



ALISTO ENGINEERING GROUP

7/29

Consider well ~ 80-100 ft from MW-1, along property line  
Also collect soil + analyze for FOC, bulk density, porosity, water content

96 JUL 29 10:01 AM  
SERIALIZED  
10/11/96

July 26, 1996

Ms. Eva Chu  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, California 94502-6577

10-210-06-001

Subject: Work Plan for Additional Site Characterization  
Xtra Oil Company Service Station  
1701 Park Street  
Alameda, California

Dear Ms. Chu:

On behalf of Xtra Oil Company, Alisto Engineering Group is pleased to submit this work plan for additional site characterization at Xtra Oil Company service station at 1701 Park Street, Alameda, California.

Please call if you have questions or comments.

Sincerely,

ALISTO ENGINEERING GROUP

Brady Nagle  
Project Manager

Enclosure

cc: Mr. Richard Hiatt, California Regional Water Quality Control Board  
Mr. Keith Simas, Xtra Oil Company

WORK PLAN  
FOR  
ADDITIONAL SITE CHARACTERIZATION

Xtra Oil Company Service Station  
1701 Park Street  
Alameda, California

Project No. 10-210-06-001

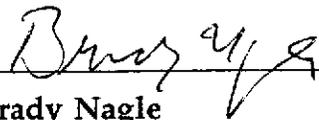
Prepared for:

Xtra Oil Company  
2307 Pacific Avenue  
Alameda, California

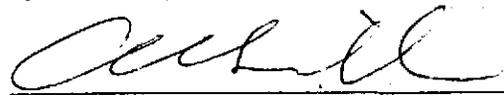
Prepared by:

Alisto Engineering Group  
1777 Oakland Boulevard, Suite 200  
Walnut Creek, California

July 26, 1996



Brady Nagle  
Project Manager



Al Sevilla, P.E.  
Principal

ENVIRONMENTAL  
TECHNOLOGY  
96 JUL 29 PM 2:01



**WORK PLAN  
FOR  
ADDITIONAL SITE CHARACTERIZATION**

**Xtra Oil Company Service Station  
1701 Park Street  
Alameda, California**

**Project No. 10-210-06-001**

**INTRODUCTION**

This work plan presents the proposed scope of work for additional site characterization at the Xtra Oil Company service station (doing business as a Shell station) at 1701 Park Street, Alameda, California. This work plan was prepared in response to the letter from the Alameda County Health Care Services Agency (ACHCSA) dated June 10, 1996. A site vicinity map is shown in Figure 1.

**SITE LOCATION AND PROJECT BACKGROUND**

The Xtra Oil Company service station is on the north corner of Park Street and Buena Vista Avenue, Alameda, California. The site is an operating service station with three underground fuel storage tanks, the locations of which are shown on Figure 2.

In April 1994, one underground diesel storage tank and three underground gasoline storage tanks were removed and replaced with three double-walled storage tanks. One underground storage tank, used to store home-heating oil, was also removed from the adjoining property. Analysis of soil samples collected from the sidewalls of the fuel tank cavity and below the former dispenser islands detected total petroleum hydrocarbons as gasoline (TPH-G) and diesel (TPH-D), as well as benzene, toluene, ethylbenzene, and total xylenes (BTEX). Analysis of a soil sample collected from beneath the former fuel oil tank did not detect TPH-D or BTEX above the reported detection limits (Alisto 1994). The former tank and dispenser island locations are shown on Figure 3.

To assess the nature and extent of petroleum hydrocarbons in soil and groundwater, three groundwater monitoring wells, MW-1, MW-2, and MW-3, were installed onsite in November 1994 (Alisto 1995a). Since installation, the monitoring wells have been sampled on a quarterly basis. The groundwater gradient direction as interpreted for each sampling event has ranged from northeasterly to southeasterly. Liquid-phase petroleum hydrocarbon was observed in MW-2 at a thickness of up to 0.18 foot; weekly product removal has reduced the hydrocarbon thickness to 0.01 foot. TPH-G, TPH-D, and BTEX has been detected in groundwater samples collected from MW-1. Petroleum hydrocarbons have not been detected in samples collected from MW-3 except during the second quarter of 1995 (Alisto 1995b, c, d, 1996a, b).



In June 1996, review of subsurface utility records at the City of Alameda Public Works Department revealed the presence of a 10-inch-diameter sanitary sewer along the centerline of Park Street at a depth of approximately 11 feet below grade. There is also a 6-inch-diameter sanitary sewer along the centerlines of Buena Vista Avenue and Eagle Avenue. A copy of the sanitary sewer location map is enclosed as Figure 4.

Since the depth to groundwater at the site varies from 6 to 9 feet below grade, the trench and backfill material for the sanitary sewer pipe in Park Street may be influencing the lateral migration of petroleum hydrocarbons from the site towards Park Street. As such, further assessment of the extent of petroleum hydrocarbon east of the site does not appear warranted at this time.

## SCOPE OF WORK

The scope of work to conduct additional site characterization includes: installing one additional groundwater monitoring well; sampling and analyzing soil and groundwater at the site; coordinating groundwater sampling activities with monitoring wells associated with the Exxon site at 1725 Park Street, Alameda; and preparing a report presenting the findings and conclusions of the investigative activities.

The work will be conducted in accordance with the guidelines and requirements of the ACHCSA and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB). The scope of work has been divided into the following tasks:

### Task 1: Pre-Field Activities

Before beginning the field work, a thorough records search for this and neighboring sites will be conducted, underground utilities will be located, and field activities will be scheduled. Permits for drilling will also be obtained.

### Task 2: Install Groundwater Monitoring Wells

To investigate the lateral and vertical extent of soil and groundwater contamination, one soil boring will be drilled using a truck-mounted CME 75 drilling rig, or equivalent, equipped with 8-inch-diameter hollow-stem augers.

Soil samples will be collected at 5-foot intervals and at significant stratigraphic changes beginning at 5 feet below grade and continuing to the total depth of the borings. Samples will be collected from a split-spoon sampler lined with stainless steel tubes and logged in the field by a qualified geologist or engineer using the Unified Soils Classification System. Each sample will also be field screened using a photo-ionization detector or combustible gas indicator to assist in selecting samples for laboratory analysis. The samples selected for analysis will be sealed airtight with Teflon or aluminum sheeting, plastic caps, and adhesive tape, and placed immediately into a cooler containing blue or dry ice.



The proposed monitoring well will be installed and constructed in the boring based on site-specific hydrogeologic conditions and the nature of contamination encountered. The proposed monitoring well will be constructed using 2-inch-diameter casing to depths of approximately 10 to 15 feet below the top of the first saturated zone. The well will be constructed using 2-inch-diameter, Schedule 40, PVC casing, with 0.010-inch perforations, and the associated filter pack. An approximately 1-foot-thick bentonite spacer will be installed above the sand pack, and the remainder of the annulus will be sealed with Portland Type I/II neat cement. The top of the well will be secured with a watertight locking cap and utility box finished flush with the ground surface.

Task 3: Develop, Sample, and Survey Groundwater Monitoring Wells

The proposed monitoring well will be developed to: (1) consolidate and stabilize the filter pack; and (2) optimize production. 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 up to 10 saturated well volumes or until the groundwater is visually free of sediment.

Each groundwater monitoring well at the site will be sampled at least 72 hours after development. Before sampling, the water level in the well will be measured and the wells will be inspected for free product or sheen. The well will then be purged to allow groundwater representative of the aquifer to enter. Purging will be accomplished using a bailer or pump so as not to agitate the groundwater or expose it to air. Purging will continue until at least 3 and up to 10 saturated well casing volumes have been evacuated and indicator parameters have stabilized. Indicator parameters will be pH, temperature, and specific conductivity. Stabilization of the parameters will be determined when they vary no more than the following values:

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

The samples 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 calculate the hydraulic gradient and groundwater flow direction of the shallow aquifer, each well will be surveyed by a state-licensed surveyor from the top of the casing to within 0.01 foot accuracy in reference to an established benchmark or a common datum.



Efforts will be made to coordinate groundwater sampling with the well installed at Exxon Service Station 7-0104, 1725 Park Street, Alameda to assess groundwater gradient at both sites on a time-synchronous basis.

Task 4: Analyze Soil and Groundwater Samples

Selected soil samples will be transported to a state-certified laboratory and analyzed for total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, and total xylenes using Environmental Protection Agency (EPA) Methods 5030/8015/8020, and total petroleum hydrocarbons as diesel using EPA 8015. The samples will be analyzed on a standard 2-week turnaround time.

Task 5: Evaluate Data and Laboratory Results

On completion of sample analysis, a detailed evaluation of results and available information will be conducted to assess the nature and extent of petroleum hydrocarbons in the soil and groundwater. This will include the following:

- Interpretation of geologic and hydrogeologic characteristics of the water-bearing formation and the nature of subsurface contamination.
- Preparation of groundwater potentiometric surface maps and hydrocarbon concentration maps.
- Assessment of the extent of hydrocarbons in the soil and/or groundwater.

Task 6: Prepare Report

A report presenting the results, findings, and conclusions of the above task will be submitted to the ACHCSA and RWQCB. The report will include analytical results, boring logs, field notes, and sampling protocol and documentation.

## SITE SAFETY PLAN

All field procedures and activities related to the site investigation will be conducted in accordance with the attached site-specific safety plan. The site safety plan was developed in accordance with the applicable requirements of the California Environmental Protection Agency 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 receipt of written approval of the proposed work plan from the appropriate regulatory agencies.



The estimated schedule for completion of the tasks is as follows:

<u>Task/Activity</u>	<u>Days After Work Plan Approval</u>
- Acquire permits	15
- Drill soil borings and install well	25
- Develop and sample well	30
- Analyze samples	45
- Analyze data	60
- Prepare report	75



## REFERENCES

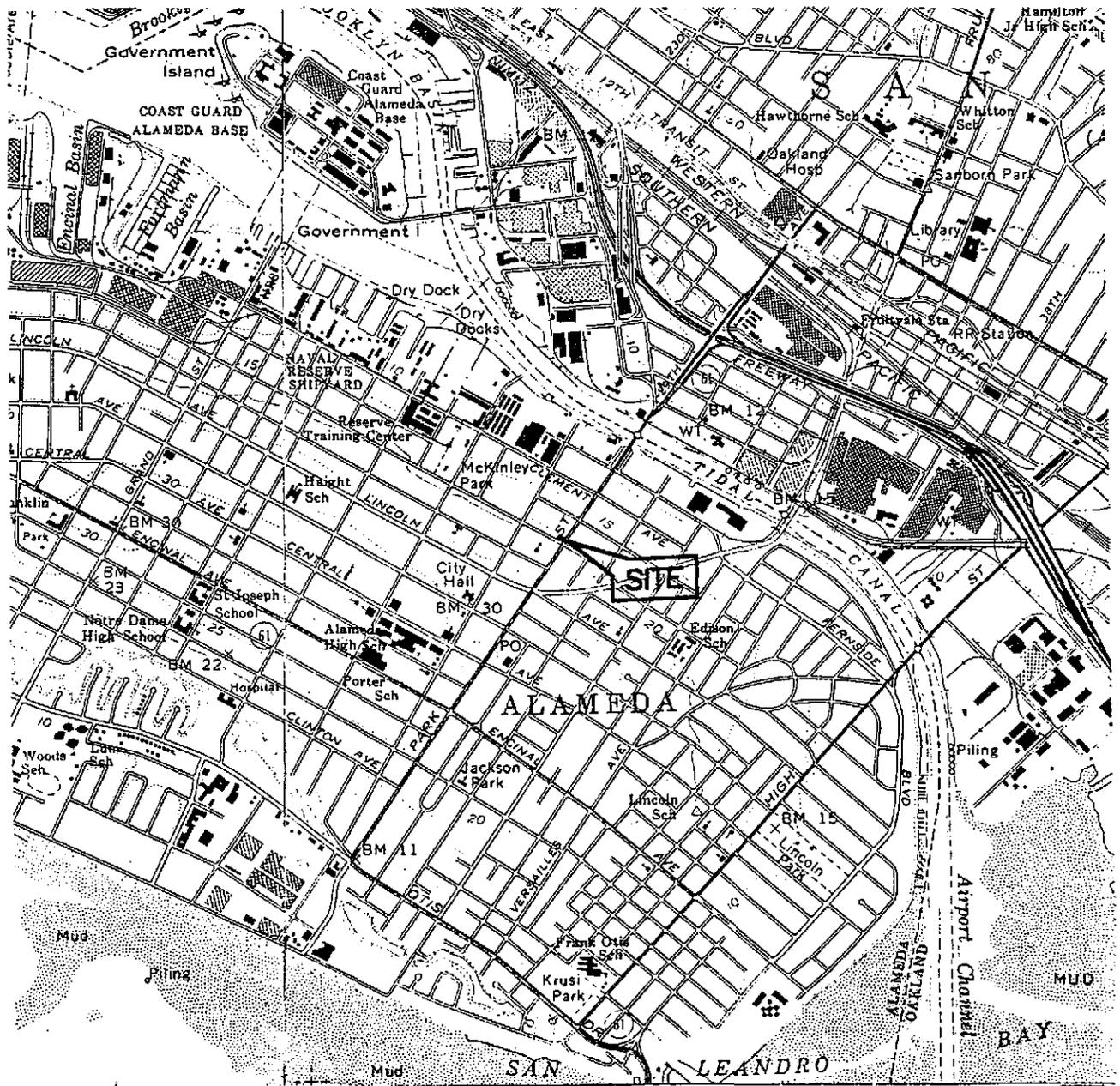
Alisto Engineering Group, 1994. Tank Closure Report, Xtra Oil Company Service Station, 1701 Park Street, Alameda. July.

Alisto Engineering Group, 1995a. Preliminary Site Assessment Report, Xtra Oil Company Service Station, 1701 Park Street, Alameda. January.

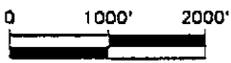
Alisto Engineering Group, 1995b, c, and d. Groundwater Monitoring and Sampling Report, Xtra Oil Company Service Station, 1701 Park Street, Alameda. March 24, June 29, and December 4.

Alisto Engineering Group, 1996a and b. Groundwater Monitoring and Sampling Report, Xtra Oil Company Service Station, 1701 Park Street, Alameda. February 7 and April 23.





SOURCE:  
 USGS MAP, OAKLAND WEST AND EAST QUADRANGLE,  
 7.5 MINUTE SERIES, 1959.  
 PHOTOREVISED 1980.

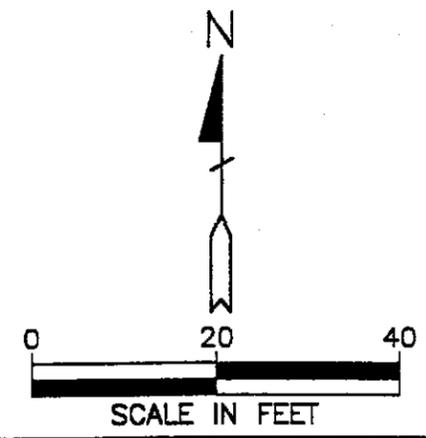
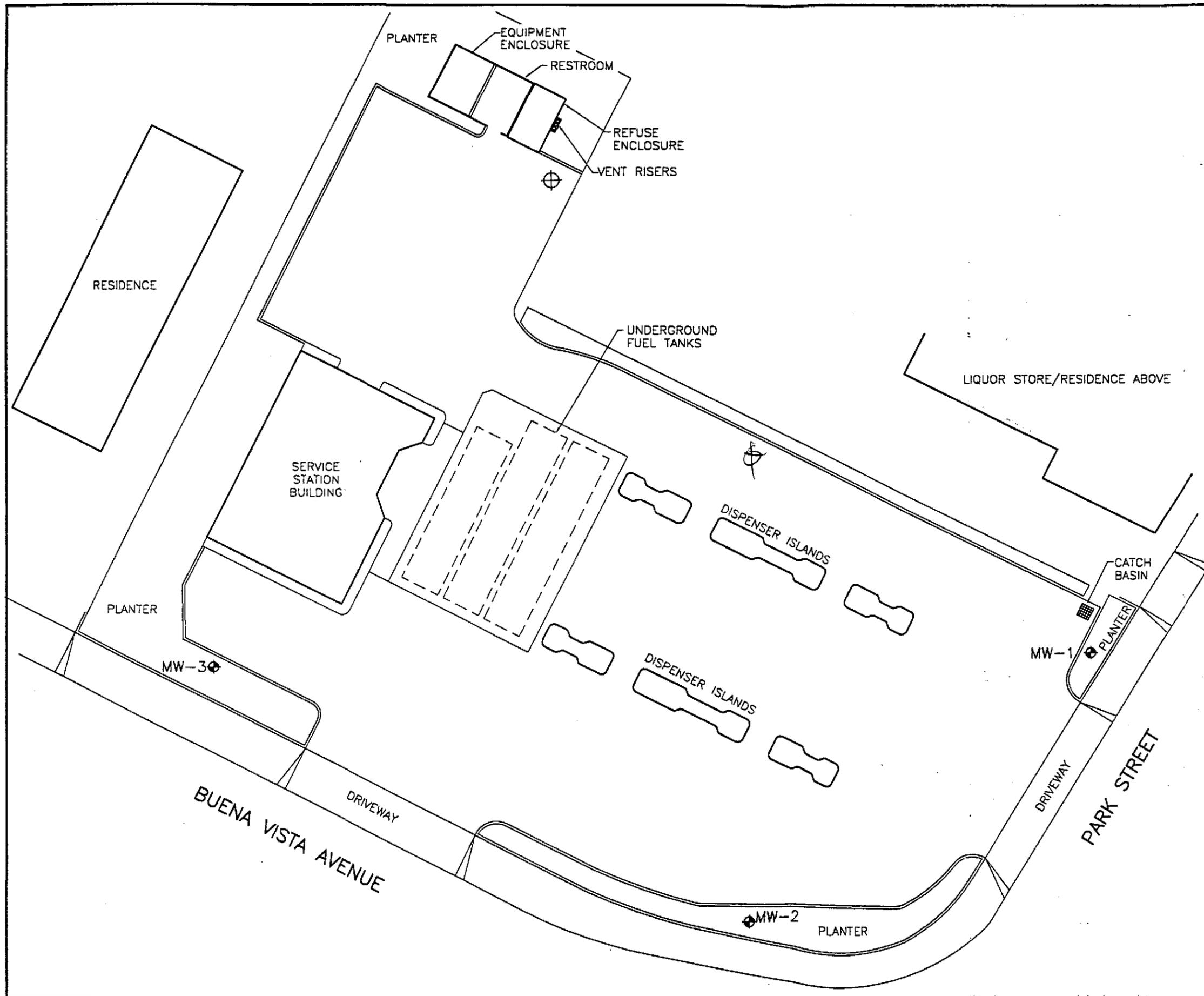


**FIGURE 1**  
**SITE VICINITY MAP**

**XTRA OIL COMPANY SERVICE STATION**  
**1701 PARK STREET**  
**ALAMEDA, CALIFORNIA**  
**PROJECT NO. 10-210**



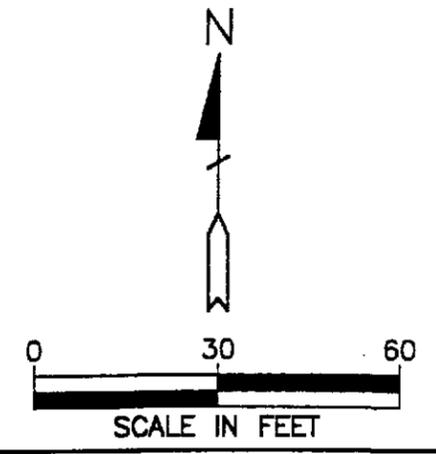
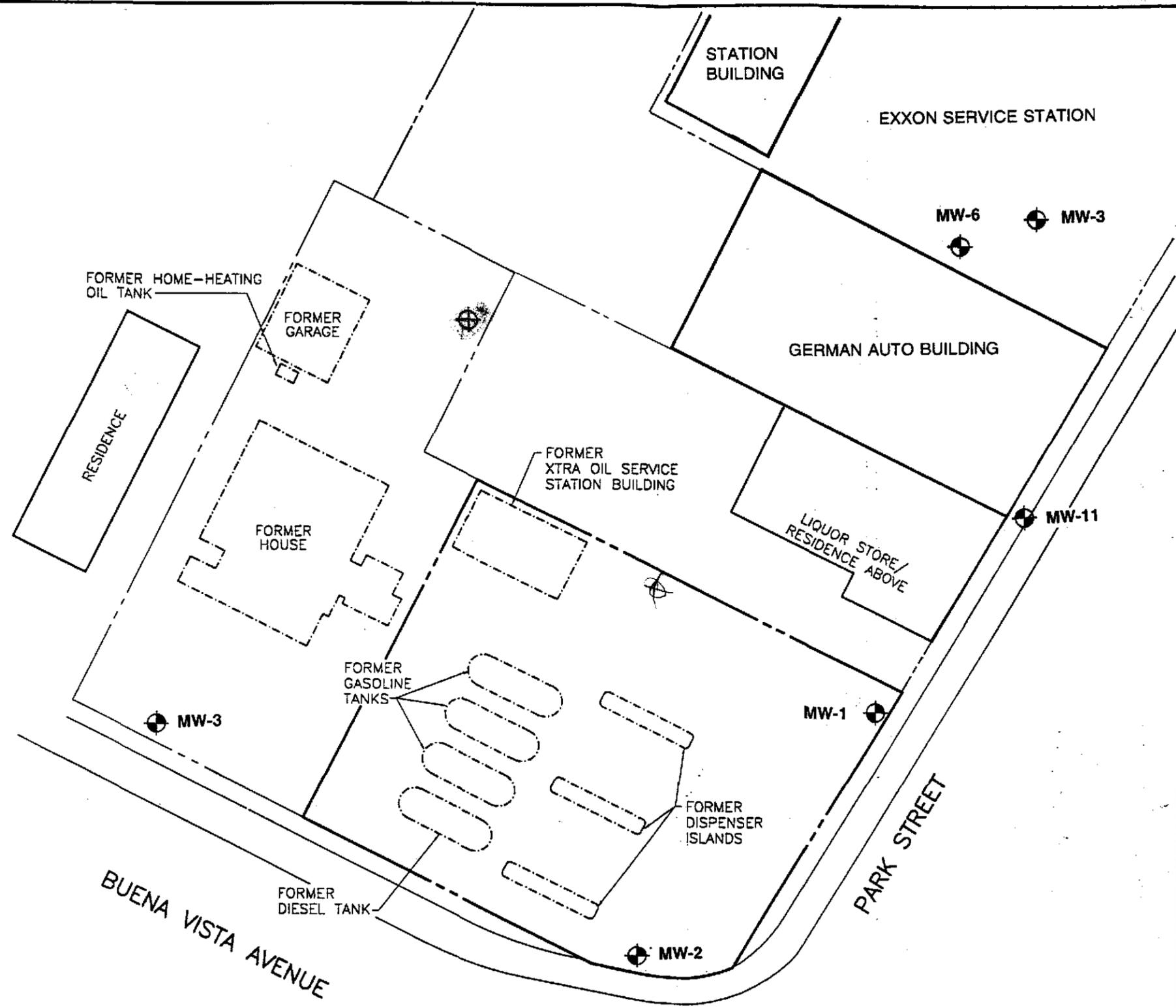
**ALISTO ENGINEERING GROUP**  
 WALNUT CREEK, CALIFORNIA



- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
  - ⊕ PROPOSED MONITORING WELL

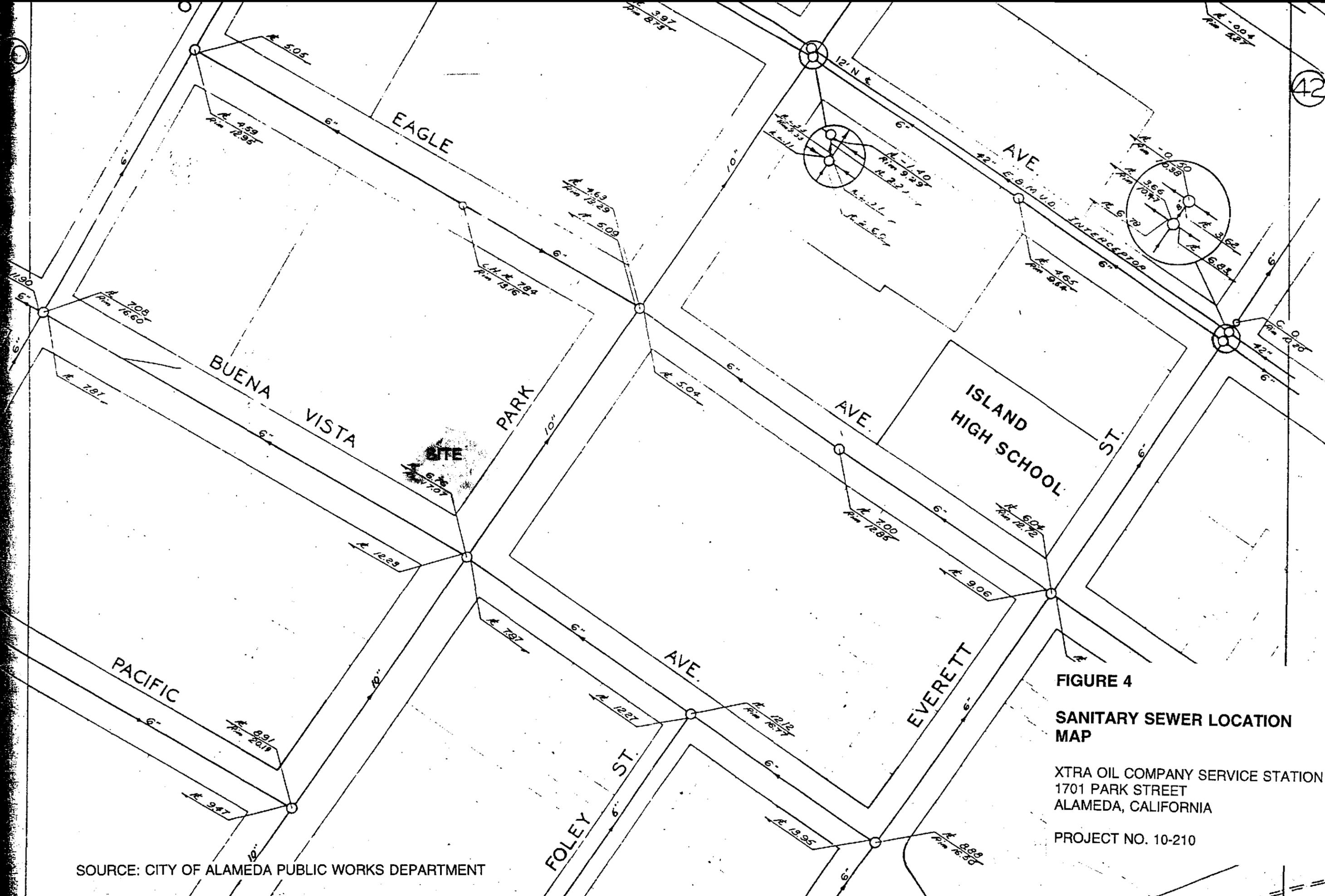
**FIGURE 2**  
**SITE PLAN**  
 XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA  
 PROJECT NO. 10-210

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- ⊕ EXISTING XTRA MONITORING WELL
- ⊕ EXISTING EXXON MONITORING WELL
- ⊕ PROPOSED XTRA MONITORING WELL

**FIGURE 3**  
**FORMER SITE CONFIGURATION**  
 XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA  
 PROJECT NO. 10-210



**FIGURE 4**  
**SANITARY SEWER LOCATION**  
**MAP**

XTRA OIL COMPANY SERVICE STATION  
 1701 PARK STREET  
 ALAMEDA, CALIFORNIA  
 PROJECT NO. 10-210

SOURCE: CITY OF ALAMEDA PUBLIC WORKS DEPARTMENT