James P. Bowers, PE
R. William Rudolph, Jr., PE

March 4, 1993
SCI 827.001

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

Work Plan
Preliminary Fuel Oil Contamination Investigation
4629 Martin Luther King Jr., Way
Oakland, California 94609

Dear Ms. Chu:

Presented herein is a proposed work plan for the referenced site to preliminarily define the vertical extent of soil contamination resulting from release(s) from three (3) heating oil fuel tanks. This work plan was prepared in response to your letter dated January 25, 1993.

In brief, the site is currently occupied by a one-story structure. In July 1992, five (5) underground storage tanks were removed from the property under the direction of SEMCO. Samples of the native soil obtained from beneath the three heating oil fuel tanks contained oil and grease and diesel concentrations up to 4000 mg/kg. In addition, low levels of benzene, toluene, xylene and ethylbenzene were detected. Soil samples obtained beneath the two (2) gasoline tanks contained no gasoline at concentrations above the reporting limits. The tank excavations were backfilled with sand.

Soil Contamination Investigation

Based on the analytical data generated to date, no investigation is planned for the previous gasoline tank areas. However, in the previous heating oil fuel tank area, Subsurface Consultants, Inc. (SCI) proposes to perform the investigation in phases. The first phase will consist of drilling three test borings within the tank excavations. The proposed drilling locations for the three borings that will be drilled at this time are shown on Plate 1. Two soil samples from each boring will be analyzed to evaluate the

characteristics and vertical extent of soil contamination. If the analytical results suggest that the contamination may be limited to a small quantity of soil below the previous tanks, excavation of the contaminated soil will proceed without additional investigation. In this case, SCI will prepare and submit for your approval a work plan which outlines the details of soil remediation prior to proceeding.

If the analytical data from the initial test borings suggests that soil contamination is widespread, additional test borings will be drilled to determine the lateral extent of soil contamination. If additional borings are necessary, their location will be selected in consultation with the ACHCSA.

Soil samples will be obtained at frequent intervals in the borings. At least two soil samples will be analyzed from each boring. Once the extent of soil contamination is defined, we will evaluate remediation alternatives.

Groundwater Quality Investigation

Groundwater monitoring well(s) will be installed following characterization of soil contamination. A work plan for the study will be prepared and submitted for ACHCSA review. The well location(s) will be selected, in consultation with the ACHCSA. Groundwater samples will be obtained and analyzed to determine if groundwater has been impacted. If contaminants are detected in groundwater, additional monitoring wells will be installed, if necessary, to define the extent of the contaminant plume. The location of the additional wells will be selected in consultation with the ACHCSA.

Field Investigation - Test Borings and Monitoring Wells

The test borings will be drilled using truck-mounted, 8-inch-diameter, hollow stem auger equipment. Our engineer will observe drilling operations and prepare detailed logs of the borings. Soil samples will be obtained from the borings using a California Drive Sampler having an outside diameter of 2.5 inches and an inside diameter of 2.0 inches. Soil samples will be obtained at 5 foot intervals, and at major lithologic changes. Within about 5 feet of the groundwater surface, the sampling interval will be reduced to 2.5 feet. A portable organic vapor meter (OVM) will be used to screen all samples obtained from the test borings.

Soil samples will be retained in brass sample liners and sealed with duct tape. Teflon sheeting will be placed between the caps and the soil samples. Upon sealing and labeling, the samples will be promptly refrigerated on-site in an ice chest. Samples will remain under refrigeration until delivery to the laboratory.

All augers, drill rods, sampling equipment, well casings, etc., that will be placed in the test borings will be cleaned prior to their initial use and prior to each subsequent use to reduce the likelihood of cross contamination between borings. Upon completion of drilling, the borings will be backfilled with a cement/bentonite grout.

The groundwater monitoring wells will be constructed of 2-inch-diameter, schedule 40 PVC pipe having flush threaded joints. The lower portion of the well will consist of machine slotted well screen having 0.020 inch slots. The annular space around the screened section will be backfilled with Lonestar #3 sand. A bentonite seal, approximately 12 inches thick, will be placed above the sand. The annular space above the bentonite seal will be backfilled with cement/bentonite grout. The wells will be finished below grade in a Christy box and will be secured by a locking cap.

The wells will be developed, until the water becomes relatively free of turbidity. The water will be placed in steel drums and left on-site for later disposal. Groundwater samples will be obtained using a dedicated pre-cleaned Teflon sampling device. Water samples will be placed in pre-cleaned containers and refrigerated until delivery to the analytical laboratory. The soil and water samples will be accompanied by Chain-of-Custody records.

Analytical Testing

Soil and groundwater samples will be analyzed by a California Department of Health Services (DHS) certified analytical laboratory. The underground tank stored heating oil. Accordingly, selected soil and groundwater samples will be analytically tested for:

1. Oil and grease (O&G) - SMWW17:5520, and
2. Total extractable hydrocarbons (TEH) - EPA method 3550/8015, and
3. Purgeable aromatics (BTEX) - EPA 8020.

■ Subsurface Consultants, Inc.

Report

Based upon the results of the investigation, SCI will prepare a report recording our conclusions/recommendations regarding:

1. Soil and groundwater conditions;
2. The vertical extent of soil contamination;
3. The significance of contaminant levels with respect to local and state criteria;
4. Remediation alternatives; and
5. The scope of subsequent phases of investigation, if required.

The report will include boring logs, analytical test results and Chain-of-Custody records.

We look forward to your favorable review of our work plan. If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

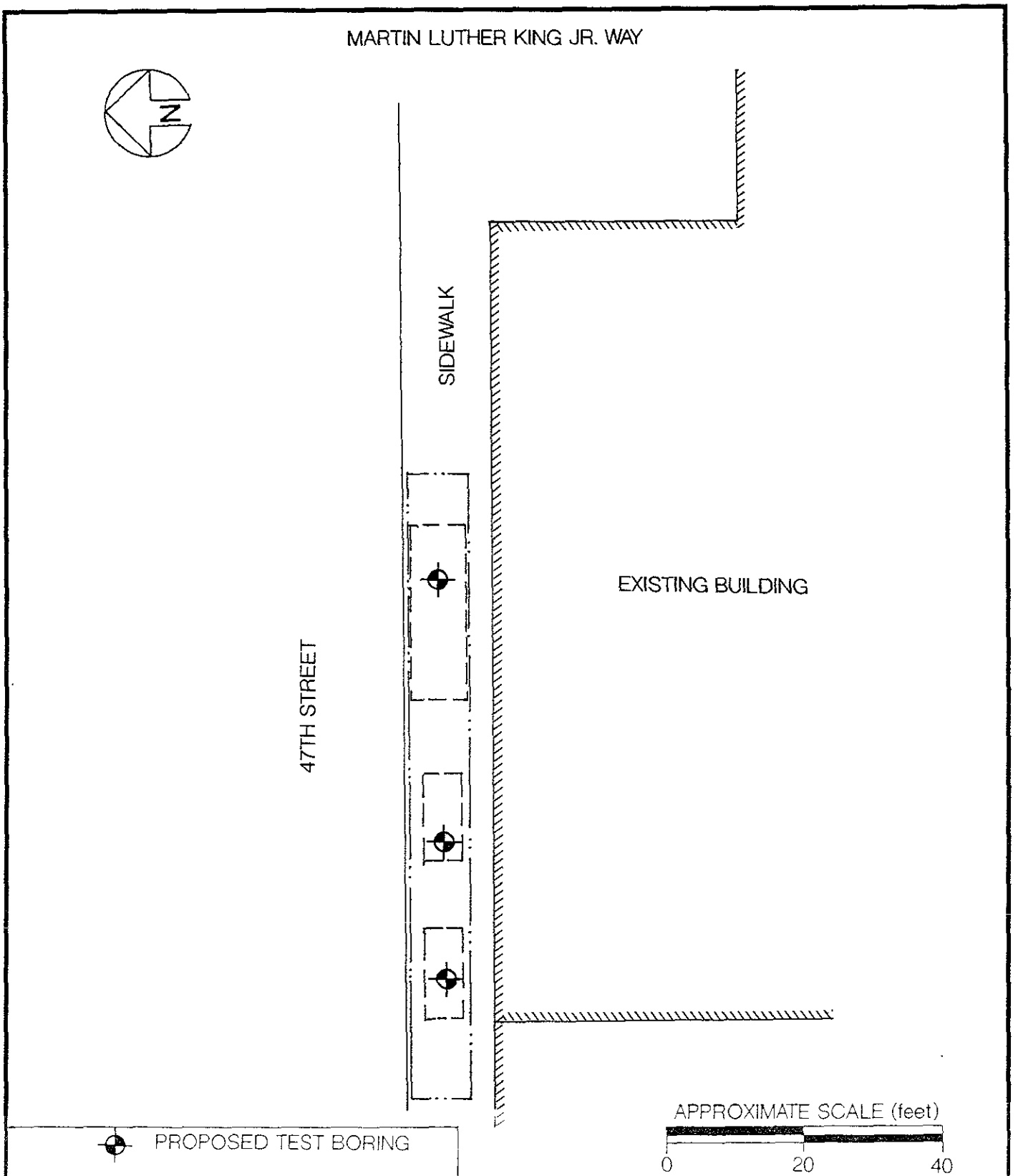
James P. Bowers
Geotechnical Engineer 157 (expires 3/31/95)

MK:JPB:RWR:egh

cc: Ms. Lynn Nightingale
Miller & Miller

Mr. Richard Hiett
Regional Water Quality Control Board

Attachments: Plate 1 - Site Plan



SITE PLAN

Subsurface Consultants

NIGHTINGALE TANKS - OAKLAND, CA

JOB NUMBER	DATE	APPROVED	PLATE
827.001	3/3/93		1