Subsurface Consultants, Inc.

February 17, 1999
SCI 272.037

Ms. Juliet Shin
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Work Plan
Investigation Activities
Corporation Yard No. 4
5921 Shepherd Canyon Road
Oakland, California

Dear Ms. Shin:

With this letter Subsurface Consultants, Inc. (SCI) presents a work plan to perform the soil and groundwater investigation at the subject former gasoline storage tank site. This work plan was prepared by SCI on behalf of the City of Oakland (City) in response to the Alameda County Environmental Health Services (ACEHS) letter dated August 25, 1998 and in accordance with our meeting with ACEHS on November 23, 1998. The work plan was based on information obtained through a review of available City files and interviews with key personnel associated with the removal of the underground storage tanks (USTs) at the site.

BACKGROUND

One 2000-gallon gasoline UST and one 550-gallon diesel UST were removed from 5921 Shepherd Canyon Road in May 1990. Prior to excavation only two vent pipes and two USTs were reportedly observed at the UST area. The depth of excavation was approximately 20 feet below the ground surface, the practical limit of a backhoe. No groundwater was encountered during the overexcavation activity.

Five soil samples (1A1 through 1A5) were collected following the UST removal. Samples 1A1 and 1A2 were collected from beneath the former gasoline UST, Sample 1A3 was collected from beneath the former diesel UST, Sample 1A4 was collected from beneath the piping for the diesel UST, and Sample 1A5 was collected from beneath the piping for the gasoline UST.

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The analytical results for the soil samples indicated the following:

- 790 parts per million (ppm) of total petroleum hydrocarbons as gasoline (TPHg) and 27 ppm of benzene in Sample 1A1 collected from 11 feet bgs;
- 60 ppm of TPHg and 6 ppm of benzene in Sample 1A2 collected from 1 foot bgs; and
- no TPHg or benzene concentrations were detected in Sample 1A5 collected from 3 feet bgs.

For the former diesel UST, analyses detected the following:

- 62 ppm of total petroleum hydrocarbons as diesel (TPHd) and 190 ppm of total oil and grease (TOG) in Sample 1A3 collected at 8 feet bgs; and
- no TPHd concentrations and 24 ppm of TOG in Sample 1A4 at 3 feet bgs.

Copies of the analytical reports are attached.

FIELD INVESTIGATION

SCI proposes to conduct a electromagnetic and magnetometer survey in the area of the former USTs to confirm that no other USTs are present. SCI will retain California Utility Surveys (CUS) to perform the survey to detect magnetic anomalies. SCI will mark the proposed drilling location and CUS will conduct a utility survey to check for subsurface utilities in the vicinity of the proposed drilling location.

SCI will drill one soil boring at the former gasoline UST location. The proposed boring location is illustrated on the attached Partial Site Plan. Bedrock is reportedly present at a depth of approximately 20 feet bgs. The boring will be completed to a depth of approximately 30 to 40 bgs depending on drilling conditions encountered. Given the location and geology of the site, the depth to groundwater is likely very deep. However, if groundwater is encountered, a grab groundwater sample will be collected.

SCI will obtain a drilling permit from the Alameda County Public Works Agency. The soil boring will be installed by a truck-mounted drill rig utilizing hollow-stem augers. Our field engineer/geologist will observe drilling operations and prepare a detailed log of the boring. Soil samples will be collected from the boring using a California Drive Sampler having an outside diameter of 2.0 inches and an inside diameter of 1.5 inches. Soil samples will be classified in accordance with the Unified Soil Classification System. Soil samples will be collected at 3- to 5-foot intervals and screened in the field using an organic vapor meter. Soil samples will be retained in pre-cleaned sample liners, capped with Teflon sheeting and plastic end caps.

Based on field observations, including PID reading, odor, and soil discoloration, soil samples will be selected and chilled on-site in an ice chest pending delivery to a State-certified chemical testing laboratory. Two soil samples will be submitted to a State-certified chemical testing laboratory for chemical analysis.

All augers, drill rods, sampling equipment, and temporary well casing to be used in the test boring will be cleaned prior to their initial use and prior to each subsequent use to reduce the likelihood of cross-contamination between samples. Soil cuttings will be stored in 55-gallon drums pending disposal.

If groundwater is encountered, the boring will be converted to a temporary well and a grab groundwater sample will be collected from the well. The groundwater sample will be collected in laboratory prepared containers using a clean, disposable bailer, and placed in an ice-filled cooler pending delivery to a State-certified chemical testing laboratory for analysis. The soil and groundwater samples will be accompanied by chain-of-custody documentation.

Following collection of the samples, the boring will be backfilled with neat cement grout and capped with asphalt to match existing conditions.

ANALYTICAL TESTING

Two soil samples will be submitted to Curtis & Tompkins, Ltd., a State of California certified analytical laboratory. The analytical testing program will include:

- Total petroleum hydrocarbons as gasoline (TPHg), using USEPA Test Method 8015 modified,
- Total petroleum hydrocarbons as diesel (TPHd), using USEPA Test Method 8015 modified, and
- Benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tertiary butyl ether (MTBE), using USEPA Test Method 8260.

Analyses will be conducted using standard turnaround times.

REPORTING

Following receipt of the analytical results, SCI will prepare a technical report that summarizes field activities, observations and analytical results. The report will include a site plan, a boring log, laboratory analysis reports, and chain of custody records, as well as results of the chemical analyses and a brief discussion of the results.

SCHEDULE

We propose to schedule the field activities specified in this work plan for the end of February pending Work Plan approval from ACEHS. We anticipate completion of the field activities, chemical analyses of samples, and preparation of our report within 4 weeks of completion of field activities.

If you have any questions, please call either of the undersigned.

Yours very truly,

Subsurface Consultants, Inc.

Meg Mendoza
Project Engineer

Glenn S. Young, RG
Associate Geologist

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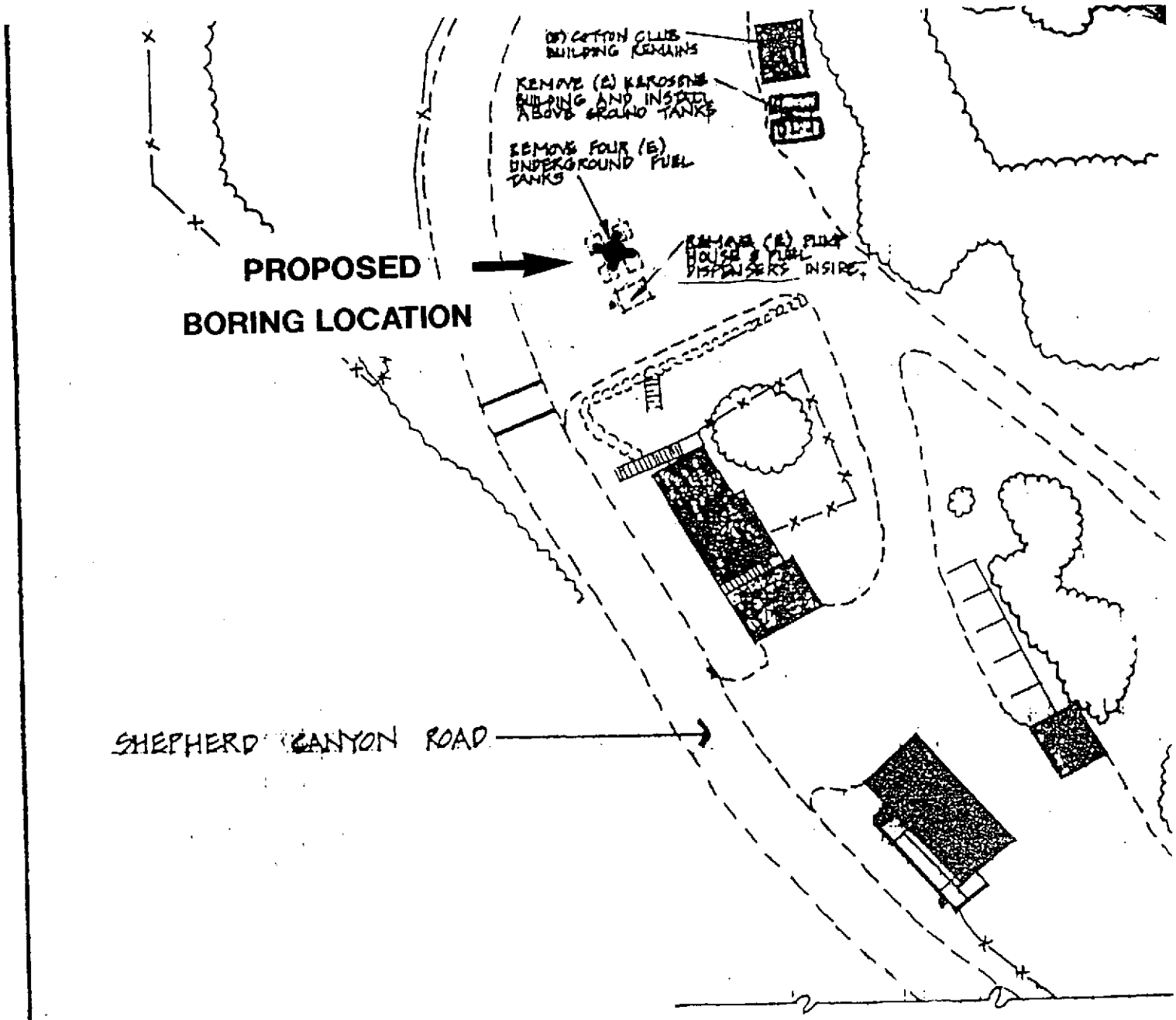
Attachments: Plate 1 - Partial Site Plan
Laboratory Reports

cc: Mr. Odili Ojukwu
City of Oakland Public Works Agency.
Environmental Services Department
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, California 94612



PARTIAL SITE PLAN

SCALE 1" = 50'

CITY OF OAKLAND • OFFICE OF GENERAL SERVICES

GTEL
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Western Region
4080-C Pike Ln., Concord, CA 94520
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Client: R.S. Eagan & Co.
Project Number: SFB-762-0087.72
Work Order Number: ML579001
Location: Corporate Yard #4
Oakland, CA

Table 1

TEST RESULTS

BTEX/Total Petroleum Hydrocarbons
Modified EPA Method 8015/8020/5030
Matrix: Soil

Date Sampled: May 3, 1990
Date Analyzed: May 3, 1990

Sample ID	Depth (ft)	Total Petroleum Hydrocarbons	Benzene	Toluene	Ethylbenzene	Xylenes
1A1	11	60	6	11	2.4	12
1A2	11	790	27	86	16	150
1A5	3	ND	ND	ND	ND	ND
Composite A	NA	ND	ND	ND	ND	ND
Composite C	NA	500	5.5	31	12	79

CA Certification Number: E628

MDL = Method detection limit; compound below this level would not be detected.
Results rounded to two significant figures.

Method detection limit; TPH 10ppm; Benzene 1ppm; Toluene 1ppm; Ethylbenzene 1ppm; Xylenes 1ppm.

NA = Not Applicable
ND = None Detected

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Table 2

TEST RESULTS

Total Petroleum Hydrocarbons as Diesel
Modified EPA Method 8015 (GC/FID)/5030
Matrix: Soil

Date Sampled: May 3, 1990

Date Analyzed: May 3, 1990

Sample ID	Depth (ft)	Total Petroleum Hydrocarbons as Diesel	Remarks
1A3	8	62	NA
1A4	3	<MDL	NA
Composite B	NA	920	NA

CA Certification number: E628

MDL = Method detection limit; compound below this level would not be dectected.
Results rounded to two significant figures.

Method detection limit: 10 mg/Kg (ppm)

NA = Not Applicable
ND = None Detected

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Table 3

TEST RESULTS

Total Petroleum Hydrocarbons
EPA Method 3550/APHA SM 503E/IR
Matrix: Soil

Date Sampled: May 3, 1990
Date Analyzed: May 3, 1990

Sample ID	Depth (ft)	Total Petroleum Hydrocarbons	Remarks
1A3	8	190	T.P.H. as Oil and Grease
1A4	3	24	T.P.H. as Oil and Grease
Composite B	NA	2200	T.P.H. as Oil and Grease

CA Certification number: E628

MDL = Method detection limit; compound below this level would not be dectected.
Results rounded to two significant figures.

Method detection limit: 10 mg/Kg (ppm)

NA = Not Applicable
ND = None Detected

Emma P Popek /AOMB
Emma P. Popek,
Laboratory Director

GTEL ENVIRONMENTAL LABORATORIES, INC.