PRELIMINARY GROUND WATER INVESTIGATION WORK PLAN

FOR

ROADWAY EXPRESS, INC.
1708 WOOD STREET
OAKLAND, CALIFORNIA 94607

Prepared For:

Roadway Express, Inc.
1077 Gorge Boulevard
Akron, Ohio 44309

January 21, 2000

David K. Murchison
Registered Geologist No. 4416

1/24/2000
Date

Cheryl Madden, Geologist
Project Manager

1/24/00
Date

240 TERMINO AVENUE • LONG BEACH, CALIFORNIA 90803 • PHONE: 562-987-1096 • FAX: 562-987-9120 •
ONEENVIRO@EARTHLINK.NET

TABLE OF CONTENTS

FIGURES:

1.0 INTRODUCTION

One Environment (Beacon) was retained to prepare a Preliminary Ground Water Investigation Work Plan (Work Plan) associated with underground storage tank (UST) system formerly located at the Roadway Express, Inc. facility located at 1708 Wood Street, Oakland, California (Site) (see Figure 1). The Site is comprised of two parcels of land extending over an area of approximately 5.5 acres. The purpose of the Work Plan is to describe the proposed subsurface investigation activities that will be completed at the Site to evaluate groundwater quality, flow direction, and gradient surrounding the former UST area. The lead agency overseeing work at the Site related to the UST systems is the Alameda County Health Care Services (AHC).

1.1 BACKGROUND

On July 11, 1996, one 10,000-gallon diesel fuel underground storage tank (UST) was removed from the Site. Soil samples collected at the UST excavation did not reveal evidence of contaminants. However, soil sampled beneath the dispenser was found to contain 11,000 parts-per-million (ppm) of total petroleum hydrocarbons as diesel fuel (TPH-D). Additionally, 7,400 ppm of TPH-D was detected in the sample collected from the soil excavated and stockpiled as part of the UST removal activities (One Environment, 1996).

Two additional USTs (a 10,000-gallon gasoline UST and a 2,000-gallon motor oil UST) were removed from the Site on March 31, 1987. Two monitoring wells were installed in the area where the USTs were formerly located. One of these wells was removed during the UST removal process on July 11, 1996. Analytical testing reported in April 1987 indicated that no contaminants were detected in the soil samples collected from beneath the former location of the gasoline UST. However, laboratory results indicated that Oil and Grease (O&G) by Solid Waste Method 5520 were detected in the soil sampled collected from beneath the former location of the motor oil UST, with concentrations ranging from 610 milligrams per kilogram (mg/kg) to 770 mg/kg. Additionally, 500 micrograms per liter (ug/l) of volatile hydrocarbons and 21 milligrams per liter (mg/l) of O&G were detected in water samples collected from the existing observation wells as indicated by R.S. Eagen & Company in 1987.

BCon Environmental conducted a preliminary soil and groundwater investigation on July 24, 1997. Eight boreholes were drilled by use of a Geoprobe-type push-rod technology to depths between 8 to 14 feet below ground surface (bgs). The boring locations and depths were selected to provide information regarding the possible presence of regulated chemicals below the ground surface. The boreholes were drilled in the close vicinity of the former USTs as well as the dispenser island to evaluate the presence or absence of petroleum hydrocarbons in the subsurface soil and/or groundwater.

Laboratory soil sample results indicated TPH-D concentrations of 240 mg/kg in boring B-3 and 5.4 mg/kg in Boring B-5. Boring B-3 was located southeast of the former waste oil UST. However, laboratory analysis indicated TPH-gasoline (TPH-G) and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) were not detected in any of the soil samples and relatively low concentrations ranging from 23 to 43 mg/kg of O& G were detected in borings B-1, B-3, B-6 and B-7.

The investigation revealed groundwater at depths ranging from two (2) feet to seven (7) feet bgs. Groundwater samples revealed seven of nine samples contained TPH-D concentrations ranging from 0.5 mg/l to 120 mg/l. Boring B-7 revealed the highest TPH-D concentration of 120 mg/l. TPH-G was also detected in groundwater sample collected from boring B-7 with a concentration of 840 ug/l. Concentrations of BTEX were not detected in any of the nine-groundwater samples collected from the boreholes and/or existing observation wells. However, laboratory results indicated a relatively low concentration ranging from 0.54 to 8.8 mg/L of O&G detected in six of the samples. The highest concentration of O&G was collected from boring B-7 with concentration of 8.8 mg/l.

The borings containing TPH impacted soil and groundwater include boring B-3 and B-7. These two borings were located on the east and southern portion of the former UST area. Based upon the data collected by BCon, groundwater appeared to flow to the west towards the San Francisco Bay Area. However, a contour map of groundwater elevation for a nearby site completed by Terranext Consultants revealed groundwater flow direction to the east (January 1996). The groundwater data was collected from 1399 Wood Street, Oakland, California by Terranext Consultants. This facility is located approximately 660 feet west-southwest of the Site. Since shallow groundwater gradients are commonly highly variable, this information may be of limited value.

1.2 SCOPE

Roadway Express, Inc. has requested a scope of work directed towards obtaining a closure letter from the Alameda County Health Care Services Agency. The scope of the proposed investigation described herein consists of

- Drill, sample and log three borings to an approximate depth of 20 feet below ground surface. This will allow a 20-foot penetration into groundwater.
- Convert the borings into two-inch diameter PVC ground water monitoring wells.
- Survey, develop, purge and sample wells.

- Analyze three groundwater samples for Total Petroleum Hydrocarbons as diesel and gasoline; Benzene, Toluene, Ethylbenzene, Xylene; and Methyl-Tert-Butyl-Ether (MTBE) in accordance with requirements.

- Prepare Subsurface Investigation report for submittal to the Alameda County Health Care Services.

A total of three monitoring wells will be required in order to assess the groundwater quality and gradient onsite. Depending upon the analytical results of the groundwater sampling, closure for the Site may be granted, at the discretion of the lead agency.

2.0 PROPOSED FIELD WORK

All work will be completed under the supervision of a California registered civil engineer or registered geologist experienced in conducting hydrogeologic investigations. A Health and Safety Plan also will be prepared for Site assessment activities.

2.1 HEALTH AND SAFETY PLAN

A site specific Health & Safety Plan will be produced and distributed to all persons involved with the drilling and soil sampling. This plan will address safety provisions to be employed during the site investigative fieldwork. The objective of the plan is to describe procedures and actions designed to protect workers from inhalation, ingestion, and skin contact with potentially hazardous materials at the site. General safe work practices will also be addressed in the Site Health & Safety Plan. The on-site geologist is responsible for knowing the provisions of the plan, communicating plan requirements to workers, and enforcing the plan. The on-site geologist will also be the Site Health & Safety Officer. One of the Site Safety Officer's duties will be to conduct a safety meeting prior to beginning work, during which the safety plan requirements will be discussed.

Personal protective equipment will be selected to protect field personnel from exposure to hazardous materials. Hazardous materials most likely to be encountered during this investigation are Petroleum Hydrocarbons and Diesel products. All personnel working at the site will be wearing Level D personal protective equipment which includes a hard hat, nitrile or disposable vinyl gloves, steel toe boots, and safety glasses.

2.2 DRILLING AND SOIL SAMPLING

Drilling and sampling activities will be conducted under the supervision of a California Registered Geologist. The borings shall be drilled in order to evaluate the groundwater quality, flow direction and gradient. Three soil borings will be drilled to approximately 20 feet bgs and sampled at five

(5) foot intervals. The precise locations of the borings will be determined in the field and may change slightly based on the presence of underground or overhead utilities or obstructions, if any. All borings will be advanced using the Hollow Stem Auger (HAS) subsurface sampling equipment. Soil borings will be drilled outside the plume, surrounding the previous USTs.

All borings will be logged in accordance with the Unified Soils Classification System (USCS) and will contain, at a minimum, the following information:

- Name of client.
- Location of boring.
- Identification of boring.
- Boring diameter.
- Start and completion time(s) and date(s).
- Name of drilling contractor.
- Name of driller.
- Make and model of drilling equipment.
- Name of person logging the boring.
- Project number.
- Elevation reference.
- Sampling intervals.
- Depth to ground water, if encountered.
- Complete and detailed description of the materials penetrated.
- Results of any field screening/testing of materials, e.g., soil vapor readings.
- As built drawings of wells, piezometers or other devices installed in the borehole.
- Any other pertinent information such as problems encountered during drilling, odors, etc.

The HSA utilizes eight-inch diameter continuous flight hollow stem augers. Soil samples are collected using three 2.5-inch diameter by six-inch long brass tubes mounted within a 2.5 inch

inside diameter split-spoon drive sampler employed in advance of the augers. After sample recovery, the ends of the lower most tube will be covered with aluminum foil and plastic caps taped over the ends. It is estimated that a total of fifteen (15) soil samples will be collected. The samples will be screened in the field with a HNU meter in order to depict the samples with the highest concentrations for analysis. A HNU Model DL-101 Photoionizer (PID) calibrated against an isobutane gas standard, or equivalent instrument, will be used. Readings will be obtained from the soil contained in the brass tubes at each sampling interval and from soil cuttings ejected by the hollow stem auger, to determine if volatile hydrocarbon vapors are emanating directly from the soil. Each sample will be placed in an airtight "Ziploc" plastic bag. The samples will be allowed to degas for approximately five minutes and then the headspace in the bags will be analyzed using the PID. The results of this field-testing will be recorded on the boring logs.

One Environment anticipates that groundwater will be encountered at the Site. Should contaminated groundwater be encountered in these borings, additional step-out borings may be advanced in order to determine the horizontal extent of contamination. Authorization by Roadway Express, Inc. will be required prior to advancing the borings beyond the original scope of work.

All equipment will be washed between sampling locations in a trisodium phosphate (TSP) solution and thoroughly rinsed. The geologist in the field will use portions of the recovered sample to describe the soil in accordance with the Unified Soil Classification System (USCS). Additionally, a qualitative characterization of contamination will be made based upon any odors or soil discoloration. These observations and USCS descriptions will be included in the Boring Logs that will be reviewed by a California Registered Geologist.

2.3 GROUND WATER SAMPLING

In accordance with Alameda County Health Care Services' requirements, One Environment proposes to convert three of the borings to groundwater monitoring wells at the Site. The wells will be constructed of two-inch, inside diameter flush-threaded Schedule 40-polyvinyl chloride (PVC) well casing. A slotted section (0.020-inch x 1-inch slots) will extend a maximum of twenty (20) feet below the water table and approximately five (5) feet above the groundwater table. Well screen interval may be adjusted in the field to accommodate actual groundwater depth at the time of drilling. These three wells will be allowed to set for 48 hours and developed in accordance with AHC and RWQCB requirements. A professional surveying company will survey top-of-casing elevations for each of the wells.

Prior to completing any purging or sampling activities, depth measurements to fluid levels in each well will be obtained using an interface probe accurate to 0.01 foot. This information will be used to construct a groundwater elevation map for the Site. Groundwater samples will be collected for analysis following the purging of approximately four well volumes of water. Temperature, pH,

conductivity and turbidity readings will be obtained and logged. Groundwater samples will be collected by lowering a new disposable bailer on new rope into the monitoring well. The bailer will be allowed to fill and will be then gently retrieved from the monitoring well. Once at the surface, a portion of the groundwater sample is transferred into appropriate containers provided by the laboratory.

Groundwater samples collected for analysis will be submitted to a state-certified analytical laboratory on the same day they are collected. All groundwater samples will be labeled, logged on a chain-of-custody and stored in a cooler with ice for delivery to the laboratory.

2.4 EQUIPMENT DECONTAMINATION

All down-hole boring equipment used to advance the borings and down hole equipment used to purge and sample borings/well, will be decontaminated prior to each event by the following procedure:

- The equipment will be washed/flushed in a solution of trisodium phosphate (TSP) and tap water;
- The equipment will be washed/flushed with tap water; or
- The equipment will be steam cleaned.

2.5 EFFLUENT MANAGEMENT

All effluent generated during the course of the investigation (e.g. soil cuttings and equipment decontamination fluids) will be sealed in labeled 55-gallon drums to be handled appropriately by the client. These drums will remain onsite pending the results of the analytical testing at which time the appropriate disposal method will be determined.

3.0 PROPOSED ANALYTICAL TESTING

A State of California certified hazardous waste testing laboratory will complete all analytical testing. The laboratory will be certified for all tests proposed as part of the investigation.

3.1 SOIL SAMPLES

One soil sample screened from each bore hole , shall be tested for TPH-D and TPH-G by the EPA Method 8015 Modified, and BTEX and MTBE by EPA Method 8020.

3.2 GROUND WATER SAMPLES

Selected groundwater samples will be tested for TPH-D and TPH-G by the EPA Method 8015 Modified, BTEX and MTBE by EPA Method 8020. If TPH-D is found to be greater than 100 mg/l, the sample shall be analyzed for 8240 chlorinated solvents.

4.0 PROPOSED PROCEDURE

Upon approval by the Alameda County Health Care Services, the following actions will be implemented:

- Obtain requisite permits to complete the work, if applicable.
- Mark sample locations on the ground surface and contact Underground Service Alert to obtain clearance for subgrade utilities.
- Complete the fieldwork.
- Complete analytical testing.
- Complete and submit a report documenting the work completed.

The report documenting the results of the work will be submitted within 60 days of receipt of written approval of the Work Plan.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

Drilling and sampling activities will be conducted under the supervision of a California Registered Geologist. A bound field notebook with numbered pages will be maintained to record project information, e.g., sample locations, and date and time of work activities. Field logs, e.g., boring and ground water sampling logs, will be used in concert with the project notebook. All borings will be logged in accordance with the Unified Soils Classification System (USCS).

In addition to the quality assurance and quality control procedures previously described herein, the following two types of blanks will be prepared and tested to determine if sample collection and handling procedures affected the quality of the samples:

The blanks will be handled in a manner identical to the samples collected in the field. The laboratory will not be informed that the samples are blanks.

6.0 REFERENCES CITED

California Division of Mines and Geology (1966): *Geology of Northern California Bulletin 190.*

California Division of Mines and Geology (1977): *Geology Map of California.*

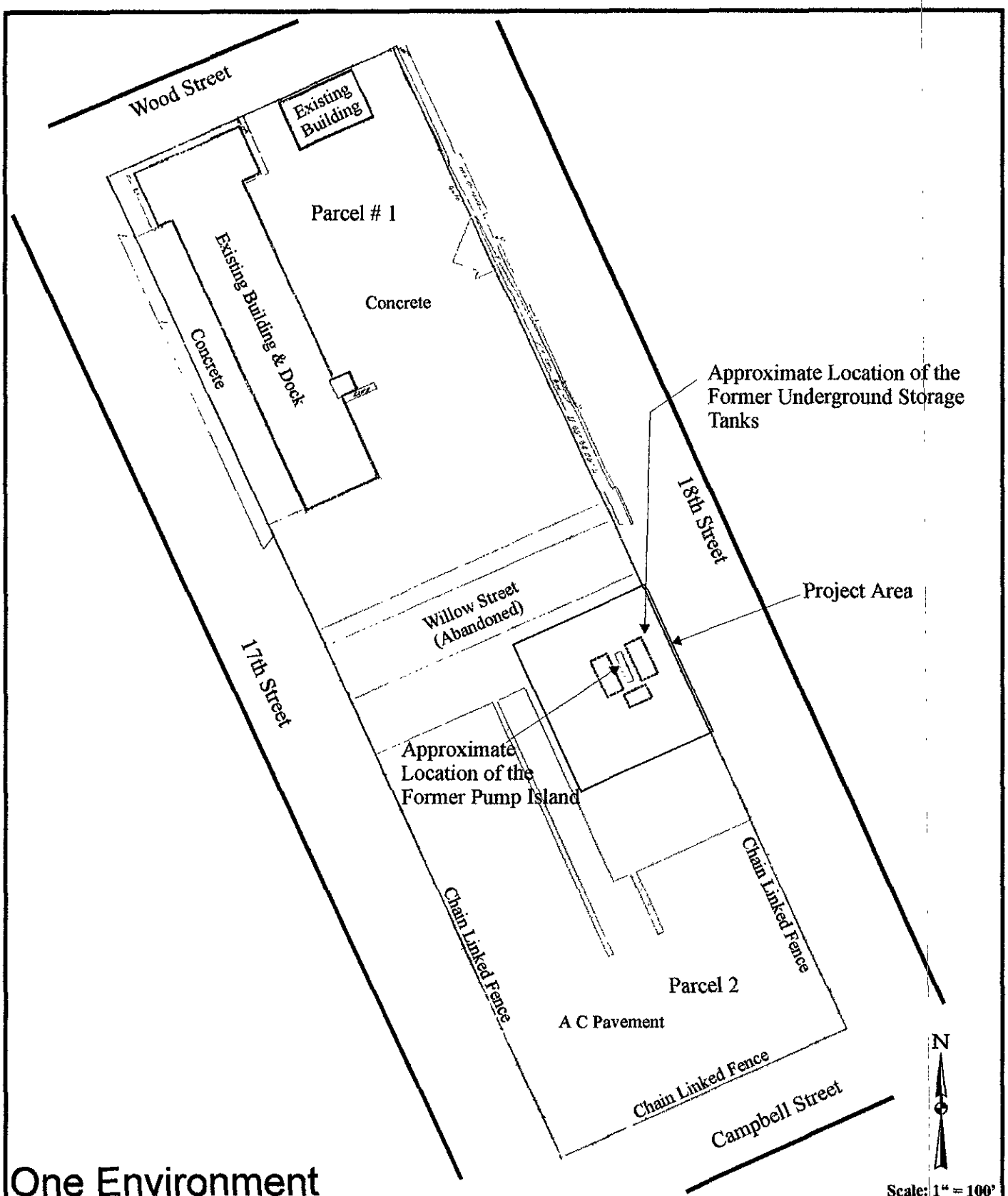
One Environment. 1996. *Report on Underground Storage Tank Removal and Site Closure for Roadway Express, Inc., Report on Underground Storage Tank Removal and Site Closure Roadway Express, Inc., 1708 Wood Street, Oakland, California 94607.* July 22, 1996.

Environmental Audit, Inc. 1996. *Soil and Groundwater Investigation Work Plan, Roadway Express, 1708 Wood Street, Oakland, CA LOP STID 4072.* November 14, 1996.

BCon Environmental. 1998. *Preliminary Soil and Groundwater Investigation Report, Roadway Express, 1708 Wood Street, Oakland, California.* June 5, 1998.

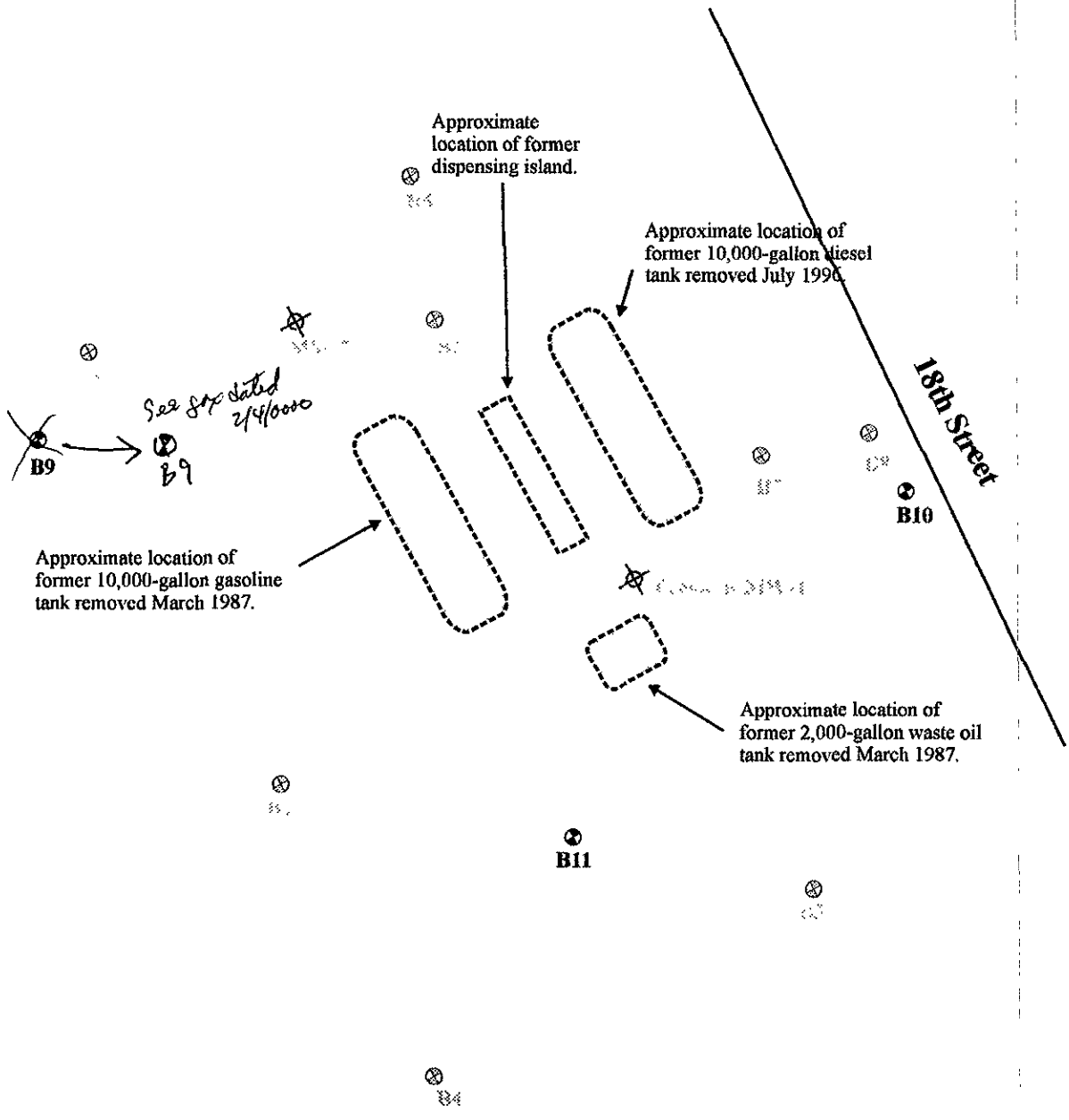
One Environment

Project: **Roadway Express - Oakland** 1708 Wood Street Oakland, California	**Figure 1: Site Vicinity Location Map**
File No.: REX-Oakland1-Fig1 | Date: January 2000 | Designed by: C.A.M.. | Drawn by: C.A.M..	



One Environment

Project: **Roadway Express - Oakland** 1708 Wood Street Oakland, California			**Figure 2: Site Plot Plan**
File No.: REX-Oakland, CA	Date: September 22, 1999	Designed by: C.A.M.	Drawn by: C.A.M..



Legend

MW-1	Existing observation wells
B8	Soil borings performed by Bcon Environmental
B9	ProposedSpoilBorings/ Groundwater Wells

N

Scale: 1" = 20' on center

Note:
The former location of USTs and dispensing island is estimated based upon previous drawings.

One Environment

Project: **Roadway Express - Oakland**

1708 Wood Street
Oakland, California

Figure 3: Site Plan And Boring Location

File No.: REX-Oakland, CA	Date: September 22, 1999	Designed by: C.A.M.	Drawn by: C.A.M.