Results of Utility Survey and
Work Plan for Soil and Grab Groundwater
Investigation
Former Glovatorium
Oakland, California

6895.00-014
May 6, 1999

Prepared for
Smiland & Khachigian
601 West Fifth Street, 7th Floor
Los Angeles, California 90071-2004

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May 6, 1999 6895.00-014

Mr. Scott Seery, CHMM
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Results of Utility Survey and Work Plan for Soil and Grab Groundwater Investigation, Former Glovatorium, 3815 Broadway Avenue, Oakland, California

Dear Mr. Seery:

In accordance with your letter dated March 19, 1999, LFR Levine·Fricke (LFR) is submitting the enclosed report presenting the results of the utility survey LFR performed at the subject site on April 7, 1999, and a work plan for a soil and grab groundwater investigation. The work plan was developed to address the requirements for further site characterization you identified during our meeting on March 16, 1999, and summarized in your March 19, 1999 letter. We discussed and agreed on the proposed scope of work in a subsequent meeting on April 16, 1999.

The work plan proposes collecting soil and grab groundwater samples from eight locations, which are adjacent to the storm drain and sanitary sewer line, along Manila Avenue, and adjacent to the underground storage tanks located under the sidewalk on 38th Street.

Please review the enclosed report and work plan and provide written approval at your earliest convenience. If you have any questions or comments, please call either of the undersigned.

Sincerely,

Bruce W. Page

Bruce W. Page, Ph.D.
Senior Associate Engineer

Taylor Bennett

Taylor Bennett, R.G.
Senior Project Hydrogeologist

Enclosures

cc: Stuart Depper, Clean Tech Machinery
Albert M. Cohen, Smiland & Khachigian

CONTENTS

FIGURES

1.0 INTRODUCTION

This report, prepared by LFR Levine·Fricke (LFR) on behalf of Smiland & Khachigian, presents the results of the utility survey and a work plan for a soil and grab groundwater investigation. The utility survey was performed on April 7, 1999, at the former Glovatorium, a dry cleaning business located at 3815 Broadway Avenue in Oakland, California (the Site; Figure 1). This report and work plan have been prepared pursuant to a letter from the Alameda County Health Care Services Agency (ACHCSA) dated March 19, 1999, and discussions on March 16 and April 16, 1999, between Mr. Scott Seery of ACHCSA and representatives of LFR.

The ACHCSA's March 19, 1999 letter identified two tasks to be conducted, which are summarized below:

- Task 1: Determine the exact locations of underground utilities (storm and sanitary sewers) in the Site vicinity.
- Task 2: Submit a report documenting the results of the utility survey that incorporates a work plan to assess possible releases from underground storage tanks (USTs) located along 38th Street; assess the potential for migration of chemicals along preferential pathways; install an array of permanent monitoring wells; and collect soil and groundwater samples to assess human health risks and evaluate the possible occurrence of natural bioattenuation (also referred to as intrinsic bioremediation).

Task 1, the utility survey, was conducted on April 7, 1999. LFR discussed the results of the survey during the meeting with Mr. Seery on April 16, 1999, and presented a draft sampling and analysis plan to address the data requirements in Task 2. The plan proposed conducting a soil and grab groundwater investigation, installing permanent monitoring wells, negotiating access to sample a monitoring well that is owned by Unocal and located north of the Site, and if possible, collecting water-level measurements and water samples from one or more of the previously installed temporary piezometers at the Site. During this meeting, LFR agreed with Mr. Seery that permanent well locations would be selected after the results of the proposed soil and grab groundwater investigation are available.

Based on previous investigations, the chemicals of concern at the Site are volatile organic compounds (VOCs), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons as Stoddard solvent (TPHss).

Section 2.0 of this report presents the results of the utility survey conducted by LFR. Section 3.0 presents a work plan for a soil and grab groundwater investigation.

2.0 REVIEW OF UTILITY VIDEOTAPES AND RESULTS OF UTILITY SURVEY

Pursuant to Task 1 of the ACHCSA's March 19, 1999 letter, LFR reviewed videotapes of a storm drain and a sanitary sewer line and conducted a utility survey on April 7, 1999. LFR reviewed the videotapes to determine the type of construction and the overall condition of the underground storm drain and sanitary sewer line. The purpose of the utility survey was to determine the location and depth of the storm drain that runs underneath the Site and of the sanitary sewer line that runs from existing and former (sealed) floor drains inside the building to Manila Street, on the western side of the building. Figure 2 shows the locations of the storm drain and sanitary sewer line.

The following sections discuss LFR's review of the storm drain and sanitary sewer line videotapes and the results of the utility survey.

2.1 Review of Storm Drain and Sanitary Sewer Line Videotapes

Prior to conducting the utility survey, LFR reviewed videotapes of the inside of the storm drain and a sanitary sewer line. The videotapes were made on June 2 and 3, 1993.

The videotape of the storm drain showed the segment of the storm drain that extends southeast from manhole MH-1 on the western side of Manila Avenue (Figure 2). From this manhole, the storm drain runs generally southeast, passes under the former Glovatorium building, and continues southwest to manhole MH-2 in the approximate center of 38th Street, south of the former Glovatorium building (Figure 2). LFR made the following observations of the storm drain while reviewing the videotape (distances are measured downgradient from manhole MH-1 on the western side of Manila Avenue; Figure 2):

- The direction of flow in the storm drain is southerly from north of manhole MH-1 on Manila Avenue, toward 38th Street.
- The storm drain appears to be constructed of concrete, or possibly brick lined with concrete, and approximately the first 100 feet is circular in cross section.
- At approximately 83 feet, the roof of the storm drain appears to have been patched. This location is approximately under the sidewalk on the eastern side of Manila Avenue, west of the former Glovatorium building.
- At approximately 100 feet, the walls of the storm drain become vertical, and the floor becomes flat, while the roof is arched. This is approximately where the storm drain passes under the west wall of the former Glovatorium building.
- At approximately 112, 135, 164, 190, and 238 feet, vertical joints in the concrete extend up the walls and around the roof arch of the storm drain. Accumulations of sediment and/or biological growth were observed on the walls and/or floor of the storm drain in the vicinity of these joints, and water was observed seeping into the

storm drain from the joints located at approximately 164, 190, and 238 feet. The southern wall of the former Glovatorium building is located at the approximate 206-foot point of the storm drain.

- At approximately 260 feet, there is a short ramp downward in the floor of the storm drain. Therefore, the floor of the storm drain is approximately one foot deeper from this point to at least as far as manhole MH-2 on 38th Street.
- At approximately 291 feet, an approximately 10-inch diameter lateral connects to the storm drain, near the top of the western wall, below the roof arch.
- At approximately 324 feet, the storm drain runs under manhole MH-2 on 38th Street.

The videotape of the sanitary sewer line shows a segment that extends from manhole MH-1 in the approximate center of Manila Avenue to a manhole inside the building (Figure 2). LFR made the following observations of the sanitary sewer while reviewing the videotape (distances are measured from the manhole in Manila Avenue; Figure 2):

- The direction of flow in the sanitary sewer line is from the building toward Manila Avenue.
- The section of the sanitary sewer line extending from the manhole in Manila Avenue to approximately 6 feet west of the west wall of the former Glovatorium building (approximately 26 feet) is constructed of 6-inch diameter, cast iron pipe. There were no holes or cracks observed in the pipe.
- At approximately 26 feet, the 6-inch diameter pipe connects to a 10-inch diameter, cast iron pipe through a transition referred to as a "drop connection" by the video camera operator.
- From approximately 26 to 40 feet, the sanitary sewer line was not videotaped, because the line was dipping too steeply for the camera to pass through it.
- From approximately 40 to 110 feet, the pipe dips less steeply, and was videotaped by running the camera through the pipe from the manhole inside the building. There were no holes or cracks observed in the 10-inch diameter, cast iron pipe. There were joints in the pipe at approximately 4-foot intervals.
- At approximately 82 feet, a clean-out connection from the upstairs washroom connects to the sanitary sewer.
- At approximately 106 feet, there is a service connection to the sanitary sewer, entering from the south. The source of this service connection was not identified.
- At approximately 110 feet, the sanitary sewer connects to the manhole inside the building.

2.2 Results of Utility Survey

On April 7, 1999, LFR subcontracted with Subdynamic Locating Services (Subdynamic) of San Jose, California, to locate and mark the storm drain and sanitary

sewer line. Carlson, Barbee & Gibson of San Ramon, California, were retained to survey the elevations and locations of the manholes on Manila Avenue and 38th Street. An electronic water-level meter was used to sound the depths of the bottom of the storm drain below the north rims of manholes MH-1 and MH-2.

2.2.1 Storm Drain Survey

A Subdynamic employee entered the storm drain from the manhole on 38th Street and carried a transmitter along the storm drain to the manhole on Manila Avenue. At approximately 20- to 30-foot intervals, the Subdynamic employee held the transmitter against the centerline of the roof of the storm drain, while another Subdynamic employee on the surface used a sensor to determine the depth and location of the transmitter. Subdynamic marked the location and depth of the centerline of the inside roof of the storm drain on the ground surface and on the floor inside the former Glovatorium building. After marking the centerline of the storm drain, Subdynamic used a tape to measure and mark the locations of the sidewalls of the storm drain on the surface. The storm drain width is approximately 54 inches, or 4.5 feet, as determined from a parcel map and confirmed by field measurements. LFR measured the location of the storm drain relative to surface features, and plotted the storm drain location, as shown on Figure 2.

The depth of the inside roof of the storm drain ranges from approximately 4.0 feet below ground surface (bgs) under the sidewalk on the eastern side of Manila Avenue to approximately 8.7 feet bgs at a location approximately 64 feet upgradient of manhole MH-2 on 38th Street.

The elevations of the inside of the storm drain roof and floor at the manholes on Manila Avenue and 38th Street are shown in the table below:

Manhole Location and Elevation of Rim (feet msl)	Elevation of Inside Storm Drain Roof (feet msl)	Elevation of Inside Storm Drain Floor (feet msl)
Manila Avenue (80.94)	76.4	71.9
38th Street (81.76)	72.8	67.2

Note:
msl Mean sea level

The average slope of the roof of the storm drain between the two manholes is 0.010 foot per foot. The floor of the storm drain generally slopes at the same rate as the roof, with the exception of an approximately 1-foot drop in the floor of the storm drain, 260 feet downgradient from manhole MH-1 on Manila Avenue (approximately 64 feet upgradient of manhole MH-2 on 38th Street).

2.2.2 Sanitary Sewer Survey

Mr. Stuart Depper, the Site owner, showed LFR and Subdynamic the locations of existing and former (sealed) floor drains inside the former Glovatorium building. These existing and former floor drains are or were connected through subsurface drain lines to a manhole inside the building. As described in Section 2.1, the manhole is connected to the sanitary sewer line that runs out to Manila Avenue. Subdynamic located and marked the floor drain lines and sanitary sewer inside and outside of the building, as far as the manhole in the middle of Manila Avenue. Subdynamic was unable to trace all of the floor drain lines, because some were sealed or inaccessible. Some of the drain line locations were inferred from surface features, such as linear patches in the concrete floor. The existing and former floor drains, drain lines, and sanitary sewer line are shown on Figure 3.

The drain lines connecting the floor drains to the manhole inside the building are less than 2 feet below the surface. The depth of the sanitary sewer line increases from approximately 3.75 to 5.0 feet, from the manhole inside the building to a point approximately 25 feet west of this manhole. This indicates that the sanitary sewer line slopes at approximately 0.05 foot per foot, assuming that the floor surface is level. Based on LFR's review of the videotape (Section 2.1) the sanitary sewer slopes more steeply downward from approximately 7 feet east to approximately 6 feet west of the western wall of the building, where it plunges underneath the storm drain. The sanitary sewer line is 12.25 feet below the rim of the manhole on Manila Avenue, where it connects to the sanitary sewer line that runs roughly north to south down the middle of Manila Avenue.

2.3 Conclusions

LFR's observations of the videotape of the storm drain indicate the potential for water to enter or exit the storm drain through the observed joints, and possibly other unobserved cracks in the concrete. The direction of water flow through the joints or cracks would depend on the direction of the hydraulic gradient between the inside of the storm drain and the surrounding backfill material or native soil. The interaction of the storm drain with groundwater in the surrounding earth materials will be assessed further during a proposed soil and grab groundwater investigation (Section 3.0) and after permanent monitoring wells are installed at the Site. As agreed during the April 16, 1999 meeting with Mr. Seery of ACHCSA, the locations of these wells will be selected after evaluating the results of the soil and grab groundwater investigation.

3.0 WORK PLAN FOR SOIL AND GRAB GROUNDWATER INVESTIGATION

This work plan addresses the items described in Task 2 of the ACHCSA's March 19, 1999 letter. The work plan proposes eight soil and/or grab groundwater borings to assess the extent of possible releases from the USTs located under the sidewalk along

38th Street; to assess the potential migration of chemicals along underground utilities (storm and sanitary sewers) on the Site; and to provide an assessment of the lateral extent of chemicals in groundwater, as a guide to select the locations of permanent monitoring wells. These data will also be used to help evaluate potential human health risks associated with chemicals in soil and groundwater at the Site.

3.1 Scope of Work

The scope of work consists of the following activities:

- Drilling eight soil borings using the direct-push method and collecting soil samples for laboratory analysis and lithologic description
- Installing eight temporary groundwater sampling points in the borings
- Collecting grab groundwater samples from the temporary groundwater sampling points
- Analyzing soil and grab groundwater samples
- Preparing a report and documenting the findings of the soil and grab groundwater investigation and selecting the locations of permanent groundwater monitoring wells

The tasks necessary to complete these activities are described in more detail below.

3.1.1 Permits

Before field work begins, permits to drill the soil borings and install temporary groundwater sampling points will be obtained from the Alameda County Department of Public Works. In addition, two excavation permits (one for the borings on 38th Street, and one for the borings on Manila Avenue) must be obtained from the City of Oakland. An encroachment permit will be needed to drill at location GW-4, which is located on private property.

3.1.2 Utility Locating

The proposed drilling locations will be cleared for underground utilities by a subcontracted utility locator using geophysical methods. Underground Services Alert (USA) will also be notified of drilling activities. USA will contact public and private entities that may have utilities in the drilling area.

3.1.3 Health and Safety

A Health and Safety Plan (HSP) will be prepared and distributed to on-site field personnel. Personnel engaged in field activities will be briefed on the contents and

procedures of the HSP. Field activities will be monitored to ensure that appropriate health and safety procedures are followed.

3.1.4 Drilling of Soil Borings, Soil Sampling, and Installing Temporary Groundwater Sampling Points

As agreed during the meeting on April 16, 1999, with Mr. Seery of ACHCSA, LFR proposes to drill a total of eight soil borings and install eight temporary groundwater sampling points. The locations of the proposed soil borings and temporary groundwater sampling points are shown on Figure 3. The actual sampling locations may be different from the locations shown on Figure 3, based on conditions encountered in the field, such as the locations of underground and overhead utilities. The following table summarizes the samples to be collected from each of the soil borings.

Boring Location	Estimated Total Depth (feet bgs)	Estimated Depths of Soil Samples for Analysis (feet bgs)[1]	Estimated Depths of Groundwater Sampling Point Screened Interval (feet bgs)[2]
GW-1	8	3.5 to 7	3 to 8
GW-2	20	None	10 to 20
GW-3	20	None	10 to 20
GW-4	12	7.5 to 11	7 to 12
GW-5	13	Field [3], 8.5 to 12	8 to 13
GW-6	13.5	9 to 12.5	8.5 to 13.5
GW-7	20	Field [3]	10 to 20
GW-8	15	None	10 to 15

Notes:

1. Soil samples will only be collected in the vadose (unsaturated) zone. If saturated sediments are encountered before the soil sample target depth is reached, no soil samples will be collected.
2. The groundwater sampling points will be constructed using 5-foot or 10-foot screened intervals, which may extend above the saturated interval. Actual screen interval depths will be determined in the field, based on observations of the sediments encountered.
3. Soil sampling depths will be determined based on field observations such as odor and photoionization detector headspace measurements.

The rationale for each of the soil boring and temporary groundwater sampling point locations is as follows:

- Borings and temporary groundwater sampling points GW-5 and GW-7 are located to assess the extent of possible releases from USTs located under the sidewalk on 38th Street.
- Borings and temporary groundwater sampling points GW-1, GW-4, GW-5, and GW-6 are located to assess the potential for chemicals of concern to migrate along the outside of the storm drain. The soil sampling intervals and groundwater sampling point screened intervals for these locations are targeted to be within the backfill material adjacent to the storm drain.
- Temporary groundwater sampling points GW-2 and GW-3 are located to assess the lateral extent of chemicals of concern in groundwater to the west and southwest of the former Glovatorium building. These locations are believed to be downgradient of the Site, based on preliminary groundwater level data previously gathered at and nearby the Site.
- Temporary groundwater sampling point GW-8 is located to assess whether chemicals of concern may have leaked from the sanitary sewer line and impacted groundwater in this area.

As discussed during the April 16, 1999 meeting with Mr. Seery, boring locations GW-4, GW-5, GW-6, and GW-7 will be drilled first. If there are obvious field indications of chemicals of concern (such as strong odors, high portable photoionization detector [PID] readings, or visible free-phase product) in soil or groundwater at these locations, step-out locations will be drilled on the opposite side of the storm drain to assess whether contamination has migrated past the storm drain. If no obvious field indications of chemicals of concern are observed, the grab groundwater samples from these initial locations will be analyzed on a rush, 24-hour turnaround basis to assess whether chemicals of concern are present in groundwater. Step-out locations on the opposite side of the storm drain will be drilled if appropriate, based on the laboratory results obtained. The locations and depths of any step-out locations will be discussed with Mr. Seery before drilling is conducted.

- any "step-out" borings and samples collected from each do not replace any samples collected from "initial" boring locations. All are to be analyzed.

The soil borings will be drilled using a hydraulically operated, direct-push rig that simultaneously advances an outer conductor casing with an inner, continuous-core sampler to collect soil samples for laboratory analysis and lithologic description. The outer drive casing prevents sloughing of the borehole and cross-contamination of the inner sampler while the sampler is advanced to greater depths. The soil samples will be collected in clean, stainless steel liners placed inside the continuous-core sampler. A PID will be used to screen soil samples in the field for possible laboratory analysis.

The temporary groundwater sampling points will be constructed of 1-inch-diameter, Schedule 40, factory-slotted (with 0.010- or 0.020-inch slots), polyvinyl chloride (PVC) casing. To install the groundwater sampling points, the inner sample barrel will be removed from the outer drive casing, and the PVC casing will be installed through

the drive casing. The outer drive casing will then be withdrawn, allowing formation water to flow into the screened interval.

Before use, all downhole equipment used for soil sampling and groundwater sampling point construction will be new or decontaminated by washing with high-pressure, hot water (steam cleaned) and/or a solution of laboratory-grade detergent and tap water, followed by rinsing with tap water.

Soil samples generated from drilling activities that are not retained for analysis will be temporarily stored at the Site in 5-gallon buckets with tight-fitting lids, pending selection of an appropriate disposal method. Water generated from decontaminating the drilling equipment will be stored at the Site in a 55-gallon drum. Disposal options for the soil and decontamination water will then be evaluated.

3.1.5 Grab Groundwater Sampling

The depth to water in each temporary groundwater sampling point will be measured (in feet) using an electronic water-level meter. A Teflon or stainless-steel bailer fitted with a new nylon rope will be lowered below the groundwater surface in the casing to retrieve a grab groundwater sample. The grab groundwater sample will be slowly poured into laboratory-supplied, 40-milliliter (ml) volatile organic analysis (VOA) vials with Teflon septa. The VOA vials will be capped; labeled with the groundwater sampling point identification number, the time and date of sample collection, the analysis requested, and the name of the sampler; and placed in a cooler chilled with ice for transport to the analytical laboratory under standard chain-of-custody protocol. A duplicate grab groundwater sample will also be collected from one of the temporary groundwater sampling points for quality control (QC) purposes. As a QC check for possible equipment contamination, a field (bailer rinsate) blank will be prepared before collecting one of the grab groundwater samples, using laboratory-supplied deionized, organic-free water. A laboratory-prepared trip (travel) blank will also be placed in the cooler used to transport grab groundwater samples to the laboratory, as a QC check for possible contamination of samples during transport.

Water generated during sampling activities will be stored in a 55-gallon drum pending receipt of the analytical results of the groundwater samples. Disposal options for the water will then be evaluated.

3.1.6 Laboratory Analysis of Soil and Grab Groundwater Samples

The soil and grab groundwater samples will be submitted to Curtis & Tompkins (C&T), of Berkeley, California, a state-certified laboratory, for analysis.

Soil samples will be analyzed on a normal turnaround basis for TPHss using modified EPA method 8015, for VOCs using EPA method 8010, and for BTEX using EPA method 8020.

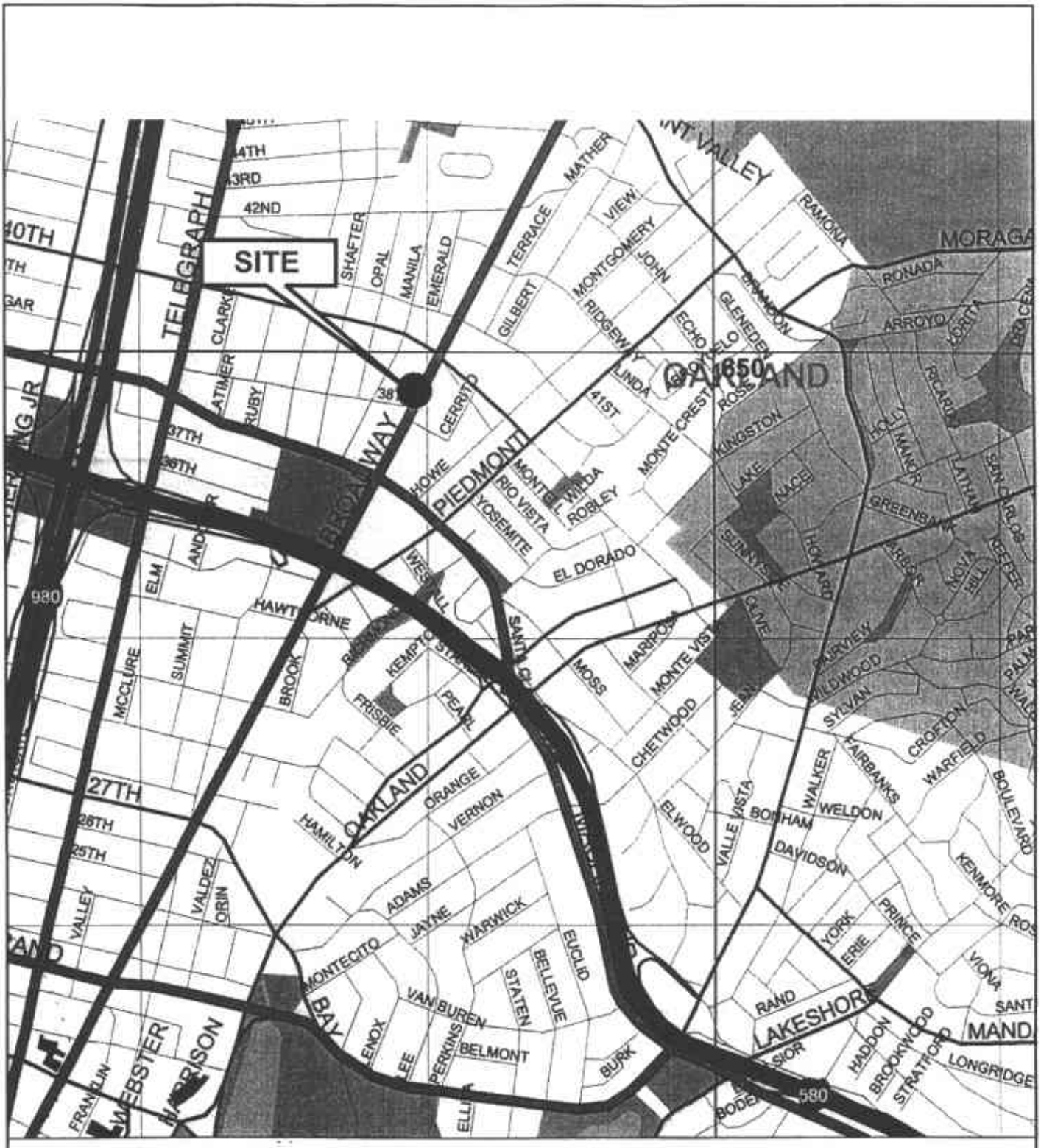
Grab groundwater samples will be analyzed for TPHss using modified EPA method 8015, for VOCs using EPA method 8010, and for BTEX and methyl tertiary-butyl ether (MTBE) using EPA method 8020. Grab groundwater samples will be analyzed on a normal turnaround basis, with the possible exception of samples collected from groundwater sampling points GW-4, GW-5, GW-6, and GW-7. These samples might be analyzed on a 24-hour rush turnaround if they show no obvious field indications of the presence of chemicals of concern (as discussed in Section 3.1.4).

3.1.7 Selection of Permanent Groundwater Monitoring Well Locations

A letter report will be prepared summarizing the results of the soil and grab groundwater investigation, and proposing the locations of permanent groundwater monitoring wells. The letter will also include a groundwater sampling and analysis schedule designed to monitor the extent and possible migration of chemicals of concern, and to evaluate the possible occurrence of intrinsic bioremediation.

3.2 Schedule

The proposed soil borings can be drilled and temporary groundwater sampling points installed approximately three weeks after receiving approval from the ACHCSA and after obtaining drilling and excavation permits from the Alameda County Department of Public Works and the City of Oakland, and an encroachment permit from the owner of property where boring GW-4 is located (Figure 3). This schedule is contingent on subcontractor availability and assumes that no other unforeseen conditions arise that cause unavoidable delays. The drilling, groundwater sampling point installation, and sampling is expected to take two days to complete, assuming no step-out locations are drilled. Laboratory analysis of soil and grab groundwater samples is expected to be completed within two weeks after sampling. A letter summarizing the analysis results and proposing permanent well locations will be submitted within three weeks following receipt of the analytical results.



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3815 BROADWAY AVENUE, OAKLAND, CALIFORNIA

Site Location Map

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Figure 1

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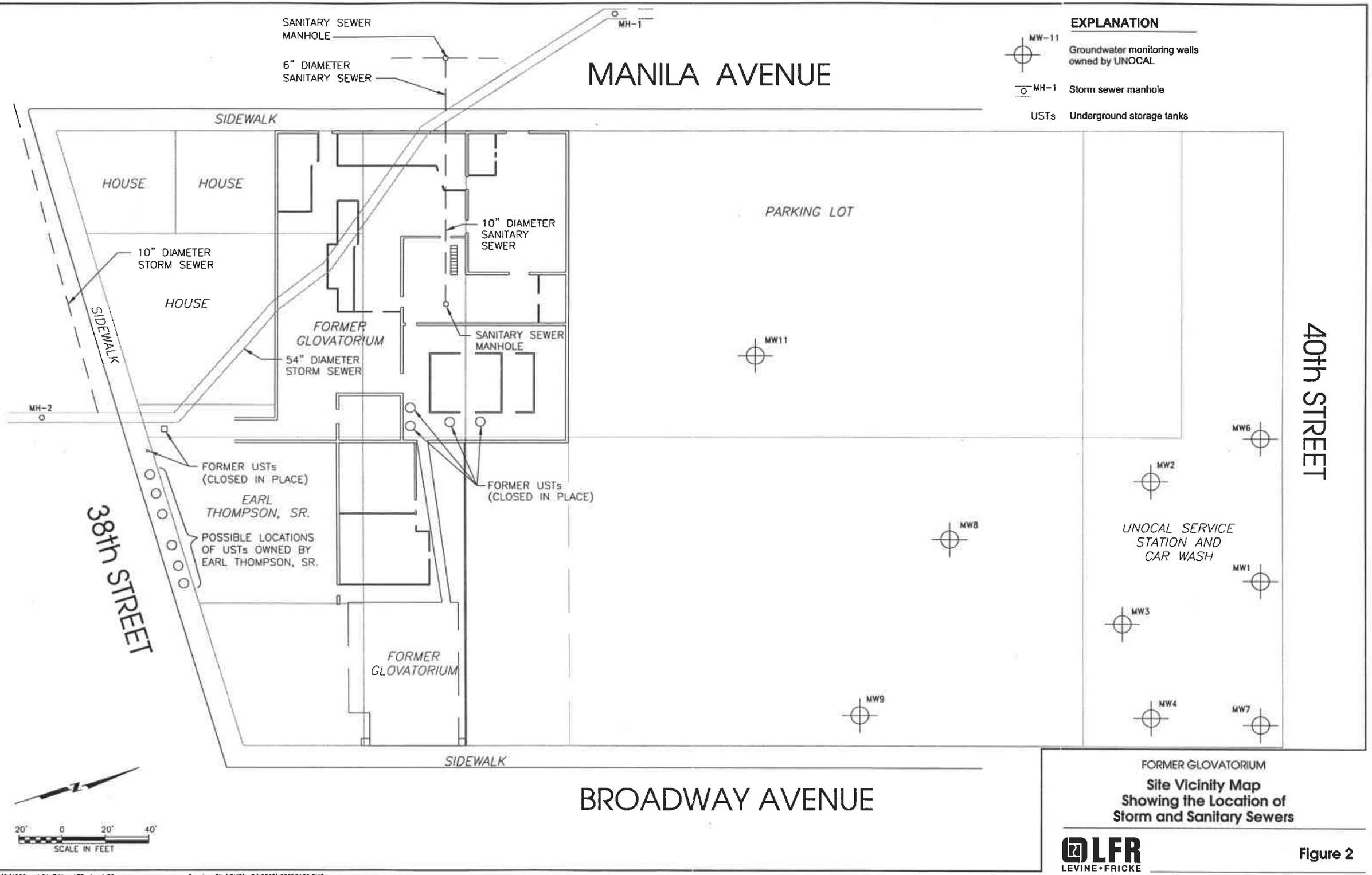

FORMER GLOVATORIUM

Site Vicinity Map Showing the Location of Storm and Sanitary Sewers

LFR LEVINE•FRICKE

Figure 2

5/3/1999 4:04 P.M. LTScale: 1.00 Drawing File(.DWG): G:\6895\6895S100.DWG

MANILA AVENUE

SIDEWALK

HOUSE

HOUSE

HOUSE

38th STREET

10-inch Diameter Storm Drain

SIDEWALK

54-inch Diameter Storm Drain

- water seepage through joints/cracks in walls of SD

FORMER GLOVATORIUM

PARKING LOT

10-inch Diameter Cast Iron Sanitary Sewer

GW-1

GW-8

GW-2

GW-3

GW-4

GW-5

GW-6

GW-7

E-15

E-16

E-17

E-18

E-19

E-20

E-21

E-22

E-23

E-24

E-25

E-26

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

B-9

B-10

B-11

B-12

B-13

Former USTs (Closed in Place)

Possible Locations of USTs Owned by Earl Thompson, Sr.

EARL THOMPSON, SR.

FORMER GLOVATORIUM

EXPLANATION

● B-7	Temporary piezometer and/or soil boring location by GeoSolv, August 18-22, 1997
○ E-16	Temporary piezometer and/or soil boring location by GeoSolv, September 9-15, 1998
◆ GW-1	Proposed soil and/or grab groundwater sampling location
USTs	Underground Storage Tanks

N

0 15 30 FEET

FORMER GLOVATORIUM

Site Plan Showing Existing and Proposed Soil and Grab Groundwater Sampling Locations

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Figure 3

6895SM100.CDR 050499