ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

May 15, 1997

STID 5540

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

REMEDIAL ACTION COMPLETION CERTIFICATION

Alameda County GSA
Engineering & Environmental Management Dept.
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612
Attn: Jim de Vos

RE: ENGINEER'S HILL - SANTA RITA CORRECTIONAL FACILITY, BRODER BLVD., DUBLIN

Dear Mr. de Vos:

This letter confirms the completion of a site investigation and remedial action for the underground storage tank 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, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Section 2721(e) of Title 23 of the California Code of Regulations.

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

Sincerely,

Mee Ling Tung
Director, Environmental Health Services

c: Gordon Coleman, Acting Chief, Env. Protection Division
Kevin Graves, RWQCB
Lori Casias, SWRCB (w/attachment)
SOS/files

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May 15, 1997

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1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
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STID 5540

Mr. Jim de Vos
Alameda County GSA
Engineering & Environmental Management Dept.
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612

RE: ENGINEER'S HILL, SANTA RITA CORRECTIONAL FACILITY

Dear Mr. de Vos:

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 17,000 parts per million Total Petroleum Hydrocarbons as Diesel, among other constituents, remain in native soil beneath the former UST at a depth of 20 feet below current grade.

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

Sincerely,

Scott O. Seery, CHMM
Senior Hazardous Materials Specialist

Enclosures:
1. Case Closure Letter
2. Case Closure Summary

cc: Gordon Coleman, Acting Chief

-SIGNED

COPY

01-2225

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION Date: 03/21/97

Agency name: **Alameda County-EPD** Address: **1131 Harbor Bay Pkwy #250**
City/State/Zip: **Alameda, CA 94502** Phone: **(510) 567-6700**
Responsible staff person: **Scott Seery** Title: **Sr. Haz. Materials Spec.**

II. CASE INFORMATION

Site facility name: **Engineer's Hill - Santa Rita Correctional Facility**
Site facility address: **Broder Blvd., Dublin 94568**
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: **5540**
URF filing date: 11/19/92 SWEEPS No: **N/A**

Responsible Parties:	Addresses:	Phone Numbers:
Alameda Co. GSA Eng & Env Mngmt Dept. Attn: Jim de Vos	1401 Lakeside Dr., 11th Flr Oakland, CA 94612	(510) 208-9530

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	1000	diesel	removed	05/18/92

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: tank / piping corrosion (?)

Site characterization complete? YES

Date approved by oversight agency:

Monitoring Wells installed? NO Number: NA

Proper screened interval? NA

Highest GW depth below ground surface: > 80' Lowest depth: UNK

Flow direction: UNK

Most sensitive current use: none

Are drinking water wells affected? NO Aquifer name: Camp Subbasin, Livermore Valley

Is surface water affected? NO Nearest affected SW name: NA

Off-site beneficial use impacts (addresses/locations): NONE

Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Report(s) on file? **YES** Where is report filed? **Alameda County**
1131 Harbor Bay Pkwy
Alameda CA 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment of Disposal w/destination)	Date
Tank	1000 gals	Disposal - Erickson Richmond, CA	05/18/92
Piping	NA		
Free Product	"		
Soil	25 yds^3	Disposal - onsite	1992
Groundwater	NA		
Barrels	"		

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppm)	
	Before[1]	After[2]	Before	After
TPH (Gas)	NA	NA	NA	NA
TPH (Diesel)	1400	17,000		
Benzene	ND	ND		
Toluene	"	0.030		
Xylene	0.045	0.6		
Ethylbenzene	0.017	4.0		
Oil & Grease	ND			

Note: 1) "Before" soil results (except O&G) from sample T23-1-SP collected @ 22'BG from Test Pit 1 excavated through the base of UST excavation. O&G results from sample 23W collected from base of excavation during UST closure.

2) "After" soil results as follows: TPH-D and benzene from boring EH1 @ 20' BG; toluene from boring EH8 @ 63' BG; xylene and ethylbenzene from boring EH1 @ 15' BG.

Comments (Depth of Remediation, etc.):

The Engineer's Hill subsite is located on a hill rising approximately 50' above the remainder of the Santa Rita site located in the valley floor to the south and west, and is bounded immediately to the east by Tassajara Creek (Fig. 1). A single 1000 diesel UST was removed from the site during May 1992. The subject tank formerly served a boiler in an adjoining building (Fig. 2).

Upon removal the tank was observed to be corroded with several throughgoing holes. No visual signs of contamination were noted. The initial sample collected from the base of the excavation (23W) at an approximate 10' depth revealed only 190 ppm TPH-D. Final pit dimensions were 14 x 8 x 8' deep.

Leaking Underground Fuel Storage Tank Program

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 Decommisioned: NA

Number Decommisioned: NA Number Retained: NA

List enforcement actions taken: NONE

List enforcement actions rescinded: NONE

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Scott Seery Title: Sr. Haz Mat Specialist
Signature: Date: 4/29/97

Reviewed by
Name: Tom Peacock Title: Supervising Haz Mat Specialist
Signature: Date: 4-28-97

Name: Kevin Tinsley Title: Haz Mat Specialist
Signature: Kevin Tinsley Date: 3-31-97

VI. RWQCB NOTIFICATION

Date Submitted to RB: 4/29/97 RB Response: Approved
RWQCB Staff Name: Kevin Graves Title: San. Eng. Assoc. Date: 5/7/97

VII. ADDITIONAL COMMENTS, DATA, ETC.

Several stages of additional investigation occurred subsequent to UST closure. A summary of each phase follows.

Leaking Underground Fuel Storage Tank Program

Phase 1

During November 1992, several "test pits" were excavated in and around the former UST location up to a depth of 22' BG (Fig. 3). Encountered sediments in Test Pit 1, excavated through the former UST pit, were reported to be a sandy SILT to ~ 9' BG, underlain by poorly graded SAND to the depth explored. GW was not encountered.

Discolored soil with fuel odor was identified at the 9' depth in Test Pit 1. A soil sample was collected from the base of the test pit at the 22' depth. Laboratory analysis of this sample revealed up to 1400 ppm TPH-D and trace concentrations of EX.

Three (3) additional "test pits" were excavated within 25' of the tank excavation to the same depth as Test Pit 1. As no subjective evidence of contamination was identified during excavation of these additional test pits, no samples were collected. The consultant concluded from this phase of the investigation that there appeared to be was a substantial vertical component to contaminant migration.

Phase 2

During November 1993, five (5) soil borings (EH-1 to EH-5) were emplaced about the former UST site (Fig. 4). Borings were drilled to depths ranging from 56 to 80' BG. Soil samples were collected at 5' intervals in EH-1 (advanced through the UST pit); samples were collected at 10' intervals in each of the other borings. GW was not encountered in any of the borings.

Up to 17,000 ppm TPH-D was identified in the 20' sample collected from EH-1. Up to 5600 ppm was identified at the 50' depth in EH-3. Although variable concentrations of TEX were noted in several samples to the 50' depth, benzene was not detected at all.

Data indicate a strong vertical component to contaminant migration. Cross-sections constructed from boring logs (Figs. 5 and 6) appear to show contaminant migration to be significantly controlled by and fairly isolated within a westward dipping SAND layer underlying the former UST site after its initial ~ 40' vertical migration downward through interbeds of sandy silt, sand and pebbly sand.

Phase 3

During May 1994, three additional borings (EH-6, -7 and -8) were drilled west and NW of the UST pit. Borings EH-6 and -7 were each drilled to 81' BG and boring EH-8 to 70' BG. GW was not encountered.

To identify the top of the dipping sand layer west of boring EH-3, boring EH-6 was continuously sampled from approximately 40 to 70' BG. Once this bed was identified, samples collected in borings EH-7 and -8 were retrieved at standard intervals starting at approximately 40' BG.

Boring EH-6, the western-most boring, failed to intercept contamination to the depth explored even though the subject sand layer was encountered in the 70 - 76' interval. Evidence suggests that the subject sand bed "pinches out" as it plunges to the west. Up to 3900 ppm TPH-D and detectable TEX, however, were identified in the 63' sample from boring EH-8. The surficial expression of the mapped vadose zone plume is shown in Figure 7.

Phase 4

A follow-up health and environmental risk assessment was performed. In addition, a SESOIL fate-and-transport analysis was performed to predict the potential for ground water to become affected by diesel fuel migrating from impacted vadose zone sediments.

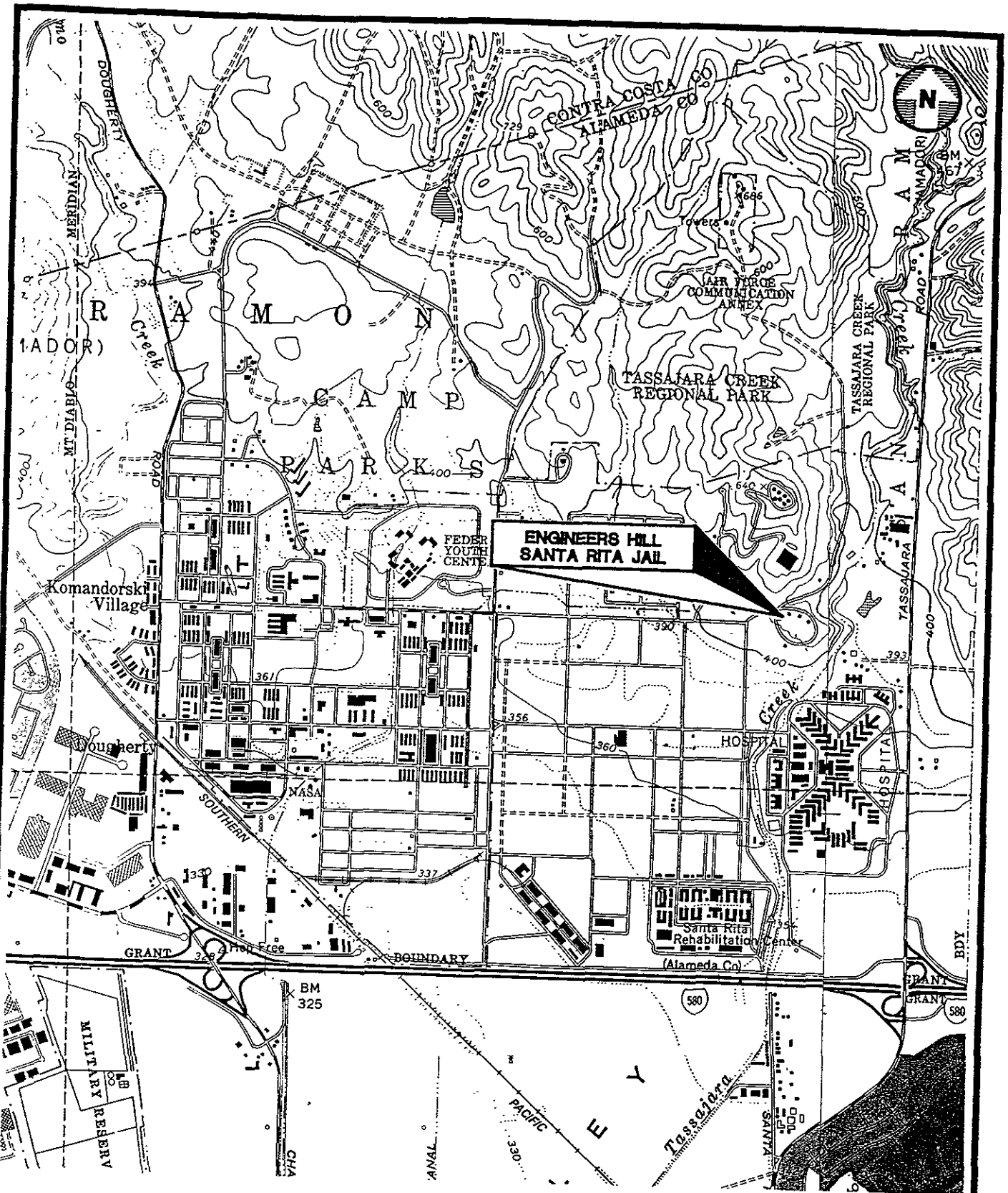
The risk assessment assumed the most likely exposure pathway to be oral or dermal contact from impacted soil. As GW was not encountered to a depth of 81' BG and the belief that contaminants had not leached to such resources, the GW ingestion pathway was also not *directly* evaluated. Risk due to inhalation of vapors was not evaluated based on the consultant's belief that vapor exposure pathways were neither complete nor significant because 1) the low volatility and BTEX content of diesel fuel, and 2) the presence of a "clean soil cap" on top of impacted soil.

Although SVOCs were not specifically sought during the investigation, the maximum expected concentration of *naphthalene*, one of the risk-driving SVOC species of diesel fuel, is 22.1 ppm. This expected concentration is based on the maximum concentration of TPH-D identified in environmental samples (17,000 ppm), and the assumption that fresh diesel fuel consists of 0.13% naphthalene by volume (LUFT Manual).

ASTM's Tier 1 RBSL Look-Up Table with values corrected for CalEPA's toxicity criteria does *not* indicate that naphthalene concentrations exceed the chronic hazard quotient (HQ) for the conservative exposure pathway and receptor scenario for soil-vapor intrusion into *residential* buildings. Further, no other soil media exposure pathways HQs (i.e., vapor intrusion into residential buildings, ingestion/dermal contact) for remaining target compounds (i.e., TEX) were exceeded.

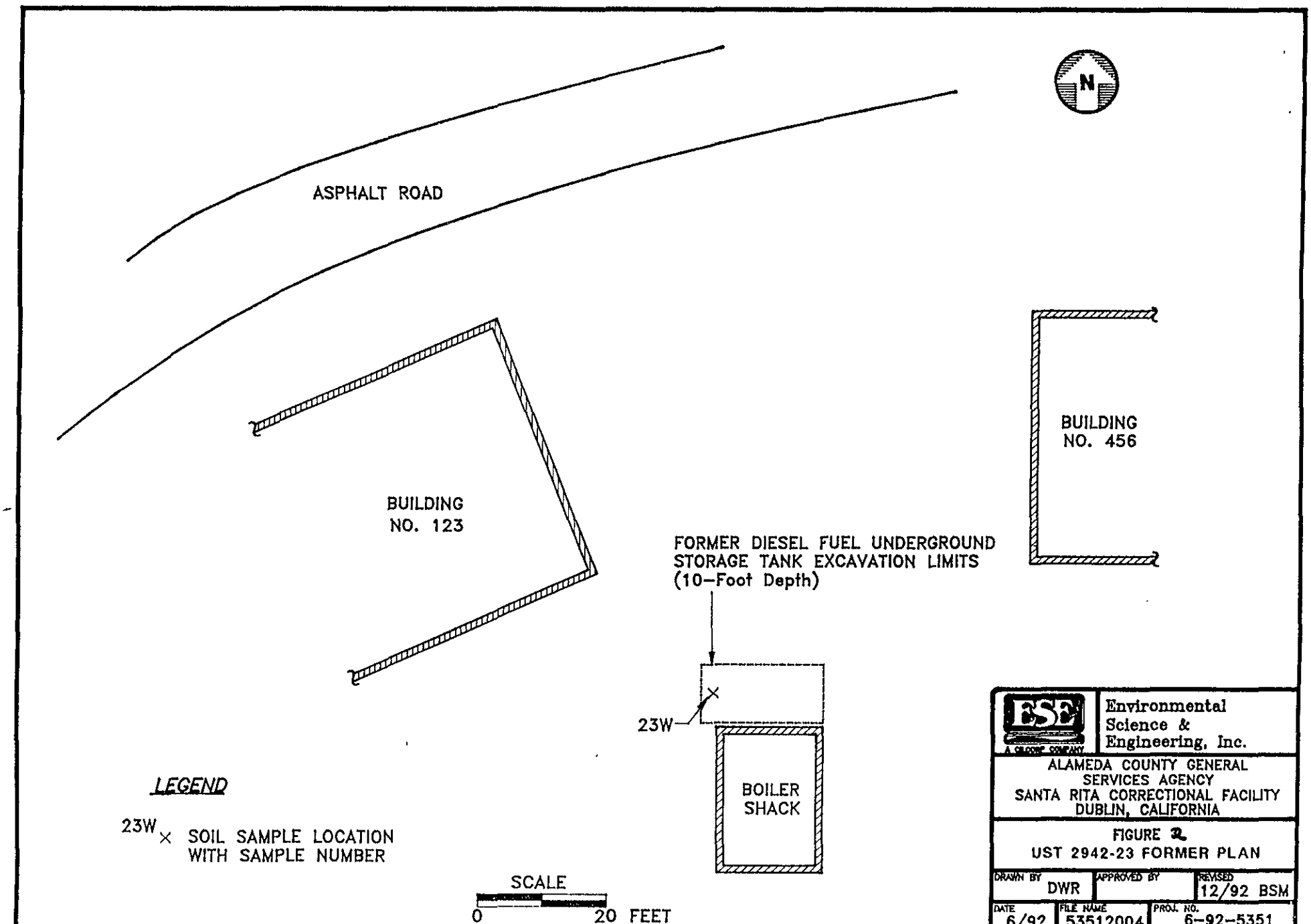
The assessment concludes that only *construction workers* may come into contact with affected material should excavations be advanced to significant depth and material exposed in the future. The assessment further concludes that dermal/oral exposure to exposed soil does not pose a health risk, *even if exposure lasts a lifetime.*

The SESOIL model predicted that naphthalene will essentially be immobile at the site, migrating at a maximum rate of 0.02 centimeters per year. For completion of the SESOIL model, it was assumed that naphthalene comprised 1.0% of the TPH-D mixture, a conservative approach. The model, therefore, predicts that GW in the Camp Subbasin is not at risk from this release.



ADAPTED FROM U.S.G.S. DUBLIN AND LIVERMORE 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1980.

ESE A CILCORP Company — Environmental Science & Engineering, Inc.	DATE 1/94	LOCATION MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	ALAMEDA COUNTY GENERAL SERVICES AGENCY SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA	PROJ. NO. 6-93-5073
	CAD FILE 50731001		



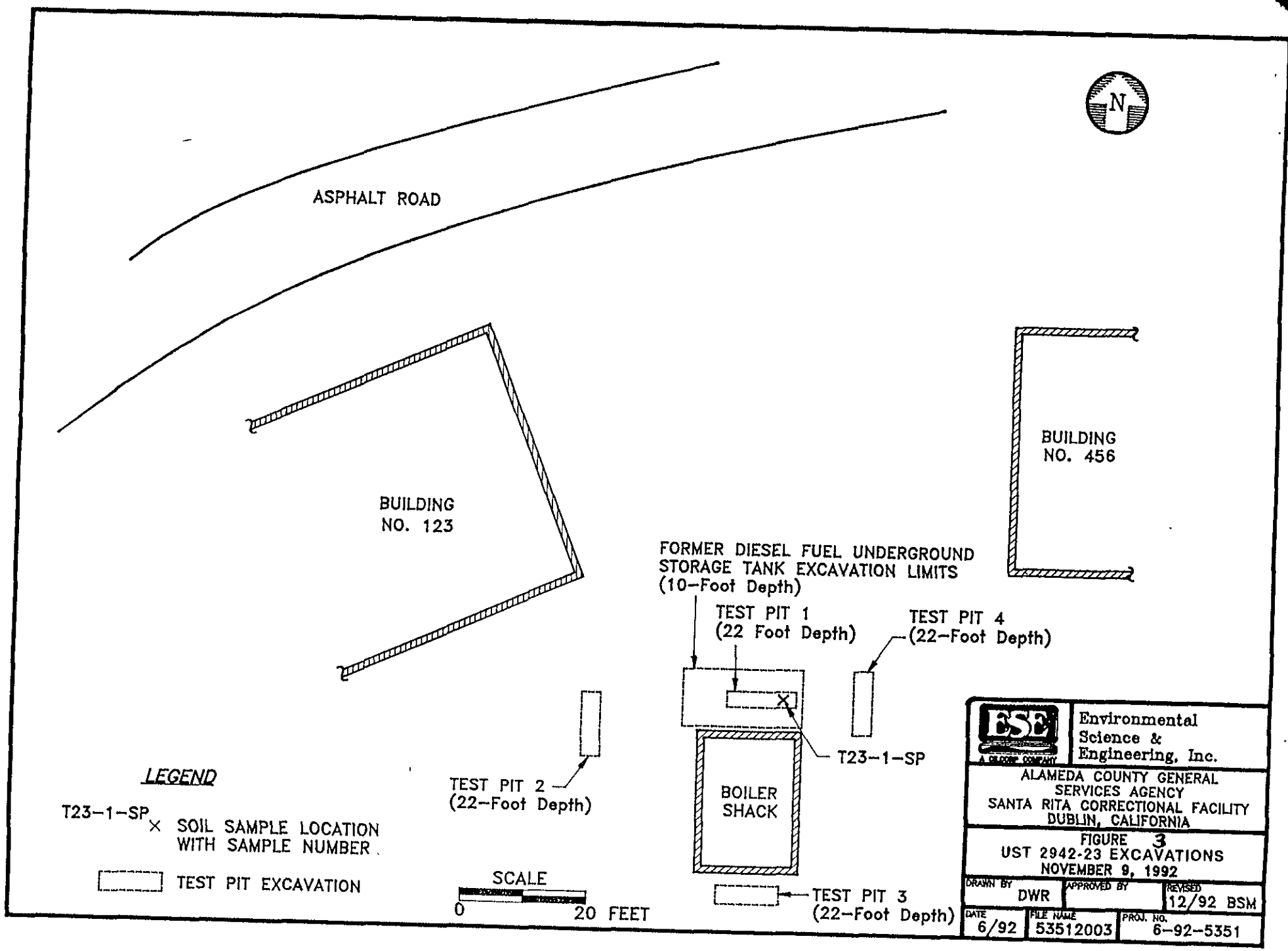
ESE A GILBANE COMPANY
Environmental Science & Engineering, Inc.

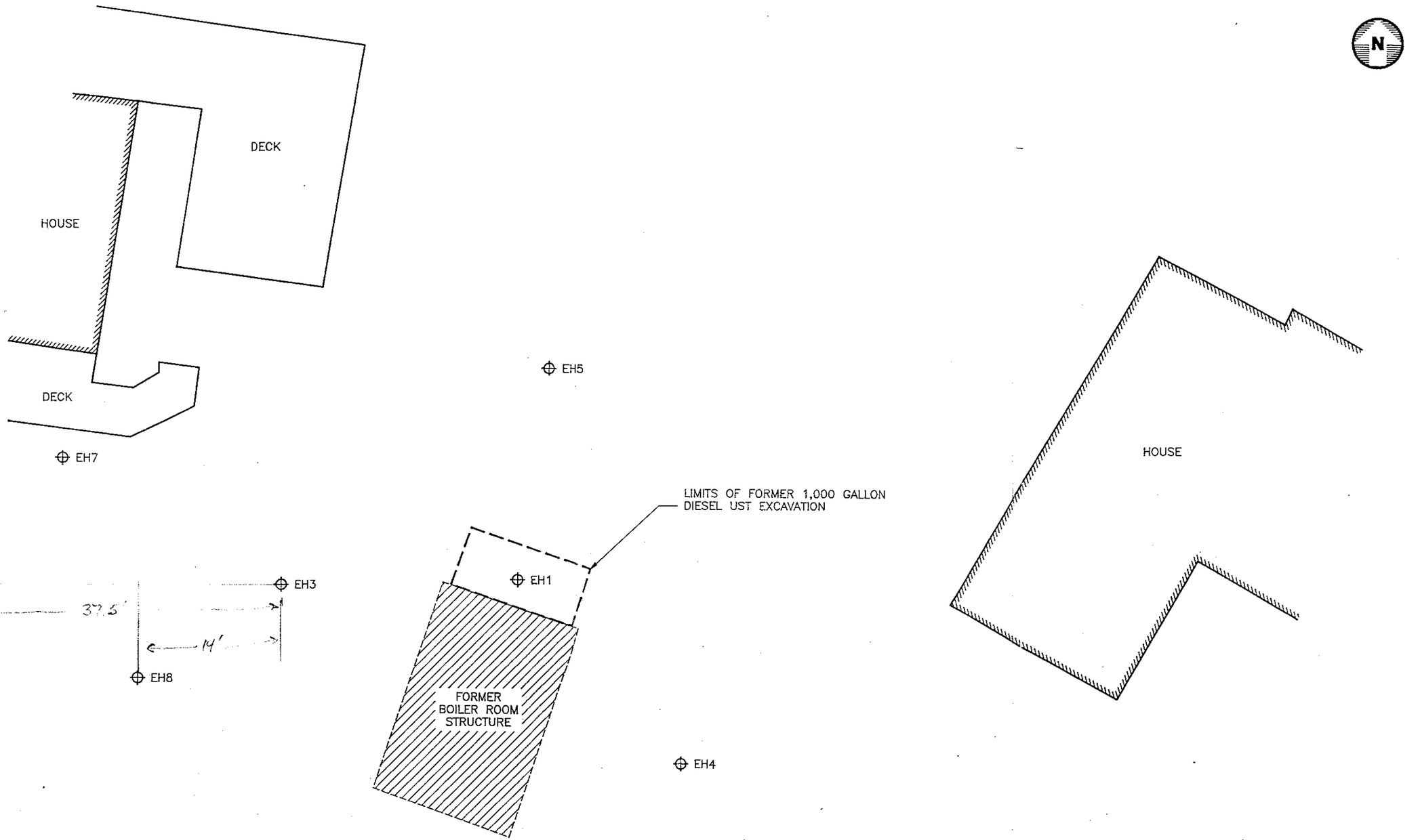
ALAMEDA COUNTY GENERAL SERVICES AGENCY
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA

FIGURE 2
UST 2942-23 FORMER PLAN

DRAWN BY	APPROVED BY	REVISED
DWR		12/92 BSM

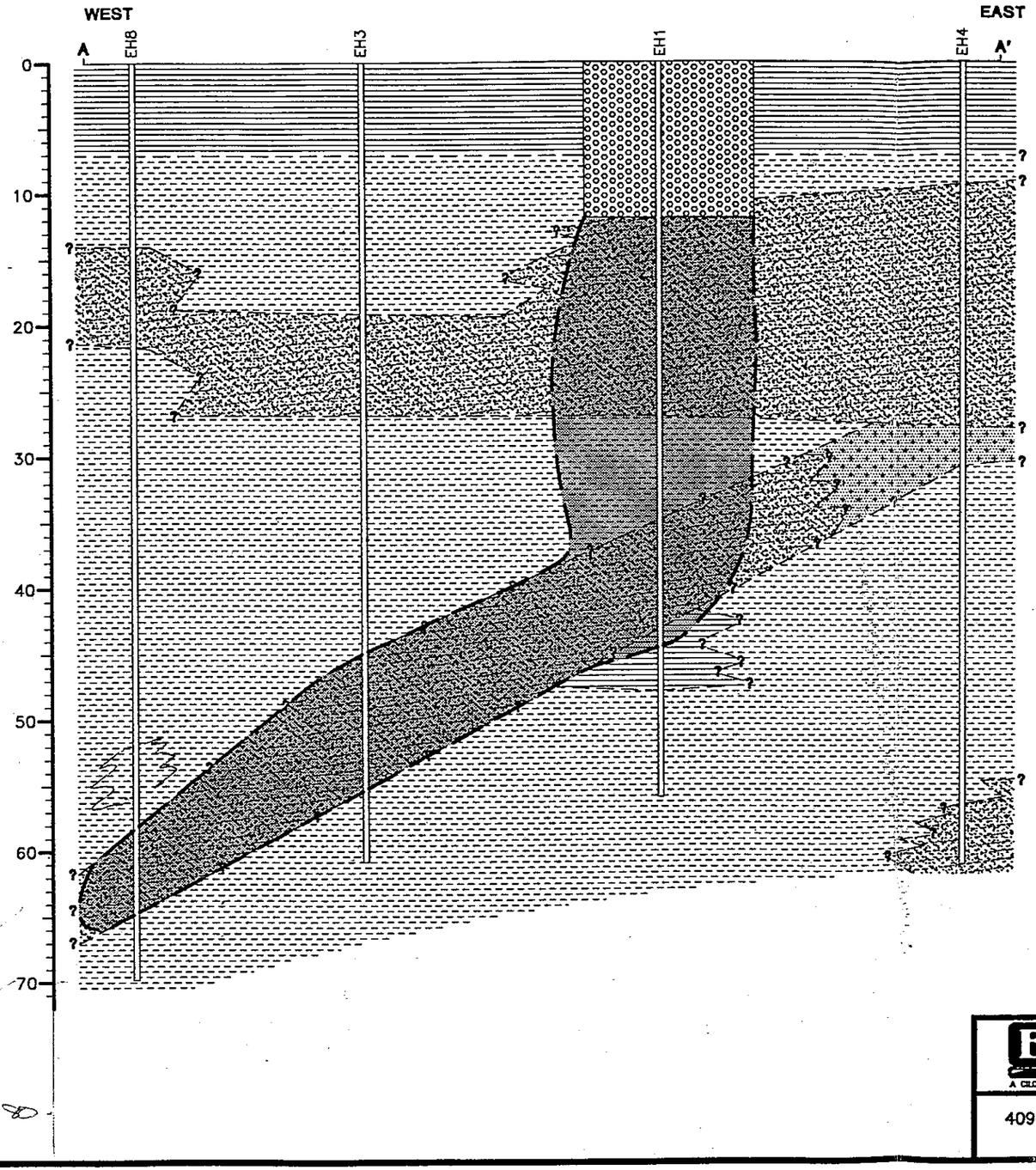
DATE	FILE NAME	PROJ. NO.
6/92	53512004	6-92-5351

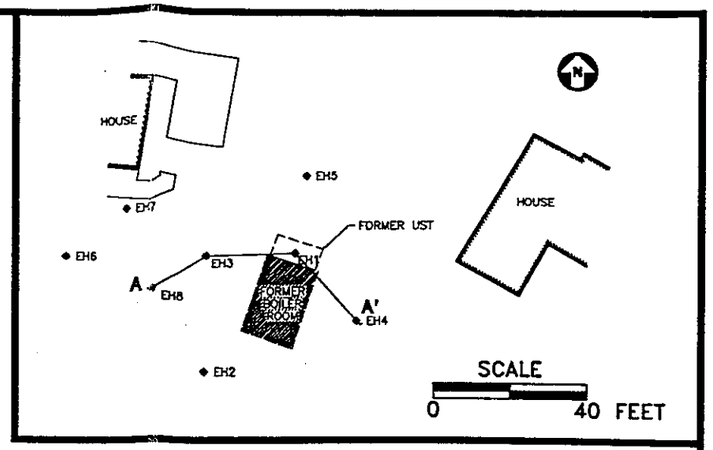

N
ASPHALT ROAD
BUILDING NO. 123
BUILDING NO. 456
FORMER DIESEL FUEL UNDERGROUND STORAGE TANK EXCAVATION LIMITS (10-Foot Depth)
TEST PIT 1 (22 Foot Depth)
TEST PIT 4 (22-Foot Depth)
T23-1-SP
TEST PIT 2 (22-Foot Depth)
BOILER SHACK
TEST PIT 3 (22-Foot Depth)
LEGEND
T23-1-SP × SOIL SAMPLE LOCATION WITH SAMPLE NUMBER
TEST PIT EXCAVATION
SCALE
0
20 FEET
ESE
A CH2M HILL COMPANY
Environmental Science & Engineering, Inc.
ALAMEDA COUNTY GENERAL SERVICES AGENCY
SANTA RITA CORRECTIONAL FACILITY
DUBLIN, CALIFORNIA
FIGURE 3
UST 2942-23 EXCAVATIONS
NOVEMBER 9, 1992
DRAWN BY DWR
APPROVED BY
REVISED 12/92 BSM
DATE 6/92
FILE NAME 53512003
PROJ. NO. 6-92-5351



ESE A CILCORP Company — Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 1/94 REVISED CAD FILE 50731003	SITE PLAN ALAMEDA COUNTY GENERAL SERVICES AGENCY SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA	FIGURE NO. 4 PROJ. NO. 6-93-5073

EH6

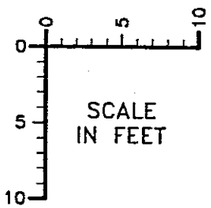




LEGEND

- UST EXCAVATION BACKFILL
- SAND, PEBBLY SAND, SILTY SAND
- SILT, SANDY SILT
- CLAY, SILTY CLAY
- GRAVEL
- ESTIMATED LIMITS OF PLUME OF DIESEL-IMPACTED SOIL IN UNSATURATED ZONE

EH1 SOIL BORING LOCATION



70

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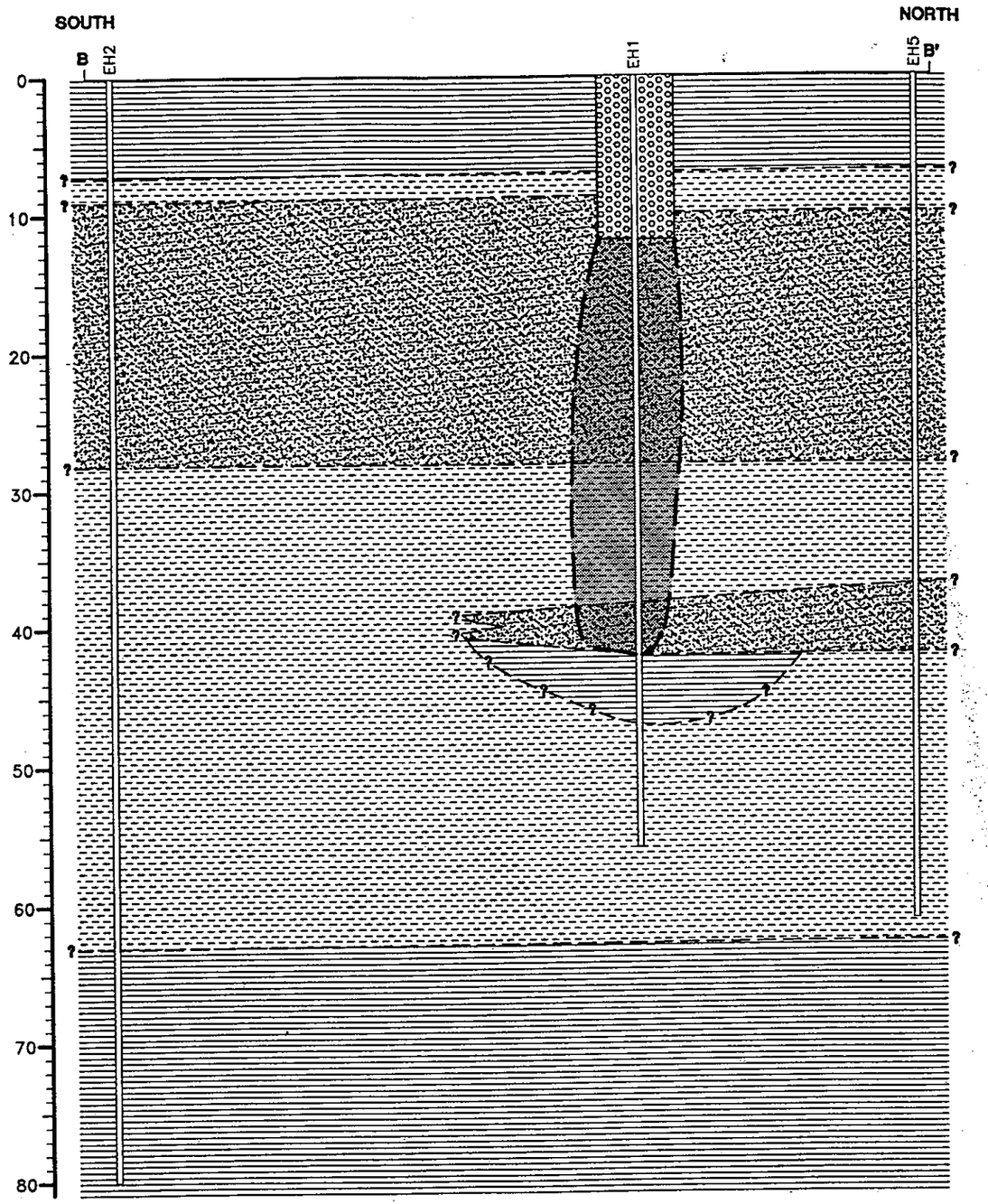
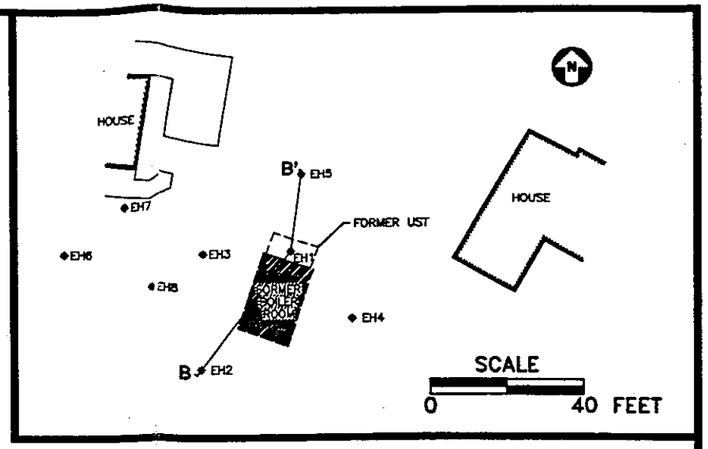
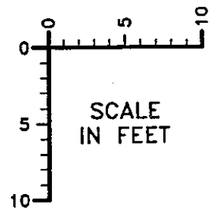
ESE A CILCORP Company — Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 2/94 REVISED 5/94 BSM CAD FILE 50731004	EAST-WEST ORIENTED SCHEMATIC CROSS-SECTION ALAMEDA COUNTY GENERAL SERVICES AGENCY SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA	FIGURE NO. 5 PROJ. NO. 6-93-5073



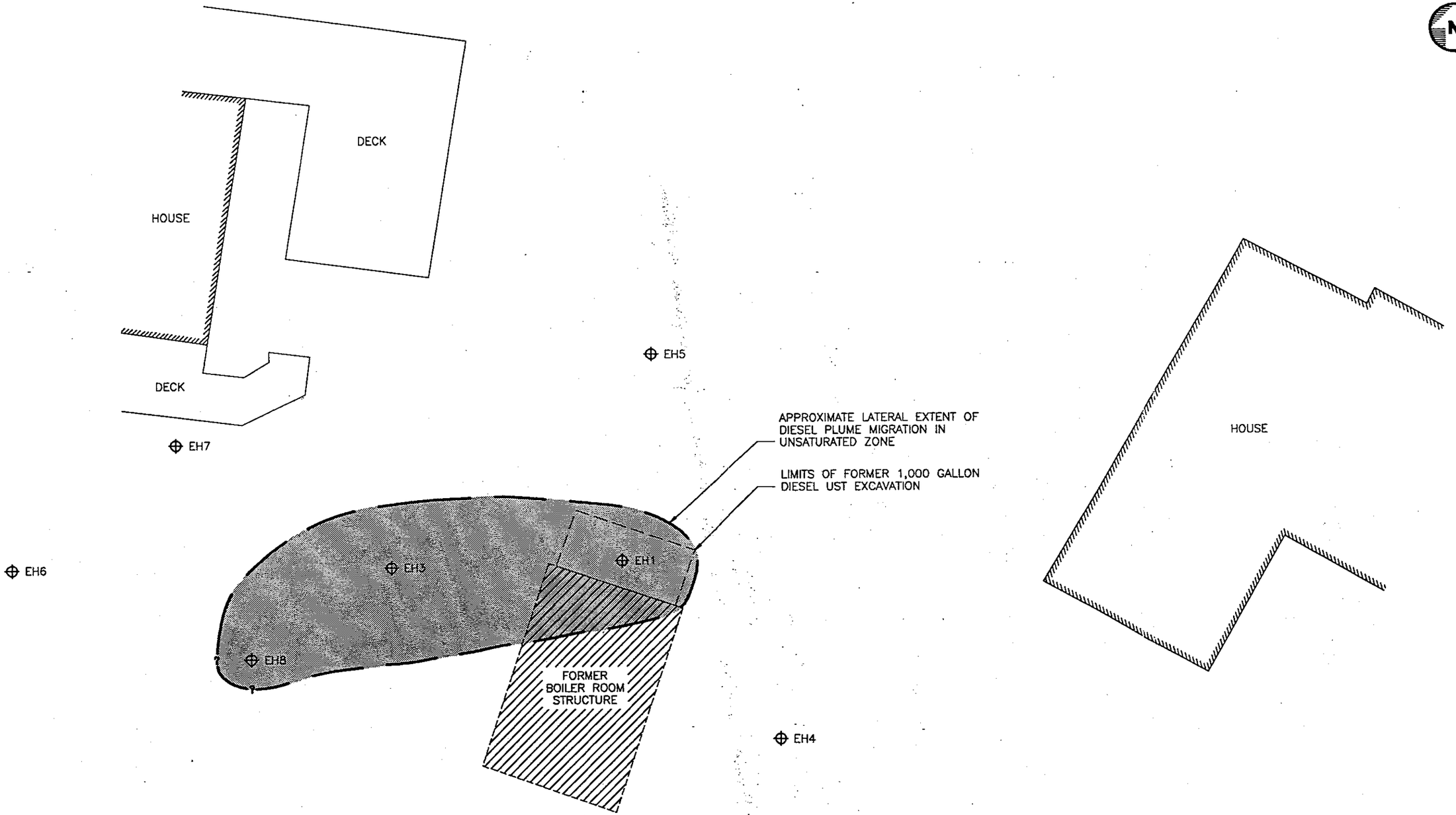


LEGEND

- UST EXCAVATION BACKFILL
- SAND, PEBBLY SAND, SILTY SAND
- SILT, SANDY SILT
- CLAY, SILTY CLAY
- GRAVEL
- ESTIMATED LIMITS OF PLUME OF DIESEL-IMPACTED SOIL IN UNSATURATED ZONE
- EH1 — SOIL BORING LOCATION



ESE A CILCORP Company — Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 2/94 REVISED 5/94 BSM CAD FILE 50731006	NORTH-SOUTH ORIENTED SCHEMATIC CROSS-SECTION ALAMEDA COUNTY GENERAL SERVICES AGENCY SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA	FIGURE NO. 6 PROJ. NO. 6-93-5073



ESE A CILCORP Company — Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 2/94 REVISED 5/94 BSM CAD FILE 50731008	DIESEL PLUME IN UNSATURATED ZONE ALAMEDA COUNTY GENERAL SERVICES AGENCY SANTA RITA CORRECTIONAL FACILITY DUBLIN, CALIFORNIA	FIGURE NO. 7 PROJ. NO. 6-93-5073

TABLES

TABLE 1

ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED FROM BORINGS

Borehole No.	Depth (feet)	TPH-D (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)
EH1	5	50	-	-	-	-
	10	220	-	-	-	-
	15	3,100	ND	ND	0.60	4.0
	20	17,000	ND	ND	ND	0.53
	25	3,900	ND	ND	ND	0.24
	30	66	ND	ND	ND	0.017
	35	27	ND	ND	ND	ND
	40	1,800	ND	ND	0.016	0.11
	45	ND	ND	ND	ND	ND
	50	ND	-	-	-	-
	55	ND	-	-	-	-
EH2	10	ND	-	-	-	-
	20	ND	-	-	-	-
	30	ND	-	-	-	-
	40	ND	-	-	-	-
	50	ND	-	-	-	-
	60	ND	-	-	-	-
EH3	10	ND	-	-	-	-
	20	ND	-	-	-	-
	30	ND	-	-	-	-
	40	ND	-	-	-	-
	50	5,600	ND	0.022	0.043	0.30
	60	ND	ND	ND	ND	ND

TABLE 1 (CONTINUED)

ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED FROM BORINGS

Borehole No.	Depth (feet)	TPH-D (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)
EH4	10	ND	-	-	-	-
	20	ND	-	-	-	-
	30	ND	-	-	-	-
	40	ND	-	-	-	-
	50	ND	-	-	-	-
	60	ND	-	-	-	-
EH5	10	ND	-	-	-	-
	20	ND	-	-	-	-
	30	ND	-	-	-	-
	40	ND	-	-	-	-
	50	~~5,600~~ ND	~~ND~~ NA	~~0.022~~ NA	~~0.043~~ NA	~~0.30~~ NA
	60	ND	ND	ND	ND	ND

? Same EH3 samples

NOTES:

- TPH-D refers to total petroleum hydrocarbons as diesel as analyzed using EPA Method 8015 (modified per CA LUFT)
- ND refers to not detected at method lower detection limit
- mg/Kg refers to concentration in milligrams per kilogram

TABLE 1

ANALYTICAL RESULTS OF SOIL SAMPLES COLLECTED FROM BORINGS

Borehole No.	Depth (feet)	TPH-D (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)
EH6	72	ND	ND	ND	ND	ND
	80	ND	ND	ND	ND	ND
EH7	75	ND	ND	ND	ND	ND
EH8	60	590	ND	0.008	0.020	0.37
	63	3,900	ND	0.030	0.085	0.44
	65	ND	ND	ND	ND	ND

NOTES

- TPH-D refers to total petroleum hydrocarbons as diesel fuel as analyzed using method EPA 8015 (modified per CA LUFT)
- Benzene, Toluene, Ethylbenzene, and Total Xylenes analyzed using method EPA 8020
- ND refers to concentration not detected at lower method detection limit
- mg/Kg refers to concentration in milligrams per kilogram

CHROMALAB, INC.

Environmental Laboratory (1094)

UST closure sample 23W

5 DAYS TURNAROUND

November 14, 1992 ChromaLab File No.: 1192066

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Attn: Pat Galvin

RE: One soil sample for Diesel analysis .

Project Name: ALAMEDA COUNTY - SANTA RITA JAIL
Project Number: 6-92-5423
Date Sampled: Nov. 9, 1992 Date Submitted: Nov. 9, 1992
Date Extracted: Nov. 12, 1992 Date Analyzed: Nov. 12, 1992

RESULTS:

Sample I.D.	Diesel (mg/Kg)
T23-1-SP	1400
BLANK	N.D.
SPIKE RECOVERY	83%
DUP SPIKE RECOVERY	84%
DETECTION LIMIT	1.0
METHOD OF ANALYSIS	3550/8015

ChromaLab Inc.,

Yiu Tam
Analytical Chemist

Eric Tam
Laboratory Director

cc

2239 Omega Road,#1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Laboratory (1094)

UST closure sample 23 W

NOV 25

5 DAYS TURNAROUND

November 17, 1992 ChromaLab File No.: 1192066

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Attn: Pat Galvin

RE: One soil sample for BTEX analysis

Project Name: ALAMEDA COUNTY - SANTA RITA JAIL
Project Number: 6-92-5423
Date Sampled: Nov. 9, 1992 Date Submitted: Nov. 9, 1992
Date Analyzed: Nov. 13, 1992

RESULTS:

Sample I.D.	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)
T23-1-SP	N.D.	N.D.	17	45
BLANK	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	115%	118%	118%	100%
DUP SPIKE RECOVERY	107%	106%	93%	97%
DETECTION LIMIT	5.0	5.0	5.0	5.0
METHOD OF ANALYSIS	8020	8020	8020	8020

ChromaLab, Inc.

Billy Thach
Analytical Chemist

Eric Tam
Laboratory Director

do

2239 Omega Road,#1 • San Ramon, California 94583
(510) 831-1788 • Facsimile (510) 831-8798
Federal ID #68-0140157