Chevron Environmental Management Company
6001 Bollinger Canyon Rd, K2236
P.O. Box 6012
San Ramon, CA 94583-2324
Tel 925-842-9559
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Dana Thurman
Project Manager

March 12, 2007
(date)

ChevronTexaco

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station # 9-4612

Address: 3616 San Leandro Street, Oakland, CA

I have reviewed the attached report titled Soil Vapor Investigation Workplan and dated March 12, 2007.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Cambria Environmental Technology, Inc., upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Dana Thurman
Project Manager

Enclosure: Report

CAMBRIA

March 12, 2007

Mr. Barney Chan
Alameda County Health Care Services (ACHCS)
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Soil Vapor Investigation Workplan**
Former Chevron Service Station #9-4612
3616 San Leandro Street
Oakland, California

Dear Mr. Chan:

Cambria Environmental Technology, Inc. (Cambria) is submitting this *Soil Vapor Investigation Workplan* on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above. Cambria proposes advancing four shallow hand augered soil borings that will be completed as permanent vapor probes. The site background and the proposed scope of work are described below.

SITE BACKGROUND

Site Description The site is a former Chevron branded service station located on the northwest corner of the intersection of San Leandro Street and 37th Avenue in Oakland, California (Figure 1). The former station facilities included a station building, three underground storage tanks (USTs), one used-oil UST and two dispenser islands (Figure 2). All structures associated with the former Chevron were removed in 1976. Currently, the western potion of the site is occupied by a warehouse building, constructed in 1988. The eastern portion of the property is being utilized as a parking lot. Surrounding land use is mixed commercial, residential and transportation. The site is bounded by residential to the west and Bay Area Rapid Transit (BART) tracks to the north

Site Geology and Hydrology: The site is located on the East Bay Plain as mapped by E.J. Helley and others[1]. Soil in the vicinity consists of Holocene-age medium grained alluvium consisting of

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[1] 1979, Flatland Deposits of the San Francisco Bay Region, California: U.S. Geological Survey Professional Paper 943

unconsolidated, moderately sorted, fine sand, silt, and clayey silt with a few thin beds of coarse sand. The nearest surface water is the Tidal Canal.

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

September 1976 Station Demolition: In September 1976, all aboveground and underground former Chevron station structures including three fuel USTs, one used-oil UST and two dispenser islands were removed from the site. No soil samples were collected during the UST removal.

March 1998 Geotechnical Investigation: In March 1998, geotechnical soil borings B-1 through B-3 were advanced in the western portion of the site in the area of the former UST location. Boring logs suggest a strong hydrocarbon odor was present at approximately 20 feet below grade (fbg).

August 1988 Subsurface Investigation: In August 1988, groundwater monitoring well VH-1 was installed to monitor groundwater conditions beneath the warehouse building. Soil samples collected at 20.5 fbg and 25.5 fbg reported no total petroleum hydrocarbons as gasoline (TPHg) and maximum benzene concentrations of 0.042 milligrams per kilograms (mg/kg).

February 1993 Subsurface Investigation: In February 1993, monitoring wells MW-2 and MW-3 were installed on-site. No TPHg or benzene, toluene, ethylbenzene and xylene (BTEX) were reported above laboratory detection limits in soil samples from MW-2 and MW-3 at 5 fbg and 10 fbg.

August 1995 Subsurface Investigation: In August 1995, on-site soil boring SB-1 was advanced and off-site monitoring well MW-4 was installed. Soil samples from SB-1 and MW-4 at 21.5 fbg reported 16 mg/kg and 2 mg/kg TPHg, respectively, and no benzene. Grab-groundwater samples collected from SB-1 reported 21,000 micrograms per liter (µg/L) TPHg and 240 µg/L benzene.

CURRENT GROUNWATER HYDROCARBON CONCENTRATIONS DISCUSSION

Total petroleum hydrocarbons as diesel (TPHd), TPHg and benzene are currently reported at maximum concentrations of 3,500 µg/L, 2,900 µg/L and 7 µg/L, respectively. MTBE is reported at a maximum concentration of 57 µg/L in monitoring well VH-1. The Chevron station was removed from the site in 1976, which predates the use of MTBE as a fuel additive. MTBE appears to be migrating through the site from an up-gradient source.

PROPOSED SCOPE OF WORK

Cambria proposes advancing four hand augered soil borings, which will be completed as permanent soil vapor probes. The four borings will be located within the existing warehouse on-site. Two of the borings will be located in the vicinity of the former USTs to evaluate potential impact from residual hydrocarbons, and the other two borings will be located adjacent to the western wall of the warehouse to evaluate possible risk to residential receptors west of the property. It is anticipated that at least two soil samples will be collected from each soil boring for chemical analysis. The probes will be used to collect soil vapor to determine if concentrations exceed Region 2 environmental screening levels (ESLs) for shallow soil gas. The vapor probe borings adjacent to the western wall of the warehouse will be advanced to approximately 6 fbg, and the two borings located in the vicinity of the former USTs will be advanced to approximately 12 fbg. The locations of the proposed borings are indicated on Figure 2. Cambria's standard field procedures are presented as Attachment A.

Underground Utility Location: Cambria will notify Underground Service Alert prior to scheduled work to clear boring locations with utility companies. A private utility line locator will be contracted to additionally clear boring locations of utility lines prior to construction. All vapor borings will be advanced using a 3-inch diameter hand auger.

Site Health and Safety Plan: Cambria will prepare a site safety plan to inform site workers of known hazards and to provide health and safety guidance. The plan will be kept on-site at all times during field activities and signed by all site workers and site visitors.

Permits and Access Agreements: Cambria will obtain drilling permits from the Alameda County Public Works Agency (ACPWA) as required and an access agreement from the owner of record. Notice will be given to ACPWA 48 hours prior to the beginning of work.

Soil Vapor Probe Installation: Cambria proposes to advance four hand-auger borings which will be completed as soil vapor probes at the approximate locations shown on Figure 2. The total depth of each boring adjacent to the western wall of the warehouse will be approximately 6 fbg, and the two in the vicinity of the USTs will be approximately 12 fbg, with the bottom of each installed vapor probe set at approximately 5.5 fbg. The lower portion of the UST borings will be backfilled with bentonite to 6 fbg prior to installation of the vapor probes. Soil samples will be collected from each boring using a slide hammer and a drive-core barrel at approximately 2 and

5.5 fbg from the western borings, and 6 and 11.5 fbg from the UST borings. The borings will be continuously logged by Cambria field personnel. The final locations of the borings will be based on site and utility constraints as evaluated in the field.

A schematic diagram of the soil vapor probe construction is presented as Figure 3. The soil vapor probes will also be constructed in general accordance with Cambria's Standard Field Procedures (Attachment A). One-quarter inch diameter Nylaflow® nylon tubing will be fitted with a 6-inch long 0.010-inch slotted PVC filter screen. The tubing and screen will be placed into each open boring with the screen at approximately 5.5 fbg. Washed No. 2/16 silica sand will be placed from 5 to 6 fbg to create a filter pack around the PVC screen. A 3-inch layer of dry granular bentonite will be placed on top of the sand pack followed by hydrated bentonite powder to a few inches from the surface. The tubing exiting the bentonite will be capped, and the top of the point will be protected by a traffic-rated vault.

Soil Vapor Sampling: Soil vapor samples will be collected no sooner than 72-hours after installation of the probes to allow adequate time for accumulation of representative soil vapor. Soil vapor sample collection will not be scheduled until after a minimum of five consecutive significantly precipitation-free days (≥0.5 inches of rain).

A generalized schematic of the soil vapor sampling apparatus is presented as Figure 4. Samples will be collected using a 1-liter SUMMA™ canister connected to the sampling tubing at each vapor point. Prior to collecting soil vapor samples, the initial vacuum of the canister will be measured and recorded on the chain-of-custody (this should be approximately 30-inches of mercury). The vacuum of the SUMMA™ canister will be used to draw the soil vapor through the flow controller until a negative pressure of approximately 5-inches of Hg is observed on the vacuum gauge. This is the residual vacuum and this measurement should be recorded on the chain-of-custody. With the flow controller set at approximately 30 ml/minute, sample collection should take approximately 30 minutes.

Prior to sample collection, stagnant air in the sampling apparatus will be sufficiently removed by purging approximately 3 probe volumes using a purge pump (Figure 4). The volume of the borehole will generally not be included in the volume calculation as it is assumed that the soil vapor concentrations in the probe and sand pack are equilibrated with the surrounding native soil.

A minimum of one field duplicate will be collected for each day of sampling. A field duplicate will be collected by using a splitter connected to the soil vapor probe. After vapor sampling, the

SUMMA™ canisters will be properly labeled, packaged and sent to the Air Toxics laboratory under chain-of-custody for analysis. Samples will be analyzed on standard turn around time. Cambria's *Standard Field Procedures for Soil and Soil Vapor Sampling* is presented as Attachment A.

Leak Detection: In order to detect any leakage of atmospheric gasses and/or ambient air during sampling, Cambria will perform leak detection tests. Butane, which is a propellant in shaving cream, will be used as a source gas for leak detection. Field application of shaving cream will be accomplished through using a large volume zip-lock plastic bag placed over surface fittings, with a smaller open sandwich bag placed inside containing a small amount of shaving cream.

Soil Disposal/Recycling: Soil cuttings produced during field activities will be temporarily stored on-site. Soil cuttings will be stockpiled on plastic and covered with plastic or stored in drums on-site. Following review of laboratory analytical results, the soil will be transported to a Chevron approved facility for disposal/recycling.

Vapor Chemical Analyses: The soil-vapor samples will be kept at ambient temperature and submitted under chain-of-custody to Air Toxics for analysis. The samples will be analyzed on a 72 hour turn around time for:

- TPHd and TPHg by EPA Method TO-3, and
- BTEX, MTBE, isobutane and butane by EPA method TO-15.

Soil Chemical Analyses and Soil Parameters: Soil samples from the soil vapor borings will be analyzed on a standard turn around time for the following analytes:

- TPHd by EPA Method 8015 Modified,
- TPHg by EPA Method 8015B, and
- BTEX and MTBE by EPA Method 8260B.

Reporting: After all analytical results are received; Cambria will prepare a subsurface investigation report that, at a minimum, will contain:

- A summary of the site background and history,
- Descriptions of the drilling and sampling methods,
- A figure illustrating the boring locations,
- Boring logs,
- Tabulated soil analytical results
- Tabulated vapor analytical results,
- Analytical reports and chain-of-custody forms,
- Soil disposal methods, and
- Cambria's conclusions and recommendations.

SCHEDULE

Cambria will perform this investigation after receiving written approval of this work plan from the ACHCS. Cambria will submit an investigation report approximately six weeks after receiving analytical results.

CLOSING

Please call Christene Sunding at (916) 677-3407 ext. 109 if you have any questions or comments regarding this investigation.

Sincerely,

Cambria Environmental Technology, Inc.

Christene M. Sunding
Project Geologist

David W. Herzog, P.G. #7211
Senior Project Geologist

PROFESSIONAL GEOLOGIST
DAVID W. HERZOG
No. 7211
STATE OF CALIFORNIA

Figures: 1 – Vicinity Map
2 – Proposed boring locations

Attachments: A –Standard Operating Procedures

cc: Mr. Dana Thurman, Chevron Environmental Management Company, P.O. Box 6012, K2236, San Ramon, CA 94583
Mr. Leonard B. Ratto, Ratto Land Company, PO Box 6104, Oakland, CA 94603-0104
Mr. Terry McIlraith, 407 Castello Road, Lafayette, CA 94549

08/27/03

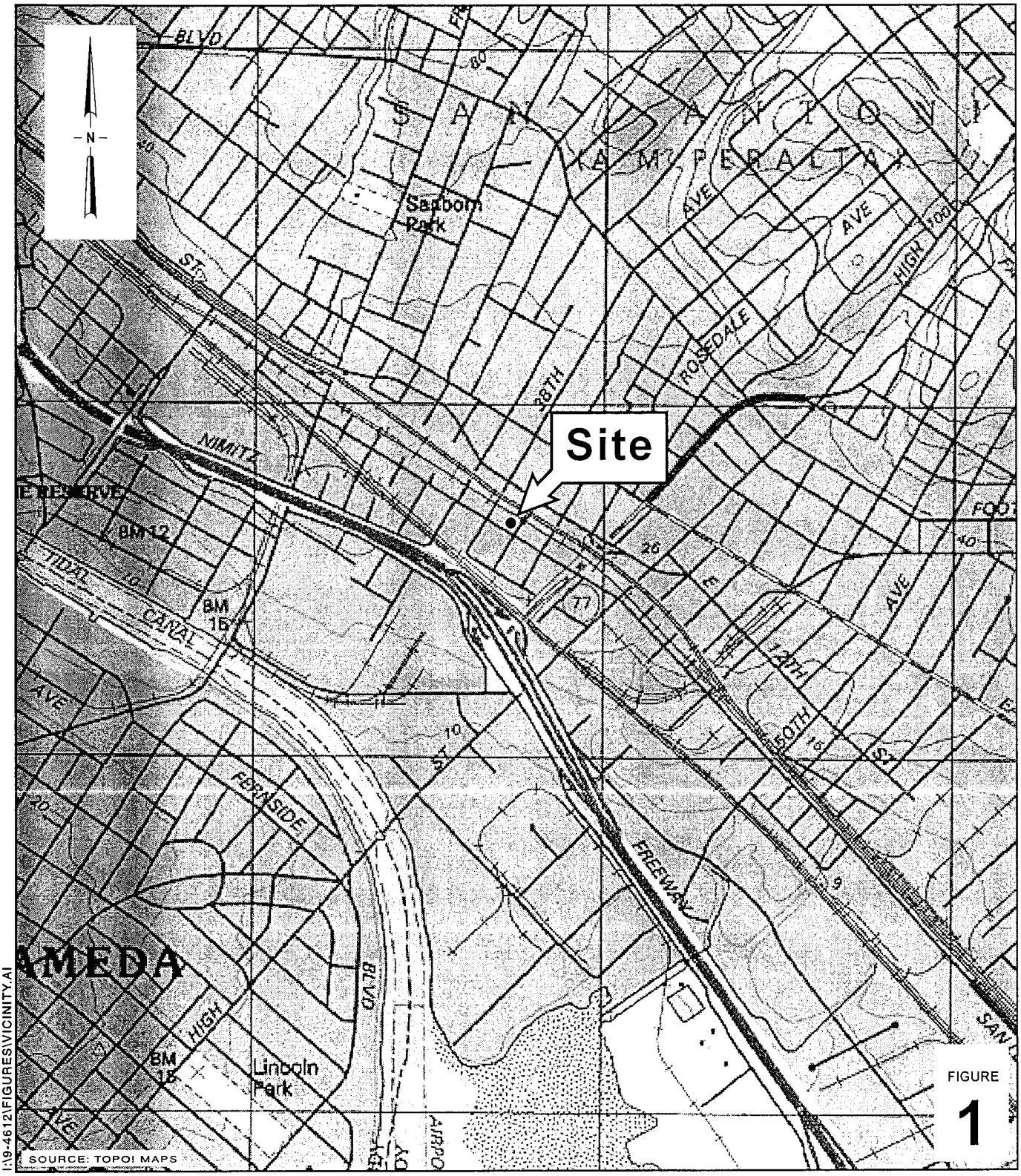

FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

I:\9-4612\FIGURES\VICINITY.AI

Former Chevron Station 9-4612

3616 San Leandro Street

Oakland, California

Vicinity Map

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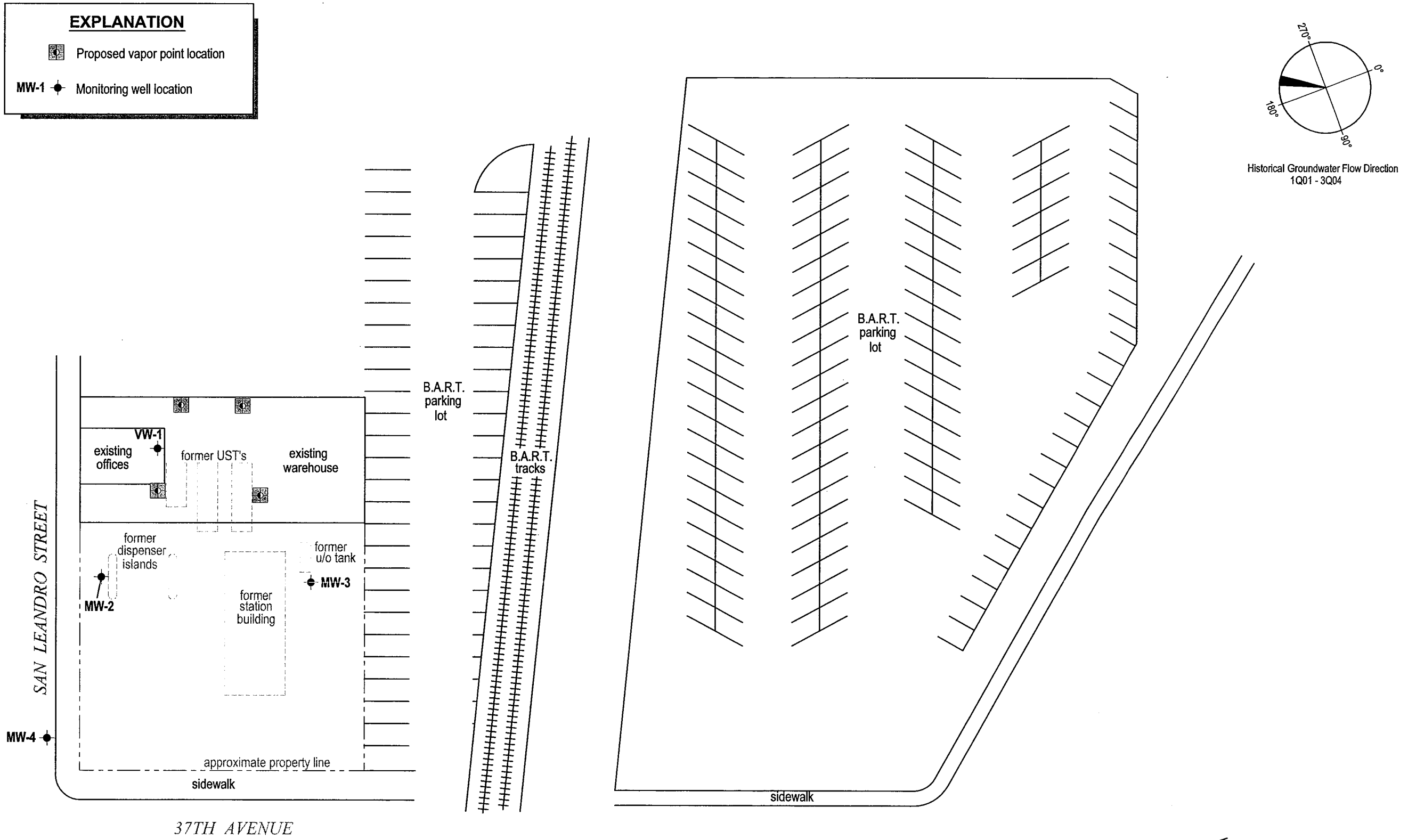
EXPLANATION

- Proposed vapor point location
- MW-1 Monitoring well location



Basemap modified from drawing provided by Gettler Ryan Inc.

FIGURE **2**

Site Plan with Proposed Vapor Probe Locations

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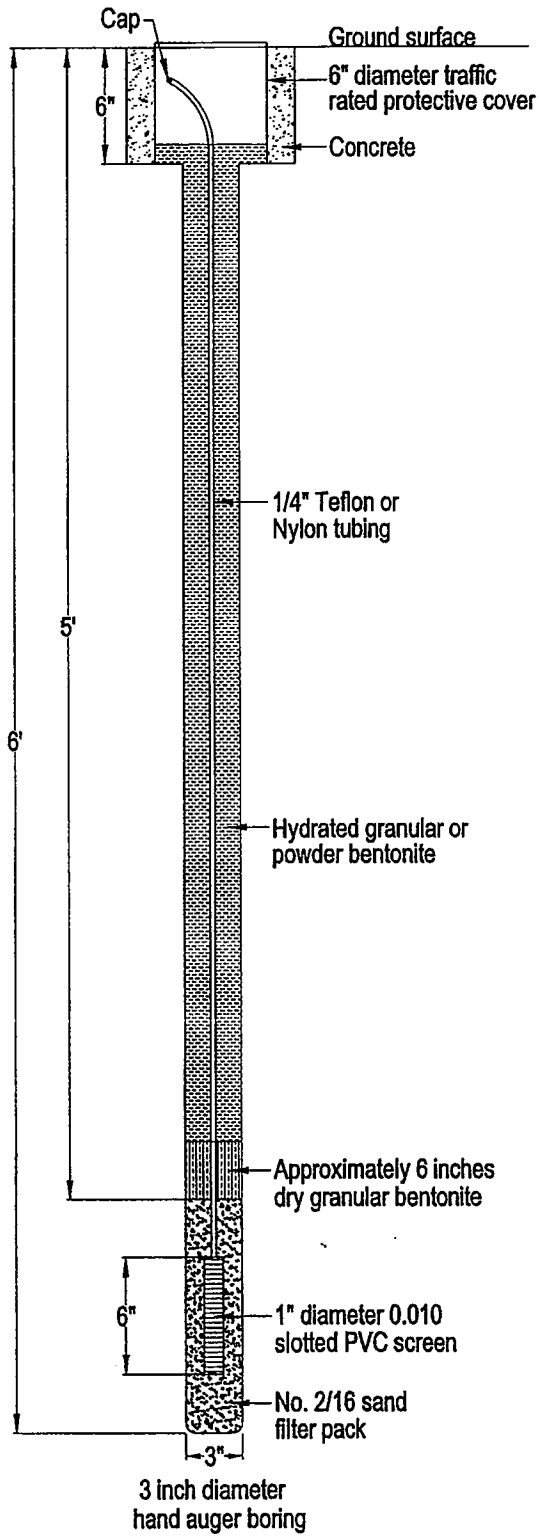
Fomer Chevron Service Station 9-4612
3616 San Leandro Street
Oakland, California

R:\9-4612 OAKLAND\FIGURES\9-4612_SITE PLAN.DWG



FIGURE

3

Schematic Not to Scale

Soil Vapor Probe

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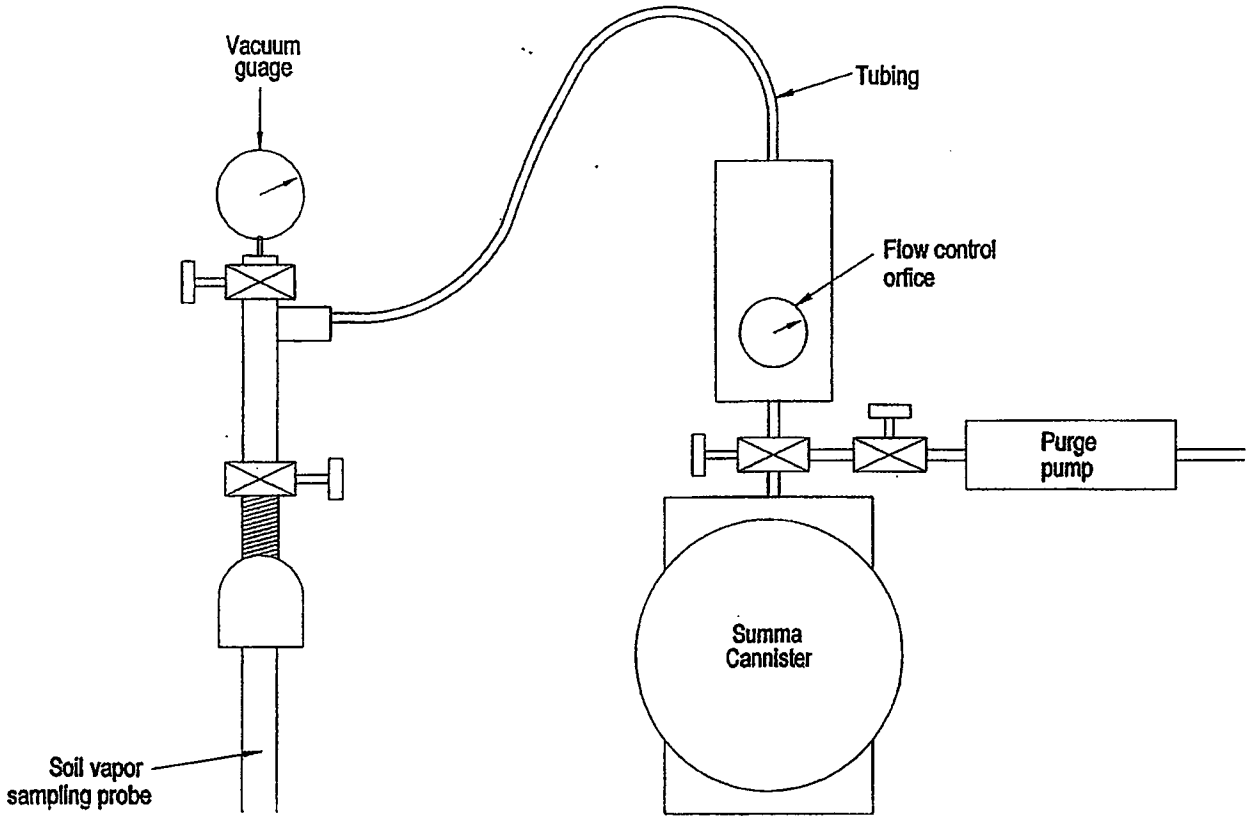

FIGURE
4

Schematic Not to Scale

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Soil Vapor Sampling Apparatus Diagram

ATTACHMENT A

Standard Field Procedures

STANDARD FIELD PROCEDURES FOR SOIL VAPOR SAMPLING
SOIL VAPOR PROBE

This document describes Cambria Environmental Technology's standard field methods for soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil vapor samples are collected and analyzed to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

Soil Vapor Probe Installation

Soil vapor probes are installed in the vadose zone to check for hydrocarbon vapor migration. The wells are typically constructed with short screens to target horizons through which hydrocarbon vapor migration could occur. These wells can be constructed in borings drilled with hand auger equipment or using push technologies such as the Geoprobe and using non-collapsible Teflon tubing set in small sand packed regions overlain by grout.

Soil Vapor Sampling

The required volume of soil vapor is purged through the polyethylene tubing using a standard vacuum pump. The soil vapor can then be sampled by attaching a vacuum sealed summa canister to the tubing. The summa canister should be attached to an air flow regulator which will regulate the rate that air can fill the summa canister. Once the canister is appropriately connected and a pressure test has been performed the canister can be opened and air allowed to flow in under vacuum pressure. Once the pressure valve reads -5 pounds per square inch the vacuum canister can be closed and sampling ended. Once collected, the vapor sample is transported under chain-of-custody to a state-certified laboratory. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. Drilling and sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Samples are stored out of direct sunlight in coolers and transported under chain-of-custody to a state-certified analytic laboratory.

Field Screening

After collecting a vapor sample for laboratory analysis, Cambria often collects an additional vapor sample for field screening using a portable photo-ionization detector (PID), flame-ionization detector (FID), or GasTech® combustible gas detector to measure volatile hydrocarbon vapor concentrations. These measurements are used along with the field observations, odors, stratigraphy and ground water depth to help select the best location for additional borings to be advanced during the field mobilization.

Grouting

The borings are filled to the ground surface with neat cement.