RO-017

ENSR
Consulting • Engineering • Remediation

10324 Placer Lane
Suite 200
Sacramento, CA 95827
(916) 362-7100
FAX (916) 362-8100
http://www.ensr.com

ENVIRONMENTAL PROTECTION
00 JUN 21 AM 9:36

Most Recent

June 19, 2000

Mr. Scott Seery, CHMM
Environmental Protection Division, Suite 250
Alameda County Environmental Health Department
1131 Harbor Bay Parkway
Alameda, California 94502

Subject: **RBCA–style Risk Assessment Work Plan, Ingersoll-Rand Equipment Sales Facility,** 1944 Marina Boulevard, San Leandro, California

Dear Mr. Seery:

ENSR is submitting this work plan on behalf of Ingersoll-Rand Equipment Sales (I-R) to Alameda County for review and approval. The work plan describes the purpose and methodology for development of a Risk Based Corrective Action (RBCA)–style risk assessment for the I-R facility located in San Leandro, California.

Introduction

Corrective action activities have been ongoing at the I-R Equipment Sales facility at 1944 Marina Boulevard since 1989. These activities address impacted soil and groundwater associated with the 1989 removal of a leaking gasoline underground storage tank and include a RBCA risk assessment conducted in October 1997. A site closure recommendation was submitted to Alameda County in the fall of 1997.

On April 3, 1998, Alameda County issued a letter requiring that additional investigative studies be done to identify additional potential sources of the gasoline constituents found in the groundwater beneath the northern part of the site. In response to this letter an investigation was completed in November 1999. It is, therefore, necessary to provide a new assessment of potential risk for the site, incorporating the most recent data, in order to facilitate reasonable and appropriate corrective action decisions for the I-R facility.

Work Plan Objectives

In response to the April 3, 1998 letter and to continue efforts to obtain closure, I-R has requested that ENSR perform an updated RBCA assessment for the site. The objectives of the proposed work are to:

1. Provide an assessment of the potential risk associated with existing site conditions; and
2. Incorporate new data collected since the completion of the 1997 RBCA.

Task 4 - Report

A risk assessment report will be produced that provides detail on the methods and models used and the exposure parameters incorporated into the estimation of potential risk. There is the potential for two outcomes of the assessment:

1. Potential risk associated with certain chemical concentrations at the site is found to be unacceptable and additional investigation or corrective action is needed; or

2. Potential risk is found to be within an acceptable range and no further activities are required for the site.

Schedule

ENSR is prepared to begin the RBCA model as soon as the work plan is approved. The assessment can be completed within one month of receiving approval of the work plan.

Sincerely,
ENSR

Bob Wilson for

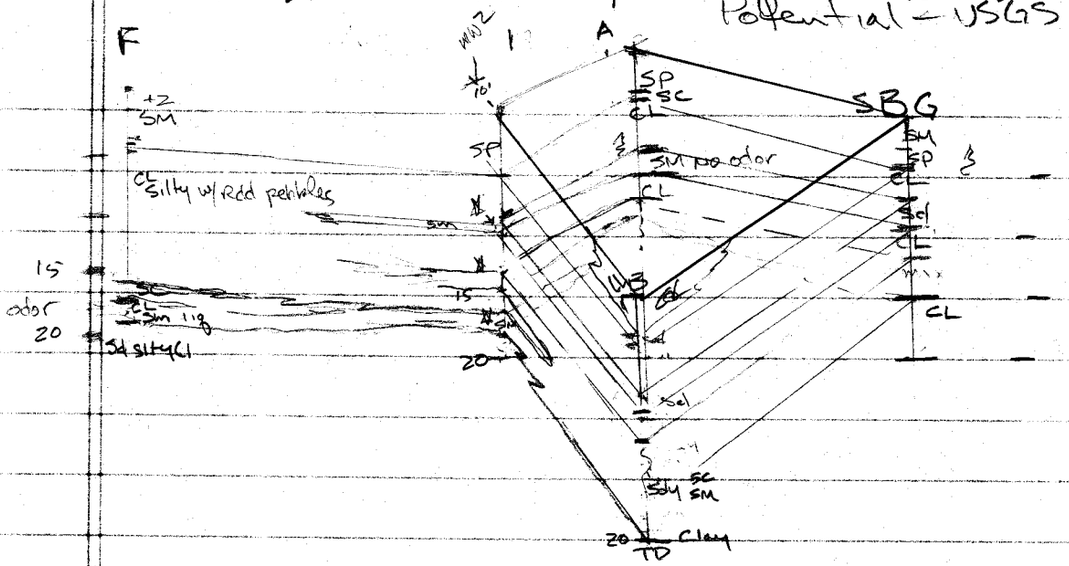
Liz Caldwell
Senior Risk Assessment Specialist

Mark H. Naugle, P.E.
Project Manager

cc: Bob Heindl, Ingersoll-Rand Construction and Mining
Dave Jones, Ingersoll-Rand Company
Aaron Kleinbaum, Ingersoll-Rand Company

2003

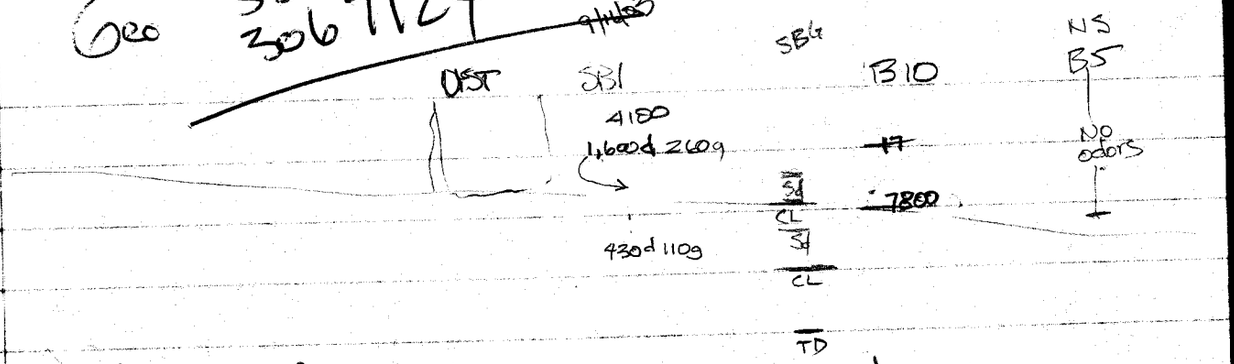
Liquifaction? Potential – USGS



SB-B fine or vf sd?

How Did the Napl Show up in SB1 13' & 16'?
its Noted @ 9' too.

Geo 530 3067124



SBG Running Sand @ 8.5-9.5 SM fine grained.
Grades to silty Cl @ 10.5-11

Running Sand @ 12.2 SM Grades to silty Cl @ 15.2

Ingersol Rand Co 1944 Marina Blvd San Leandro

Corres. Most Recent 7/9/99 Notification of July 15 & 16
Geophysics & Geoprobe work
6/7/99 WP approval - Geophys & Geo probe
4/10/1989 Notification of failed Tank test

SW1-R- 99-01-05 Geophical Survey
Most recent 02-22

WP-R-2000-06-19 — RBCA-style Risk Assesment workplan
Most Recent

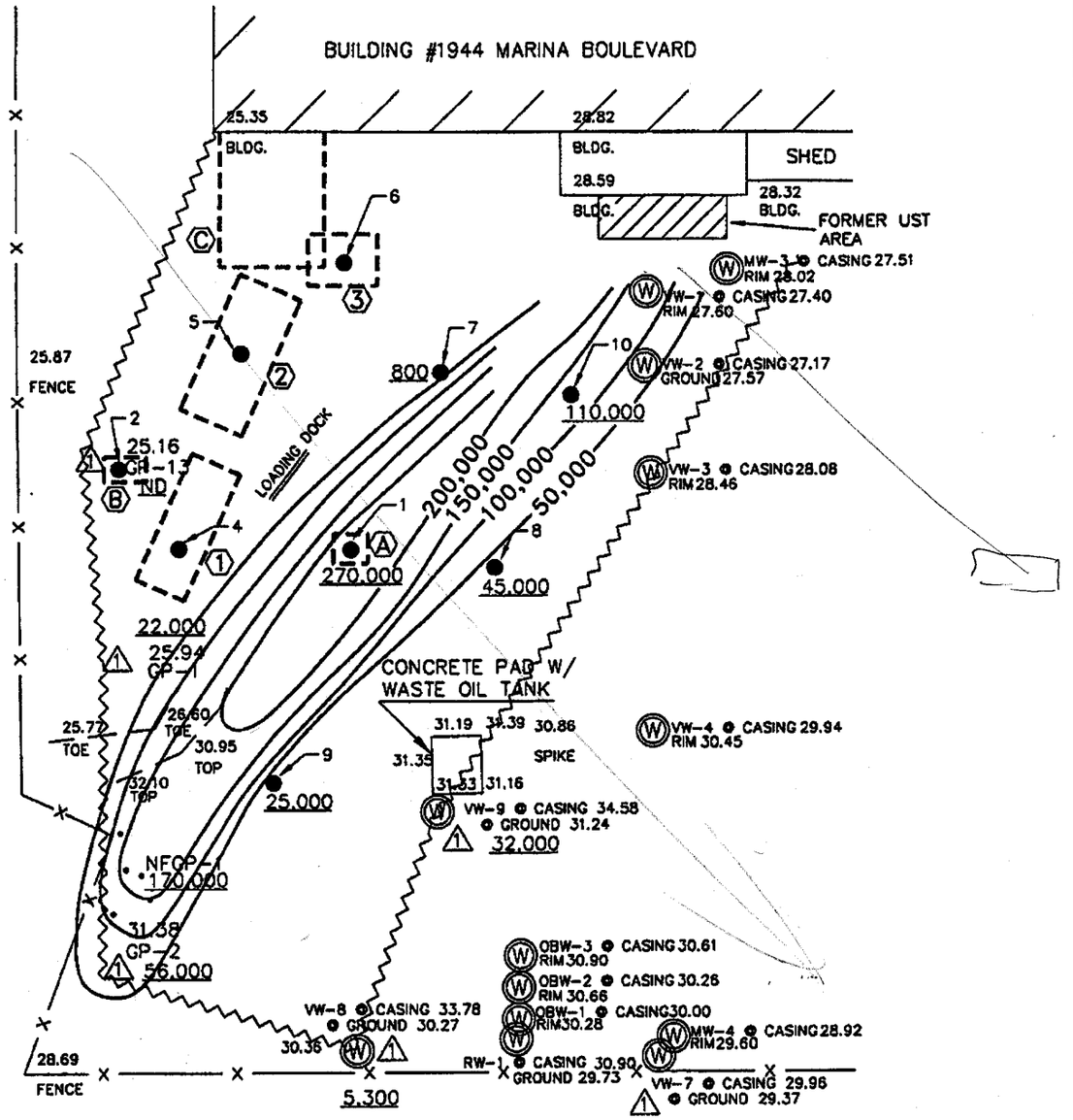
Well-CST-R- 1992-10-28 Two ~~Bl~~ w/30' screen 20-50 ft
most recent
GWM-R- 1999-11-01 Critical Area investigation w/grab samples

GWM-R-1998-7-24

Risk-R-1997-10-16 "Low Risk gw Case" per RZ guideline

SW1-R- 1991-01-04 mw1-4 + CC Logs

ENSR Contact Mark Capps 916 2071290 cell
362 7100 office



LEGEND:

T.C.	TOP OF CURB
⌐⌐	BUILDING LINE
T/W	TOP OF WALL
B/W	BASE OF WALL
-x-	FENCE LINE
Ⓦ	WELL
E.P.	EDGE OF PAVEMENT
TOP	TOP OF BANK
TOE	TOE OF SLOPE
~~	CRITICAL AREA BOUNDARY
56.000	TPH AS GASOLINE (ugl.) IN WATER SAMPLE
●	PROBE LOCATION
Ⓐ	GEOPHYSICAL ANOMALY
[- - -]	APPROXIMATE ANOMALY BOUNDARY

GRAPHIC SCALE

20 0 20 40

(IN FEET)

1 INCH = 40 FEET

CAPSULE

ENVIRONMENTAL ENGINEERING, INC.

1970 OAKCREST AVE., SUITE 215

ST. PAUL, MINNESOTA 55113

(612) 636-2644

TITLE: CRITICAL AREA INVESTIGATION REPORT
TPH AS GASOLINE
INGERSOLL-RAND COMPANY
SAN LEANDRO, CALIFORNIA

DRAWN BY:	CHECKED BY:	DATE:	PROJECT NO.:	DRAWING NO.:	FIGURE:
TCD	JJM	9/14/99	001-327	375-02	2

FIGURE 7
Sum of BETX Compounds and Contours

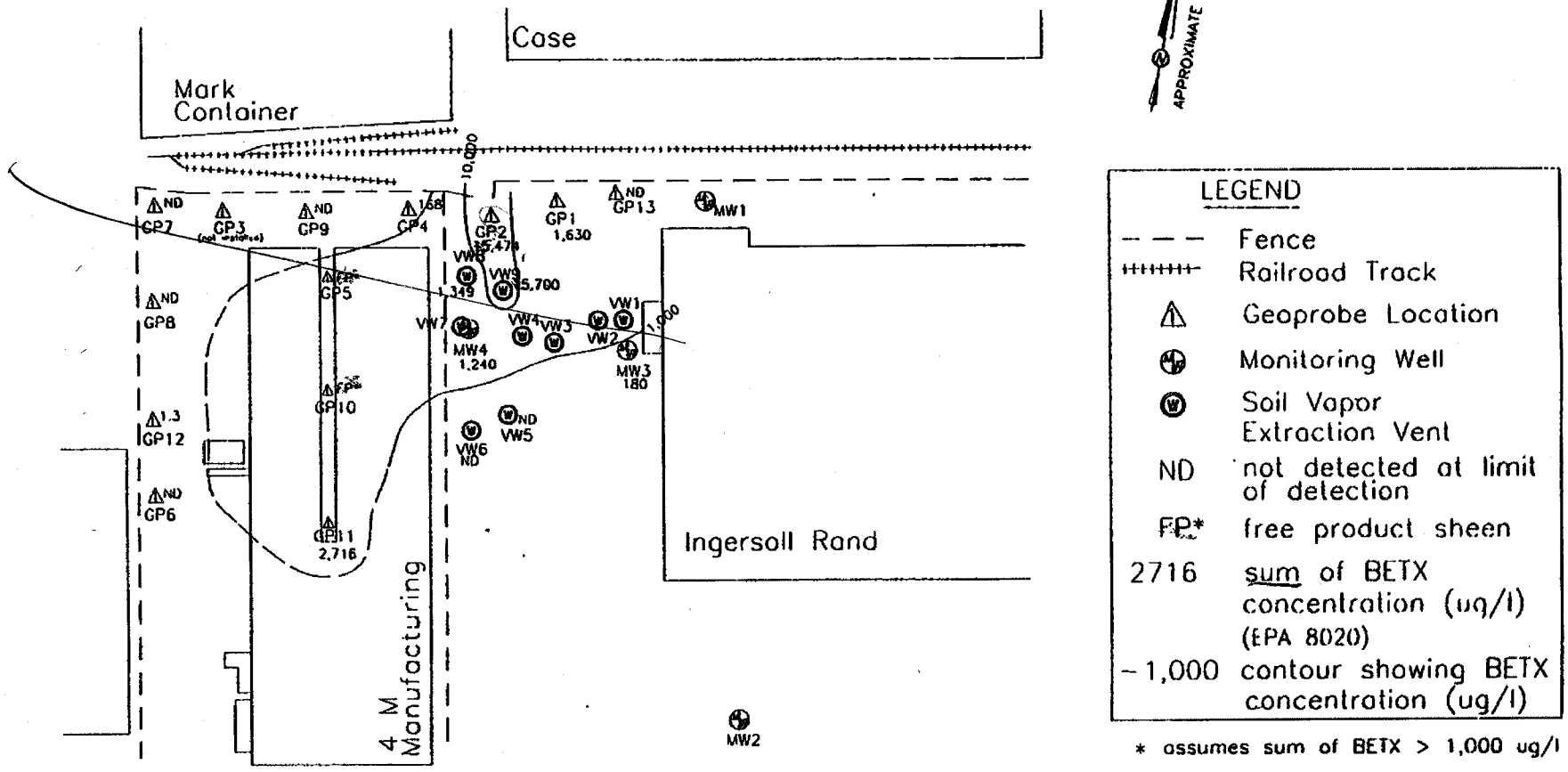


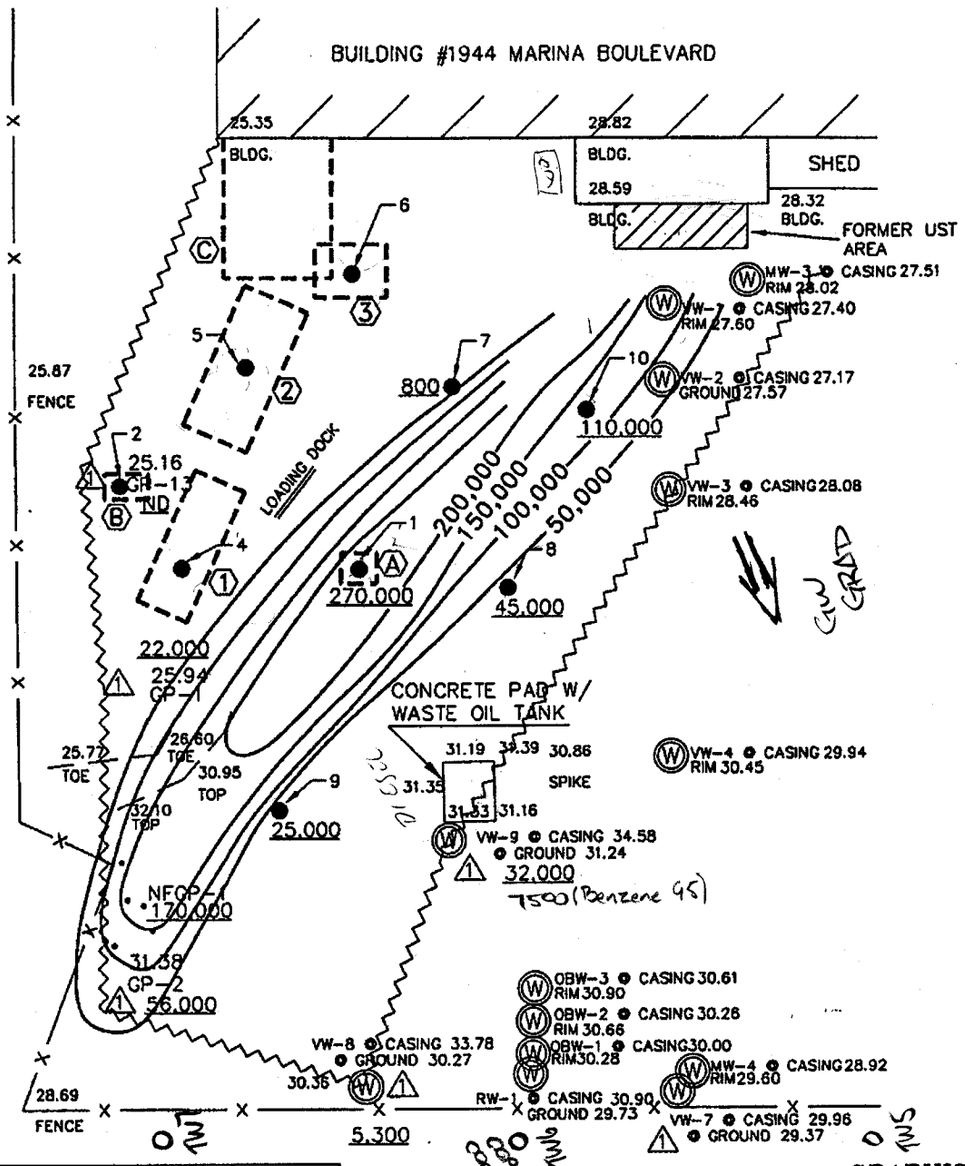
Figure 7
Extent of BETX Compounds from 1995 Geoprobe Investigation
IRES, San Leandro, CA

CAPSULE
ENVIRONMENTAL ENGINEERING, INC.
1199 BANDIGO AVE., SUITE 204
ST. PAUL, MINNESOTA 55108
(612) 644-9644

TITLE
SAN LEANDRO, CA
Sum of BETX Compounds and Contours

SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO	DRAWING NO	SHEET

9/99



LEGEND:

T.C.	TOP OF CURB
⌐⌐	BUILDING LINE
T/W	TOP OF WALL
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-x-	FENCE LINE
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~~	CRITICAL AREA BOUNDARY
56,000	TPH AS GASOLINE (ugl.) IN WATER SAMPLE
●	PROBE LOCATION
Ⓐ	GEOPHYSICAL ANOMALY
[- - -]	APPROXIMATE ANOMALY BOUNDARY

GRAPHIC SCALE

20 0 20 40

(IN FEET)
1 INCH = 40 FEET

APPROXIMATE NORTH

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1970 OAKCREST AVE., SUITE 215
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TITLE: CRITICAL AREA INVESTIGATION REPORT
TPH AS GASOLINE
INGERSOLL-RAND COMPANY
SAN LEANDRO, CALIFORNIA

DRAWN BY:	CHECKED BY:	DATE:	PROJECT NO.:	DRAWING NO.:	FIGURE:
TCD	JJM	9/14/99	001-327	375-02	2

North Property line

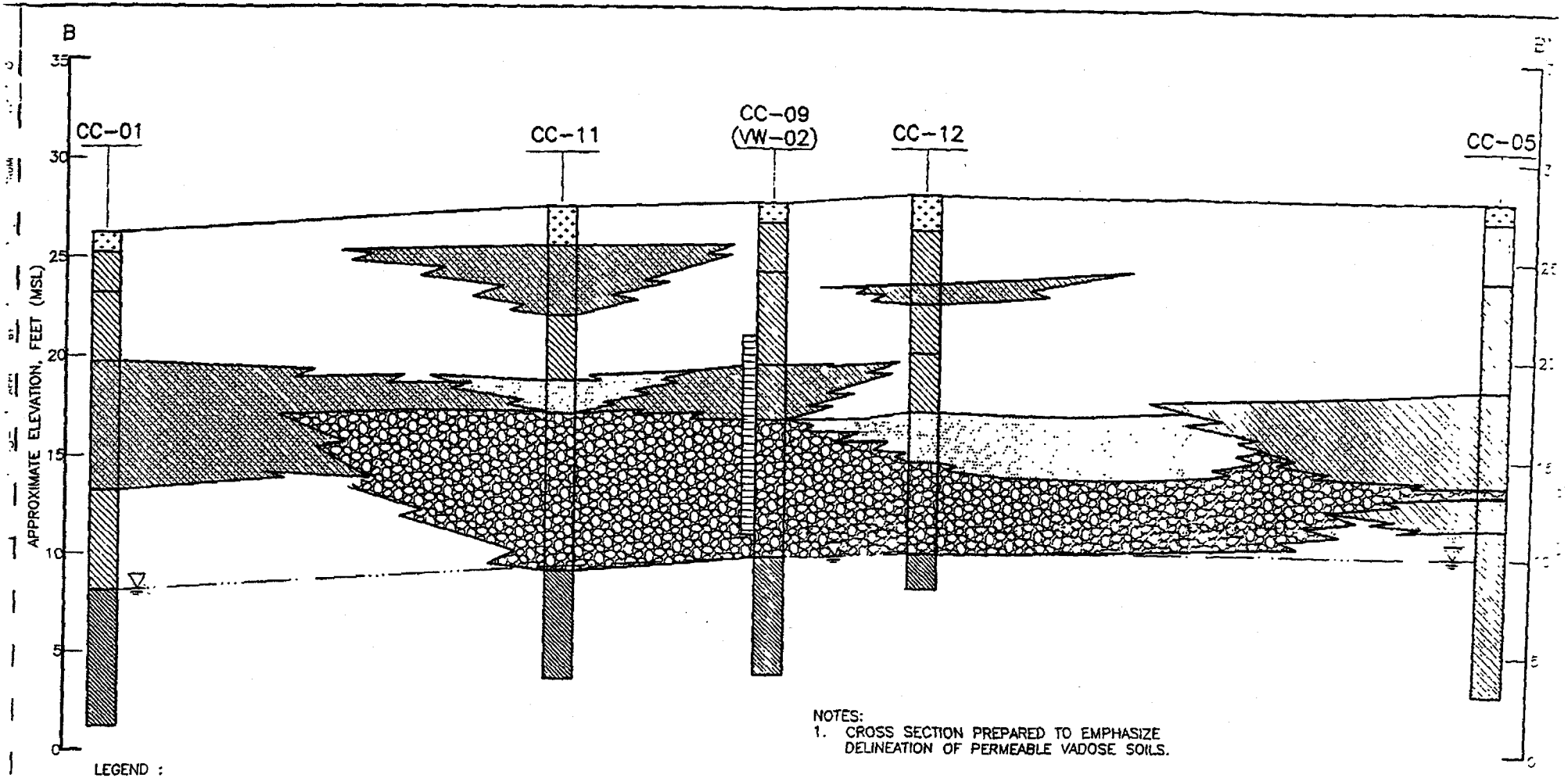
Table 1

Title: Summary of VOCs From 1999 Ground Water Samples
Project: IRES, San Leandro, CA 001-327
Prepared by: John McDermott, Capsule Environmental Engineering
Date prepared: August 13, 1999

Background: This spreadsheet summarizes the detected EPA Method 8260 and 8015M/8020 analyte concentrations for geoprobe holes installed as part of the 1999 critical area investigation.

		Detected Analyte								
Probe Number	**Date**	**benzene (ug/l)**	**ethyl-benzene (ug/l)**	**isopropyl-benzene (ug/l)**	**toluene (ug/l)**	**1,2,4-trimethyl-benzene (ug/l)**	**1,3,5-trimethyl-benzene (ug/l)**	**m,p xylenes (ug/l)**	**o xylene (ug/l)**	**TPH g (ug/l)**
1999 Investigation										
CAGP-1	7/15/99	<100	10,000	1,500	<100	35,000	11,000	24,000	300	270,000
CAGP-7	7/15/99	<1	18	3	2	42	12	20	<1	800
CAGP-8	7/15/99	280	2,500	150	<50	2,700	630	3,000	<50	45,000
CAGP-9	7/15/99	<20	690	150	<20	2,000	530	250	<20	25,000
CAGP-10	7/15/99	<70	2,700	210	250	5,900	1,700	9,300	1,200	110,000
Field blank	7/15/99	<1	<1	<1	<1	<1	<1	<2	<1	ND
Trip blank		<1	<1	<1	<1	<1	<1	<2	<1	ND

ND <50 ug/l



NOTES:
1. CROSS SECTION PREPARED TO EMPHASIZE DELINEATION OF PERMEABLE VADOSE SOILS.

LEGEND :

- SP – POORLY GRADED SAND
- SC – CLAYEY SAND
- GW – WELL GRADED GRAVEL
- ASPHALT
- ML – LOW PLASTICITY SILT
- MH – HIGH PLASTICITY SILT
- CL – LOW PLASTICITY CLAY
- CH – HIGH PLASTICITY CLAY
- APPROXIMATE WATER TABLE LEVEL
- SCREENED INTERVAL FOR SOIL VAPOR OR GROUNDWATER MONITORING WELLS

APPROXIMATE HORIZONTAL SCALE

0 20 40 FEET

APPORXIMATE VERTICAL SCALE

0 5 10 FEET

VERTICAL EXAGGERATION = 4X

FIGURE 5

GEOLOGIC CROSS SECTION B–B'
OCTOBER 1990

PREPARED FOR

INGERSOLL–RAND CORPORATION
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

IR-SECTB(IRS)

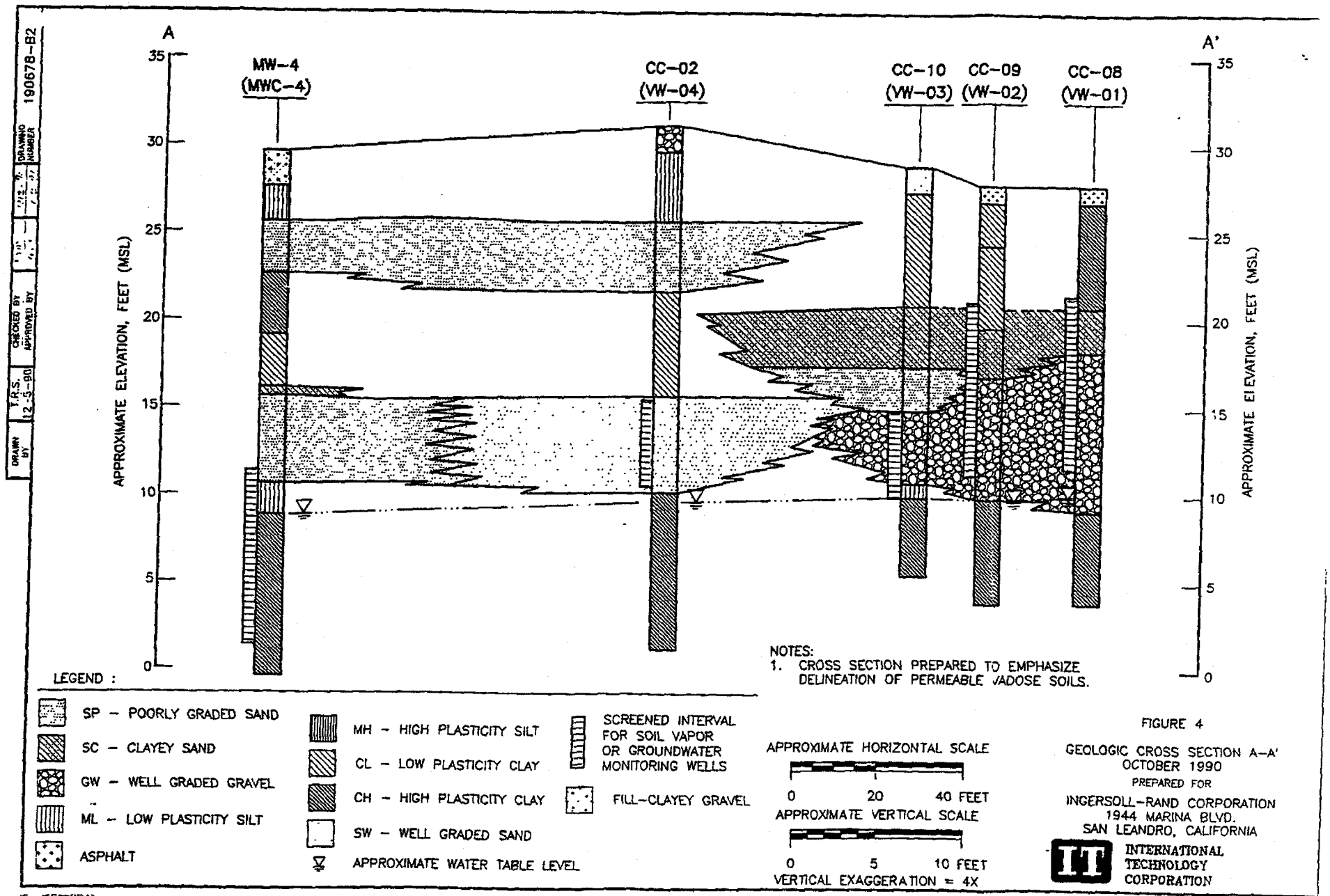


FIGURE 4

GEOLOGIC CROSS SECTION A–A'
OCTOBER 1990
PREPARED FOR
INGERSOLL–RAND CORPORATION
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA

INTERNATIONAL TECHNOLOGY CORPORATION

IR-(SECT(IR4)

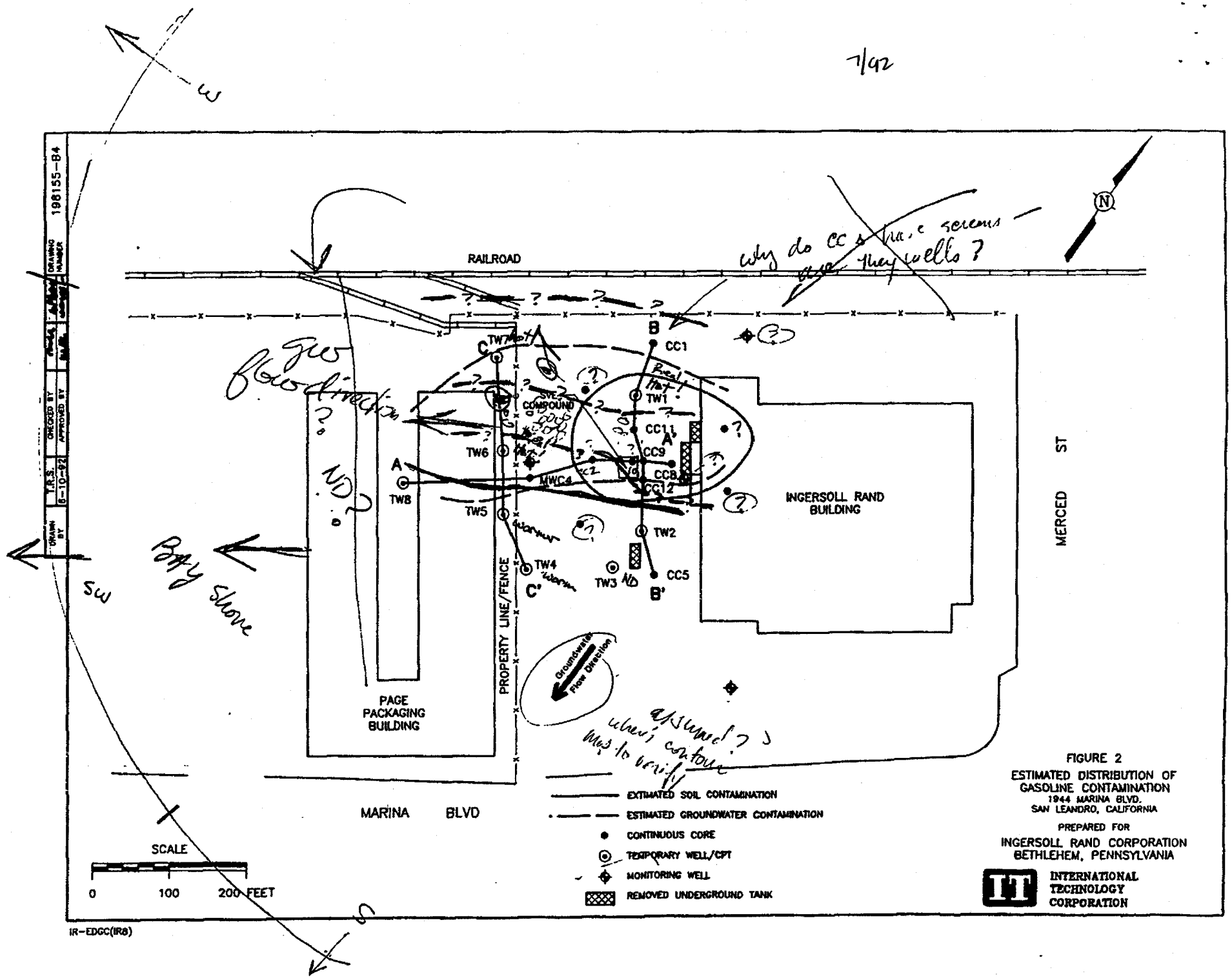


FIGURE 2
ESTIMATED DISTRIBUTION OF GASOLINE CONTAMINATION
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA
PREPARED FOR
INGERSOLL RAND CORPORATION
BETHLEHEM, PENNSYLVANIA

INTERNATIONAL TECHNOLOGY CORPORATION

TABLE 6
SUMMARY OF GROUNDWATER ANALYSIS

INGERSOLL - RAND
MAINTENANCE FACILITY
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA

SAMPLE IDENTITY	ANALYTE	CONCENTRATION ug/L	
TW - 1	Benzene	1700	*
	Toluene	29000	
	Ethyl benzene	5400	
	Xylenes	30000	*
	Total Petroleum Hydrocarbons (Gasoline)	67000	
TW - 2	Toluene	2	
	Xylenes	1	
TW - 3	No test parameters detected		
TW - 4	Benzene	3.5	
	Toluene	8	
	Xylenes	9.5	
	Total Petroleum Hydrocarbons (Gasoline)	280	
TW - 5	Benzene	70	
	Toluene	180	
	Ethyl benzene	45	
	Xylenes	140	
	Total Petroleum Hydrocarbons (Gasoline)	680	
TW - 6	Benzene	4600	*
	Toluene	23000	
	Ethylbenzene	2800	
	Xylenes	19000	*
	Total Petroleum Hydrocarbons (Gasoline)	53000	
TW - 7	Benzene	1300	
	Toluene	330	
	Ethylbenzene	220	
	Xylenes	370	
	Total Petroleum Hydrocarbons (Gasoline)	2400	
TW - 7 (LAB QC Duplicate)	Benzene	1200	
	Toluene	310	
	Ethyl benzene	220	
	Xylenes	380	
	Total Petroleum Hydrocarbons (Gasoline)	2500	

TW-8?

* highest concentrations

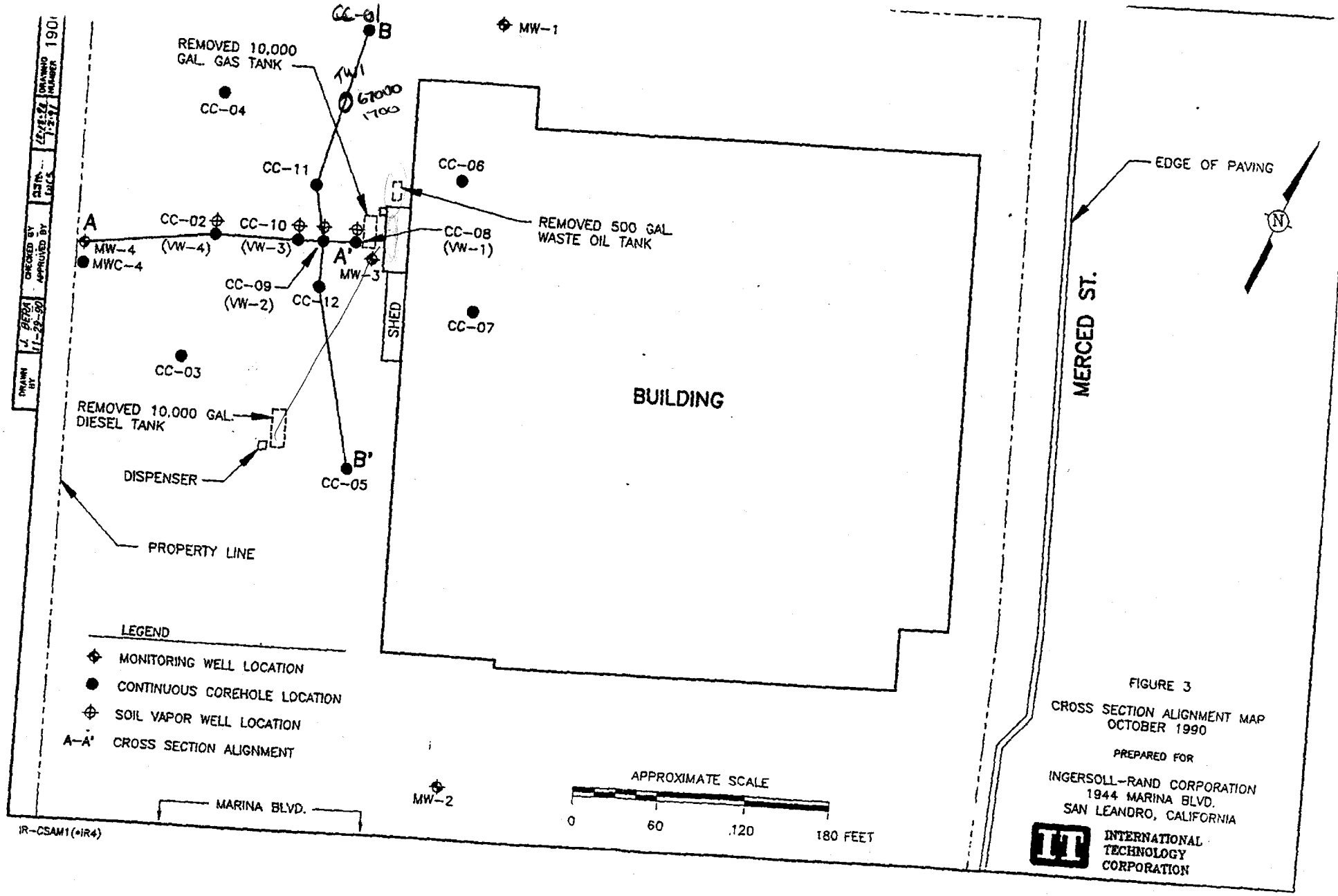


FIGURE 3

CROSS SECTION ALIGNMENT MAP
OCTOBER 1990

PREPARED FOR

INGERSOLL-RAND CORPORATION
1944 MARINA BLVD.
SAN LEANDRO, CALIFORNIA

INTERNATIONAL
TECHNOLOGY
CORPORATION

TABLE 1

ANALYTICAL SUMMARY - OCTOBER 1990
SOIL SAMPLES
Ingersoll Rand
San Leandro, California
Results in mg/kg (parts per million)

NO GW sampling

BORING	DEPTH	TPH	B	T	X	E
CC-01	13.50	<1.0	<0.005	<0.005	<0.005	<0.005
CC-01	17.50	<1.0	<0.005	0.005	0.010	<0.005
CC-02	16.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-02	19.00	1.0	0.30	<0.005	0.043	0.029
CC-02	20.50	190	3.0	48.0	29.0	5.9
CC-02	27.50	<1.0	0.065	<0.005	<0.005	0.011
CC-03	15.00	<1.0	0.006	0.011	0.030	0.008
CC-03	18.50	<1.0	0.006	0.012	0.028	0.006
CC-04	16.50	<1.0	<0.005	<0.005	<0.005	<0.005
CC-04	19.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-04	22.00	7.6	1.1	0.91	1.3	0.25
CC-04	26.00	1.2	0.30	0.030	0.20	0.04
CC-05	13.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-05	16.50	<1.0	0.019	0.026	0.040	0.008
CC-05	18.00	<1.0	<0.005	0.006	0.011	<0.005
CC-06	15.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-06	19.50	<1.0	0.005	0.009	0.015	<0.005
CC-07	15.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-07	18.00	<1.0	<0.005	0.006	0.015	<0.005
CC-08	9.50	<1.0	<0.005	0.006	0.016	<0.005
CC-08	14.50	12	0.44	0.49	1.2	0.23
CC-09	9.00	<1.0	<0.005	<0.005	<0.005	<0.005
CC-09	14.50	180	0.25	2.6	15.0	6.4
CC-10	14.00	<1.0	0.011	<0.005	0.008	<0.005
CC-10	18.20	<1.0	0.077	<0.005	<0.005	<0.005
CC-10	19.50	150	3.9	7.1	14.0	4.5
CC-10	22.00	1.4	0.42	0.020	0.071	0.033
CC-11	15.00	<1.0	0.011	<0.005	0.011	<0.005
CC-11	18.50	<1.0	0.022	0.009	0.043	0.012
CC-12	16.00	1.0	0.12	0.46	0.145	0.018
CC-12	18.20	15	0.36	0.66	1.9	0.34
MWC-4	17.00	<1.0	<0.005	<0.005	<0.005	<0.005
MWC-4	19.00	<1.0	<0.005	<0.005	<0.005	<0.005

VW-4
VW-1
VW-2 *
VW-3

Groundwater Samples
Results in ug/l (parts per billion)

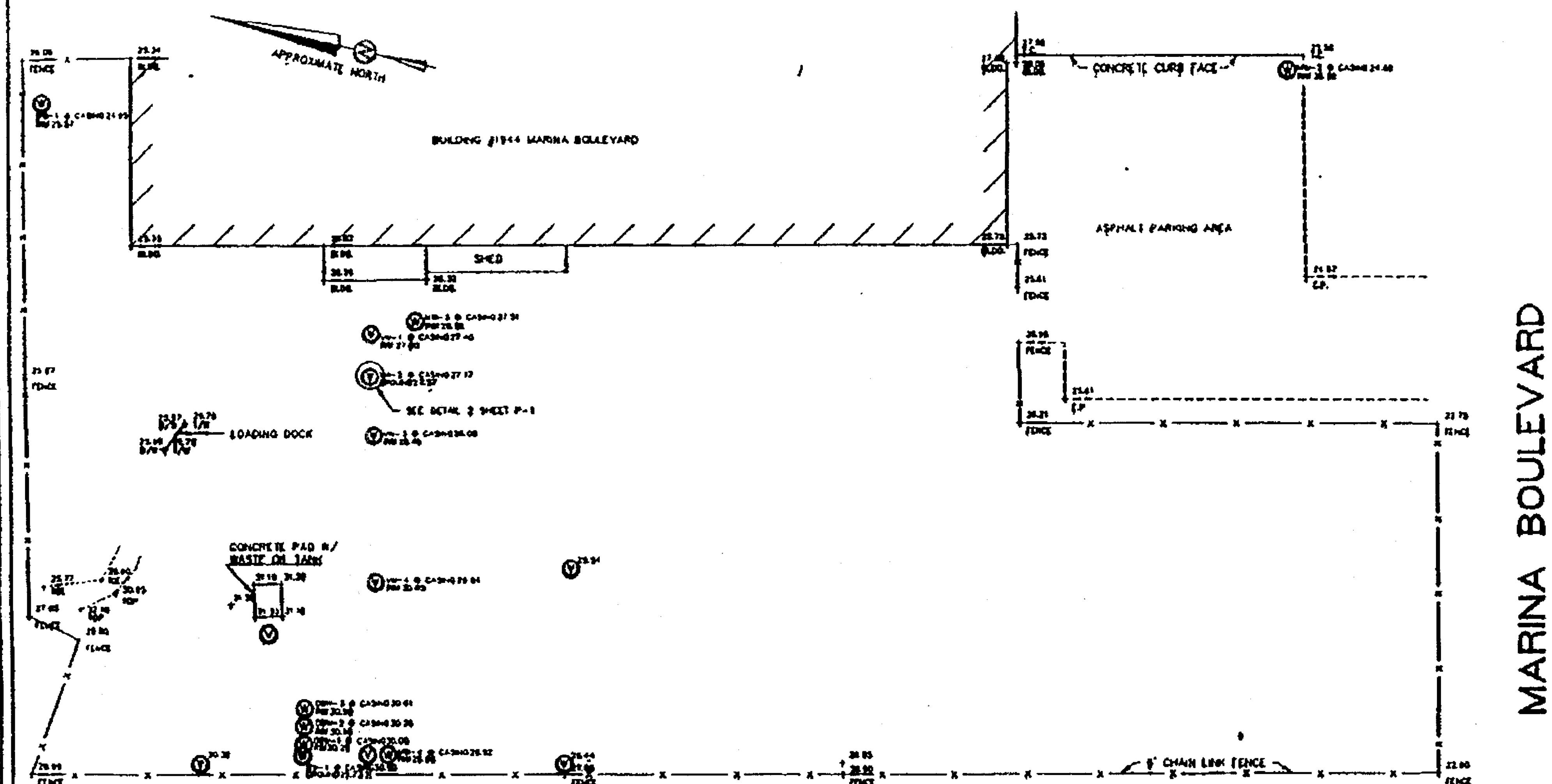
BORING	DEPTH	TPH	B	T	X	E
MW-4	*******	32000	1500	2000	27000	720

Notes:

Depth reported in feet
TPH = Total Petroleum Hydrocarbons
B = Benzene
T = Toluene
X = Xylenes
E = Ethylbenzene

CC = Continuous Core
MWC = Monitor Well Core
Analysis Performed by:
Mobile Chem Labs
Turlock, CA

FIGURE 2



LEGEND	
T.C.	TOP OF CURB
	BUILDING LINE
T/W	TOP OF WALL
B/W	BASE OF WALL
-x-	FENCE LINE
	WELL EXISTING
	SOIL VAPOR VENT
E.P.	EDGE OF PAVEMENT
TOP	TOP OF BANK
TOE	TOE OF SLOPE

BASIS OF ELEVATIONS: CITY OF SAN LEANDRO BENCHMARK CHICK NAIL ON TOP OF CURB AT STORM WATER INLET SOUTHEAST CORNER OF THE INTERSECTION OF MARINA BOULEVARD AND MERCED STREET ELEVATION = 22.86'.

ALL CASING ELEVATIONS WERE TAKEN AT THE SOUTHWEST EDGE OF PVC PIPING.

ALL RIM ELEVATIONS WERE TAKEN AT THE SOUTHWEST EDGE OF STEEL RIM UNLESS OTHERWISE NOTED.

* DENOTES APPROXIMATE LOCATION OF VW - 3 THRU 8

CAPSULE
ENVIRONMENTAL ENGINEERING, INC.

TITLE SITE MAP

INGERSOLL-RAND CORPORATION
SAN LEANDRO, CALIFORNIA

SCALE	DRAWN BY	CHECKED BY	DATE	PROJECT NO.	DRAWING NO.	SHEET
NTS	MEC		02/16/94	001-142	FIG 2	of

REVISION	DATE	DESCRIPTION