

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



SENT 7-6-2000

20863

July 5, 2000

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

STID 6435

Mr. Yee N. Chiu
Ms. Meranda Chang
441 Ralston Street
San Francisco, CA 94132

Mr. Anthony Marques
2062-B Walsh Avenue
Santa Clara, CA 95050

RE: (former) Cottage Bakery, 2497-2507 Grove Way, Castro Valley

Dear Ms. Chang and Messrs. Chiu and Marques:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]) of the California Health and Safety Code. The State Water Resources Control Board (SWRCB) has required since March 1, 1997 that this agency use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at this site.

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- Up to 120 milligrams per liter (mg/l) Total Petroleum Hydrocarbons as Gasoline (TPH-G) and 6.0 mg/l Benzene, among other fuel compounds, are present in groundwater beneath the site.
- A reported 1410 pounds of Oxygen Releasing Compounds (ORC) were injected into 33 boreholes emplaced about the former UST dispenser area to facilitate biodegradation of residual fuel compounds.

If you have any questions, please contact the undersigned at (510) 567-6783.

Sincerely,

Scott O. Seery, CHMM
Hazardous Materials Specialist

Enclosures:

1. Case Closure Letter
2. Case Closure Summary

cc: Ariu Levi, Chief, Environmental Protection



July 5, 2000

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1131 Harbor Bay Parkway, Suite 250
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REMEDIAL ACTION COMPLETION CERTIFICATION

Mr. Yee N. Chiu
Ms. Meranda Chang
441 Ralston Street
San Francisco, CA 94132

Mr. Anthony Marques
2062-B Walsh Avenue
Santa Clara, CA 95050

RE: (former) Cottage Bakery, 2497-2507 Grove Way, Castro Valley

Dear Ms. Chang and Messrs. Chiu and Marques:

This letter confirms the completion of a site investigation and corrective action for the underground storage tanks formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact our office if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink that reads "Mee Ling Tung".

Mee Ling Tung
Director, Environmental Health Services

c: Chuck Headlee, RWQCB
Dave Deaner, SWRCB (w/attachment - Case Summary)
SOS/files

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: 06/21/00

Agency name: **Alameda County-EPD**
City/State/Zip: **Alameda, CA 94502**
Responsible staff person: **Scott Seery**

Address: **1131 Harbor Bay Pkwy #250**
Phone: **(510) 567-6700**
Title: **Haz. Materials Spec.**

II. CASE INFORMATION

Site facility name: **(former) Cottage Bakery**
Site facility address: **2497 – 2507 Grove Way, Castro Valley 94646**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **6435**
URF filing date: **09/16/99** SWEEPS No: **N/A**

<u>Responsible Parties:</u>	<u>Addresses:</u>	<u>Phone Numbers:</u>
Yee N. Chiu Meranda Chang	441 Ralston Street San Francisco, CA 94132	(415) 222-6402
Anthony Marques Anthony R. Marques Trust	2062-B Walsh Ave. Santa Clara, CA 95050	(408) 935-9330

<u>Tank No:</u>	<u>Size in gal.:</u>	<u>Contents:</u>	<u>Closed in-place or removed?:</u>	<u>Date:</u>
1	10K ?	diesel	removed	10/86
2	5K ?	gasoline	"	"

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: **apparent dispenser or piping leak near dispenser**

Site characterization complete? **YES**

Date approved by oversight agency:

Monitoring Wells installed? **NO** Number: **NA**

Proper screened interval? **NA**

GW depth below ground surface: **encountered at ~19' BG during boring advancement**

Flow direction: **presumed towards San Lorenzo Creek (S – SW)**

Most sensitive current use: **commercial**

Are drinking water wells affected? **NO** Aquifer name: **Castro Valley Subbasin**

Leaking Underground Fuel Storage Tank Program

Soil samples were collected from the base of both tank excavations during closure activities. No samples were collected below piping or the dispenser(s). Samples were analyzed for the TPH-range compounds (TPH-D, TPH-G) commensurate with tank use. BTEX were not sought. No TPH-range compounds were detected in collected samples.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? _____

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? _____

Does corrective action protect public health for current land use? YES
Site management requirements: NA

Should corrective action be reviewed if land use changes? YES

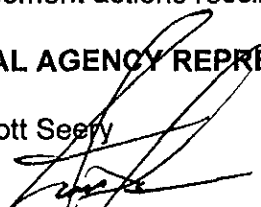
Monitoring wells Decommissioned: NA


Number Decommissioned: NA Number Retained: NA


List enforcement actions taken: NONE

List enforcement actions rescinded: NA

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Scott Seery Title: Haz Mat Specialist
Signature:  Date: 6-30-00

Reviewed by
Name: Tom Peacock Title: Supervising Haz Mat Specialist
Signature:  Date: 7-5-00

Name: Eva Chu Title: Haz Mat Specialist
Signature:  Date: 6/30/00

VI. RWQCB NOTIFICATION

Date Submitted to RB: 7-5-00
RWQCB Staff Name: Chuck Headlee

RB Response: 
Title: San. Eng. Assoc. Date: 7/5/00

Leaking Underground Fuel Storage Tank Program

VII. ADDITIONAL COMMENTS, DATA, ETC.

Following UST removals, the property was split into parcels, and the parcels sold to a series of others over the years. The western-most portion was redeveloped into a public storage facility. The remainder and largest portion of the former bakery site housed several businesses in the (then) existing structures until a fire destroyed many of them in 1998. All that (currently) remains of this portion of the site are large concrete pads and foundations, expanses of asphalt, and a sole warehouse building in the far southeastern corner of the property.

Phase I and Phase II assessments were performed in 1999 on behalf of prospective buyers of the remaining undeveloped property. Samples collected from borings advanced near the former UST and dispenser locations revealed some impacts to both soil and groundwater from apparent fuel hydrocarbons (HC). This earlier work led to a December 1999 and February 2000 Geoprobe® assessment which heavily concentrated on the former UST and dispenser areas.

The recent Geoprobe data revealed impacts of up to 1000 ppm TPH-G and 4.9 ppm benzene, among other detected fuel compounds, in apparent capillary fringe soils from boring B-6 in the area adjacent to the former dispenser. Groundwater impacts were substantially concentrated in the same general area, with up to 120 mg/l TPH-G, 88 mg/l TPH-D, and 6.0 mg/l benzene, among others detected.

The data demonstrate that the dissolved HC plume is substantially constrained to the former dispenser area. Although concentrations are elevated (e.g., 6000 ug/l benzene, 120,000 ug/l TPH-G) in the B6 water sample, the remaining water samples are either "ND" or show unremarkable residual impacts. These data appear to indicate that the release at this site was likely from the product piping or dispenser, which may explain why soil samples collected following the 1986 UST removals failed to identify detectable TPH-range compounds.

A reported total of 1410 pounds of ORC was injected to specified depths in 33 boreholes between May 31 and June 2, 2000. Borings were concentrated around and within the apparent residual plume "core" near the former dispenser area. Preliminary mass-balance calculations reportedly demonstrate that sufficient O₂ would be introduced to the subsurface to treat both dissolved phase impacts as well as those in sediments within and above the water table.

No follow-up monitoring is requested. Various scoping meetings between ACDEH, RWQCB and/or consultants resulted in agency approval of case closure upon full implementation of an acceptable remedial action at the site. ORC was the accepted option chosen by the property owners.

This case meets the definition of a "Low Risk Groundwater Case", as outlined in the 05 January 1996 guidance from the San Francisco Bay Regional Water Quality Control entitled "*Regional Board Supplemental Instructions to State Water Board December 8, 1995, Interim Guidance on Required Cleanup at Low-Risk Sites*", as follows:

- 1) The leak has been stopped and ongoing sources, including free product, have been removed or remediated.**

The USTs were removed in 1986. No ongoing HC source remains at the site. The release appears to have been limited to the area of the former dispenser(s).

Leaking Underground Fuel Storage Tank Program

2) The site has been adequately characterized.

Fourteen borings were emplaced about the former UST and dispenser areas. The data clearly demonstrate that the residual plume is tightly constrained to the former dispenser area.

3) The dissolved hydrocarbon plume is not migrating.

The data clearly demonstrate that the residual plume is tightly constrained to the former dispenser area.

4) No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.

The site is located in Castro Valley. Residents are reportedly connected to municipal water supplies. Nevertheless, it is not anticipated that there would be impacts to any off-site wells if present at locations proximal to the site due to the limited plume geometry.

5) The site presents no significant risk to human health.

The former UST site is currently capped in asphalt and concrete. Fine-grained sediments predominate the subsurface. Potential exposure pathways are not apparent. In addition, ORC is expected to quickly reduce concentrations of residual hydrocarbons to levels that negate potential human health risks.

6) The site presents no significant risk to the environment.

Although San Lorenzo Creek is located some 160' south of the plume core, the impacts are tightly constrained to the former dispenser area. Consequently, risks to this potential receptor are not evident.

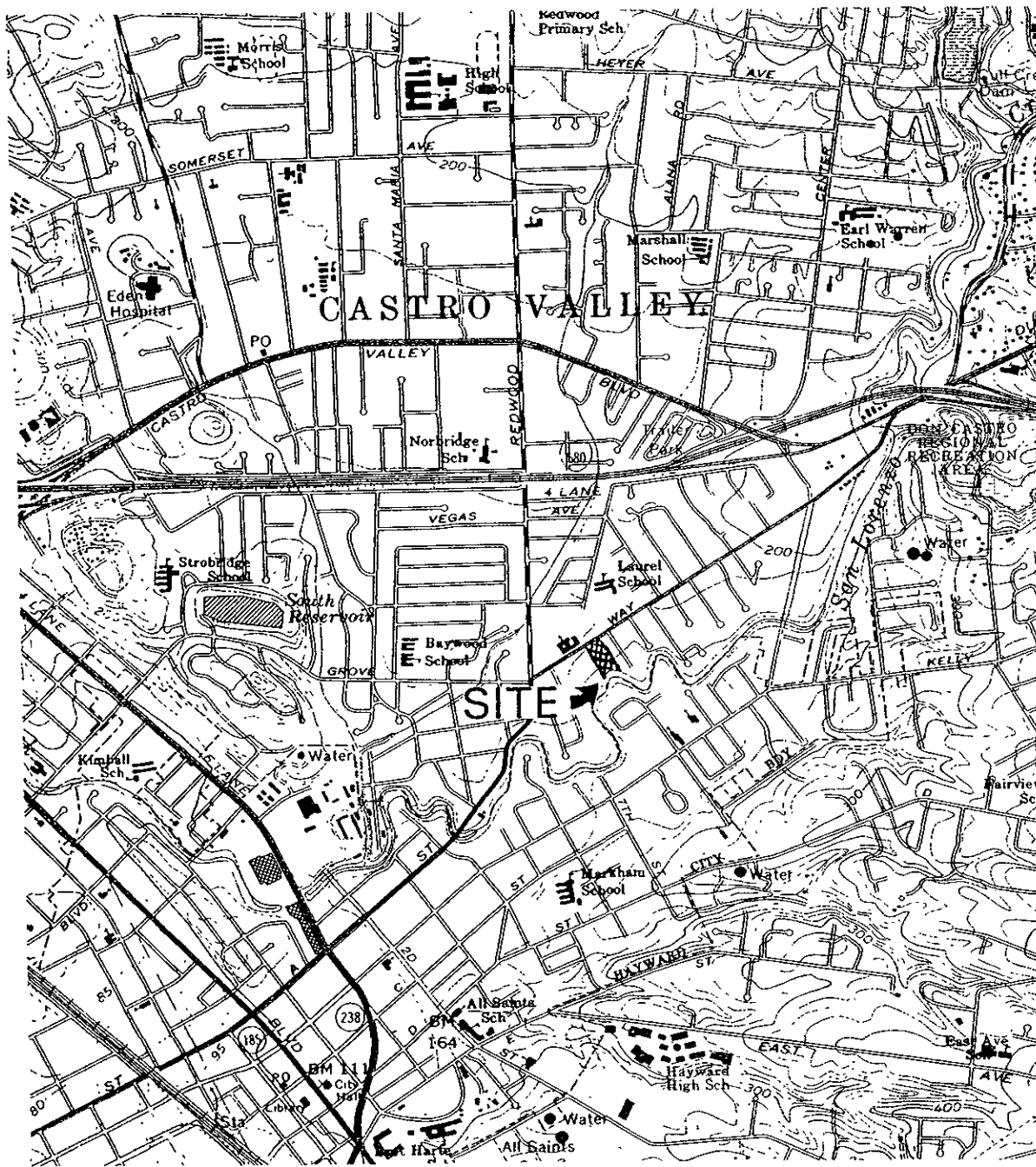
P & D ENVIRONMENTAL

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4020 Panama Court

Oakland, CA 94611

(510) 658-6916



Base Map From:
U.S. Geological Survey
Hayward, Calif.
7.5 Minute Quadrangle
Photorevised 1980

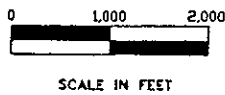
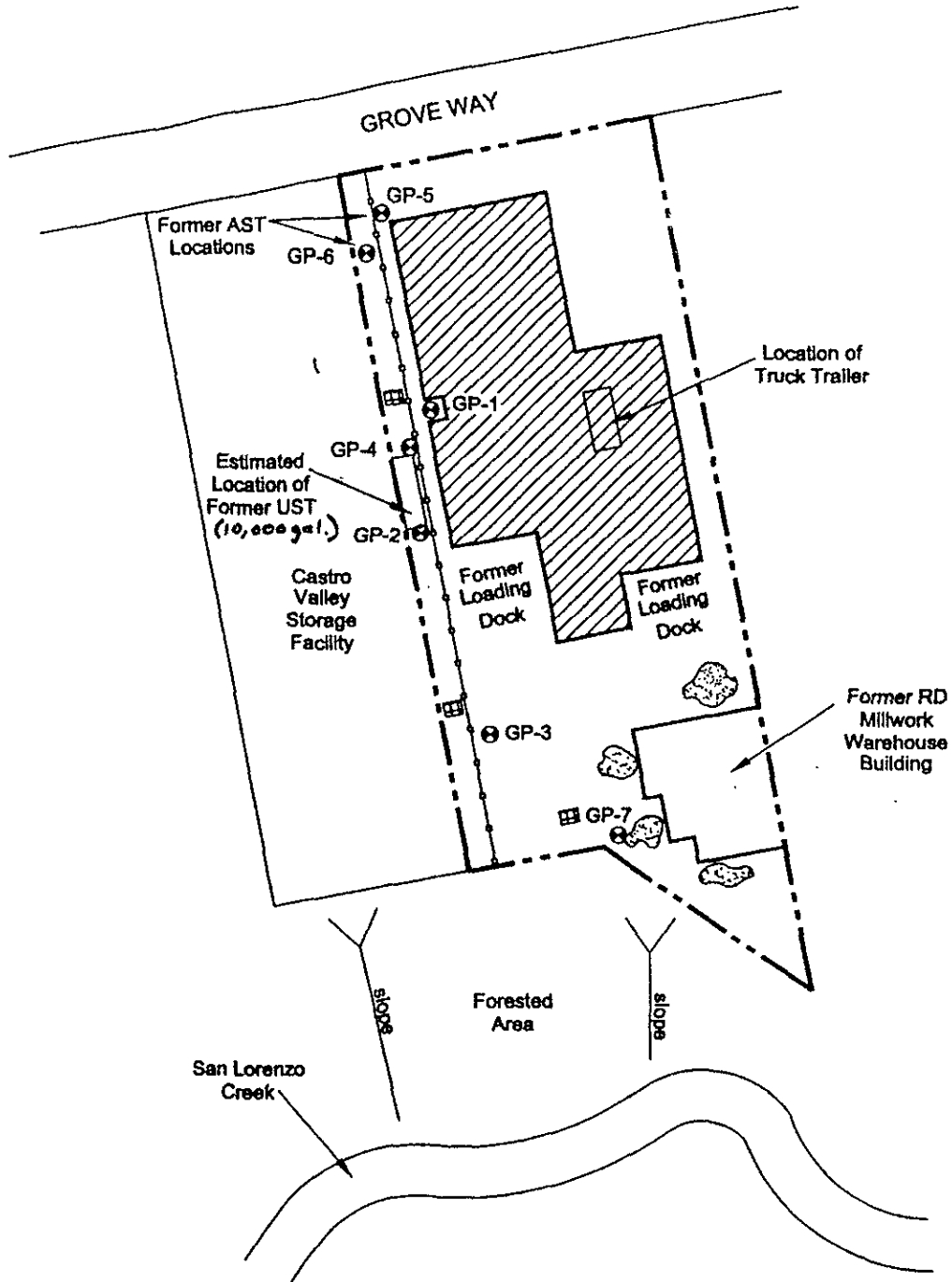








Figure 1
SITE LOCATION MAP
Lands of Chiu and Chang
2497-2507 Grove Way
Castro Valley, California



LEGEND:

-  Approximate Subject Property Boundary
-  Stormwater Drain
-  Fence
-  Former Building Foundation
-  Location of Debris
-  Geoprobe Boring Location



NOT TO SCALE

ENSR

PHASE II
SITE ASSESSMENT

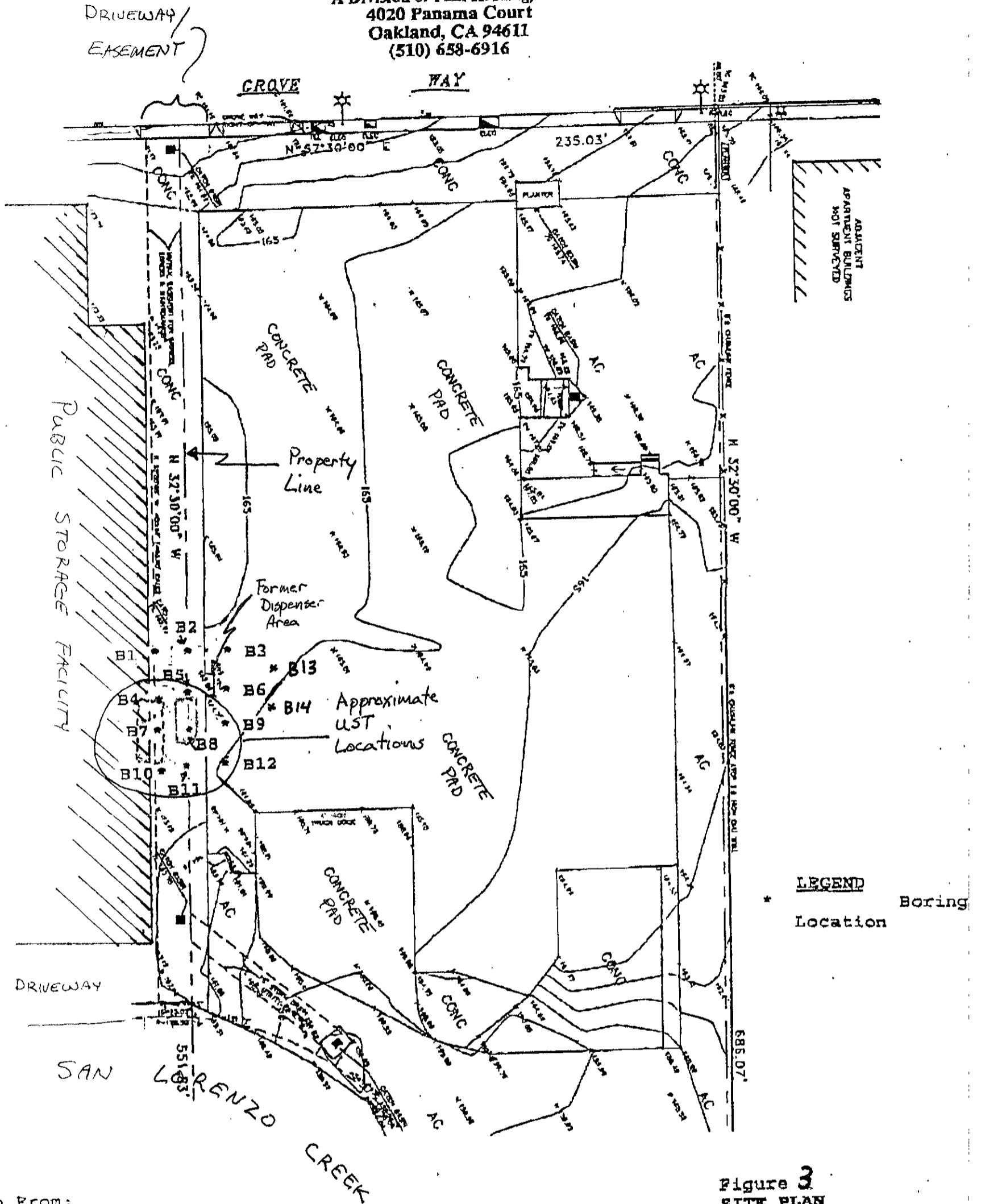
**FIGURE 2
SITE PLAN**

Vacant Parcel
2497-2507 Grove Way
Castro Valley, CA

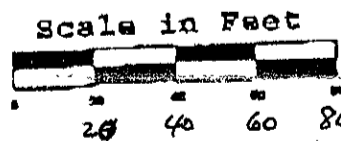
DRAWN: M. SCOP	DATE: 7/09/1999	PROJECT NO. 5555-445-200	REV.
FILE NO. 445-200A	CHK BY:		

P & D ENVIRONMENTAL

A Division of Paul H. King, Inc.
4020 Panama Court
Oakland, CA 94611
(510) 658-6916



Base Map From:
Center Line Land Surveyors
Livermore, California
August, 1999 Land Title Survey



North



Figure 3
SITE PLAN
Lands of Chiu and Chang
2497-2507 Grove Way
Castro Valley, California

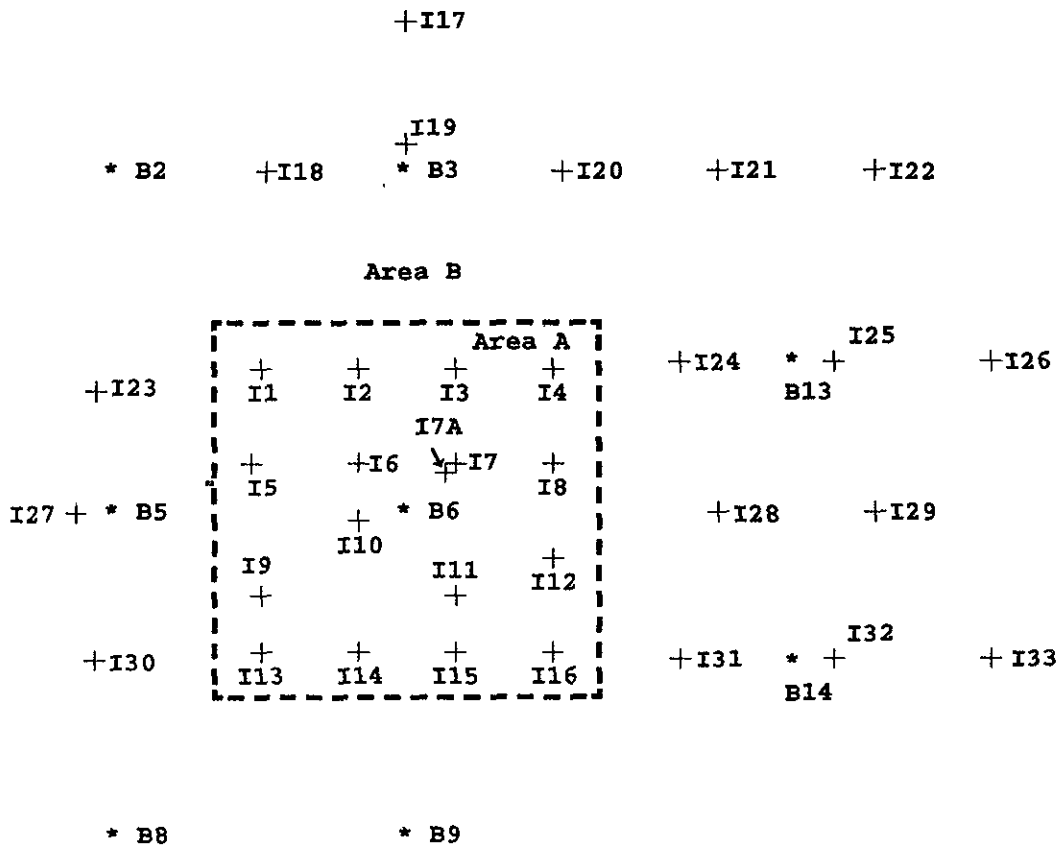
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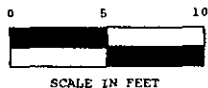
(510) 658-6916



Legend

- * Existing Boring Location
- + ORC Injection Location
- - Approximate Area Borders

Base Map From:
P&D Environmental
March 2000

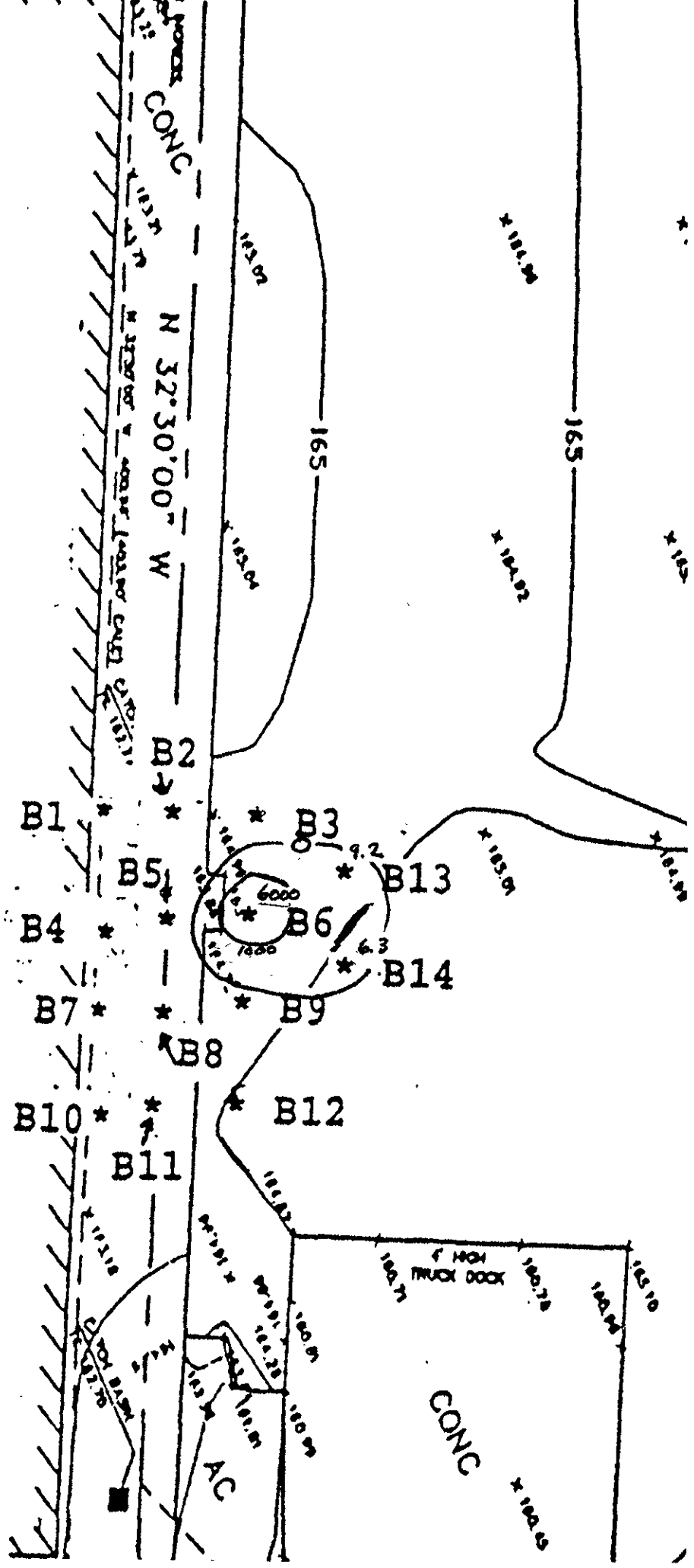
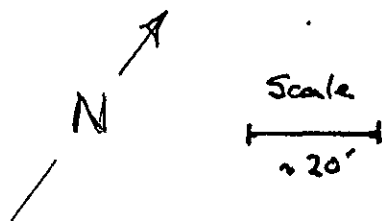


North



Figure 4
SITE PLAN DETAIL
Former Cottage Bakery
2497-2507 Grove Way
Castro Valley, California

Figure 5
 Dec. 1999 - Feb. 2000
 BENZENE
 ug/l



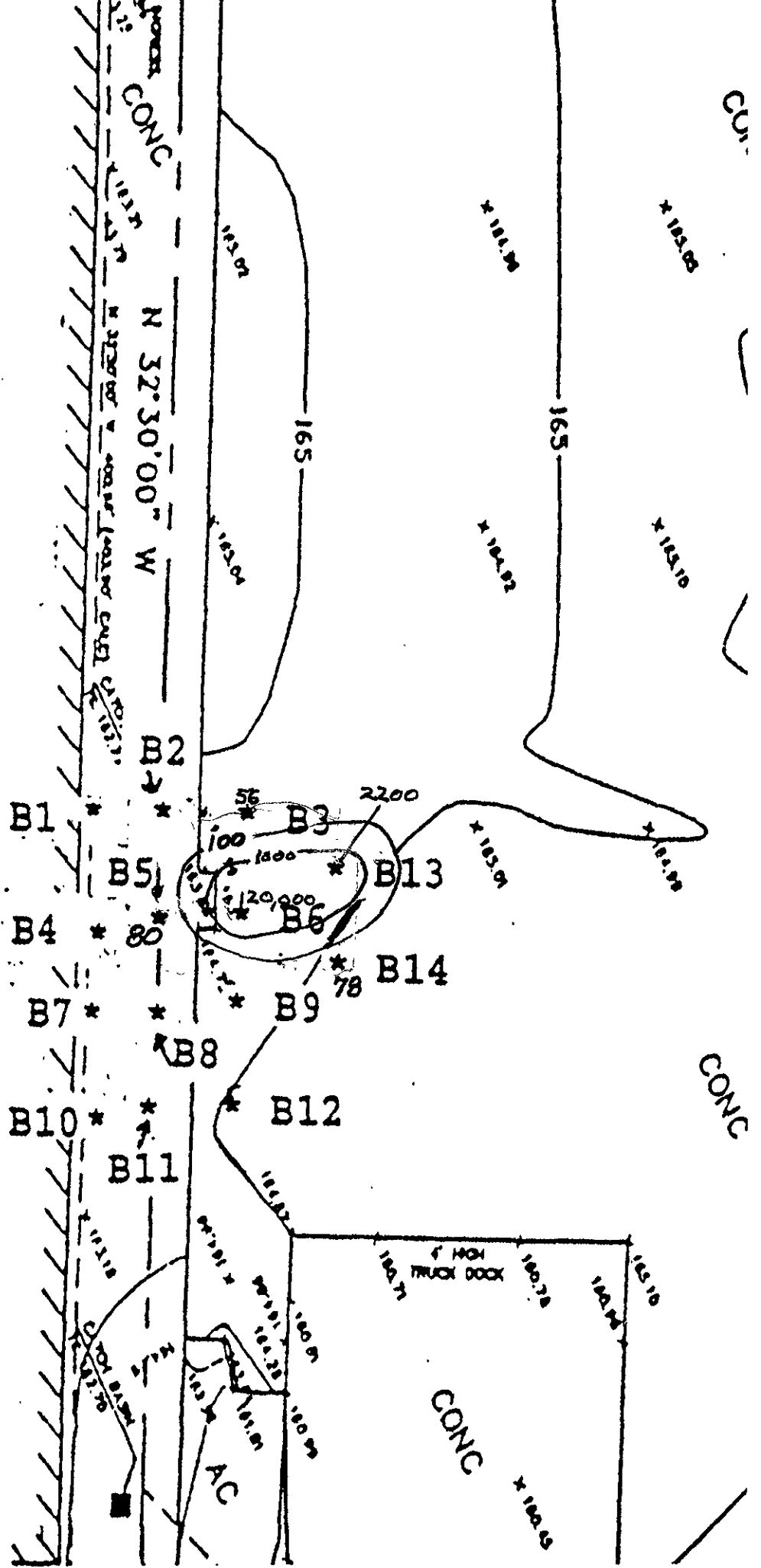


Figure 6
 Dec. 1999 - Feb. 2000
 TPH - GASOLINE

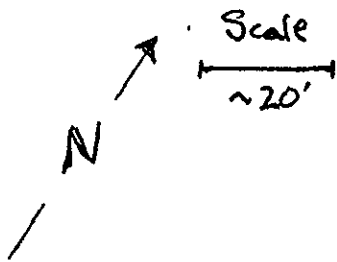


Table 1. Sampling Results for December 1999 and February 2000 Geoprobe® Investigation, Former Cottage Bakery, 2497-2507 Grove Way, Castro Valley

Groundwater Samples

Sample #	TPH-G	TPH-D	Benzene	Toluene	E. Benzene	Xylenes	MTBE
B-1	ND	80	ND	ND	ND	ND	ND
B-2	"	120	"	"	"	"	"
B-3	56	73	"	"	"	"	"
B-4	ND	ND	"	"	"	"	"
B-5	80	160	0.2	0.84	0.81	1.9	"
B-6	120,000	88,000	6000	22,000	4000	21,000	<200
B-7	ND	58	ND	ND	ND	ND	ND
B-8	"	160	"	"	"	"	"
B-9	"	ND	"	"	"	"	"
B-10	"	"	"	"	"	"	"
B-11	"	"	"	"	"	"	"
B-12	"	"	"	"	"	"	"
B-13	2200	830	9.2	82	50	290	"
B-14	78	ND	6.3	ND	2.8	5.0	"
Reporting Limit	50 ug/l	50	0.5	0.5	0.5	0.5	5.0

Soil Samples*

Sample #	TPH-G	TPH-D	Benzene	Toluene	E. Benz.	Xylenes	MTBE
B-6-16'	1000	190	4.9	18	15	90	<0.4
B-13-15'	42	14	0.053	0.48	0.38	2.7	<0.1
B-14-15'	ND	ND	0.041	ND	ND	0.013	ND
Reporting Limits	1.0 mg/kg	1.0	0.005	0.005	0.005	0.005	0.05

* All other soil samples were collected at the apparent capillary fringe, and all were below reporting limits for targeted compounds

Table 2.1

**Analytical Results of TPH, BTEX and MTBE in Soil and Groundwater Samples
2497-2507 Grove Way, Castro Valley, CA**

Sample Number	TPH as Gasoline	TPH as Diesel	TPH as Motor Oil	MTBE	Benzene	Toluene	Ethyl Benzene	Xylenes
Soil Samples, mg/kg								
GP-1-15	16,000	3,900	<5.0	<10	31	660	350	1,900
GP-1-19	<1.0	<1.0	<5.0	<5.0	<0.005	<0.005	<0.005	0.012
GP-2-19	<1.0	2.6	<5.0	<5.0	<0.005	<0.005	<0.005	<0.005
GP-4-7	4.3	12	7.3	<5.0	<0.005	<0.005	<0.005	<0.005
GP-4-24	<1.0	2.4	<5.0	<5.0	<0.005	<0.005	<0.005	<0.005
GP-5-9	<1.0	<1.0	<5.0	NA	<0.01	<0.01	<0.01	0.13
GP-6-9	<1.0	<1.0	<5.0	NA	<0.01	<0.01	<0.01	<0.01
GP-7-12	<1.0	<1.0	<5.0	NA	<0.01	<0.01	<0.01	<0.01
Groundwater and Wastewater Samples, µg/L								
GP-4	5,500	3,500	<250	<10	3.3	53	87	480
99061301	57	430	290	<5.0	<0.5	2.6	0.64	3.7
NA - Not analyzed. < - Not detected above laboratory detection limits.								

Table 2.2

**Analytical Results of Total RCRA 8 Metals in Soil Samples
2497-2507 Grove Way, Castro Valley, CA**

Sample Number	Arsenic	Barium	Chromium	Lead
GP-5-9	2.8	190	37	6.5
GP-6-9	2.9	98	32	5.1
GP-7-12	<2.5	72	73	23
PRG	0.38	5,200	210	130
PRG - U.S. EPA Region 9 Preliminary Remediation Goal for Residential Soil				

June 13, 2000
Report 0221.R2

TABLE 3
SUMMARY OF OXYGEN RELEASING COMPOUND (ORC) INJECTION DATA
Borings I1 through I16 (Area A)
(ORC Injected May 31, 2000 and June 1 and 2, 2000)

Injection Point	Total ORC Injected (pounds)	Injection Interval (feet below grade)
I1	11	16 to 20
	64	20 to 25
I2	11	16 to 20
	64	20 to 25
I3	11	16 to 20
	64	20 to 25
I4	10	16 to 20
	60	20 to 25
I5	11	16 to 20
	64	20 to 25
I6	11	16 to 20
	64	20 to 25
I7	32	22.5 to 25
I7A	11	16 to 20
	34	20 to 22.5
I8	11	16 to 20
	64	20 to 25
I9	11	16 to 20
	64	20 to 25
I10	11	16 to 20
	64	20 to 25
I11	11	16 to 20
	64	20 to 25
I12	11	16 to 20
	64	20 to 25
I13	10	16 to 20
	63	20 to 25
I14	10	16 to 20
	61	20 to 25
I15	11	16 to 20
	64	20 to 25
I16	10	16 to 20
	59	20 to 25

June 13, 2000
Report 0221.R2

TABLE 2
SUMMARY OF OXYGEN RELEASING COMPOUND (ORC) INJECTION DATA
Borings I17 through I33 (Area B)
(ORC Injected May 31, 2000 and June 1 and 2, 2000)

Injection Point	Total ORC Injected (pounds)	Injection Interval (feet below grade)
I17	17.5	20 to 25
I18	17.5	20 to 25
I19	17.5	20 to 25
I20	17.5	20 to 25
I21	17.5	20 to 25
I22	10	20 to 25
I23	10	20 to 25
I24	10	20 to 25
I25	10	20 to 25
I26	17.5	20 to 25
I27	10	20 to 25
I28	12	20 to 25
I29	10	20 to 25
I30	12	20 to 25
I31	12	20 to 25
I32	12	20 to 25
I33	12	20 to 25

BORING NO.: B1		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99 8:30 AM	12/9/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	3" concrete		No well constructed.			
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC		0		
10				0		
15	Brown silty clay (CL), gray mottling, moist, hard, no PHC odor.	CL		0		Soil sample collected, designated sample B1-15 0
20	Brown silty clay (CL), abundant fine sand, saturated, hard, no PHC odor			0		19 feet = wet
25	Brown clayey sand (SC), fine to coarse sand, gravel (up to 1/2" in diameter), saturated, dense, no PHC odor.	SC		0		Groundwater grab sample collected, designated sample B1-Water.
30						Borehole terminated at 25.5 feet below ground surface

BORING NO.: B2		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99	12/9/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	8" concrete		No well constructed			
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0	
10					0	
15	Brown silty clay (CL), gray mottling, moist, hard, no PHC odor	CL			0	Soil sample collected, designated sample B2-15 0
20	Brown silty clay (CL), abundant fine sand, saturated, hard, no PHC odor	▽			0	19 feet = wet
25	Brown clayey sand (SC), fine to coarse sand, gravel (up to 1/2" in diameter), saturated, dense, no PHC odor	SC			0	Groundwater grab sample collected, designated sample B2-Water
30						Borehole terminated at 25.5 feet below ground surface

BORING NO.: B3		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99	12/9/99	
COMPLETION DEPTH: 26.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
0 - 2	2" concrete		No well constructed			Sample intervals are one foot deeper because B3, B6, B9, and B12 are on a concrete pad which is approximately one foot higher than the adjacent driveway where the other borings are located
2 - 6	6" fill					
6 - 8	2" concrete					
8 - 20	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0	
20 - 25	Green fine sand (SW), loose, wet, no PHC odor.	SW			0	Soil sample collected, designated sample B3-16 0
25 - 26.5	Brown silty clay (CL), hard, wet, no PHC odor	CL			0	20 feet = wet Groundwater grab sample collected, designated sample B3-Water
26.5 - 30						Borehole terminated at 26.5 feet below ground surface

BORING NO.: B4		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY			
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:		DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99		12/9/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:		CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK			
DEPTH (FT)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS	
	3" concrete		No well constructed				
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0		
10					0		
15	Brown silty clay (CL), gray mottling, moist, hard, no PHC odor	CL			0	Soil sample collected, designated sample B4-15 0	
20	Brown silty fine sand (SM), saturated, hard, no PHC odor	SM			0	19 feet = wet Groundwater grab sample collected, designated sample B4-Water	
25	Brown clayey sand (SC), fine to coarse sand, gravel (up to 1/2" in diameter), saturated, dense, no PHC odor	SC			0		
30						Borehole terminated at 25.5 feet below ground surface	

BORING NO.: B5		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99	12/9/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 5'	PID	REMARKS
	8" concrete		No well constructed			
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0	
10					0	
15	Green silty clay (CL), gray mottling, moist, hard, mild PHC odor	CL			0	Soil sample collected, designated sample B5-15 0
20	Brown silty fine sand (SM), saturated, hard, no PHC odor	SM			0	19 feet = wet Groundwater grab sample collected, designated sample B5-Water
25	Brown clayey sand (SC), fine to coarse sand, gravel (up to 1/2" in diameter), saturated, dense, no PHC odor	SC			0	
30						Borehole terminated at 25.5 feet below ground surface

BORING NO.: B6		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99	12/9/99	
COMPLETION DEPTH: 26.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	2" concrete 6" fill 2" concrete		No well constructed.			Sample intervals are one foot deeper because B3, B6, B9, and B12 are on a concrete pad which is approximately one foot higher than the adjacent driveway where the other borings are located
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0	
10					0	
15	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, strong PHC odor.				20	Soil sample collected, designated sample B6-16 0
20	Green fine sand (SW), loose, wet, no PHC odor	SW			0	20 feet = wet.
25	Brown silty fine sand (SM), loose, wet, no PHC odor	SM			0	Groundwater grab sample collected, designated sample B6-Water Sample is noted as having a strong PHC odor
30						Borehole terminated at 26.5 feet below ground surface

BORING NO. B7		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:		
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/9/99	12/9/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	3" concrete		No well constructed			
5	Brown clayey sand (SC), fine to coarse sand, minor gravel (1/4" in diameter), moist, dense, no Petroleum Hydrocarbon (PHC) odor	SC			0	
10	Brown sandy clay (CL), gray mottling, moist, hard, no PHC odor	CL			0	
15	Brown clayey sand (SC), fine sand, gravel (up to 1/2" in diameter), saturated, dense, no PHC odor	SC			0	Soil sample collected, designated sample B7-15 0.
20	Brown silty clay (CL), abundant fine sand, saturated, hard, no PHC odor	CL			0	19 feet = wet
25					0	Groundwater grab sample collected, designated sample B7-Water
30						Borehole terminated at 25.5 feet below ground surface.

BORING NO.: B8		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY			
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:		DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/10/99 8 AM		12/10/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:		CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK			
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS	
	3" concrete		No well constructed				
5	Dark brown sandy clay (CL), fine to coarse sand, minor gravel (1/4" in diameter), moist, hard, no Petroleum Hydrocarbon (PHC) odor	CL			0		
10	Brown clayey sand (SC), fine to coarse sand, gravel (1/5" in diameter), moist, dense, no PHC odor	SC			0		
15	Light brown sandy silt (ML), very fine sand, moist, hard, no PHC odor	ML			0	Soil sample collected, designated sample B8-15 0	
20	changing to saturated				0	19 feet = wet	
25	Brown clayey sand (SC), fine to medium sand, minor coarse sand, saturated, loose, no PHC odor	SC			0	Groundwater grab sample collected, designated sample B8-Water	
30						Borehole terminated at 25.5 feet below ground surface	

BORING NO.: B9		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:		
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/10/99	12/10/99	
COMPLETION DEPTH: 26.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 5'	PID	REMARKS
0 - 2	2" concrete		No well constructed			Sample intervals are one foot deeper because B3, B6, B9, and B12 are on a concrete pad which is approximately one foot higher than the adjacent driveway where the other borings are located
2 - 6	6" fill					
6 - 8	2" concrete					
8 - 19	Brown sandy clay (CL), fine to coarse sand, gravel (1/5" in diameter), moist, hard, no Petroleum Hydrocarbon (PHC) odor	CL			0	
19 - 20					0	
20 - 23	Brown silty fine sand (SM), minor medium and coarse sand, moist, loose, no PHC odor	SM			0	Soil sample collected, designated sample B9-16 0
23 - 25					0	20 feet = wet.
25 - 26.5	Brown clayey sand (SC), fine to coarse sand, gravel (1/4 to 1/2" in diameter), saturated, stiff, no PHC odor	SC			0	Groundwater grab sample collected, designated sample B9-Water
26.5 - 30						Borehole terminated at 26.5 feet below ground surface

BORING NO.: B10		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY			
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:		DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/10/99		12/10/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:		CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK			
DEPTH (FT)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS	
	3" concrete		No well constructed				
5	Brown sandy clay (CL), fine to coarse sand, gravel (1" in diameter), moist, hard, no Petroleum Hydrocarbon (PHC) odor	CL			0		
10					0		
15	Brown clayey silt (ML), minor fine sand, moist, hard, no PHC odor	ML			0	Soil sample collected, designated sample B10-15 0	
20	Brown silty fine sand (SM), light brown mottling, wet to saturated, loose, no PHC odor	SM			0	19 feet = wet.	
25	Brown fine sand (SP), minor silt, saturated, loose, no PHC odor	SP			0	Groundwater grab sample collected, designated sample B10-Water.	
30						Borehole terminated at 25.5 feet below ground surface	

BORING NO.: B11		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY			
BORING LOCATION: SEE MAP				ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:		DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/10/99		12/10/99	
COMPLETION DEPTH: 25.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:		CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK			
DEPTH (FT)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS	
	3" concrete		No well constructed.				
5	Brown sandy clay (CL), fine to coarse sand, moist, hard, no Petroleum Hydrocarbon (PHC) odor	CL			0		
10					0		
15	Brown clayey silt (ML), minor fine sand, moist, hard, no PHC odor	ML			0	Soil sample collected, designated sample B11-15 0	
20	Brown silty fine sand (SM), light brown mottling, wet to saturated, loose, no PHC odor	SM			0	19 feet = wet	
25	Brown fine sand (SP), minor silt, saturated, loose, no PHC odor	SP			0	Groundwater grab sample collected, designated sample B11-Water.	
30						Borehole terminated at 25.5 feet below ground surface	

BORING NO.: B12		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: MIKE		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				12/10/99	12/10/99	
COMPLETION DEPTH: 26.5 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 19 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		PHK		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
0	2" concrete 6" fill 2" concrete		No well constructed			Sample intervals are one foot deeper because B3, B6, B9, and B12 are on a concrete pad which is approximately one foot higher than the adjacent driveway where the other borings are located
5	Brown sandy clay (CL), fine to coarse sand, moist, hard, no Petroleum Hydrocarbon (PHC) odor	CL			0	
10					0	
15	Brown clayey silt (ML), fine sand, moist, hard, no PHC odor	ML			0	
20	Brown silty fine sand (SM), light brown mottling, wet to saturated, loose, no PHC odor	SM			0	20 feet = wet
25	Brown fine sand (SP), minor faint gray mottling, minor silt, saturated, loose, no PHC odor	SP			0	Groundwater grab sample collected, designated sample B12-Water
30						Borehole terminated at 26.5 feet below ground surface

BORING NO.: B13		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: BRIAN		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				2/14/00 9:30 AM	2/14/00 11 AM	
COMPLETION DEPTH: 26.0 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: 20 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		GMB		
DEPTH (FT)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	3" concrete		No well constructed			
5	Brown clayey silt (ML), minor sand, dry, stiff, no Petroleum Hydrocarbon odor (PHC)	ML			0	
	Orange & brown clayey sand (SC), dry, stiff, no PHC odor	SC			0	
	Brown clay (CL), dry, stiff, no PHC odor	CL				
10	Dark brown silt (ML), damp, loose, no PHC odor.	ML			0	
	Orange-brown sandy clay (CL), dry, stiff, no PHC odor	CL			0	
15	Brown silt (ML), damp, stiff, moderate PHC odor	ML			0	Moderate PHC odor noted beginning at approximately 14.0 feet. Soil sample collected, designated sample B13-15 0
20	Brown sand (SP), wet, stiff, no PHC odor	SP			0	No further PHC odor noted at 17.5 feet
	Brown sandy silt (ML), minor gravel (1/2" in diameter), saturated, stiff, no PHC odor	ML			0	Groundwater encountered at 20.0 feet; Groundwater grab sample collected, designated sample B13-Water
30						Borehole terminated at 26.0 feet below ground surface

BORING NO.: B14		PROJECT NO.: 0221		PROJECT NAME: FORMER COTTAGE BAKERY		
BORING LOCATION: SEE MAP			ELEVATION AND DATUM:			
DRILLING AGENCY: VIRONEX		DRILLER: BRIAN		DATE & TIME STARTED:	DATE & TIME FINISHED:	
DRILLING EQUIPMENT: GEOPROBE 2"				2/14/00 11:45 AM	2/14/00 1:30 PM	
COMPLETION DEPTH: 26.0 FEET		BEDROCK DEPTH: NONE ENCOUNTERED		LOGGED BY:	CHECKED BY:	
FIRST WATER DEPTH: APPROX. 22 FEET		NO. OF SAMPLES: 1 SOIL, 1 WATER		GMB		
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
3"	concrete		No well constructed			
5	Gray-brown clay (CL), dry, dense, no PHC odor	CL		0		
5	Orange-brown sandy clay (CL), some gravel (1/2" in diameter), dry, dense, no PHC odor	CL				
10	Gray-brown clay (CL), dry, dense, orange mottling, no PHC odor	CL		0		
10	Orange-brown sandy clay (CL), minor gravel (1/2" in diameter), dry, dense, no PHC odor	CL		0		
15	Brown silt (ML), dry, somewhat dense, no PHC odor	ML		0		Soil sample collected, designated sample B14-15 0.
20	Light brown sand (SP), damp, somewhat dense, no PHC odor	SP		0		Soil becomes damp at 18 0 feet
20	Becoming clayey sand (SC).	SC		0		Groundwater encountered at 22 0 feet; Groundwater grab sample collected, designated sample B14-Water
25				0		
25				0		
30						Borehole terminated at 26.0 feet below ground surface