RO - 2437

Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive
Suite 200
Rancho Cordova, CA 95670-6021
U.S.A.
916/638-2085
FAX: 916/638-8385

February 20, 2002

FEB 25 2002

Ms. Eva Chu
Alameda County Health Department
1131HarborBayParkway
Alameda, California 94502

Subject: *Work Plan to Install Three Groundwater Monitoring Wells and Sample Monthly (2 Events)*
Former Chevron No. 21-208
6006 International Boulevard
Oakland, California
Delta Project No. DG20-208

Dear Ms. Chu:

Delta Environmental Consultants, Inc. (Delta) has been authorized by Chevron Products Company (Chevron) to prepare a work plan to install three groundwater monitoring wells, sample the wells bi-weekly for four events, then destroy the wells. The purpose of this work is to verify that the concentration of petroleum hydrocarbons in groundwater collected from monitoring wells is similar in magnitude, or less than, the concentrations observed in groundwater samples collected during the Geoprobe® investigation in July 2001. This work plan is being prepared at the request of the Alameda County Health Department (ACHD) directive dated, February 7, 2002. A copy of the ACHD directive is included in Enclosure A. The location of the site and site features are illustrated on Figures 1 and 2 included in Enclosure B. An expedited assessment and closure of this site is being pursued as the current property owner is seeking refinancing of the property in April 2002.

Site Description

The subject site is a former Chevron service station situated on the northeast corner of the intersection of International Boulevard (formerly 14th Street) and 61st Avenue in Oakland, California. The site was most recently utilized as a bus storage and repair facility. The site is bounded to the west by International Boulevard, to the north by a commercial building, to the south by 61st Avenue, and to the east by single family residences. Properties in the immediate site vicinity are used for commercial purposes that include hair stylists, auto repair, and restaurants. Residential housing is located to the east of the subject site.

The property is currently being re-developed and the former site structures have been demolished. High-density housing is proposed for the area of the former service station, with aboveground parking on the other portions of the site. The new structures will consist of three-story wood frame buildings. Foundation will consist of a 4-inch thick reinforced concrete slab with an underlying 10-mil polyolefin vapor barrier. Locations of pertinent site features and the proposed new buildings are shown on the Site Plan (Figure 2) included in Enclosure B.

Chevron's files do not include any record of this site. It is our understanding that a Phase 1 report prepared for the current property owner indicates that the former Chevron station operated no later than the early 1960s. Information in this Phase I report indicates the former facilities consisted of a small station building and one dispenser island. Locations of the former station facilities are shown on Figure 2 included in Enclosure B.

Project Background

In preparation for development of the site, Subsurface Consultants, Inc. (SCI) performed a geotechnical investigation that included both the subject site and two adjacent parcels in January 2001. A geophysical survey identified an underground storage tank (UST) beneath the sidewalk, and a product line running from the UST to the former dispenser island. SCI drilled two soil borings (B-4 and B-5) in the vicinity of the former service station. Soil samples from approximately 10 feet below ground surface (bgs) and grab groundwater samples were analyzed for petroleum hydrocarbons. Concentrations of gasoline-range, diesel-range, oil-range hydrocarbons, and benzene were detected in these samples. Elevated concentrations of lead were detected in backfill material from the UST pit.

One 1,000-gallon UST and associated product piping were removed in June 2001. Groundwater was encountered in the UST excavation, stabilizing at approximately 7 feet bgs (24 hours after UST removal). Soil samples were collected from the walls of the UST pit (CX-1-9 and CX-2-9) and the base of the product line trench (CT-1-2.5 and CT-2-2.5). Samples from the UST pit did not contain petroleum hydrocarbons. Gasoline-range hydrocarbons were detected in the two soil samples collected from the product line trench. Hydrocarbons were also detected in a grab groundwater sample from the UST pit. The results of this investigation are presented in Gettler-Ryan Inc. *UST Remove Report and Work Plan for Subsurface Investigation*, dated July 2, 2001.

A total of 17 Geoprobe® borings (GP-1 through GP-7) were advanced at the site at depths up to 20 feet bgs in July 2001 to assess the lateral extent of petroleum hydrocarbons in soil and groundwater. Soil samples were collected at 2.5 and 5.5 feet bgs. Groundwater was first encountered at depths of 12 to 15 feet bsg, but quickly rose indicating semi-confined conditions or smeared sidewalls. Grab groundwater samples were collected from seven of the borings. Analytical data from the soil samples indicated that soil impact is limited to the immediate vicinity of the former product line and dispenser island. Based on these findings, approximately 150 cubic yards of soil was excavated and removed from the site in early August 2001. At the direction of ACHD soil samples were not collected from the walls of excavation (analytical results of the soils samples from the Geoprobe® borings were used to define the limits of the excavation). The results of the investigation are presented in Delta's *Subsurface Investigation and Soil Excavation Report,* dated August 28, 2001. A *Risk Management Plan*, dated August 28, 2001 was also submitted by Delta. Tables containing laboratory analytical data from soil and grab groundwater samples collected during these investigations and figures showing the locations of former site features, borings, and soil samples are provided in Enclosure B.

All known aboveground and underground UST-related facilities have been removed. Delineation of soil impact is complete and petroleum hydrocarbon impacted soil has been excavated and removed. Shallow groundwater beneath the site is impacted with petroleum hydrocarbons, and the lateral extent of the impact has not been confirmed with monitoring wells.

Permits

Prior to installing the wells, drilling permits will be obtained from the Alameda County Public Works Agency (ACPWA) for the installation of monitoring wells.

Installation of Monitoring Wells

Due to the fact that the site is currently being re-developed and is not accessible by a "standard" hollow stem auger drilling rig, the three proposed monitoring wells (TC-1 through TC-3) will be installed on-site by Vironex® Environmental Field Services of Hayward, California using a truck-mounted (or limited access based on site accessibility), hydraulic, direct-push Geoprobe® rig. The locations of the proposed Geoprobe® soil borings are shown on Figure 2 (Enclosure B). A copy of the developer's utility plan, illustrating the proposed monitoring locations in relation to the buildings and underground utilitites is provided in Enclosure C. Each well will be installed in a 2-inch diameter borehole advanced to a depth of 20 feet below surface grade (bsg) using a Geoprobe® macrocore sampling device. Due to wells' close proximity to the Geoprobe® borings installed in July 2001, the boreholes will not be logged and soil samples will not be collected. Field methods and procedures to be used by Delta during advancement of the Geoprobe® soil borings are summarized in Enclosure D.

The monitoring wells will be constructed of ¾-inch diameter, flush-threaded, Schedule 40 PVC casing fitted with pre-packed sand around the well screen and pre-packed bentonite. Each well will be screened over the bottom 15 feet with 0.010-slot well screen. The annular space around the well screen will be covered with Lonestar No. 2/12 sand Plus 10 Pre Pak screen to the top of the well screen. A pre-compressed foam bridge, in a polyethylene sleeve, will be located above the filter pack. The foam bridge will expand instantly after the Geoprobe® drive casing is removed from the borehole. A 1-foot thick pre-packed bentonite (QuickSeal) sleeve or bentonite chips will be placed above the foam bridge. A typical small diameter, pre-packed well construction detail is illustrated in Enclosure E. The remaining annulus will be filled with a cement/bentonite slurry (grout), mixed in accordance with ACPWA specifications, to within six inches of surface grade. If required by the ACPWA, the upper most 5 feet of the borehole will be expanded to a diameter of 6-inches in order to provide 2 inches of annular space around the casing for the annular seal. The surface will be completed with a 6-inch diameter, steel, above-grade, locking stovepipe cover set in concrete. Due to the on-going construction at the site, the stovepipes will be painted red (or another highly visible color) in an attempt to protect the wells from being damaged during construction.

Stockpile Sampling and Disposal of Drill Cuttings

Soil cuttings will not be generated during installation of the monitoring wells using direct-push (Geoprobe®) technology; therefore sampling and disposal of drill cuttings will not be necessary.

Well Development

The wells will be developed immediately following completion by purging with a small diameter disposable bailer and/or peristaltic pump. Purging will be repeated until purge water is relatively sediment free. If the well is purged dry during development, the well will be allowed to recharge and will be purged dry again a minimum of three times. The water generated during development will be containerized on-site in a 55-gallon drum pending disposal by Chevron's contractor, Integretated Wastestream Management (IWM), of Milpitas, California. IWM will dispose of the purge water within 90 days of being generated.

Well Sampling and Water Level Measurement

An initial ground water samples will be collected from each of the newly installed monitoring wells a minimum of 48 hours following completion of development. Following the initial sampling event, groundwater samples will be collected approximately one month later. Prior to sampling, the water level will be measured within 0.01 foot relative to a reference point on each monitoring well. The wells will be purged and sampled using a in accordance with the field methods and procedures described in Enclosure D. The ground water samples will be submitted to Lancaster Laboratory in Lancaster, Pennsylvania for analyses of benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by EPA Method 8021B and total petroleum hydrocarbons (TPH) as gasoline by Northern California LUFT Method.

Surveying of Wells

The elevation of a reference point on the newly installed monitoring well and the ground surface immediately adjacent to the well will be surveyed by an appropriately-licensed land surveyor. To comply with State of California Assembly Bill AB2886, Delta will request the surveyor to reference the location of the newly installed wells and soil borings to the California State Coordinate System using Global Positioning Satellite (GPS) surveying. The top-of-casing (TOC) elevation of the monitoring well and ground surface elevation will be surveyed relative to mean sea-level within 0.01-foot.

Schedule

Due to the on-going construction activities at the site and pending refinancing requirements, the drilling installation of the wells needs to be expedited. Delta has scheduled the wells to be installed on Saturday, February 23, 2002, pending approval of this work plan. The drilling/well permits have already been obtained from the ACPWA. A report summarizing the installation and sampling of the monitoring well will be submitted to the ACHD 30 days following the second (monthly) sampling event. Following the second monthly sampling event, it is Delta's understanding that ACHD will review the monitoring well groundwater sampling results and if the petroleum hydrocarbon concentrations in groundwater are similar to the concentrations observed in the Geoprobe® borings in July 2001, that the site will be granted regulatory closure and no further action will be required.

Remarks/Signatures

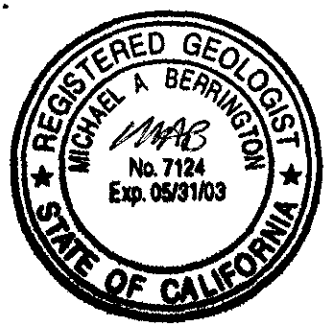
The interpretations contained in this document represent our professional opinions and are based, in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions regarding this project, please contact me at (916) 536-2616.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Michael A. Berrington, R.G.
Project Manager
California Registered Geologist No. 7124



MAB (Lrp001.20-208)
Enclosures

Cc: Mr. Tom Bauhs - Chevron Products Company
Mr. James Coles - Resources for Community Development, 2131 University Avenue, Suite 224, Berkeley, CA. 94704
Mr. Liu-Mei Chen - 13710 41st Avenue N, Seattle WA. 98125

ENCLOSURE A

ACHD Directive Dated February 7, 2002

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

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway
Alameda, CA 94502
(510) 567-6700
Fax (510) 337-9335

RO0002437

February 7, 2002

Mr. Tom Bauhs
Chevron
P.O. Box 6004
San Ramon, CA 94583

Mr. James Coles
Stanley Ave Affordable Housing
2131 University Ave #224
Berkeley, CA 94707

RE: Monitoring Wells at 6006 International Blvd, Oakland, CA

Dear Messrs. Bauhs and Coles:

I have completed review of the case file to determine if closure is warranted at this time for the above referenced site. Recent environmental investigations completed at the site include the identification of hydrocarbon-impacted soil and groundwater, removal of an underground storage tank and associated piping, and excavation of hydrocarbon impacted soil.

A risk assessment was prepared to determine if residual hydrocarbons posed a potential risk to human health. Calculated site specific target levels were not exceeded using data from grab groundwater and soil samples collected from direct-push boreholes. Based on this information, this Agency has no objections to the development of the site for residential use, provided basements and water supply wells will not be constructed at the site. However, closure is not recommended until it has been demonstrated that residual groundwater contamination is limited in extent, not migrating, and naturally attenuating. It is recommended that temporary wells be installed and monitored on a monthly basis. After two months, I will review the groundwater data to determine if closure is warranted. A workplan for well installation is due as soon as possible to expedite the closure process.

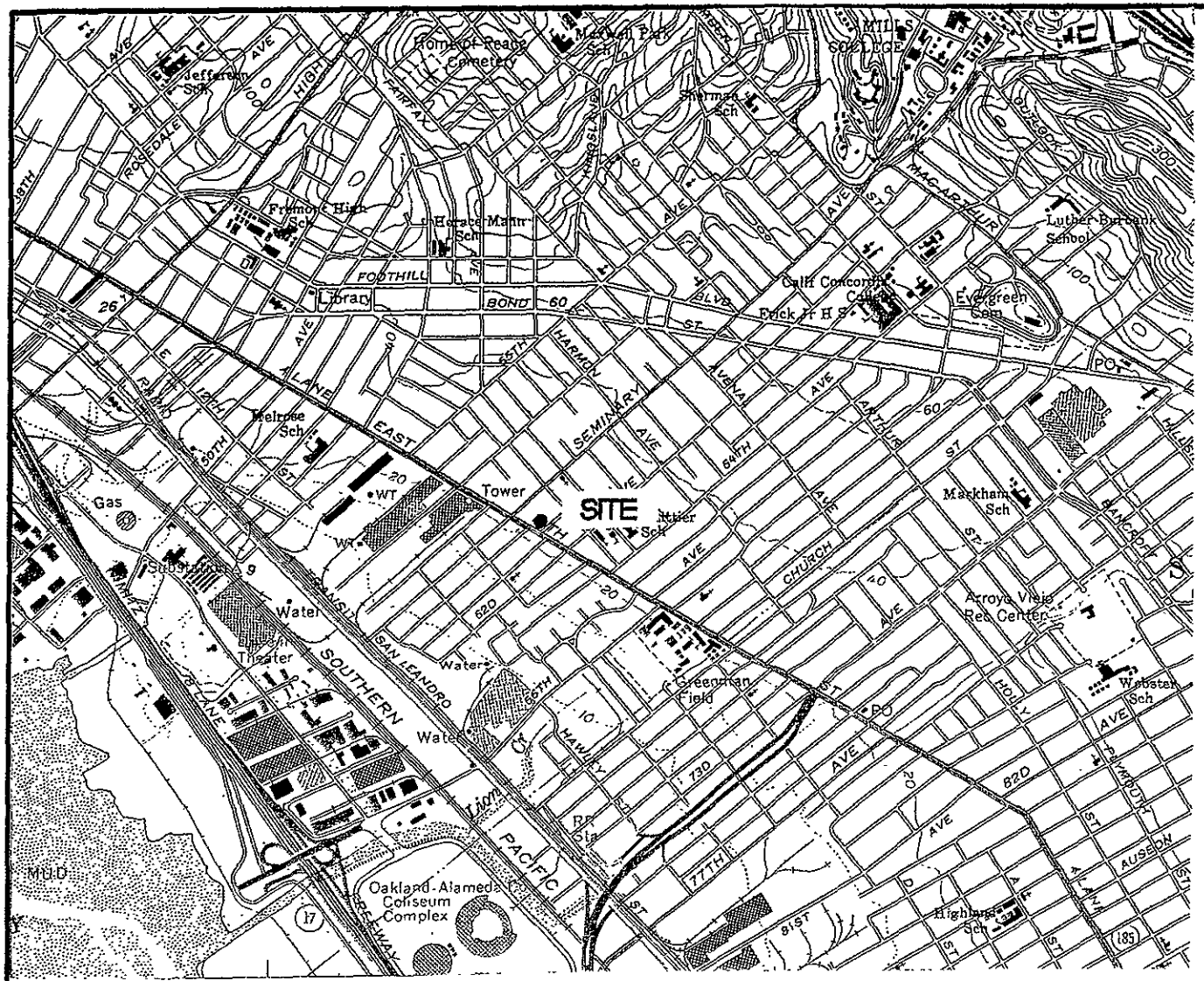
If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

email: Mike Berrington

ENCLOSURE B

Site Maps and Tables Summarizing
Soil and Groundwater Results



Source: USGS Quad Map

N

0 2000

Scale in Feet

Gettler - Ryan Inc.

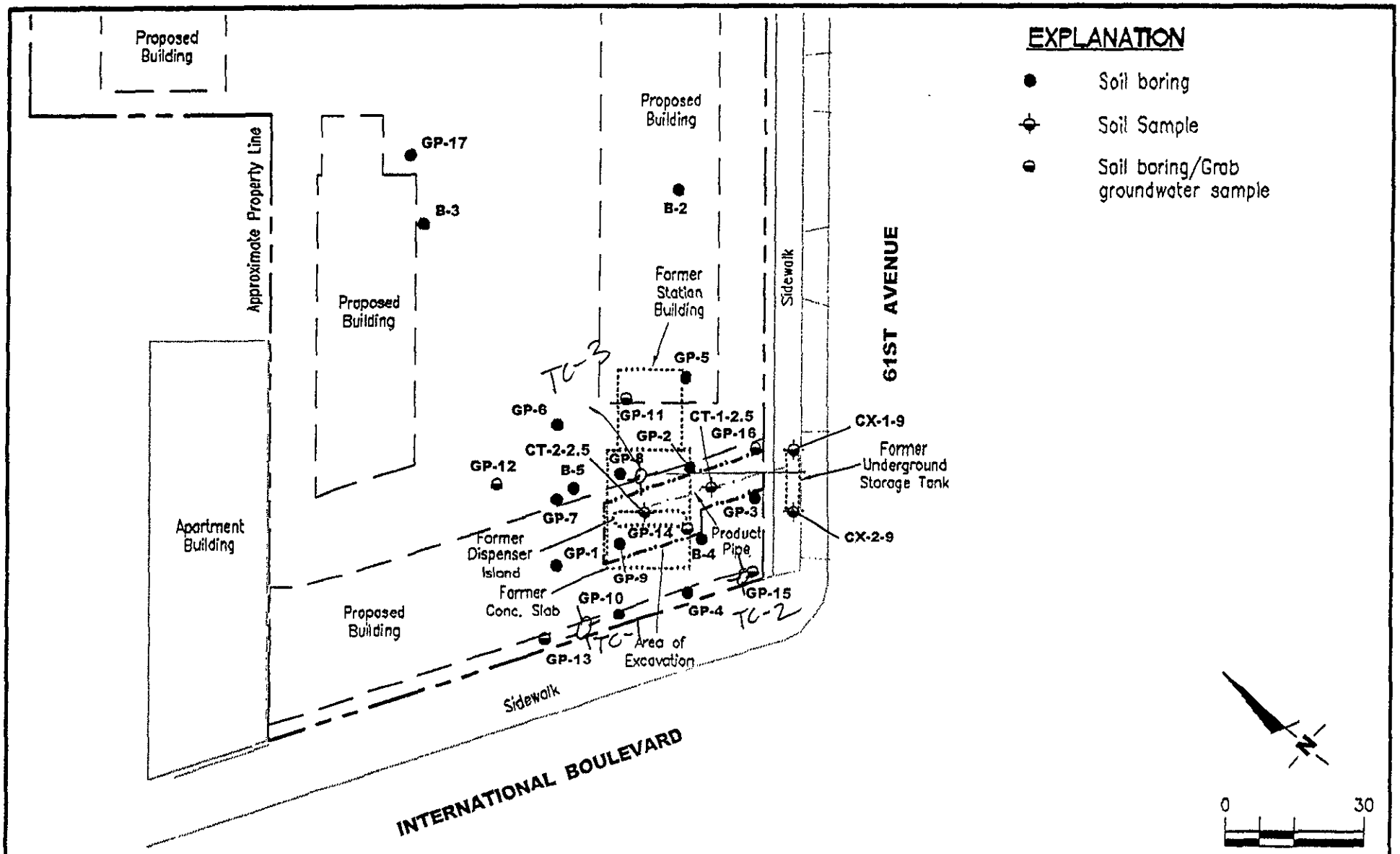
1364 North McDowell Boulevard Suite B2
Petaluma, CA 94954 (707) 789-3255

VICINITY MAP
Former Chevron Service Station #21-0208
6006 International Blvd.
Oakland, California

FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
DG20208C.4C01		6/01	

FILE NAME: E:\Enviro\Chevron\A01-210208.dwg | Layout Tab: Vic Map



Source: Figure modified from drawing provided by Nereal (Geophysical Site Map 1/01) and Gettler-Ryan field observations.

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

SOIL BORING LOCATION MAP
Former Chevron Service Station No. 21-0208
6006 International Boulevard
Oakland, California

FIGURE
2

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
DG20208G.4C01		8/01	

FILE NAME: P:\FAMRO\CHEVRON\210208\A01-21-0208.DWG | Layout Tab: Boring Rat 8-01

TABLE 1. SOIL ANALYTICAL DATA
Former Chevron Station #21-0208
6006 International Boulevard
Oakland, California

Sample ID	Date	Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MTBE (ppm)	Lead (ppm)
GeoProbe Borings									
GP1-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.1
GP1-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.2
GP2-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.43	<5.4
GP2-5.5	7/17/2001	5.5	110	<0.25	<0.25	<0.25	0.40	<2.5	7.6
GP3-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	5.4
GP3-5.5	7/17/2001	5.5	1.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.7
GP4-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.5
GP4-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.1
GP5-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.5
GP5-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.8
GP6-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	18
GP6-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.7
GP7-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.2
GP7-5.5	7/17/2001	5.5	3.4	<0.0050	<0.0050	<0.0050	0.0073	<0.050	<6.4
GP8-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.6
GP8-5.5	7/17/2001	5.5	1.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.8
GP9-2.5	7/17/2001	2.5	23	<0.025	<0.025	0.11	0.056	<0.25	11
GP9-5.5	7/17/2001	5.5	150	<0.25	<0.25	<0.25	0.53	<2.5	<6.0
GP10-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	7.5
GP10-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.7
GP11-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.8
GP11-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.9
GP12-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.6
GP12-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	7.6
GP13-2.5	7/17/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.7
GP13-5.5	7/17/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<5.7
GP14-2.5	7/18/2001	2.5	130	<0.25	<0.25	0.99	0.66	<2.5	<6.6
GP14-5.5	7/18/2001	5.5	150	<0.25	<0.25	<0.25	0.48	<2.5	<6.5
GP15-2.5	7/18/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.13	<6.4
GP15-5.5	7/18/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.2

TABLE 1. SOIL ANALYTICAL DATA

Former Chevron Station #21-0208
6006 International Boulevard
Oakland, California

Sample ID	Date	Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MTBE (ppm)	Lead (ppm)
GP16-2.5	7/18/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.6
GP-16-5.5	7/18/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<6.5
GP17-2.5	7/18/2001	2.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.4
GP17-5.5	7/18/2001	5.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.1
Composite Samples									
EH0-3	7/18/2001	----	2.5	<0.0050	<0.0050	0.015	0.013	<0.050	<6.9
EH3-6	7/18/2001	----	2.4	<0.0050	<0.0050	0.0054	0.0072	<0.050	<6.4
WH0-3	7/17/2001	----	5.0	<0.025	<0.025	<0.025	<0.025	<0.25	<6.7
WH3-6	7/17/2001	----	4.0	<0.0050	<0.0050	0.0093	0.011	<0.050	<7.2

Explanation:
TPHg = Total Petroleum Hydrocarbons as gasoline
BTEX = benzene, toluene, ethylbenzene and xylenes
MTBE = methyl tert-butyl ether
ppm = parts per million
---- = not applicable

Analytical Methods:
TPHG/BTEX/MTBE: EPA Methods/8020M
Lead: EPA Method 6010

Analytical Laboratory:
Sequoia Analytical (ELAP #2374)

TABLE 2. GRAB GROUNDWATER ANALYTICAL DATA

Former Chevron Station #21-0208
6006 International Boulevard
Oakland, California

Sample ID	Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	MTBE (ppb)	Dissolved Lead (ppb)
GP11-W	7/17/01	13,000	28	<10	110	57	<50	<75
GP12-W	7/17/01	64	<0.50	<0.50	<0.50	<0.50	<0.50	<75
GP13-W	7/18/01	57	<0.50	<0.50	<0.50	<0.50	<0.50	<75
GP14-W	7/18/01	8,100	100	<2.5	180	24	140	<75
GP15-W	7/18/01	11,000	<25	<25	43	48	<120	<75
GP16-W	7/18/01	970	<0.50	<0.50	4.7	6.0	<2.5	<75
GP17-W	7/18/01	<50	<0.50	<0.50	<0.50	<0.50	<2.5	<75

Explanation:
TPHg = Total Petroleum Hydrocarbons as gasoline
BTEX = benzene, toluene, ethylbenzene and xylenes
MTBE = methyl tert-butyl ether
ppb = parts per billion

Analytical Methods:
TPHG/BTEX/MTBE: EPA Methods 8015m/8020M
Lead: EPA Method 6010

Analytical Laboratory:
Sequoia Analytical (ELAP #2374)

TABLE 1. SOIL ANALYTICAL DATA

Former Chevron Station #21-0208
6006 International Boulevard
Oakland, California

Sample ID	Sample Depth (feet)	Sample Date	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MTBE (ppm)	Lead (ppm)
UST Pit									
CX-1-9	9	6/20/2001	<1.000	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.5
CX-2-9	9	6/20/2001	<1.000	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	<7.5
Piping Trenches									
CT-1-2.5	2.5	6/20/2001	560[1]	<0.250	<0.250	2.4	1.4	<2.500	6.8
CT-2-2.5	2.5	6/20/2001	860[1]	<0.250	<0.250	1.1	3.8	<2.500	<6.8
Stockpile									
CS-1		6/20/2001	1.3	<0.0050	<0.0050	<0.0050	<0.0050	<0.050	170

Explanation:
TPHg = Total Petroleum Hydrocarbons as gasoline
BTEX = Benzene, toluene, ethylbenzene, xylenes
MTBE = Methyl tert-butyl ether
ppm = parts per million
---- = not applicable

Analytical Methods
TPHg = EPA Method 8015M
BTEX, MTBE = EPA Method 8020M
Lead = EPA Method 6010B

Analytical Laboratory
Sequoia Analytical (ELAP 2374)

[1] Laboratory notes a hydrocarbon pattern is present in the requested fuel quantitation range but it does not resemble the pattern of the requested fuel. The pattern more closely resembles that of a heavier fuel.

Table 1: Results of Analyses
International Boulevard Family Housing
Oakland, California

Soil Samples	Units	TPHd *	TPHo *	TPHg	Benzene	Toluene	Ethyl benzene	Xylenes	Lead
B4@0.5'	mg/kg	--	--	--	--	--	--	--	93
B4@9.5'	mg/kg	**110**	**14**	**340**	**0.19**	**<0.1**	**1.3**	**0.45**	--
B5@1.0'	mg/kg	--	--	--	--	--	--	--	3.2
B5@10.5'	mg/kg	**310**	**6**	**1,300**	**<0.2**	**<0.2**	**2.6**	**2.6**	--

Grab Groundwater Samples	Units	TPHd *	TPHo *	TPHg	Benzene	Toluene	Ethyl benzene	Xylenes	Lead
B-4	ug/l	**3,600**	**<250**	**3,600**	**22**	**1.8**	**49**	**2.9**	--
B-5	ug/l	**1,300**	**260**	**4,200**	**5.7**	**1.7**	**7**	**5.4**	--

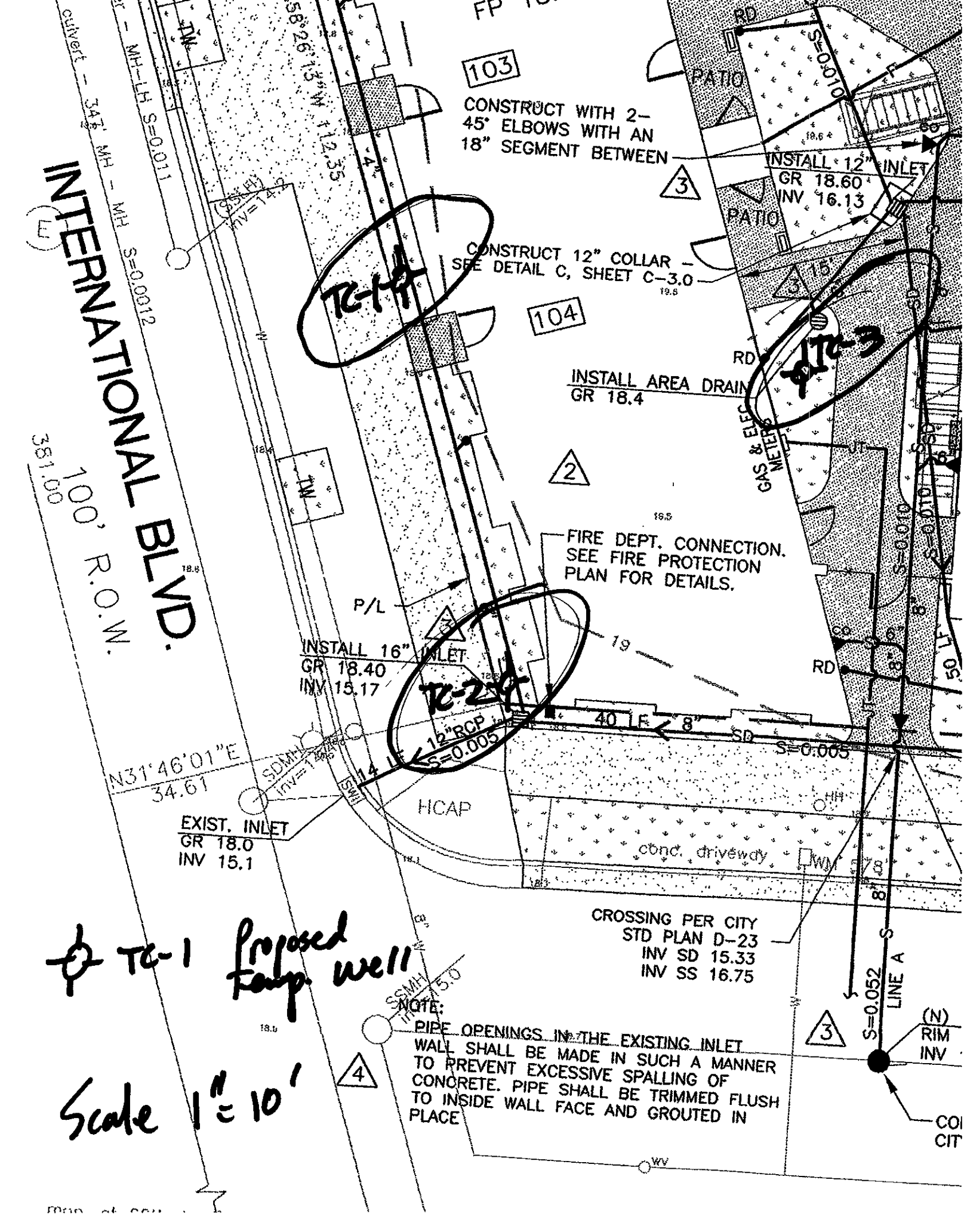
Notes:

Soil samples collected on January 25, 2001
Detected concentrations shown in bold
TPHd: Total Petroleum Hydrocarbons as diesel
TPHo: Total Petroleum Hydrocarbons as motor oil
TPHg: Total Petroleum Hydrocarbons as gasoline
*: Using silica gel cleanup

mg/kg: milligrams per kilogram
ug/l: micrograms per liter
--: Sample not analyzed
<: Not detected at or above the laboratory reporting limit

ENCLOSURE C

Developers Utility Plan with Proposed Monitoring Well Locations


INTERNATIONAL BLVD.
100' R.O.W.
381.00
N31°46'01"E
34.61
103
104
CONSTRUCT WITH 2-45° ELBOWS WITH AN 18" SEGMENT BETWEEN
CONSTRUCT 12" COLLAR - SEE DETAIL C, SHEET C-3.0
INSTALL 12" INLET
GR 18.60
INV 16.13
INSTALL AREA DRAIN
GR 18.4
FIRE DEPT. CONNECTION. SEE FIRE PROTECTION PLAN FOR DETAILS.
INSTALL 16" INLET
GR 18.40
INV 15.17
EXIST. INLET
GR 18.0
INV 15.1
40 LF 8" SD S=0.005
14 LF 12"RCP S=0.005
CROSSING PER CITY STD PLAN D-23
INV SD 15.33
INV SS 16.75
NOTE:
PIPE OPENINGS IN THE EXISTING INLET WALL SHALL BE MADE IN SUCH A MANNER TO PREVENT EXCESSIVE SPALLING OF CONCRETE. PIPE SHALL BE TRIMMED FLUSH TO INSIDE WALL FACE AND GROUTED IN PLACE
HCAP
conc. driveway
PATIO
GAS & ELEC METERS
TC-1
TC-2
TC-3
Φ TC-1 Proposed Temp. well
Scale 1" = 10'

ENCLOSURE D

Field Methods and Procedures

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Field work performed by Delta and its subcontractors at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures and emergency information. A copy of the SHSP is at the site and is available for reference by appropriate parties during work at the site.

Locating Underground Utilities

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc. is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand auguring to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

FIELD METHODS AND PROCEDURES

Soil Borings

A Delta Environmental Consultants, Inc. geologist continuously logs (if required) each borehole according to the Soil Classification method section during drilling and checks drill cuttings for indications of first recognizable occurrence of ground water and volatile hydrocarbons using either a portable photoionization detector or flame ionization detector.

Geoprobe®

The Geoprobe® soil borings are advanced using a truck-mounted, hydraulically-powered, percussion/probing machine that utilizes static force and percussion to advance a 2-inch diameter by either 2 or 4-foot long core barrel into the soil. Using a locked drive point, the

barrel is advanced through the soil until the desired depth is reached. The locked drive point is then released and the sampler is advanced two to four feet (depending on length of core barrel) and the soil samples are collected in expendable clear acetate liners, brass or stainless steel tubes. The core barrel is then brought to the surface and the soil samples retrieved. Ground water samples are collected by advancing a Hydropunch® sampling device into the interval to be sampled and inserting a small diameter bailer or disposable tygon tubing, fitted with a check valve, into the Hydropunch® device, and retrieved by removing the bailer or hand-jacking tygon tubing until the water inside the tube reaches the ground surface.

Sampling below the water table is conducted with a dual-walled, sealed, sampling device. The dual walled sampling system simultaneously advances a 2-inch diameter outer drive casing with a 1.25-inch diameter inner split spoon, sample barrel. As the tools are advanced, the inner split spoon collects a soil core sample. This sampler is then retrieved while the outer casing remains in place protecting the integrity of the hole. A new sampler is lowered into place and advanced further to collect the next soil sample. The soil samples are collected in expendable liners that are clear acetate, brass or stainless steel. Depth discrete soil samples can also be collected with the dual-walled sampler. Using a locked drive point, the dual-walled sampler is advanced, separating the soil until the desired depth is reached. The locked drive point is then released. The sampler is advanced an additional two feet and the soil samples are collected in expendable liners. Ground water samples can be collected in tandem with either the continuous or discrete soil sampling methods. Ground water samples are collected by retracting the outer driving casing one to two feet which, in turn, allows ground water to flow in through the bottom of the core barrel. The ground water sample is then collected either with a small diameter bailer or by "hand jacking" tygon tubing fitted with a check valve until the water reaches the ground surface.

A portion of the soil is placed within a resealable plastic bag for field screening purposes. The portion of the sample to be submitted to the laboratory will be capped on each end, with no headspace in the brass tube or acetate liner, and stored on ice for submittal to the laboratory. The sealed sample is labeled and handled according to the Quality Assurance Plan.

All drilling and sampling equipment is either steam-cleaned, or washed with a solution of Alconox® (or equivalent) soap and water and triple rinsed between boreholes and samples to minimize the potential for cross-contamination.

Soil Classification

As the samples are obtained in the field, the field geologist classifies them in accordance with the Unified Soil Classification System. Representative portions of the samples are then retained for further examination and verification of the field classification. Logs of the borings are prepared indicating the depth and identification of the various strata, the N value and pertinent information regarding the method of maintaining and advancing the borehole.

Soil Sample Screening

After the soil samples in resealable (Ziploc® type) plastic bags have been brought to ambient temperature, the headspace vapors in the bag are screened with a photoionization detector equipped with a 10.2 eV lamp. The corner of the bag is opened and the detector probe immediately placed within the headspace. The highest observed reading is recorded.

Monitoring Well Construction

The bore hole diameter for a monitoring well will be a minimum of four inches larger than the outside diameter of the casing, unless previously approved by the regulating agency.

The monitoring well is typically cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.01 or 0.02 inch-wide by 1.5-inch-long slots, with 42 slots per foot. A threaded or slip PVC cap is secured to the bottom of the casing. The slip cap can be secured with stainless steel screws or friction. No solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned. It may be purchased as pre-cleaned prior to completion.

Setting the casing inside the hollow-stem auger or Geoprobe® drive casing, sand filter pack (or pre-packed well screen) material is placed in the annular space to fill from boring bottom to generally one foot above the perforated interval. The filter pack material in the well is selected to permit the development of a zone of higher hydraulic conductivity adjacent to the well screen but not allow piping of the finer-grained formation materials into the well. The slot size of the well screen is selected so that it will retain a minimum of 95 percent of the filter pack material. Before placement of the bentonite plug, the well is surged to set the filter pack. After surging, the top of the filter pack is measured and, as necessary, additional filter pack material is added. The well is then surged again. This procedure is repeated until the filter pack will not settle further. After setting the filter pack, a one to two foot thick bentonite plug is set above the filter pack to prevent grout from infiltrating into the filter pack. A regulatory approved annular filling material such as neat cement, cement with five percent (by volume) bentonite or sand-cement grout will be used to fill the annulus from the bentonite plug to within one foot of the ground surface. The annular filling material is placed by a method approved by the regulatory agency overseeing the site. The remaining foot of the well will be completed using a traffic-rated vault that is installed around each wellhead for wells located in parking lots or driveways, while steel (or other material) "stovepipes" are usually set over wellheads in landscaped areas. A traffic-rated vault is typically set 1/2-inch above grade to minimize surface water from entering the vault. In areas that may be plowed for snow removal, the vault is set flush with the surface to prevent damage to the vault by a snowplow.

After completion, the well is thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing fine material from the filter pack that may pass into the well. Well development techniques used may include pumping, surging, bailing, swabbing, jetting, flushing and airlifting. All development water is collected either in drums or tanks for temporary storage and is properly disposed of depending on laboratory analytical results. To minimize the potential for cross-contamination between wells, all development equipment is either steam cleaned or properly washed prior to use. At the request of the client, and approval of the regulatory agency, the well may be developed before placement of the bentonite plug and annular seal.

Soil Cuttings From Drilling Operations

Soil generated during drilling operations will be stockpiled on-site. The stockpile is typically set on asphalt and covered by plastic sheeting in a manner to prevent rain water from coming in contact with the soil. If no asphalt is available, the soil is placed on plastic sheeting and covered in the above method. The soil will remain on-site until the proper method for disposal is assessed.

Stockpile Soil Sampling

Stockpile soil sampling is performed under the direction of a registered geologist or civil engineer. Prior to collecting soil samples, Delta personnel will measure and calculate the volume of soil in the stockpile(s). The stockpile(s) is then divided into sections containing the predetermined volume-sampling interval (50, 100, 200, 500 yd^3, etc.). Soil samples are typically collected from 0.5 to two feet below the surface of the stockpile. In some instances, two to four soil samples may be collected from each sampling interval and composited into one prior to laboratory analysis. The soil samples are collected in cleaned, brass or stainless tubes of varying diameter and lengths (typically two x six inches) or other appropriately cleaned sample containers. A hand-driven sampler holding the sample container may be used. To reduce the potential for cross-contamination between samples, the sampler is cleaned between each sampling event. Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon® sheeting and plastic caps. The soil sample is collected, labeled and handled according to the Quality Assurance Plan.

Ground Water and Liquid-Phase Petroleum Hydrocarbon Depth Assessment

A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present. A water level indicator is used to measure the ground water depth in monitoring wells that do not contain LPH. Depth to ground water or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typical a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

Subjective Analysis of Ground Water

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

Monitoring Well Purging and Sampling

Monitoring wells are purged using a pump or bailer until pH, temperature and conductivity of the purge water has stabilized and a minimum of three well volumes of water has been removed. If three well volumes can not be removed in one half an hour of time, the well is allowed to recharge to 80 percent of the original level. After recharging, a ground water sample is then removed from the well using a disposable bailer. The water sample is collected, labeled and handled according to the Quality Assurance Plan. Water generated during the monitoring event is disposed of according to the regulatory accepted method pertaining to the site.

QUALITY ASSURANCE PLAN

General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section.

Water Sample Collection for Volatile Organic Analyses

For volatile organic analyses (VOA), the water sample is decanted into each VOA vial in such a manner so that there is no meniscus at the top of the vial. A cap is quickly secured to the top of the vial. The vial is inverted and gently tapped to see if air bubbles are present. If none are present, the vial is labeled and refrigerated according to Soil and Water Sample Labeling and Preservation procedures.

Soil and Water Sample Labeling and Preservation

Label information includes a unique sample identification number, job identification number, date and time. After labeling, all soil and water samples are placed in a Ziploc® type bag and placed in an ice chest cooled to approximately 4° Celsius. Upon arriving at the Delta office, the samples are transferred to a locked refrigerator cooled to approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon® sheeting and plastic caps. The sample is then placed in a Ziploc® type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

Sample Identification and Chain-of-Custody Procedures

Sample identification and chain-of-custody procedures document sample possession from the time of collection, to ultimate disposal. Each sample container submitted for analysis has a label affixed to identify the job number, sampler, date and time of sample collection and, a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of on-site personnel and any other pertinent field observations is recorded on the borehole log or in the field records. A California-certified laboratory analyzes the samples.

A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time. The laboratory sample-control officer verifies the integrity of the sample and confirms the samples are collected in the proper containers, preserved correctly and contain adequate volumes for analysis.

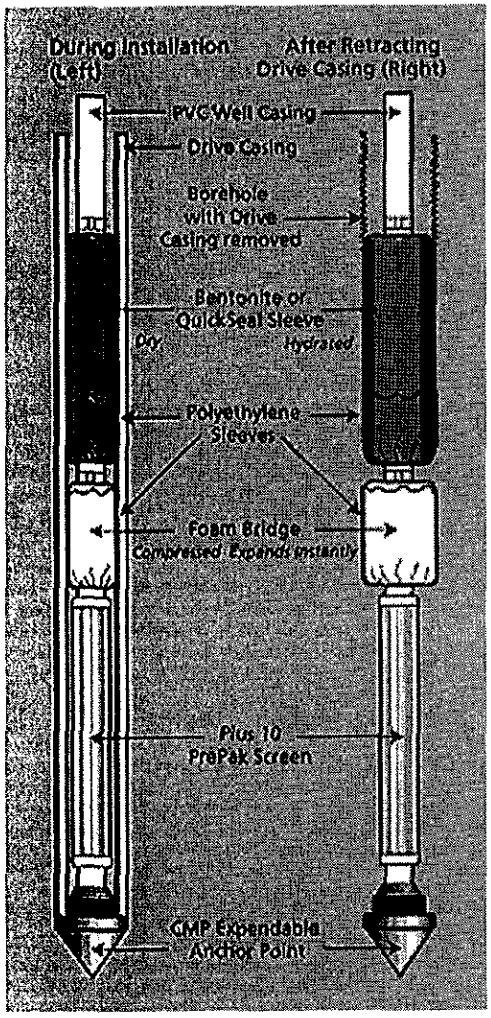
If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally required logbook maintained by the laboratory in the laboratory. The sample description, date received, client name and other relevant information is also recorded.

ENCLOSURE E

Well Construction Details

About Small Diameter Well Products

GeoInsight Small Diameter Well Components

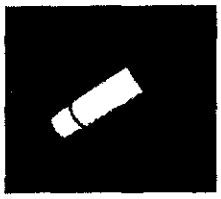


NOTE: All components can be purchased separately.

Product Catalog: Intake Devices

INTAKE DEVICES

NOTE: GeoInsight can provide custom sand filter pack sizes on request for these devices.



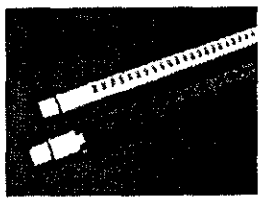
All GeoInsight PrePak Screens provide maximum ID for larger tools and minimum OD to fit inside smaller casings.

PrePak Well Screen

The 3/4" size is the first screen to allow larger sampling equipment than will fit in commonly used 1/2" direct push wells. Usable inside most 2" or 2-1/8" direct push casing, or can be installed in an open hole. Each section is flush threaded with an o-ring seal for assembly of longer screens. Either end attaches directly to CMP Anchor Points; flush threaded end plugs are available. The other sizes have the same design as the 3/4" but are made to install larger wells inside a larger hole or casing.

SPECIFICATIONS
Materials: Outer layer - 65 mesh stainless steel screen;
Pack - 20x40 silica sand over 0.010" slotted Schedule 40 PVC.
Smallest Filtration Capacity: Fine Sand

Pipe Size	Length (feet)	ID / OD (inches)	Fits Casing (inches OD)	Open Area
3/4"	2.5, 5	0.81 / 1.4	2, 2-1/8	2%
1	2.5, 5	1.03 / 1.7	3-1/4, 3-1/2	2%
1-1/4"	2.5, 5	1.34 / 2.4	3-1/4, 3-1/2	2%
1-1/2"	2.5, 5	1.59 / 2.4	3-1/4, 3-1/2	2%
2"	2.5, 5	2.05 / 2.8	3-1/2	2%



Plus 10 PrePak Screen has a high open area to cut down on waiting for samples in low-yield wells.

Plus 10 PrePak Well Screen (patent pending)

With 10 times the open area and 10 times the filtration capacity, these 20% open area screens are ideal for Long Term Monitoring (LTM) of natural attenuation using low purge or passive sampling. High open area minimizes stagnant water to cut sampling time in low-yield wells. UltraFine filter pack can reduce turbidity by orders of magnitude and remove silt size particles, preventing siltation of the well.

SPECIFICATIONS
Materials: Outer layer - stainless steel screen; Inner layer - stainless steel screen over 20% open slotted Schedule 40 PVC; Pack - silica sand in Standard (20x40), Fine (40x70), or UltraFine (120) mesh.
Smallest Filtration Capacity: Silt

	Length	ID / OD	Fits Casing