BURLINGTON
ENVIRONMENTAL

December 10, 1993
Project BRK103/11385

Mr. Norman Alberts
Vice President Finance
Patterson Ranch
4550 San Pablo Avenue
Emeryville, California 94608

Re: PRELIMINARY SITE ASSESSMENT WORKPLAN
Downtown Toyota
4145 Broadway
Oakland, California 94608

Dear Mr. Alberts:

Burlington Environmental, Inc. (Burlington) is pleased to submit this workplan to perform a preliminary site assessment (PSA) at Downtown Toyota located at 4145 Broadway in Oakland, California. The purpose of this PSA is to determine the extent that fuel hydrocarbons have impacted the soil and groundwater beneath the site. This PSA was requested in a letter from Ms. Eva Chu (Alameda County Health Care Services Agency) to you dated September 30, 1993.

The proposed work includes performing prefield activities, preparing a Health and Safety Plan, contracting subcontractors, reviewing the regional and local geology and hydrogeology, drilling and sampling eight to ten boreholes, sampling the groundwater in the boreholes, submitting selected samples for chemical analysis, and preparing a report of the findings.

SITE DESCRIPTION

The site is occupied by Downtown Toyota, an active car dealership. The site is located on Broadway, between 41st and 42nd Streets, in Oakland, California (see Figure 1). One underground used oil storage tank was previously located on the site in a Car Detailing Bay. The tank was removed by Burlington on February 7, 1992. Additional soil excavation, sampling, and backfilling was conducted by Burlington on April 15, 1992.

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Properties surrounding the site are occupied primarily by residential housing and small commercial businesses. The site is located approximately four miles east of the San Francisco Bay. The topography slopes gently to the west-southwest. The anticipated groundwater flow direction is west-southwest towards the bay.

SCOPE OF WORK

The following scope of work has been prepared to characterize the soil and groundwater beneath the site. The scope of work includes performing prefield activities, drilling eight to ten boreholes, and sampling and analyzing soil and groundwater samples from each borehole.

A detailed description of these tasks follows.

Task 1 - Prefield Activities

To prepare for field activities, Burlington will review previous reports, arrange for field materials and equipment, contract subcontractors, and contract an underground utility locating service to clear the borehole locations.

Task 2 - Pneumatic Soil and Groundwater Sampling

Burlington proposes to conduct the investigation utilizing a pneumatic sampling system (PSS) for the soil and groundwater sample collection. The PSS method involves driving a small-diameter sampling probe into the ground using a pneumatic hammer and collecting soil and groundwater samples.

Four of the locations will be drilled first in proximity to the former excavation; the water levels will be surveyed using a transit for relative elevation and an approximate downgradient direction will be determined. The remaining locations will then be drilled in the downgradient direction to determine extent of the groundwater impact.

The soil boreholes will be drilled with a PSS which produces no soil cuttings. The PSS operates by driving a probe pipe with an insert rod to a specified depth. The insert rod is removed and the probe pipe is driven into undisturbed soil to collect a soil sample. The probe pipe is extruded and the section containing the soil is cut. The section of pipe

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containing the soil is then sealed with Teflon tape, plastic end caps, and duct tape. The soil samples is then labeled, and stored in an iced cooler for shipment to a California Department of Health Services (DHS)-approved laboratory. Soil sampling procedures are presented in Appendix A.

Soil samples will be collected for soil classification and chemical analysis at 5 feet below ground surface (BGS) and at 10 feet BGS under strict chain-of-custody procedures and will follow the guidelines established by the EPA. Soils will be logged by a Burlington geologist using the Unified Soil Classification System (USCS). Borehole logs will be reviewed by a California-State registered geologist. Soil sampling procedures are presented in Appendix A. Samples will be chosen for analysis using a Photoionization Detector (PID) to determine the presence or absence of petroleum hydrocarbons and volatile organic compounds in the soil samples.

The total depths of the boreholes will be determined by the depth to first-encountered groundwater encountered during borehole advancement. The approximate depth to groundwater, as determined during the previous tank removal operations, is 10 feet BGS. When the water-bearing zone is encountered, the perforated probe pipe will be advanced into the saturated interval and a groundwater sample will be collected using a stainless steel bailer. Groundwater sampling procedures are presented in Appendix A.

Selected soil and groundwater samples (approximately 4 soil and 8 water) will be submitted to a California certified laboratory. The samples will be analyzed for total petroleum hydrocarbons as gasoline and motor oil using modified EPA Method 8015; aromatic volatile organics using EPA Method 8020; and total oil and grease using EPA Method 413.2. include TPH-D

Following the soil and groundwater sampling the probe pipes will be removed from the borehole. The boreholes will be sealed to the ground surface with bentonite/cement grout, and patched with cement.

Task 3 - Report Preparation

Following completion of the site characterization, a *Soil and Groundwater Investigation Report* will be prepared and submitted to Patterson Ranch. The report will be reviewed, signed, and stamped by a California registered geologist.

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SCHEDULE

Barring regulatory constraints or unforeseen delays, the report will be submitted to you within 8 weeks of completion of the site work.

If you have any questions regarding this workplan, please do not hesitate to call.

Very truly yours,

BURLINGTON ENVIRONMENTAL INC.

Kyle S. Flory
Project Geologist

David C. Tight, R.G.
Investigation/Remediation Manager

Attachments:

Figure 1 - Site Location
Figure 2 - Site Plan
Figure 3 - Proposed Soil and Groundwater Sampling Locations

Appendix A - Exploratory Borehole, Soil Sampling, Decontamination, and Groundwater Sampling Procedures

cc: Eva Chu, Alameda County Health Care Services Agency

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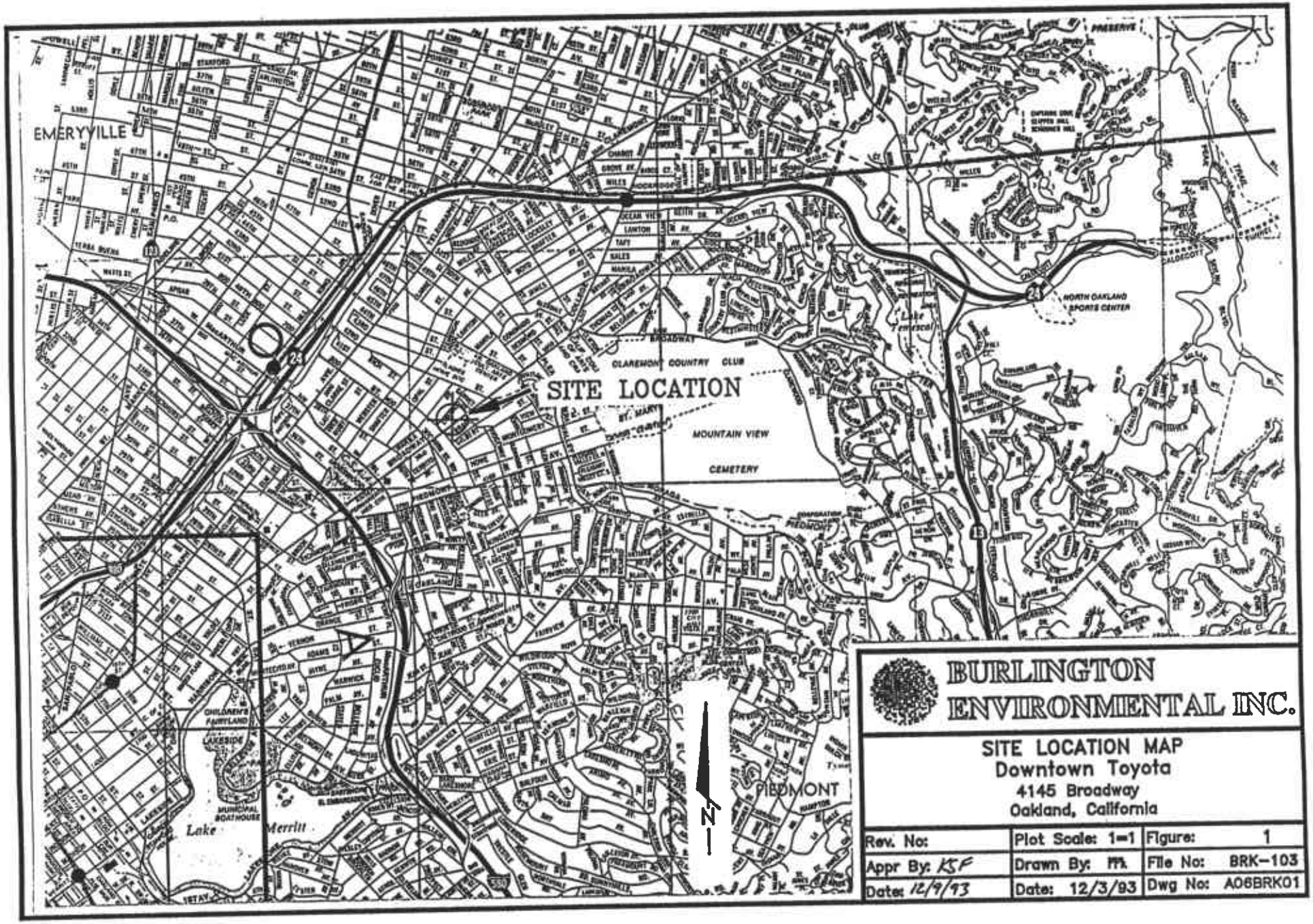

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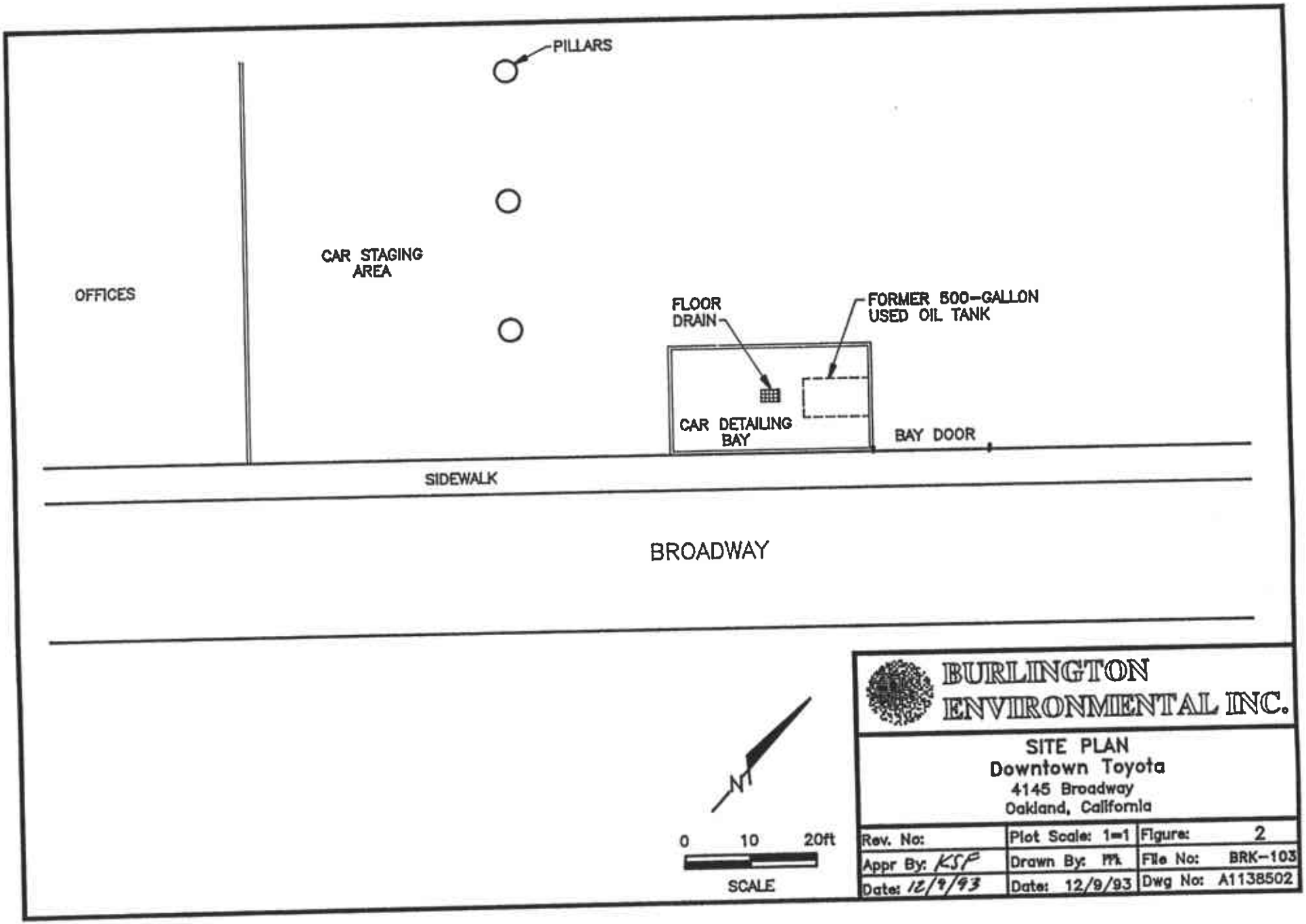
SITE LOCATION MAP
Downtown Toyota
4145 Broadway
Oakland, California

Rev. No:	Plot Scale: 1=1	Figure: 1
Appr By: KSF	Drawn By: ffk	File No: BRK-103
Date: 12/9/93	Date: 12/3/93	Dwg No: A06BRK01



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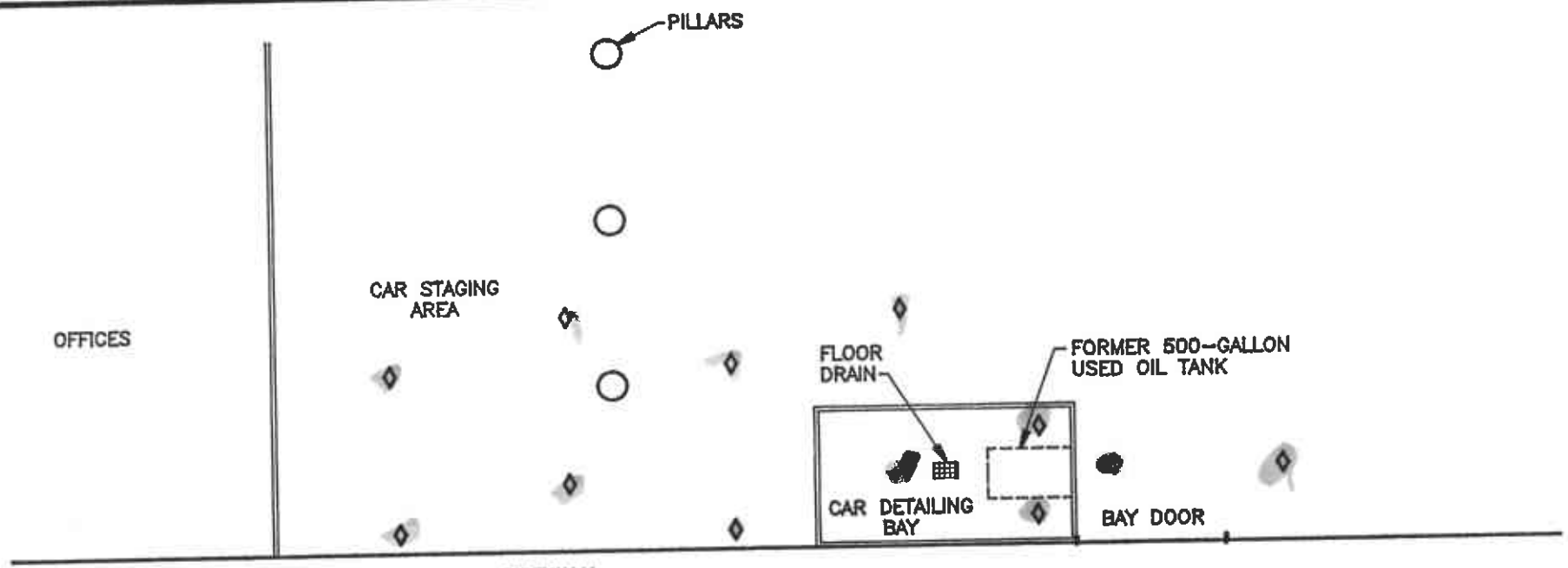
SITE PLAN
Downtown Toyota
4145 Broadway
Oakland, California

Rev. No:	Plot Scale: 1=1	Figure: 2
Appr By: KSF	Drawn By: ffk	File No: BRK-103
Date: 12/9/93	Date: 12/9/93	Dwg No: A1138502



S.S. will be collected + analyzed from 5' + 10' grab sample to be collected

SS will be collected from capillary fringe and grab sample to be collected

EXPLANATION

◊ PROPOSED SOIL AND GROUNDWATER SAMPLING LOCATIONS

N

0 10 20ft

SCALE

BURLINGTON ENVIRONMENTAL INC.

PROPOSED SOIL AND GROUNDWATER SAMPLING LOCATIONS
Downtown Toyota
4145 Broadway
Oakland, California

Rev. No:	Plot Scale: 1=1	Figure: 3
Appr By: KSP	Drawn By: MK	File No: BRK-103
Date: 12/9/93	Date: 12/9/93	Dwg No: A1138503

Appendix A

EXPLORATORY BOREHOLE, SOIL SAMPLING, DECONTAMINATION, AND GROUNDWATER SAMPLING PROCEDURES

Appendix A

Exploratory Borehole,
Soil Sampling,
Decontamination,
and
Groundwater Sampling Procedures

EXPLORATORY BOREHOLE

Before the exploratory boreholes will be drilled an underground utility-locating service will be hired to clear the proposed drilling sites for subsurface utilities. In addition, Underground Service Alert (USA) will be contacted to schedule visits to the site by public and private utility companies. Each company will locate it's utilities with the aid of maps, and the locating service will verify and mark these locations. All utility clearances will be coordinated with the client or client representative before drilling begins.

The exploratory boreholes will be drilled with a pneumatic sampling system. The pneumatic sampling system produces no soil cuttings during the drilling operation. All equipment that comes in contact with or enters the borehole will be steam cleaned before each borehole is drilled.

SOIL SAMPLING

Soil samples will be collected while drilling to evaluate the geochemistry and stratigraphy of the soil beneath the borehole location. The soil will be sampled by using 5-foot sections of decontaminated 3/4-inch interior diameter (ID) galvanized steel probe pipe. The probe pipe is connected to a 1-foot galvanized steel soil core tube. Solid steel decontaminated insert rods are placed through the probe pipe and sampling core. The probe pipe, sample core tube, and insert rods are pneumatically driven to the required sample depth. The insert rods are removed and the probe pipe and sample core are pneumatically driven 1-foot to obtain the soil core sample. The probe pipe and the soil core tube (which contains the soil core sample) are removed from the borehole and the soil sample is disconnected from the probe pipe. The soil core containing the soil sample is then cut into two pieces for lithologic logging and chemical analysis. The section of pipe containing the soil sample to be sent to the analytical laboratory

is then sealed with Teflon tape, plastic end caps, and duct tape. Soil samples will be collected for soil classification and chemical analysis at 5-foot intervals, in areas of visual contamination, at changes in lithology, and just above the water table using a pneumatic sampling system. Soil samples will be classified and logged according to the Unified Soil Classification System. The work will be reviewed by a California State registered geologist to ensure that it met regulatory standards.

The soil samples will be labeled, and stored in an iced cooler for shipment to a California Department of Health Services (DHS)-approved laboratory. At the time of sampling, each sample will be logged on a Chain-of-Custody record which accompanied the sample to the laboratory. Soil samples selected for analysis will have the request for analysis noted on the Chain-of-Custody.

Soil sampling equipment will be steam cleaned prior to drilling each borehole and washed in an Alconox solution and rinsed in distilled water between each sampling point.

DECONTAMINATION PROCEDURES

Proper decontamination and cleansing of all equipment will be performed to prevent cross-contamination between sampling locations. The two methods of decontamination used at the site will be steam cleaning and detergent washing followed by tap water and distilled water rinses. During field work, all equipment that will be placed in the boreholes or that will come in contact with groundwater will be decontaminated as follows:

Equipment	Decontamination procedures
Drill Rig	Steam cleaned prior to arriving on-site
Probe Pipes	Steam cleaned prior to drilling each borehole
Drill Tools	Steam cleaned prior to drilling each borehole
Soil Core Tube	Steam cleaned between each borehole, then Alconox™ (Alconox) washed, and tap water and distilled water rinsed between each sampling interval
Water Level Sensor	Alconox washed, tap water and distilled water rinsed between each use

Bailers	Steam cleaned between each use
Stainless Steel Sampling Bailer	Alconox washed, then steam cleaned and rinsed with distilled water prior to sampling each borehole

The water used for steam cleaning will be obtained from the site. Deionized water will be used for rinses. The water generated during decontamination procedures will be stored in 55-gallon drums onsite and will be disposed of by a contractor.

Groundwater Sampling

Sample collection procedures include: equipment cleaning, water-level measurements, and groundwater sampling.

Equipment Cleaning

Pre-cleaned sample bottles, caps, and septa will be provided by a DHS-approved laboratory. All sampling containers will be used only once and discarded after analyses are completed.

The sampling and analysis procedures for water-quality monitoring programs are contained in this section. These procedures will ensure that consistent and reproducible sampling methods will be used, proper analytical methods will be applied, analytical results will be accurate, precise, and complete, and the overall objectives of the monitoring program will be achieved.

Before starting the sampling event and between each event, all equipment to be placed in the borehole or come in contact with groundwater will be disassembled and cleaned thoroughly with detergent water, steam cleaned with tap water, and rinsed with distilled water. Any parts that may absorb contaminants, such as plastic pump valves or bladders, will be cleaned as described above or replaced. The water-level sounder will be washed with detergent and rinsed with distilled water before use in the each borehole. The rinse water will be stored in 55-gallon drums onsite and will be disposed of by a contractor.

Water-Level Measurements

Before groundwater sampling the depth to water will be measured using an electric sounder. The electric sounder, manufactured by Slope-Indicator, Inc., is a transistorized instrument that uses a reel-mounted, two conductor, coaxial cable that connects the control panel to the sensor. Cable markings are stamped at 1-foot intervals. An engineer's rule will be used to measure the depths to the nearest 0.01 foot. The water level will be measured by lowering the sensor into the borehole. A low current circuit is completed when the sensor contacts the water, which serves as an electrolyte. The current is amplified and fed across an indicator light and audible buzzer, signaling contact with water. A sensitivity control compensates for very saline or conductive water.

All liquid measurements will be recorded to the nearest 0.01 foot in the field logbook.

Groundwater samples will be collected by pneumatically driving a 6-foot long section of decontaminated $^3/_4$-inch ID perforated galvanized steel probe pipe. The perforated probe pipe is connected to 5-foot sections of probe pipe, as required. Decontaminated insert rods are placed inside of the perforated probe pipe and the pipe and rods are pneumatically driven into the saturated zone.

Groundwater samples will be collected from within the probe pipe after sufficient groundwater is available for sampling. Groundwater samples will be collected by lowering a decontaminated stainless steel bailer down the probe pipe and retrieving a groundwater sample. Following collection, the groundwater samples will be decanted into the appropriate container for analysis. All water samples will be collected under strict Chain-Of-Custody procedures, and following the guidelines established by the EPA.

SAMPLE HANDLING AND DOCUMENTATION

The following section specifies the procedures and documentation used during sample handling.

Sample Handling

All sample containers will be labeled immediately following sample collection. Samples will be kept cool with cold packs or ice until received by the laboratory. Cold packs will be

replaced each day to maintain refrigeration. At the time of sampling, each sample will be logged on a Chain-of-Custody record which accompanies the sample to the DHS-approved laboratory.

Sample Documentation

The following procedures will be used during sampling and analysis to provide Chain-Of-Custody control:

* Field logbooks to document sampling activities in the field
* Labels to identify individual samples
* Chain-of-custody record sheets for documenting possession and transfer of samples

Field Logbook

In the field, the sampler will record the following information on the Water Sample Field Data Sheet for each sample collected:

* Project number
* Client name
* Location
* Name of sampler
* Date and time
* Pertinent borehole data (e.g., borehole diameter, depth to water, total borehole depth)
* Sampling equipment used
* Appearance of each sample (e.g., color, turbidity, sediment)
* General comments

The field logbooks will be signed by the sampler.

Labels

Sample labels will contain the following information:

* Project number
* Sample number (i.e., borehole designation)
* Sampler's initials
* Date and time of collection
* Type of preservative used (if any)

Sampling and Analysis Chain-of-Custody Record

The Sampling and Analysis Chain-of-Custody record, initiated at the time of sampling, contains, but is not limited to, the sample number, sample type, analytical request, date of sampling, and the name of the sampler. The record sheet will be signed, and dated by the sampler when transferring the samples. The number of custodians in the chain of possession will be kept to a minimum.

Groundwater generated from steam cleaning operations will be contained for temporary storage in 55-gallon drums. All drums will be labeled and stored onsite in a location designated by the site superintendent. The sampler will record the following information on the drum label for each drum generated:

* Drum content (water)
* Source (steam cleaning)
* Date generated
* Client contact
* Project number
* Name of sampler

The groundwater will be stored onsite for a maximum of 90 days. We will notify the client representative that the water is ready for removal, and at the clients request, transport the drums off-site when the water has been removed.