



Environmental
Science &
Engineering, Inc.

ALCO
HAZMAT

93 DEC 17 PM 2: 34

December 14, 1993

Mr. John Watson
American Red Cross
1550 Sutter Street
San Francisco, California 94109

**SUBJECT: PRELIMINARY SITE ASSESSMENT
AMERICAN RED CROSS
2017 CENTRAL AVENUE
ALAMEDA, CALIFORNIA
ESE PROJECT NO. 6-93-5143**

Dear Mr. Watson

Environmental Science & Engineering, Inc. (ESE) has prepared this report to present the findings of a preliminary site assessment conducted at the American Red Cross (Red Cross) facility located at 2017 Central Avenue, Alameda, California (site) (See Figure 1 - Location Map). The site is in a residential area of Alameda and is used for Red Cross Services including the distribution of goods to the needy. At the request of the Red Cross, ESE conducted this investigation to assess petroleum hydrocarbons in soil and ground water.

SITE HISTORY

An underground 250-gallon capacity heating oil tank was removed from the subject site in December 1992. The tank had always been used for heating oil. Soil containing fuel oil was excavated to the extent possible at that time and documented in a report of tank removal and excavation results (ESE, 1993). Because detectable concentrations of fuel oil was left in place during site remediation, the Alameda County Health Care Services Agency (County) requested that a preliminary site assessment (PSA) be conducted at the site. The Red Cross negotiated with the County for the following scope of work for the PSA.

- Prepare a health and safety plan and workplan for the soil and ground water sampling outlined below. Permit borings through the Alameda County Water Agency.
- Drill two soil borings at the locations of samples ARC #7 and ARC #8 (Figure 2 - Partial Site Plan) collected during the tank removal operations (ESE 1993). Collect one soil sample from each boring at approximately one foot above the ground water table, at an approximate depth of 9 feet below ground surface (bgs). Collect one ground water sample in each boring with a Hydropunch.

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- Analyze soil and ground water samples for total petroleum hydrocarbons as diesel (TPH-d), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Analyze one trip blank sample for BTEX for the purpose of quality control (QC).
- Prepare a report of findings in accordance with Tri-Regional Board guidelines.

SITE ACTIVITIES

On November 4, 1993, ESE conducted two soil borings at the site. The two soil borings, HP-1 and HP-2, were drilled to a depth of 9 feet below ground surface (bgs) at locations of soil sample ARC #7 and ARC #8 (Figure 2--Partial Site plan). The soil borings were drilled by Soils Exploration Services (SES) of Vacaville, California, using hollow stem auger drilling equipment and techniques.

The soil generated from the borings (soil samples and soil cuttings) was classified by the ESE geologist in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist noted soil color, relative density, moisture content and odor, if present. These observations and a graphical presentation of the soil borings are presented in Attachment A - Geologic Boring Logs.

Subsequent to drilling, each bore hole was backfilled with a neat cement grout to ground surface. All soil cuttings generated during the drilling activities were stockpiled onsite on top of and beneath plastic sheeting pending analysis and proper disposal.

SOIL SAMPLING

Soil samples were collected in each boring at approximate five foot intervals by driving a split-spoon sampler, lined with brass sleeves, 18-inches through the center of and ahead of the hollow stem augers. The samplers were driven by dropping a 140-pound hammer 30-inches onto rods attached to the top of the sampler. The number of blows required to drive the sampler each six-inch interval were noted and appear on the geologic boring logs (Attachment A). The ends of one brass sleeve from each sampler were covered with Teflon lined plastic end caps, which were sealed to the brass sleeve with duct tape, labeled and placed on ice. All soil samples were transported under chain of custody to Curtis & Tompkins, Ltd. (C&T) of Berkeley, California. C&T is a state-certified analytical laboratory. A portion of each soil sample was sealed in a clean individual Ziploc bag and set in direct sunlight to enhance the volatilization of any volatile compounds present in the soil. After approximately 15-minutes each sample was screened for volatiles using a

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photoionization detector (PID). PID readings appear on the geologic boring logs (Attachment A).

All drilling and soil sampling equipment was steam cleaned between use in each bore hole. The steam clean rinse water was contained in a 55-gallon drum pending proper disposal.

GROUND WATER SAMPLING

Ground water samples were collected from the base of soil borings HP-1 and HP-2 by driving a Hydropunch through the center of the hollow stem augers into the undisturbed aquifer. The outer sheath of the Hydropunch was then retracted to expose an unused 3-foot long Teflon screen. The Teflon screen was exposed to the subsurface over a period of about 15 minutes after which a clean Teflon bailer was lowered into the screened interval. Ground water samples, each comprised of three 40-milliliter vials and one 1-liter bottle, were collected, labeled, placed on ice and delivered under chain of custody documentation to C&T. All Hydropunch equipment was steam cleaned between each boring location. The steam clean rinse water was contained in a 55-gallon drum pending proper disposal.

RESULTS

FIELD OBSERVATIONS

Boring HP-1 was located adjacent to the building below the former piping run and within two feet from the former tank excavation and boring HP-2 was located within an area of shallow excavation and near the property line. No hydrocarbon staining or odors were noted during drilling of either boring. Boring HP-1 encountered fill material and fabric used to line the base of the excavation to a depth of approximately 5 feet bgs. Below this depth, native Merritt Sand, a silty sand unit, was found. Undisturbed native soil were found in boring HP-2 from a depth of approximately 2 feet bgs to the top of the capillary zone. Ground water was found in both borings at a depth of 9.5 to 10 feet bgs.

SOIL SAMPLES

Soil samples were collected at an approximate depth of 9 feet bgs, approximately 1 foot above the water bearing zone, in borings HP-1 and HP-2. These samples were analyzed for TPH-d by EPA Method 8015 modified and for BTEX by EPA Method 8020.

Laboratory analytical reports for soil samples are summarized on Table 1 and included as Attachment B to this report. TPH-d, at a concentration of 70 milligrams per Kilogram

(mg/Kg), was detected in the soil sample collected from boring HP-1 and at a concentration of 2 mg/Kg in the sample from HP-2. BTEX constituents were not detected in soil samples from either boring.

GROUND WATER SAMPLES

The ground water samples collected from HP-1 and HP-2 were analyzed for TPH-d and BTEX. A laboratory supplied trip blank was analyzed for BTEX.

Laboratory analytical reports for ground water samples are summarized on Table 1 and included as Attachment B. TPH-d and BTEX were not detected in the ground water samples from borings HP-1 and HP-2 or in the trip blank.

DISCUSSION

The soil samples were collected at a depth of 9 feet bgs from the two locations that reported detectable concentrations of TPH-d in sidewall samples of the former excavation. A comparison of the soil sample analytical results from the excavation sidewall samples to the PSA boring sample results indicates that the fuel oil detected during excavation decreases in concentration outward from the former excavation. Analytical results from both the tank excavation sampling and the recent PSA sampling are presented on Table 1.

The BTEX constituents reported for sample ARC-8-10.5' are suspect because no other sample collected from the site had these constituent, even those with higher TPH values (ESE, 1993). ESE suspects that the BTEX constituents found in ARC-8-10.5' are a laboratory error, however this cannot be proven. Gasoline was never stored in the tank removed from the site.

The residual fuel oil in the unsaturated soil appears to be of limited extent and is a heavy petroleum hydrocarbon lacking volatile constituents. This residual fuel oil is likely not to migrate because it will tend to adsorb to the fine-grained soils and is likely to biodegrade over time.

Analysis of ground water samples from borings HP-1 and HP-2 were nondetectable for all analytes. This indicates that ground water has not been impacted by possible releases from the former fuel oil tank.

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RECOMMENDATIONS

ESE recommends that the former underground fuel oil tank site be closed based on the low concentrations of fuel oil and lack of detectable BTEX in the unsaturated soil zone. The location of boring HP-1, which contained TPH-d at 70 mg/Kg is located in an area which is not excavatable due to the location of the two-story adjacent building. Ground water has not been impacted by the former tank.

REFERENCES

Environmental Science & Engineering, Inc. (ESE), 1993, Report of Tank Removal and Excavation at the American Red Cross Facility Located at 2017 Central Avenue, Alameda, California; dated March 24, 1993

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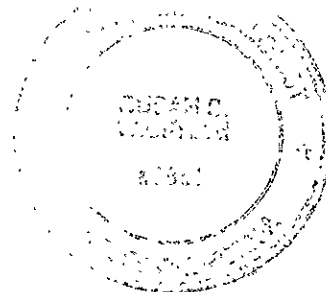
Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other hydrogeologists and engineers practicing in this field. No other warranty, express or implied, is made as to the professional advice in this report.

If you have any questions regarding the material presented in this report, please do not hesitate to contact the undersigned at (510) 685-4053.

Sincerely,
ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Susan S. Wickham

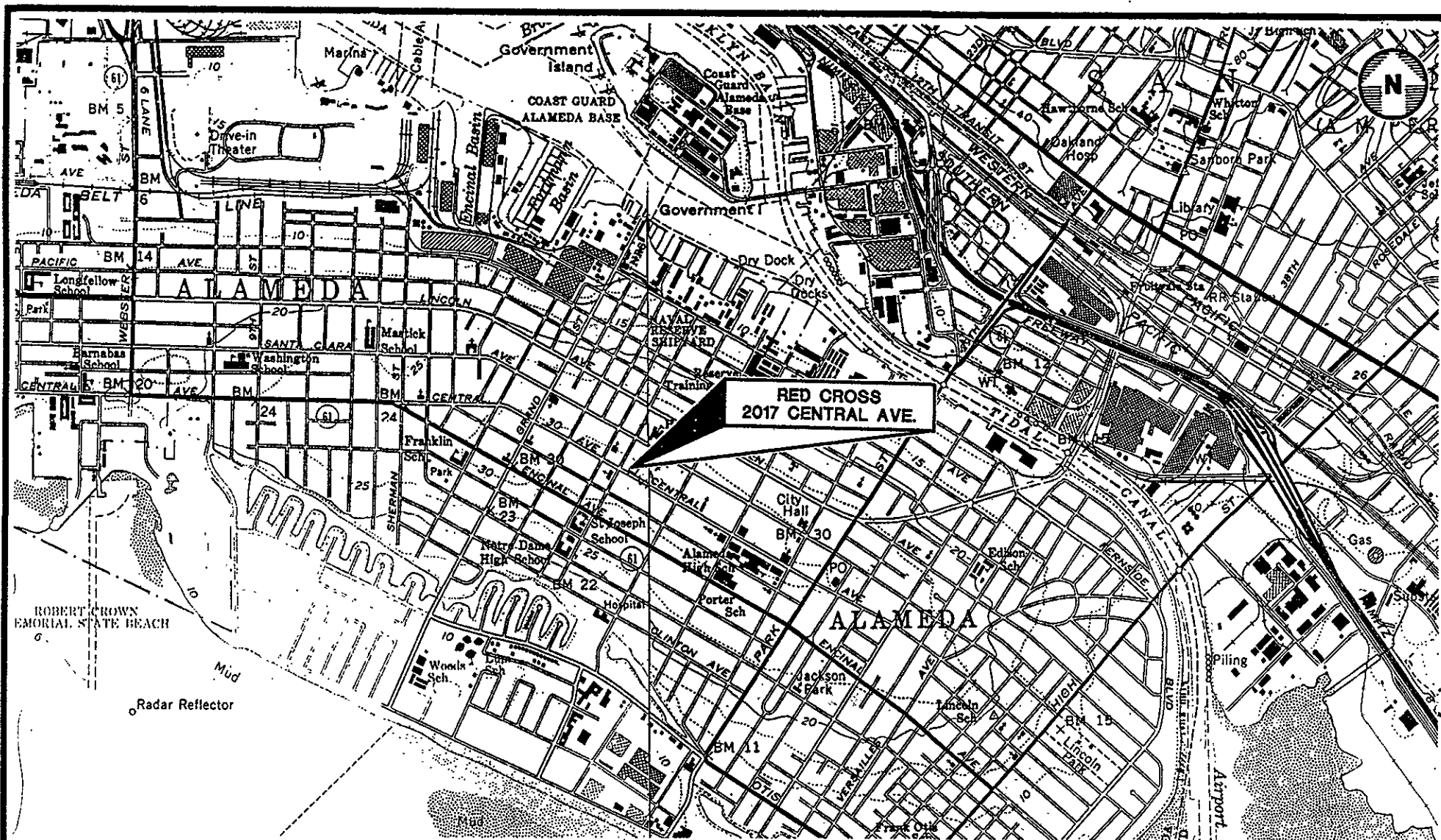
Susan S. Wickham
Senior Geologist
California Registered Geologist No. 3851



Attachments: Figures (2)
 Tables (1)
 Attachments (2)

pc: Ms. Juliet Shin, Alameda County Health Care Agency
 Mr. Richard Hiatt, RWQCB -SF

FIGURES



ADAPTED FROM U.S.G.S. OAKLAND EAST AND OAKLAND WEST, CALIFORNIA, 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1959, PHOTOREVISED 1980.



**Environmental
Science &
Engineering, Inc.**

4090 NELSON AVENUE, SUITE J
CONCORD, CA 94520

DATE

10/93

REVISED

CAD FILE

51431002

VICINITY MAP

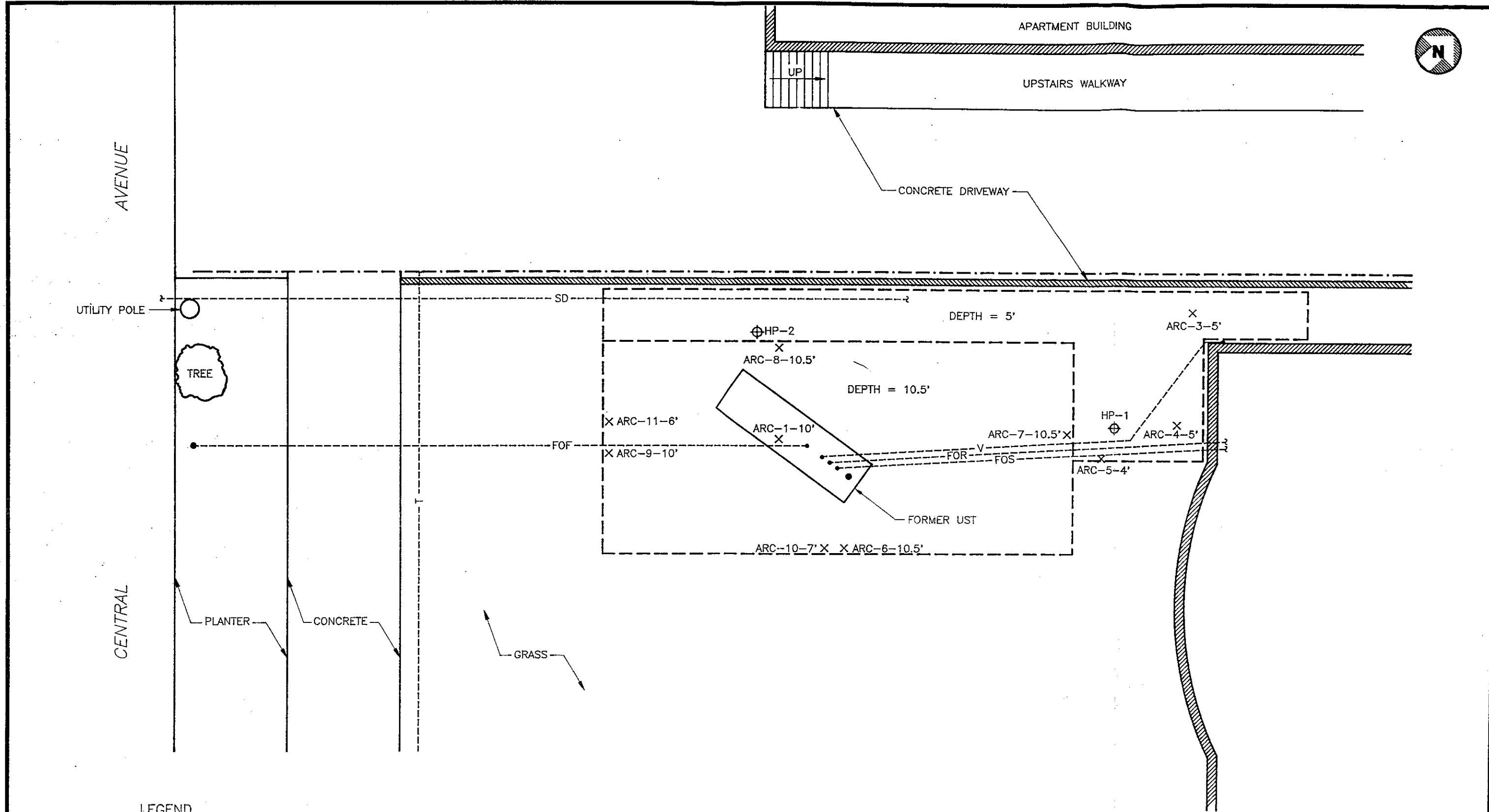
RED CROSS
2017 CENTRAL AVENUE
ALAMEDA, CALIFORNIA

FIGURE NO.

1

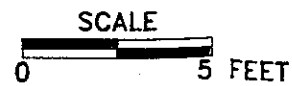
PROJ. NO.


6-93-5143



LEGEND

- — — — — PROPERTY LINE
- - - - - LIMIT OF EXCAVATION DURING TANK REMOVAL
- X SOIL SAMPLE LOCATION DURING TANK REMOVAL
- ⊕ SOIL BORING WITH HYDROPUNCH



 <p>Environmental Science & Engineering, Inc.</p> <p><small>A CILCORP Company</small></p>	DATE 10/93	<p>PARTIAL SITE PLAN</p> <p>RED CROSS 2017 CENTRAL AVENUE ALAMEDA, CALIFORNIA</p>	FIGURE NO. 2
	REVISED 11/93 SSW		PROJ. NO. 6-93-5143
	CAD FILE 51431001		
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520			

TABLE



**Environmental
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BORING LOG AND WELL COMPLETION SUMMARY

HP-1

WELL COMPLETION

Completion Depth:
Size/Type From To

Casing:
Screen:
Filter:
Seal:

Well Cap or Box:

Project Name: Red Cross - Alameda Project No: 6-93-5143
Location: 2017 Central Avenue
Alameda, California

Driller: Great Sierra
Method: Hollow Stem Auger
Hole Diameter: 8 Inches Total Depth: 13.5 Feet
Ref. Elevations:
Logged By: Chris Valcheff

Page 1 of 1

Dates:
Start: 11-4-93
Finish: 11-4-93

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks
			Sample/ Blows	Lithology	Well Installation		
0	FILL SILTY SAND, light brown, dense, 10-20% silts, fine to medium grained, damp, plant matter, no odor.	SM					
	CLAYEY SAND, dark brown, dense, 20-30% clay, fine to medium grained, no odor.	SC					
5	GRAVEL, and fiber cloth, 1/2" diameter gravel.	GW	5 5 5				SAMPLE @ 5.0 FEET
	MERRITT SAND SILTY SAND, light brown, dense, damp, 10-20% silts, fine grained, no odor.	SM					
10	As above.	SM	16 17 18				SAMPLE @ 9.0 FEET Water @ 10 feet Hydropunch 10.5 to 13.5 feet. TOTAL DEPTH = 13.5 FEET Backfilled with grout.
15							
20							
25							
30							
35							





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BORING LOG AND WELL COMPLETION SUMMARY

HP-2

WELL COMPLETION

Completion Depth:

Size/Type From To

Casing:
Screen:
Filter:
Seal:

Well Cap or Box:

Project Name: Red Cross - Alameda Project No: 6-93-5143

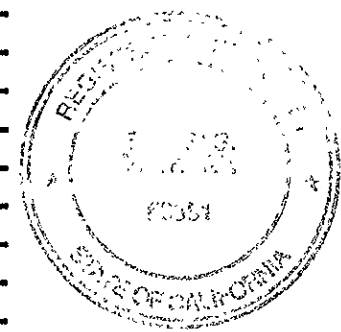
Location: 2017 Central Avenue
Alameda, California

Page 1 of 1

Driller: Great Sierra
Method: Hollow Stem Auger
Hole Diameter: 8 Inches Total Depth: 13.5 Feet
Ref. Elevations:
Logged By: Chris Valcheff

Dates:
Start: 11-4-93
Finish: 11-4-93

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks
			Sample/Blows	Lithology	Well Installation		
0	FILL? SILTY SAND, light brown, dense, damp, 10-20% silts, fine to medium grained, plant matter, no odor.	SM					
	MERRITT SAND CLAYEY SAND, dark brown, dense, damp, 10-20% clay, medium to coarse grained, no odor.	SC					
	SILTY SAND, light orange/brown, dense, damp, 10-20% silts, fine to medium grained, no odor.	SM					
5			5 6 11				SAMPLE @ 5.0 FEET
	SAND, orangish brown, very dense, damp, medium grained, no odor.	SM					
10			10 15 45				SAMPLE @ 9.0 FEET Water @ 9.5 to 10 feet Hydropunch 10.5 to 13.5 feet.
15							TOTAL DEPTH = 13.5 FEET Backfilled with grout.
20							
25							
30							
35							



ATTACHMENT B
ANALYTICAL LABORATORY REPORTS



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878.

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L R E P O R T

Prepared for:

Environmental Science & Engineering
4090 Nelson Avenue
Suite J
Concord, CA 94520

Date: 19-NOV-93
Lab Job Number: 113073
Project ID: 6935143
Location: Red Cross

Reviewed by:

Tusak Morrison

Reviewed by:

Kathy OB

This package may be reproduced only in its entirety.

LABORATORY NUMBER: 113073 .
 CLIENT: ENVIRONMENTAL SCIENCE & ENGINEERING
 PROJECT ID: 6935143
 LOCATION: RED CROSS

DATE SAMPLED: 11/04/93
 DATE RECEIVED: 11/05/93
 DATE EXTRACTED: 11/15/93
 DATE ANALYZED: 11/17/93
 DATE REPORTED: 11/19/93

Extractable Petroleum Hydrocarbons in Aqueous Solutions
 California DOHS Method
 LUFT Manual October 1989

LAB ID	CLIENT SAMPLE ID	KEROSENE RANGE (ug/L)	DIESEL RANGE (ug/L)	REPORTING LIMIT (ug/L)	SURROGATE RECOVERY (Hexacosane)
113073-01	HP-1	ND	ND	50	123 %
113073-02	HP-2	ND	ND	50	129 %
METHOD BLANK	N/A	70	ND	50	44 %

ND = Not detected at or above the reporting limit.

Surrogate recovery limits: 75% - 125%

QA/QC SUMMARY: BS/BSD

RPD, %	90 (Limit: <25)
RECOVERY, %	63 (Limits: 75 - 125)

NOTE: Blank spike duplicate recovery failed QC, however, surrogate recoveries for samples are well within limits.

LABORATORY NUMBER: 113073
 CLIENT: ENVIRONMENTAL SCIENCE & ENGINEERING
 PROJECT ID: 6935143
 LOCATION: RED CROSS

DATE SAMPLED: 11/04/93
 DATE RECEIVED: 11/05/93
 DATE ANALYZED: 11/17/93
 DATE REPORTED: 11/19/93

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
 Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE	TOLUENE	ETHYL	TOTAL	REPORTING	SURROGATE	
		(ug/L)	(ug/L)	BENZENE (ug/L)	XYLENES (ug/L)	LIMIT (ug/L)	TFT	BB
113073-01	HP-1	ND	ND	ND	ND	0.5	82 %	63 %
113073-02	HP-2	ND	ND	ND	ND	0.5	83 %	66 %
113073-07	TRIP	ND	ND	ND	ND	0.5	81 %	65 %
METHOD BLANK	N/A	ND	ND	ND	ND	0.5	87 %	70 %

TFT = Trifluorotoluene (Limits: 58-130)
 BB = Bromobenzene (Limits: 70-122)

ND = Not detected at or above reporting limit.
 Reporting Limit applies to all analytes.

LABORATORY NUMBER: 113073
 CLIENT: ENVIRONMENTAL SCIENCE & ENGINEERING
 PROJECT ID: 6935143
 LOCATION: RED CROSS

DATE SAMPLED: 11/04/93
 DATE RECEIVED: 11/05/93
 DATE ANALYZED: 11/12/93
 DATE REPORTED: 11/19/93

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
 Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE	TOLUENE	ETHYL	TOTAL	REPORTING	SURROGATE	
		(ug/Kg)	(ug/Kg)	BENZENE (ug/Kg)	XYLENES (ug/Kg)	LIMIT (ug/Kg)	TFT	BB
113073-03	HP-1 @ 9	ND	ND	ND	ND	5	82 %	63 %
113073-05	HP-2 @ 9	ND	ND	ND	ND	5	83 %	66 %
METHOD BLANK	N/A	ND	ND	ND	ND	5	87 %	70 %

TFT = Trifluorotoluene (Limits: 43-114)
 BB = Bromobenzene (Limits: 45-140)

ND = Not detected at or above reporting limit.
 Reporting Limit applies to all analytes.

QA/QC SUMMARY: LABORATORY CHECK SAMPLE

=====
 RECOVERY, % 92 (Limits: 75-125)
 =====



LABORATORY NUMBER: 113073
CLIENT: ENVIRONMENTAL SCIENCE & ENGINEERING
PROJECT ID: 6935143
LOCATION: RED CROSS

DATE SAMPLED: 11/04/93
DATE RECEIVED: 11/05/93
DATE EXTRACTED: 11/11/93
DATE ANALYZED: 11/13, 14/93
DATE REPORTED: 11/19/93
DATE REVISED: 12/01/93

Extractable Petroleum Hydrocarbons in Soils & Wastes
California DOHS Method
LUFT Manual October 1989

LAB ID	CLIENT SAMPLE ID	KEROSENE RANGE (mg/Kg)	DIESEL RANGE (mg/Kg)	REPORTING LIMIT (mg/Kg)	SURROGATE RECOVERY (Hexacosane)
113073-03	HP-1 @ 9	**	70	1	92 %
113073-05	HP-2 @ 9	ND	2	1	81 %
METHOD BLANK	N/A	ND	ND	1	73 %

ND = Not detected at or above the reporting limit.

** = Quantitated as diesel due to overlap of hydrocarbon ranges.

Surrogate recovery limits: 75% - 125%

QA/QC SUMMARY: MS/MSD

RPD, %	7 (Limit: <25)
RECOVERY, %	87 (Limits: 60-130)

Spiked sample: 113073

113073

DATE 11/4/93 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME Red Cross
 ADDRESS 2017 Central Ave
Alameda, CA
 PROJECT NO. 10935143
 SAMPLED BY Chris Valcheff
 LAB NAME Curtis & Tompkins

ANALYSES TO BE PERFORMED										MATRIX	MATRIX	NUMBERS OF CONTAINERS	
SAMPLE #	DATE	TIME	LOCATION	TPH-d (8015 mod)	BTEX (8020)								
HP-1	11-4-93	1010	Alameda	✓	✓						water	3	2 VOA's (CR)
HP-2		1130		✓	✓						water	3	"
HP-1 @ 9		0920		✓	✓						soil	1	6" brass pipe
HP-1 @ 5		0910		HOLD							"	1	
HP-2 @ 9		1115		✓	✓						soil	1	
HP-2 @ 5	✓	1110	✓	HOLD							"	1	↓
TRIP					✓						water	1	1 VOA



Environmental Science & Engineering, Inc.
 Phone (510) 685-4053
 Fax (510) 685-5323
 4090 Nelson Avenue Suite J
 Concord, CA 94520

REMARKS (CONTAINER, SIZE, ETC.)

RELINQUISHED BY: (signature)
 1. [Signature]
 2.
 3.
 4.
 5.

RECEIVED BY: (signature) date time
[Signature] 11-5-93 1115

TOTAL NUMBER OF CONTAINERS
 REPORT RESULTS TO: SUE WICKHAM
 SPECIAL SHIPMENT REQUIREMENTS
 SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
10-DAY TA

CHAIN OF CUSTODY SEALS
 REC'D GOOD COND'TN/COLD
 CONFORMS TO RECORD