FLUOR DANIEL GTI

May 15, 1996

6/19/96
-9 MS

Chevron U.S.A. Products Company
6001 Bollinger Canyon Road, Building L
San Ramon, California 94583-0804

Subject: Evaluation of Potential Migration Pathway via Buried Utilities
Former Chevron Service Station No. 9-1153
3126 Fernside Boulevard, Alameda, California
Fluor Daniel GTI Project 020200149

Dear Mr. Briggs:

This letter report summarizes the evaluation conducted by Fluor Daniel GTI, Inc. (Fluor Daniel GTI) of the potential for buried utilities to act as migration pathways for dissolved hydrocarbons at the former Chevron U.S.A. Products Company (Chevron) Service Station No. 9-1153, 3126 Fernside Boulevard in Alameda, California (attachment 1, figure 1). This evaluation was performed at the request of Chevron. The evaluation is based on site information provided by Chevron and contained in Fluor Daniel GTI files.

Background

The site is located in the city of Alameda in Alameda County, California, on the west corner of the intersection of Fernside Boulevard and Gibbons Drive (figure 2). The city of Alameda is located on an island with the San Francisco Bay to the north and west, the Brooklyn Basin Tidal Canal to the east, and San Leandro Bay to the south. The site is located in the southeastern portion of the island. The site is currently an occupied single family residential building. Residential buildings are located north, west, and south of the site. Commercial buildings are located to the east of the site. The surface elevation at the site is approximately 8 feet above mean sea level.

According to existing historical reports and information provided by Chevron, the former Chevron station was demolished and the underground storage tanks (USTs) were removed in June 1986. Environmental investigation at the site began in August 1986 with the installation of three groundwater monitoring wells (C-1 through C-3). Currently, a total of seven groundwater monitoring wells (MW-4 through MW-10) and one extraction well (RW-1) exist at the site. The groundwater monitoring wells have been gauged and sampled regularly since August 1986 to document groundwater gradient changes and the hydrocarbon impact to groundwater. Historical monitoring data have reported the presence of separate-phase hydrocarbons in groundwater monitoring well C-1 (See attachment 2, Blaine Tech Services, Inc., *First Quarter 1996, Groundwater Monitoring Report*, February 15, 1996).

Chevron

May 31, 1996

Chevron U.S.A. Products Company
2410 Camino Ramon
San Ramon, CA 94583
P.O. Box 5004
San Ramon, CA 94583-0804

Marketing Department
Phone 510 842 9500

Ms. Juliet Shin
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Former Chevron Service Station #9-1153**
3126 Fernside Boulevard, Alameda, California

Dear Ms. Shin:

Enclosed is a report evaluating if the buried utility lines are acting as pathways for the migration of dissolved hydrocarbons at the above noted site. This data was prepared by Fluor Daniel GTI, Inc. and was in response to your request to this office.

At the time that this report was submitted, Fluor Daniel GTI, Inc. had not yet received the data from PG&E. Shortly after the report was received in this office, PG&E submitted the information and I have inserted it in Section 4 of the report. Note from PG&E's report that they were not able to give us depths of their lines. It appears the only way to find the depth is to dig down to the lines.

The utility lines vary in depth from 2 to 8 feet below grade, with the sanitary sewer line on Fernside Blvd. at a 8 foot level, and with the water, sewer (High Street) and storm drain lines between 2 to 5 feet. The gas line would be expected to fall within the same depth as the water, sewer (High Street) and storm drain lines. Based on contact with PG&E and the City of Alameda, the bedding material for the utility lines is generally sand.

The groundwater at the site varies from 1 to 4.5 feet below grade, and the soil at the site consists of clayey silt and sand. Groundwater flow has been in a generally easterly direction.

The buried utility lines on High Street and on Gibbons all lie within the groundwater level fluctuations. It does not appear that there has been any migration of dissolved hydrocarbons along utility pathways in this area. Monitoring well MW-7 has a benzene concentration of 63ppb while monitoring well MW-10 is non-detect for benzene. Along Fernside Blvd., the utility lines also lie within the groundwater fluctuations, except for the sanitary sewer line which is buried about 8 feet. The sewer line would not act as a conduit because of its depth, in relation to the groundwater level fluctuation. There does not appear to be any migration of dissolved hydrocarbons on Fernside Blvd. from monitoring well MW-6 (benzene 0.93ppb) to monitoring wells MW-8 and MW-9 which are both non-detect for benzene. Also note that the bedding material for the utility lines is similar to what is prevalent at the site.

Therefore, Chevron believes that the utility lines are not pathways for the migration of dissolved hydrocarbons at this site. If you have any questions, please call me at (510) 842-9136.

Ms. Juliet Shin

May 31, 1996

Former Chevron Service Station #9-1153
3126 Fernside Boulevard, Alameda, California

Sincerely,
CHEVRON PRODUCTS COMPANY

Philip R. Briggs
Site Assessment and Remediation Project Manager

Enclosure

cc. Ms. Bette Owen, Chevron

Mr. Larry Bolton *
State Farm Insurance
2509 Santa Clara Avenue
Alameda, CA 94501

*For your information, Mark Miller has been reassigned to a new position and I have taken over the resposilbility of project manager for this site.

Site Geology and Hydrogeology

According to soil boring logs from existing assessment reports for the site, subsurface soils in the area consist of clay, clayey sand, sand, and sandy clay (Fluor Daniel GTI's *Additional Environmental Assessment Report*, January 31, 1994, and *Additional Site Assessment Report*, October 31, 1995). Figures 3 and 4 present generalized geologic cross sections for the site vicinity. The locations of the cross sections are presented on figure 2.

Groundwater monitoring data from January 1996 indicate the depth to groundwater across the site ranged between approximately 1 foot below surface grade (bsg) to 4.5 foot bsg. The depth to groundwater was measured to the top of casing elevation for each well, which has been surveyed to a City of Alameda bench mark. According to a representative of the City of Alameda Engineering Department, the city's bench mark datum is 3.41 feet above the U.S. Geodetic Survey bench mark. The groundwater table elevation data collected since August 1986 showed a seasonal fluctuation of approximately 3 feet, with the high water elevation in January and low water elevations in October. The reported groundwater flow has been generally to the east. Historical groundwater level data is included in attachment 2.

Buried Utility Pipelines

Fluor Daniel GTI obtained copies of buried storm drain and sanitary sewer pipeline diagrams from the City of Alameda Engineering Department and buried water pipelines diagrams from the East Bay Municipal Utilities District (EBMUD) for the site vicinity (attachment 3). Additionally, Fluor Daniel GTI contacted Pacific Gas & Electric (PG&E) to request copies of PG&E utility diagrams (natural gas pipeline). Copies of the PG&E diagrams had not been received at the time this report was prepared.

The pipeline diagrams show three City of Alameda pipelines and two EBMUD pipelines are buried in High Street. One City pipeline and one EBMUD pipeline is buried in Fernside Boulevard. The burial depths for the identified pipelines range between approximately 2 feet bsg to 8 feet bsg. The construction details for the installation of the pipelines were not available. However, representatives for both PG&E and the City of Alameda said the bedding material is generally sand.

Conclusions/Recommendations

The subsurface material beneath the site consists primarily of clayey silt and sand. The most recent (January 1996) depth to groundwater data for the site indicates groundwater ranges between

approximately 1 foot bsg and 4.5 feet bsg. Historical reports for the site document a seasonal fluctuation of groundwater elevation on the order of 3 feet. Historically, the groundwater flow direction has been reported in a consistently eastern direction (attachment 4). Several pipelines have been identified in the immediate vicinity of the site. The burial depths range between 2 feet bsg and 8 feet bsg.

Based on the reviewed site data, a potential for the migration of hydrocarbon impacted groundwater along buried utility pipelines exists. However, this potential appears to be limited. Because of the documented seasonal groundwater level fluctuation, at times groundwater levels intersect the burial depths of the pipelines. The historic hydrocarbon concentrations reported for groundwater samples immediately upgradient of the buried utilities indicate relatively low levels. The most recent (January 22, 1996) benzene concentrations for wells MW-6 and MW-7 were reported at 0.93 micrograms per liter (μg/L) and 63 μg/L, respectively. The highest concentrations have been detected on-site (well C-1). Additionally, because the subsurface materials and the pipeline bedding material are similar (sand), there may not be a strong preferential migration along the pipelines.

If you have any questions or comments, please call the Fluor Daniel GTI Martinez Office at (510) 370-3990.

Sincerely,

Fluor Daniel GTI, Inc.

Michael A. Chamberlain
Project Manager

Fluor Daniel GTI, Inc.

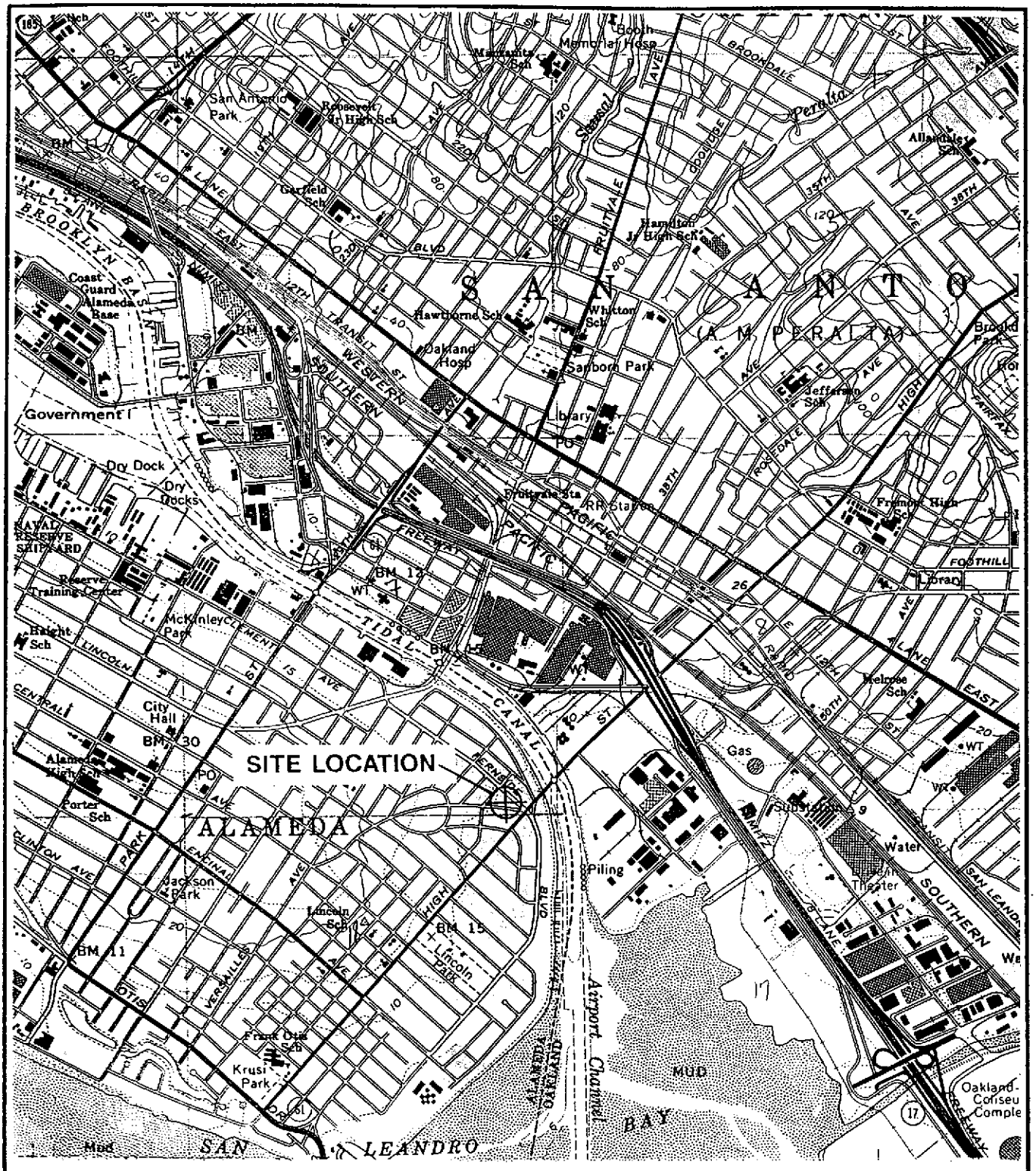
Kenneth P. Johnson
Registered Geologist
No. 6254

For:
Richard Lewis
Vice President

Attachments:
1. Figures
2. Blaine Tech Services, Inc., *First Quarter 1996, Groundwater Monitoring Report*
3. Utility Pipeline Diagrams
4. Historical Potentiometric Maps

Attachment 1

Figures



GROUNDWATER TECHNOLOGY

4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

SCALE: 0 FEET 2000

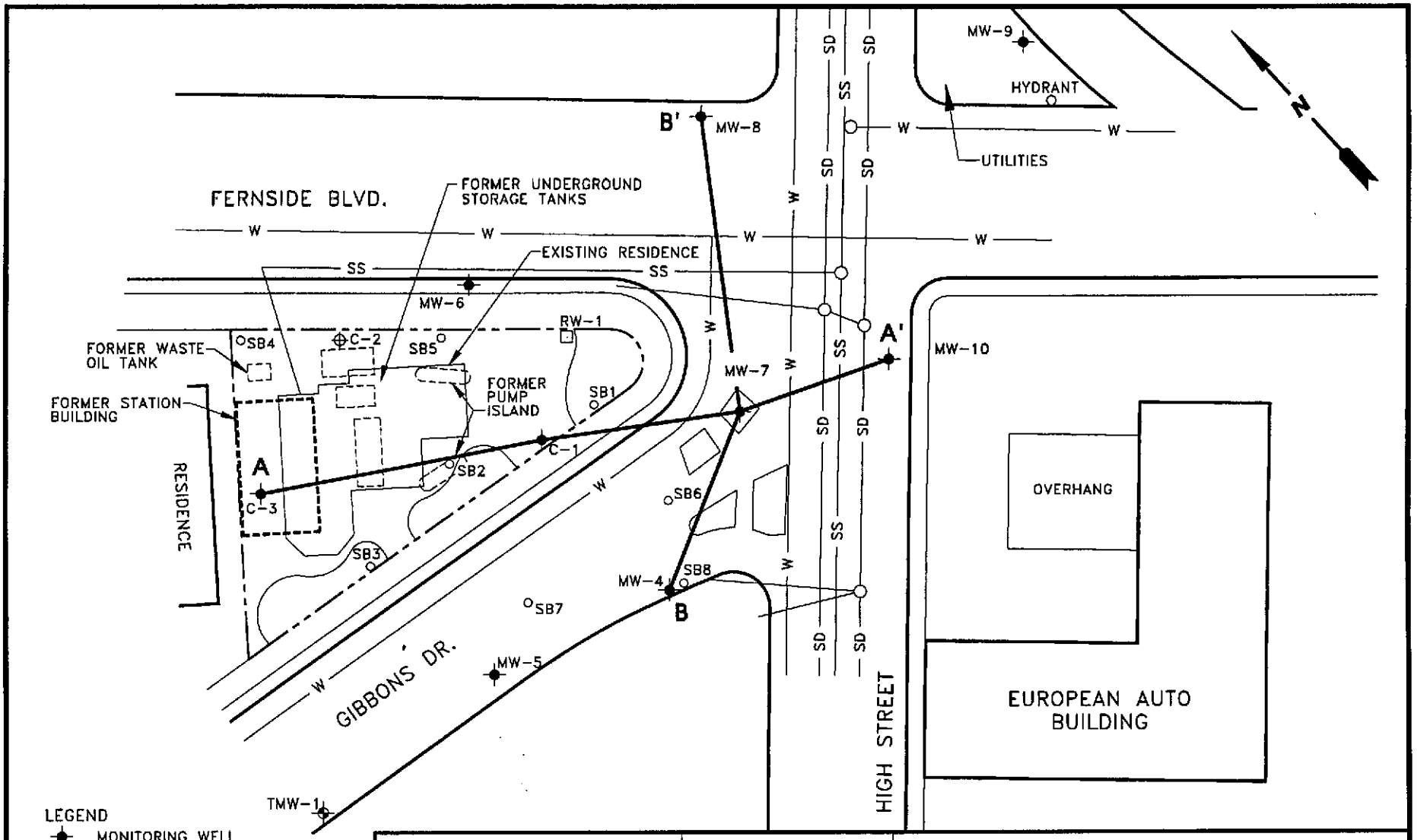
SITE LOCATION MAP

CLIENT: CHEVRON U.S.A. PRODUCTS CO.
SERVICE STATION No. 9-1153

DATE: 7/14/92

LOCATION: 3126 FERNSIDE BLVD.
ALAMEDA, CALIFORNIA

FIGURE: 1



LEGEND

- MONITORING WELL
- EXTRACTION WELL
- ABANDONED WELL
- TEMPORARY MONITORING WELL
- SOIL BORING
- PROPOSED MONITORING WELL
- — SD — STORM DRAIN
- — SS — SANITARY SEWER
- — W — WATER LINE

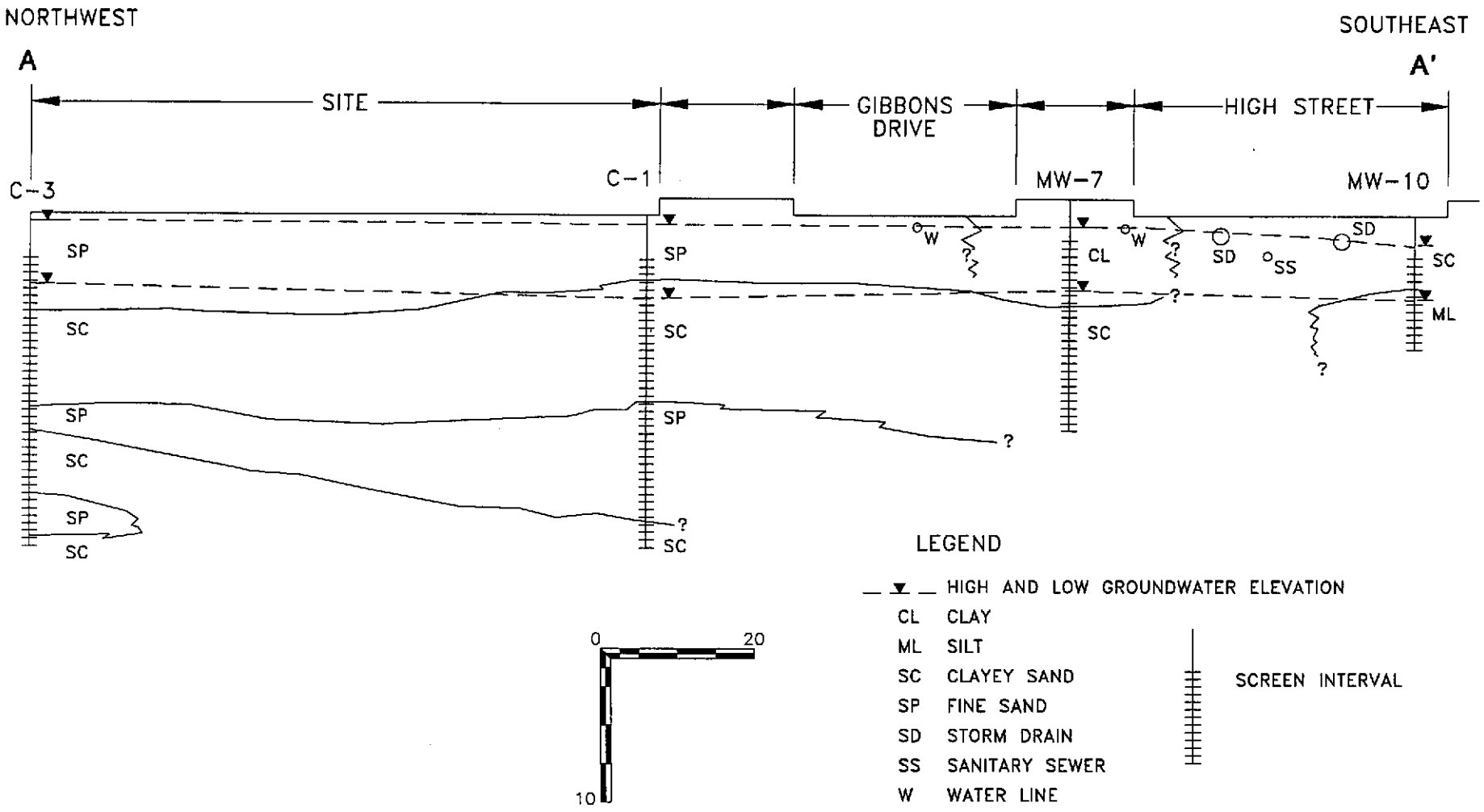
FLUOR DANIEL GTI

0 FEET 40
SCALE

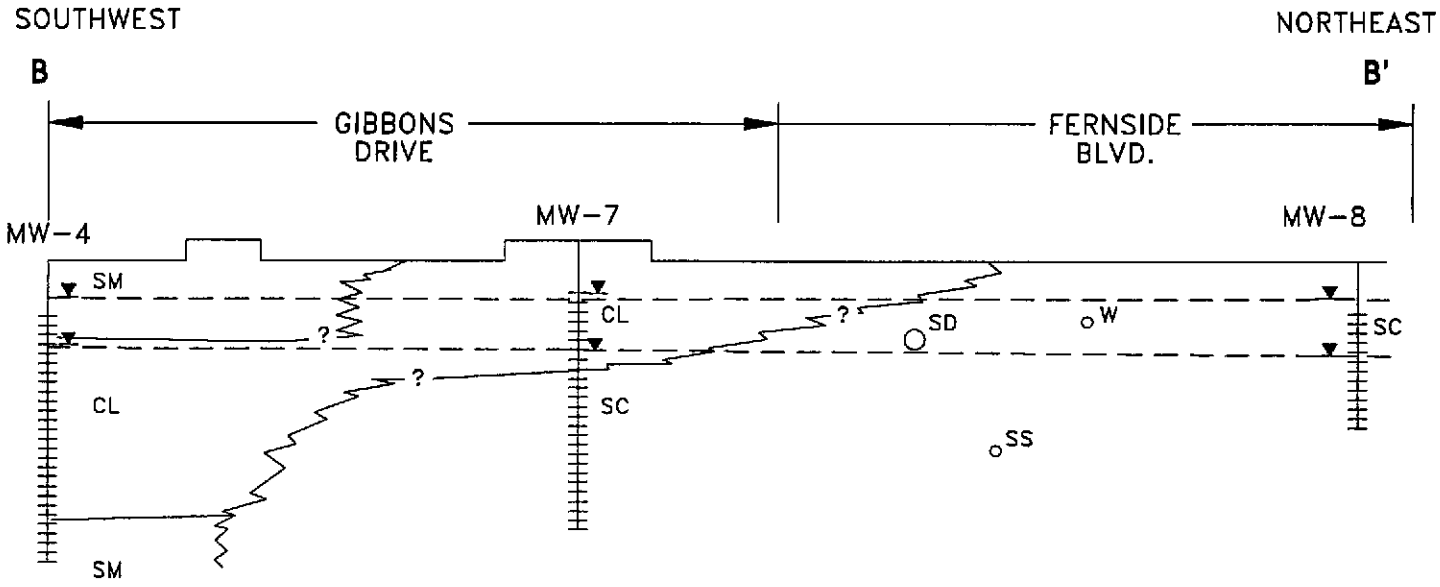
SITE PLAN

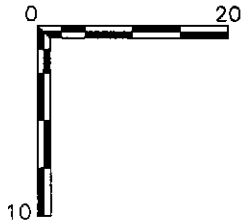
CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	5/7/96

PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
MK	KO	TW	CY	SP596	020200124	2



FLUOR DANIEL GTI	CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153		GEOLOGIC CROSS SECTION A - A'	
FILE: XSAA596 / PROJECT NO.: 020200149	LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA		PM: mac	PE/RG: KJ
REV.:	DES.: MAC / DET.: CY / DATE: 5/16/96			FIGURE: 3





LEGEND

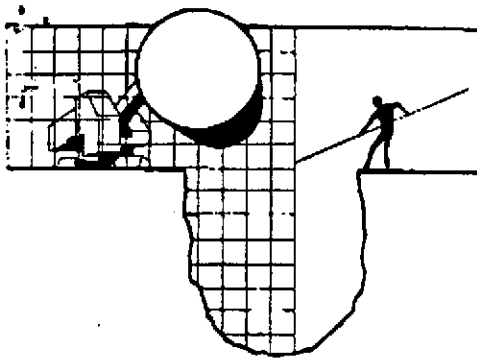
▼	HIGH AND LOW GROUNDWATER ELEVATION
CL	CLAY
SC	CLAYEY SAND
SM	SILTY SAND
SD	STORM DRAIN
SS	SANITARY SEWER
W	WATER LINE

SCREEN INTERVAL

FLUOR DANIEL GTI		CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153		GEOLOGIC CROSS SECTION B - B'
FILE: XSBB596	PROJECT NO.: 020200149	LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	PM:	PE/RG: KJ
REV.:		DES.: MAC / DET.: CY / DATE: 5/16/96		FIGURE: 4

Attachment 2

Blaine Tech Services, Inc., *First Quarter 1996, Groundwater Monitoring Report*



BLAINE TECH SERVICES INC.

985 TIMOTHY DRI
SAN JOSE, CA 951
(408) 995-55
FAX (408) 293-87

February 15, 1996

Mark Miller
Chevron U.S.A. Products Company
P.O. Box 5004
San Ramon, CA 94583-0804

1st Quarter 1996 Monitoring at 9-1153

First Quarter 1996 Groundwater Monitoring at
Chevron Service Station Number 9-1153
3126 Fernside Blvd.
Alameda, CA

Monitoring Performed on January 22, 1996

Groundwater Sampling Report 960122-W-1

This report covers the routine quarterly monitoring of groundwater wells at this Chevron facility. Blaine Tech Services, Inc.'s work at the site includes inspection, gauging, evacuation, purgewater containment, sample collection and sample handling in accordance with standard procedures that conform to Regional Water Quality Control Board requirements.

Routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, calculated volume of a three-case volume purge, elapsed evacuation time, total volume of water removed, and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. Purgewater is, likewise, collected and transported to Chevron's Richmond Refinery for disposal.

Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of WELL DATA AND ANALYTICAL RESULTS. The full analytical report for the most recent samples is located in the Analytical Appendix. The table also contains new groundwater elevation calculations taken from the computer plotted gradient map which is located in the Professional Engineering Appendix.

At a minimum, Blaine Tech Services, Inc. field personnel are certified upon completion of a forty-hour Hazardous Materials and Emergency Response training course per 29 CFR 1910.120. Field personnel are also enrolled in annual eight hour refresher courses.

Blaine Tech Services, Inc. conducts sampling and documentation assignments of this type as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. concentrates on objective data collection and does not participate in the interpretation of analytical results, the definition of geological or hydrological conditions, the formulation of recommendations, or the marketing of remedial systems.

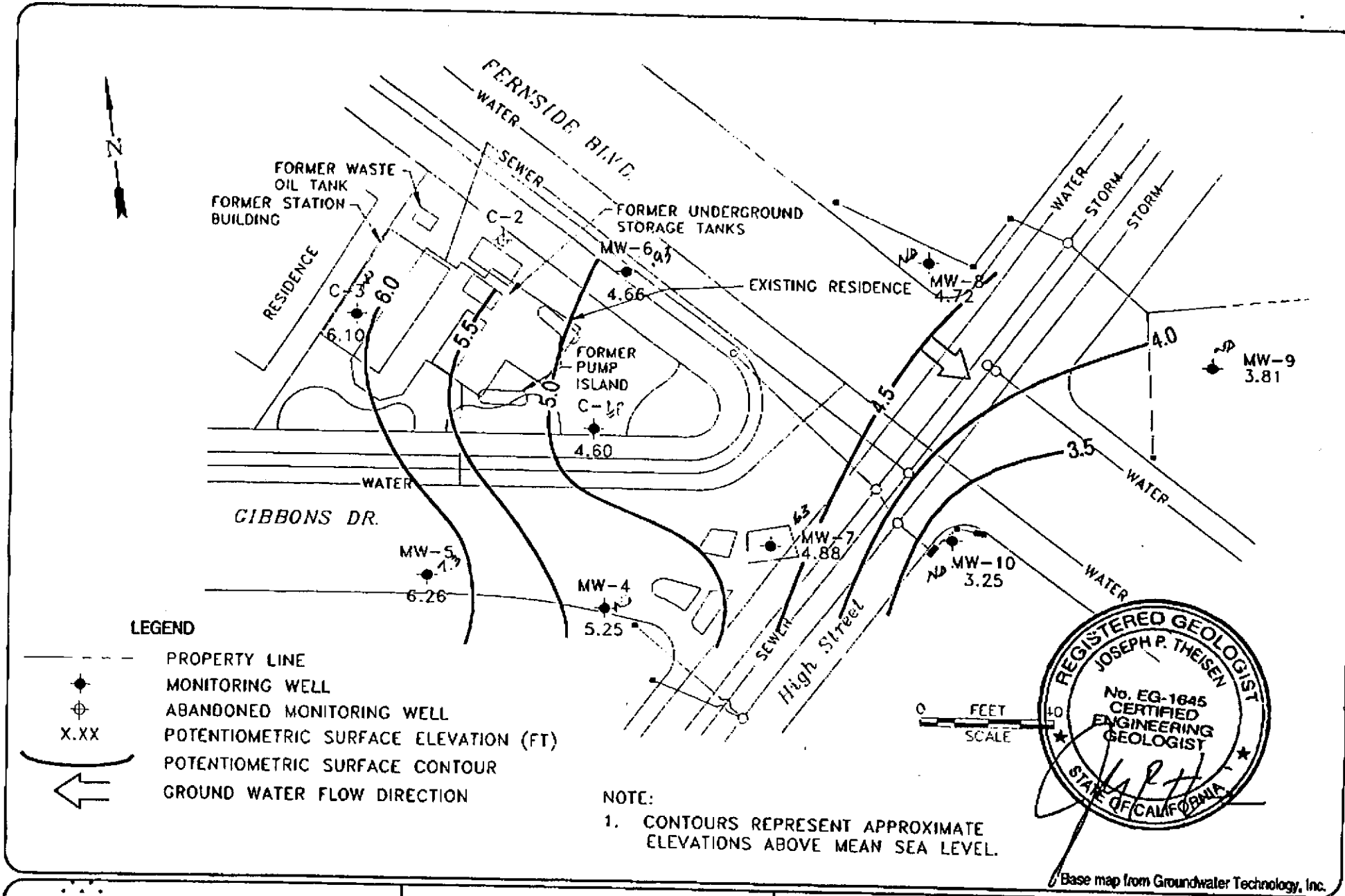
Please call if you have any questions.

Yours truly,

James Keller
Vice President

JPK/dk

attachments: Professional Engineering Appendix
Cumulative Table of Well Data and Analytical Results
Analytical Appendix
Field Data Sheets



CAMBRIA
Environmental Technology, Inc.

Former Chevron Station 9-1153
3126 Fernside Boulevard
Alameda, California

\CHEVRON\9-1153\1153-QM.DWG

Ground Water Elevation

January 22, 1996

FIGURE
1

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
C-1														
08/18/86	--	--	4.10	--	--	--	--	--	--	--	--	--	--	--
09/04/86	--	--	--	--	--	--	--	15,000	760	820	1500	--	--	--
07/22/87	--	--	--	--	--	--	--	1100	250	7.0	40	--	--	--
05/03/89	--	--	4.46	--	--	--	--	6900	3800	190	229	--	--	--
12/04/89	--	--	4.16	--	--	--	--	17,000	8000	490	470	--	--	--
02/14/90	--	--	3.64	--	--	--	--	19,000	12,000	990	1050	--	--	--
03/07/90	--	--	3.36	--	--	--	--	--	4260	261	430	--	--	--
09/06/91	--	--	4.43	--	--	--	--	21,000	10,000	100	240	560	--	--
12/15/91	--	--	4.78	--	--	--	--	20,000	4900	43	110	330	--	--
03/03/92	--	--	2.39	--	--	--	--	13,000	5600	730	340	1200	--	--
06/04/92	4.08	0.00	4.08	--	--	--	--	34,000	9400	350	290	1200	--	--
10/13/92	4.08	-0.67	4.75	--	--	--	--	24,000	11,000	98	260	530	--	--
01/11/93	4.08	1.82	2.26	Sheen	--	--	--	7100	1500	130	150	700	--	--
04/14/93	4.08	1.18	2.90	Sheen	--	--	--	29,000	7300	4000	640	2300	--	--
07/13/93	4.08	0.11	3.97	Sheen	--	--	--	650,000	27,000	16,000	6300	29,000	--	--
10/19/93	4.08	-0.42	4.50	--	--	--	--	40,000	12,000	730	1100	3600	--	--
11/30/93	7.50	3.23	4.27	--	--	--	--	--	--	--	--	--	--	--
01/27/94	7.50	4.15	3.35	--	--	--	--	36,000	8600	220	670	1900	--	--
04/07/94	7.50	4.08	3.42	--	--	--	--	53,000	12,000	3500	480	3300	--	--
07/01/94	7.50	3.54	3.96	--	--	--	--	65,000	19,000	5900	1000	9000	--	--
10/05/94	7.50	3.11	4.39	--	--	--	--	160,000	23,000	12,000	2200	11,000	--	--
01/12/95	7.50	6.38	1.52	0.50	0.26	0.26	--	--	--	--	--	--	--	--
04/26/95	7.50	4.86	4.40	2.20	1.32	1.58	--	--	--	--	--	--	--	--
07/12/95	7.50	4.10	4.85	1.81	0.66	2.24	--	--	--	--	--	--	--	--
10/30/95	7.50	3.13	5.67	1.63	0.53	2.77	--	--	--	--	--	--	--	--
01/04/96	7.50	3.68	3.92	0.12	0.26	3.03	--	--	--	--	--	--	--	--
01/10/96	7.50	4.12	3.48	0.13	0.07	3.10	--	--	--	--	--	--	--	--
01/17/96	7.50	4.12	3.40	0.02	0.40	3.50	--	--	--	--	--	--	--	--
01/22/96	7.50	4.60	2.90	0.00	0.00	3.50	--	82,000	18,000	4400	1400	5200	<1000	--

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
C-2														
08/18/86	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09/04/86	--	--	--	--	--	--	--	1100	49	18	84	--	--	--
07/22/87	--	--	--	--	--	--	--	<50	1.8	<1.0	<4.0	--	--	--
05/03/89	--	--	--	--	--	--	Abandoned	--	--	--	--	--	--	--
C-3														
08/18/86	--	--	4.00	--	--	--	--	--	--	--	--	--	--	--
09/04/86	--	--	--	--	--	--	--	50	3.2	5.4	5.8	--	--	--
07/22/87	--	--	--	--	--	--	--	<50	<0.5	<1.0	<4.0	--	--	--
05/03/89	--	--	4.15	--	--	--	--	<50	<0.5	<1.0	<2.0	--	--	--
12/04/89	--	--	4.24	--	--	--	--	<250	<0.5	<0.5	<0.5	--	--	--
02/14/90	--	--	3.57	--	--	--	--	<50	<0.5	<0.5	<0.5	--	--	--
03/07/90	--	--	3.31	--	--	--	--	--	<5.0	<5.0	<5.0	--	--	--
09/06/91	--	--	4.59	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
12/15/91	--	--	4.64	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
03/03/92	--	--	2.17	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
06/04/92	4.41	0.40	4.01	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/13/92	4.41	-0.38	4.79	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/11/93	4.41	2.40	2.01	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/14/93	4.41	1.65	2.76	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/13/93	4.41	0.45	3.96	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--
10/19/93	4.41	-0.12	4.53	--	--	--	--	66	12	1.4	1.0	8.4	--	--
11/30/93	7.83	3.79	4.04	--	--	--	--	--	--	--	--	--	--	--
01/27/94	7.83	4.66	3.17	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/07/94	7.83	4.63	3.20	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/01/94	7.83	3.84	3.99	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/05/94	7.83	3.29	4.54	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/12/95	7.83	7.03	0.80	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
05/02/95	7.83	5.68	2.15	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/12/95	7.83	4.41	3.42	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/30/95	7.83	3.37	4.46	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/22/96	7.83	6.10	1.73	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
MW-4														
06/04/92	3.58	-0.05	3.63	--	--	--	--	<50	0.8	<0.5	<0.5	<0.5	--	--
10/13/92	3.58	--	--	--	--	--	--	--	--	--	--	--	--	--
01/11/93	3.58	1.69	1.89	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/14/93	3.58	1.38	2.20	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--
07/13/93	3.58	0.07	3.51	--	--	--	--	54	2.6	1.6	<0.5	<1.5	--	--
10/19/93	3.58	-0.64	4.22	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
11/30/93	7.01	3.00	4.01	--	--	--	--	--	--	--	--	--	--	--
01/27/94	7.01	4.12	2.89	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/07/94	7.01	3.95	3.06	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/01/94	7.01	3.42	3.59	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/05/94	7.01	2.68	4.33	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/12/95	7.01	5.81	1.20	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/26/95	7.01	5.86	1.15	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/12/95	7.01	4.29	2.72	--	--	--	--	<50	6.4	<0.5	0.63	0.72	--	--
10/30/95	7.01	2.93	4.08	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/22/96	7.01	5.25	1.76	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
MW-5														
06/04/92	3.61	0.36	3.25	--	--	--	--	560	110	0.5	37	2.2	--	--
10/13/92	3.61	-0.59	4.20	--	--	--	--	1200	150	<2.5	84	8.6	--	--
01/11/93	3.61	2.31	1.30	--	--	--	--	1300	48	1.0	83	33	--	--
04/14/93	3.61	2.41	1.20	--	--	--	--	2600	240	6.1	250	170	--	--
07/13/93	3.61	0.46	3.15	--	--	--	--	1700	260	7.8	160	100	--	--
10/19/93	3.61	-0.21	3.82	--	--	--	--	1900	190	3.3	200	93	--	--
11/30/93	7.04	3.48	3.56	--	--	--	--	--	--	--	--	--	--	--
01/27/94	7.04	4.62	2.42	--	--	--	--	4000	100	12	210	110	--	--
04/07/94	7.04	4.71	2.33	--	--	--	--	2600	170	10	150	88	--	--
07/01/94	7.04	3.86	3.18	--	--	--	--	2300	350	9.1	110	76	--	--
10/05/94	7.04	3.06	3.98	--	--	--	--	11,000	840	150	130	340	--	--
01/12/95	7.04	6.64	0.40	--	--	--	--	2300	82	<2.5	54	20	--	--
04/26/95	7.04	6.54	0.50	--	--	--	--	1600	52	<5.0	36	61	--	--
07/12/95	7.04	4.63	2.41	--	--	--	--	2800	150	<5.0	34	38	--	--
10/30/95	7.04	3.26	3.78	--	--	--	--	1100	81	<5.0	<5.0	<5.0	35	--
01/22/96	7.04	6.26	0.78	--	--	--	--	880	7.3	<2.0	15	4.8	<10	--

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
MW-6														
06/04/92	3.85	-0.04	3.89	--	--	--	--	210	54	<0.5	1.9	2.4	--	--
10/13/92	3.85	-0.71	4.56	--	--	--	--	10,000	5300	<10	70	<10	--	--
01/11/93	3.85	1.49	2.36	--	--	--	--	100	50	<0.5	<0.5	<0.5	--	--
04/14/93	3.85	0.70	3.15	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/13/93	3.85	-0.09	3.94	--	--	--	--	<50	1.8	<0.5	<0.5	<1.5	--	--
10/19/93	3.85	-0.55	4.40	--	--	--	--	320	150	<0.5	0.8	<0.5	--	--
11/30/93	7.27	3.11	4.16	--	--	--	--	--	--	--	--	--	--	--
01/27/94	7.27	3.94	3.33	--	--	--	--	120	45	<0.5	<0.5	<0.5	--	--
04/07/94	7.27	3.84	3.43	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/01/94	7.27	3.33	3.94	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/05/94	7.27	2.89	4.38	--	--	--	--	8300	2400	160	42	190	--	--
01/12/95	7.27	4.84	2.43	--	--	--	--	<50	12	<0.5	<0.5	<0.5	--	ND*
04/26/95	7.27	5.21	2.06	--	--	--	--	<50	5.5	0.67	<0.5	1.3	--	--
07/12/95	7.27	3.74	3.53	--	--	--	--	65	27	<0.5	<0.5	<0.5	--	--
10/30/95	7.27	2.93	4.34	--	--	--	--	<50	3.9	<0.5	<0.5	<0.5	<2.5	--
01/22/96	7.27	4.66	2.61	--	--	--	--	<50	0.93	<0.5	<0.5	<0.5	<2.5	--

* EPA 8010

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
MW-7														
11/30/93	8.22	2.89	5.33	--	--	--	--	480	110	41	4.4	38	--	--
01/27/94	8.22	3.72	4.50	--	--	--	--	120	21	1.1	2.2	4.8	--	--
04/07/94	8.22	3.60	4.62	--	--	--	--	2600	630	39	56	94	--	--
07/01/94	8.22	3.09	5.13	--	--	--	--	2200	770	42	<10	92	--	--
10/05/94	8.22	2.61	5.61	--	--	--	--	15,000	3300	90	130	320	--	--
01/12/95	8.22	5.39	2.83	--	--	--	--	340	57	<1.3	18	6.4	--	--
04/26/95	8.22	5.87	2.35	--	--	--	--	15,000	3700	210	520	600	--	--
07/12/95	8.22	3.56	4.66	--	--	--	--	7700	1600	59	130	370	--	--
10/30/95	8.22	2.74	5.48	--	--	--	--	770	260	<5.0	33	48	25	--
01/22/96	8.22	4.88	3.34	--	--	--	--	290	63	<1.0	6.4	5.7	<5.0	--
MW-8														
10/17/95	6.96	2.56	4.40	--	--	--	--	--	--	--	--	--	--	--
10/30/95	6.96	2.52	4.44	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/22/96	6.96	4.72	2.24	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
MW-9														
10/17/95	7.21	2.41	4.80	--	--	--	--	--	--	--	--	--	--	--
10/30/95	7.21	2.24	4.97	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/22/96	7.21	3.81	3.40	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
MW-10														
10/17/95	7.28	2.23	5.05	--	--	--	--	--	--	--	--	--	--	--
10/30/95	7.28	2.17	5.11	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	5.1	--
01/22/96	7.28	3.25	4.03	--	--	--	--	<50	<0.5	<0.5	<0.5	0.70	17	--

Cumulative Table of Well Data and Analytical Results

Vertical Measurements are in feet. Volumetric Measurements are in gallons. Analytical results are in parts per billion (ppb)

DATE	Well Head Elev.	Ground Water Elev.	Depth To Water	SPH Thickness	SPH Removed	Total SPH Removed	Notes	TPH-Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylene	MTBE	Other
TMW-1														
11/11/93	--	--	--	--	--	--	--	<1.0	<0.5	<0.5	<0.5	<0.5	--	--
TRIP BLANK														
02/14/90	--	--	--	--	--	--	--	<50	<0.5	1.1	<0.5	<0.5	--	--
09/06/91	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
12/15/91	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
03/03/92	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
06/04/92	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/13/92	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/11/93	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/14/93	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/13/93	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/19/93	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/27/94	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	--	--
04/07/94	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/01/94	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/05/94	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/12/95	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
04/26/95	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
07/12/95	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
10/30/95	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
01/22/96	--	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--

Note: Blaine Tech Services, Inc. began routine monitoring of the groundwater wells at this site on November 1, 1994.
Earlier field data and analytical results are drawn from the September 27, 1994 Groundwater Technology, Inc. report.

ABBREVIATIONS:
TPH = Total Petroleum Hydrocarbons
SPH = Separate-Phase Hydrocarbons
MTBE = Methyl t-butyl ether

...as and Electric Company
East Bay Division
4801 Oakport Street
Oakland, CA 94601

May 15, 1996

Mr. Michael A. Chamberlain
757 Arnold Drive, Suite D
Martinez, CA 94553

RE: 3126 Fernside Boulevard

Mr. Chamberlain:

This letter has been prepared in response to your request for a copy of diagrams which illustrate the location of buried pipelines in the vicinity of the intersection of Fernside Boulevard and High Street in Alameda.

Enclosed you will find the diagrams which show our gas facilities in the area. Please keep in mind that these are approximate locations. The actual depth can be determined by having our crews dig or "pothole" the lines at your expense.

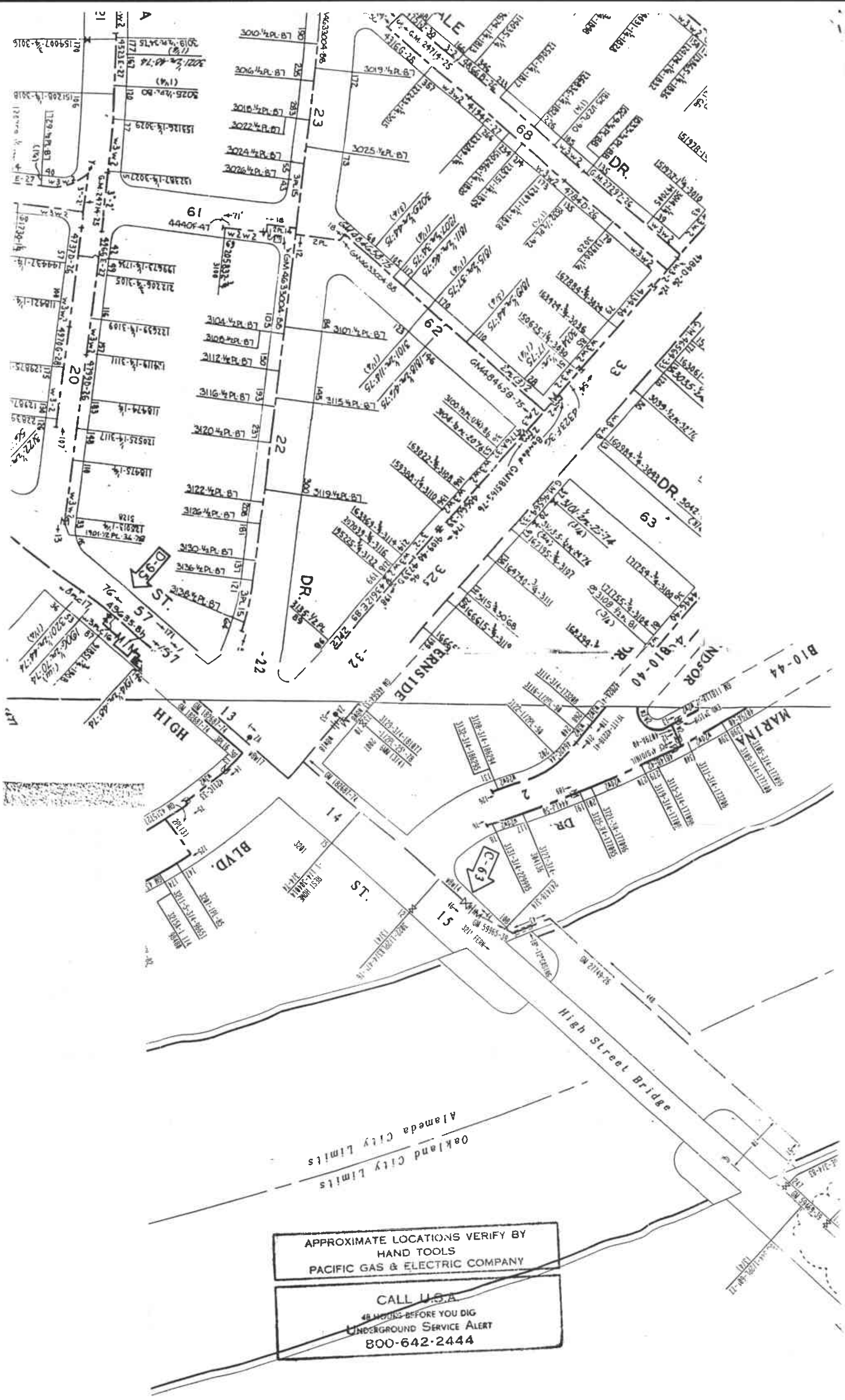
If you have any other questions or concerns, please feel free to call me at (510)437-2149.

Sincerely,

Cedricke M. Dennis

CEDRICKE M. DENNIS
New Business Representative

CMD:tm

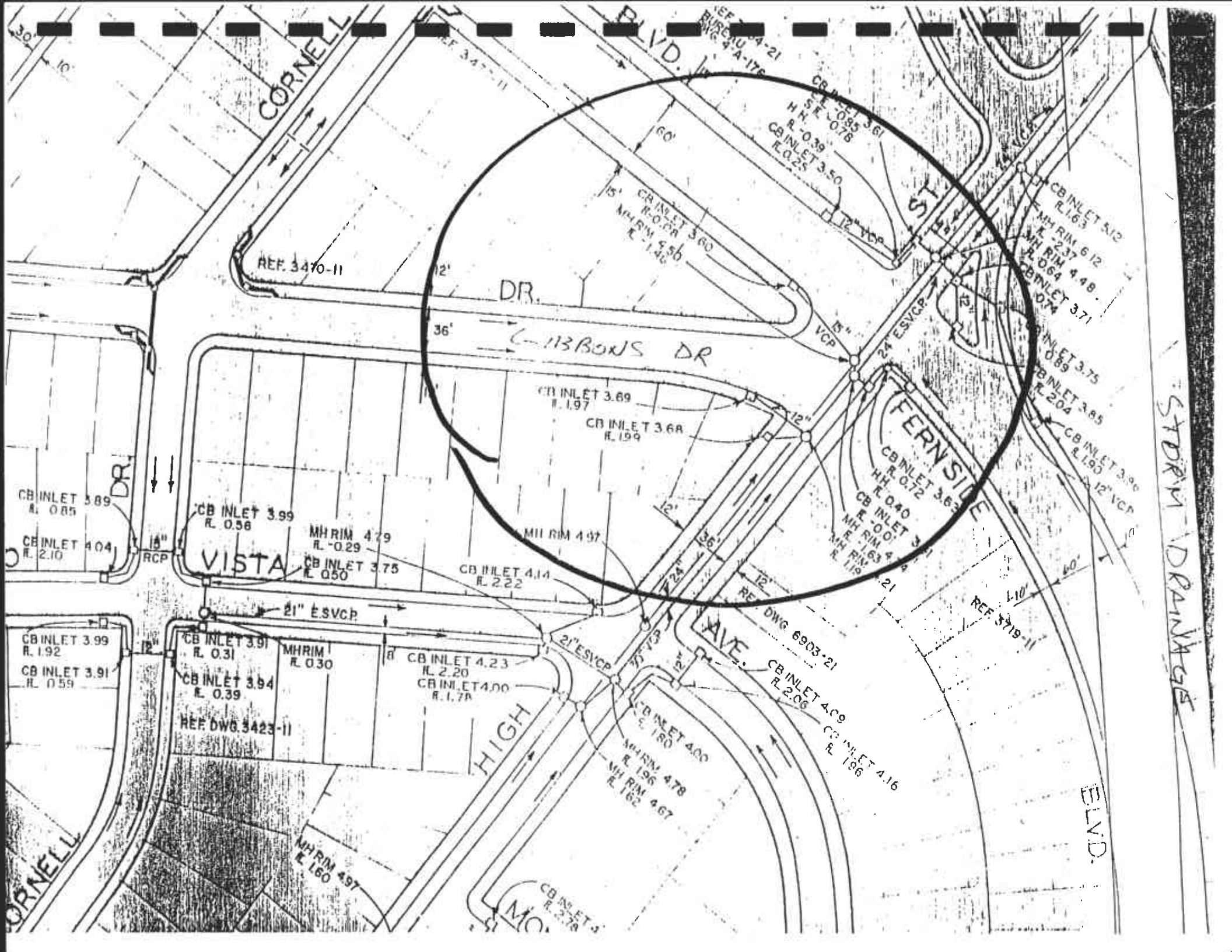


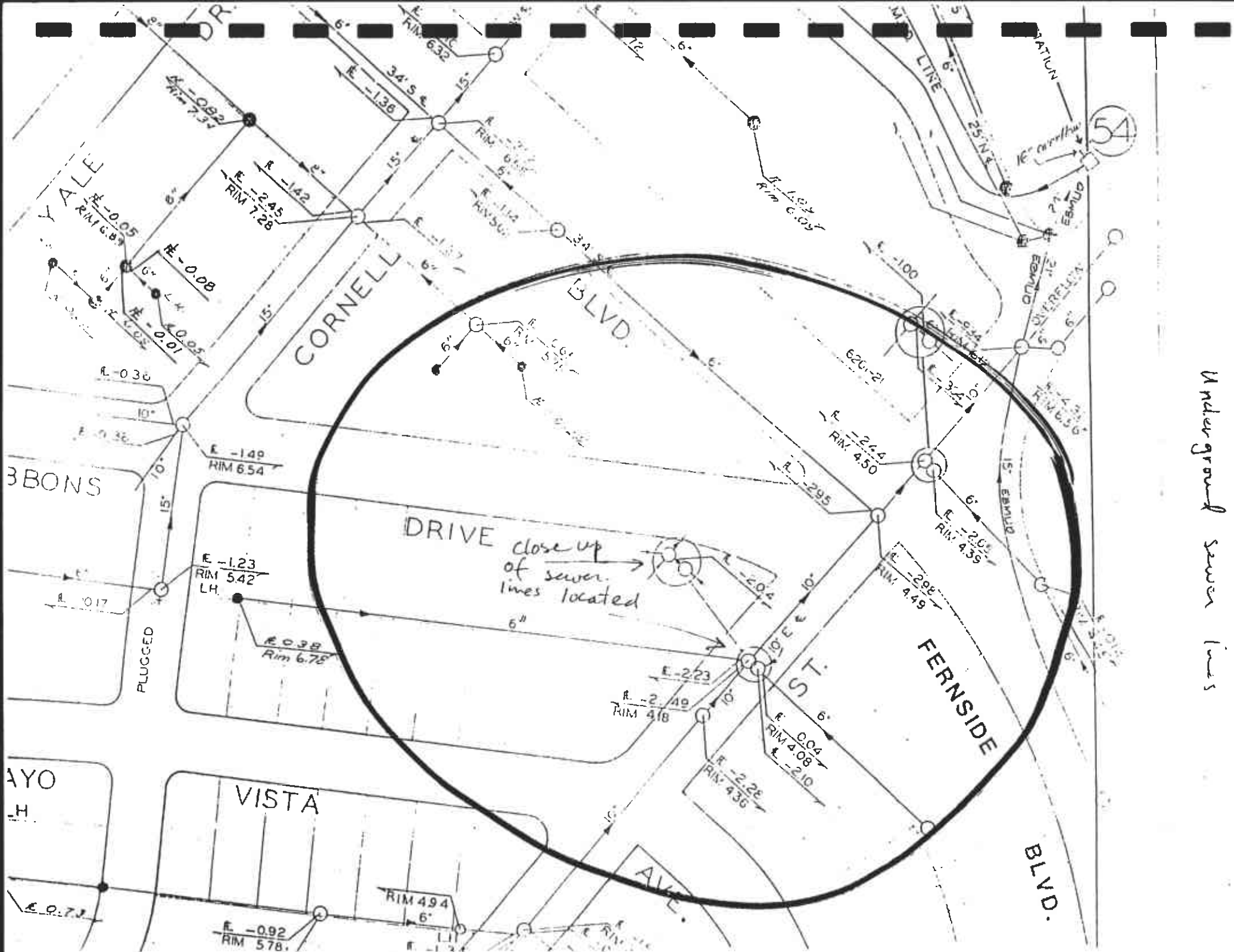
APPROXIMATE LOCATIONS VERIFY BY HAND TOOLS
PACIFIC GAS & ELECTRIC COMPANY

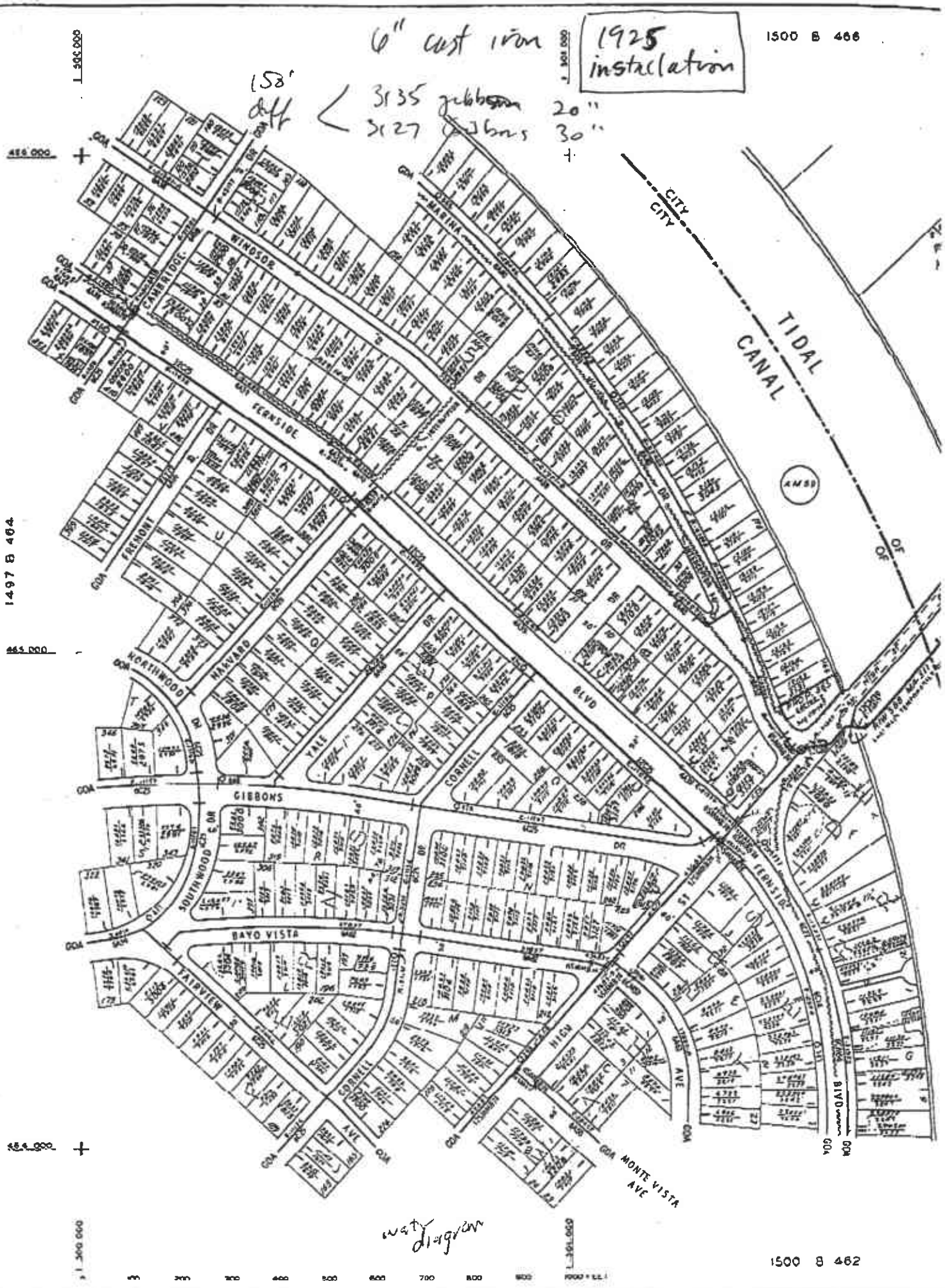
CALL U.S.A.
48 HOURS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
800-642-2444

Attachment 3

Utility Pipeline Diagrams

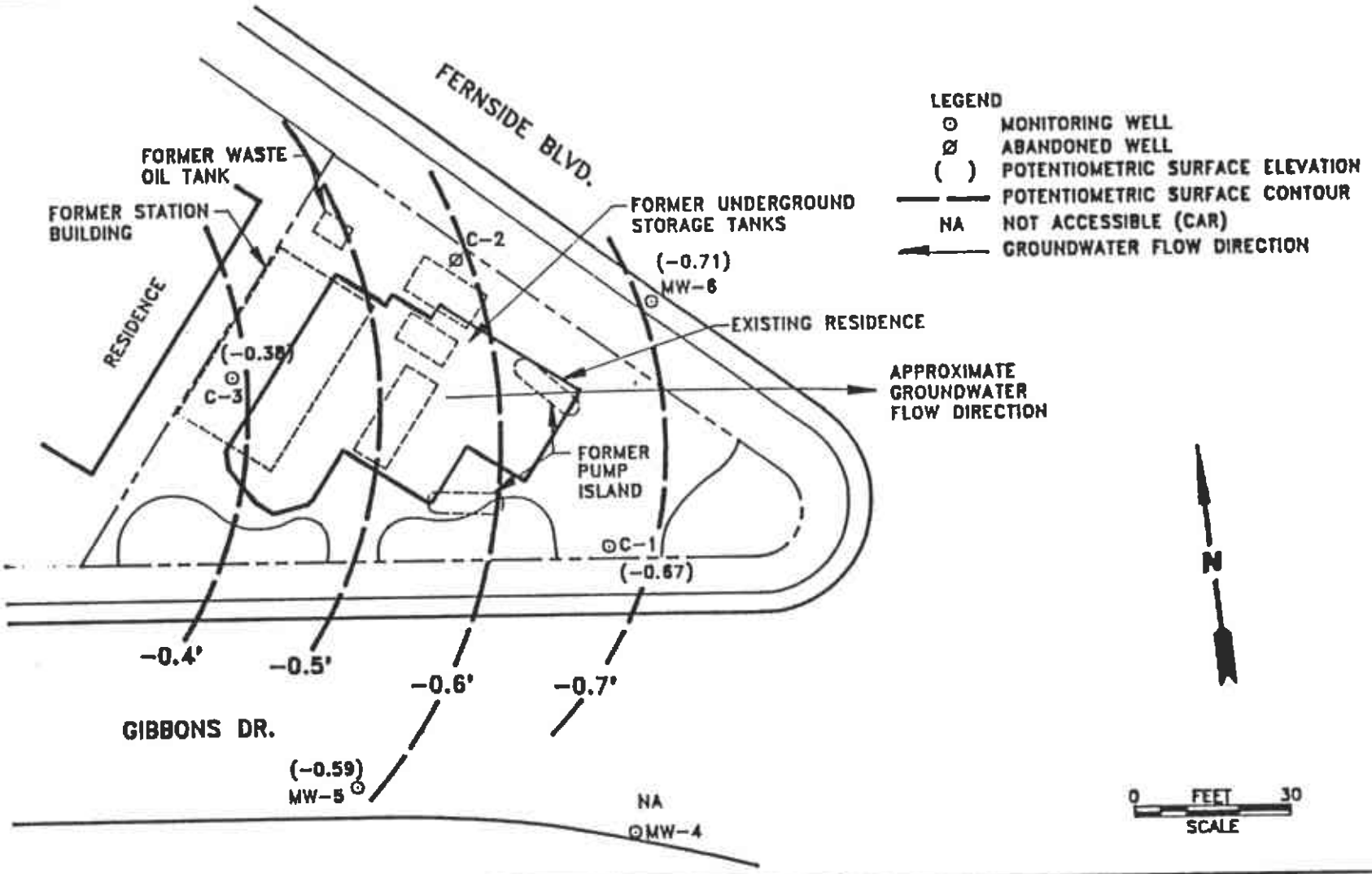

CORNELL
BLVD.
DR.
GIBBONS DR
VISTA
HIGH
FERNSIDE
AVE.
STORM DRAINAGE
REF. 3470-11
REF. 3719-11
REF DWG. 3423-11
REF DWG 6903-21
CB INLET 3.61
R. 0.78
CB INLET 3.50
R. 0.25
CB INLET 3.60
R. 0.68
MH RIM 4.56
R. 1.30
CB INLET 3.69
R. 1.97
CB INLET 3.68
R. 1.99
CB INLET 3.89
R. 0.85
CB INLET 4.04
R. 2.10
CB INLET 3.99
R. 0.58
MH RIM 4.29
R. -0.29
CB INLET 3.75
R. 0.50
MH RIM 4.97
CB INLET 4.14
R. 2.22
CB INLET 3.99
R. 1.92
CB INLET 3.91
R. 0.59
CB INLET 3.91
R. 0.31
MH RIM
R. 0.30
CB INLET 3.94
R. 0.39
CB INLET 4.23
R. 2.20
CB INLET 4.00
R. 1.78
CB INLET 4.00
R. 1.80
MH RIM 4.78
R. 1.96
MH RIM 4.67
R. 1.62
CB INLET 4.09
R. 2.06
CB INLET 4.16
R. 1.96
MH RIM 4.97
R. 1.60
CB INLET 3.85
R. 0.72
MH RIM 4.63
R. 0.40
CB INLET 3.63
R. -0.0
MH RIM 4.63
R. 1.63
MH RIM 4.19
CB INLET 5.12
R. 1.63
MH RIM 6.12
R. -2.37
MH RIM 4.48
R. 0.64
CB INLET 3.71
R. 0.74
CB INLET 3.75
R. 0.89
CB INLET 3.85
R. 2.04
CB INLET 3.90
R. 1.90
12" VCP
15" RCP
21" ES VCP
24" ES VCP
15" VCP
12" VCP
60'
36'
12'
24'
21'
10'
30'


CORNELL BLVD.
DRIVE
close up of sewer lines located
FERNSIDE ST.
BLVD.
VISTA
AVE.
PLUGGED
RIM 6.54
RIM 5.42
RIM 6.78
RIM 4.50
RIM 4.39
RIM 4.49
RIM 4.18
RIM 4.08
RIM 4.36
RIM 4.94
RIM 5.78
RIM 7.28
RIM 6.32
RIM 6.05
RIM 6.89
RIM 7.34
RIM 6.09
RIM 6.56
25' N.E.
15" corr. pipe
Underground sewer lines

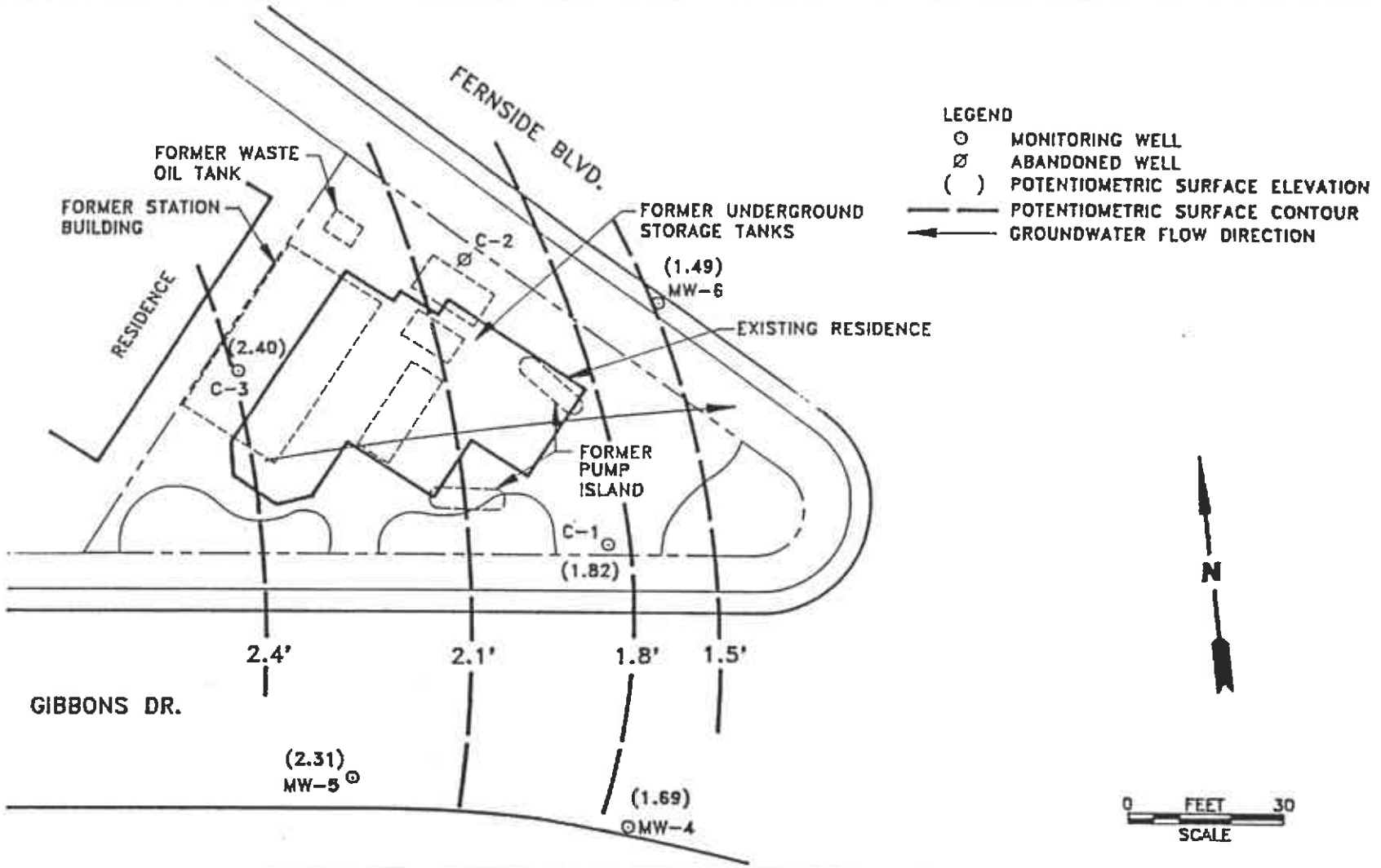

6" cast iron
1925 installation
158' diff
3135 gibbons 20"
3127 gibbons 30"
1500 B 466
1497 B 464
1500 B 462
TIDAL CANAL
CITY
CITY
MARINA
WINDSOR
CAMBRIDGE
FERNSIDE
FREMONT
HARVARD
NORTHWOOD
YALE
CORNELL
GIBBONS
SOUTHWOOD
BAYO VISTA
FAIRVIEW
HIGH
MONTE VISTA AVE
BLVD
AVE
DR
ST
CT
GDA
AMSL
456,000
464,000
1,396,000
1,400,000
1,404,000
1,408,000
1,412,000
1,416,000
1,420,000
1,424,000
1,428,000
1,432,000
1,436,000
1,440,000
1,444,000
1,448,000
1,452,000
1,456,000
1,460,000
1,464,000
1,468,000
1,472,000
1,476,000
1,480,000
1,484,000
1,488,000
1,492,000
1,496,000
1,500,000
1,504,000
1,508,000
1,512,000
1,516,000
1,520,000
1,524,000
1,528,000
1,532,000
1,536,000
1,540,000
1,544,000
1,548,000
1,552,000

Attachment 4

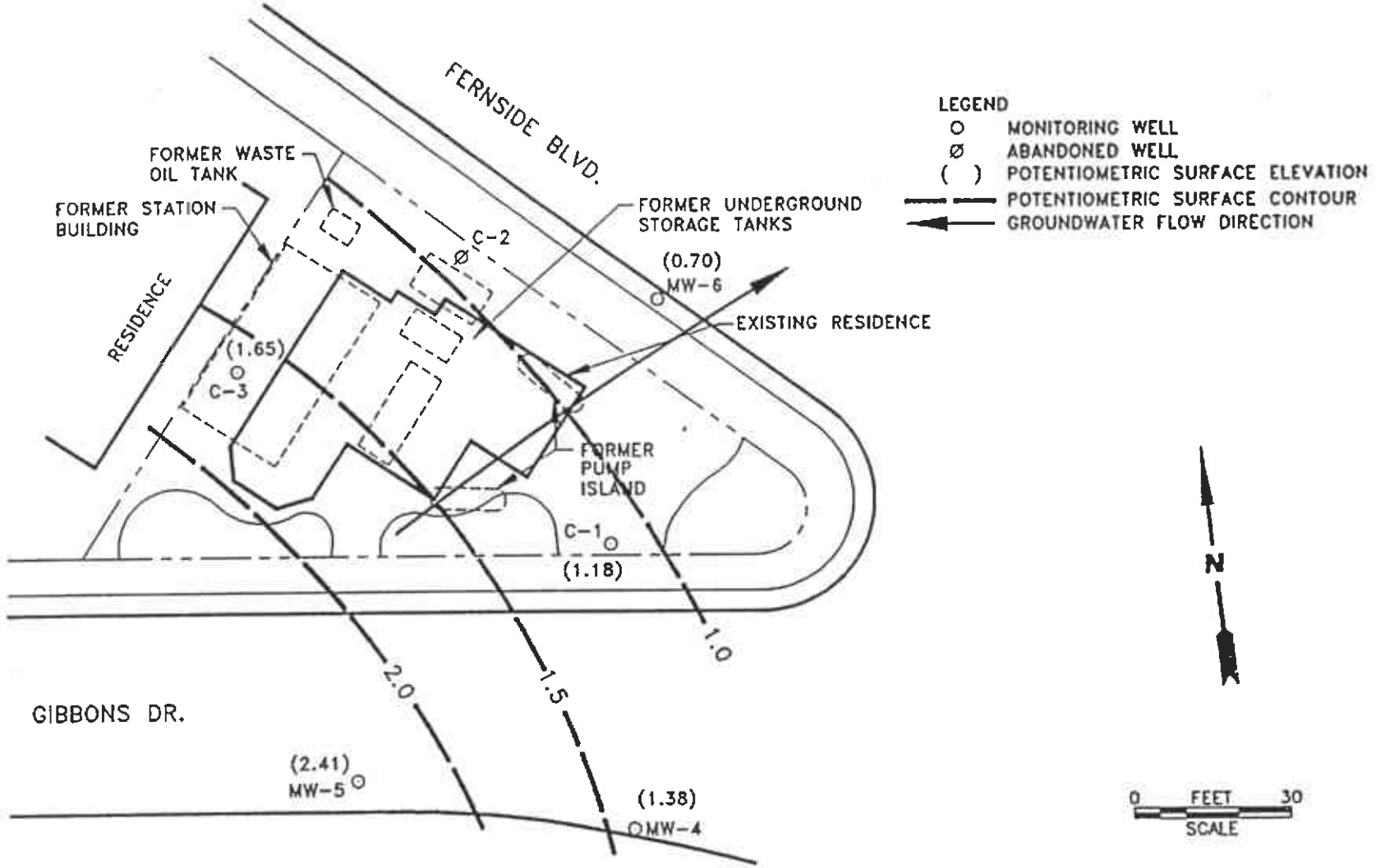
Historical Potentiometric Maps



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				POTENTIOMETRIC SURFACE MAP (10/13/92)		
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153				LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	REV. NO.: 1	DATE: 11/18/92
PM	PE/RG	DESIGNED TW	DETAILED ML	ACAD FILE: PSM01392/SP692	PROJECT NO.: 020202747	FIGURE: 1



GROUNDWATER TECHNOLOGY 4057 PORT CHICAGO HWY CONCORD, CA 94520 (510) 671-2387				POTENTIOMETRIC SURFACE MAP (1/11/93)		
CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153				LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	REV. NO.: 0	DATE: 2/8/93
PM: JAW	PE/RG: DRK	DESIGNED: TW	DETAILED: ML	ACAD FILE: PSM11193/SP692	PROJECT NO.: 020202747	FIGURE: 1

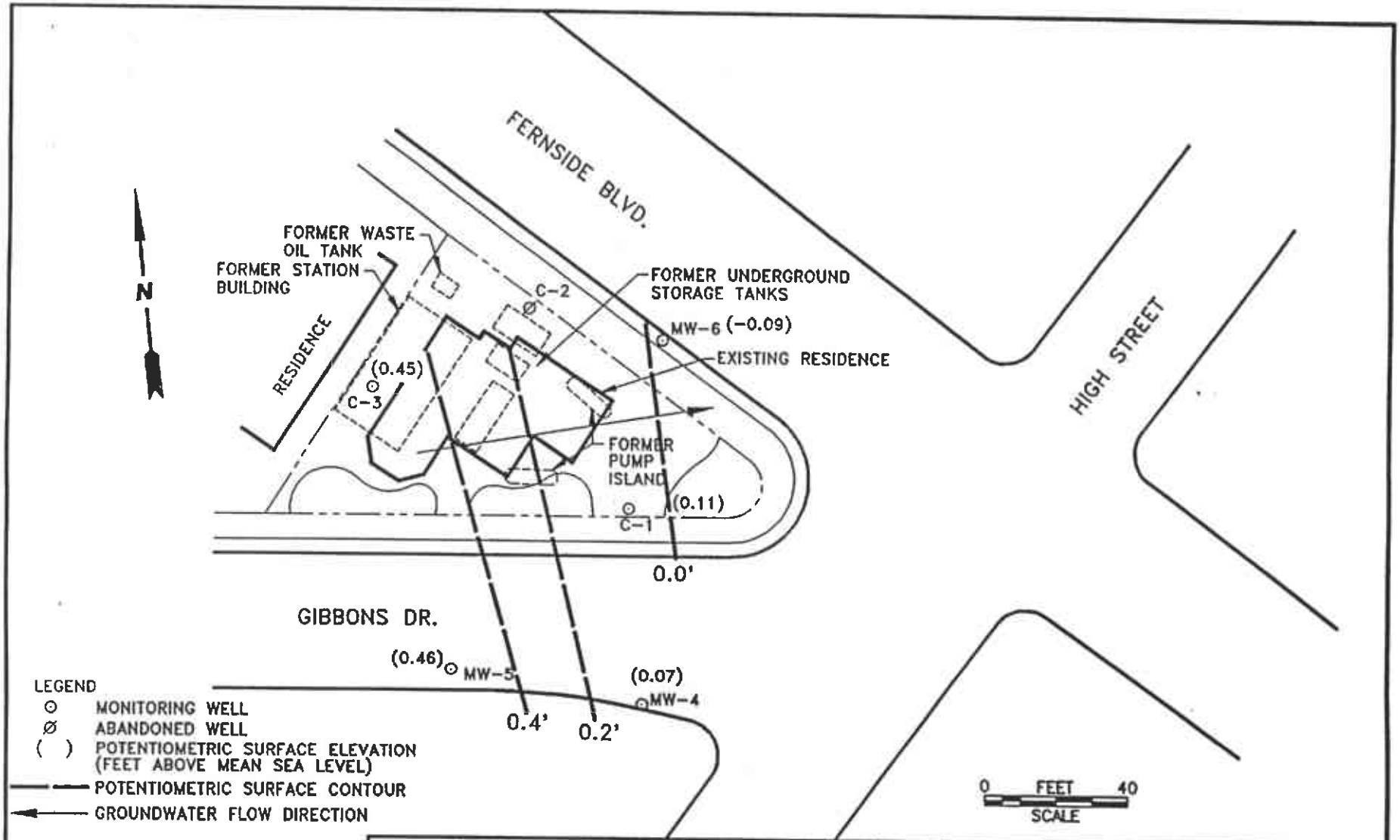


GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

POTENTIOMETRIC SURFACE MAP (4/14/93)

CLIENT:	LOCATION:	REV. NO.:	DATE:
CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153	3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	0	5/13/93

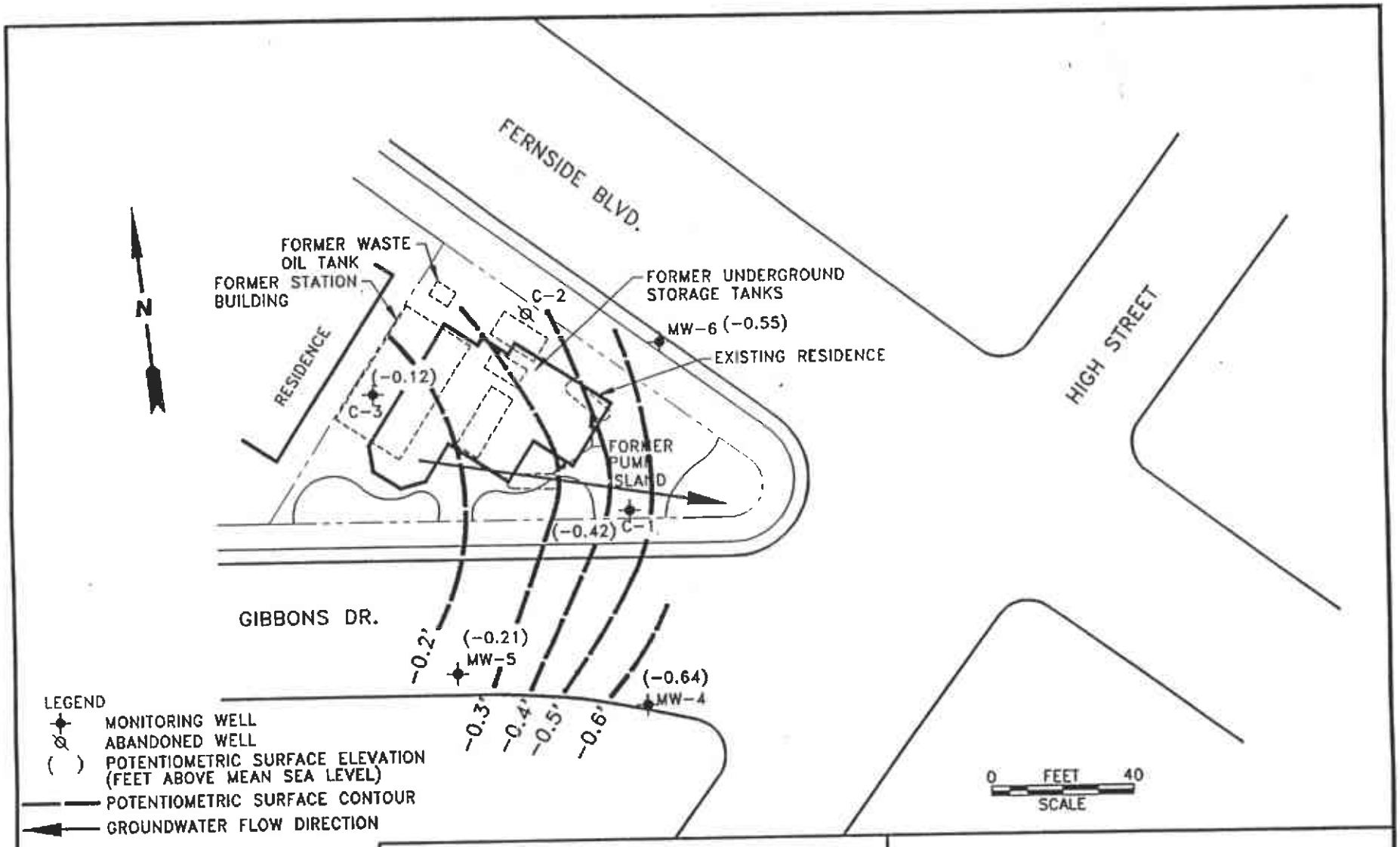
PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:	FIGURE:
JDW	DRK	TW	CY	PSM593/SP692	020202747	1



POTENTIOMETRIC SURFACE MAP (7/13/93)

GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153				LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA	REV. NO.: 0	DATE: 8/19/93
PM: JAW	PE/RG: DRK	DESIGNED: TW	DETAILED: ML	ACAD FILE: PSM71393/SP693	PROJECT NO.: 020204098	FIGURE: 1



POTENTIOMETRIC SURFACE MAP (10/19/93)

GROUNDWATER TECHNOLOGY
4057 PORT CHICAGO HWY
CONCORD, CA 94520
(510) 671-2387

CLIENT: CHEVRON U.S.A. PRODUCTS CO. SERVICE STATION No. 9-1153				LOCATION: 3126 FERNSIDE BLVD. ALAMEDA, CALIFORNIA		REV. NO.: 0	DATE: 11/15/93
PM	PE/RG	DESIGNED	DETAILED	ACAD FILE:	PROJECT NO.:		FIGURE:
JBW	CMB	TW	CY	PSMN93	020204098		1