURES

Borings MW-4 and MW-5 were drilled on December 10, 1993 using a B-53 mobile drill rig equipped with 8-inch outside diameter hollow-stem augers. Boring MW-6 was drilled on December 14, 1993 using a SEMCO Limited Access drill rig equipped with 8-inch outside diameter hollow-stem augers. Concurrent with drilling, subsurface soil samples were obtained with a Modified California Sampler equipped with three six-inch long brass liners. The sampler and brass liners were pre-cleaned prior to use and between sample drives by washing them with a trisodium phosphate (TSP) and potable water solution, a potable water rinse, and distilled water rinse.

Soil samples were collected every five feet, at any noted changes in lithology, and at the approximate soil/groundwater interface. Subsurface soil samples were obtained by drilling to the approximate sampling location and then driving the sampler eighteen inches into undisturbed material.

An HNU photoionization detector (PID) was used during drilling and sampling procedures to detect field evidence of volatile hydrocarbon vapor in the soil.

Soil sample and drill cuttings were prescreened for volatile organic compounds with a PID calibrated for Hexane. Upon removal from the sampler, each end of the brass liner was covered with Teflon tape and plastic caps, labeled, and stored in an ice-filled cooler to be transported under chain of custody to Chromalab, Inc., a Cal-EPA certified analytical laboratory.

A minimum of two soil samples were selected from each boring and submitted to ChromaLab for analysis according to the "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", dated August 10, 1990. Samples from the borings were submitted for analysis for Total Petroleum Hydrocarbons (TPH) as gasoline by EPA test method 5030 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA test method 8020. Copies of the analytical results and chain of custody forms are provided in Appendix A.

The soil cuttings and samples were logged by an ACC geologist during drilling operations. Soil cuttings are described in accordance with the Unified Soil Classification System. Lithologic logs of the borings and the Unified Soil Classification System are attached in Appendix B. Soil cuttings were stored on-site in DOT approved drums pending disposal at an accepting facility.

3.1 Monitoring Well Construction and Development

Monitoring wells MW-4, MW-5 and MW-6 were installed within borings MW-4, MW-5, and MW-6, respectively, upon completion of drilling. Well construction details are attached in Appendix B. The three monitoring Wells were installed with well casings consisting of 2-inch I.D. Schedule 40 PVC with 13 feet of 0.020-inch factory slotted screen below 5 feet of solid casing.

The wells were installed with Lonestar #2/12 sand used as annular fill to at least one foot above the top of the screen. One-half foot of 1/4-inch pelletized bentonite was placed between the annular sand and neat cement seal. "Christy" boxes were cemented over the tops of the PVC casings and set slightly above grade to drain surface waters away from the well head. Locking expansion plugs with locks were placed on each well.

The wells were developed on December 31, 1992 and December 15, 1993, by bailing with designated disposal Teflon bailers . Each well was developed until development water was clear and essentially free of fine material. Approximately four well volumes of water were removed from each well and placed in sealed 55-gallon drums on-site. The drums were labeled pending analytical results.

3.2 Groundwater Sampling

Groundwater samples were taken on December 20, 1993 from monitoring wells MW-1, MW-2a, MW-3, MW-4, MW-5, and MW-6. Prior to groundwater sampling the depth to the surface of the water table was measured from the top of the PVC casing using a Solinst Water Level Meter. Information regarding well elevations and groundwater level measurements is summarized in Table 1.

TABLE 1 - Groundwater Depth Information

Date Sampled	Depth to Groundwater (Ft.)	Groundwater Elevation (Ft.)
Well No. MW-1	Elevation of Top of Casing-27.61 MSL	
01/09/93	6.75	20.86
02/09/93	6.41	21.20
03/10/93	6.34	21.27
04/12/93	6.52	21.09
05/17/93	7.38	20.23
06/28/93	8.42	19.19
07/13/93	8.68	18.93
08/10/93	8.25	19.36
09/10/93	8.73	18.88
10/12/93	9.04	18.57
12/20/93	7.87	19.74
Well No. MW-2a	Elevation of Top of Casing-27.98 MSL	
01/09/93	7.06	20.92
02/09/93	6.63	21.35
03/10/93	6.57	21.41
04/12/93	6.77	21.21
05/17/93	7.61	20.37
06/28/93	8.68	19.30
07/13/93	8.94	19.04
08/10/93	8.66	19.32
09/10/93	8.95	19.03
10/12/93	9.36	18.62
12/20/93	8.24	19.74

TABLE 1 - Groundwater Depth Information, cont.

Date Sampled	Depth to Groundwater (Ft.)	Groundwater Elevation (Ft.)
Well No. MW-3	Elevation of Top of Casing-27.89 MSL	
01/09/93	6.68	21.21
02/09/93	6.25	21.64
03/10/93	6.18	21.71
04/12/93	6.41	21.48
05/17/93	7.37	20.52
06/28/93	8.47	19.42
07/13/93	8.74	19.15
08/10/93	8.45	19.44
09/10/93	8.52	19.37
10/12/93	9.20	18.69
12/20/93	7.95	19.94
Well No. MW-4	Elevation of Top of Casing-26.97 MSL	
12/20/93	7.25	19.72
Well No. MW-5	Elevation of Top of Casing-27.34 MSL	
12/20/93	8.01	19.33
Well No. MW-6	Elevation of Top of Casing-28.03 MSL	
12/20/93	8.00	20.03

Notes: All measurements in feet
MSL = Mean Sea Level

After water-level measurements were taken, each on-site well was purged by hand using a designated disposable Teflon bailer for each well. Groundwater Ph, temperature and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Three to four well volumes were removed to purge each well. Worksheets of conditions monitored during purging are attached in Appendix C.

After the groundwater level had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using designated disposable Teflon bailers. Two 40 ml VOA vials, without headspace, were filled from the water collected from each monitoring well.

The samples were preserved on ice and submitted to Chromalab Inc. under chain of custody protocol. Laboratory results with chain of custody forms are attached in Appendix D.

4.0 FINDINGS

4.1 Subsurface Conditions

During drilling and sampling activities, the site was observed to be covered with a baserock/asphalt cap. Below the cap, the subsurface soils consisted of brown fine grained sand with silt to the depth investigated of 18 feet below the surface.

During drilling and sampling field evidence of volatile organics (i.e. discoloration and odor) were detected from boring MW-4 from approximately 8 to 11 feet below ground surface. No evidence of volatile organics was detected in borings MW-5 and MW-6.

Groundwater was encountered at approximately 9-1/2 to 10 feet below ground surface (bgs) during drilling. Monitoring wells MW-4, MW-5 and MW-6 were completed to the drilled depth in each boring, 18 feet below ground surface.

The sand is interpreted to be part of the Merritt Sand Formation which is interpreted to be a wind and water deposited beach and near-shore deposit and is exposed only in the Alameda and Oakland areas. A report by the Alameda County Flood Control and Water Conservation District, Geohydrology and Groundwater - Quality Overview, East Bay Plain Area, Alameda County, California, 205 (J) Report, June 1988, describes the Merritt Sand as consisting of loose well-sorted, fine to medium grained sand and silt, with lenses of sandy clay and clay.

4.2 Analytical Results - Soil

Two soil samples were collected from each boring and submitted Chromalab for analysis of TPH as gasoline with BTEX. Samples chosen for analysis were collected at the Fill material and Merritt Sand interface and capillary fringe. The samples indicated that below detectable levels of constituents were detected. Copy of the analytical results with chain of custody form is attached in Appendix A.

4.3 Analytical Results - Groundwater

One groundwater sample each from monitoring wells MW-1, MW-2a, MW-3, MW-4, MW-5, and MW-6 was collected and submitted to Chromalab for analysis for TPH as gasoline by EPA test method 5030 and BTEX by EPA test method 602. Analysis results from the groundwater samples are summarized in Table 2 and Figure 2. Copies of the analytical results are attached in Appendix D.

TABLE 2 - Analytical Results - Groundwater

Well Number	Date Collected	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	01/09/93	5,360	1,560.0	1,026.6	641.0	2,706.2
	04/12/93	12,000	750.0	100.0	500.0	1,400.0
	07/13/93	720	119.6	32.7	70.8	262.0
	10/12/93	8,400	420.0	39.0	280.0	880.0
	12/20/93	5,200	270.0	58.0	170.0	590.0
MW-2a	01/09/93	5,680	801.6	598.6	840.2	2,196.1
	04/12/93	12,000	460.0	110.0	240.0	1,600.0
	07/13/93	550	145.2	47.5	126.8	127.4
	10/12/93	2,000	280.0	17.0	100.0	120.0
	12/20/93	3,300	450.0	40.0	200.0	350.0

TABLE 2 - Analytical Results - Groundwater

Well Number	Date Collected	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-3	01/09/93	<50	<0.5	<0.5	<0.5	<0.5
	04/12/93	1,500	95.0	30.0	46.0	85.0
	07/13/93	540	18.3	106.2	75.7	128.0
	10/12/93	3,500	290.0	230.0	210.0	460.0
	12/20/93	690	31.0	10.0	31.0	25.0
MW-4	12/20/93	580	2.3	<0.5	1.4	1.1
MW-5	12/20/93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	12/20/93	<50	<0.5	<0.5	<0.5	<0.5

Note: ug/L = parts per billion (ppb)

4.4 Groundwater Gradient

Prior to calculating the groundwater gradient, elevations for the on-site monitoring wells were surveyed by Ron Archer Civil Engineer, Inc. to an accuracy of one-hundredth of a foot. The well elevation was surveyed at the top of the PVC well casing. The elevations of the monitoring wells were established relative to a nearby benchmark located in the curb on the northwest corner of the intersection of Park and Encinal Avenues in Alameda, California.

The groundwater gradient was calculated using the on-site monitoring wells. The location of the wells is shown on Figure 1 - Site Plan. Groundwater elevations were collected from the wells on December 20, 1993 and are illustrated in Figure 3. The gradient was evaluated by triangulation using the elevation of the potentiometric surface measured with respect to Mean Sea Level datum.

The historical groundwater gradient and the direction of groundwater flow on-site is summarized in Table 3.

TABLE 3 - Historic Groundwater Gradient

Date Monitored	Gradient (foot/foot)	Direction
01/09/93	0.009	west
02/09/93	0.013	southwest
03/10/93	0.012	west/southwest
04/12/93	0.012	west/southwest
05/17/93	0.0078	south/southwest
06/28/93	0.0076	southwest
07/13/93	0.0058	southwest
08/10/93	0.004	west
09/10/93	0.015	southwest
10/12/93	0.004	southwest
12/20/93	0.0083	west

5.0 CONCLUSION

The data and observations discussed herein indicate that groundwater has been impacted due to an unauthorized hydrocarbon release. The analytical parameters used for soil and groundwater sampling performed were in accordance with the guidance document "Tri-Regional Water Quality Control Boards Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", dated August 10, 1990, for gasoline tanks.

First quarter sampling and analysis indicated elevated levels of TPH as gasoline with BTEX in the groundwater from monitoring well MW-1 and MW-2a. Groundwater from monitoring well MW-3 has below detectable levels of constituents. Second quarterly sampling and analysis of the groundwater in April indicated an increase in levels of Total Petroleum Hydrocarbons as gasoline in all wells, however, the benzene, toluene, ethylbenzene and xylenes levels have declined in water samples from monitoring wells MW-1 and MW-2a. Constituents detected during July 1993 appear decreasing due to the fluctuating groundwater elevation. During October 1993 sampling, constituents in monitoring wells MW-1 and MW-3 have increased while only TPH as gasoline and benzene have increased in monitoring well MW-2a. Benzene increase in MW-2a is probably due to residual drainage and the well's close proximity to the former tank location.

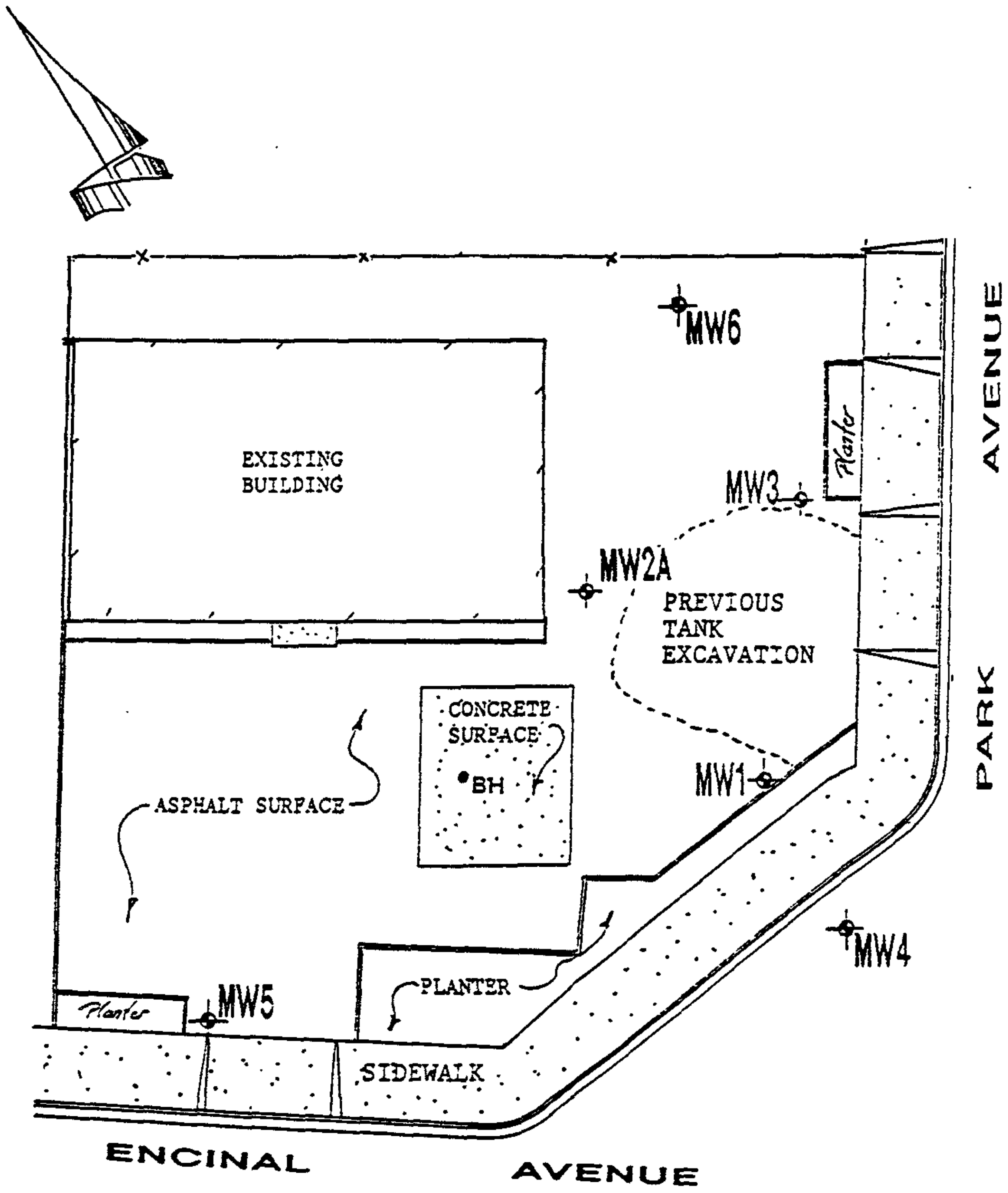
Three additional monitoring wells (MW-4, MW-5, and MW-6) were installed to evaluate the extent of groundwater contaminate plume. Laboratory analysis of the soil collected from each boring indicated below detectable levels of constituents which verifies the lateral extent of soil contamination.

Laboratory analysis of the groundwater samples collected from monitoring well MW-5 and MW-6 indicated below detectable levels of constituents evaluated. The groundwater results indicated a lateral extent of groundwater contamination. Laboratory analysis of groundwater collected from monitoring well MW-4 indicated low detectable levels of constituents. Constituents reported from monitoring well MW-4 are low when compared with reported levels in monitoring wells MW-1, MW-2a, and MW-3. The location of the southern edge of the groundwater contaminant plume is just off-site to the south. This "side" gradient movement is attributed to the relatively flat gradient and possible recharge into the excavated area.

6.0 RECOMMENDATIONS

Pursuant to the Tri-Regional Board guidelines, groundwater sampling and monitoring of the on-site wells should continue on a quarterly basis.

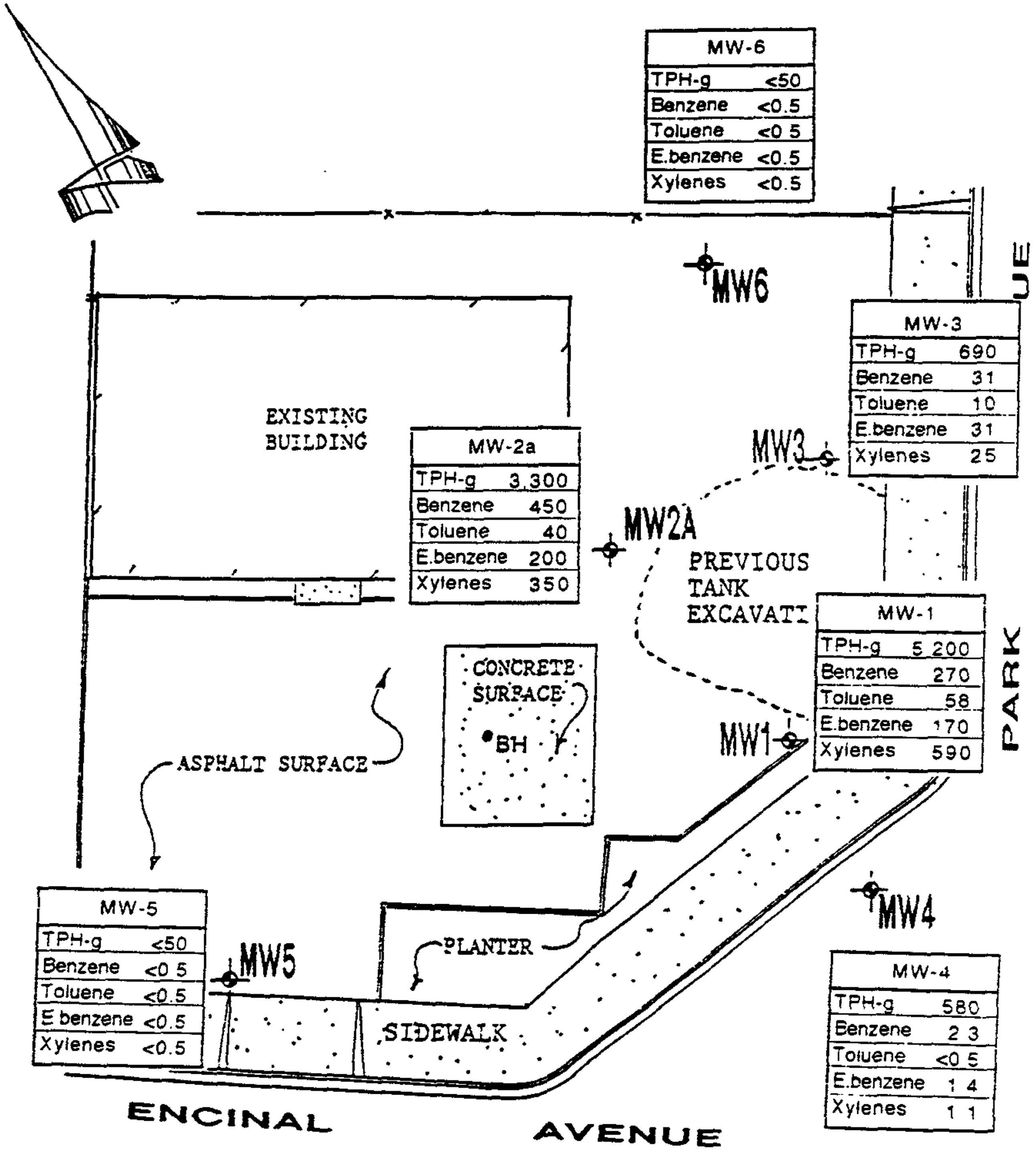
Pursuit to the CCR Title 23, Chapter 16, Articles 5, 7, and 11 of the Underground Storage Tank regulations a Corrective Action Plan is being drafted to determine the method of cleanup. The Corrective Action Plan will identify and evaluate the appropriate corrective actions for the property located at 2425 Encinal Avenue.



Scale: 1" = 20'

Project # 6039-5	1/12/94	Drawn By: TRF	Alameda Cellars 2425 Encinal Avenue	Site Plan Figure 1

ACC Environmental Consultants • 1000 Atlantic Ave, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731



MW-6	
TPH-g	<50
Benzene	<0.5
Toluene	<0 5
E.benzene	<0.5
Xylenes	<0.5

MW-3	
TPH-g	690
Benzene	31
Toluene	10
E.benzene	31
Xylenes	25

MW-2a	
TPH-g	3,300
Benzene	450
Toluene	40
E.benzene	200
Xylenes	350

MW-1	
TPH-g	5 200
Benzene	270
Toluene	58
E.benzene	170
Xylenes	590

MW-5	
TPH-g	<50
Benzene	<0 5
Toluene	<0.5
E benzene	<0.5
Xylenes	<0.5

MW-4	
TPH-g	580
Benzene	2 3
Toluene	<0 5
E.benzene	1 4
Xylenes	1 1

KEY

TPH-g = Total Petroleum Hydrocarbons as gasoline

E. benzene = Ethylbenzene

All results in parts per billion (ppb)

Scale: 1" = 20'

Figure 2

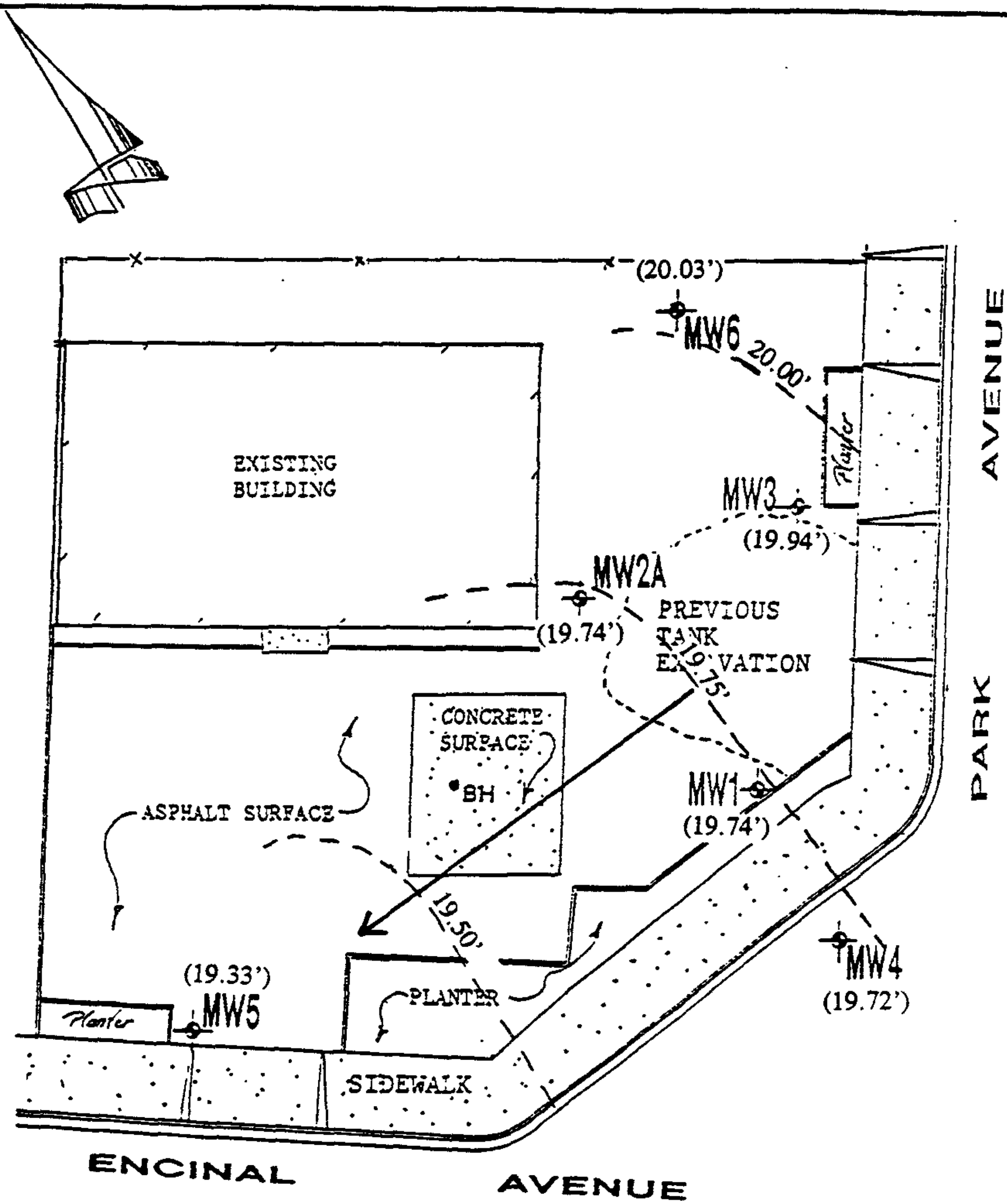
Project # 6039-5

1/12/94

Drawn By: TRF

Alameda Cellars
2425 Encinal Avenue

Analytical Results
Groundwater



Elevations Illustrated in Feet Above Mean Sea Level

Scale: 1" = 20'

				Figure 3
Project # 6039-5	1/12/94	Drawn By: TRF	Alameda Cellars 2425 Encinal Avenue	Groundwater Gradient 12/20/93

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APPENDIX A

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

December 17, 1993

ChromaLab File#: 9312163

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 2425 ENCINAL

Project#: 6039-5

Submitted: December 13, 1993

re: 4 samples for Gasoline and BTEX analysis.

Matrix: SOIL
Sampled on: December 10, 1993
Method: EPA 5030/8015/8020

Analyzed on: December 15, 1993
Run#: 1861

Lab #	SAMPLE ID	Gasoline (mg/Kg)	Benzene (ug/Kg)	Toluene (ug/Kg)	Ethyl Benzene (ug/Kg)	Total Xylenes (ug/Kg)
39363	MW-4-5 1/2	N.D.	N.D.	N.D.	N.D.	N.D.
39364	MW-4-11	N.D.	N.D.	N.D.	N.D.	N.D.
39365	MW-5-6	N.D.	N.D.	N.D.	N.D.	N.D.
39366	MW-5-11	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS		1.0	5.0	5.0	5.0	5.0
BLANK		N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)		96	114	109	109	112

ChromaLab, Inc.

Billy Thach

Billy Thach
Chemist

Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

SUBM #: 9312163
CLIENT: ACCENV
DUE: 12/20/93
REF: 14438

Chrlg. # 14438
163/39363-39366

Chain of Custody

DATE 12/10/93 PAGE ______ OF ______

PROJ. MGR. M. Koltheider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave. Sui 110
Alameda, CA 94501

SAMPLERS (SIGNATURE) Misty Koltheider
(PHONE NO.) (510) 522-8188

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
✓ mw-4-5½	12/10/93		S			X																			1
✓ mw-4-11			S			X																			1
✓ mw-5;-6'			S			X																			1
✓ mw-5-11			S			X																			1

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-5
P.O. # 6039-5

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	4
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
(SIGNATURE) Misty Koltheider (TIME)
(PRINTED NAME) Misty Koltheider (DATE) 12/10/93
(COMPANY) ACC Environmental

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
(SIGNATURE) 12:18 (TIME)
(PRINTED NAME) E. [illegible] 12/10/93 (DATE)
Chromalab
(LAB)

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

December 20, 1993

ChromaLab File#: 9312181

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 2425 ENCINAL
Submitted: December 14, 1993

Project#: 6039-5

re: 2 samples for Gasoline and BTEX analysis.

Matrix: SOIL
Sampled on: December 14, 1993
Method: EPA 5030/8015/8020

Analyzed on: December 15, 1993
Run#: 1860

Lab # SAMPLE ID	**Gasoline (mg/Kg)**	**Benzene (ug/Kg)**	**Toluene (ug/Kg)**	**Ethyl Benzene (ug/Kg)**	**Total Xylenes (ug/Kg)**
39467 MW-6-6	N.D.	N.D.	N.D.	N.D.	N.D.
39468 MW-6-10 1/2	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS	1.0	5.0	5.0	5.0	5.0
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)	97	97	100	107	104

ChromaLab, Inc

Billy Thach

Billy Thach
Chemist

Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

22

SUBM #: 9312181
CLIENT: ACC
DUE: 12/21/93
REF: 14456

Order " 14456
121/394167-8

Chain of Custod

DATE 12 14 93 PAGE 1 OF 2

PROJ. MGR. M. Kollreider / ACC Environ.
COMPANY 1000 Atlantic Ave. Suite 110
ADDRESS Alameda, CA 94501

SAMPLERS (SIGNATURE) Misty Kollreider
(PHONE NO.) (510) 522-8188

ANALYSIS REPORT

	SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)			NUMBER OF CONTAINERS
✓	MW-6-~~5~~6	12/14/93		S			X																		1
✓	MW-6-10½	|		|			X																		1

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-5
P.O. # 6039-5

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	2
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
Misty Kollreider
(SIGNATURE) (TIME)
Misty Kollreider 12/14/9
(PRINTED NAME) (DATE)
ACC Environmental
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3
(SIGNATURE) (TIME
(PRINTED NAME) (DATE
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(CO

RECEIVED BY (LABORATORY) 3
142
(SIGNATURE) (TIME
S. Marcon 12-14-9
(PRINTED NAME) (DATE
Chromalab
(LAB)

APPENDIX B

Well Sampling ☑ **Well Development** ☐ check one

Well Number: MW-1
Job Number: 6039-4
Job Name: 2425 Encinal
Date: 12/20/93
Sampler: Carl Soane

Depth to Water (measured from TOC): 7.57'
Inside Diameter of Casing: 2"
Depth of Boring: 18'
Method of well development/[✓ purging]: Bailer
Amount of Water Bailed/Pumped from well: 7 gallons
Depth to Water after well development: —
Depth to water prior to sampling: 8.50'
Bailed water stored on-site ? How ? Drums
Number of well volumes removed: 4
TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		
irridesence		
oil		
smell		
product		
other, describe		

Gallons Removed	pH	EC	Temp
5		645	72.1
10		609	75.2
15		2.02	75.7
20		2.02	75.7
25		1.98	75.7
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ **Well Development** ☐ **check one**

Well Number: MW-2a

Job Number: 6039-4

Job Name: ~~[illegible]~~ 2425 Encinal

Date: 12/20/93.

Sampler: Carl

Depth to Water (measured from TOC): 8.24'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/purging: Bailer

Amount of Water Bailed/Pumped from well: 4.6 gallons

Depth to Water after well development:

Depth to water prior to sampling: 8.80'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New Rope

Water Appearance:

	yes	no	
froth		x	
irridesence		x	
oil		x	
smell	x		gas
product		✓	
other, describe		✓	

Gallons Removed	pH	EC	Temp
5		6.91	68.1
10		7.16	70.0
15		7.14	70.7
20		7.16	70.7
25		6.99	72.3
30		7.23	72.8
35		7.05	73.1
40		7.22	73.7
45		7.09	75.2
50		7.12	75.2
		7.14	75.2

Samples Obtained:

- TPH (gasoline) ☑
- TPH (diesel) ☐
- TPH (motor oil) ☐
- BTXE ☑
- EPA 624 ☐
- EPA 625 ☐
- EPA 608 ☐
- PCBs only ☐
- Metals ☐
- Other, specify ☐
- Field Blank ☐

Well Sampling ☑ Well Development ☐ check one

1'00 PM

Well Number: MW-3

Job Number: 6039-4

Job Name: 2425 Encinal

Date: 12/20/93

Sampler: Carl

Depth to Water (measured from TOC): 7.75'

Inside Diameter of Casing: 2"

Depth of Boring: 15'

Method of well development/[✓ purging]: Bailer

Amount of Water Bailed/Pumped from well: 4.6 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 8.5'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New Rope

Water Appearance:

	yes	no	
froth		x	
irridesence		x	
oil		x	
smell	✓		gas
product		x	
other, describe		x	

Gallons Removed	pH	EC	Temp
5	7	4.12	65.7
10	7	5.70	67.6
15		6.40	68.4
20		7.01	68.9
25		7.09	68.4
30		7.06	68.9
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	
TPH (motor oil)	
BTXE	✓
EPA 624	
EPA 625	
EPA 608	
PCBs only	
Metals	
Other, specify	
Field Blank	

Well Sampling ☑ Well Development ☐ check one

Well Number: MW-4

2:30

Job Number: 6039-4

Job Name: 2425 Encinal

Date: 12/20/93

Sampler: Carl Soares

Depth to Water (measured from TCC): 7.25'

Inside Diameter of Casing: 2"

Depth of Boring: 18'

Method of well development/[✓ purging]: Bailer

Amount of Water Bailed/Pumped from well: 7 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 7.52'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		5.67	66.8
10		5.66	67.0
15		5.67	66.9
20		5.62	67.0
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ **Well Development** ☐ **check one**

3:00

Well Number: MW-5

Job Number: 6039-4

Job Name: 2425 Encinal

Date: 12/20/93

Sampler: Carl Socan

Depth to Water (measured from TOC): 8.01'

Inside Diameter of Casing: 2"

Depth of Boring: 18'

Method of well development/[✓ purging]: Bailer

Amount of Water Bailed/Pumped from well: 6.5 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 8.52'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		|
irridesence		|
oil		|
smell		|
product		|
other, describe		↓

Gallons Removed	pH	EC	Temp
5		7.87	71.3
10		7.80	71.3
15			[illegible]
20		7.82	71.3
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ Well Development ☐ check one

Well Number: MW-6

12:00

Job Number: 6039-4

Job Name: 2425 Encinal

Date: 12/20/93

Sampler: Carl [illegible]

Depth to Water (measured from TOC): 8.00'

Inside Diameter of Casing: 2"

Depth of Boring: 18'

Method of well development/[✓ purging]: Bailer

Amount of Water Bailed/Pumped from well: 6.5 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 8.05'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		/
irridesence		/
oil		/
smell		/
product		/
other, describe		/

Gallons Removed	pH	EC	Temp
5	10.64	4.46	64.6
10	12 20	4.46	64.0
15	11.20	4.46	64.0
20	12.20	4.89	63.9
25	—	4.45	63.9
30			
35			
40			
45			
50			

Samples Obtained:

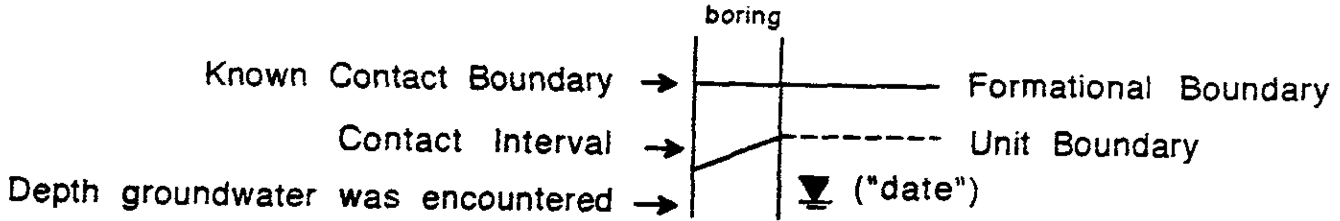
TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

APPENDIX C

UNIFIED SOIL CLASSIFICATION SYSTEM

	MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS more than half > #200 sieve	GRAVELS more than half coarse fraction is larger than No. 4 sieve	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	▓	well graded gravels, gravel-sand mixtures
			GP	▒	poorly graded gravels, gravel-sand mixtures
		GRAVELS WITH OVER 12% FINES	GM	░	silty gravels, poorly graded gravel-sand silt mixtures
			GC	▓	clayey gravels, poorly graded gravel-sand clay mixtures
	SANDS more than half coarse fraction is smaller than No. 4 sieve	CLEAN SANDS WITH LITTLE OR NO FINES	SW	░	well graded sands, gravelly sands
			SP		poorly graded sands, gravelly sands
		SANDS WITH OVER 12% FINES	SM	⁞	silty sands, poorly graded sand-silt mixtures
			SC	▨	clayey sands, poorly graded sand-clay mixtures
FINE GRAINED SOILS more than half < #200 sieve	SILTS AND CLAYS liquid limit less than 50		ML	▥	inorg. silts and v.fine sands, rock flour silty or clayey sands, or clayey silts w/sl plasticity
			CL	▨	inorg. clays of low-med plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	▩	organic clays and organic silty clays of low plasticity
	SILTY AND CLAYS liquid limit greater than 50		MH	┄	inorganic silty, micaceous or diatomacious fine sandy or silty soils, elastic silts
			CH	▨	inorganic clays of high plasticity, fat clays
			OH	▨	organic clays of medium to high plasticity organic silts
	HIGHLY ORGANIC SOILS		Pt	≋	peat and other highly organic soils

LEGEND FOR BORING LOGS



ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVENUE, SUITE 110
ALAMEDA, CA 94501

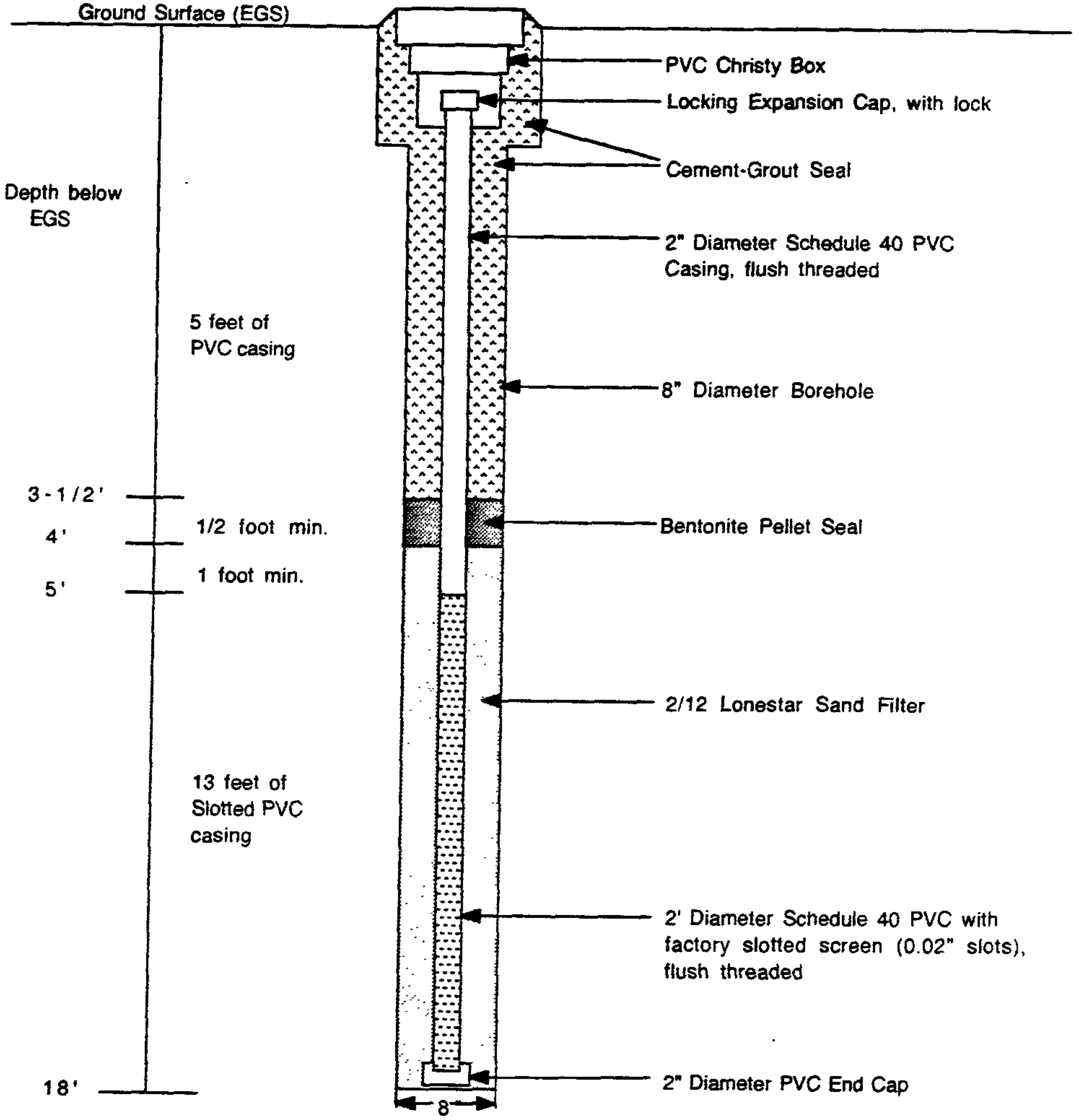
Soil Classification System

Project No. 6039-5

Date: 1/9/94

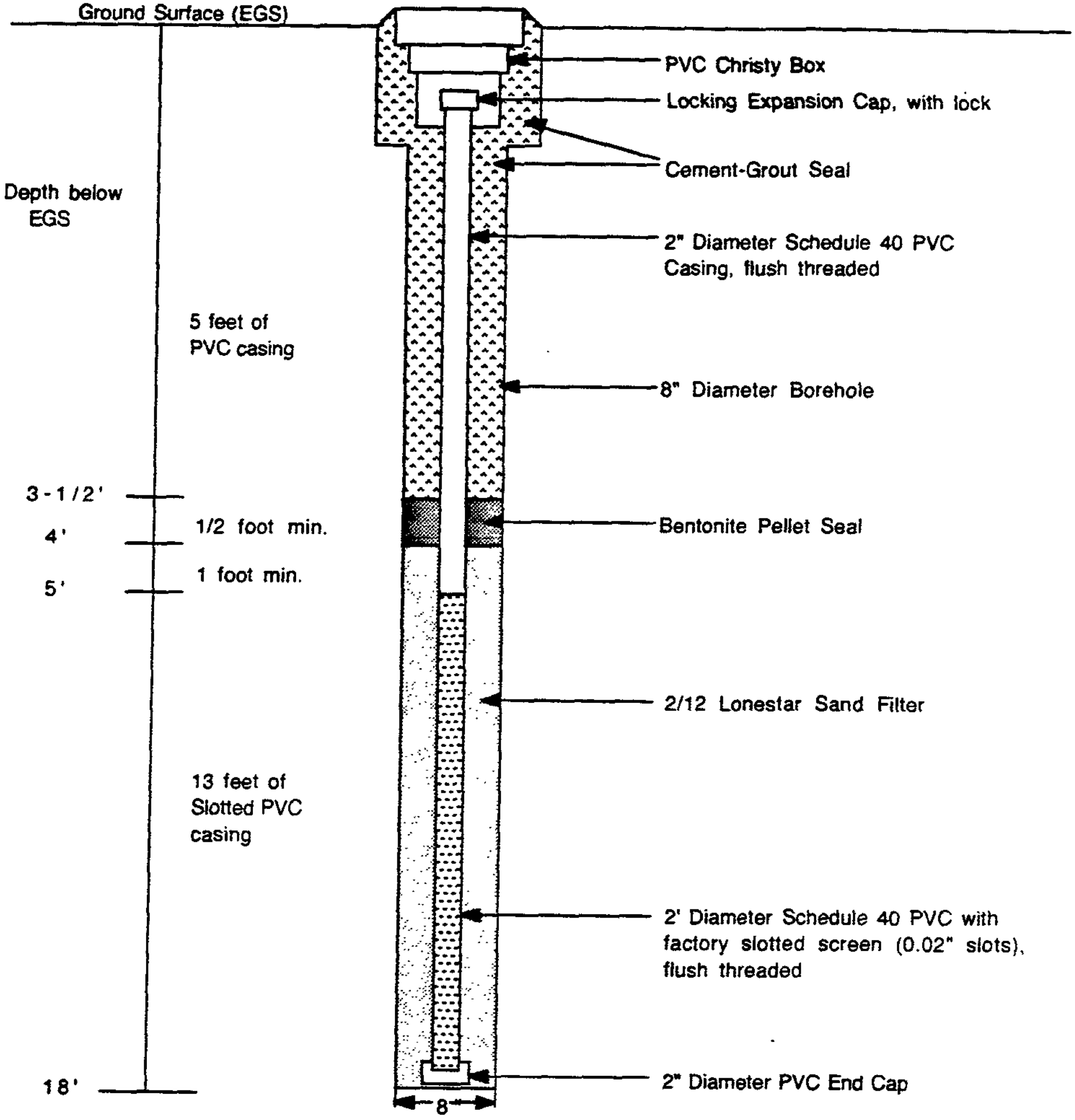
DRN: MCK

2425 Encinal Avenue
Alameda, CA



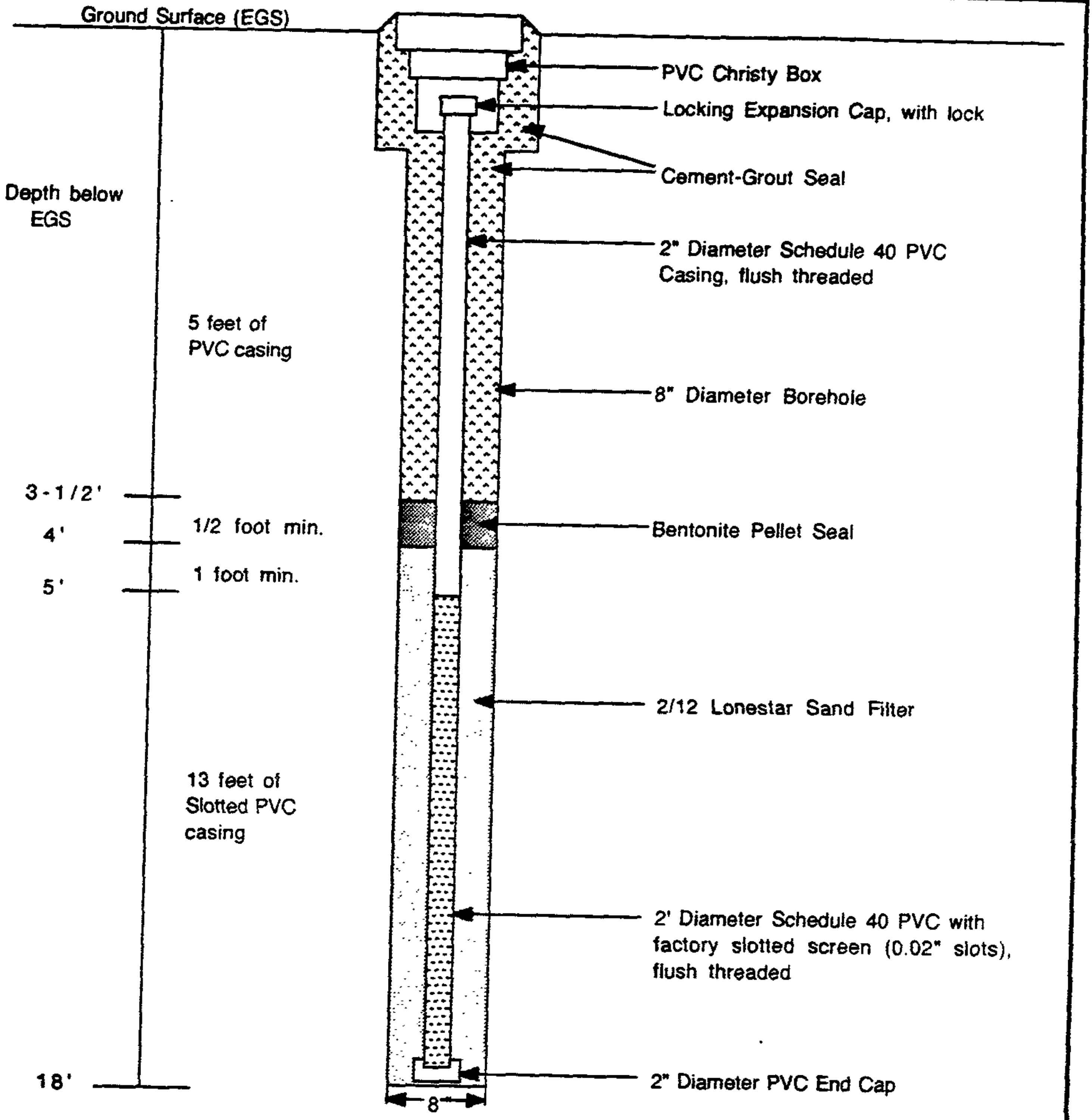
Actual dimensions from field illustrated on this schematic

ACC Environmental Consultants 1000 Atlantic Avenue, Suite 110 Alameda, CA 94501	Job No.: 6039-5	Alameda Cellars 2425 Encinal Avenue Alameda, California
	Date: 1/7/94	Schematic of Monitoring Well No.: MW-6



Actual dimensions from field illustrated on this schematic

ACC Environmental Consultants 1000 Atlantic Avenue, Suite 110 Alameda, CA 94501	Job No.: 6039-5	Alameda Cellars 2425 Encinal Avenue Alameda, California
	Date: 1/7/94	Schematic of Monitoring Well No.: MW-5



Actual dimensions from field illustrated on this schematic

ACC Environmental Consultants 1000 Atlantic Avenue, Suite 110 Alameda, CA 94501	Job No.: 6039-5	Alameda Cellars 2425 Encinal Avenue Alameda, California
	Date: 1/7/94	Schematic of Monitoring Well No.: MW-4

Gregg Drilling and Testing
Semco limited Access
(8" hollow stem auger)

Equipment: Calif. Modified Split Spoon
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/10/93

Soil color described using Munsell soil color charts Color code	*Blows/6" (approx.)	HNu (ppm)	SAMPLE #	Sample Int.	Depth (feet)	
					0	Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
					2	Fill: Dark brown silty sand (SM) with trace gravel, mottled reddish brown, medium dense, moist.
(10YR-3/3)					4	
(10YR-4/4)		0	MW-6 6		6	Merritt Sand: Dark yellowish brown sand (SP) fine grain, with trace clay, medium dense, very moist.
					8	
		0	MW-6 10-1/2 11		▼ 10	
					12	
					14	
		0	MW-6 15-1/2		16	Same as above, saturated
					18	BOTTOM OF BORING @ 18 FEET (Converted into Monitoring Well MW-6)
					20	
					22	
					24	
					26	
					28	

*Not collected using Limited Access Drill Rig

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-5

DATE: 1/7/94

Alameda Cellars
2425 Encinal Avenue
Alameda, California

LOG OF BORING MW-6

Gregg Drilling and Testing
B-53 Drill Rig.
(8" hollow stem auger)

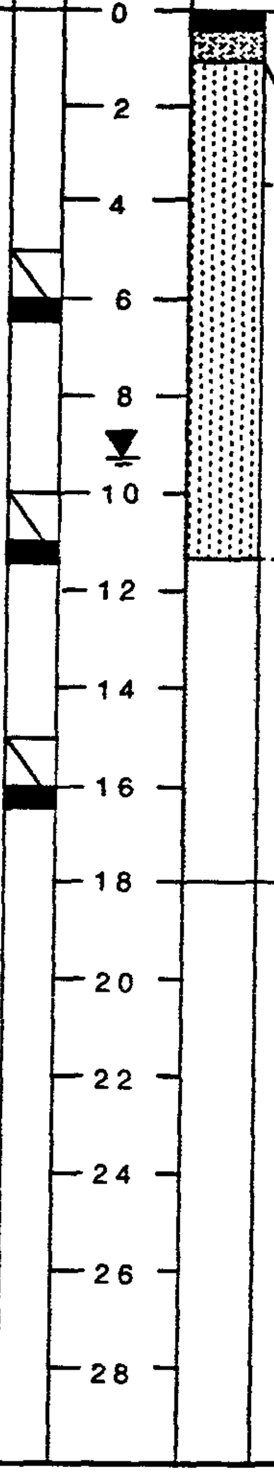
Equipment: Calif. Modified Split Spoon
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/10/93

Soil color described using Munsell soil color charts

Color code

(10YR-4/3)

Blows/6" (approx.)	HNu (ppm)	SAMPLE
15	0	MW-5 6
20	0	MW-5 11
30	0	MW-5 16



Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)

Fill: Brown clayey sand (SM) very fine grain, medium dense, moist.

Merritt Sand: Brown sand (SM) fine grain, medium dense, very moist.

Brown sand (SP) fine grain, medium dense, saturated.

BOTTOM OF BORING @ 18 FEET
(Converted into Monitoring Well MW-5)

ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-5

DATE: 1/7/94

Alameda Cellars
2425 Encinal Avenue
Alameda, California

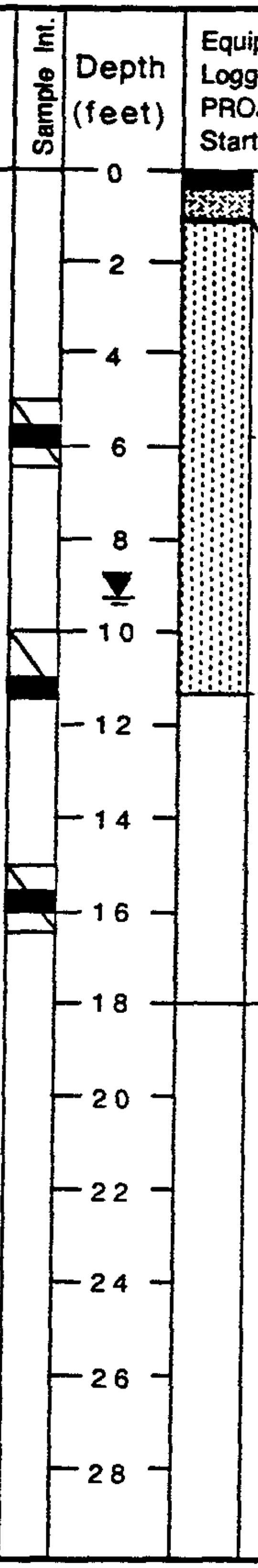
LOG OF BORING MW-5

Gregg Drilling and Testing
B-53 Drill Rig.
(8" hollow stem auger)

Equipment: Calif. Modified Split Spoon
Logged By: M. Kaltreider
PROJECT: 2425 Encinal
Start Date: 12/10/93

Soil color described using Munsell soil color charts

Color code	Blows/6" (approx.)	HNu (ppm)	SAMPLE #	
				Asphalt: 4" lift. Lt. brown silty gravel (GM) & clayey gravel (GC), med grained,dense (baserock)
				Fill: Brown silty sand (SM), medium dense, moist.
(5GY-4/1)	20	0	MW4 5-1/2	Merritt Sand: Dark greenish grey silty sand (SM), medium dense, very moist.
	18	1+	MW-4 11	Same as above, saturated, slight hydrocarbon odor.
	18	0	MW-4 16	Brown sand (SP), medium dense, saturated.
				BOTTOM OF BORING @ 18 FEET (Converted into Monitoring Well MW-4)



ACC ENVIRONMENTAL CONSULTANTS
1000 ATLANTIC AVEUNUE, SUITE 110
ALAMEDA, CA 94501

JOB NO: 6039-5

DATE: 1/7/94

Alameda Cellars
2425 Encinal Avenue
Alameda, California

LOG OF BORING MW-4

APPENDIX D

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

December 30, 1993

ChromaLab File#: 9312268

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 2425 ENCINAL
Project#: 6039-4
Submitted: December 21, 1993

re: 6 samples for Gasoline and BTEX analysis.

Matrix: WATER
Sampled on: December 20, 1993
Analyzed on: December 28, 1993
Method: EPA 5030/8015/602
Run#: 1928

Lab # SAMPLE ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
39957 MW-1	5200	270	58	170	590
39958 MW-2a	3300	450	40	200	350
39959 MW-3	690	31	10	31	25
39960 MW-4	580	2.3	N.D.	1.4	1.1
39961 MW-5	N.D.	N.D.	N.D.	N.D.	N.D.
39962 MW-6	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS	50	0.5	0.5	0.5	0.5
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)	97	102	97	91	94

ChromaLab, Inc.

Billy Thach

Billy Thach
Chemist

Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

22

SUBM #: 9312268
CLIENT: ACC
DUE: 12/29/93
REF: 14555

Order #14555
268/39957-39962

Chain of Custody

DATE 12/20/93 PAGE 1 OF 1

PROJ. MGR. Misty Kilbreider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave, Suite 110
Alameda, CA 94501
SAMPLERS (SIGNATURE)
(PHONE NO.) (510) 522-8188

ANALYSIS REPORT

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
✓ MW-1	12/20		Water	Cold		X																			2
✓ MW-2a	"		"	"		X																			2
✓ MW-3			"	"		X																			2
✓ MW-4			"	"		X																			2
✓ MW-5			"	"		X																			2
✓ MW-6			"	"		X																			2

PROJECT INFORMATION
PROJECT NAME: 6099-4 2435 Encinal
PROJECT NUMBER: 6039-4
P.O. #

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	12
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
(SIGNATURE) (TIME)
Carl Soane 12/21/93
(PRINTED NAME) (DATE)
ACC
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)

RELINQUISHED BY 3
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3
B. Marcel 1514
(SIGNATURE) (TIME)
B. Marcel 12-21-93
(PRINTED NAME) (DATE)

CHROMALAB, INC.

DOHS 1094

2239 Omega Road, #1 • San Ramon, California 94583
510/831-1788 • Facsimile 510/831-8798

Chain of Custody

DATE 12/20/93 PAGE 1 OF 1

PROJ. MGR. Misty Kaltreider
COMPANY ACC Environmental
ADDRESS 1000 Atlantic Ave, Suite 110
Alameda, CA 94501
SAMPLERS (SIGNATURE)
(PHONE NO.) (510) 522-8188

ANALYSIS REPORT

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
MW-1	12/20		Water	Cold		X																			2
MW-2a	"		"	"		X																			2
MW-3			"	"		X																			2
MW-4			"	"		X																			2
MW-5			"	"		X																			2
MW-6			"	"		X																			2

PROJECT INFORMATION

PROJECT NAME: 6039-4 2425 Encinal
PROJECT NUMBER: 6039-4
P.O. #

TAT [✓ STANDARD 5-DAY] 24 48 72 OTHER

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	12
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1.
(SIGNATURE) (TIME)
Carl Soane 12/21/93
(PRINTED NAME) (DATE)
ACC
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
1514
(SIGNATURE) (TIME)
B. Morrow 12-21-93
(PRINTED NAME) (DATE)
Chromalab

- 1987

DUN & BRADSTREET PLAN SERVICES
San Francisco, California

Senior Account Representative

Total responsibility for managing and maintaining employer-sponsored Health, Life, and Disability plans for insurance company (2300 small group accounts representing 6800 insured people). Administer the billing for each policy and generating correspondence relative to policy changes and billing activities. Extensive customer contact and auditing of accounts. Train newly hired Account Rep trainees. Received Employee-of-the-Month Award for closely interfacing with clients to meet their needs and provide continuous follow-up with clients. Typed confidential correspondence and memos for Managing Director. Company relocated to Fresno.

1972 - 1986

BLUE CROSS OF CALIFORNIA (TakeCare HMO)
Oakland, California

Associate Business Systems Analyst

Researched and analyzed membership processing systems and procedures to resolve current problems or to implement changes. Assisted in the formulation, presentation, and implementation of membership policy, procedure, and system changes. Only person selected by management to have access to Blue Cross company employee confidential records. Utilized the computer mainframe to type procedures, notes, and memos; BASIC FOCUS programming to retrieve reports; Lotus 1-2-3 to generate monthly financial reports. Developed/maintained operations manual. Systems department relocated to Woodland Hills.

Assistant Supervisor

Provided technical support and analyzed unit systems problems. Conducted, researched, and wrote recommendations. Instruct section employees in learning and performing duties and provided computer systems training. Monitor section workload, quality and quantity (maintained quality control for section personnel utilizing Lotus 1-2-3 on an IBM PC-XT). Wrote procedural descriptions of section duties. Created form letters that reduced the amount of time spent on composing letters. Promoted to Associate Business Systems Analyst.

Operations Assistant

Performed a variety of membership/accounting, processed applications and changes for groups and subscribers, maintained group (large & small) and individual account (direct pay) billing and receivables for monthly statement of dues, COB's and claims payments, customer service, data entry, and service functions. Prepared monthly capitation, stop loss, administrative payments. Conducted, researched, and submitted reports and recommendations. Assisted the supervisor and technical specialist in training new employees, scheduling workloads, and maintaining quality control. Typed confidential correspondence and memos for supervisor. Promoted to Assistant Supervisor.

EDUCATION

Honor Graduate, High School

Completed Business Courses including Business Math, Business English, Files and Records Controls, Typing and Office Practice, Accounting Principles

Special studies in Accounts Receivable Systems, BASIC FOCUS Programming, Lotus 1-2-3, Multimate, WordPerfect 5.1, Customer Service, and Business Communications

AFFILIATIONS

National Association for Female Executives

APPENDIX D

A·C·C
ENVIRONMENTAL
CONSULTANTS

April 26, 1994

Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

RE: Results of Quarterly Groundwater Sampling at
2425 Encinal, Alameda, California

Dear Mr. Chrissanthos:

Thank you for providing ACC with the opportunity to present this report.
The enclosed report describes the materials and procedures used during the quarterly groundwater investigation performed at 2425 Encinal, Alameda, California. This work was performed to evaluate the vertical extent of groundwater contamination.

Analysis of the groundwater samples from monitoring wells MW-1, MW-2, MW-3, and MW-4 indicated elevated concentrations of hydrocarbons. Analytical results of groundwater samples from monitoring wells MW-5 and MW-6 indicated below detectable levels of constituents indicating a lateral extent of contamination.

If you have any comments regarding this report, please call me.

Sincerely,

Misty Kaltreider

Misty C. Kaltreider
Geologist

cc: Mr. Richard Hiett - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Care Services - Division of Hazardous Materials

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

A·C·C
ENVIRONMENTAL
CONSULTANTS

QUARTERLY GROUNDWATER INVESTIGATION

2425 ENCINAL
ALAMEDA, CALIFORNIA

April 1994

Prepared for:
Mr. Steve Chrissanthos
Alameda Cellars
1702 Lincoln Avenue
Alameda, CA 94501

Prepared by: Misty Kaltreider
Misty Kaltreider
Project Geologist

Reviewed by: Christopher M. Palmer
Christopher M. Palmer, CEG #1262
Certified Engineering Geologist

REGISTERED GEOLOGIST
CHRISTOPHER M. PALMER
№ 1262
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

TABLE OF CONTENTS

TABLES

ATTACHMENTS

1.0 INTRODUCTION

This report presents the procedures and findings of the quarterly groundwater investigation conducted by ACC Environmental Consultants, Inc., ("ACC") on behalf of Mr. Steve Chrissanthos and Alameda Cellars, site owner at 2425 Encinal, Alameda, California. The project objective, as described in the Work Plan prepared on November 5, 1993, was to evaluate the extent of groundwater impact from the previous underground storage of gasoline.

2.0 BACKGROUND

The site is presently occupied by Alameda Cellars, a commercial liquor store. The property is owned by Mr. Steve Chrissanthos. In March, 1990, two 10,000-gallon gasoline tanks were removed from the above referenced site. Analysis of the soil samples collected from beneath the two gasoline tanks indicated up to 710 parts per million (ppm) of Total Petroleum Hydrocarbons (TPH) as gasoline. Soil samples collected from beneath the diesel tank indicated less than detectable levels of TPH as diesel.

In December 1992, five borings were drilled on-site. Three of the borings were converted into monitoring wells MW-1, MW-2a, and MW-3. Analytical results of the soil collected during drilling and soil sampling indicated a maximum soil concentration of Total Petroleum Hydrocarbons (TPH) as gasoline as 1,365 ppm. Benzene concentration was 18.9 ppm in the same sample.

Initial groundwater samples collected in January, 1993, from the monitoring wells indicated a maximum TPH-gasoline concentration of 5,680 ppb (MW-2a) and a maximum benzene concentration of 1,560 ppb (MW-1).

Additional soil investigation was conducted in May, 1993 to evaluate the extent of contamination in the soil and groundwater. Findings of the additional investigation indicated the lateral extent of hydrocarbon impacted soil did not appear to extend beyond the property boundaries along the northern, western, and eastern sides. However, along the southern side, the impacted soil appears to extend into Park and Encinal Avenues. Field observations made during the additional investigation and soil sample analysis indicated the soil hydrocarbon plume is primarily around the former tank excavation and the former dispenser island. The vertical limit of hydrocarbons in the soil is estimated to occur at the present groundwater table.

Analysis of "grab" groundwater samples collected from borings drilled during the additional investigation indicate the residual hydrocarbons from the former tank excavation and dispenser island is migrating off-site via the groundwater.

Per request of Alameda County Health Care Services - Hazardous Materials Division, this preliminary Site Assessment was conducted to further evaluate the groundwater contamination from the gasoline release on-site.

In December 1993, three additional monitoring wells (MW-4, MW-5, and MW-6) were installed to evaluate the extent of groundwater contaminate plume. Laboratory analysis of the soil collected from each boring indicated below detectable levels of constituents which verifies the lateral extent of soil contamination.

Laboratory analysis of the groundwater samples collected from monitoring well MW-5 and MW-6 indicated below detectable levels of constituents evaluated. The groundwater results indicated a lateral extent of groundwater contamination. Laboratory analysis of groundwater collected from monitoring well MW-4 indicated low detectable levels of constituents. Constituents reported from monitoring well MW-4 are low when compared with reported levels in monitoring wells MW-1, MW-2a, and MW-3. The location of the southern edge of the groundwater contaminant plume is just off-site to the south. This "side" gradient movement is attributed to the relatively flat gradient and possible recharge into the excavated area.

3.0 FIELD PROCEDURES

3.1 Groundwater Sampling

Groundwater samples were collected on March 18, 1994 from monitoring wells MW-1, MW-2a, MW-3, MW-4 and MW-5. Monitoring well MW-6 was not accesible during that sampling period. Groundwater sample was collected from monitoring well MW-6 on April 8, 1994. Prior to groundwater sampling the depth to the surface of the water table was measured from the top of the PVC casing using a Solinst Water Level Meter. Information regarding well elevations and groundwater level measurements is summarized in Table 1.

TABLE 1 - Groundwater Depth Information

Date Sampled	Depth to Groundwater (Ft.)	Groundwater Elevation (Ft.)
Well No. MW-1	Elevation of Top of Casing-27.61 MSL	
01/09/93	6.75	20.86
02/09/93	6.41	21.20
03/10/93	6.34	21.27
04/12/93	6.52	21.09
05/17/93	7.38	20.23
06/28/93	8.42	19.19
07/13/93	8.68	18.93
08/10/93	8.25	19.36
09/10/93	8.73	18.88
10/12/93	9.04	18.57
12/20/93	7.87	19.74
03/18/94	6.96	20.65
04/08/94	7.69	19.92
Well No. MW-2a	Elevation of Top of Casing-27.98 MSL	
01/09/93	7.06	20.92
02/09/93	6.63	21.35
03/10/93	6.57	21.41
04/12/93	6.77	21.21
05/17/93	7.61	20.37
06/28/93	8.68	19.30
07/13/93	8.94	19.04
08/10/93	8.66	19.32
09/10/93	8.95	19.03
10/12/93	9.36	18.62

TABLE 1 - Groundwater Depth Information, cont.

Date Sampled	Depth to Groundwater (Ft.)	Groundwater Elevation (Ft.)
Well No. MW-2a	Elevation of Top of Casing-27.98 MSL	
12/20/93	8.24	19.74
03/18/94	7.80	20.18
04/08/94	7.67	20.31
Well No. MW-3	Elevation of Top of Casing-27.89 MSL	
01/09/93	6.68	21.21
02/09/93	6.25	21.64
03/10/93	6.18	21.71
04/12/93	6.41	21.48
05/17/93	7.37	20.52
06/28/93	8.47	19.42
07/13/93	8.74	19.15
08/10/93	8.45	19.44
09/10/93	8.52	19.37
10/12/93	9.20	18.69
12/20/93	7.95	19.94
03/18/94	6.60	21.29
04/08/94	7.70	20.19
Well No. MW-4	Elevation of Top of Casing-26.97 MSL	
12/20/93	7.25	19.72
03/18/94	6.64	20.33
04/08/94	7.12	19.85
Well No. MW-5	Elevation of Top of Casing-27.34 MSL	
12/20/93	8.01	19.33
03/18/94	7.80	19.54
04/08/94	7.82	19.52
Well No. MW-6	Elevation of Top of Casing-28.03 MSL	
12/20/93	8.00	20.03
03/18/94	—	—
04/08/94	7.72	20.31

Notes: All measurements in feet
MSL = Mean Sea Level

After water-level measurements were taken, each on-site well was purged by hand using a designated disposable Teflon bailer for each well. Groundwater Ph, temperature and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Three to four well volumes were removed to purge each well. Worksheets of conditions monitored during purging are attached in Appendix C.

After the groundwater level had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using designated disposable Teflon bailers. Two 40 ml VOA vials, without headspace, were filled from the water collected from each monitoring well.

The samples were preserved on ice and submitted to Chromalab Inc. under chain of custody protocol. Laboratory results with chain of custody forms are attached in Appendix D.

4.0 FINDINGS

4.1 Analytical Results - Groundwater

One groundwater sample each from monitoring wells MW-1, MW-2a, MW-3, MW-4, MW-5, and MW-6 was collected and submitted to Chromalab for analysis for TPH as gasoline by EPA test method 5030 and BTEX by EPA test method 602. Analysis results from the groundwater samples are summarized in Table 2 and Figure 2. Copies of the analytical results are attached in Appendix B.

TABLE 2 - Analytical Results - Groundwater

Well Number	Date Collected	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	01/09/93	5,360	1,560.0	1,026.6	641.0	2,706.2
	04/12/93	12,000	750.0	100.0	500.0	1,400.0
	07/13/93	720	119.6	32.7	70.8	262.0
	10/12/93	8,400	420.0	39.0	280.0	880.0
	12/20/93	5,200	270.0	58.0	170.0	590.0
	03/18/94	18,000	570.0	180.0	270.0	1,500.0
	04/08/94	NT	NT	NT	NT	NT
MW-2a	01/09/93	5,680	801.6	598.6	840.2	2,196.1
	04/12/93	12,000	460.0	110.0	240.0	1,600.0
	07/13/93	550	145.2	47.5	126.8	127.4
	10/12/93	2,000	280.0	17.0	100.0	120.0
	12/20/93	3,300	450.0	40.0	200.0	350.0
	03/18/94	7,900	370.0	53.0	190.0	530.0
	04/08/94	NT	NT	NT	NT	NT
MW-3	01/09/93	<50	<0.5	<0.5	<0.5	<0.5
	04/12/93	1,500	95.0	30.0	46.0	85.0
	07/13/93	540	18.3	106.2	75.7	128.0
	10/12/93	3,500	290.0	230.0	210.0	460.0
	12/20/93	690	31.0	10.0	31.0	25.0
	03/18/94	450	9.6	11.0	5.5	23.0
	04/08/94	NT	NT	NT	NT	NT
MW-4	12/20/93	580	2.3	<0.5	1.4	1.1
	03/18/94	2,100	11.0	1.5	2.3	6.0
	04/08/~~0~~4 9	NT	NT	NT	NT	NT

TABLE 2 - Analytical Results - Groundwater

Well Number	Date Collected	TPH-gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-5	12/20/93	<50	<0.5	<0.5	<0.5	<0.5
	03/18/94	<50	<0.5	<0.5	<0.5	<0.5
	04/08/94	NT	NT	NT	NT	NT
MW-6	12/20/93	<50	<0.5	<0.5	<0.5	<0.5
	03/18/94	NT	NT	NT	NT	NT
	04/08/94	<50	<0.5	<0.5	<0.5	<0.5

Notes: ug/L = parts per billion (ppb)
NT = Not Tested

4.2 Groundwater Gradient

Prior to calculating the groundwater gradient, elevations for the on-site monitoring wells were surveyed by Ron Archer Civil Engineer, Inc. to an accuracy of one-hundredth of a foot. The well elevation was surveyed at the top of the PVC well casing. The elevations of the monitoring wells were established relative to a nearby benchmark located in the curb on the northwest corner of the intersection of Park and Encinal Avenues in Alameda, California.

The groundwater gradient was calculated using the on-site monitoring wells. The location of the wells is shown on Figure 1 - Site Plan. Groundwater elevations were collected from monitoring wells MW-1, MW-2a, MW-3, MW-4, and MW-5 on March 18, 1994 (illustrated in Figure 2). Groundwater elevations were collected from all on-site wells on April 8, 1994 (illustrated on Figure 3.) The gradient was evaluated by triangulation using the elevation of the potentiometric surface measured with respect to Mean Sea Level datum.

The historical groundwater gradient and the direction of groundwater flow on-site is summarized in Table 3.

TABLE 3 - Historic Groundwater Gradient

Date Monitored	Gradient (foot/foot)	Direction
01/09/93	0.009	west
02/09/93	0.013	southwest
03/10/93	0.012	west/southwest
04/12/93	0.012	west/southwest
05/17/93	0.0078	south/southwest
06/28/93	0.0076	southwest
07/13/93	0.0058	southwest
08/10/93	0.004	west
09/10/93	0.015	southwest
10/12/93	0.004	southwest
12/20/93	0.0083	west
03/18/94	0.018	west
04/08/94	0.011	west

5.0 CONCLUSION

The data and observations discussed herein indicate that groundwater has been impacted due to an unauthorized hydrocarbon release. The analytical parameters used for soil and groundwater sampling performed were in accordance with the guidance document "Tri-Regional Water Quality Control Boards Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites", dated August 10, 1990, for gasoline tanks.

First quarter sampling and analysis indicated elevated levels of TPH as gasoline with BTEX in the groundwater from monitoring well MW-1 and MW-2a. Groundwater from monitoring well MW-3 has below detectable levels of constituents. Second quarterly sampling and analysis of the groundwater in April indicated an increase in levels of Total Petroleum Hydrocarbons as gasoline in all wells, however, the benzene, toluene, ethylbenzene and xylenes levels have declined in water samples from monitoring wells MW-1 and MW-2a. Constituents detected during July 1993 appear decreasing due to the fluctuating groundwater elevation. During October 1993 sampling, constituents in monitoring wells MW-1 and MW-3 have increased while only TPH as gasoline and benzene have increased in monitoring well MW-2a. Benzene increase in MW-2a is probably due to residual drainage and the well's close proximity to the former tank location and/or contaminate desorbation from sediment.

Three additional monitoring wells (MW-4, MW-5, and MW-6) were installed to evaluate the extent of groundwater contaminate plume. Laboratory analysis of the soil collected from each boring indicated below detectable levels of constituents which verifies the lateral extent of soil contamination.

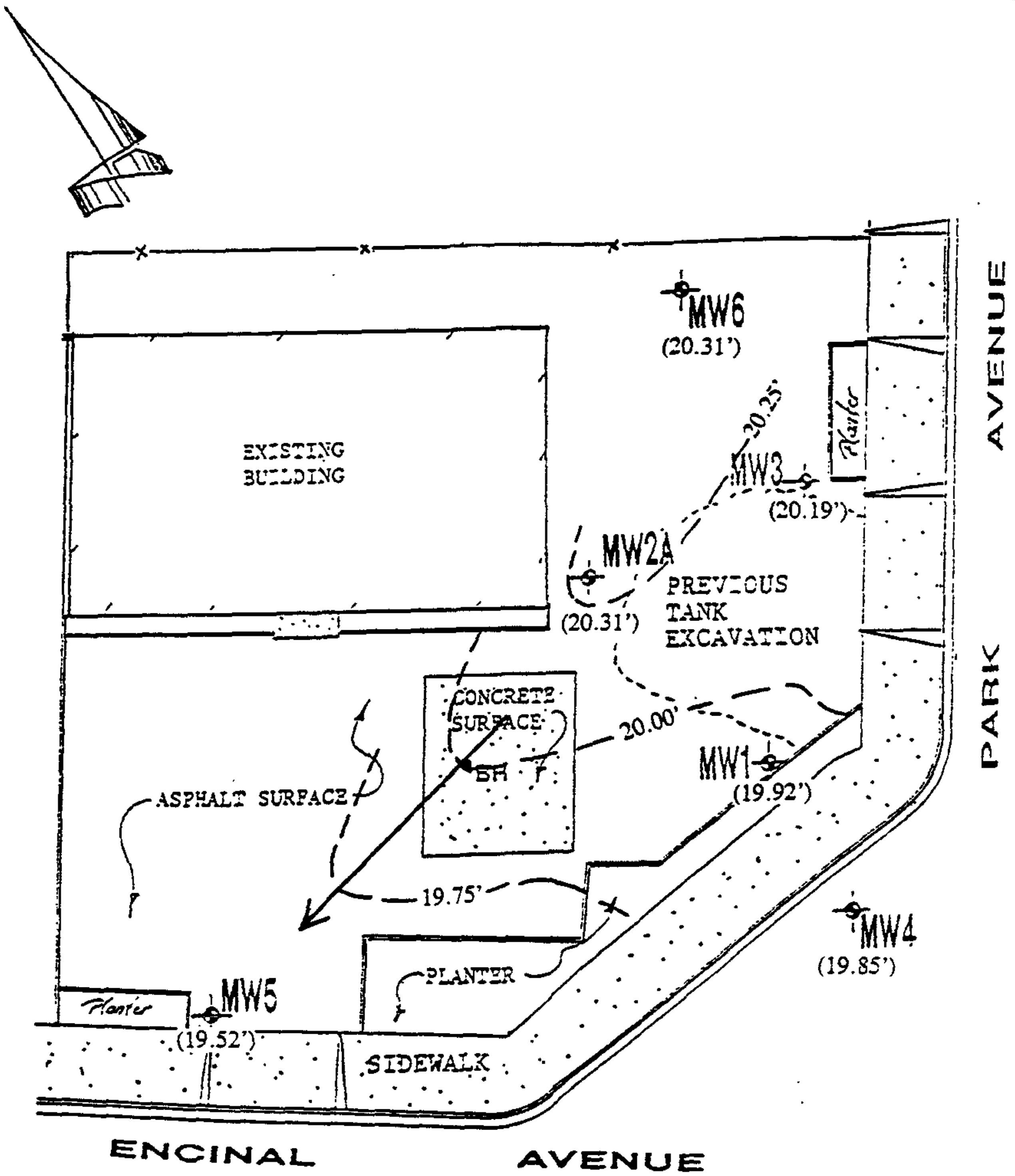
Laboratory analysis of the groundwater samples collected from monitoring well MW-5 and MW-6 in January and March - April, 1994 indicated below detectable levels of constituents evaluated. The groundwater results indicated a lateral extent of groundwater contamination. Laboratory analysis of groundwater collected from monitoring well MW-4 indicated low detectable levels of constituents.

The location of the southern edge of the groundwater contaminant plume is just off-site to the south. This "side" gradient movement is attributed to the relatively flat gradient and possible recharge into the excavated area causing lateral movement. However, the data to date indicate that contaminant movement is minimal.

6.0 RECOMMENDATIONS

Pursuant to the Tri-Regional Board guidelines, groundwater sampling and monitoring of the on-site wells should continue on a quarterly basis.

Pursuit to the CCR Title 23, Chapter 16, Articles 5, 7, and 11 of the Underground Storage Tank regulations a Corrective Action Plan is being drafted to determine the method of cleanup. The Corrective Action Plan will identify and evaluate the appropriate corrective actions for the property located at 2425 Encinal Avenue.



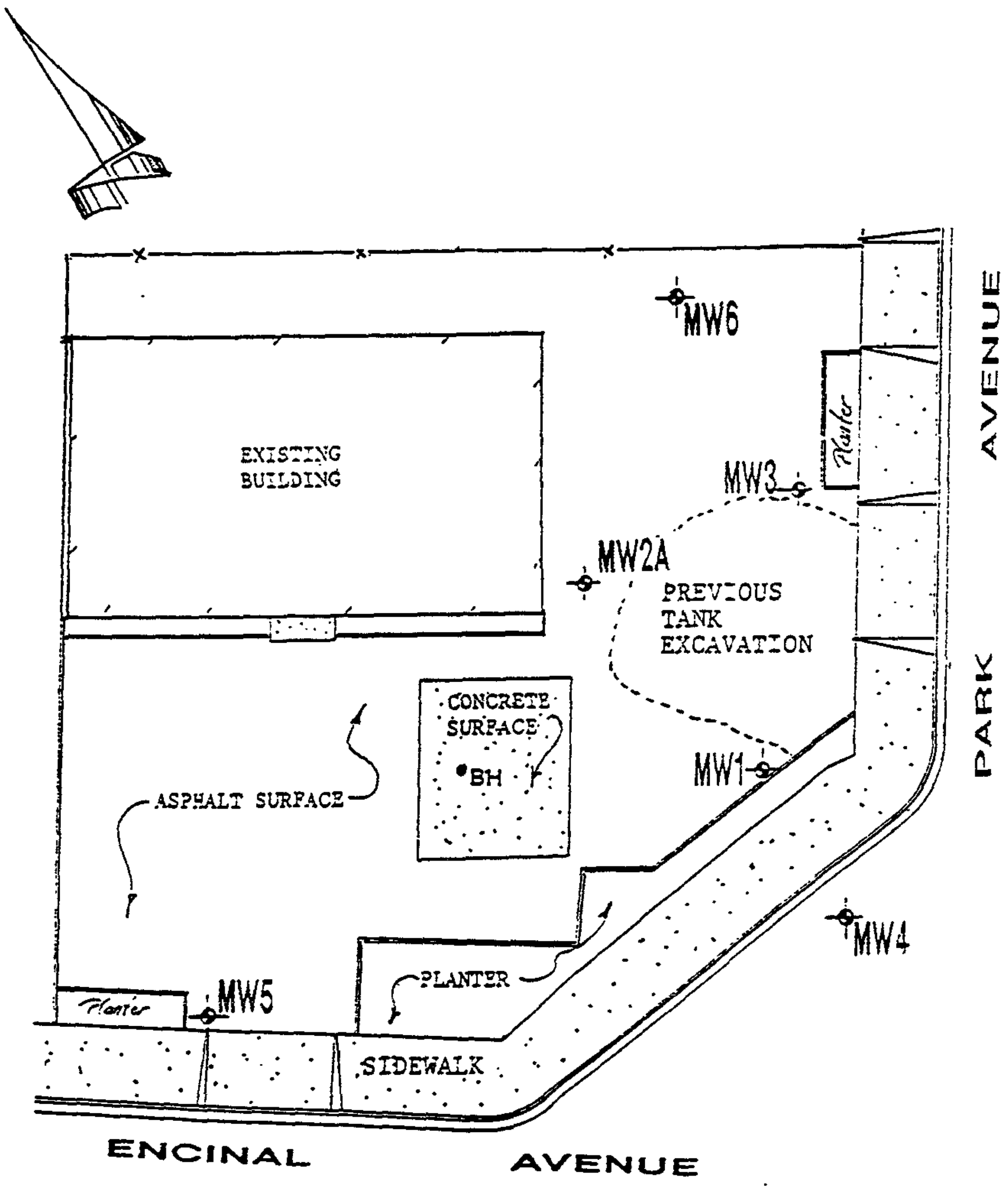
Scale: 1" = 20'

All Elevations in Feet Above Mean Sea Level

Figure 3

Project # 6039-5	4/12/94	Drawn By: TRF	Alameda Cellars 2425 Encinal Avenue	Groundwater Gradient 04/08/94

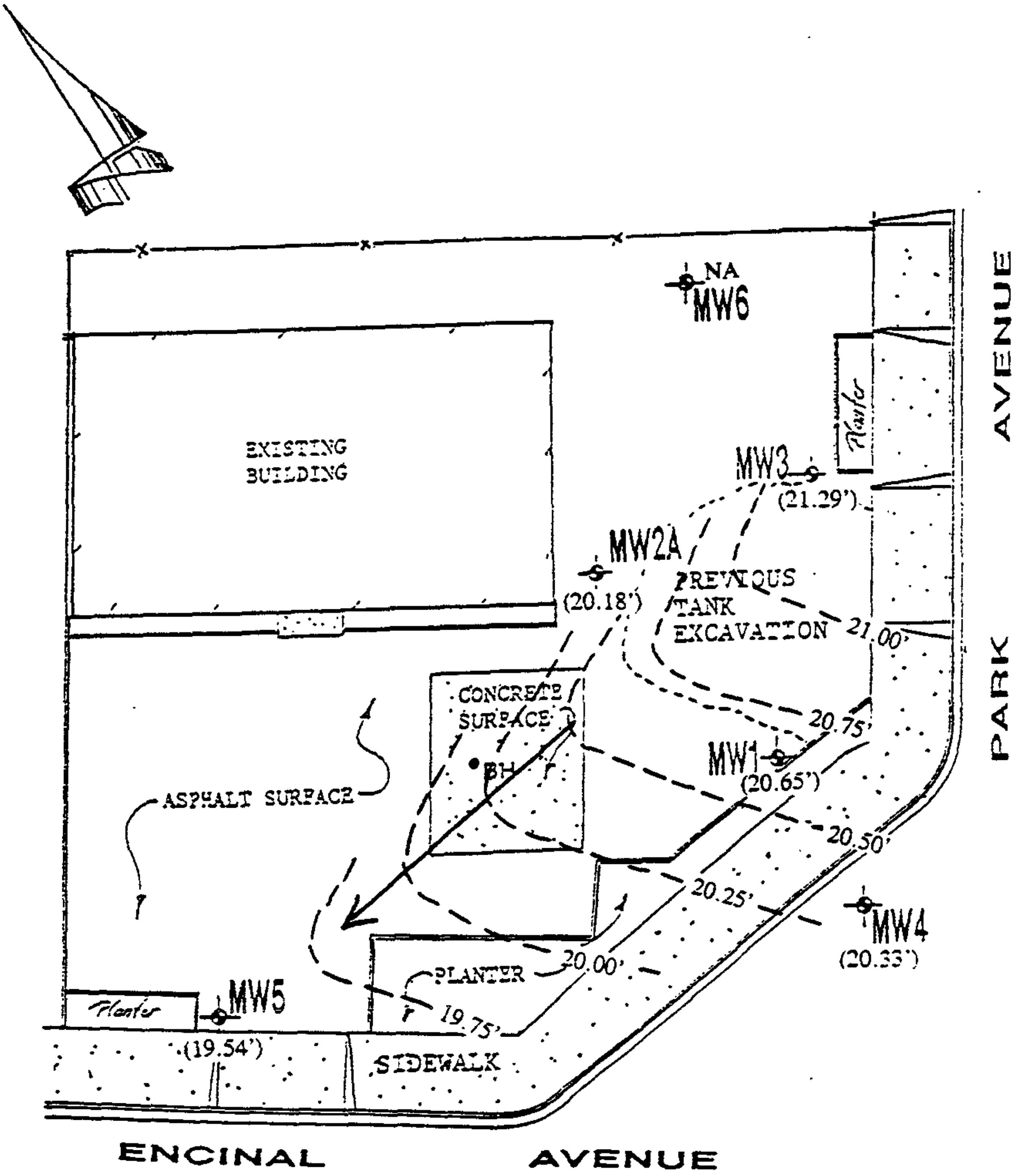
ACC Environmental Consultants • 1000 Atlantic Ave, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731



Scale: 1" = 20'

Project # 6039-5	1/12/94	Drawn By: TRF	Alameda Cellars 2425 Encinal Avenue	Site Plan Figure 1

ACC Environmental Consultants • 1000 Atlantic Ave. Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731



All Elevations in Feet Above Mean Sea Level

Scale: 1" = 20'

Figure 2

Project # 6039-5	4/12/94	Drawn By: TRF	Alameda Cellars 2425 Encinal Avenue	Groundwater Gradient 03/18/94

ACC Environmental Consultants • 1000 Atlantic Ave, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731

APPENDIX A

Well Sampling ☑ Well Development ☐ check one

Depth to Wate
(From TOC)

MW1: 7.69'
MW2: 7.67'
MW3: 7.70'
MW4: 7.12
MW5: 7.82

Well Number: MW6
Job Number: ~~6039~~ 6039-5
Job Name: 2425 Encinal
Date: 4.8.94
Sampler: Bart Gilbert

Depth to Water (measured from TOC): 7.72
Inside Diameter of Casing: 2'
Depth of Boring: 18'
Method of well development/purging: Bail
Amount of Water Bailed/Pumped from well: 7.0 g
Depth to Water after well development: 3
Depth to water prior to sampling: 7.81
Bailed water stored on-site ? How ? Drums
Number of well volumes removed: 4
TSP wash, distilled rinse, new rope ? new

Water Appearance:

	yes	no
froth	☐	☑
irridesence	☐	☑
oil	☐	☑
smell	☐	☑
product	☐	☑
other, describe	☐	☑

Gallons Removed	pH	EC	Temp
5	7.89	.46	61.2
10	7.52	.44	62.9
15	7.70	.46	62.9
20	7.79	.47	62.7
25	7.80	.42	62.6
30	7.65	.51	62.6
35	7.67	.51	62.7
40	7.65	.51	62.6
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ Well Development ☐ check one

Well Number: MW5

Job Number: 6039-5

Job Name: 2425 Encinal

Date: 3-18-94

Sampler: Bert Gilbert

Depth to Water (measured from TCC): 7.80

Inside Diameter of Casing: 2"

Depth of Boring: 18'

Method of well development/purging: bail

Amount of Water Bailed/Pumped from well: 6.4

Depth to Water after well development: ~~7.40'~~

Depth to water prior to sampling: 7.40'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New

Water Appearance:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		87	69.8
10		71	696
15		88	685
20		78	698
25		78	698
30		78	699
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ Well Development ☐ check one

Well Number: MW1

Job Number: 6039-5

Job Name: 2425 Encinal

Date: 3·18·94·

Sampler: Burt Gilbert

Depth to Water (measured from TCC): 6.76'

Inside Diameter of Casing: 2"

Depth of Boring: 17.67

Method of well development/purging: bail

Amount of Water Bailed/Pumped from well: 7.2

Depth to Water after well development:

Depth to water prior to sampling: 7.32'

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New

Water Appearance:

	yes	no
froth		✓
irricesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		85	644
10		82	645
15		.79	69.5
20		.80	64.5
25		80	641
30		80	641
35		80	642
40			
45			
50			

Samples Obtained:

- TPH (gasoline) ☐
- TPH (diesel) ☐
- TPH (motor oil) ☐
- BTXE ☐
- EPA 624 ☐
- EPA 625 ☐
- EPA 608 ☐
- PCBs only ☐
- Metals ☐
- Other, specify ☐
- Field Blank ☐

Well Sampling ☑ Well Development ☐ check one

Need to call Matt in advance And also do sampling M-W, next F - to Past

Well Number: MW2

Job Number: 6039-5

Job Name: 2425 Encinal

Date: 3-18-94

Sampler: Bert Colbert

Depth to Water (measured from TCC): 7.80'

Inside Diameter of Casing: 2"

Depth of Boring: 14.46

Method of well development/purging: Bail

Amount of Water Bailed/Pumped from well: 4.4

Depth to Water after well development:

Depth to water prior to sampling: 7.90

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New

Water Appearance:

	yes	no
froth		✓
irricesence		✓
oil		✓
smell	✓	✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		76	64.2
10		76	64.7
15		75	64.6
20		74	64.5
25		74	64.4
30		74	64.1
35		73	64.1
40		73	[illegible]
45			
50			

Samples Obtained:

TPH (gasoline)	☑
TPH (diesel)	☐
TPH (motor oil)	☐
BTXE	☑
EPA 624	☐
EPA 625	☐
EPA 608	☐
PCBs only	☐
Metals	☐
Other, specify	☐
Field Blank	☐

Well Sampling ☑ Well Development ☐ check one

Well Number: MW3

Job Number: 6039-5

Job Name: 2425 Encinal

Date: 3.18.94

Sampler: Bert Culbert

Depth to Water (measured from TOC): 6.60

Inside Diameter of Casing: 2"

Depth of Boring: 13.82

Method of well development/purging: bail

Amount of Water Bailed/Pumped from well: 7.2 Gallons

Depth to Water after well development:

Depth to water prior to sampling: 7.21

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New

Water Appearance:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		85	54.4
10		84	64.6
15		83	64.6
20		82	644
25		82	64.4
30		61	64.1
35		61	64.1
40		60	642
45			
50			

Samples Obtained:

TPH (gasoline)	☑	5030/8015
TPH (diesel)	☐	
TPH (motor oil)	☐	
BTXE	☑	602 VOA
EPA 624	☐	
EPA 625	☐	
EPA 608	☐	
PCBs only	☐	
Metals	☐	
Other, specify	☐	
Field Blank	☐	

3X

Well Sampling ☑ Well Development ☐ check one

Well Number: MW4

Job Number: 6039

Job Name: 2425 Encinal

Date: 3·10·94

Sampler: Bert Culbert

Depth to Water (measured from TOC): 6.64

Inside Diameter of Casing: 2

Depth of Boring: 18'

Method of well development/purging: bail

Amount of Water Bailed/Pumped from well: 8.0

Depth to Water after well development:

Depth to water prior to sampling: 6.69

Bailed water stored on-site ? How ? Drums

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New

Water Appearance:

	yes	no
froth		✓
irridesance		✓
oil		✓
smell	✓	
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5		92	620
10		92	635
15		93	635
20		93	635
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	
TPH (motor oil)	[illegible]
BTXE	✓
EPA 624	
EPA 625	
EPA 608	
PCBs only	
Metals	
Other, specify	
Field Blank	

APPENDIX B

CHROMALAB, INC.

Environmental Services (SDB)

March 29, 1994 ChromaLab File#: 9403325

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 2425 ENCINAL **Project#:** 6039-5
Received: March 22, 1994

re: 5 samples for Gasoline and BTEX analysis.

Matrix: WATER
Sampled on: March 18, 1994 *Analyzed on:* March 23, 1994
Method: EPA 5030/8015/602 *Run#:* 2519

Lab # SAMPLE ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
47264 MW1	18000	570	180	270	1500
47265 MW2	7900	370	53	190	530
47266 MW3	450	9.6	11	5.5	23
47267 MW4	2100	11	1.5	2.3	6.0
47268 MW5	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS	50	0.5	0.5	0.5	0.5
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)	112	89	98	99	103

ChromaLab, Inc.

Billy Thach

Billy Thach
Chemist

Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

22 SUBM #: 9403325
CLIENT: ACC
DUE: 03/29/94
REF: 15698

Order # 15698
325/47264 – 68

Chain of Custody

DATE March 18, 1994 PAGE 1 OF 1

PROJ. MGR. Misty Kaltwieder
COMPANY ACC Environmental Consultants
ADDRESS 1000 Atlantic, 110 Suite
ALAMEDA, CA 9

SAMPLERS (SIGNATURE) (PHONE NO.)
Bret Culbert (510)

ANALYSIS REPORT

SAMPLE ID	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
MW1	3·18·94	5:00pm	H2O	cold	✓			✓																	3
MW2					✓			✓																	3
MW3					✓			✓																	3
MW4					✓			✓																	3
MW5					✓			✓																	3

PROJECT INFORMATION

PROJECT NAME:
2425 Encinal
PROJECT NUMBER:
6039-5
P.O. #

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	15
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT	[✓ STANDARD 5-DAY]			24	48	72	OTHER

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY 1
Bret Culbert 5:00 pm
(SIGNATURE) (TIME)
BRET Culbert 3·18·94
(PRINTED NAME) (DATE)
ACC Environmental Consulting
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
1205
(SIGNATURE) (TIME)
3·22·94
(PRINTED NAME) (DATE)
Chromalab
(COMPANY)

CHROMALAB, INC.

Environmental Services (SDB)

April 11, 1994 ChromaLab File#: 9404099

ACC ENVIRONMENTAL CONSULTANTS

Atten: Misty Kaltreider

Project: 2425 ENCINAL **Project#:** 6039-5
Received: April 8, 1994

re: 1 sample for Gasoline and BTEX analysis.

Matrix: WATER
Sampled on: April 8, 1994 *Analyzed on:* April 11, 1994
Method: EPA 5030/8015/602 *Run#:* 2630

Lab # SAMPLE ID	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
48536 MW6	N.D.	N.D.	N.D.	N.D.	N.D.
DETECTION LIMITS	50	0.5	0.5	0.5	0.5
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE RECOVERY(%)	94	110	115	113	116

ChromaLab, Inc.

Jack Kelly
Chemist

Eric Tam
Laboratory Director

CHROMALAB, INC.

DOHS 1094

2239 Omega Road San Ramon
510/831-1788 • Facsimile 51

RUSH

SUBM #: 9404099
CLIENT: ACC
DUE: 04/11/94
REF: 15912

15912
48536

Custody

DATE April 8, 1994 PAGE 1 OF 1

PROJ. MGR. Misty Kaltwieder
COMPANY ACC Environmental Consulting
ADDRESS 1000 Atlantic Ave, Suite 110
Alameda, CA 94501

SAMPLERS (SIGNATURE) (PHONE NO.)
Bret Culbert (510) 522-8188

ANALYSIS REPORT

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	TPH - Gasoline (EPA 5030, 8015)	TPH - Gasoline (5030, 8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510/3550, 8015)	PURGEABLE AROMATICS BTEX (EPA 602, 8020)	PURGEABLE HALOCARBONS (EPA 601, 8010)	VOLATILE ORGANICS (EPA 624, 8240, 524.2)	BASE/NEUTRALS, ACIDS (EPA 625/627, 8270, 525)	TOTAL OIL & GREASE (EPA 5520, B+F, E+F)	PCB (EPA 608, 8080)	PESTICIDES (EPA 608, 8080)	TOTAL RECOVERABLE HYDROCARBONS (EPA 418.1)		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (17)	PRIORITY POLLUTANT METALS (13)	TOTAL LEAD	EXTRACTION (TCLP, STLC)				NUMBER OF CONTAINERS
✓ MW6	4.8.94	11 am	Water	Cold		✓																			3

PROJECT INFORMATION

PROJECT NAME: 2425 Encinal
PROJECT NUMBER: 6039-5
P.O. # 6039-5

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS	3
HEAD SPACE	
REC'D GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT ~~STANDARD 5-DAY~~ 24 48 [✓ 72] OTHER

SPECIAL INSTRUCTIONS/COMMENTS:
72 hr. TAT
(4/11/94) Monday, if poss.

RELINQUISHED BY 1.
Bret Culbert 11 am
(SIGNATURE) (TIME)
BRET CULBERT 4.8.94
(PRINTED NAME) (DATE)
ACC Environmental Consulting
(COMPANY)

RELINQUISHED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 1
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY 2.
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3.
B. Morrow 1442
(SIGNATURE) (TIME)
B. Morrow 4-8-94
(PRINTED NAME) (DATE)
Chromalab
(COMPANY)