SITE SAFETY PLAN
GROUNDWATER MONITORING AND STOCKPILE CHARACTERIZATION
3093 BROADWAY
OAKLAND, CALIFORNIA
SCI 447.055

Prepared By:

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July 31, 1995

I INTRODUCTION

This Site Safety Plan, prepared by Subsurface Consultants, Inc. (SCI), pertains to groundwater monitoring and stockpile characterization at 3093 Broadway, Oakland, California (Plate 1). The site is currently occupied by an automobile sales and service center. Up to eleven wells may be sampled during a given monitoring event. Individual wells will be sampled using submersible pumps and/or bailers. Free floating gasoline may be encountered in some of the wells. Free product that is encountered will be recovered using a dedicated bladder pump and/or bailers. The soil stockpile will be sampled using hand sampling techniques.

This Site Safety Plan has been prepared to outline minimum health and safety standards which should be implemented during site activities. This plan outlines a personnel and work-site safety program to minimize the risks of endangering personnel and/or property. It should be followed by SCI's personnel, as well as other subcontractors during the project.

II HEALTH AND SAFETY CONSIDERATIONS

Health and Safety Officer

The Site Safety Officer/Field Coordinator will be SCI's field geologist/engineer who will be on-site during drilling and sampling activities. He/she will be responsible for planning, implementing and auditing the health and safety program for the project.

Potentially Hazardous Substance Description and Distribution

A free product plume of gasoline and dissolved gasoline range hydrocarbons, DCA and BTEX are present in the groundwater. The soil stockpile contained TVH up to 190 mg/kg, TEH up to 1,600 mg/kg, benzene up to 270 ug/kg, toluene up to 130 ug/kg, ethylbenzene up to 210 ug/kg, xylenes up to 2,900 ug/kg and TOG up to 680 mg/kg.

Chemical Hazards

Potential chemical hazards include skin and eye contact, dust inhalation, and exposure to gasoline and volatile organic chemical vapors. The identified toxic compounds that may exist at the site are listed below, with descriptions of specific health effects of each. The list includes the primary toxic constituents of gasoline (benzene, toluene, ethylbenzene, and total xylenes).

1. **Benzene**

   a. **Characteristics:**

      Clear, colorless, highly flammable liquid with characteristic odor

   b. **High exposure levels may cause:**

      Acute restlessness, convulsions, depression, respiratory failure; a suspected carcinogen

   c. **Permissible exposure level (PEL) for a time weighted average (TWA) over an eight hour period:**

      1.0 ppm

2. **Toluene**

a. **Characteristics:**

Colorless, flammable liquid with benzene-like odor

b. **High exposure levels may cause:**

Weakness, dizziness, headache, dermatitis, skin irritation

c. **PEL for an 8-hour TWA:**

100 ppm

3. **Xylene**

a. **Characteristics:**

Colorless, flammable liquid with aromatic odor

b. **High exposure levels may cause:**

Dizziness, drowsiness, irritation of the eyes, nose and throat; narcosis at high concentrations

c. **PEL for an 8-hour TWA:**

100 ppm

4. **Ethylbenzene**

a. **Characteristics:**

Clear, colorless, highly flammable liquid with characteristic odor

b. **High exposure levels may cause:**

Irritation to skin, nose and throat, dizziness, constriction in chest, loss of consciousness, respiratory failure.

c. **PEL for an 8-hour TWA:**

100 ppm

Physical Hazards

Other on-site hazards may include physical injuries due to the proximity of workers to equipment and tools. Equipment and tools will likely include a steam cleaner, pumps and soil sampling equipment. Only trained personnel will operate and use the equipment; all equipment will be kept clean and in good repair.

III SAFETY PROCEDURES

Level of Protection

Regular surveys of the site and knowledge of the anticipated hazards will determine the level of protection and the proper safety procedures to be employed. Initially, workers coming into contact with potentially contaminated materials (soil and groundwater) will at a minimum wear steel-toed boots, disposable latex gloves, and hard hats.

The level of protection for personnel working in the area will be upgraded if organic vapor levels in the workers' breathing zone exceed 5 ppm above background levels continuously for more than 15 minutes. In this event, personnel protective equipment will include double cartridge respirators for organic vapors, disposable coveralls, gloves, and hard hats with safety shields or safety glasses.

All work will cease, equipment will be shut down, and personnel will withdraw from the area if the organic vapor concentration in the workers' breathing zone exceeds the rating of the respirator. The Site Safety Officer will determine when personnel may return to the work area. If work proceeds in an environment where organic vapor concentrations exceed the rating of cartridge respirators, a self-contained or supplied-air breathing apparatus will be utilized by the personnel. Where cartridge respirators are in use, work will cease if oxygen concentrations fall below 19.5 percent.

Organic Vapor Monitoring

Site personnel will monitor on-site levels of organic vapors using a portable Organic Vapor Meter (OVM). The Site Safety Officer will be notified if organic vapor levels in the samples exceed ambient concentrations.

Site Entry Procedures

The general work area involves the entire site. All personnel entering the work zone will be qualified personnel wearing the proper level of protection. Eating, drinking, smoking and any other practices which increase the probability of hand-to-mouth transfer will be prohibited in the work zone. All personnel will be instructed to thoroughly decontaminate upon leaving the work area. A first aid kit, 20-pound ABC fire extinguisher and potable water will be available at the site.

Decontamination Procedures

Equipment decontamination areas will be designated by the Site Safety Officer at the start of site work. To prevent the transfer of contamination from the work zone into clean areas, all tools will be cleaned with a steam cleaner prior to removal from the work zone. All disposable protective clothing will be put into plastic bags and disposed of properly.

In the event of a medical emergency, the injured party will be taken through decontamination procedures, unless the procedures may aggravate or cause more harm to the injured party. A member of the work team will accompany the injured party to the medical facility to advise on matters concerning chemical exposure.

IV EMERGENCY MEDICAL CARE

In the event of an injury or suspected chemical exposure, the first responsibility of the Site Safety Officer will be to prevent further injury. This objective will normally require an immediate end to work until the situation is rectified. The Site Safety Officer may order evacuation of the work party.

The Site Safety Officer's primary responsibilities in the event of an accident will be evacuation, first aid, and decontamination of injured team members. The Site Safety Officer will determine safe evacuation areas and begin first aid.

V EMERGENCY PROCEDURES

Response to Emergency

In case of an injury, the Site Safety Officer will employ the appropriate first aid and contact off-site medical help, if appropriate. The Site Safety Officer and the Project Manager will be notified. The telephone number for the Project Manager, Jeriann Alexander, is **(510) 268-0461**.

If medical evacuation to a hospital is required, the injured party should be taken to either Merritt Hospital, one block north and west of the site or Providence Hospital, one block south and west of the site.

Emergency Contacts & Telephone Numbers

Ambulance, Fire, Police:	911
Hospital:	Merritt Hospital Hawthorne Avenue at Webster Oakland, California (510) 655-4000 Providence Hospital 3100 Summit Street Oakland, California (510) 835-4500
Chemical Spills:	National Response Center (24 hours) (800) 424-8802
Chemical Releases :	Chemtrec (24 hours) (800) 424-9555
Environmental Emergencies	U.S. Environmental Protection Agency - (24 hours) (415) 744-2000
Poison Control Center:	(24 hours) (800) 523-2222
Occupational Injuries:	Cal-OSHA District Office (415) 703-1670

Acute Exposure Symptoms and First Aid

Exposure Route	Symptoms	First Aid
Skin	Dermatitis	Wash immediately with soap and water, contact ambulance if evacuation is necessary.
Eye	Irritated eyes	Flush eyes with water, transport directly to emergency room, if necessary.
Inhalation	Vertigo, tremor	Move person to fresh air, cover source of chemicals
Ingestion	Nausea, vomiting	Call Poison Control Center, arrange transport to emergency medical facility.

Contingency Plan

The following procedures will be used in case of an unpredictable event.

Fire:	Use fire extinguisher if localized and call the fire department if uncontrolled.
Chemical Exposure:	Follow first aid treatment specified previously.
Physical Injury:	Provide first aid treatment and contact ambulance for evacuation, if appropriate.

VI SITE SAFETY PLAN DISTRIBUTION RECORD

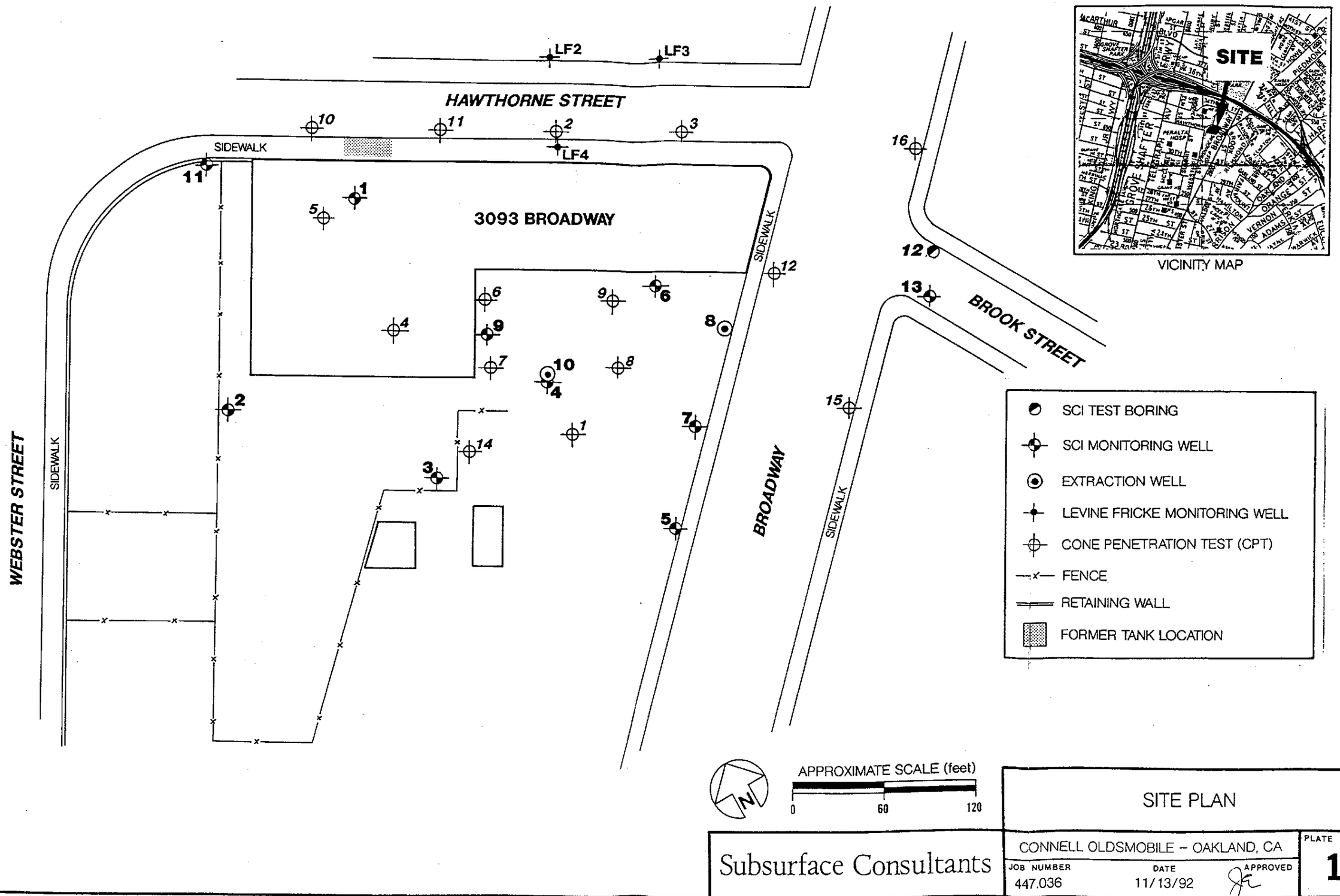
All personnel who may be affected by activities covered by this Site Safety Plan must read and understand and comply with all provisions of this Site Safety Plan.

Print Personnel Name	Company	Date	Signature

List of Attached Plates:

Plate 1 Site Plan

JNA:sld



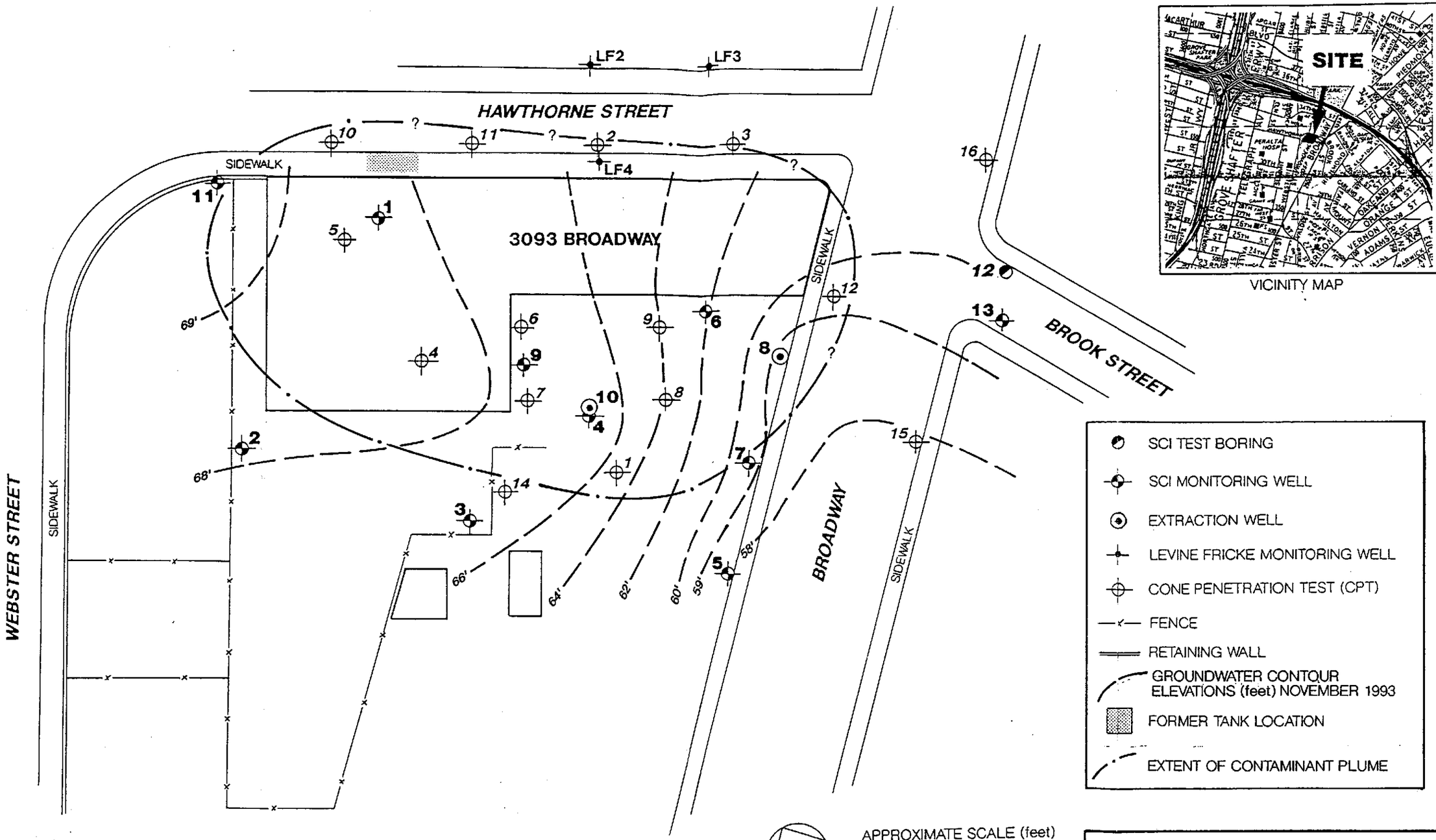
SITE PLAN

Subsurface Consultants

CONNELL OLDSMOBILE – OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.036	11/13/92	

PLATE 1



GROUNDWATER CONDITIONS

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CONNELL OLDSMOBILE – OAKLAND, CA

JOB NUMBER	DATE	APPROVED
447.036	1/10/94	

PLATE 2