P & D ENVIRONMENTAL
A Division of Paul H. King, Inc.
4020 Panama Court
Oakland, CA 94611
(510) 658-6916

October 10, 1996
Work Plan 0067.W2

Ms. Eva Chu
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

① If a perched water layer is encountered collect water from this zone too.
② Also collect soil for porosity + bulk density in addition to TOC

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN
Former Service Station
5330 Foothill Blvd.
Oakland, CA

Dear Ms. Chu:

P&D Environmental (P&D) is pleased to present this work plan for the investigation of petroleum hydrocarbons in soil in the vicinity of the subject site. This work plan is prepared in accordance with a request during a meeting from Eva Chu of the Alameda County Department of Environmental Health (ACDEH) on July 15, 1996. The proposed scope of the investigation includes the drilling of three offsite soil borings to evaluate the depth to groundwater and the extent of petroleum hydrocarbons in soil to the east and south of the subject site. A fourth offsite borehole designated as B13 is proposed in the event that petroleum hydrocarbons are detected in the borehole designated as B11. A Site Location Map is attached as Figure 1, and a Site Vicinity Map showing the proposed soil boring locations, designated as B10, B11, B12, and B13, is attached as Figure 2.

All work will be performed under the direct supervision of an appropriately registered professional. This work plan is prepared in accordance with guidelines set forth in the document "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites" dated August 10, 1990 and "Appendix A - Workplan for Initial Subsurface Investigation" dated August 20, 1991.

BACKGROUND

Two previous subsurface investigations were performed at the site by P&D. The subsurface investigations consisted of the drilling of a total of nine soil borings and the collection of soil and groundwater grab samples. Documentation of these investigations is presented in P&D's Subsurface Investigation Reports 0067.R1 dated September 26, 1994 and 0067.R2 dated June 14, 1995.

On July 12, 1996 Paul King of P&D met with Keith Simas of XTRA OIL Company and Ms.Eva Chu of the ACDEH to discuss appropriate further activities at or near the subject site. During the meeting it was revealed that the corner residential property located immediately to the east of the subject site on the north side of Foothill Boulevard was formerly a gasoline station. Based upon the results of the meeting, it was determined that the activities identified in this work plan would be performed. This work plan was subsequently requested in a letter dated July 15, 1996 from Ms. Chu addressed to Mr. Simas.

SCOPE OF WORK

The scope of work proposed by P&D entails the following activities.

- Obtain property access from the present property owners; obtain permits from the Alameda Water Agency, Zone 7; obtain permits from the City of Oakland; notify Underground Service Alert; notify the Alameda County Department of Environmental Health (ACDEH) of the date of field activities, and prepare a health and safety plan.

- Drilling of three soil borings to evaluate the depth to groundwater and the subsurface distribution of petroleum hydrocarbons to the east and south of the subject site. A fourth borehole (B13) is proposed in this work plan in the event that petroleum hydrocarbons are detecetd in B11. Soil samples will be collected from the boreholes at a maximum five foot intervals, at changes in lithology, and at any areas of obvious contamination for borehole logging purposes. The samples will be evaluated with a Photoionization Detector (PID), and at least two soil sample will be selected from each borehole for laboratory analysis. All of the boreholes will be advanced to a depth of 40 feet below grade, or until groundwater is encountered. A groundwater grab sample will be collected from each of the boreholes using a Teflon bailer where groundwater is encountered.

- Arrange for laboratory analysis of the soil samples and any groundwater grab samples for Total Petroleum Hydrocarbons as Gasoline (TPH-G); for MTBE; and for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

- Report preparation documenting the results of the sample collection procedures and the laboratory analytical results.

Each of these is discussed below in detail.

Regulatory Agency Coordination

Following approval of this work plan, bids will be solicited from three different contractors for the scope of work set forth in this work plan to satisfy the requirements of the State Water Resources Control Board UST Cleanup Fund. After the bids have been received and the contract for the work has been awarded, a permit application will be submitted to the Zone 7 Water Agency, and the City of Oakland for the installation of the borings.

After the permits have been approved, Underground Service Alert will be notified for underground utility location and a date scheduled for the installation of the soil borings and the collection of soil samples. The date for field work will be set for the earliest possible date available, and the ACDEH will be notified of the date by telephone as soon as it has been set. Prior to the beginning of field work, a health and safety plan will be prepared.

Soil Boring Installation

Three soil borings, designated as B10, B11, and B12, are proposed to evaluate the depth to groundwater and the extent of petroleum hydrocarbons in soil to the east and south of the subject site. In the event that petroleum hydrocarbons are detected in the borehole designated as B11, a fourth borehole designated as B13 will be drilled. A Site Vicinity Map showing the proposed soil boring locations is attached with this work plan as Figure 2.

The boreholes will be drilled using a 1.5-inch outside diameter geoprobe. The geoprobe sampler will be washed with an Alconox solution followed by a clean water rinse prior to use in each borehole. The boreholes will be advanced to a depth of 40 feet below grade. Soil samples will be collected from the boreholes into brass tubes at a maximum of five foot intervals, at changes in lithology and at any areas of obvious contamination using a geoprobe soil sampler lined with brass tubes. The soil samples will be logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System.

Soil samples will be evaluated using a model 580B OVM photoionization detector (PID) equipped with a 10.3 eV bulb, and retained in the brass tubes

pending selection for laboratory analytical purposes. The PID will be calibrated prior to use at the site using a 100 ppm isobutylene standard. The ends of the brass tubes for these samples will be successively sealed with aluminum foil and plastic endcaps. The brass tubes will then be labeled, placed into ziplock baggies, and stored in a cooler with ice pending selection for delivery to a State-accredited hazardous waste testing laboratory. Chain of custody procedures will be observed for all sample handling.

The soil sample from each borehole exhibiting the highest PID reading will be retained for laboratory petroleum hydrocarbon analysis. In addition, if organic vapors are detected with the PID, the first sample which does not exhibit PID values and which is encountered below the depth at which the highest PID value was encountered will also be retained for petroleum hydrocarbons analysis. If organic vapors are detected in all of the samples below the sample exhibiting the highest PID value, the soil sample from the bottom of the borehole will be submitted for laboratory petroleum hydrocarbon analysis. If no organic vapors are detected in any of the samples in the borehole the samples from the 20 and 40 foot depths will be retained for sample analysis for petroleum hydrocarbon analysis.

At least one sample which does not exhibit evidence of petroleum hydrocarbons will be retained from each borehole for total organic carbon (TOC) analysis. bulk density, Porosity

In the event that groundwater is encountered, groundwater samples will be collected from the boreholes using the Geoprobe's screen point groundwater sampler. The sampler will be washed with an Alconox solution and clean water rinse prior to use in each borehole. The groundwater samples will be transferred from the sampler to 40-milliliter Volatile Organic Analysis (VOA) vials and capped with Teflon-lined screw caps. The VOAs will be overturned and tapped to assure that no air bubbles are present. The VOAs will then be labeled and stored in a cooler with ice pending delivery to a state-accredited laboratory. Chain of custody procedures will be observed for all sample handling.

Following completion of the soil borings, the borings will be filled with neat cement grout to the ground surface. Soil generated during drilling activities will be stockpiled on site and covered with visqueen pending appropriate disposal. Water generated during drilling activities will be stored on site in 55 gallon drums pending appropriate disposal.

Laboratory Analysis

The soil and groundwater samples will be analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G) using EPA Method 5030 and Modified EPA Method 8015; for MTBE, and for Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), using EPA Method 8020. In addition, one soil sample from each borehole which does not exhibit evidence of petroleum hydrocarbons will be analyzed for TOC using Loss on Ignition methods.

Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will contain documentation of field activities associated with the drilling of the boreholes and collection of the soil and groundwater grab samples; boring logs for the boreholes; a discussion of the local geology and hydrogeology; a map showing the soil boring locations; copies of the laboratory analytical results and chain of custody documentation; a tabulated summary of the laboratory analytical results; a discussion of the results and recommendations based upon the laboratory analytical results; and the signature and stamp of an appropriately registered professional.

SCHEDULE

The following schedule addresses elements identified in this work plan.

Activity	Working Days
Work plan submittal	Day 0
Work plan approval	Day 7
Solicitation of bids for work	Day 17
Award contract for work	Day 32
Permit application submittals	Day 37
Permit application approvals	Day 44
Set date for field activities	Day 46
Soil boring and sample collection	Day 56
Receipt of soil and groundwater sample results	Day 66
Submittal of draft report to XTRA OIL Company for review	Day 76
Submittal of final report to ACDEH	Day 91

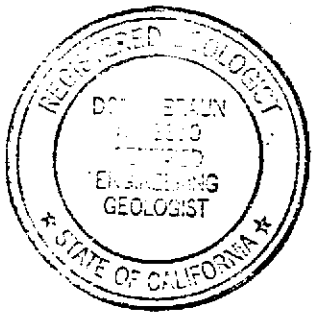
Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental

Paul H. King

Paul H. King
Hydrogeologist



Don R. Braun
Certified Engineering Geologist
Registration No.: 1310
Expiration Date: 6/30/98

Attachments: Site Location Map - Figure 1
Site Vicinity Map - Figure 2

cc: Mr. Keith Simas

PHK/aog
0067.W2

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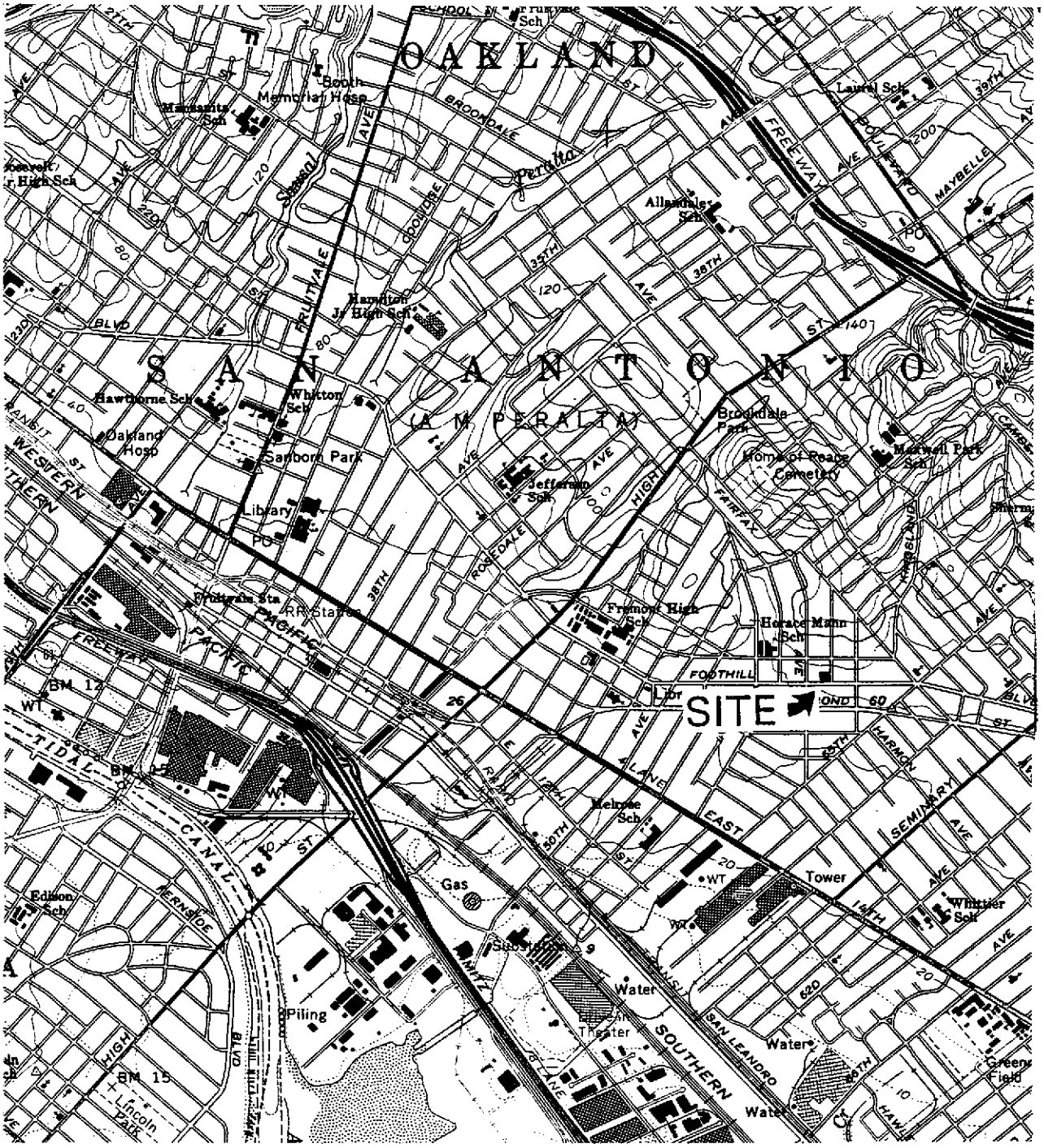

Base Map From
U.S. Geological Survey
Oakland East, Calif.
7.5 Minute Quadrangle
Photorevised 1980

N

Scale in Feet
0 1000 2000 3000

Figure 1
SITE LOCATION MAP
Former Service Station
5330 Foothill Blvd.
Oakland, California

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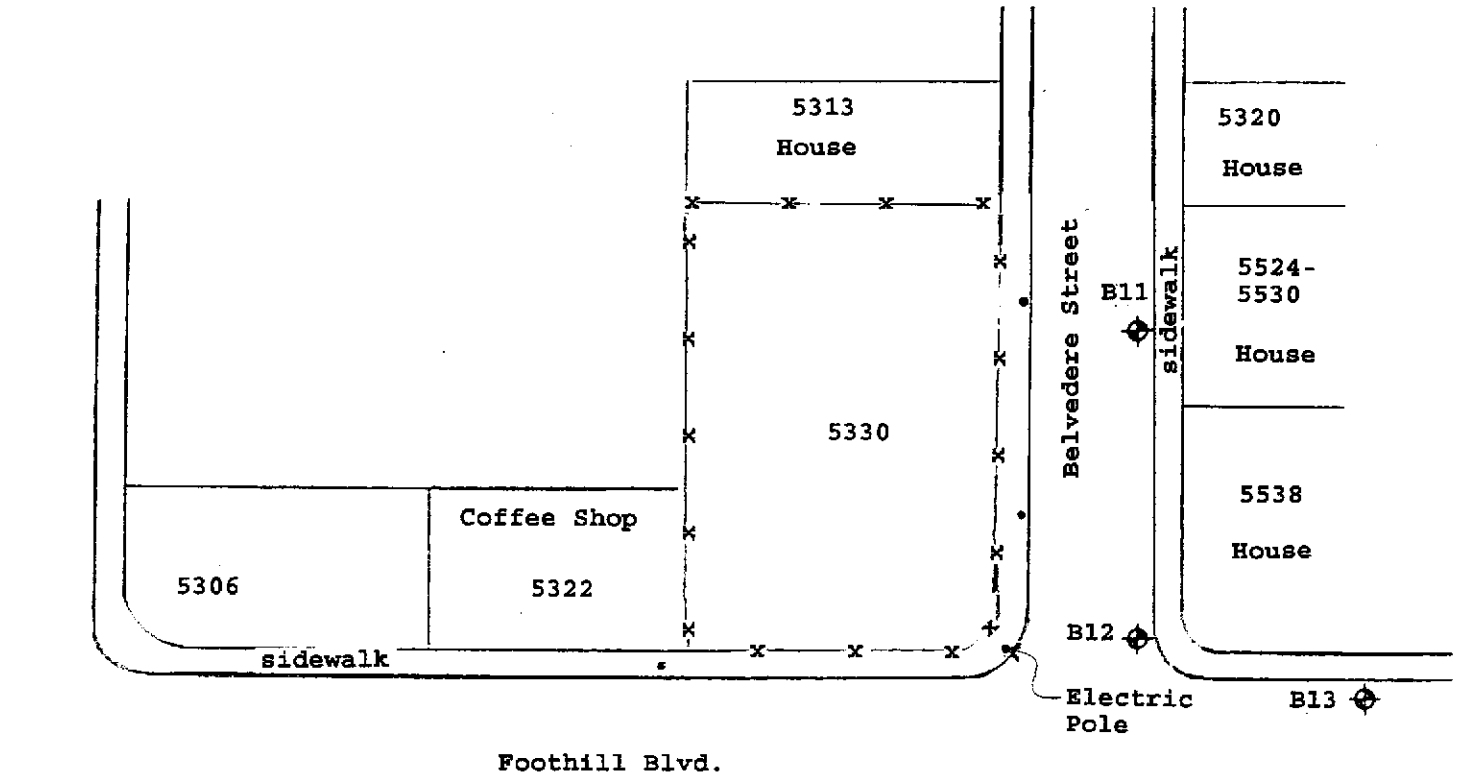

Base Map From
P&D Environmental
July, 1996

Figure 2
SITE VICINITY MAP
Former Service Station
5330 Foothill Blvd.
Oakland, California