ALISTO ENGINEERING GROUP

ENVIRONMENTAL PROTECTION
96 JUN 17 PM 2:07

June 11, 1996

① Any residential units on / basements which may be of concern

Ms. Eva Chu
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94542-6577

10-025-11-001

Subject: Work Plan for Additional Site Characterization
BP Oil Company Service Station No. 11133
2220 98th Avenue
Oakland, California

Dear Ms. Chu:

On behalf of BP Oil Company, Alisto Engineering is pleased to submit this work plan to perform additional site characterization at BP Oil Company Service Station No. 11133, 2220 98th Avenue, Oakland, California.

Please call Mr. Scott Hooton at BP Oil Company (206) 251-0689 or myself if you have questions or need additional information.

Sincerely,

ALISTO ENGINEERING GROUP

Brady Nagle x230
Project Manager

Enclosure

Mr. Richard Hiett, California Regional Water Quality Control Board
Mr. Scott Hooton, BP Oil Company

1575 TREAT BOULEVARD, SUITE 201 • WALNUT CREEK, CA 94598 • (510) 295-1650 • (510) 295-1823
CONTRACTORS LICENSE NO. A-652544

WORK PLAN
FOR
ADDITIONAL SITE CHARACTERIZATION

BP Oil Company Service Station No. 11133
2220 98th Avenue
Oakland, California

Project No. 10-025-04-001

Prepared for:

BP Oil Company
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington

Prepared by:

Alisto Engineering Group
1575 Treat Boulevard, Suite 201
Walnut Creek, California

June 11, 1996

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

WORK PLAN
FOR
ADDITIONAL SITE CHARACTERIZATION

BP Oil Company Service Station No. 11133
2220 98th Avenue
Oakland, California

June 11, 1996

INTRODUCTION

This work plan presents the proposed scope of work for conducting additional site characterization at BP Oil Service Station No. 11133, 2220 98th Avenue, Oakland, California, and is based on available reports and information. Work will be performed in accordance with the guidelines and requirements of the Alameda County Health Care Services Agency and the California Regional Water Quality Control Board, San Francisco Bay Region.

SCOPE OF WORK

The additional site characterization includes tasks to assess the nature and extent of petroleum hydrocarbons in the subsurface soil and groundwater and the hydrogeologic characteristics of the site. The locations of the proposed monitoring wells are shown in the attached site plan.

Task 1: Conduct Pre-Drilling Activities

Prior to commencement of field work, encroachment permits for drilling in the public right-of-way of Warner Avenue will be obtained from the City of Oakland. The required well installation permits will be obtained from the Zone 7 Water Agency and subsurface interferences in the proposed drilling locations will be surveyed by a utility locator.

Task 2: Drill Exploratory Soil Borings and Install Wells

One soil boring will be drilled offsite on in Warner Avenue to approximately 40 feet below grade using a truck-mounted CME 55 drilling rig, or the equivalent, equipped with 8-inch-diameter hollow-stem augers. During drilling, soil samples will be collected from the boring at 5-foot intervals and at significant stratigraphic changes. The samples will be collected from a split-spoon sampler lined with stainless steel tubes and logged by a geologist using the Unified Soil Classification System. Each sample will be field screened using a photo-ionization detector to assist in selecting samples for laboratory analysis. Samples will be sealed airtight with Teflon sheeting, plastic endcaps, and adhesive tape; labelled for identification; and placed immediately into an iced-cooler for transportation to the laboratory.

The soil boring will be converted to Groundwater Monitoring Well AW-9 using 2-inch-diameter PVC blank and slotted casing. The filter pack and annular seal will be installed in accordance with the California Department of Water Resources monitoring well construction standard (Bulletin 74-90). The wellhead will be finished with a flush-mounted, traffic-rated locking well boxes in accordance with the specifications of the City of Oakland.

Task 3: Develop, Sample, and Survey Wells

Well development will be performed to: (1) consolidate and stabilize filter pack; (2) optimize well production; and (3) reduce the turbidity of subsequent groundwater samples. The proposed groundwater monitoring well will be developed during drilling and before installation of the bentonite spacer and neat cement seal. Development will be accomplished by purging a maximum of 10 saturated well volumes or until the groundwater is relatively free of sediments. An Imhoff cone will be used to measure the sediment content of the purge water.

Sampling of the new groundwater monitoring well will be performed a minimum of 72 hours after development. All groundwater monitoring wells at the site will be sampled as a quarterly event. Before sampling of the proposed and existing monitoring wells, the water level will be measured and the wells will be inspected for free product or sheen. The wells will then be purged to allow groundwater representative of the aquifer to enter the wells. Purging will be accomplished using a bailer or pump so as not to agitate the groundwater or exposed it to air. Purging will continue until a minimum of 3 and a maximum of 10 saturated well casing volumes have been evacuated and indicator parameters have stabilized. Stabilization of the parameters will be determined when they vary no more that the following values:

- pH - 0.2 units
- Temperature - 0.5 degrees Celsius
- Specific conductivity - 10 percent

The samples collected from the wells will be placed in an iced cooler and transported to a state-certified laboratory for analysis. Purged water from sampling and development, as well as decontamination rinsate, will be stored onsite in Department of Transportation approved 55-gallon drums for transport and disposal.

To provide additional data for the calculation of hydraulic gradient and groundwater flow direction of the shallow aquifer, the new monitoring wells will be surveyed from the top of casing to within 0.01 foot accuracy in reference to an established benchmark or a common datum.

Task 4: Analyze Soil and Groundwater Samples

Soil and groundwater samples will be submitted to a state-certified laboratory for chemical analysis. The samples will be analyzed on a standard two-week turnaround for the following:

- Total petroleum hydrocarbons as gasoline using EPA Method 8015M
- Benzene, toluene, ethylbenzene, total xylenes using EPA Method 8020
- Methyl tert butyl ether using EPA Method 8020

soil porosity, water content, FOC, bulk density from clean soil sample from vadose zone / capillary fringe

Task 5: Evaluate Data and Prepare Report

Following completion of sample analysis, a detailed evaluation of results and available information will be conducted to assess the nature and extent of hydrocarbons in the soil and groundwater. The results of quarterly groundwater sampling, which will be conducted following installation of the new wells, will be included in the report along with the following:

- Summary of field and analytical data.
- Groundwater gradient and hydrocarbon concentration maps.
- Interpretation of site geologic and hydrogeologic conditions.
- Evaluation of the nature and extent of hydrocarbons in soil and groundwater.

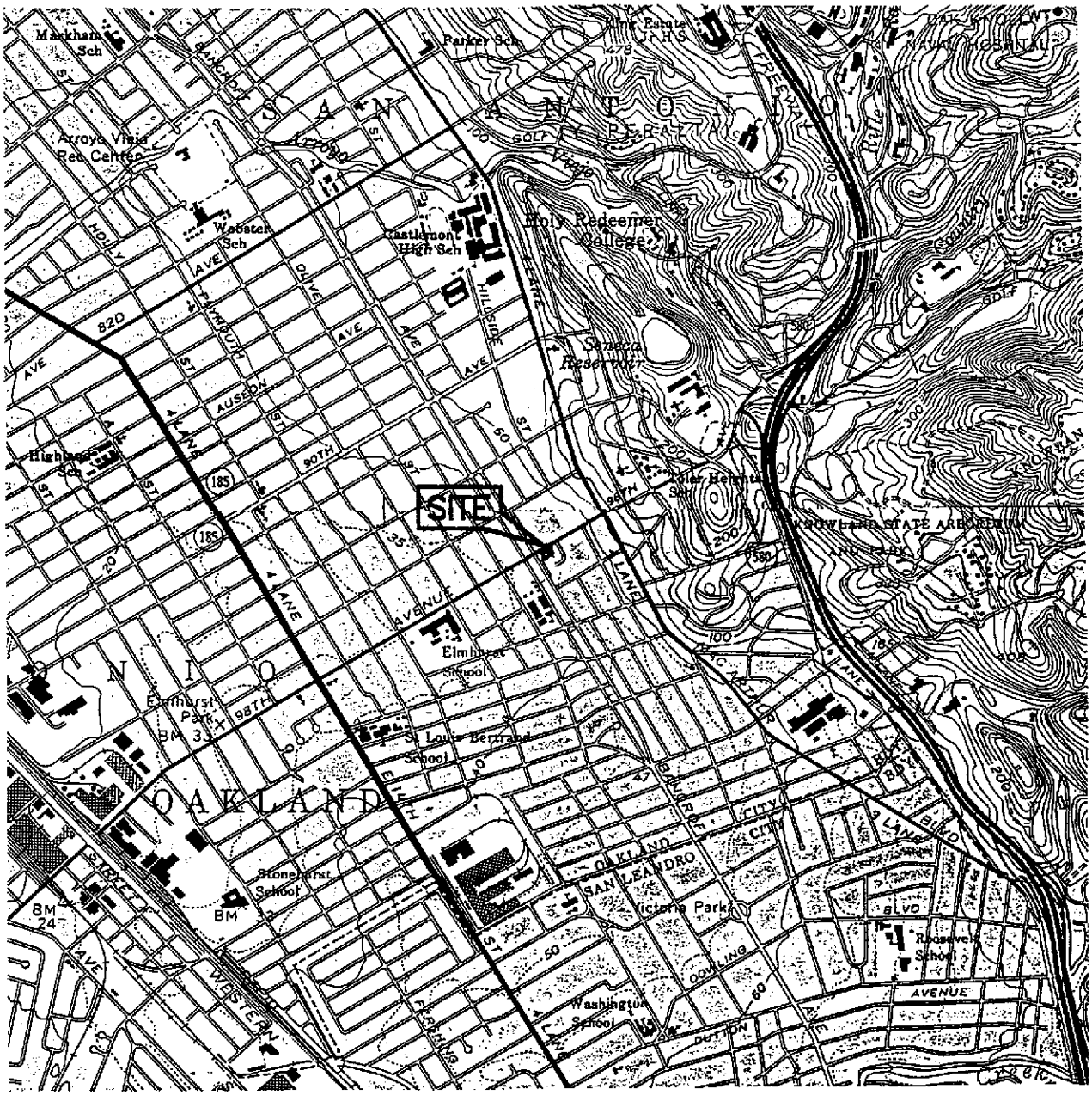
SITE SAFETY PLAN

All field procedures and activities related to the site investigation will be conducted in accordance with a site-specific safety plan. The site safety plan will be prepared in accordance with applicable requirements of the California EPA and the federal and state Occupational Safety and Health Administration.

IMPLEMENTATION SCHEDULE

The proposed additional site characterization will be completed and a report submitted within 75 days after approval of this work plan by the regulatory agencies. Following is the estimated schedule:

Task		Days
1	Acquire permits and locate utilities	20
2	Drill exploratory soil borings and install wells	30
3	Develop, Sample, and Survey Wells	40
4	Analyze soil and groundwater samples	55
5	Evaluate data and prepare report	75



SOURCE:
USGS MAP, OAKLAND EAST AND SAN LEANDRO QUADRANGLES, CALIFORNIA. 7.5 MINUTE SERIES. 1956. PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

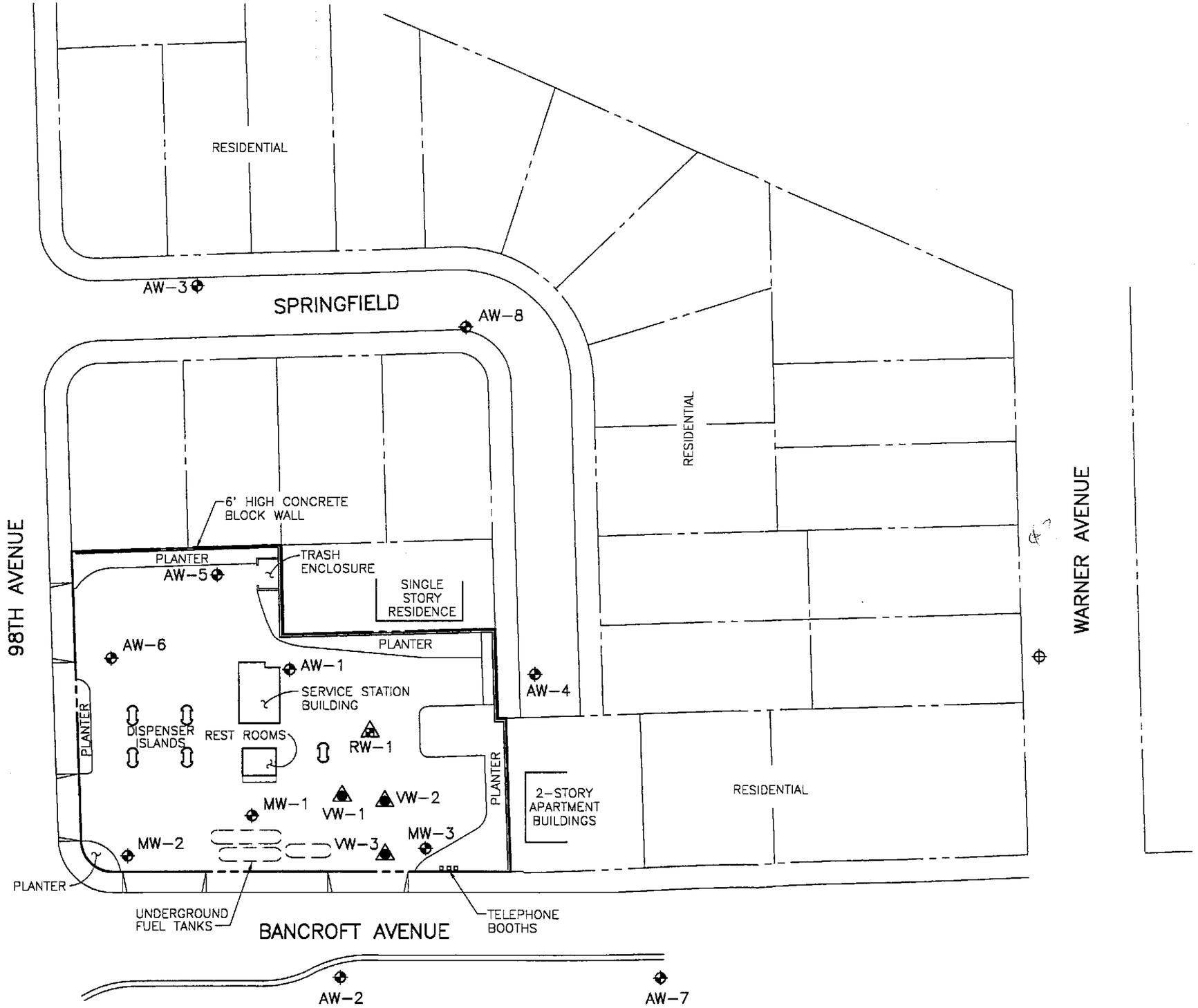
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10025--.DWG 3-22-94 RKW 1-1



N

0 50 100

SCALE IN FEET

LEGEND

- EXISTING GROUNDWATER MONITORING WELL
- EXISTING VAPOR EXTRACTION WELL
- EXISTING COMBINED GROUNDWATER RECOVERY/VAPOR EXTRACTION WELL
- PROPOSED GROUNDWATER MONITORING WELL

FIGURE 2

SITE PLAN

BP OIL SERVICE STATION NO. 11133
2220 98TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-025

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10025C-...DWG 8-12-98 RKW 1=50