



Chevron

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November 4, 1993

Ms. Jennifer Eberle
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, CA 94621

Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing Department
Phone 510 842 9500

**Re: Former Chevron Service Station #9-4816
301 14th Street, Oakland**

Dear Ms. Eberle:

Enclosed we are forwarding a work plan dated November 2, 1993, prepared by our consultant Weiss Associates for the above referenced site. This work plan proposes to install a ground water extraction and treatment system to operate concurrently with the existing soils vapor extraction system. The objectives of this enhancement is to expose the saturated soils at the capillary area to induced air flow and to mitigate the dissolved phase hydrocarbons in the ground water.

We would appreciate your review of this work plan. Implementation of the work steps outlined in this plan will be taken upon receipt of your formal concurrence. WA has been instructed to commence the permitting process. If you have any questions or comments, please do not hesitate to contact me at (510) 842-9581.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY


Nancy Vukelich
Site Assessment and Remediation Engineer

Enclosure

cc: Mr. Rich Hiatt, RWQCB
Mr. Tom Berry, Weiss Associates
Mr. J.N. Robbins, CHVPK/V1156
Ms B.C. Owen
File (9-4816W1)

Ms. Beth D. Castleberry
Ware & Freidenrich
400 Hamilton Avenue
Palo Alto, CA 94301-1825



Weiss Associates

5500 Shellmound Street, Emeryville, CA 94608-2411

NOV 4 '93 11:11 AM
Environmental and Geologic Services
Fax: 510-547-5043 Phone: 510-450-6000

November 2, 1993

Nancy Vukelich
Chevron U.S.A. Products Company
P.O. Box 5004
San Ramon, CA 94583-0804

**Re: GWE System Installation
Work Plan
Former Chevron SS #9-4816
301 14th Street
Oakland, California
WA Job # 4-582-53**

Dear Ms. Vukelich:

This letter presents Weiss Associates' (WA) work plan for installing a ground water extraction (GWE) system at the above-referenced site (Figure 1). The proposed GWE system will pump ground water from wells CR-1, C-5 and VEW-3 which are presently connected to the soil vapor extraction system (Figure 2). The goals of ground water extraction are to:

- Increase soil vapor extraction effectiveness by dewatering saturated hydrocarbon bearing soils in the vicinity of these wells;
- Remove hydrocarbon bearing ground water; and
- Mitigate offsite hydrocarbon migration.

The proposed GWE system will pump ground water from wells CR-1, C-5 and VEW-3. Although we do not have pump test data, we estimate that each well will yield 1 to 2 gallons-per-minute (gpm) because the subsurface soils primarily consist of silty sands. As you requested, we will install electric submersible pumps with down-hole level sensor probes in all three proposed extraction wells. Ground water will be pumped through a particulate filter followed by three, 1,000-lb activated carbon beds connected in series (Figure 3). Treated ground water will be discharged to a newly installed sanitary sewer lateral. As required by

* VEW-3 only yields 0.3 gpm (see 2-24-94 Weiss hydraulic test results)
CR-1 yields 2.0 gpm

East Bay Municipal Utilities District (EBMUD), we will install a lower explosive level meter to monitor head space vapor concentrations in the system effluent line.

Based on quarterly monitoring data from June 1993, we anticipate initial TPH-G and benzene concentrations to be about 85,000 ppb and 10,000 ppb, respectively. At a flow rate of 4 gpm and with a carbon adsorption rate of 8%, initial carbon consumption would be about 1,500 lbs per month.

but they just estimated 1-2 gpm on previous page!

SCOPE OF WORK

The scope of work for installing the GWE system consists of the following tasks:

1. Researching sewer connection location,
2. Preparing EBMUD permit application,
3. System design and layout,
4. City of Oakland permitting,
5. Specifying and procuring equipment and materials,
6. Underground piping and well head modifications,
7. SVE treatment system reconfiguration and GWE and treatment system installation, and
8. Coordinate sewer lateral installation.

Each of these tasks is described below.

GROUND WATER EXTRACTION AND TREATMENT SYSTEM INSTALLATION

Task 1: Researching Sewer Connection Location

Determining the sanitary sewer main location and the acceptable connection point requires visiting the City of Oakland Public Works Department Offices. WA has contacted both the City of Oakland and EBMUD to have sewer maps sent to us, however, we were informed that we must visit the City of Oakland Public Works offices in person to get the information.



Task 2: Preparing EBMUD Permit Application

WA will prepare and submit the EBMUD waste water discharge permit. The permit application requires submitting the following information:

- Site history discussing prior land use and origin of contamination,
- Ground water sample analytical results including heavy metals, volatile organic compounds and any other pollutants suspected to be in ground water,

Note: We will use analytic results from quarterly monitoring. If additional analyses are required, we will contact you to coordinate sampling with your monitoring consultant.

- Site map showing the plume,
- Treatment system description,
- Description of the fail-safe device or shut-off method which guarantees that free product will not be discharge to the sanitary sewer,
- Schematic system flow diagram,
- Description of the self-monitoring program,
- Water balance,
- Spill prevention plan, and
- List of all environmental permits (eg. air discharge, hazardous waste, etc)

In addition to the above information, a \$2,260 application fee and your signature are required.

Task 3: System Design and Layout

WA will prepare system design plans and system layout for installing the GWE and treatment equipment, including electrical, plumbing and mechanical plans. Prior to preparing these plans a WA engineer will visit the site to determine how the existing SVE system will be reconfigured to accommodate the GWE and treatment system installation. Using the information gathered, we will prepare electrical, plumbing and mechanical plans and general specifications to use for permitting, material procurement and obtaining subcontractor bids.

Task 4: City of Oakland Permitting

WA will coordinate and/or obtain all required permits for installing and operating the GWE and treatment system. Preliminary discussions with the City of Oakland Building Department indicate that they may not require any permits, but the Fire Marshal may. However, until plans are submitted for their review they will not know for sure.

Task 5: Specifying and Procuring Equipment and Materials

WA will specify and procure required GWE and treatment equipment and materials including the electric submersible pumps, filter vessel and all associated meters, gauges, hoses, piping, fittings and mounting hardware. Chevron will supply the carbon beds.

Task 6: Underground Piping and Well Head Modifications

Routing the GWE pump hoses to the wells will require digging up the existing pipes and replacing the bends with long radius bends and replacing the 2-inch diameter piping to wells C-5 and CR-1 with 4-inch diameter pipe to accommodate pulling in the hoses and minimize flow restrictions resulting from using the SVE piping for GWE pump hose secondary containment piping. Electrical conduit and wiring will be installed in the same trenches. Well head modifications may be required to accommodate pump discharge hose and electrical wiring installation.

Task 7: SVE Treatment System Reconfiguration and GWE and Treatment System Installation

WA will reconfigure the existing SVE equipment within the enclosure to accommodate installing the filter vessel, carbon beds, above-ground piping and controls. The filter vessel will be installed on a pre-fabricated concrete pad. The submersible pumps and associated controls will require additional electrical circuit breakers, conduit, wiring and disconnects to be installed. We recommend abandoning the Type SO cord presently supplying the power to the SVE blower and installing all the power supply wiring from the distribution panel in a single, appropriately sized, buried conduit from the distribution panel to the equipment enclosure. This will reduce the extra material cost associated with using Type SO cords and eliminate safety hazards created by running numerous cords along the ground.

Task 8: Coordinate Sewer Lateral Installation

WA will prepare a bid package for submittal to contractors for installation of the sewer lateral. The work will be coordinated by a WA engineer and supervised by a field technician.

SYSTEM START-UP AND OPERATION

At your request, upon receiving the EBMUD waste water discharge permit, WA will prepare a budget for start-up and routine operation and maintenance of the ground water extraction system. Our routine O & M budget will combine both the SVE and GWE operations. Once the GWE system is operational, GWE effectiveness will be evaluated on a quarterly basis using the quarterly ground water elevation measurements.

Please call if you have questions, comments or require additional information.

Sincerely,
Weiss Associates



Michael Cooke
Project Geologist

TRB/MC:trb

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Attachments: Figure 1 - Site Location Map
Figure 2 - Treatment System Layout
Figure 3 - Ground Water Extraction and Treatment System Schematic

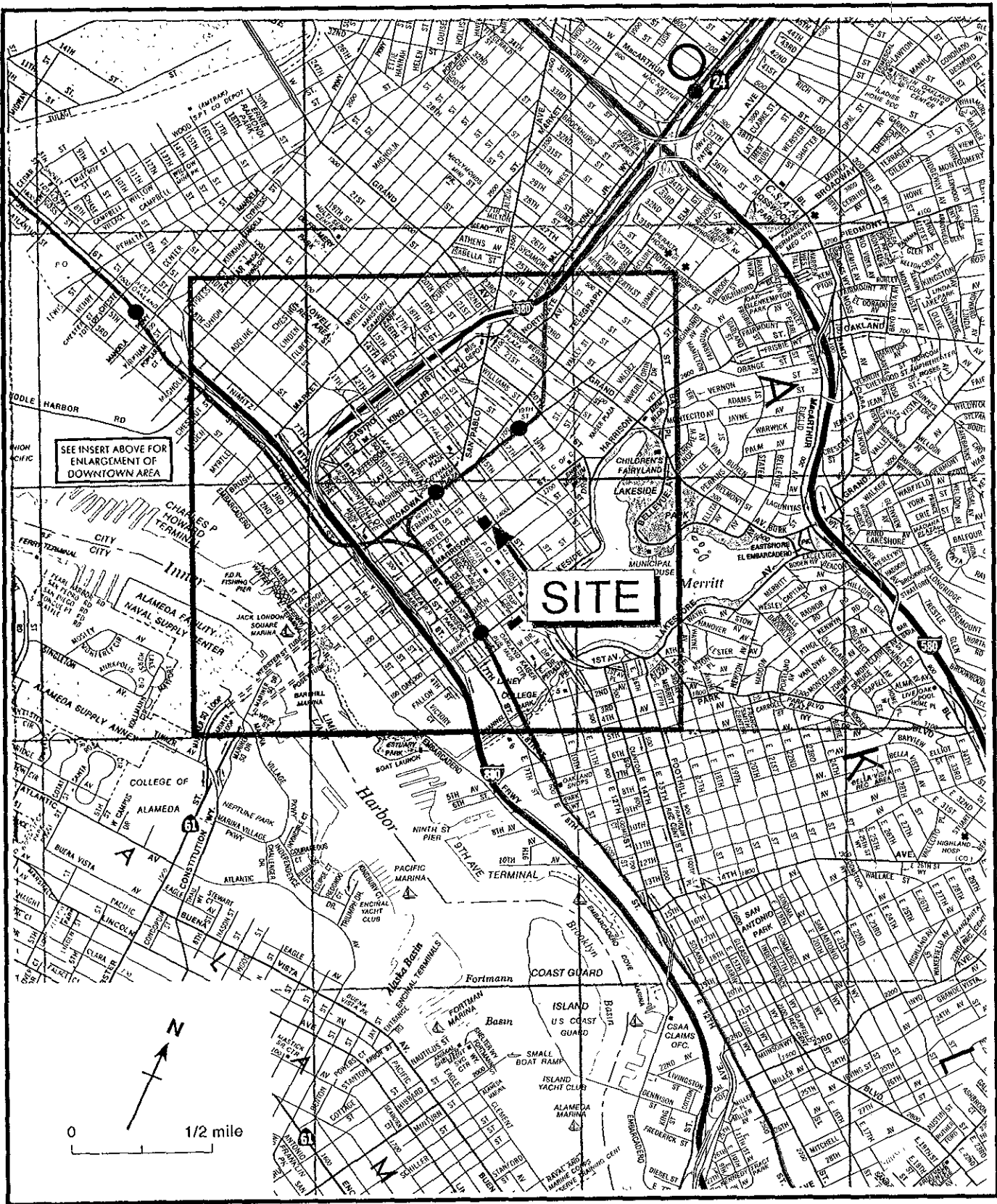


Figure 1. Site Location Map - Former Chevron Service Station #9-4816, 301 14th Street, Oakland, California

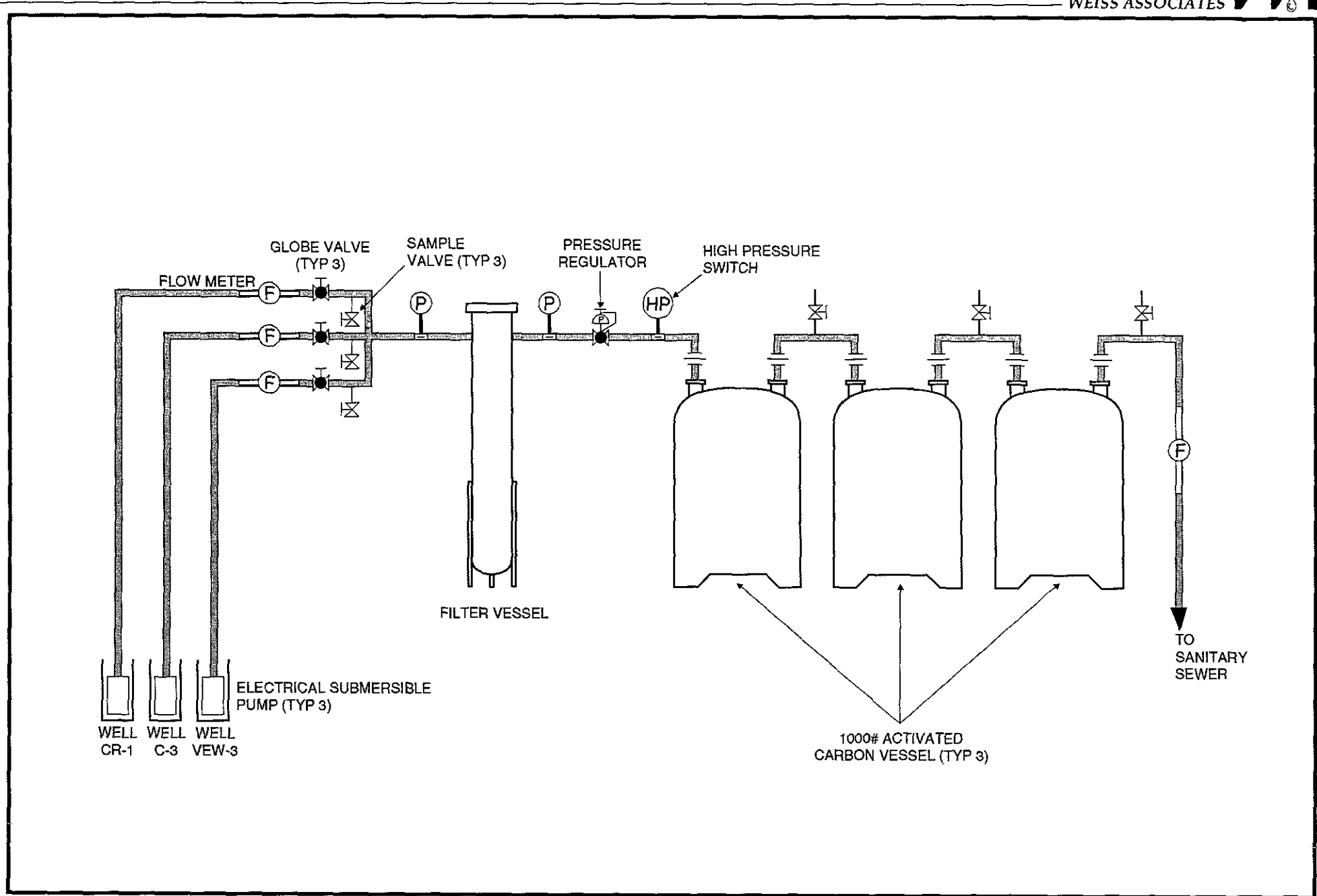
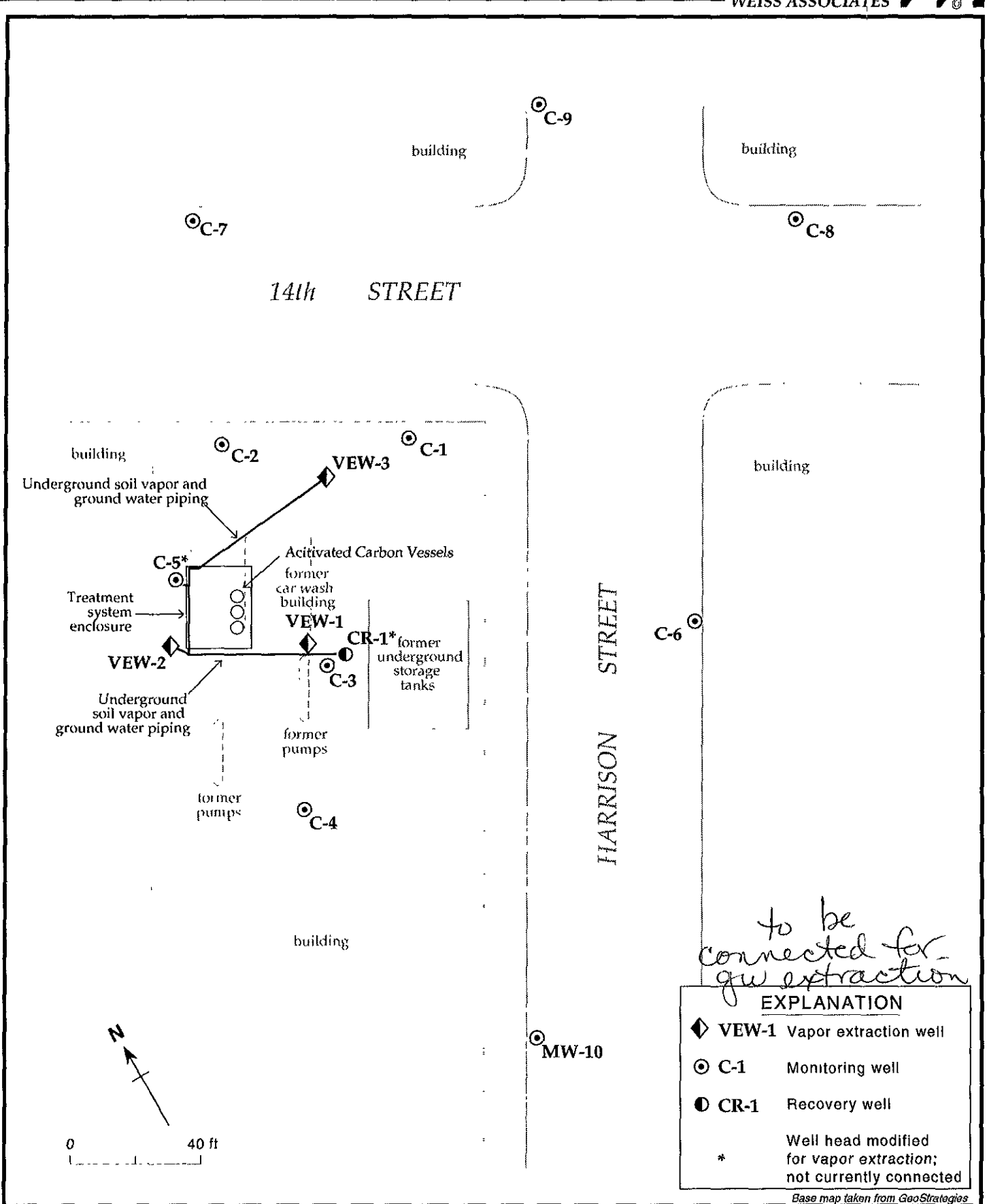


Figure 3. Ground Water Extraction System Schematic - Former Chevron Service Station #9-4816, 301 14th Street, Oakland, California



to be connected for gw extraction

EXPLANATION	
◆	VEW-1 Vapor extraction well
⊙	C-1 Monitoring well
●	CR-1 Recovery well
*	Well head modified for vapor extraction; not currently connected

Base map taken from GeoStrategies

Figure 2. Treatment System Layout - Former Chevron Service Station #9-4816, 301 14th Street, Oakland, California