

May 1, 2003

Mr. Kelly Engineer
All Star Inc.
1791 Pine Street
Concord, California 94620

6089
Alameda County
MAY 06 2003
Environmental Health

RE: Work Plan - Limited Subsurface Soil Boring Investigation
3820 San Leandro Boulevard; Oakland, California
ACC Project Number 6651-001.01

Dear Mr. Engineer:

ACC Environmental Consultants, Inc., (ACC) presents this Work Plan (WP) to perform a subsurface soil boring investigation downgradient of the subject property. The work described here is designed to address a request of the Alameda County Health Care Services Agency (ACHCSA) for additional subsurface investigation. A copy of this Work Plan will be forwarded to the ACHCSA for review and approval.

INTRODUCTION

The goals of this investigation will be to: 1) characterize groundwater downgradient of the Site and attempt to determine the horizontal extent of petroleum hydrocarbon-impacted groundwater; 2) log soils and prepare geologic cross sections to evaluate the migration potential in the first encountered water-bearing zone; 3) prepare a report of findings for submission to the ACHCSA.

BACKGROUND

The site consists of a gasoline and diesel fueling station (Guy's Diesel) located at 3820 San Leandro Street in Oakland, California (Figure 1). In his letter dated June 12, 2000, Mr. Chan of the ACHCSA requested that groundwater monitoring and sampling be performed at the site, and that the groundwater samples be analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), benzene, toluene, ethylbenzene and total xylenes (BTEX), and methyl tertiary butyl ether (MTBE). In addition, one groundwater sample was analyzed for all fuel oxygenates in accordance with regulations recently enacted by the Regional Water Quality Control Board (RWQCB).

ACC understands that American Consulting Remediation and Construction (ACRC) removed two diesel and two gasoline underground storage tanks (USTs) in January 1998. Analytical results of verification soil samples reported TPHg concentrations ranging from 34 to 2,600 parts per million (ppm), TPHd concentrations ranging from 11 to 3,700 ppm, benzene concentrations ranging from 0.11 to 34 ppm, and various concentrations of toluene, ethylbenzene, and xylenes. Soils generated during UST excavation were sampled and profiled into Forward Landfill in Stockton, California.

Following UST removal and site restoration, Brunsing Associates, Inc. (Brunsing) conducted a soil boring investigation and installed groundwater monitoring wells in July 1998. Findings of this work is summarized in Brunsing's August 10, 1998 Soil and Groundwater Investigation Report, prepared for All Star Inc. Brunsing advanced six exploratory soil borings investigation and installed three groundwater monitoring wells to 20 feet below ground surface (bgs). TPHg, BTEX, and TPHd were reported at various concentrations in the majority of the soil samples but soil sample results in samples collected at 11 feet bgs or deeper are suspect due to proximity to first-encountered groundwater. Soil excavation during UST upgrading appears to have removed the majority of impacted soil.

ACC performed periodic groundwater sampling at the site in September 2000, April and July 2001, and January and March 2003. Analytical results from the groundwater samples are summarized in Table 1. Groundwater flow directions and gradients are summarized in Table 2.

TABLE 1 - GROUNDWATER SAMPLE ANALYTICAL RESULTS

Sample ID	Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-1	07/06/98	4,100	<100	36	53	<5.0	20	80
	09/10/00	1,000 ^g	1,800 ^{ndp}	4.8	<0.50	6.2	1.2	<5.0
	04/10/01	1,100	N/A	12	7.7	<2.5	<2.5	73
	07/17/01	920	320 ^{ndp}	6.2	1.1	<0.50	<0.50	49
	01/15/03	360 ^g	86 ^{ndp}	5.5	<0.50	4.3	1.3	19
	04/17/03	<50	<50	<0.50	<0.50	<0.50	<1.0	11
MW-2	07/06/98	6,400	<100	190	14	13	12	210
	09/10/00	760 ^g	270 ^{edr}	19	<0.50	<0.50	<0.50	110
	04/10/01	320	N/A	3.6	1.1	1.2	0.79	<5.0
	07/17/01	440 ^g	68 ^{ndp}	6.0	<0.50	6.2	<0.50	<5.0
	01/15/03	750 ^g	250 ^{ndp}	13	<0.50	<0.50	<0.50	78
	04/17/03	180	120	<0.50	<0.50	<0.50	<1.0	8.1
MW-3	07/06/98	36,000	<100	6,700	72	6.2	530	13,000
	09/10/00	20,000 ^g	4,200 ^{ndp}	9,200	70	710	79	6,400
	04/10/01	15,000	N/A	4,500	27	320	140	8,800
	07/17/01	28,000 ^g	8,000 ^{ndp}	7,000	<50	270	75	15,000
	01/15/03	40,000 ^g	11,000 ^{ndp}	10,000	110	680	210	20,000
	04/17/03	39,000	3,200 ^{ndp}	11,000	<100	870	<200	34,000

Notes: µg/L = micrograms per liter (approximately equivalent to parts per billion)
 < Indicates the sample tested below the indicated laboratory reporting limit
 g = hydrocarbon reported does not match the laboratory's gasoline standard
 edr = hydrocarbon is in the early diesel range and does not match the laboratory's diesel standard

*ndp = hydrocarbon reported does not match the laboratory diesel standard
N/A = sample not analyzed for this constituent*

TABLE 2 - GROUNDWATER GRADIENT AND FLOW DIRECTION

Date Monitored	Gradient (foot/foot)	Direction
07/06/98	0.04	South
09/10/00	N/A	N/A
04/10/01	0.038	South
07/17/01	0.02	East
01/15/03	0.038	South
04/17/03	0.05	South

SCOPE OF WORK

In order to further characterize soil and groundwater conditions at the site, ACC proposes the following scope of work:

- Advance two exploratory soil borings adjacent to former USTs and advance six exploratory soil borings downgradient of the Site to first encountered groundwater and collect representative soil and grab groundwater samples;
- Continuously core the two onsite soil borings and two select downgradient soil borings to observe and log each foot of soil encountered and prepare cross sections in order to help evaluate subsurface conditions and migration potential in soil and groundwater;
- Collect representative grab groundwater samples in each soil boring in the top five feet of first encountered groundwater and analyze the water samples for all gasoline and fuel oxygenate constituents by EPA Method 8260B and total petroleum hydrocarbons as diesel (TPHd) by EPA Method 3510/8015M;
- Submit each soil sample to a state certified analytical laboratory for analysis of TPHg, BTEX, and MTBE by EPA Method 8260B and TPHd by EPA Method 3510/8105M; and
- Prepare a letter report of findings for submission to the ACHCSA.

RATIONALE FOR PROPOSED SCOPE OF WORK

The goals of this investigation are: 1) further characterize soil in two locations in proximity to the former USTs; 2) characterize groundwater in the confirmed downgradient direction of the Site; and 3) further characterize hydrogeological conditions for purposes of evaluating migration potential and the necessity for additional monitoring points. Previously performed groundwater monitoring has documented elevated concentrations of TPHg, BTEX, MTBE, and TPHd in monitoring well MW-3. This scope of work is also intended to further delineate gasoline and diesel fuel impacts in shallow groundwater and determine whether additional groundwater monitoring wells are necessary to characterize and monitor groundwater conditions. mt & needed

This scope of work is based on ACC's experience with sites with similar hydrogeology and is designed to characterize subsurface site conditions in a cost-effective fashion. ACC proposes to advance seven to eight Geoprobe[®] soil borings to approximately 20 feet bgs at locations illustrated on Figure 2. Groundwater flow direction is to the south. Soil borings will be advanced so that grab groundwater samples can be collected to further define the plume of impacted groundwater downgradient in the calculated groundwater flow direction and in appropriate crossgradient locations. The seven soil borings proposed in this Work Plan can be advanced in one day. An optional eighth soil boring (B16), will either be advanced in the north corner of 39th and San Leandro Boulevard or located approximately 50 feet southwest of proposed soil boring B14, depending on observed site conditions and field evidence of petroleum hydrocarbon impact in groundwater.

Soil borings B9, B10, B12, and B14 will be continuously cored in order to prepare a cross section in the groundwater flow direction. All cored soil will be screened for field indications of petroleum hydrocarbon impact and selected representative soil samples will be prepared for analysis. Soil screening will be done with a calibrated ppbRAE PID. This PID measures volatile constituents in air in the ppb range and is highly effective at prioritizing potential soil samples for analysis. Soil samples collected at the capillary fringe or soil samples exhibiting the highest PID readings, or soil samples collected immediately above significant changes in lithology, will be prepared for analysis. Soil samples will be analyzed for TPHg, BTEX, and MTBE by EPA Method 8260B and TPHd by EPA Method 3510/8015M. Grab groundwater samples will be analyzed for TPHg, BTEX, MTBE, tert-Butyl alcohol (TBA), Di-isopropyl Ether (DIPE), Ethyl tert-butyl ether (ETBE), Tert-Amyl methyl ether (TAME), ethylene dibromide (EDB), and 1,2-dichloroethane (EDC) by EPA Method 8260B, and TPHd by EPA Method 3510/8015M.

The proposed soil boring locations have been chosen to maximize the subsurface data obtained while protecting existing equipment and structures. ACC believes this scope of work will further characterize current groundwater conditions immediately downgradient of the Site, provide sufficient data to evaluate the human health risk, and provide data regarding the necessity for additional groundwater monitoring points. Soil boring sample analyses are summarized in Table 3.

TABLE 3 - PROPOSED ANALYSES

Soil Boring	Depth	Matrix	Constituent Analysis
B9	8.0-8.5	Soil	TPHg, BTEX, MTBE, TPHd
	10.0-10.5	Soil	TPHg, BTEX, MTBE, TPHd
B10	8.0-8.5	Soil	TPHg, BTEX, MTBE, TPHd
	10.0-10.5	Soil	TPHg, BTEX, MTBE, TPHd
B11	10.0-10.5	Soil	TPHg, BTEX, MTBE, TPHd
	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates
B12	10.0-10.5	Soil	TPHg, BTEX, MTBE, TPHd
	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates
B13	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates
B14	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates
B15	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates
B16	15-20	Water	TPHg, BTEX, TPHd, Fuel Oxygenates

DRILLING PROGRAM

A drilling permit will be obtained from the ACHCSA and it will be notified at least 72 hours prior to commencing field activities. The proposed soil boring locations are illustrated on Figure 2.

The soil boring will be advanced using a hydraulically driven Geoprobe® sampling tool equipped with 2.0-inch inside diameter clear acetate liners. Drilling will be performed under the direction of a Registered Geologist, and the subsurface materials in the borings will be identified and logged according to the Unified Soil Classification System. The sampling probe and rods will be pre-cleaned prior to use and between sample drives by washing them with a trisodium phosphate and potable water solution, a potable water rinse, and distilled water rinse. The work will be conducted in one day and soil cuttings will not be generated.

Select soil borings will be advanced by continuously coring from the surface to a depth of 20 feet bgs or 10 feet into saturated soil. Soil borings B9, B12, and B14 will be advanced to approximately 28 feet for soil characterization purposes. Soil at two to four-foot increments will be screened with a ppbRAE PID prior to preparing soil samples for submission to the laboratory. ACC proposes to collect a minimum of two soil samples each in soil borings B9 and B10. The soil samples collected at approximately 8 to 9 feet bgs and 10 to 11 feet bgs above the encountered capillary fringe. The borings will then be advanced approximately 5 to 7 feet into first encountered groundwater and a grab groundwater sample will be collected. Grab groundwater samples will be collected through the use of a stainless steel hydropunch sampling probe and retrieved from the probe with either a new, disposable 0.5-inch diameter bailer or new polyethylene tubing equipped with a check-ball.

Mr. Kelly Engineer
May 1, 2003
Page 6

The soil and grab groundwater samples will be submitted to a state-certified analytical laboratory following standard chain of custody procedures for analysis of constituents of concern. Standard turnaround time for analytical results is 5 to 7 working days. Following drilling and sample collection, the soil boring will be abandoned with neat cement to just below the surface (3 to 6 inches). The soil boring will then be completed with concrete to grade to match the surrounding material.

REPORT PREPARATION

A technical report discussing field work, observations and findings, analytical results, conclusions, and recommendations will be prepared for submission to the ACHCSA.

HEALTH AND SAFETY PLAN

A site-specific health and safety plan which encompasses the proposed work at the site and complies with the requirements of 29 CFR Part 1910.120 will be prepared and present during field activities.

If you have any questions concerning this work plan, please call me at (510) 638-8400, ext. 109.

Sincerely,

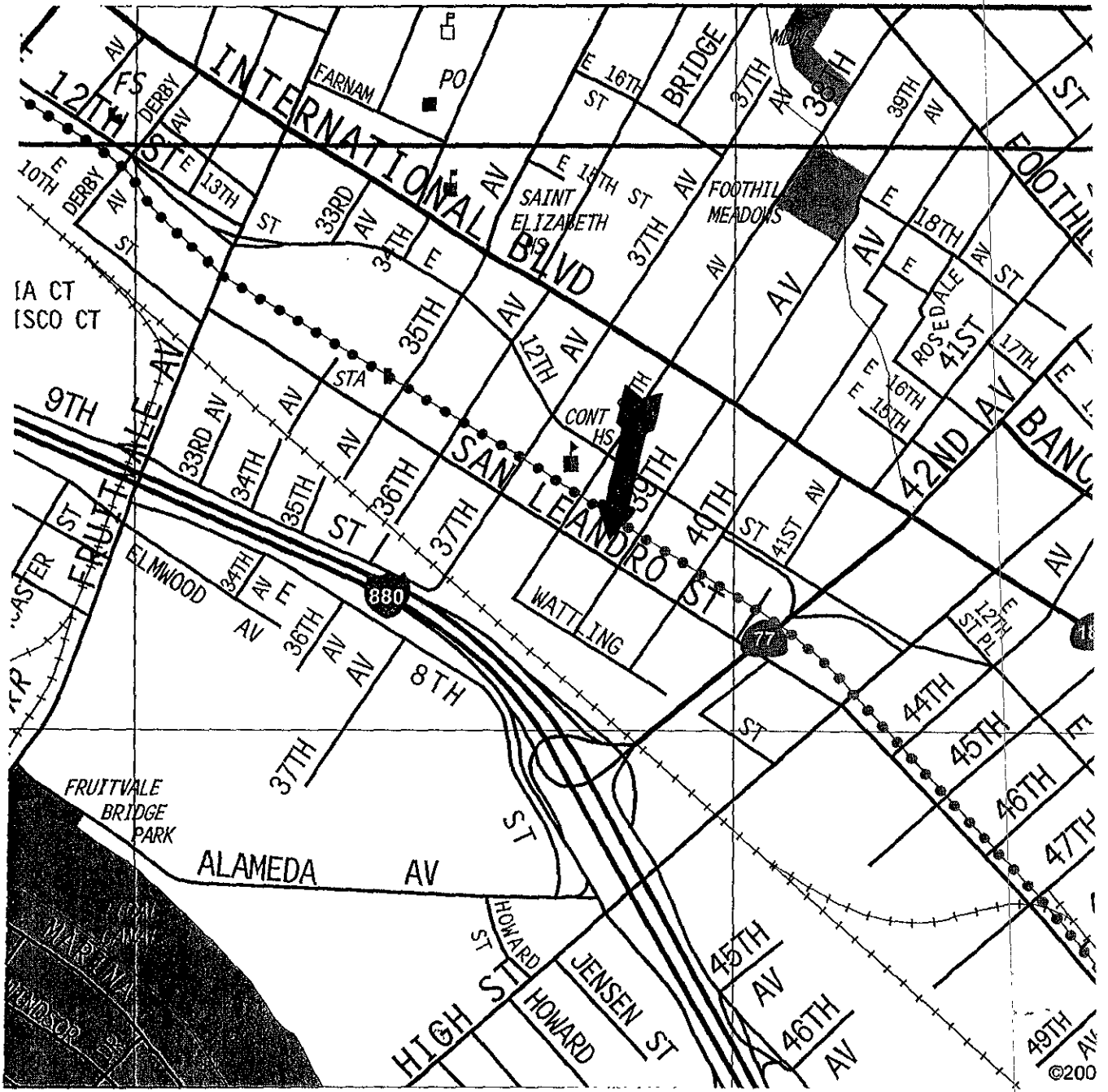


David R. DeMent, RG, REA II
Environmental Division Manager

/ejg:drd

Attachments

cc: Mr. Barney Chan, ACHCSA
Mr. Paul Rosenstein



Source: Thomas Guide Digital Edition 2002

Title: **Location Map**
3820 San Leandro Street
Oakland, California

Figure Number: 1

Scale: None

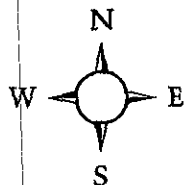
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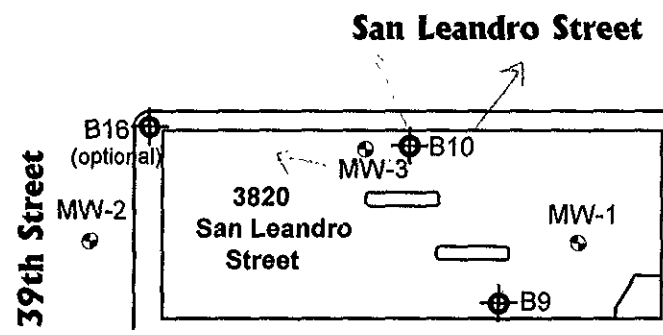
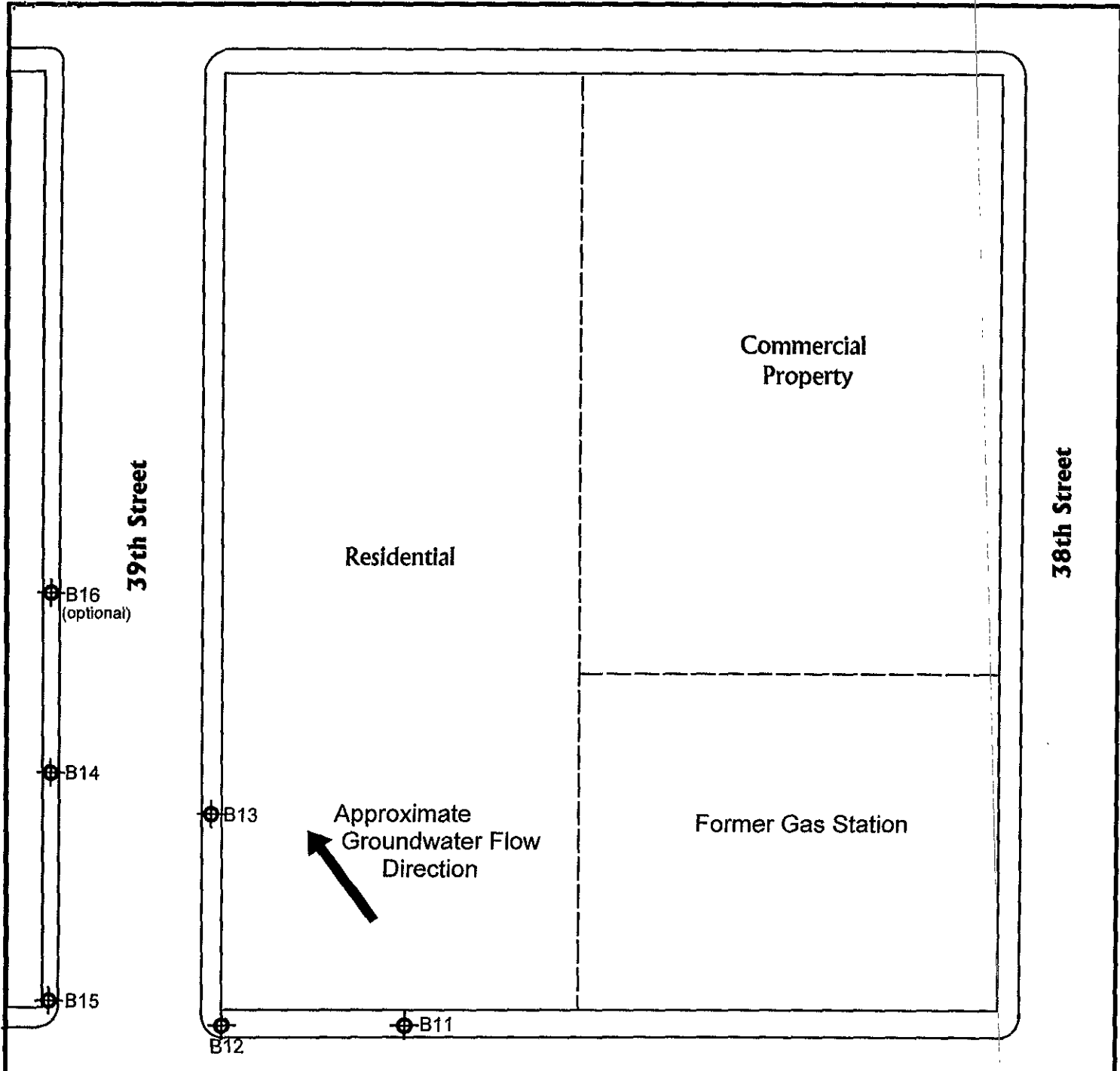
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ENVIRONMENTAL
CONSULTANTS

Date: 2/26/03

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**Title: Proposed Boring Locations
3820 San Leandro Street
Oakland, California**

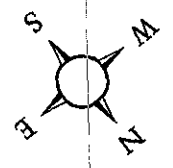
Figure Number: 2 Scale: 1" = 50'

Project Number 6651-001.0 Drawn By EJG

Date: 5/1/03

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Legend

- ⊕ - Proposed Soil Boring Locations
- ⊙ - Monitoring Well Location