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November 20, 1992

Mr. Kenneth Kan  
Chevron U.S.A. Products Company  
2410 Camino Ramon  
San Ramon, CA 94583-0804

DEC 02 '92 1ST

Subject: Work Plan for Evaluation of Soil and Groundwater at Chevron Service Station No. 9-4930, Castro Valley, California.

Mr. Kan:

At the request of Chevron U.S.A. Products Company (Chevron), RESNA Industries Inc. (RESNA) has prepared this work plan for performing a subsurface environmental investigation at the subject site. The site location is shown on Figure 1. The purpose of this investigation is to evaluate whether petroleum hydrocarbons are present in soil and groundwater beneath the site. RESNA's scope of work includes engaging a utility locator service prior to drilling at the site, advancing ten soil borings using a drilling rig, advancing six soil borings using a hand-held auger, installing new temporary groundwater monitoring well casing in four of the drilled soil borings, sampling soil and groundwater, submitting selected soil and groundwater samples for laboratory analyses, removing temporary well casing from the borings following collection of groundwater samples, performing a survey of water wells in the site vicinity, performing an off-site source investigation, and preparing a report.

RESNA will perform the following work for this investigation:

**SITE-SPECIFIC HEALTH AND SAFETY PLAN / BACKGROUND REVIEW / PERMITTING**

A Site-Specific Health and Safety Plan will be prepared by RESNA as required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The Site-Specific Health and Safety Plan will be prepared by RESNA personnel, following a complete review of site conditions and any existing Site-Specific Health and Safety Plans for the site with the Project Manager. The document will be reviewed by RESNA personnel and subcontractors performing work at the site. A copy of the Site-Specific Health and Safety Plan will be kept at the work site and will be available for reference by appropriate parties during the work. The RESNA geologist will act as the Site Safety Officer.

We understand from conversations with Chevron personnel that no previous environmental investigations have been performed at the site. Two soil borings were drilled at the site in December 1978 in conjunction with a geotechnical investigation for the construction of the present service station. Each soil boring encountered stiff to very stiff sandy clay extending to a depth of about seven feet. Stiff to very stiff silty clay was encountered between depths of 7 feet

and 15 feet, which was the total depth of the borings. Groundwater was encountered in only one of the borings at a depth of about 13 feet. All applicable local and State permits pertaining to the proposed work will be obtained before commencing field work.

### **SOIL BORINGS / SAMPLING AND ANALYSES**

Ten soil borings (B-1 through B-10) will be drilled using a truck-mounted drill rig equipped with 8-inch diameter hollow stem augers. In addition, six soil borings (H-1 through H-6) will be advanced using a hand-held auger. The locations of all proposed borings are shown on Figure 2. Proposed borings B-1 through B-4 will be drilled to approximately 5 feet below the first encountered groundwater. First groundwater is anticipated to occur between 5 and 13 feet below ground surface at the site. Proposed soil borings B-5 through B-10 will be drilled to the groundwater surface. At least one hand-augered boring will be advanced to a depth of about ten feet; total depths of the additional hand-augered borings will be evaluated in the field. All borings will be backfilled with a cement/bentonite slurry. Augers will be steam cleaned between each boring, and all sampling equipment will be rinsed with a solution of Alconox and tap water between sample intervals. We anticipate field operations to be completed within three days.

Soil samples will be collected at five-foot depth intervals, just above first encountered groundwater, and at notable lithologic changes, utilizing an 18-inch California-modified, split-spoon sampler equipped with 2-inch-diameter brass sample sleeves. Samples will be collected by advancing the auger to a point just above the sampling depth and driving the sampler into the soil. The sampler will be driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the sampler each successive 6-inch interval will be counted and recorded to give an indication of soil consistency. Each soil sample will be screened for volatile compounds with a photoionization detector (PID). Drilling will be performed under the observation of a RESNA geologist; earth materials in the borings will be identified using manual and visual methods, and classified in the field according to the Unified Soil Classification System. Work will be performed under the supervision of a California registered professional engineer. One sample from every sampling interval will be sealed with aluminum foil, capped, taped, labeled, and placed on ice in an insulated container. Soil generated through drilling will be stored on plastic sheeting pending characterization for disposal. Soil will be disposed by a contractor selected by Chevron.

Soil samples selected for analyses from all soil borings will generally be the sample producing the highest reading on the PID, the sample with the strongest subjective evidence of hydrocarbons, and the sample from directly above first encountered groundwater. The RESNA project manager may select other appropriate samples from the borings utilizing the previously noted field screening techniques. Selected soil samples will be analyzed by a California-certified laboratory for total petroleum hydrocarbons as gasoline (TPHg) using modified U.S. Environmental Protection Agency (EPA) Method 8015, and for benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8020.

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## TEMPORARY WELL INSTALLATION / WATER SAMPLING / ANALYSIS

New temporary 2-inch diameter groundwater monitoring well screen and blank casing will be installed in borings B-1 through B-4, respectively. Temporary wells will be installed through the hollow stem of the augers; the augers will be pulled up five to six feet to allow groundwater to enter the well screen. Each temporary well will be constructed of two-inch diameter, schedule 40 PVC casing with flush treads and 0.010-inch-slot well screen. The well screen for each of the four temporary monitoring wells will be placed approximately one foot above and four feet below the current water table to permit entry of separate-phase hydrocarbons, if present. Following collection of groundwater samples, as described below, the temporary well casing will be removed from each boring and the boring will be backfilled with a cement/bentonite slurry.

RESNA's geologist will use a bailer to collect a groundwater sample from each temporary well for subjective analysis. If free phase hydrocarbons are present, the apparent thickness will be noted, but a groundwater sample will not be collected. If free phase hydrocarbons are not present, our geologist will bail one boring volume of water from the temporary well before collecting a groundwater sample. Water samples will be collected using clean disposable bailers. Water samples will be transferred slowly from the bailer to laboratory-cleaned sample containers for laboratory analyses. Groundwater samples will be submitted to a California-certified analytical laboratory under Chain-of-Custody protocol. Copies of Chain of Custody Records will be included in our report. Water purged from the wells and water used to decontaminate augers will be directed to an on-site purge water trailer and transported to the Chevron refinery in Richmond, California.

Groundwater samples will be analyzed for TPHg and BTEX using EPA Methods modified 8015 and 602, respectively. Laboratory analytical methods and detection limits will adhere to guidelines recommended by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

## REPORT PREPARATION

A report summarizing methodology, the soil stratigraphy in the borings, and field and laboratory results will be supplied to Chevron. Information gathered during the investigation will be considered confidential and will be released only with the authorization of Chevron.

## PROJECT SCHEDULE

RESNA is prepared to begin work on this project immediately in accordance with the work plan approval by Chevron. We have scheduled drilling to begin at the site on November 23, 1992.

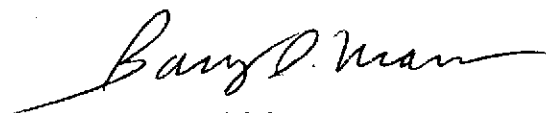
November 20, 1992  
Chevron Station No. 9-4930, Castro Valley, California

**RESNA**  
Working To Restore Nature

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Please contact us at (415) 382-7400 if you have questions or comments regarding this work plan.

Sincerely,  
RESNA Industries Inc.

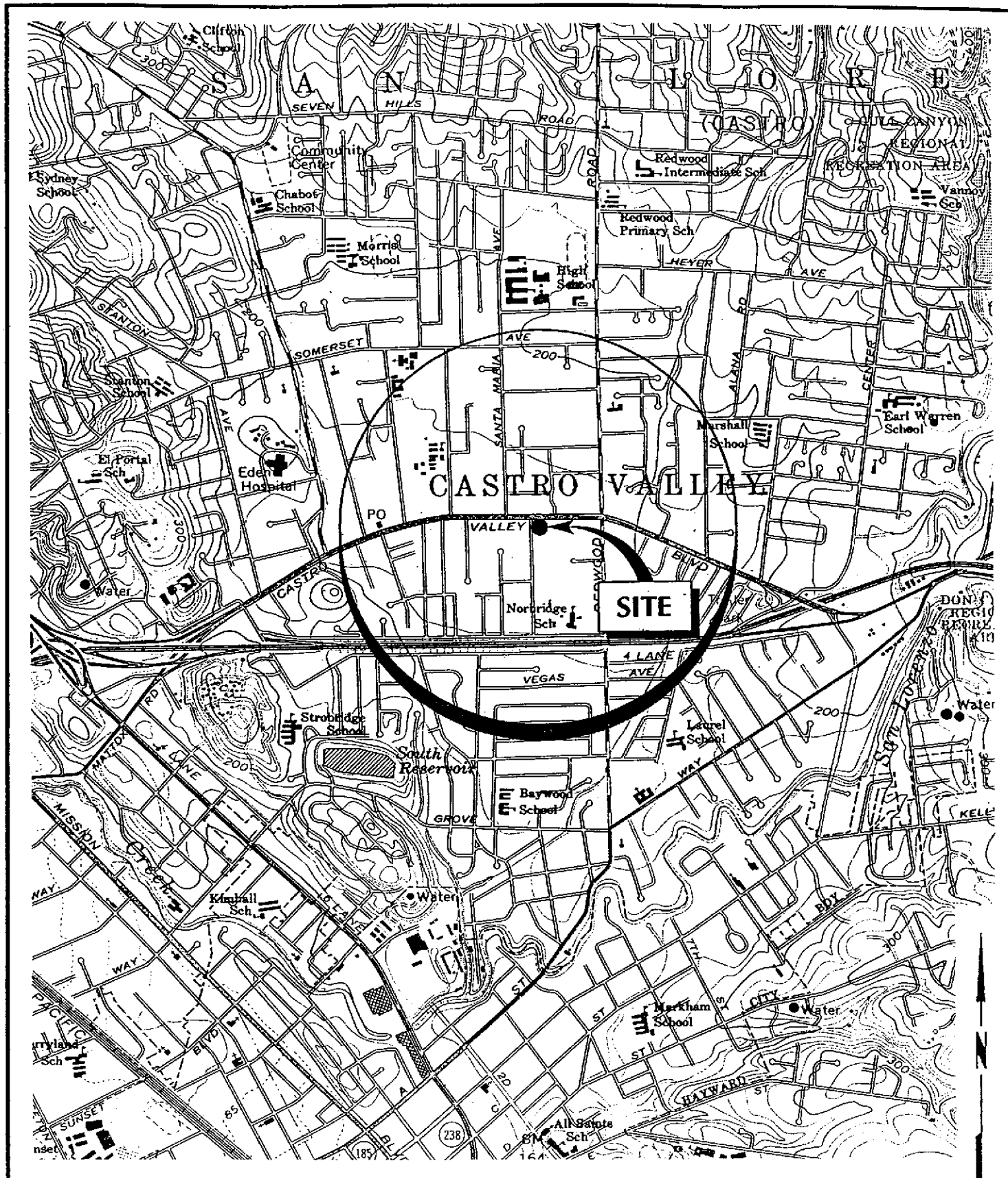


Barry I. Marcus  
Project Geologist

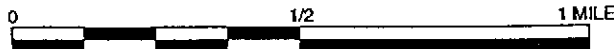


Richard H. Walls, P.E.  
Senior Project Engineer

Attachments: Figures



Source: USGS Topographic Map, 7.5 minute series, Hayward, Calif. quadrangle, 1980



**RESNA**

PROJECT NO. 17068.01

11/92

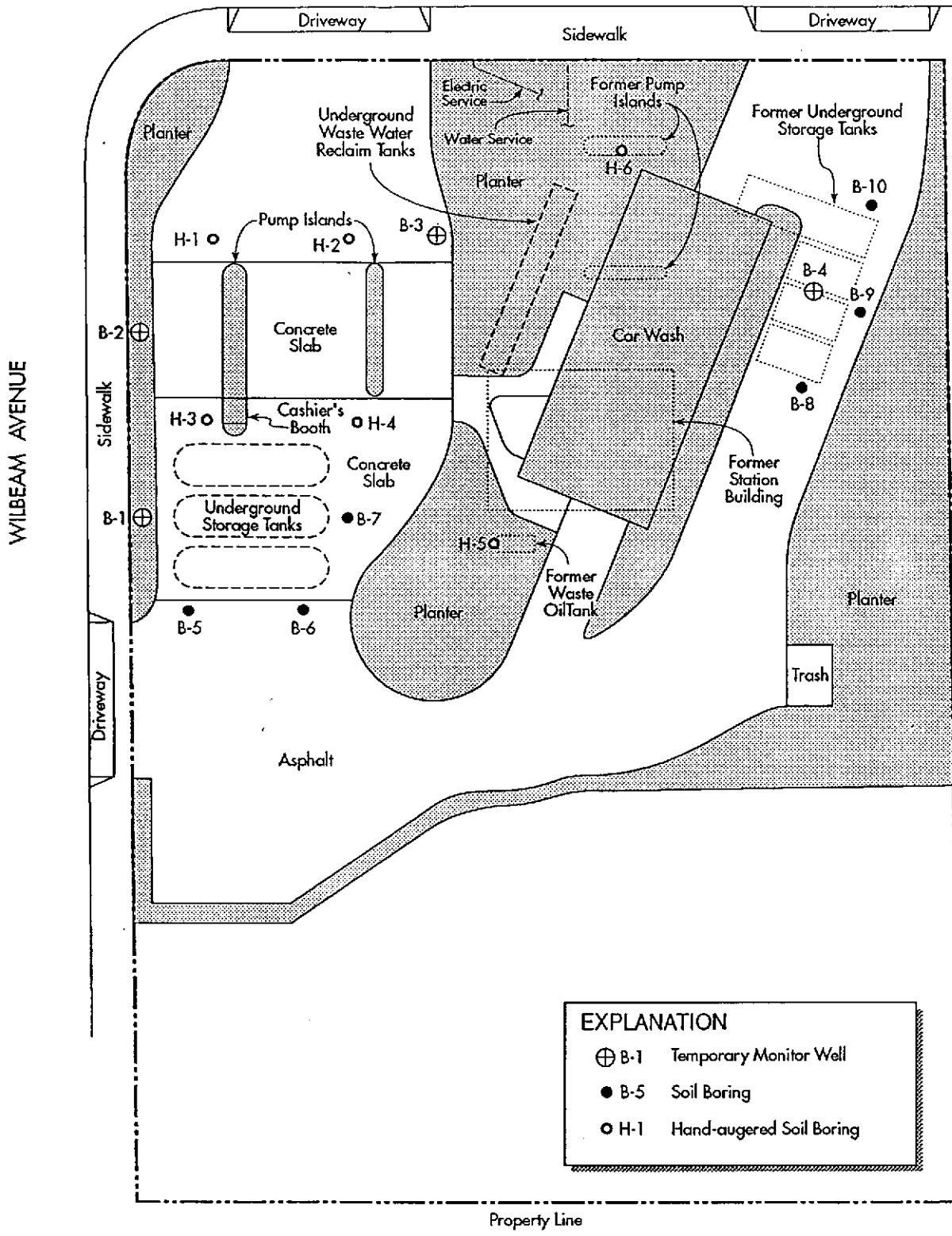
**SITE VICINITY MAP**

Chevron Service Station No. 9-4930  
3369 Castro Valley Boulevard  
Castro Valley, California

FIGURE

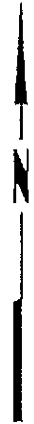
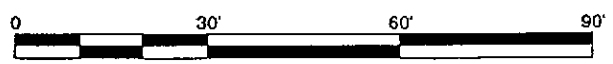
**1**

CASTRO VALLEY BOULEVARD



**EXPLANATION**

- ⊕ B-1 Temporary Monitor Well
- B-5 Soil Boring
- H-1 Hand-augered Soil Boring



Source: site plans by Chevron USA, Inc.

**RESNA**

PROJECT NO. 17068.01      11/92

**GENERALIZED SITE PLAN**  
 Chevron Service Station No. 9-4930  
 3369 Castro Valley Boulevard  
 Castro Valley, California

**FIGURE**  
**2**