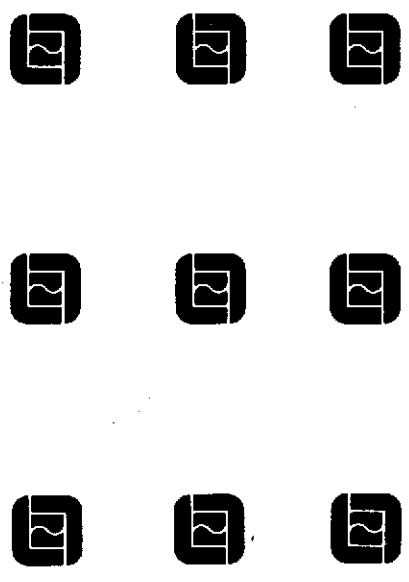


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**Work Plan for Further Soil Characterization,
Harrison Street Garage Site, 1432 - 1434 Harrison
Street, Oakland, California**

**December 15, 1992
2680.04**

**Prepared for
Alvin H. Bacharach and Barbara J. Borsuk
383 Diablo Road, Suite 100
Danville, California 94526**



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We will finalize and implement the enclosed work plan for further soil characterization after we have received and incorporated your comments and obtained your approval on behalf of the ACDEH. If you have any questions or comments, please call either of the undersigned.

Sincerely,



John Sturman, P.E.
Senior Geotechnical Engineer



Michael Stoll
Project Engineer

Enclosure

cc: Alvin H. Bacharach
Barbara J. Borsuk
Mark Thomson, Esq., Alameda County District Attorney's
Office
Randall D. Morrison, Crosby, Heafey, Roach & May
Craig S. J. Johns, Crosby, Heafey, Roach & May
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appear to be surrounded by a concrete vault, the extent of which has not been assessed. This vault may serve to contain affected soils and could be damaged if drilling activities for this further soil characterization investigation were conducted near it.

SCOPE OF WORK

To supplement the soil-quality data collected during these previous investigations and to better assess the lateral and vertical extent of petroleum-affected soils, Levine·Fricke proposes to drill [REDACTED] USTs [REDACTED]. Proposed drilling locations are shown on Figure 2. We expect that these [REDACTED].

Following review of the data obtained, a work plan for UST removal (which will include the hydraulic lifts and the sump) will be prepared and submitted to the ACDEH, assuming that additional soil characterization is unwarranted. The work plan will outline UST, sump, hydraulic lift, and fuel dispenser removal activities in addition to methods for soil sampling and analyses.

During previous activities at the Site, a Health and Safety Plan (HSP) for removal of the tanks was prepared by RGA. Subsequently, [REDACTED] As indicated in Task 1, a [REDACTED]

The proposed scope of work for further soil characterization includes the following specific tasks:

- Task 1: Development and Implementation of an Addendum to the Site Health and Safety Plan
- Task 2: Permitting for Drilling Soil Borings
- Task 3: Verification of Utility Locations
- Task 4: Drilling
- Task 5: Observation of Drilling Activities
- Task 6: Laboratory Testing
- Task 7: Reporting

These tasks are described in more detail below.

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Task 1: Development and Implementation of an Addendum to the Site Health and Safety Plan

In accordance with Occupational Safety and Health Administration (OSHA) guidelines, a second addendum to the previously developed and approved HSP will be prepared for drilling activities. This addendum will include an analysis of hazards that may be encountered by on-site workers conducting the proposed drilling activities and outline precautions to reduce the potential risks to workers from the identified hazards. Possible chemical exposure pathways will be evaluated and appropriate means of worker protection will be outlined.

Task 2: Permitting for Drilling Soil Borings

ES plan should include

Levine·Fricke will coordinate with the [REDACTED] to obtain required permits for the subject work before initiating field activities. Based on our experience, an encroachment permit will be required by the City of Oakland for drilling in Harrison Street, and an excavation permit will be needed for drilling in the sidewalk. In addition, an Alameda County Zone 7 Drilling Permit will be required for the soil borings.

Task 3: Verification of Utility Locations

Levine·Fricke will outline the proposed drilling locations with white paint and notify Underground Service Alert (USA) two days before start of field work. Additionally, a private underground utility location service will be subcontracted by Levine·Fricke to provide more information regarding underground utility lines near the proposed soil borings before commencement of drilling.

Task 4: Drilling

The three soil borings will be drilled by a California C-57-licensed drilling contractor using a truck-mounted rig in the approximate locations shown on Figure 2. T [REDACTED]

[REDACTED] The e [REDACTED]
[REDACTED] The maximum depths of the soil borings will be determined in the field based on soil conditions encountered and the depth to ground water. [REDACTED]

The [redacted] will be using [redacted] frequency of [redacted]

Modified California split-barrel sampler. In this method, soil samples are collected in clean brass liners that are inserted in the sample barrel. After removing the barrel, the samples will be inspected in the tubes. To retain the tubes, the ends of the tubes will be capped, sealed, labeled, and placed in a chilled ice chest.

Characterization of existing drums onsite

Soil cuttings generated during drilling will be stored on site in sealed 55-gallon drums. Warning stickers will be affixed to the drums stating: "Caution, Waste Soils, Do Not Handle" and the generator's name, site location, date, and boring number. We anticipate that the drill cuttings can be disposed of with soils excavated during UST removal activities. Drill augers will be steam cleaned before being brought to the Site and on site after drilling has been completed. Steam-cleaning water will be collected in a trough and stored on site in 55-gallon drums labeled "Caution, Wastewater, Do Not Handle." Water disposal options will be evaluated, and the water will be disposed of, after soil-quality results are obtained.

[redacted]

Task 5: Observation of Drilling Activities

A Levine-Fricke geotechnical engineer will observe drilling, record soil lithology encountered, note ground-water conditions, screen soil samples for volatile hydrocarbons, and collect soil samples for chemical and geotechnical analyses. Drill cuttings and soil samples collected will be screened for volatile organic compounds using a field flame ionization detector [redacted] which measures the total volatile organics in air. Approximately four soil samples will be collected [redacted] After review of the field data, selected samples will be submitted to an environmental laboratory for hydrocarbon analysis described under Task 6. Additionally, [redacted] will be submitted to Levine-Fricke's geotechnical laboratory [redacted]

which constituents will be sampled for?

The soil borings will be left open for approximately three hours to measure the static ground-water level. The depth to ground water will be measured by a Levine-Fricke engineer using an electric water-level probe.

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Task 6: Laboratory Testing

Previous soil chemical data indicate that the hydrocarbons detected in soil in the vicinity of the Harrison Street USTs are primarily gasoline, but some diesel has been detected.

[REDACTED] and [REDACTED] using modified EPA Method 8015. Additionally, nine soil samples will be analyzed for the fuel constituents [REDACTED] using EPA Method [REDACTED]. Analyses will be conducted by a state-certified laboratory.

Need to look for Total Pb based on borings 1 groundwater data 0.51, 1.35,

Samples will be submitted for analysis based on FID readings, soil lithology, and existing soil-quality data to better assess the lateral and vertical extent of petroleum-affected soils.

5.29 ppb cited in R6A, PSA

Additionally, to provide data to the structural engineer who will design the shoring or sheeting, two soil samples will be tested for grain-size analyses, and five samples will be tested for in situ moisture content and dry density in Levine-Fricke's geotechnical laboratory.

April 2, 1992
R6A report
documented
2.4 ppb bromodichloromethane
30 ppb chloroform
56 ppb benzene
in groundwater

Task 7: Reporting

The methods used and results obtained for soil characterization activities described herein will be presented in an appendix included in the work plan for UST removal. Soil boring logs, a table presenting soil chemical data obtained, and laboratory certificates will be included.

35.2 ppm TOC

LEVINE-FRICKE PROJECT MANAGEMENT

Mr. John Sturman, P.E., Senior Geotechnical Engineer, will be the overall project manager for this project. As such, Mr. Sturman will be the primary contact for the ACDEH.

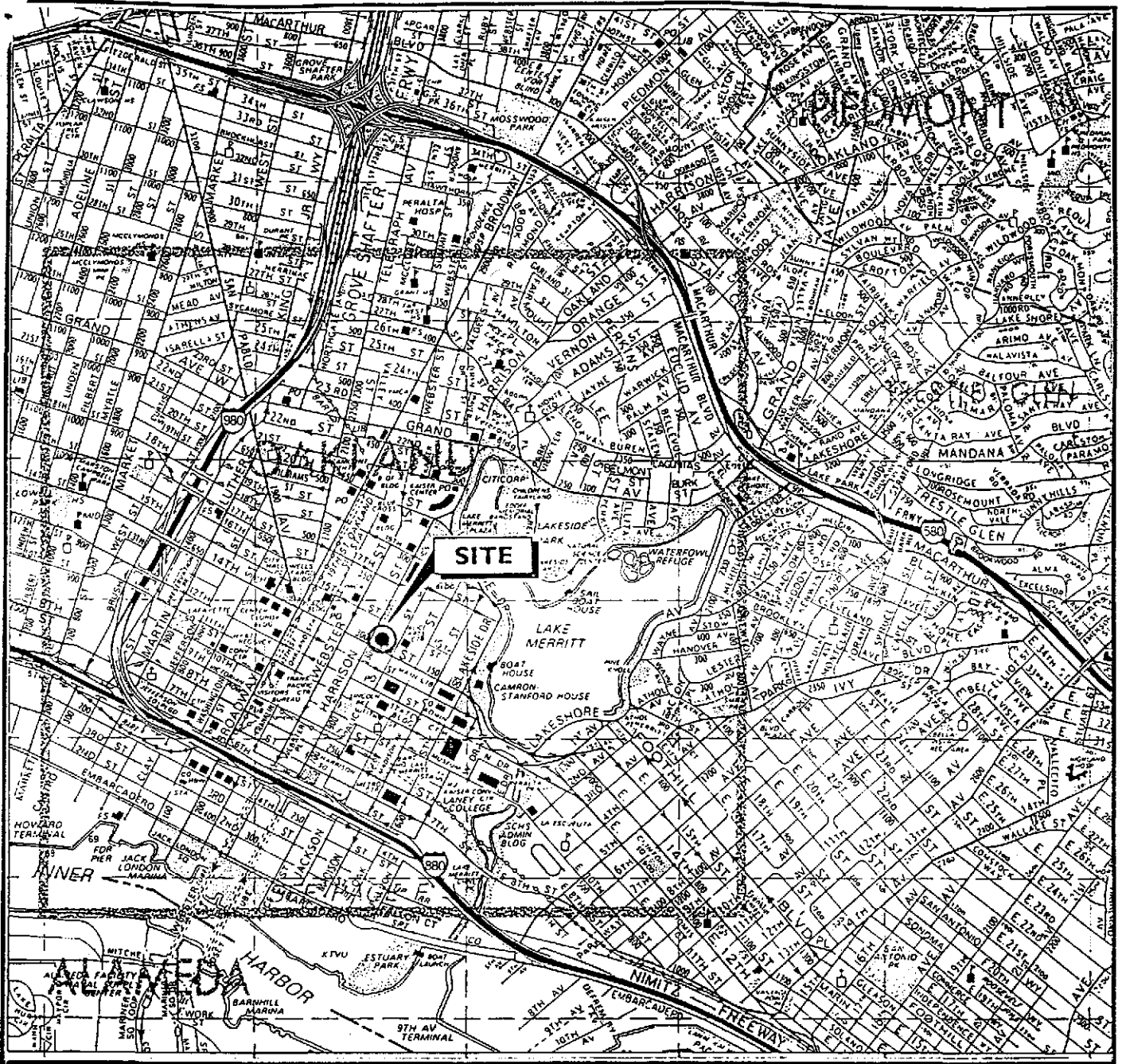
Mr. Michael Stoll, Project Geotechnical Engineer, will coordinate field operations and interface with contractors and subcontractors. He will also oversee the field activities and assist with data analysis and report preparation.

Mr. Ted Splitter, P.E., Principal Geotechnical Engineer, will provide review of the technical and regulatory compliance aspects of the project.

ESTIMATED SCHEDULE

Levine·Fricke estimates that permitting from the City of Oakland will require at least two weeks and perhaps as much as six weeks. Thus, we expect d

Laboratory results will be available within two to three weeks after drilling, assuming normal seven- to ten-working-day turnaround. After obtaining laboratory results, if an additional phase of field work is deemed necessary, such field work will be discussed with the ACDEH. However, if the results are deemed appropriate to proceed with a UST closure plan, a work plan for UST closure subsequently will be submitted to the ACDEH.



SOURCE: Thomas Bros. map.
Alameda County

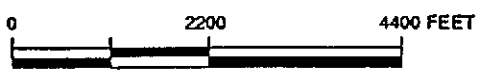


Figure 1 : SITE VICINITY MAP

Project No. 92P-431K

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ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS