Summary

Subject Site : Former Chevron Service Station 9-3864
5101 Telegraph Avenue
Oakland, California

STID 402

Date : **October 26, 1992**

Background

Two 10000 gallon product tanks, one 5000 gallon product tank and one 1000 gallon waste oil tank were installed in 1970. All underground storage tank were single wall steel with cathodic protection. No prior history of leaks or spills were recorded. Last tank integrity test on October 13,1990 indicated the tanks were tight (no leak).

Date	Summary
10/26/90	Submitted GeoStrategies work plan dated October 22, 1990 to Alameda County Health Care Services. Four exploratory borings were too be drilled and converted into groundwater monitoring wells.
11/14-15/90	GeoStrategies drilled four borings and completed them as four monitoring wells (C-1 through C-4) as stated in the scope of work. The newly completed wells were sampled on December 6, 1990 and analyzed by Clayton Environmental Laboratories. Work was documented in GeoStrategies January 17, 1991 report.
07/16/91	Submitted Sierra Environmental Services (SES) monitoring and sampling report dated July 3, 1991 to Alameda County Health Care Services.
09/18/91	The tanks were pulled on September 18, 1991. Sharian O'Brien and Nancy Vukelich from Chevron U.S.A., Inc. were present along with Gary Lieberman of HLA representing the property owner. Gil Cody of the City of Oakland Fire Department and Susan Hugo of Alameda County Health Care Services were also present during the tank-pull. Tanks were removed, inspected (visually), and probed for failure points. No holes were observed in the tanks. The tanks were constructed of coated steel. Sampling was performed under the direction of Susan Hugo. Analytical results are documented in Blaine Tech Services report dated October 28, 1991.
09/23/91	Submitted a letter dated September 23, 1991 describing the proposed soil remediation work plan to Susan Hugo. The letter was also sent to Paul Eveloff.
09/26/91	Arranged for over-excavation of the tank pit and product line trench. On September 26, 1991 over-excavation was performed by Golden West Builders. The tank pit depth increased from 13.0-13.5 feet to 17.5-18.0 feet (2.0-2.5 feet below groundwater). Confirmation samples (Sample No. 1 through 6) were taken in the capillary zone (sidewall samples). Analytical results are documented in Blaine Tech Services report dated October 28, 1991.

11/20/91 Submitted a cover letter dated November 11, 1991 and Blaine Tech report dated October 28, 1991 to Susan Hugo. In this letter, stated that approximately 600 cu. yds. of soil was generated from the over-excavation which approximately 300 cu. yds. of soil was disposed at BFI in Livermore. The remaining soil was aerated until nondetectable (<1 ppm for TPH-G and <0.005 ppm BTEX) levels were achieved (Sample No. 7 through 21). A sample was taken every 20 cu. yds. After achieving nondetectable levels, the soil was used as backfill along with clean imported soil.

01/02/92 Sent to Susan Hugo a SES monitoring and sampling report dated December 23, 1991. Mentioned in the letter that an off-site source investigation will be performed by Pacific Environmental Group (PEG).

02/27/92 Sent a letter to Susan Hugo requesting verification from the county that Chevron's tank removal and soil remediation work at the above referenced site was performed according to the appropriate standards at the time and in an acceptable manner.

06/16/92 Susan Hugo sent a letter dated June 16,1992 in reply to Chevron's letter dated February 27, 1992 requesting an Underground Storage Tank Unauthorized Release (Leak) / Contamination Site Report for the subject site, a work plan for soil and groundwater delineation, quarterly sampling and monitoring, documentation on soil disposition, and permits for the tanks.

06/23/92 Sent a copy of the Underground Storage Tank Unauthorized Release (Leak) / Contamination Site Report to Susan Hugo in a letter dated June 23, 1992. This report was originally submitted on January 19, 1991.

06/24/92 Sent to Susan Hugo a SES monitoring and sampling report dated June 17, 1992. Informed her that the site is on a quarterly monitoring and sampling schedule.

07/07/92 Sent to Susan Hugo a letter summarizing what has already been submitted to her. Enclosed was documentation on soil disposition and tank permits.

07/27/92 Sent a letter dated July 27, 1992 requesting an extension on the deadline for the work plan.

08/24/92 Submitted to Susan Hugo a PEG off-site source investigation report dated August 19, 1992. Informed her that the former Shell service station may be contributing to Chevron's groundwater contamination.

08/27/92 Susan Hugo sent a letter dated August 27,1992 requiring monthly depth to water level measurements and additional information in the quarterly monitoring and sampling reports. In the letter, she extended the deadline for the work plan to October 11, 1992. Also she was requesting metals to be analyzed in the next sampling period.

08/28/92 Sent a letter dated August 28, 1992 informed her that monthly depth to water level measurements were not warranted at this time and additional information to be included in the monitoring and sampling report can be easily obtained by writing the

8/28/92 (cont.)	results on the site plan. Stated to her that metal concentrations are below natural levels . Provided her a report, GeoStrategies report dated October 19, 1990, on background levels for metals in the area. Reminded her of the potential off-site source, and thanked her for extending the deadline.
09/02/92	Received a letter from Tom Peacock of Alameda County Health Care Services stating that further excavations in the tank pit is not necessary.
09/23/92	Arrange to have PEG perform subsurface investigation.
10/26/92	A meeting is scheduled with Ravi Arulunantham and Susan Hugo of Alameda County Health Care Services.

LKAN
9-3864 Summary

ENV memo # 21

July 8, 1992

IDENTICAL LETTER SENT TO ATTACHED LIST

Ladies and Gentlemen:

Subject: Site Development and Cleanup Actions at Fuel Leak Sites

We appreciate the support that the various city planning departments have provided for ensuring that fuel leak sites are properly addressed prior to property development. This letter informs you of the guidance the District provides to developers of such properties and requests your assistance.

Many property owners and developers have been requesting that the District provide 1) approval of their investigations and cleanup plans and 2) statements that they have met District requirements. They make these requests in response to conditions placed on development or building permits by city planning departments.

We appreciate your continuing to request developers to report the existence of fuel leak and solvent leak sites to the District. However, the District is able to provide comments on property development only for high priority sites which currently are receiving detailed oversight. These sites are listed in Appendix E of the enclosed Quarterly Fuel Leak Site Activity Report which is sent to each city on a quarterly basis.

Since there are nearly 1500 fuel leak sites in the County the District is not able to review lower priority sites proposed for development. The District maintains a list of sites currently under enforcement actions for noncompliance that could be used as a reference for the city review process for property development. I propose that the city planning department send a letter to site owners to notify them that they are required to meet District requirements. A suggested letter format and fact sheet is enclosed.

The District does not require cleanup of sites prior to development because, for many sites, property development may not interfere with cleanup activities. Site cleanup is sometimes dependent on funds generated by the property development. Cleanup can take several months to accomplish due to the physical nature and complexity of groundwater cleanup and it is unreasonable to restrict the use of property during that time.

We do recommend that soil and groundwater be cleaned up prior to construction when the property development proposed would interfere with the cleanup. This simplifies both scheduling and construction, and is typically the most economical solution to implementing corrective actions. It may be possible to satisfy corrective action requirements and still develop sites. If the site owner understands that cleanup may be more complicated and expensive because of site development, and is willing to bear the costs, the District has no objection to site development.

Please call Belinda Allen at our Camden Office at (408) 927-0710, extension 2644 to discuss any comments or questions that you may have.

Sincerely,

ORIGINAL SIGNED BY

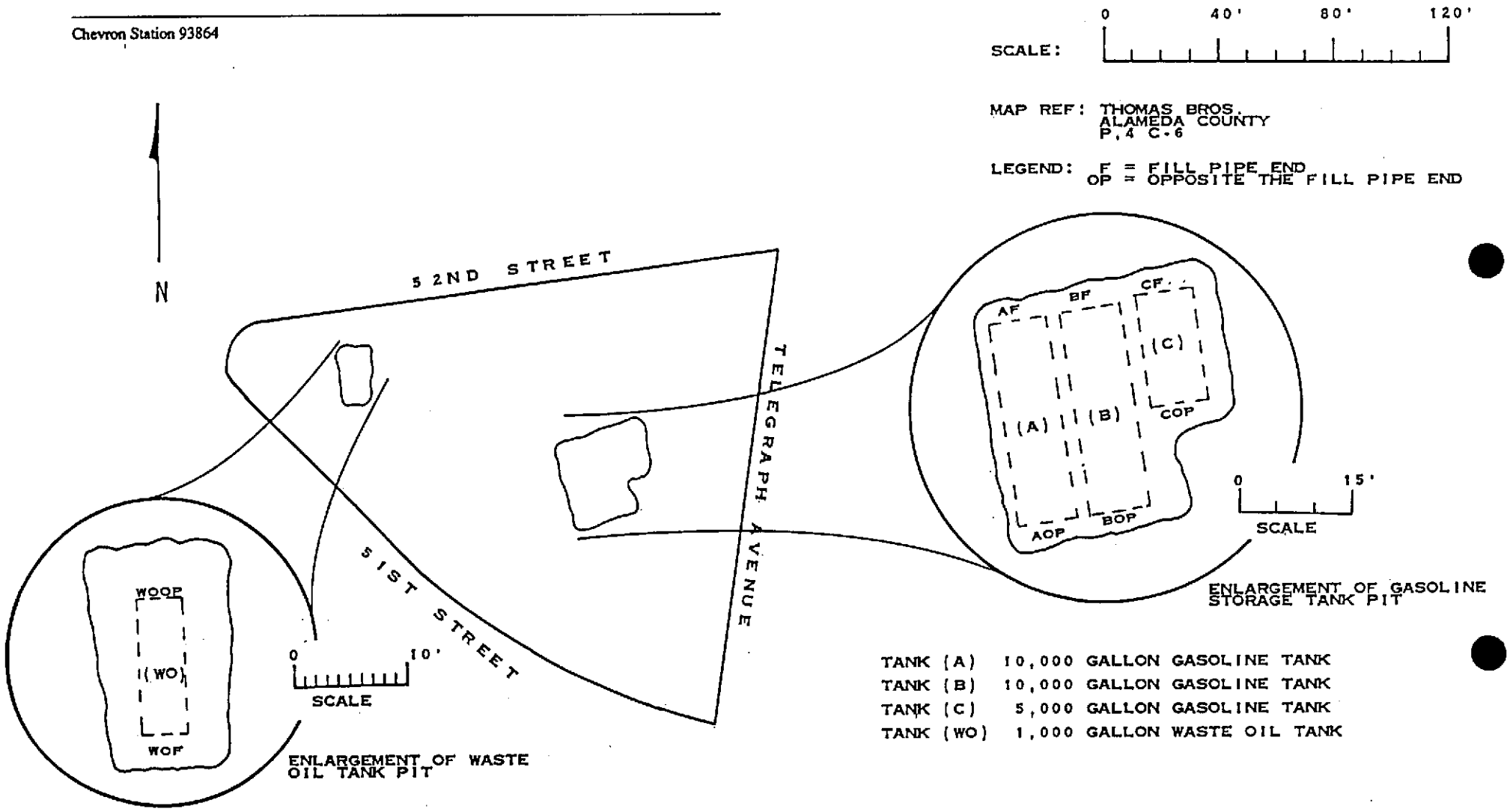
Roger B. James
Operations & Water Quality Manager

Enclosures

cc: R. James, D. Chesterman, D. Drury, B. Allen, H. Ude, File, Read

MASTER SITE DIAGRAM

Chevron Station 93864

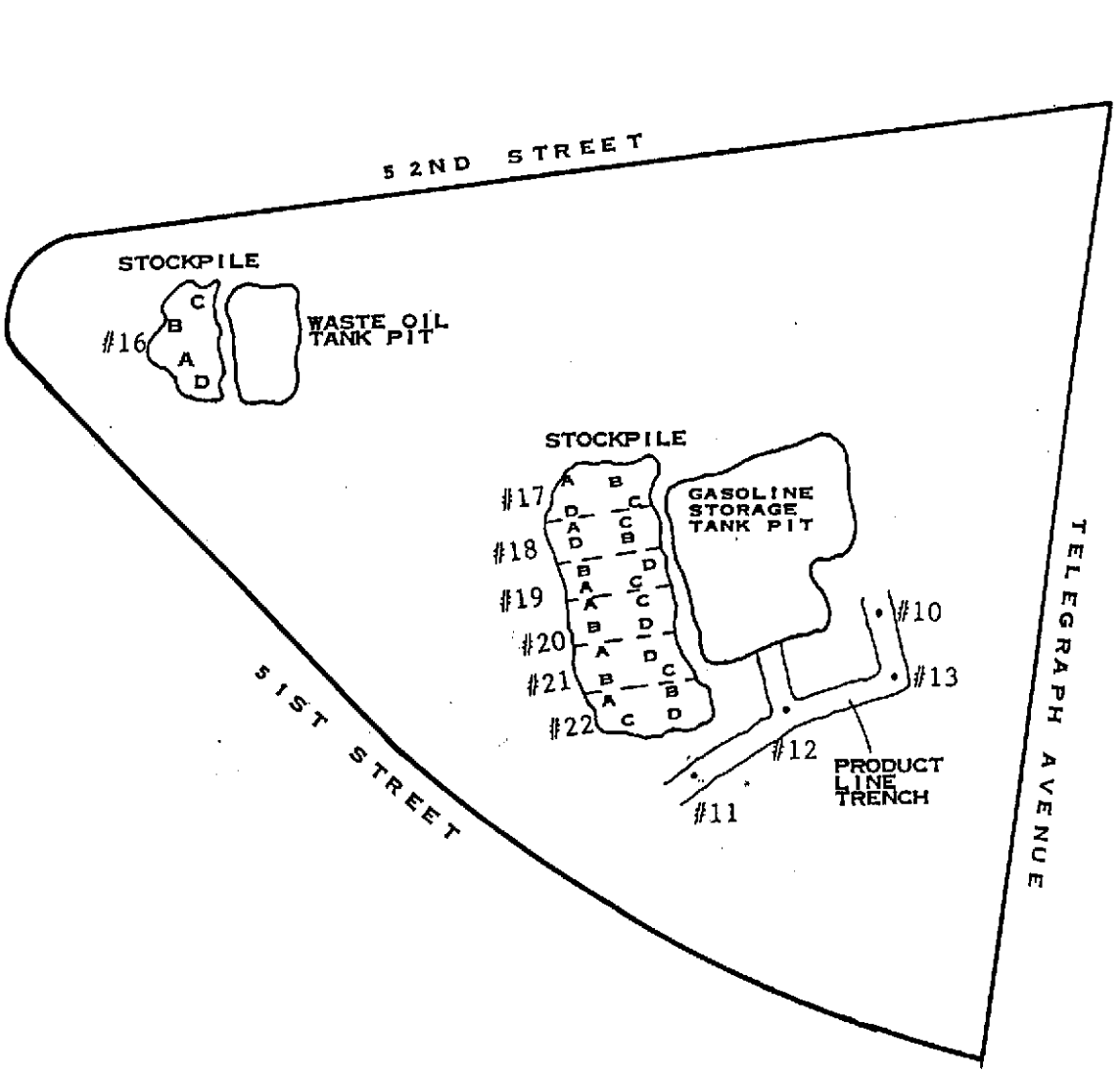


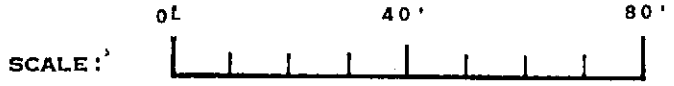
TANK (A) 10,000 GALLON GASOLINE TANK
TANK (B) 10,000 GALLON GASOLINE TANK
TANK (C) 5,000 GALLON GASOLINE TANK
TANK (WO) 1,000 GALLON WASTE OIL TANK

TANK REMOVAL DIAGRAM

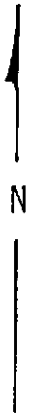
September 18, 1991 / 910918-C-1

DIAGRAM TWO





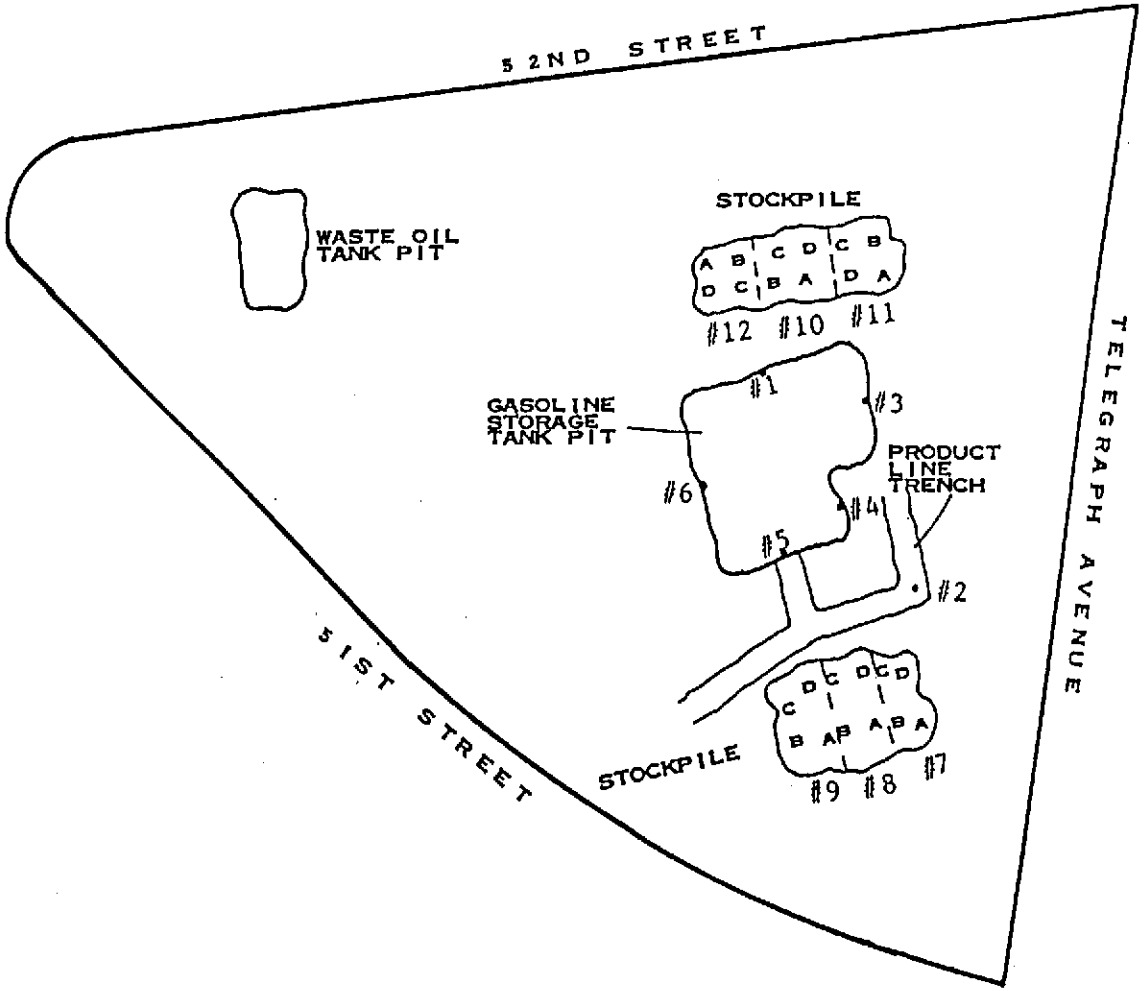
MAP REF: THOMAS BROS., ALAMEDA COUNTY P.4 C-6



SAMPLING PERFORMED BY GLEN BENNETT
DIAGRAM PREPARED BY LI PAN

ADDITIONAL EXCAVATION DIAGRAM

September 26, 1991 / 910926-C-1



SCALE: 0 40' 80'

MAP REF: THOMAS BROS., ALAMEDA COUNTY P.4 C-6

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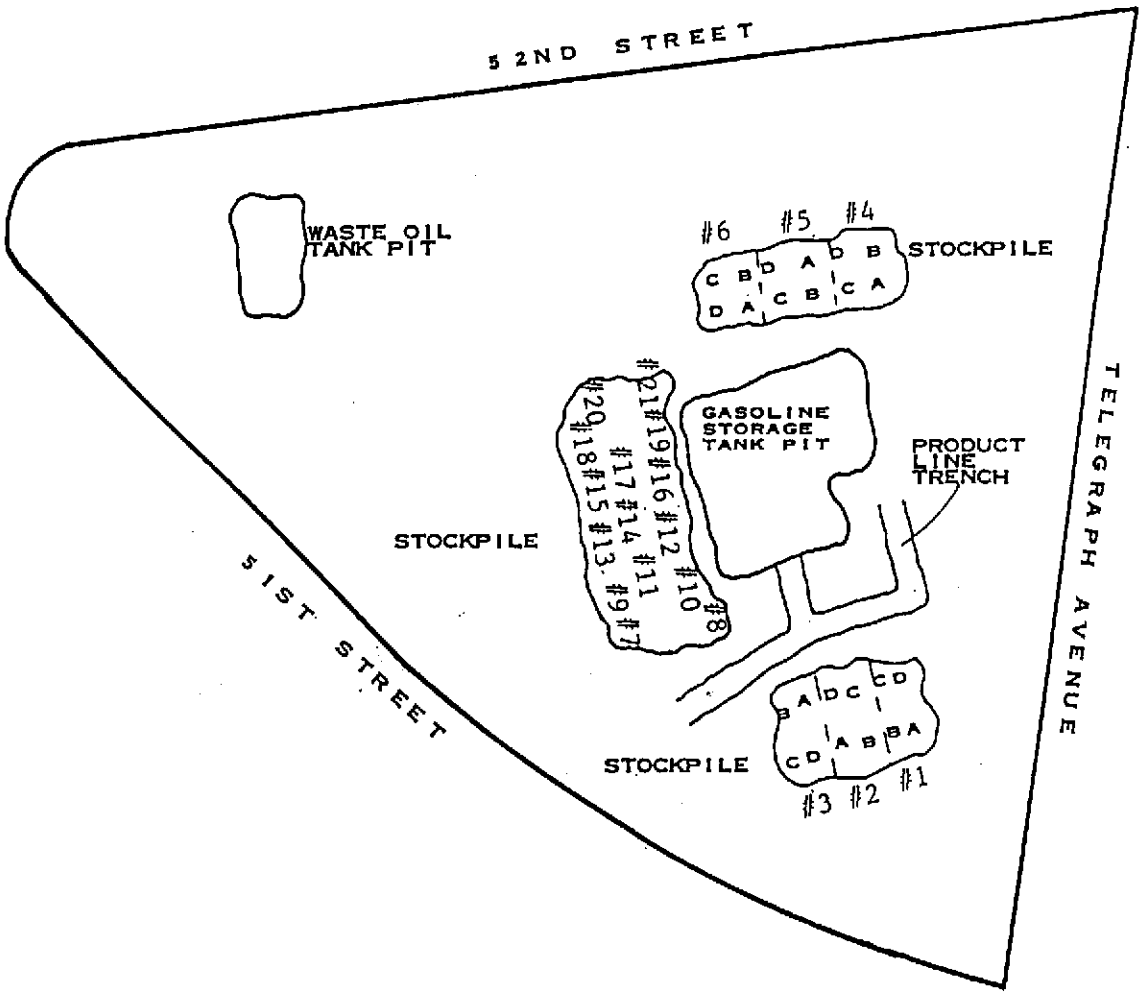
SAMPLING PERFORMED BY GLEN BENNETT

DIAGRAM PREPARED BY LI PAN

STOCKPILE DIAGRAM

September 10, 1991 / 911010-C-1



SCALE: 0 40' 80'

MAP REF: THOMAS BROS., ALAMEDA COUNTY P.4 C-6

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SAMPLING PERFORMED BY GLEN BENNETT
DIAGRAM PREPARED BY LI PAN

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

NOTE: Analytical results are reported in Parts Per Million or Parts Per Billion

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	PPM BEN-ZENE	PPM TOL-UENE	PPM ETHYL BEN-ZENE	PPM XY-LENES
TANK PIT														
AF	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#6	SUPERIOR	83940-6	190	0.33	0.38	0.81	1.8
AM	10.0	ELECTIVE	CONFIRM	SOIL	09/18/91	910918-C-1	#7	SUPERIOR	83940-7	ND	ND	ND	ND	ND
Aop	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#1	SUPERIOR	83940-1	ND	ND	ND	ND	ND
BF	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#5	SUPERIOR	83940-5	64	0.040	0.040	0.13	0.32
	10.0	ELECTIVE	CONFIRM	SOIL	09/18/91	910918-C-1	#9	SUPERIOR	83940-9	ND	ND	ND	ND	0.007
Bop	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#2	SUPERIOR	83940-2	1300	ND	2.3	2.8	7.6
CF	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#4	SUPERIOR	83940-4	160 @	ND	ND	1.6	3.2
CM	10.0	ELECTIVE	CONFIRM	SOIL	09/18/91	910918-C-1	#8	SUPERIOR	83940-8	ND	ND	ND	ND	ND
Cop	13.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#3	SUPERIOR	83940-3	46 @	0.10	0.070	0.21	0.18
#1	15.5	ELECTIVE	CAPILLAR	SOIL	09/26/91	910926-C-1	#1	SUPERIOR	84002-1	580	ND	1.4	1.5	3.9
#3	15.5	ELECTIVE	CAPILLAR	SOIL	09/26/91	910926-C-1	#3	SUPERIOR	84002-3	71	0.069	0.12	0.22	0.57
#4	15.5	ELECTIVE	CAPILLAR	SOIL	09/26/91	910926-C-1	#4	SUPERIOR	84002-4	980	ND	2.7	2.5	5.5
#5	15.5	ELECTIVE	CAPILLAR	SOIL	09/26/91	910926-C-1	#5	SUPERIOR	84002-5	330	ND	0.81	1.0	2.7
#6	15.5	ELECTIVE	CAPILLAR	SOIL	09/26/91	910926-C-1	#6	SUPERIOR	84002-6	460	ND	0.92	1.3	3.0
DISPENSER PUMP ISLAND AND PRODUCT LINE														
DP	2.0	LIA	INTRFACE	SOIL	09/18/91	910918-C-1	#10	SUPERIOR	83940-10	ND	ND	ND	ND	ND
	3.0	LIA	INTRFACE	SOIL	09/18/91	910918-C-1	#11	SUPERIOR	83940-11	ND	0.008	0.009	ND	0.010
PL	2.0	LIA	INTRFACE	SOIL	09/18/91	910918-C-1	#12	SUPERIOR	83940-12	ND	ND	ND	ND	ND
	2.0	LIA	INTRFACE	SOIL	09/18/91	910918-C-1	#13	SUPERIOR	83940-13	53	0.90	3.5	1.2	6.9
	5.0	ELECTIVE	CONFIRM	SOIL	09/26/91	910926-C-1	#2	SUPERIOR	84002-2	2.0	0.069	0.092	0.022	0.18

@ Gasoline range concentration reported. Heavy hydrocarbons present in chromatogram.

Standard - The location conformed to established (professional or regulatory) definitions for the type of sample being collected. Example: a standard RWQCB interface sample.

LIA - The local implementing agency inspector chose a sampling location that was different from a standard (pre-defined) location.

Elective - Elective samples are not taken to comply with regulatory requirements, but to obtain information. Sampling locations may be chosen by the property owner, the contractor, a consultant, etc. The samples may or may not be analyzed.

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

NOTE: Analytical results are reported in Parts Per Million or Parts Per Billion

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	PPM BEN-ZENE	PPM TOL-UENE	PPM ETHYL BEN-ZENE	PPM XY-LENES	TCLP * LEAD	SOLUBLE * LEAD
STOCKPILE																
#17A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#17A-D	SUPERIOR	83940-17	65 @	ND	ND	0.58	2.6	--	--
#18A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#18A-D	SUPERIOR	83940-18	120	0.030	0.046	0.71	2.4	--	--
#19A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#19A-D	SUPERIOR	83940-19	6.0	0.008	0.097	0.060	0.68	--	--
#20A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#20A-D	SUPERIOR	83940-20	ND	ND	0.006	ND	0.034	--	--
#21A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#21A-D	SUPERIOR	83940-21	3.0	0.006	0.024	0.020	0.26	--	--
#22A-D	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#22A-D	SUPERIOR	83940-22	3.0	ND	0.015	0.011	0.33	--	--
#7A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#7A-D	SUPERIOR	84002-7	540	ND	1.1	1.6	3.8	--	--
#8A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#8A-D	SUPERIOR	84002-8	210	ND	0.27	0.56	1.4	--	--
#9A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#9A-D	SUPERIOR	84002-9	170	ND	0.54	0.64	1.5	--	--
#10A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#10A-D	SUPERIOR	84002-10	74	ND	0.16	0.24	0.54	--	--
#11A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#11A-D	SUPERIOR	84002-11	320	ND	0.84	0.96	2.6	--	--
#12A-D	12"	STANDARD	BAAQMD-M	SOIL	09/26/91	910926-C-1	#12A-D	SUPERIOR	84002-12	200	ND	0.55	0.69	1.6	--	--
#1A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#1A-D	SUPERIOR	84104-1	100	ND	0.19	0.26	0.70	ND	0.2
#2A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#2A-D	SUPERIOR	84104-2	67	ND	0.12	0.22	0.57	ND	0.2
#3A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#3A-D	SUPERIOR	84104-3	140	ND	0.16	0.32	0.93	ND	0.2
#4A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#4A-D	SUPERIOR	84104-4	30	ND	0.061	0.10	0.29	ND	0.5
#5A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#5A-D	SUPERIOR	84104-5	75	ND	0.14	0.22	0.57	ND	0.2
#6A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#6A-D	SUPERIOR	84104-6	72	ND	0.085	0.17	0.48	ND	0.2
#7	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#7	SUPERIOR	84104-7	ND	ND	ND	ND	ND	--	--
#8	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#8	SUPERIOR	84104-8	ND	ND	ND	ND	ND	--	--
#9	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#9	SUPERIOR	84104-9	ND	ND	ND	ND	ND	--	--
#10	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#10	SUPERIOR	84104-10	ND	ND	ND	ND	ND	--	--
#11	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#11	SUPERIOR	84104-11	ND	ND	ND	ND	ND	--	--
#12	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#12	SUPERIOR	84104-12	ND	ND	ND	ND	ND	--	--
#13	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#13	SUPERIOR	84104-13	ND	ND	ND	ND	ND	--	--
#14	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#14	SUPERIOR	84104-14	ND	ND	ND	ND	ND	--	--
#15	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#15	SUPERIOR	84104-15	ND	ND	ND	ND	ND	--	--
#16	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#16	SUPERIOR	84104-16	ND	ND	ND	ND	ND	--	--
#17	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#17	SUPERIOR	84104-17	ND	ND	ND	ND	ND	--	--
#18	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#18	SUPERIOR	84104-18	ND	ND	ND	ND	ND	--	--
#19	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#19	SUPERIOR	84104-19	ND	ND	ND	ND	ND	--	--
#20	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#20	SUPERIOR	84104-20	ND	ND	ND	ND	ND	--	--
#21	12"	RWQCB	DISCRETE	SOIL	10/10/91	911010-C-1	#21	SUPERIOR	84104-21	ND	ND	ND	ND	ND	--	--

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	REACTIVITY--PPM--- CYANIDE	SULFIDE	CORROSIVITY pH	IGNITABILITY FLASH POINT
#1A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#1A-D	CLAYTON	01A	<0.3	<10	7.7	N.I.
#2A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#2A-D	CLAYTON	02A	<0.3	<10	7.7	N.I.
#3A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#3A-D	CLAYTON	03A	<0.3	<10	7.7	N.I.
#4A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#4A-D	CLAYTON	04A	<0.3	<10	7.9	N.I.
#5A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#5A-D	CLAYTON	05A	<0.3	<10	7.7	N.I.
#6A-D	12"	STANDARD	BAAQMD-M	SOIL	10/10/91	911010-C-1	#6A-D	CLAYTON	06A	<0.3	<10	7.5	N.I.

@ Gasoline range concentration reported. Heavy hydrocarbons present in chromatogram.

* The Superior Analytical Laboratory numbers for TCLP Lead and Soluble Lead for samples #1A-D through #6A-D are 84123-1 through 84123-6.

TABLE OF SAMPLING LOCATIONS AND ANALYTICAL RESULTS

NOTE: Analytical results are reported in Parts Per Million or Parts Per Billion

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH AS GAS	PPM BEN-ZENE	PPM TOL-UENE	PPM ETHYL BEN-ZENE	PPM XY-LENES	PPM SOLUBLE LEAD
WoF	11.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#15	SUPERIOR	83940-15	ND	ND	ND	ND	ND	--
Woop	11.0	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#14	SUPERIOR	83940-14	ND	ND	ND	ND	ND	--
WoSTK	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#16A-D	SUPERIOR	83940-16	ND	ND	ND	ND	0.006	0.6

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM TPH-HBF DIESEL	PPM TOTAL OIL & GREASE	PPB EPA 8010 COMPOUNDS
WoF	11.5	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#15	SUPERIOR	83940-15	ND	ND	ND
Woop	11.0	STANDARD	INTRFACE	SOIL	09/18/91	910918-C-1	#14	SUPERIOR	83940-14	ND	ND	ND
WoSTK	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#16A-D	SUPERIOR	83940-16	78 *	ND	ND

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM BARIUM	PPM CADMIUM	PPM CHROMIUM	PPM LEAD	PPM SILVER
WoSTK	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#16A-D	SUPERIOR	83940-16	0.8	ND	ND	ND	ND

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	PPM ARSENIC	PPM MERCURY	PPM SELENIUM
WoSTK	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#16A-D	CLAYTON	9110108-02	<0.1	<0.1	<0.1

I.D. GIVEN THIS SAMPLE AREA	SAMPLE DEPTH IN FT. BELOW GRADE	SAMPLING LOCATION DICTATED BY	TYPE & METHOD FOR THE SAMPLE OBTAINED	SAMPLE MATRIX	DATE SAMPLED	BTS CHAIN OF CUSTODY I.D.	BTS SAMPLE I.D.	NAME OF DOHS HMTL LABORATORY	LABORATORY SAMPLE I.D.	REACTIVITY--PPM--- CYANIDE	SULFIDE	CORROSIVITY pH	IGNITABILITY FLASH POINT
WoSTK	12"	STANDARD	BAAQMD-M	SOIL	09/18/91	910918-C-1	#16A-D	CLAYTON	9110108-01	<0.3	<10	8.3	N.I.

* Diesel range concentration reported. Heavy hydrocarbons present in chromatogram.

TABLE 2

SOIL ANALYSES DATA

SAMPLE I.D.	SAMPLE DATE	ANALYZED DATE	TPH-G (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)	TOG (PPM)
C-1-15.5	14-Nov-90	27-Nov-90	48	<0.025	0.29	0.28	0.60	NA
C-2-10.5	14-Nov-90	27-Nov-90	<1	<0.005	<0.005	<0.005	<0.005	NA
C-2-15.5	14-Nov-90	27-Nov-90	25	0.040	0.092	0.18	0.40	NA
C-3-10.5	15-Nov-90	27-Nov-90	<1	0.006	0.016	0.006	0.021	NA
C-3-15.5	15-Nov-90	27-Nov-90	270	<0.25	0.87	1.5	3.4	NA
C-4-10.5	15-Nov-90	27-Nov-90	<1	<0.005	<0.005	<0.005	<0.005	<50
C-4-15.5	15-Nov-90	27-Nov-90	<1	<0.005	<0.005	<0.005	<0.005	<50

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
PPM = Parts Per Million
NA = Not Analyzed

Note: 1. All data shown as <x are reported as ND (none detected).

Field location of boring: (See Plate 2)	Project No.: 7277	Date: 11/14/90	Boring No: C-1
	Client: Chevron Service Station No. 3864		
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 1 of 2
	Logged by: RCM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data: (See Well Construction Detail)		
Hole diameter: 8-Inches	Top of Box Elevation: 117.45		Datum: MSL

Water Level	15.00'	19.25'	
Time	10:20	11:45	
Date	11/14/90	11/14/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 1.0 feet.
				2				
				3				
				4				
	500	S&H	C-1-					SILT (ML) - very dark gray (10YR 3/1), damp, medium
0	500	push	5.0	5				stiff, low plasticity; 75% silt; 10% clay; 10% sand; 5% fine
				6				gravel; rootholes; organic matter.
				7				
				8				
				9				
	11							SAND (SW) - brownish yellow (10YR 6/6), damp,
0	11	S&H	C-1-	10				medium dense; 85% sand; 10% fine gravel; 5% silt;
	13		10.5					Fe-oxide staining.
				11				
				12				
				13				
				14				
	11							CLAYEY GRAVEL with SAND (GC) - dark greenish gray
808	11	S&H	C-1-	15		▽		(5GY 4/1), saturated, medium dense; 65% gravel; 20%
	15		15.5					sand; 15% clay.
				16				
				17				
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

Field location of boring:	Project No.: 7277	Date: 11/14/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-1
	Location: 5101 Telegraph Avenue		Sheet 2
	City: Oakland, California		of 2
	Logged by: RCM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
	7							CLAYEY SAND (SC) - light olive brown (2.5Y 6/6), saturated, medium dense; 75% sand; 15% clay; 10% gravel.
14.2	8	S&H	C-1-20.5	20				
	6			21				CLAYEY SILT (ML/CL) - yellowish brown (10YR 5/6), saturated, stiff; 65% silt; 25% clay; 10% fine sand.
				22				
				23				
				24				SAND with CLAY (SW-SC) - dark yellowish brown (10YR 4/4), saturated, medium dense; 85% coarse sand; 10% clay; 5% gravel.
	7							
42.8	10	S&H	C-1-25.5	25				
	19			26				
				27				
				28				
				29				
	4							SANDY CLAY (CL) - dark yellowish brown (10YR 4/6), damp, very stiff, medium plasticity; 70% clay; 25% sand; 5% silt.
19.0	7	S&H	C-1-30.5	30				
	12			31				
				32				
				33				
	7							COLOR CHANGE to strong brown (7.5YR 4/6), hard; increasing sand to 30% at 33.5 feet.
	16	SPT		34				
	29							
				35				
								Bottom of sample at 34.5 feet.
				36				Bottom of boring at 34.5 feet.
								11/14/90
				37				
				38				
				39				

Remarks:

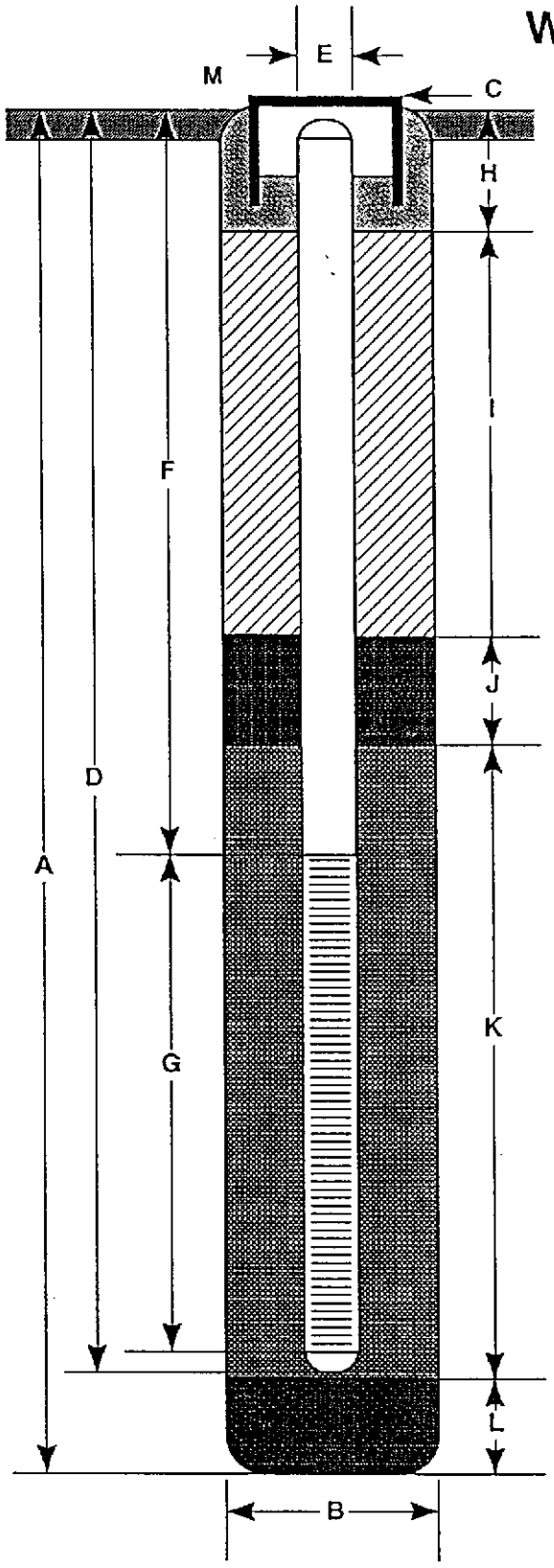
GeoStrategies Inc.

Log of Boring

BORING NO. C-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 34.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 117.45 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 10 ft.

G Perforated Length 19.5 ft.
Perforated Interval from 10 to 29.5 ft.
Perforation Type Factory Slotted
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 6 ft.
Backfill Material Concrete

J Seal from 6 to 8 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 8 to 30 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 4.5 ft.
Seal Material Bentonite Pellets

M Vault box with locking cap, lock and cover.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. C-1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

Field location of boring:	Project No.: 7277	Date: 11/14/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-2
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 1
	Logged by: RCM	Driller: Bayland	of 2
	Casing installation data: (See Well Construction Detail)		
Drilling method: Hollow Stem Auger	Top of Box Elevation: 116.16		Datum: MSL
Hole diameter: 8-Inches			

Water Level	15.5'	15.4'	
Time	14:45	8:45	
Date	11/14/90	11/15/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 1.0 feet.
				2				CLAYEY SILT (ML/CL) - very dark gray (10YR 3/1), moist, medium stiff, medium plasticity; 60% silt; 40% clay.
				3				
				4				
	200			5				Increasing sand to 10%; gravel to 5%; organic matter at 5.5 feet.
0	200	S&H	C-2-					
	250	push	5.5					
				6				
				7				
				8				
				9				
	3			10				CLAYEY SAND (SC) - dark yellowish brown (10YR 4/4), moist, medium dense; 70% sand; 20% clay; 10% gravel
0	4	S&H	C-2-					
	7		10.5					COLOR CHANGE to olive (5Y 4/4); increasing silt to 5% at 10.5 feet.
				11				
				12				
				13				
				14				
	6							GRAVEL with CLAY and SAND (GW-GC) - greenish gray (5G 5/1), saturated; medium dense; 65% gravel; 25% sand; 10% clay; strong chemical odor.
914	8	S&H	C-2-	15				
	11		15.5			▽ ▼		
				16				
				17				
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

Field location of boring:	Project No.: 7277	Date: 11/14/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-2
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 2
	Logged by: RCM	Driller: Bayland	of 2
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation:		Datum:

								Water Level				
								Time				
								Date				
PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description				
	6							GRAVEL with SAND (GW) - olive (5Y 4/4), saturated,				
86.5	14	S&H	C-2-	20				dense; 60% gravel; 35% sand; 5% silt; Fe-oxide staining.				
	17		20.5									
				21								
				22								
				23								
				24								
	0											
	0	S&H		25				Very loose at 25.5 feet.				
	1											
				26								
				27								
				28								
				29				SAND with CLAY and GRAVEL (SW-SC) - dark yellowish				
	14		C-2-					brown (10YR 4/4), saturated, medium dense; 55% sand;				
5.0	11	S&H	30.0	30				35% gravel; 10% clay.				
	12							SANDY CLAY (CL) - brownish yellow (10YR 6/6), damp,				
				31				very stiff, medium plasticity; 65% clay; 35% sand.				
				32								
				33				Bottom of sample at 30.5 feet.				
								Bottom of boring at 30.5 feet.				
				34				11/14/90				
				35								
				36								
				37								
				38								
				39								

Remarks:

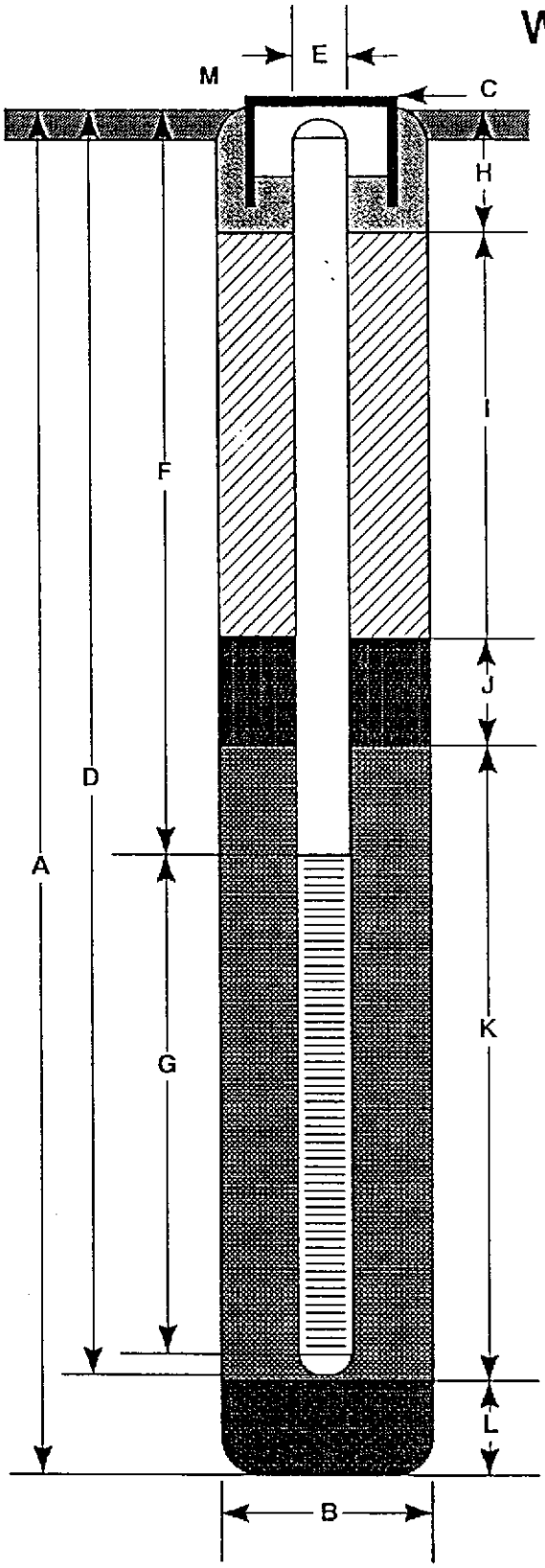
GeoStrategies Inc.

Log of Boring

BORING NO. C-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	PHP	11/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 30.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 116.16 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 10 ft.

G Perforated Length 19.5 ft.
Perforated Interval from 10 to 29.5 ft.
Perforation Type Factory Slotted
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 6 ft.
Backfill Material Concrete

J Seal from 6 to 8 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 8 to 30 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Bentonite Pellets

M Vault box with locking cap, lock and cover.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. C-2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHR	11/90		

Field location of boring:	Project No.: 7277	Date: 11/15/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3964		C-3
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 1
	Logged by: RCM	Driller: Bayland	of 2
Drilling method: Hollow Stem Auger	Casing installation data: (See Well Construction Detail)		
Hole diameter: 8-Inches	Top of Box Elevation: 115.70		Datum: MSL

Water Level	15.5'	17.1'	
Time	10:05	15:30	
Date	11/15/90	11/15/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 1.0 feet.
				2				CLAYEY SILT (ML/CL) - very dark brown (10YR 2/2), damp, medium plasticity; 60% silt; 35% clay; 5% fine sand.
				3				
				4				
0	500	S&H	C-3-	5				Medium stiff, damp; organic matter at 4.5 feet.
		push	4.5					
				6				
				7				
				8				
				9				
	7			10				SAND with SILT (SW-SM) - dark yellowish brown (10YR 3/4), damp, dense; 85% sand; 10% silt; 5% fine gravel; organic matter; Fe-oxide staining.
0	15	S&H	C-3-					
	17		10.5	11				
				12				
				13				
				14				
	7			15				CLAYEY SAND with GRAVEL (SC) - dark greenish gray (5GY 4/1), saturated, dense; 65% sand; 20% clay; 15% fine gravel.
890	14	S&H	C-3-					
	16		15.5			▽		
	8			16				
995	13	SPT						
	16			17		▼		
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

Field location of boring:	Project No.: 7277	Date: 11/15/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-3
	Location: 5101 Telegraph Avenue		Sheet 2
	City: Oakland, California		of 2
	Logged by: RCM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
	2							SILTY SAND (SM) - yellowish brown (10YR 5/4),
32.8	5	S&H	C-3-	20				saturated, medium dense; 65% sand; 30% silt; 5% fine
	10		20.5					gravel; gray green staining to 20.0 feet.
				21				CLAYEY GRAVEL with SAND (GC) - dark yellowish
								brown (10YR 3/4), saturated, medium dense; 55% gravel;
				22				25% sand; 20% clay.
				23				
				24				
	8							
24.1	15	S&H	C-3-	25				
	18		25.5					Dense at 25.5 feet.
				26				
				27				
				28				CLAYEY SAND (SC) - brownish yellow (10YR 6/6),
								damp, dense; 70% sand; 30% clay.
				29				
	8							SANDY CLAY (CL) - brownish yellow (10YR 6/6), damp,
9.0	15	S&H	C-3-	30				hard; 65% clay; 30% sand; 5% silt.
	18		30.5					
				31				
				32				Bottom of sample at 30.5 feet.
								Bottom of boring at 30.5 feet.
				33				11/15/90
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

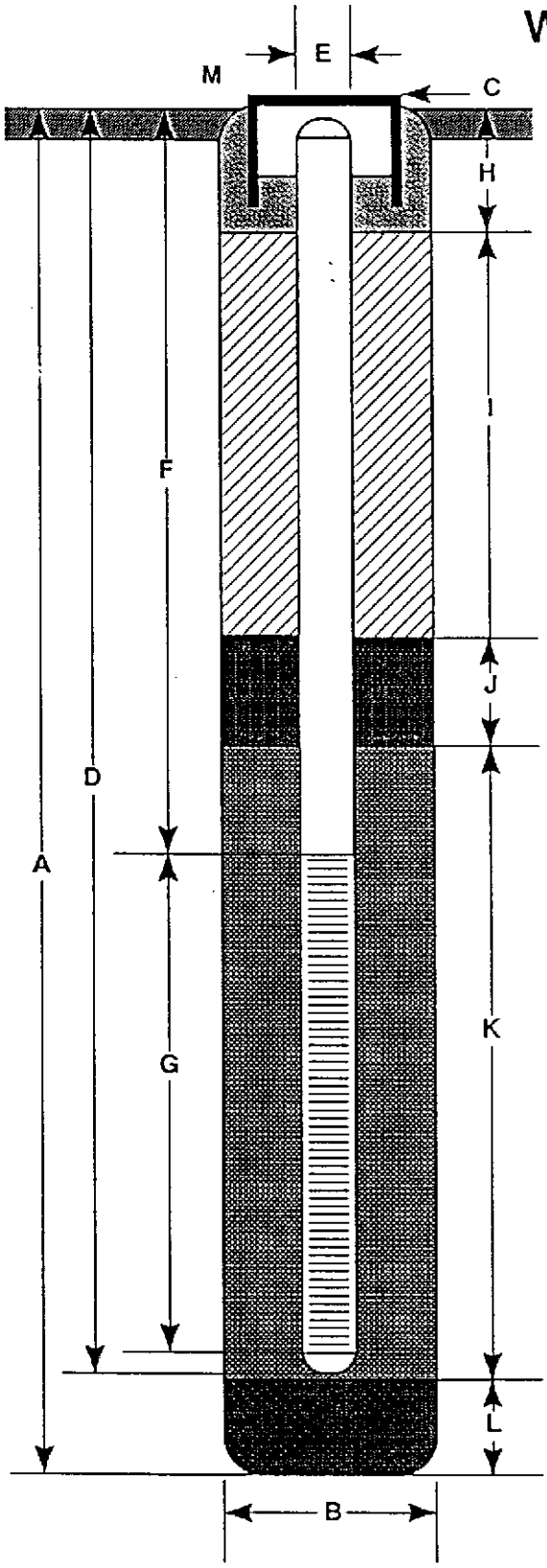
GeoStrategies Inc.

Log of Boring

BORING NO. C-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 30.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 115.70 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 10 ft.

G Perforated Length 19.5 ft.
Perforated Interval from 10 to 29.5 ft.
Perforation Type Factory Slotted
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 6 ft.
Backfill Material Concrete

J Seal from 6 to 8 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 8 to 30 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Bentonite Pellets

M Vault box with locking cap, lock and cover.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. C-3

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

Field location of boring:	Project No.: 7277	Date: 11/15/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-4
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 1 of 2
	Logged by: RCM	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data: (See Well Construction Detail)		
Hole diameter: 8-Inches	Top of Box Elevation: 116.10		Datum: MSL

Water Level	16.5'	18.1'		
Time	13:28	15:30		
Date	11/15/90	11/15/90		

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 1.0 feet.
				2				CLAYEY SILT (ML/CL) - very dark grayish brown (10YR 3/2), damp, medium plasticity; 65% silt; 35% clay; trace fine gravel.
				3				
				4				
	300			5				
0	500	S&H	C-4-					Medium stiff; organic matter; Fe-oxide staining at 5.5 feet.
	500	push	5.5	6				
				7				
				8				
				9				
	6			10				CLAYEY SAND with GRAVEL (SC) - yellowish brown (10YR 5/4), damp, medium dense; 60% sand; 25% clay; 15% gravel; Fe-oxide staining.
0	6	S&H	C-4-					
	13		10.5	11				
				12				
				13				
				14				
	8			15				Increasing gravel to 25%; dense at 15.5 feet.
0	17	S&H	C-4-					
	19		15.5	16				
	15							
0	16	S&H	C-4-	17		▽		Saturated at 16.5 feet.
	18		17.0	18		▼		
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHR	11/90		

Field location of boring:	Project No.: 7277	Date: 11/15/90	Boring No:
(See Plate 2)	Client: Chevron Service Station No. 3864		C-4
	Location: 5101 Telegraph Avenue		
	City: Oakland, California		Sheet 2
	Logged by: RCM	Driller: Bayland	of 2
	Casing installation data:		
Drilling method: Hollow Stem Auger			
Hole diameter: 8-Inches	Top of Box Elevation:		Datum:

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
	3							SILTY SAND (SM) - yellowish brown (10YR 5/4),
0	7	S&H	C-4-	20				saturated, medium dense; 65% sand; 35% silt; slight
	12		20.5					gray green discoloration.
				21				
				22				
				23				
								Increasing gravel to 25% at 24.5 feet.
				24				
	7							SAND (SW) - pale yellow (2.5Y 7/6), saturated, dense;
0	18	S&H	C-4-	25				95% sand; 5% silt.
	29		25.5					
				26				GRAVEL with SILT and SAND (GW-GM) - yellowish
								brown (10YR 5/4), saturated, dense; 70% gravel; 20%
				27				sand; 10% silt.
				28				
				29				
	4							CLAY with SAND (CL) - light gray (5Y 7/1), damp, very
0	13	S&H	C-4-	30				stiff, medium to high plasticity; 70% clay; 20% sand; 10%
	11		30.5					silt.
				31				
				32				
				33				
				34				
	7							Increasing sand to 30% at 35.5 feet.
0	8	S&H	C-4-	35				
	8		35.5					
				36				Bottom of sample at 35.5 feet.
								Bottom of boring at 35.5 feet.
				37				11/15/90
				38				
				39				

Remarks:

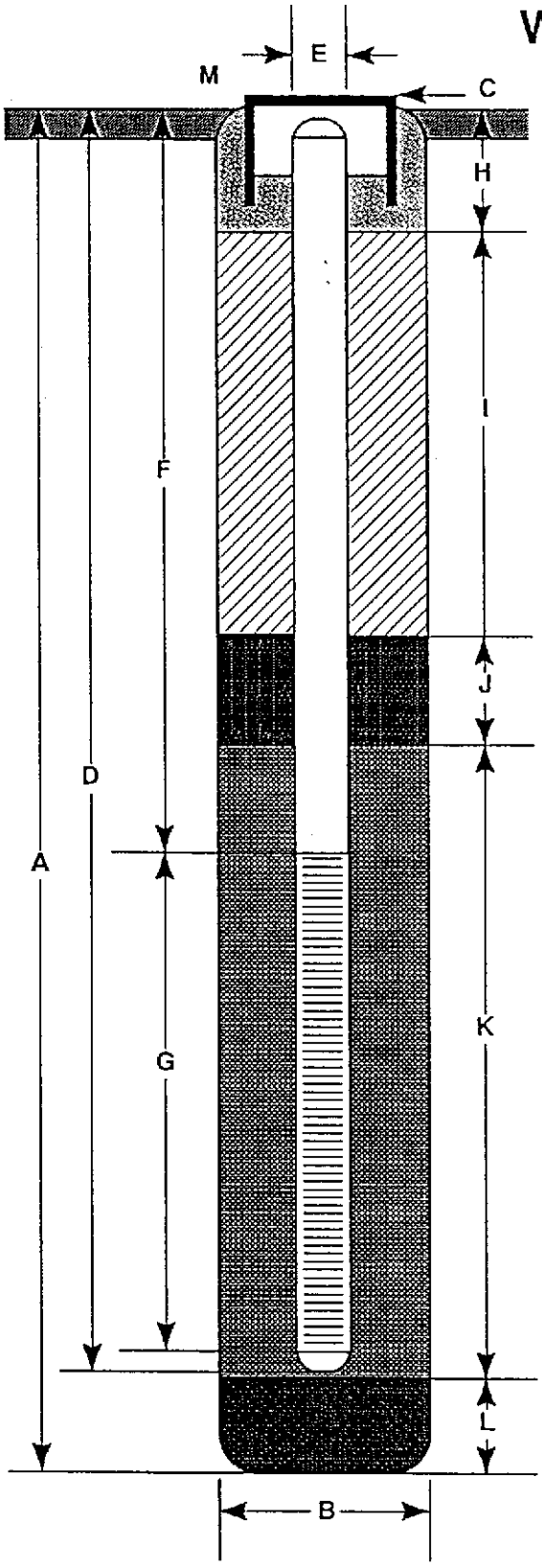
GeoStrategies Inc.

Log of Boring

BORING NO. C-4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 35.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation 116.10 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 10 ft.

G Perforated Length 19.5 ft.
Perforated Interval from 10 to 29.5 ft.
Perforation Type Factory Slotted
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 6 ft.
Backfill Material Concrete

J Seal from 6 to 8 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 8 to 30 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 5.5 ft.
Seal Material Bentonite Pellets

M Vault box with locking cap, lock and cover.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
C-4

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7277	DHP	11/90		

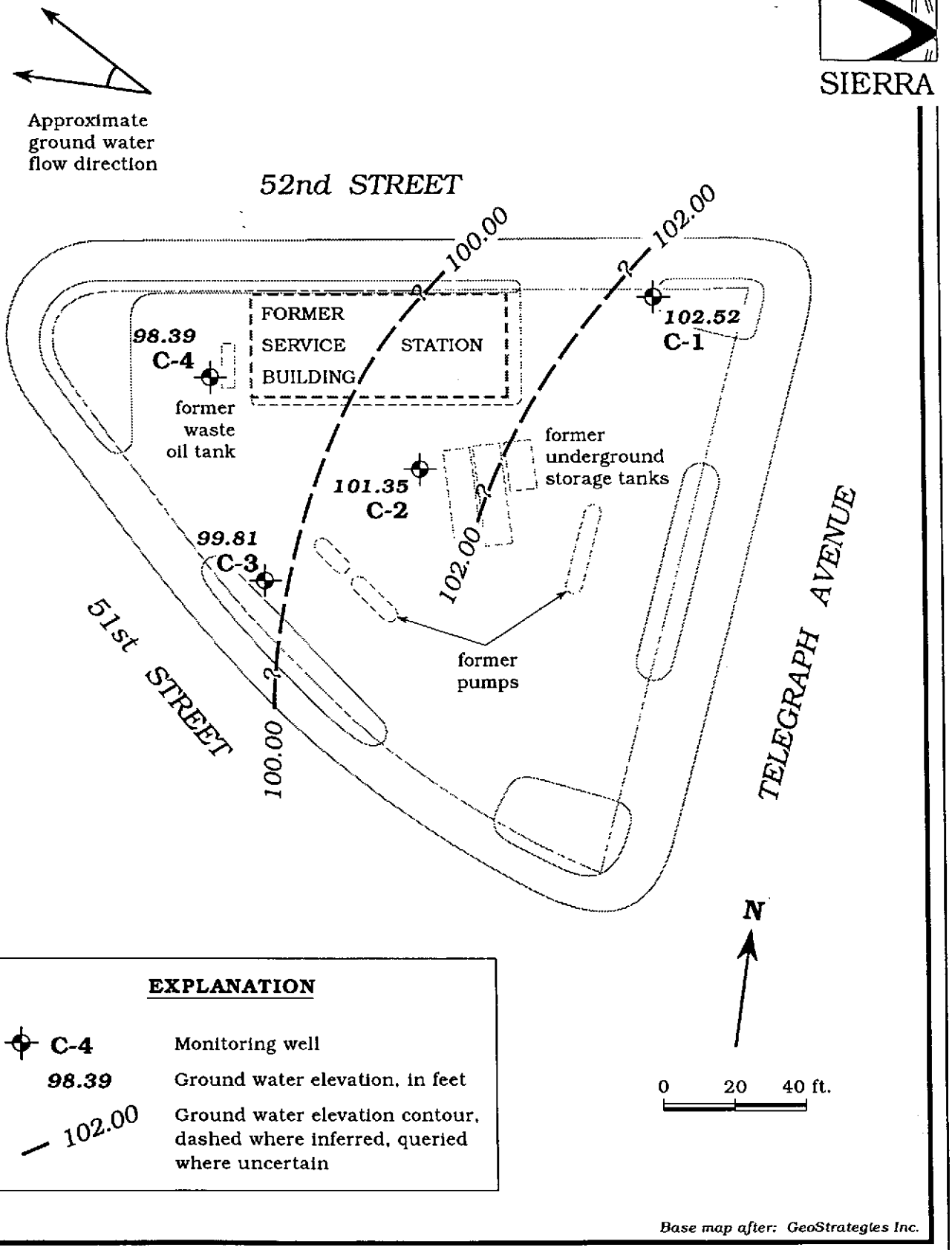


Figure 2. Monitoring Well Location and Ground Water Elevation Contour Map – September 16, 1992 – Former Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

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Table 1. Water Level Data and Well Construction Details - Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

Well ID	Date Measured	DTW (ft)	TOC (ft)	GWE (msl)	Product Thickness* (ft)	Screen Interval	Sand Pack Interval	Bentonite/Grout Interval
						<----------feet below grade---------->		
C-1	12/6/90	15.34	117.45	102.11	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	14.62		102.83	0			
	12/4/91	14.48		102.97	0			
	6/2/92	14.53		102.92	0			
	9/16/92	**14.93**		**102.52**	**0**			
C-2	12/6/90	15.34	116.16	100.82	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	14.62		101.54	0			
	12/4/91	15.43		100.73	0			
	6/2/92	14.42		101.74	0			
	9/16/92	**14.81**		**101.35**	**0**			
C-3	12/6/90	16.86	115.70	98.84	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	15.69		100.01	0			
	12/4/91	15.38		100.32	0			
	6/2/92	15.40		100.30	0			
	9/16/92	**15.89**		**99.81**	**0**			
C-4	12/6/90	17.68	116.10	98.42	0	10 - 29.5	8 - 30	0 - 8
	6/6/91	16.49		99.61	0			
	12/4/91	16.82		99.28	0			
	6/2/92	16.92		99.18	0			
	9/16/92	**17.71**		**98.39**	**0**			

EXPLANATION:

DTW = Depth to water
TOC = Top of casing elevation
GWE = Ground water elevation
msl = Measurements referenced relative to mean sea level

NOTES:

Depth to water measurements and top of casing elevations prior to June 6, 1991 were compiled from the January 17, 1991 Site Update Report prepared for this service station by GeoStrategies, Inc. of Hayward, California.

Well construction details were compiled from November 14 and 15, 1990 boring logs by GeoStrategies, Inc.

* Product thickness was measured by GeoStrategies, Inc. on December 6, 1990 with an electronic oil-water interface probe. SES product thickness measurements after 12/6/90 were made with an MMC flexi-dip interface probe.

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Table 2. Analytic Results for Ground Water - Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California

Well ID	Date Sampled	Analytic Lab	Analytic Method	TPPH(G)	B	T	E	X
				<----------ppb---------->				
C-1	12/6/90	SAL	8015/8020	1,900	17	11	3	21
	6/6/91	SAL	8015/8020	3,400	21	15	11	18
	12/4/91	SPA	8015/8020	2,700	22	16	13	23
	6/2/92	SPA	8015/8020	1,900	170	170	13	83
	9/16/92	**SPA**	**8015/8020**	**810**	**5.8**	**5.7**	**2.0**	**6.3**
C-2	12/6/90	SAL	8015/8020	210	140	9	2	11
	6/6/91	SAL	8015/8020	4,800	340	23	19	23
	12/4/91	SPA	8015/8020	3,900	85	15	9.1	15
	6/2/92	SPA	8015/8020	3,300	76	9.2	14	15
	9/16/92	**SPA**	**8015/8020**	**3,000**	**16**	**15**	**3.4**	**7.5**
C-3	12/6/90	SAL	8015/8020	210	2	<0.5	<0.5	1
	12/6/90[1]	SAL	8015/8020	220	2	0.6	<0.5	2
	6/6/91	SAL	8015/8020	6,400	310	21	16	21
	12/4/91	SPA	8015/8020	5,100	120	18	17	20
	6/2/92	SPA	8015/8020	6,700	140	44	17	37
	9/16/92	**SPA**	**8015/8020**	**7,100**	**130**	**26**	**12**	**30**
C-4	12/6/90	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/18/90[2]	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	6/6/91	SAL	8015/8020	<50	1.0	1.0	<0.5	0.7
	12/4/91	SPA	8015/8020	70	6.5	9.8	1.7	8.6
	6/2/92	SPA	8015/8020	70	3.0	4.4	1.8	9.0
	9/16/92	**SPA**	**8015/8020**	**<50**	**1.4**	**1.8**	**<0.5**	**1.1**
Trip Blank	12/6/90	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/18/90[3]	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
(AA)	6/6/91	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/4/91	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	6/2/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	9/16/92	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

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Table 2. Analytic Results for Ground Water - Chevron Service Station #9-3864, 5101 Telegraph Avenue, Oakland, California (continued)

Well ID	Date Sampled	Analytic Lab	Analytic Method	TPPH(G)	B	T	E	X
				<----------ppb---------->				
Bailer Blank (BB)	6/6/91	SAL	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	12/4/91	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	6/2/92	SPA	8015/8020	<50	<0.5	<0.5	<0.5	<0.5
	9/16/92	**SPA**	**8015/8020**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**

EXPLANATION:

TPPH(G) = Total Purgeable Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
ppb = Parts per billion
--- = Not analyzed/not applicable

ANALYTIC METHODS:

8015 = EPA Method 8015 for TPPH(G)
8020 = EPA Method 8020 for BTEX

ANALYTIC LABORATORIES:

SAL = Superior Analytical Laboratory of Martinez and San Francisco, California
SPA = Superior Precision Analytical, Inc. of Martinez, California

NOTES:

Ground water analytic data from December 6 and 18, 1990 was compiled from the January 17, 1991 Site Update Reports prepared for this service station by GeoStrategies, Inc. of Hayward, California.

[1] Duplicate sample.

[2] C-4 was also analyzed for halogenated volatile organic compounds (HVOCs) by EPA Method 8010, and metals (Cd, Cr, Pb, Ni and Zn) by EPA-approved methods. Two ppb chloroform, 0.18 ppm chromium, 0.25 ppm nickel and 0.23 ppm zinc were detected. Other HVOCs, Cd and Pb were not detected.

[3] The trip blank was also analyzed for HVOCs. HVOCs were not detected.

$$HBG = \frac{TCR \times \pi \times d \times RT \times ACH \times V \times BW \times LT \times UC_1}{H \times \sum_o \times 4D_o \times A \times CSF \times IR \times EF \times EP \times UC_2 \times UC_3 \times UC_4} \quad (11)$$

For non-cancer risk:

$$HBG = \frac{THQ \times RfD \times \pi \times d \times RT \times ACH \times V \times BW \times UC_1}{H \times \sum_o \times 4D_o \times A \times IR \times EF \times UC_2 \times UC_3 \times UC_4} \quad (12)$$

where:

A	=	area of infiltration (m^2);
ACH	=	air exchange rate (hr^{-1});
BW	=	adult body weight (kg);
CSF	=	cancer slope factor for inhalation exposure (kg-day/mg);
d	=	diffusion distance (cm);
D_o	=	vapor diffusion coefficient (cm^2/sec);
EF	=	exposure frequency (days/yr);
EP	=	exposure period (yr);
H	=	Henry's Law Constant (atm-m^3/mol);
HBG	=	health-based remedial goal (mg/L);
IR	=	inhalation rate (daily average) (m^3/day);
LT	=	expected lifetime (averaging period for cancer effects) (yr);
RfD	=	reference dose for inhalation exposure (mg/kg/day);
RT	=	universal gas constant x soil temperature (atm-m^3/mol);

Σ_o = first term of infinite series in Equation 2, as defined in Equation 9;

TCR = target cancer risk (unitless);

THQ = target hazard index for non-cancer risk (unitless); and

UC_1 = unit conversion = 365 days/year.

UC_2 = unit conversion = 0.001 L/cm^3.

UC_3 = unit conversion = 10,000 cm^2/m^2.

UC_4 = unit conversion = 3,600 sec/hr.

V = volume of building (m^3).

For carcinogenic constituents, the more conservative HBG was selected as the minimum of the two HBGs calculated for cancer and non-cancer effects. For noncarcinogens, only the non-cancer HBG was calculated.

EXPOSURE PARAMETERS

This subsection presents the residential exposure scenarios used in calculating the HBGs and the selected parameter values. The two scenarios pertain to an adult and a child resident living in the home which was modeled in the calculation of indoor air concentration (Equation 6). Assuming any new homes built on the site would be similar to other homes in the area, the hypothetical building dimensions were 30 feet × 50 feet (1,500 square feet) (a represesentative size obtained from an aerial photograph of the site). For an adult resident, an average body weight of 70 kg and an exposure period (residence time) of 30 years were used. For a child resident (aged 0 to 6 years), an age-averaged body weight of 15 kg and an exposure period of 6 years were used. All of the variables in the HBG calculations and their values are presented below: