

ENVIRONMENTAL
PROTECTION

96 SEP 11 PM 3:40

September 5, 1996

2/23

STIP 3160

Jon Legallet
Telegraph Business Properties
1401 Griffith Street
San Francisco, CA 94124

Re: Subsurface Investigation Work Plan
Telegraph Business Park
5427 Telegraph Avenue
Oakland, California
SES Project #4-719-22

Dear Mr. Legallet:

Sierra Environmental Services (SES) is pleased to provide this work plan for a subsurface investigation at the above-referenced site (Figure 1, Appendix A). SES proposes to install ten geoprobe soil borings in both on-site and off-site locations (Figure 2, Appendix A). The objective of the investigation is to further evaluate the extent of stoddard solvent and volatile organic compounds (VOCs) in groundwater both on-site and off-site.

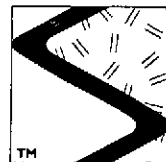
INTRODUCTION

Background

The site was formerly a large-scale dry-cleaning establishment. The on-site underground storage tanks were used by previous occupants to store stoddard solvent, stoddard solvent waste and vehicle fuel.

In May 1992, SES personnel supervised the removal of 17 underground storage tanks from the site. Hydrocarbons as gasoline, diesel, stoddard solvent, and benzene, toluene, ethylbenzene and xylenes (BTEX) were detected in sidewall samples taken from the tank excavations. Analytic results are reported in the 1992 SES report.¹

¹ Sierra Environmental Services, 1992, Consultant's Report of Tank Removal Activities, prepared for Telegraph Business Properties, July 21, 1992, 9 pages and 4 appendices.



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On December 13 and 14, 1993, SES supervised the drilling of twelve on-site soil borings. Groundwater monitoring wells (MW-1 through MW-3) were installed in three of the soil borings. The monitoring well and soil boring locations are shown on Figure 2 (Appendix A). Results of the investigation are discussed in the SES report dated April 15, 1994.²

Since the installation of the monitoring wells, SES has conducted monthly water level measurements and quarterly groundwater sampling. Results of the monthly water level measurements and the quarterly groundwater sampling are presented in the most recent groundwater monitoring report, dated August 30, 1996.³

On March 22, 1994 and April 19, 1994, SES supervised the drilling of five on-site and three off-site soil borings. The locations of the soil borings are shown on Figure 2 (Appendix A). Results of the SES investigation are presented in the Subsurface Investigation Report dated June 27, 1994.⁴

Topographic and Geologic Setting

The site is located in the City of Oakland, Alameda County, California. The topography of the site is relatively flat.⁵ The average groundwater gradient, based on previous water level measurements on the site from February 1994 to July 1996, is toward the west-southwest at 0.023 ft/ft.⁶ The closest surface water is Glenn Echo Creek located approximately one-half mile

² Sierra Environmental Services, 1994, Subsurface Investigation Report, prepared for Telegraph Business Properties, April 15, 1994, 6 pages and 5 appendices.

³ Sierra Environmental Services, 1996, Quarterly Ground Water Monitoring Report, prepared for Telegraph Business Properties, August 30, 1996, 2 pages and 5 attachments.

⁴ Sierra Environmental Services, 1995, Subsurface Investigation Report, for Telegraph Business Park, 5427 Telegraph Avenue, Oakland, June 27, 1995, 5 pages and 5 appendices.

⁵ United States, Geological Survey, Topographic Map, Oakland West 7.5 Minute Quadrangle, 1959, photorevised (1980).

⁶ Sierra Environmental Services, 1996, Quarterly Ground Water Monitoring Report, prepared for Telegraph Business Properties, August 30, 1996, 2 pages and 5 attachments.



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southeast of the site which flows into Lake Merritt. The site is approximately 120 feet above mean sea level.

The site is underlain by Late Pleistocene Alluvium which consists of weakly consolidated, slightly weathered, poorly sorted, irregular interbedded clay, silt, sand and gravel.⁷ Previous investigations at the site have shown the soil immediately underlying the site consists primarily of sandy lean clay and clayey sand.⁸

SCOPE OF WORK

The objective of the investigation is to further evaluate the extent of stoddard solvent and VOC concentrations in groundwater both on- and off-site. The scope of work for the investigation is to:

1. Prepare a site safety plan specific to this investigation based on past and present site use.
2. Install ten geoprobe soil borings to a maximum depth of 20 feet below ground surface (BGS). Collect soil samples from the soil borings at approximate 5-foot intervals and just above the groundwater surface. Survey soil samples from the borings with an organic vapor meter (OVM) to determine whether organic vapors are present in the samples.
3. Collect grab groundwater samples from the borings. Analyze the groundwater samples for stoddard solvent [TPH(S)]; BTEX; and VOCs by EPA Methods 8015, 8020, and 8010 respectively. Properly abandon the borings by grouting them to surface.
4. Dispose of equipment rinseate.

⁷ Flatland Deposits of the San Francisco Bay Region, California - Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning, E.J. Helley and K.R. Lajoie, U.S. Geological Survey, Geological Survey Professional Paper 943, 1979.

⁸ Sierra Environmental Services, 1995, Subsurface Investigation Report, for Telegraph Business Park, 5427 Telegraph Avenue, Oakland, June 27, 1995, 5 pages and 5 appendices.



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5. Report the results.

Each of these tasks is described below.

Task 1 - Site Safety Plan

Using available site history information, SES has prepared a site-specific safety plan. The site safety plan (SSP) identifies potential site hazards and specifies procedures to protect site workers. The SSP will be on-site during field operations and is included in Appendix C.

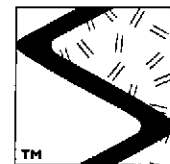
Task 2 - Soil Boring and Soil Sampling

SES proposes to drill ten soil borings to a depth of approximately three feet below the water table, which is normally 6 to 15 feet BGS. Drilling may be deeper if the bottom soil sample appears to contain petroleum hydrocarbons. The proposed soil boring locations are shown on Figure 2 (Appendix A). The soil boring locations were chosen to further evaluate the down-/cross-gradient extent of petroleum hydrocarbons in groundwater both on-site and off-site.

Prior to drilling, utilities will be located by USA and a private underground utility detection company. The borings will be installed by a California licensed drilling contractor. Soil samples will be collected from all borings at intervals no greater than five feet in pre-cleaned brass or stainless steel tubes in accordance with SES Standard Operating Procedure - Soil Sampling - Direct Push (Appendix B).

The borings will be logged in accordance with SES Standard Operating Procedure - Logging Method (Appendix B). The borings will be drilled under the supervision of Wayne Akiyama, R.G. #6009.

The soil samples will be field screened with an OVM in accordance with SES Standard Operating Procedure - OVM Readings (Appendix B).



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All drilling equipment will be steam-cleaned prior to use, and all sampling equipment will be washed between samples using EPA-approved detergent (Liquinox) and rinsed with potable water.

Task 3 - Grab Groundwater Sampling and Analysis and Boring Abandonment

Grab groundwater samples will be collected from the geoprobe borings in accordance with SES Standard Operating Procedure - Collection of Grab Groundwater Samples from Temporary Sampling Points - Direct Push (Appendix B). Groundwater samples will be analyzed for TPH(S) by EPA Method 8015 modified, BTEX by EPA Method 8020 and VOCs by EPA Method 5030/8010. All groundwater samples will be analyzed at a California DHS-certified laboratory.

After groundwater samples are collected, the borings will be abandoned by filling them with a mixture of Portland cement and 3 to 5% bentonite powder.

Task 4 - Rinseate Water Disposal

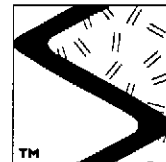
Rinseate purge water generated during steam-cleaning will be placed in a labeled drum pending disposal. SES will coordinate disposal of rinseate water generated from work outlined in this work plan.

Task 5 - Report Preparation

SES will prepare a letter report documenting the results of the work. The report will include:

Text:

- A summary of the results
- Scope of work
- Site history



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- Previous investigations
- Topographic and geologic setting
- Soil borings
- Description of soil sampling
- Description of groundwater sampling
- Boring abandonment procedures
- Groundwater analytic results
- Conclusion(s)

Figures:

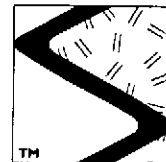
- Site Location Map
- Soil Boring Location Map

Tables:

- Water Levels
- Analytic Results for Groundwater

Appendices:

- Appendix A: Figures
- Appendix B: Tables
- Appendix C: SES Standard Operating Procedures
- Appendix D: Boring Logs
- Appendix E: Chain of Custody Documents and Laboratory Analytic Reports



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Thank you for allowing SES to provide environmental consulting services to Telegraph Business Properties. Please call if you have any questions or comments.



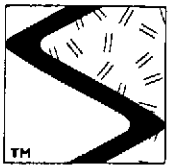
Sincerely,
Sierra Environmental Services

Jim Green for Mario Sternad.
Mario Sternad
Staff Engineer

[Signature]
Chris J. Bramer
Professional Engineer #C48846

MS/CJB/ms
71922WP.AU6

Attachments: Appendix A - Figures
Appendix B - SES Standard Operating Procedures
Appendix C - Site Safety Plan



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APPENDIX B
SES STANDARD OPERATING PROCEDURES



SES STANDARD OPERATING PROCEDURE

SOIL SAMPLING - DIRECT-PUSH

The following describes sampling procedures used by SES field personnel to collect, handle, and transport soil samples collected by direct-push technology. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis.

All drilling and sampling equipment is washed with an EPA approved detergent (such as liquinox or trisodium phosphate) between sample collection to prevent cross-contamination. Collection methods specific to soil sampling are presented below.

Soil samples are collected at pre-specified depth intervals or at a sediment/lithologic change for hydrogeologic description and possible chemical analysis. Samples are collected using a hydraulic sampling device lined with 1- or 2-inch I.D. disposable poly-vinyl or new or steam-cleaned brass or stainless-steel tubes.

The sampler is driven hydraulically to the specified depth and then extracted from the borehole. If poly-vinyl sampling tubes are used, the desired portion of the tube and the soil it contains are carefully cut and removed for possible analysis. If brass or stainless-steel tubes are used, the middle or bottom tube is carefully removed for possible analysis. The soil material is immediately trimmed flush with the tube ends, and sealed with Teflon tape beneath polyethylene end caps. The caps are hermetically sealed to the tube with duct tape. The sample is then labeled to include the date, boring number, depth of sample, project number, SES, and the SES field personnel's initials. The samples are put into a resealable plastic bag and placed into an ice chest maintained below 4°C with blue ice or dry ice, for transport under chain of custody to the laboratory. The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the SES field personnel's name. The form is signed, dated and timed by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.



SES STANDARD OPERATING PROCEDURE

OVM READINGS

SES uses an organic vapor meter (OVM) to determine the presence or absence of volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes in soil samples chosen for field screening. The OVM uses a photoionization detector (PID) and is calibrated daily to 100 parts per million of 1-liter of isobutylene. The OVM, which measures in parts per million by volume (ppmv), is used for qualitative, not quantitative, assessment because the correlation between the volume measurements of the OVM and the weight measurements of the laboratory instruments is not well defined.

A field screen sample is obtained from the brass tube immediately above or below the brass tube containing the sample selected for possible analysis. The soil to be screened is removed from the brass tube, and is placed in a pre-cleaned brass tube with aluminum foil and a polyethylene cap on one end. The brass tube is loosely filled to approximately 1/2 full. Another square of aluminum foil is placed on the open end and a polyethylene cap with crossed slits is placed over it.

The field screen sample is allowed to temperature equilibrate for approximately 15 to 30 minutes in the sun, allowing any VOCs which might be present in the soil to volatilize out into the brass tube's headspace. The OVM nozzle is then placed inside the sealed brass tube, through the slits in the cap, in order to measure the VOCs present, if any, in the headspace. The nozzle should remain inside the brass tube for approximately 15 to 30 seconds or until the maximum reading has been recorded on the OVM readout panel.

The depth from which the sample came and the corresponding OVM reading is recorded on the original field log sheet. Field observations, OVM and (odor and staining) readings are used in determining which soil samples are to be analyzed in the laboratory.

OVM.SOP



SES STANDARD OPERATING PROCEDURE

LOGGING METHOD

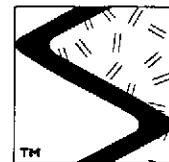
Unconsolidated soil is classified and described by trained SES field personnel. All available information is used, including the following: soil recovered in the sampler, including the soil visible on both ends of the sample retained for possible analysis; soil cuttings generated during drilling; and the drilling contractor's observations of the drill rig's behavior.

Classification and description of unconsolidated soil is accomplished using the American Society of Testing and Materials (ASTM) Methods D2487-85 (Unified Soil Classification System (USCS)) and/or D2488-69 (Description and Identification of Soils (Visual-Manual Procedure)).

The soil classification and description is recorded on the field log sheet by SES field personnel and includes the following information:

- 1) Soil type;
- 2) Soil classification;
- 3) Soil color, including mottling;
- 4) Moisture content;
- 5) Plasticity and consistency (fine-grained material) or density (coarse-grained material);
- 6) Percentages of clay, silt, sand and gravel;
- 7) Grain size range of sands and gravels;
- 8) Angularity and largest diameter of gravel component;
- 9) Estimated permeability;
- 10) Odor; and
- 11) Any other observations which would assist in the interpretation of the depositional environment and/or differentiation between the various geologic units expected to be encountered.

In addition to the above, the ground water levels encountered during drilling and measured after the water stabilized is also recorded on the field log.



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SES STANDARD OPERATING PROCEDURE

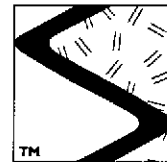
COLLECTION OF GRAB GROUND WATER SAMPLES FROM TEMPORARY SAMPLING POINTS - DIRECT PUSH

Prior to drilling temporary sampling point locations and analytical methods for soil and water samples are designated based on the regulatory requirements and objectives of the sampling program. Permits are secured prior to drilling, and utilities are located by an underground utility detection company. The borings are installed by a licensed drilling contractor using direct push methods. Borings are logged in accordance with VSE Standard Operating Procedure-Logging Method.

Soil samples are collected from the borings at intervals no greater than 5 ft using a hydraulic sampling device lined with 1- or 2-inch I.D. disposable poly-vinyl or new or steam-cleaned brass or stainless-steel tubes. Samples are collected in accordance with VSE Standard Operating Procedure-Soil Sampling - Direct Push. VSE will attempt to collect a soil sample immediately above the saturated zone. The soil samples will be field-screened for analysis with an organic vapor meter (OVM) in accordance with VSE Standard Operating Procedure-OVM Readings.

Upon reaching the targeted depth in each of the borings, (commonly about 3 ft below the estimated ground water level), the direct-push equipment is backed out. If necessary to prevent the boring from collapsing, the appropriate length of 1-inch diameter 0.010-inch-slotted and blank PVC casing is advanced into the saturated zone.

A water level meter is used to measure depth to water. Depth to water is measured to the nearest 0.01 ft and noted on the sampling form. Ground water samples are collected from the wells using disposable bailers, or steam-cleaned teflon bailers, or steam-cleaned stainless steel bailers. The water samples are placed into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in resealable polyethylene bags and in an ice chest (maintained at 4°C with blue ice or ice) for transport under chain-of-custody to the laboratory.

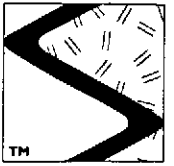


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The chain-of-custody form includes the project number, analysis requested, sample ID, date of analysis and the VSE field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.

A trip blank accompanies each sampling set, or 5% trip blanks and are included for sets of greater than 20 samples. The trip blanks are analyzed for some or all of the same compounds as the ground water samples.

The temporary ground water sampling points are abandoned according to local requirements after ground water samples have been collected. Generally the casings are pulled and the borings are grouted to the surface with a mixture containing Portland Cement and 3 to 5% bentonite.



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APPENDIX C
SITE SAFETY PLAN



**SIERRA ENVIRONMENTAL SERVICES
SITE SAFETY PLAN**

A. GENERAL INFORMATION

CLIENT: Telegraph Business Park PROJECT NO: 4-719-22

PROJECT MANAGER: John Trigg DATE PREPARED: August 28, 1996

SITE LOCATION: Telegraph Business Park, 5427 Telegraph Ave, Oakland, California

SCOPE/OBJECTIVE OF WORK: Drill two on-site and five off-site soil borings using the geoprobe method and collect soil and grab groundwater samples from each boring.

PROPOSED DATE OF FIELD ACTIVITIES: September 1996

BACKGROUND INFORMATION: Complete Preliminary (no analytical data available)

DOCUMENTATION/SUMMARY:

Overall Chemical Hazard:	<input type="checkbox"/> Serious	<input type="checkbox"/> Moderate	Criteria for Determination:
	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Unknown	<u>Previous Analytic Data</u>
Overall Physical Hazard:	<input type="checkbox"/> Serious	<input checked="" type="checkbox"/> Moderate	Criteria for Determination:
	<input type="checkbox"/> Low	<input type="checkbox"/> Unknown	<u>Drilling Equipment</u>

B. SITE/WASTE CHARACTERISTICS

WASTE TYPE(S): Liquid Solid Sludge Gas/Vapor

CHARACTERISTIC(S): Flammable/Ignitable Volatile Corrosive Acutely Toxic
 Explosive Reactive Carcinogen Toxic

PHYSICAL HAZARDS: Overhead Confined Space Below Grade Trip/Fall
 Puncture Burn Cut Splash
 Other Drilling Equipment

SITE HISTORY/DESCRIPTION AND UNUSUAL FEATURES: Site is a former dry cleaning establishment. Site is currently used by retail businesses.

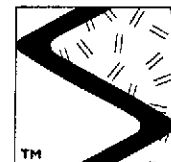
LOCATION OF CHEMICAL/WASTES: Liquid waste will be temporary stored on-site in 55 gallon drums or a holding tank.

ESTIMATED VOLUME OF CHEMICAL/WASTES: ~55 gal. rinse water

SITE CURRENTLY IN OPERATION: Yes No

SITE UTILITIES HAVE/WILL BE LOCATED PRIOR TO DRILLING ACTIVITIES BY:

USA Private Locator Client N/A



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C. HAZARD EVALUATION

LISTS HAZARDS BY TASK. (Cross-reference task numbers in Section D).

Task 1: Drill 10 geoprobe soil borings on-site and off-site

Task 2: Collect soil and grab groundwater samples

Task 3: Dispose rinse water

Task 4: _____

CHEMICAL HAZARD EVALUATION:

Compound	Action Level* STEL/TWA (ppm)	Route of Exposure	Acute Symptoms	Odor Description
Benzene	0.5/0.5	Inhalation/Dermal	Confusion, euphoria, vomiting, dizziness	Petroleum
Toluene	75/50	Inhalation/Dermal	Confusion, euphoria, vomiting, dizziness	Petroleum
Ethylbenzene	63/50	Inhalation/Dermal	Confusion, euphoria, vomiting, dizziness	Petroleum
Xylenes	75/50	Inhalation/Dermal	Confusion, euphoria, vomiting, dizziness	Petroleum
Gasoline	250/150	Inhalation/Dermal	Confusion, euphoria, vomiting, dizziness	Petroleum
Diesel #2	NA/50	Inhalation/Dermal	Headache, loss of appetite, weakness, loss of coordination	Petroleum
Petroleum Distillates	NA/150	Inhalation/Dermal	Dizziness, drowsiness, nausea, headache	Petroleum
Stoddard Solvent	NA/50	Inhalation/Dermal	Headache, drowsiness, dizziness, loss of coordination, fatigue, and asthma-like conditions	Petroleum (sweet)

* Action level is defined as 50% of both the Short Term Exposure Limit and the Time Weighted Average Exposure Limit. Units are parts per million in air. STEL = Short Term Exposure Limit. TWA = Time Weighted Average Exposure Limit (8-hour period).

D. SITE SAFETY WORK PLAN

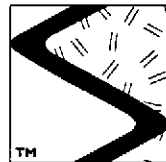
SITE CONTROL: ATTACH MAP OF SITE SHOWING HOT ZONE, CONTAMINATION REDUCTION ZONE, ETC.

Perimeter Identified? Site Secured? Work Area Designated? Zone(s) of Contamination Identified?

ANTICIPATED LEVEL OF PROTECTION (cross-reference task numbers in Section C):

	A	B	C	D
Task 1				X
Task 2				X
Task 3				X
Task 4				

MODIFICATIONS: In the event personal air monitoring levels exceed STEL/TWA action levels for organic vapors and/or benzene, site personnel will upgrade to Level C protection.



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Excavation Safety: All excavation activities will be performed in accordance with Title 8, Section 1540 of the California Code of Regulations. This includes the following:

- Locations of underground utilities
- Notification of Regional Centers two working days prior to excavation start
- Surface obstacles that pose a hazard will be removed or made safe before excavation begins
- Spoils placement will be at least 2 feet from excavation edges
- Personnel entering excavations that are 5 feet or greater in depth will be protected by shoring, sloping, or benching of the sidewalls
- The site safety officer will check excavated area prior to entry
- Work in the excavation will proceed under immediate supervision of the site safety officer
- A safe means of entry and exit will be provided
- Trenches will be crossed only where safe crossings have been provided
- No excavation work will take place below the base level of immediately adjacent foundation or retaining wall until a California Registered Civil Engineer determines that no hazard has been created
- Barriers will be provided to prevent mobile equipment from inadvertently entering the excavation
- Personnel working near excavating equipment will work in a safe position to prevent coming into contact with equipment's moving parts
- Surface water entry into the excavation will be provided by diversion ditches or dikes

Personnel Safety: All site personnel are trained in accordance with 29 CFR 1910.120 and/or Title 8, Section 5192 of the California Code of Regulations.

AIR MONITORING EQUIPMENT:

The following air monitoring equipment is used on-site.

- Sensidyne air pump and detector tube system for measuring benzene concentrations
- OVM/Data logger (Model 580B) manufactured by Thermo Environmental Instrument Inc. to detect volatile compounds in soil, and to perform ambient air surveys.

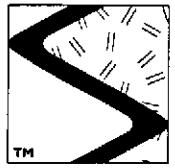
The calibration procedures for air monitoring equipment are stated below, calibration will be conducted daily prior to any field surveys.

Sensidyne Air Pump:

Since the detector tube system is sensitive to the amount of air pulled through the reaction tube, the pump will be periodically checked for air volume and flow rate (every 4 hours). The pump will be leak tested each time it is used. An intact tube will be placed in the pump and negative pressure will be applied to the system. If the pump is working properly it will hold the negative pressure for about one minute.

OVM (580B):

A factory-prepared standard of 100 ppm isobutylene is used as the calibration standard for the OVM. The OVM is connected to the standard gas with polyethylene tubing and draws the standard gas at its operating rate. The standard gas may also be used to inflate a Tedlar air sampling bag, which is then used as a source for OVM calibration. The OVM instrument is factory programmed to calibrate to the known concentration of isobutylene. The zero point is calibrated to the ambient air.



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AIR MONITORING:

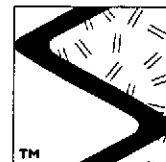
Contaminant	Type of Sample Area (A), Personal (P)	Monitoring Equipment	Frequency of Sampling†
Benzene*	A,P	Sensidyne pump with Draeger tubes	Every hour
Organic Chemicals	A,P	Organic vapor meter	Every hour or when odor is present

* Air monitoring for benzene will be instituted if OVM readings indicate an excess of 100 ppm.

† Frequency of air monitoring will be increased to once every one-half hour when STEL/TWA action levels are exceeded. Frequency of air monitoring may be reduced to once every hour after two sampling periods indicate that both organic vapors and benzene concentrations are below the STEL/TWA action levels.

RECORD OF AIR MONITORING:

Date	Time	Type of Sample Area (A), Personal (P)	Contaminant/Equipment	Measurement Recorded & Units



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PERSONAL ATMOSPHERIC HAZARD GUIDELINES:

For Community Safety Concerns refer to Section G (see pages 7 and 8)

Instrument	Frequency	Exposure/Level† (ppm)	Action for Site Workers
EPA Sensidyne with benzene tubes	Every hour*	Short-term/ <0.5 Long-term/ <0.5	Continue investigation
		Short-term/ ≥0.5 Long-term/ ≥0.5	Upgrade personal protection equipment (PPE) to Level C with organic vapor cartridges
		>2 ppm for more than 15 minutes	Withdraw from area, and reassess conditions. Urinary phenol test on employees.
OVM (580B)	Every hour and when strong odors are present	<100 ppm	Continue investigation
		100 - 150 ppm	Continue investigation with caution*
		Short-term/ ≥250 Long-term/ ≥150	Continue investigation upgrade site workers PPE to Level C
		>500 ppm for more than 15 minutes	Discontinue site investigation pending a reassessment of the conditions

* Air monitoring for benzene will be instituted if OVM readings indicate an excess of 100 ppm.

† Short-term is for exposures of 15 minutes or less. Long-term is for exposures of greater than 15 minutes.

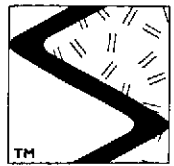
DECONTAMINATION SOLUTIONS AND PROCEDURES FOR EQUIPMENT, SAMPLING GEAR, ETC.: All drilling and sampling equipment is steam cleaned; water is contained and placed in holding tank. All other equipment is rinsed or cleaned with damp towel or rag (left on-site for disposal).

PERSONNEL/DECONTAMINATION PROTOCOL: Remove and leave tyvek and gloves on-site; wash with soap and water.

SPECIAL SITE EQUIPMENT, FACILITIES, OR PROCEDURES (sanitary facilities and lighting): _____

GENERAL SPILL CONTROL, IF APPLICABLE: All liquid spills will be contained with absorbent materials and placed in a steel drum for future disposal.

INVESTIGATION-DERIVED MATERIAL DISPOSAL: Place tyvek, gloves and disposable sampling equipment in a plastic liner and place in a steel DOT-approved 17-H 55-gallon drum.



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FIELD TEAM MEMBERS

RESPONSIBILITY

E. EMERGENCY INFORMATION

AMBULANCE: 911

HOSPITAL: (510) 204-1303 Alta Bates General Hospital

POISON CONTROL CENTER: (800) 523-2222

POLICE: 911

FIRE DEPARTMENT: 911

AGENCY CONTACT: (510) 567-6700 Alameda County Department of Environmental Health, Susan Hugo

LABORATORY: Superior Precision Analytical (510) 313-0850

EMERGENCY CONTACTS: Project Manager: (Name) John Trigg, Sierra Environmental Services

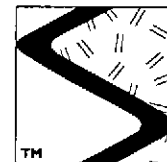
(Office) (510) 370-1280

Client: (Name) Jon Legallet

(Office) (415) 822-8255

EMERGENCY ROUTES:

Directions to hospital (include map) Proceed north on Telegraph to Ashby, turn right on Ashby to Colby, hospital is at intersection of Colby and Ashby in Berkeley - Alta Bates General Hospital (see Figure 1).



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F. EQUIPMENT

Instrumentation

OVA	<input checked="" type="checkbox"/>
Draeger Pump, Tubes	<input checked="" type="checkbox"/>
LEL Meter	<input type="checkbox"/>
Temp/pH/EC Meter	<input type="checkbox"/>

First Aid Equipment

First Aid Kit	<input checked="" type="checkbox"/>
Portable Eyewash	<input checked="" type="checkbox"/>
Fire Extinguisher	<input checked="" type="checkbox"/>

Decon Equipment

Wash Tub	<input checked="" type="checkbox"/>
Buckets	<input checked="" type="checkbox"/>
Scrub Brushes	<input checked="" type="checkbox"/>
Steam-cleaner	<input checked="" type="checkbox"/>

Detergent	<input checked="" type="checkbox"/>
Distilled Water	<input type="checkbox"/>
55-gallon DOT Drums	<input checked="" type="checkbox"/>

Type Liquinox

Sampling Equipment

Brass Tubes	<input checked="" type="checkbox"/>
Teflon Tape	<input checked="" type="checkbox"/>
Plastic Caps	<input checked="" type="checkbox"/>
40-ml VOAs	<input checked="" type="checkbox"/>
1 L Bottles	<input checked="" type="checkbox"/>

Miscellaneous Equipment

Tool Kit	<input checked="" type="checkbox"/>
Traffic Safety Vests	<input checked="" type="checkbox"/>
Traffic Cones	<input checked="" type="checkbox"/>
Traffic Road Signs	<input type="checkbox"/>
Caution Tape	<input checked="" type="checkbox"/>
Mobile Telephone	<input checked="" type="checkbox"/>
Plastic Sheeting	<input checked="" type="checkbox"/>

G. COMMUNITY SAFETY CONCERNS

Community Safety Hazards:

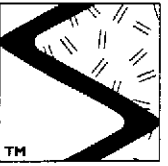
<input checked="" type="checkbox"/> Noise	<input checked="" type="checkbox"/> Tripping	<input checked="" type="checkbox"/> Splash	<input type="checkbox"/> Fire
<input checked="" type="checkbox"/> Vapors/Fumes	<input checked="" type="checkbox"/> Traffic		

Mitigation of Community Safety Concerns:

<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Foam	<input type="checkbox"/> Fans	<input checked="" type="checkbox"/> Signs
<input type="checkbox"/> Traffic Control (describe) _____	<input checked="" type="checkbox"/> Other (describe) <u>Caution Tape</u>		

Potential exposure to petroleum hydrocarbons during field activities is limited to site workers, and the population in the surrounding areas. An air monitoring program in conjunction with limiting access to areas near the work zones greatly diminishes the possibility of exposure to volatile hydrocarbons. During the working hours, the site perimeter will be established outside the fence or caution tape along the sidewalks using barricades with caution tape. During non-work hours, the site perimeter will be a minimum six-foot wire fencing or caution tape. All gates will be secured with a chain and lock.

If airborne concentrations exceed specific action levels (page 5) contingency response actions will be taken immediately to reduce potential exposure to the public. Ambient levels of hydrocarbons are established prior to site construction activity. Air monitoring equipment (page 3) is used to screen the ambient upwind and downwind work areas for benzene and organic vapors. The same chemical screening may be applied to various areas of the contamination reduction zone. Total volatile hydrocarbons along with benzene will be measured via direct reading instrument from grab samples (Page 3). Atmospheric hazard guidelines and proposed actions are summarized in the table on Page 5.



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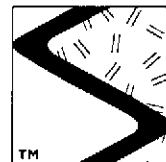
In the event emission levels exceed levels of 500 ppm for volatile organic vapors and/or 2 ppm for benzene in a period of 15 minutes or more, the following additional actions will be implemented:

- Inform individuals and businesses in the immediate area (within 1 block) of the elevated hydrocarbon levels.
- City of Oakland Fire Department will be notified and requested to assist in rerouting pedestrians.

Instrument	Frequency	Type of Sample	Ambient Level	Action for Community
Sensidyne with benzene tubes	Every hour*	A	≥ 2 ppm for 15 minutes	Inform businesses in immediate area, call <u>OFD-911</u> for assistance
OVM (580 B)	Every hour and when strong odor is present	A	≥ 500 ppm for 15 minutes	Inform businesses in immediate area, call <u>OFD-911</u> for assistance

- * Air monitoring for benzene will be instituted if OVM readings indicate an excess of 100 ppm.

The public will be prevented from entering the work area by caution tape and cones. If vapors during construction exceed PELs or TWAs work will cease immediately. All work will be conducted between 7:30 a.m. and 6:30 p.m. to minimize noise impact to public.



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**HAZARDOUS & TOXIC MATERIALS
SITE SAFETY REVIEW**

GENERAL INFORMATION

DATE _____ TIME _____ PROJECT NUMBER 1-271-01

SITE: 5427 Telegraph Avenue, Oakland

OBJECTIVES: Drill soil borings using geoprobe method, collect soil and groundwater samples.

TYPES OF CHEMICALS ANTICIPATED: STODDARD SOLVENT/BTEX/VOCs

TOPICS DISCUSSED

PHYSICAL HAZARDS: Drilling Equipment

CHEMICAL HAZARDS: STODDARD SOLVENT/BTEX/VOCs

PERSONAL PROTECTION: _____

DECONTAMINATION: _____

SPECIAL SITE CONSIDERATIONS: High Public Visibility

CHECKLIST

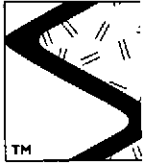
1. EMERGENCY INFORMATION REVIEWED? _____ / AND FAMILIAR TO ALL TEAM MEMBERS? _____
2. LOCATION OF AND ROUTE TO NEAREST HOSPITAL KNOWN TO ALL MEMBERS? _____ / MAP POSTED? _____
3. SITE SAFETY PLAN READILY AVAILABLE AND ITS LOCATION KNOWN TO ALL TEAM MEMBERS? _____
4. MONITORING EQUIPMENT CALIBRATED ON THIS DATE? _____

ATTENDEES

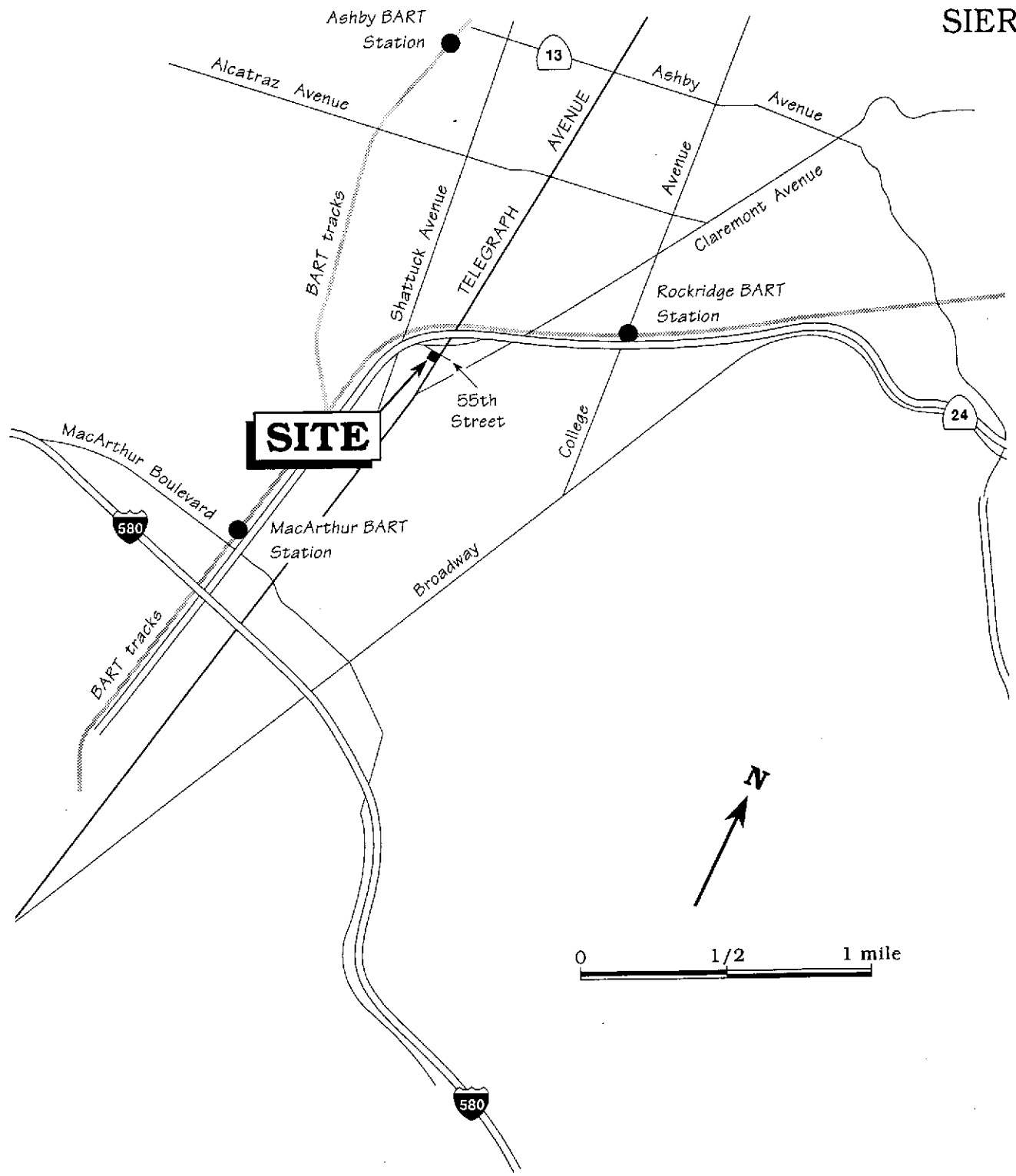
<u>NAME</u>	<u>SIGNATURE</u>
_____	_____
_____	_____
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_____	_____
_____	_____
_____	_____
_____	_____

MEETING CONDUCTED BY: _____

SITE SAFETY OFFICER: _____



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Base map ref: California State Automobile Association (AAA)

Figure 1. Site Location Map - Telegraph Business Park, 5427 Telegraph Avenue, Oakland, California

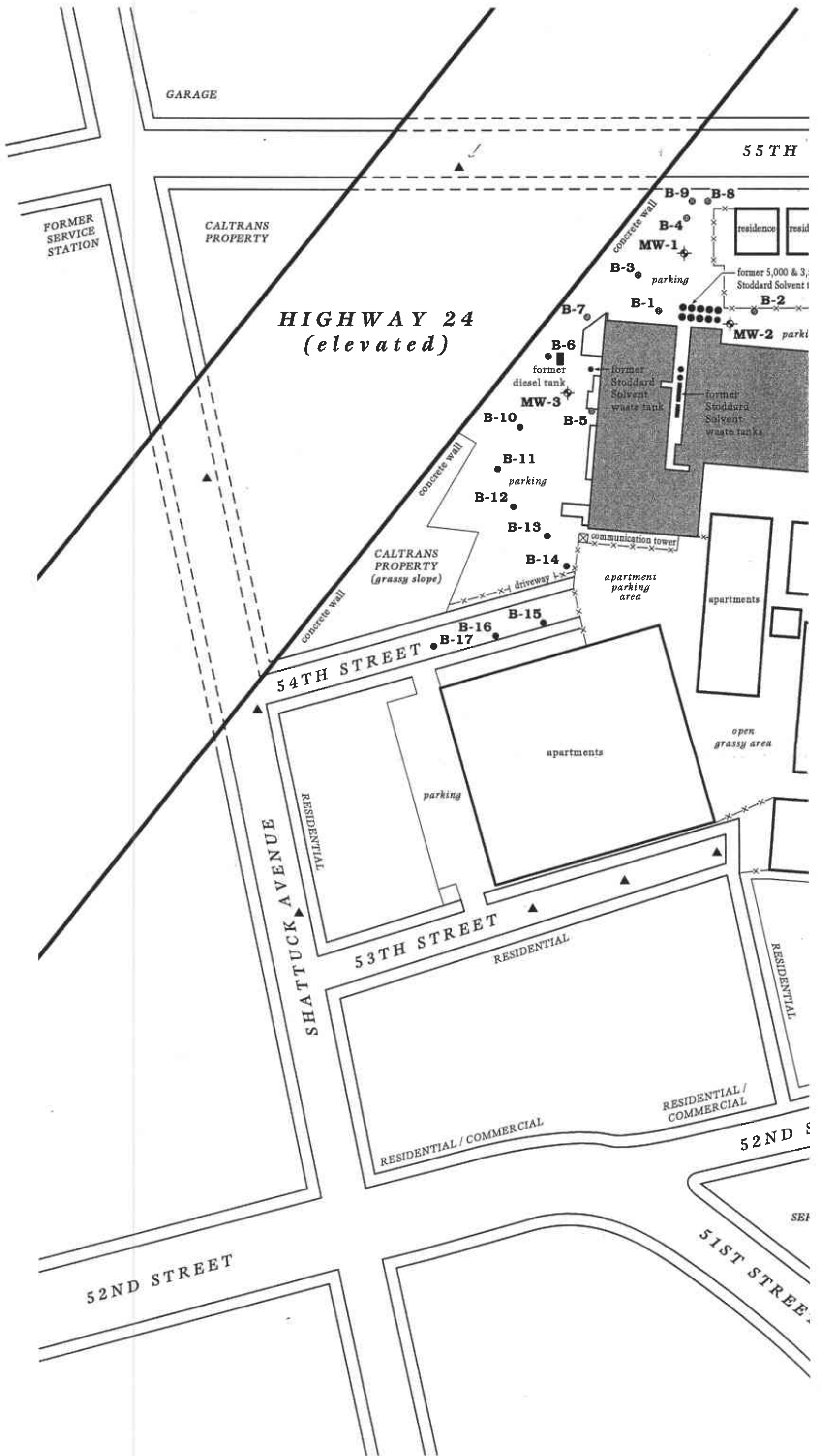


Figure 2. Proposed Sample Locations and Existing Monitoring Well and Grab Ground Water Sampling



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CHEVRON
SERVICE
STATION

Historic
ground water
flow direction



REET

BUILDING

former
10,000 gal.
gasoline
tank

BUILDING

apartments

apartments

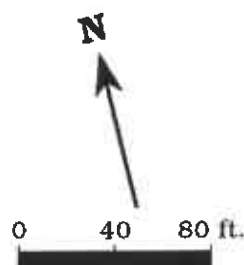
TELEGRAPH AVENUE

apartments

COMMERCIAL

REET

FORMER
CHEVRON
SERVICE STATION



EXPLANATION

- ⊕ **MW-3** Monitoring well
- ⊙ **B-9** Previous ground water sampling location
- **B-17** Ground water sampling location
- ▲ Proposed sampling location