

2:27 pm, Jul 13, 2010

Alameda County
Environmental Health

12 July 2010
Project No. 4954.02

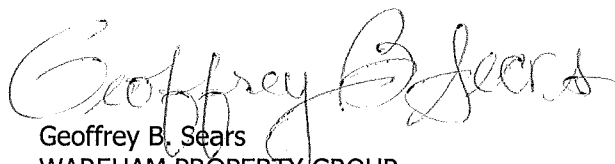
Mr. Mark Detterman
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Work Plan
Monitoring Well Installation Work Plan
Case No. RO0002621
5885 Hollis Street
Emeryville, California

Dear Mr. Detterman:

As a legally authorized representative of EmeryStation East, LLC and on behalf of EmeryStation East, LLC I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document titled *Work Plan, Monitoring Well Installation Work Plan, Case No. RO0002621, 5885 Hollis Street, Emeryville, California*, is true and correct to the best of my knowledge.

Sincerely yours,



Geoffrey B. Sears
WAREHAM PROPERTY GROUP
On behalf of EmeryStation East, LLC

Attachment



12 July 2010
Project 4954.02

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Subject: Monitoring Well Installation Work Plan
5885 Hollis Street
Emeryville, California
RO# 2621

Dear Mr. Detterman:

Treadwell & Rollo, Inc. (Treadwell & Rollo) has prepared this *Monitoring Well Installation Work Plan* (work plan) which presents the scope of work and methodology for conducting soil sampling, installing monitoring wells, and conducting groundwater sampling at 5885 Hollis Street in Emeryville, California (Site)(Figure 1). The purpose of the investigation proposed in this work plan is to assess the extent of soil and groundwater impacted with petroleum hydrocarbons from historic site operations.

BACKGROUND

Site Description

The Site covers an area approximately 220 feet by 500 feet and is bound by Hollis Street to the east, 59th Street to the north, Peladeau Street to the west, and a Chevron Station and Powell Street to the south. The Site is currently occupied by a four-story office building with one level of subsurface parking.

The Site was historically operated by Union Oil Company of California as a distribution facility. Operations included numerous above-ground and underground petroleum hydrocarbon storage tanks. The Site also consisted of a garage along Hollis Street and an auto repair shop along Peladeau Street. Construction near the Site in the 1980s and 1990s revealed soil and groundwater impacted with petroleum hydrocarbons.

Site Geology and Hydrogeology

The building occupies the majority of the Site, and includes an underground garage level that extends approximately 15-feet below ground surface (bgs). The Site is primarily underlain by fine-grained material with thin lenses of coarse-grained material. The stiffness of this primarily fine-grained material tends to increase with depth.

Groundwater has been measured at approximately 6 to 14 feet bgs in borings. Some perched water, which appears to be originating in the coarse-grained backfill of utility trenches, was observed entering the excavation during construction of the building. Direction of groundwater flow has not been measured at the Site or the adjacent property, but groundwater flow has been observed at nearby sites towards the west (San Francisco Bay) with slight north and south variations.

Previous Environmental Investigations

In 2000 and 2005, Treadwell & Rollo conducted pre-construction environmental sampling of soil and groundwater at the Site. Results of the sampling event were used to prepare a Site Management Plan (SMP) dated 14 July 2005 for use during construction. The SMP was approved by Alameda County Environmental Health (ACEH) in a letter dated 8 December 2005. Post-excavation confirmation sampling was performed as outlined in the SMP. Historical boring locations are shown in Figure 2. Soil analytical data from soil remaining onsite after construction of the current building is shown in Table 1.

Based on the results of the 2000 and 2005 investigations, ACEH requested additional investigation of benzo(a)pyrene along the western property boundary, investigation of potential volatile organic compounds (VOCs) in groundwater from an identified historical storage area, and investigation of residual total petroleum hydrocarbons (TPH) in the southwestern portion of the Site. ACEH also requested that the TPH investigation be conducted in concordance with hydrocarbon related investigation activities at the southern adjacent property ("1400 Powell Street").

In March and April 2010, a CPT investigation was performed to address the concerns by ACEH regarding former VOC storage, residual concentrations of Benzo(a)pyrene in soil, and to delineate the extent of TPH in soil and groundwater in the southern portion of the property. VOCs and Benzo(a)pyrene were not detected, and further investigation is not warranted for these issues. TPH compounds were detected in shallow soil and shallow groundwater samples in the southwestern portion of the Site. TPH compounds were not detected in deeper samples collected at the Site. The soil analytical results from the 2010 investigation are summarized in Table 2. Historic groundwater data is summarized in Table 3. Groundwater data from the 2010 investigation is summarized in Table 4. Soil and groundwater sampling locations are shown on Figure 2. Figure 4 illustrates TPH data in shallow groundwater in the southwestern portion of the Site. The complete results of this CPT investigation are summarized in our report dated 14 May 2010.

Based on the results of the investigation, we propose to drill three additional borings and construct groundwater monitoring wells to evaluate the extent of contamination in soil and groundwater at the Site. Soil and groundwater samples will be collected and analyzed from each location. This work plan is based on the results of our previous investigation. The results of this investigation will be used to evaluate the feasibility, and/or necessity, of remedial actions at the Site.

PRE-FIELD ACTIVITIES

Prior to conducting field work, soil boring permits will be obtained from the Alameda County Public Works Agency. Encroachment permits will be obtained from the City of Emeryville. Underground Service Alert will be called to mark out underground utilities in the vicinity of the borings a minimum of 48-hours prior to initiating field activities. A private utility locator will be retained to identify subsurface utilities at the Site. Treadwell & Rollo will prepare a site-specific Health and Safety Plan that promotes personnel safety and preparedness during the planned activities and which will be reviewed and signed by Site personnel prior to the beginning of Site activities.

SUBSURFACE SAMPLING AND ANALYSIS

Treadwell & Rollo will advance three exploratory borings TW-1 through TW-3 at the Site. One of the borings (TW-1) will be advanced and constructed as a monitoring well within the loading dock near the southwestern corner of the property. Two of the borings (TW-2 and TW-3) will be advanced and constructed as monitoring wells within Peladeau Street in a cross gradient and a downgradient direction,

for the purpose of delineating the lateral extent of soil and groundwater contamination. The locations of the proposed borings are shown on Figure 2.

Each soil boring will be advanced to a depth of approximately 20 feet below the ground surface (bgs) using a truck-mounted direct push drill rig equipped with a 2-inch-diameter continuous core barrel lined with butyrate sleeves. Soil samples will be field screened for volatile organic compounds (VOCs) using a hand-held photo-ionization detector (PID). Soils will be continuously logged in accordance with our classification system and recorded on boring logs. Selected samples will be placed on ice for shipment to a California-certified analytical laboratory under appropriate chain-of-custody protocol. All sampling equipment will be thoroughly cleaned with a detergent solution and rinsed with distilled water before each sampling event to prevent cross-contamination.

MONITORING WELL INSTALLATION

After the boring has been cored to the maximum depth, the location will be overdrilled using hollowstem augers for construction of monitoring wells. Each well will be constructed using 2-inch PVC with 6-feet of blank pipe and 14-feet of screen. The sand pack interval will extend to one foot above the screen. A one-foot layer of bentonite will be placed above the sand pack and hydrated. The remainder of the annulus will be filled with neat cement grout. A GPS and elevation survey will be conducted for each well upon completion.

MONITORING WELL DEVELOPMENT AND SAMPLING

The well will be allowed to set for approximately 24 hours before the well is developed using a surge block and submersible pump, and development will continue until relatively clear water is produced. Groundwater quality parameters (pH, electrical conductivity [EC], oxidation-reduction potential [ORP], dissolved oxygen [DO], temperature, and qualitative color and turbidity) will be measured during subsequent purging and prior to sampling. A groundwater sample will be collected using a disposable bailer, and decanted into appropriately preserved containers and placed on ice for shipment to a California-certified analytical laboratory under appropriate chain-of-custody protocol.

LABORATORY ANALYSIS OF SOIL AND GROUNDWATER SAMPLES

Soil and groundwater samples will be analyzed for the following:

- TPH-g by EPA method 8260B,
- TPH-d by EPA method 8015,
- TPH-mo by EPA method 8015,
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8260B, and
- Fuel Oxygenates by EPA Method 8260B.

WASTE CONTAINMENT

Waste generated by the sampling activities will be stored on-Site in 55-gallon drums for subsequent testing and proper disposal at an appropriate off-site disposal facility at a later time.

QUARTERLY GROUNDWATER MONITORING

Groundwater monitoring wells will be sampled quarterly for a period of one year. During each event, groundwater levels will be measured and recorded. Purged groundwater samples will be collected using a submersible purge pump. Groundwater quality parameters (pH, EC, ORP, DO, temperature, and qualitative color and turbidity) will be recorded during purging and prior to sampling. The groundwater samples will be analyzed by a California-certified analytical laboratory for the above listed analytes.

DATA EVALUATION AND REPORTING

A report will be prepared to summarize the soil sampling and analysis, monitoring well installation, well development, survey, and initial groundwater sampling event. The results will be presented in the report using figures, tables, and boring logs to describe Site conditions. Data summary tables will present detected concentrations of analytes in soil and groundwater. Based on the analytical results, Treadwell & Rollo will provide recommendations for feasible remedial solutions for the Site and/or case closure of the Site, if warranted. Letter reports will be prepared to summarize each quarterly monitoring event.

SCHEDULE

It is anticipated that the investigation and laboratory analysis outlined in this work plan can be completed within approximately 3 weeks of regulatory approval of the work plan. The schedule assumes that the regulatory approvals, subcontractor availability, cooperation of the on site tenant, weather, and investigation results cause no delays to the schedule.

Quarterly groundwater monitoring events will be conducted after installation for a period of one year. These monitoring events will be coordinated so that they are performed in concurrence with groundwater monitoring operations at the adjacent property (1400 Powell Street). Letter reports will be submitted approximately one month after sampling.

We look forward to working with you on this project. If you have any questions or require additional information, please call Matthew Hall at 415-955-9040 x267.

Sincerely yours,
TREADWELL & ROLLO, INC.



Matthew B. Hall, PE
Senior Project Engineer

49540201.MBH



Philip G. Smith, REA II
Principal

cc: Mr. Geoffrey Sears, Wareham Development

TABLES

Table 1
Organics in Soil Remaining On-Site
5885 Hollis Street
Emeryville, California

Sample ID	Sample Date	Sample Depth	TPHd mg/kg	TPHmo mg/kg	TPHg mg/kg	TRPH mg/kg	VOCs by 8010 mg/kg	Benzene mg/kg	Acetone mg/kg	2-Butanone mg/kg	Isopropyl benzene mg/kg	Propyl benzene mg/kg	Ethyl benzene mg/kg	Total Xylenes mg/kg	1,3,5-Trimethyl benzene mg/kg	1,2,4-Trimethyl benzene mg/kg	sec-Butyl benzene mg/kg	para-Isopropyl toluene mg/kg	n-Butyl benzene mg/kg	Naphthalene mg/kg	Methylene Chloride 8260 mg/kg	Other VOCs by 8260 mg/kg	Benzo(a) pyrene by EPA 8270 mg/kg	Other SVOCs by 8270 mg/kg	Aroclor -1260 mg/kg	Other PCBs mg/kg
TR-1	4/6/2000	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-2	4/6/2000	15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-5	4/5/2000	15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-6	4/5/2000	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.330	--	--	--	--	--
TR-7	4/5/2000	15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-8	4/5/2000	15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-9	4/5/2000	15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-10	4/6/2000	15	ND	180	ND	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-11	4/5/2000	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-12	4/5/2000	15	ND	ND	19	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-13	4/6/2000	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5	ND	ND	ND	30	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.330	--	--	0.55	ND	--
		8	ND	39	ND	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10	ND	ND	ND	ND	--	< 0.005	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	ND	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	ND	ND	--	--	--
		15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-14	4/6/2000	3	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5	ND	ND	ND	ND	--	< 0.005	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	ND	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	ND	ND	0.57	ND	--
		8	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10	2.3	ND	1.2	ND	--	< 0.005	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	ND	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	ND	ND	--	--	--
		15	4.0	ND	1.4	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.330	--	--	0.54	ND	--
TR-15	4/6/2000	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10	1.3	ND	1.0	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.330	--	--	0.59	ND	--
		15	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-16	4/6/2000	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.330	--	--	0.6	ND	--
TR-22	1/20/05	2	5.5 H Y	32	< 1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		6	8.5 H Y	10 H L	1.7 L Y	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-25	1/20/05	2	11 H Y	62	< 1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.011	ND
		6	44 H L Y	16	2,100 Y	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-28	1/20/05	2	4.3 H Y	54	< 0.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0096	ND
		6	140 H L Y	280	160 Y	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-33	8/11/05	15	< 1.0	< 5.0	< 0.92	--	--	< 0.0046	--	--	--	--	< 0.0046	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-34	8/11/05	15	< 0.99	< 5.0	< 1.0	--	--	< 0.0053	--	< 1.0	--	--	< 0.0053	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-35	8/11/05	15	2.4 H Y	17	1.7 Z	--	--	< 0.0051	--	--	--	--	0.076	0.65	--	--	--	--	--	--	--	--	--	--	--	--
TR-36	8/11/05	15	< 1.0	< 5.0	< 1.1	--	--	< 0.0053	--	--	--	--	< 0.0053	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-37	8/11/05	15	9.1 H Y	46	< 0.92	--	--	< 0.0046	--	--	--	--	< 0.0046	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-38	8/11/05	15	< 0.99	< 5.0	< 1.0	--	--	< 0.005	--	--	--	--	< 0.005	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-39	5/4/06	15	--	--	< 1.0	--	--	< 0.0049	ND	ND	ND	ND	< 0.0049	< 0.0049	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.180 a	ND	--
TR-40	5/4/06	15	--	--	< 0.96	--	--	< 0.0048	ND	ND	ND	ND	< 0.0048	< 0.0048	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.220 a	ND	--
TR-41	5/4/06	15	--	--	< 1.0	--	--	< 0.0047	ND	ND	ND	ND	< 0.0047	< 0.0047	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.170 a	ND	--
TR-42	5/4/06	15	--	--	< 1.1	--	--	< 0.0050	ND	ND	ND	ND	< 0.0050	< 0.0050	--	--	--	--	--	--	--	--	--	--	--	--
TR-43	5/4/06	15	--	--	< 0.98	--	--	< 0.0045	ND	ND	ND	ND	< 0.0045	< 0.0045	--	--	--	--	--	--	--	--	--	--	--	--
TR-44	5/10/06	15	--	--	< 0.99	--	--	< 0.0047	ND	ND	ND	ND	< 0.0047	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.094 a	ND	--
TR-45	5/10/06	15	< 1.0	< 5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-46	5/12/06	15	< 1.0	< 5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-46A	5/10/06	15	< 1.0	< 5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-47	5/12/06	15	< 0.99	< 5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-48	5/12/06	15	7.9 H Y	33 L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-49	5/4/06	15	< 1.0	< 5.0	< 0.97	--	--	< 0.0048	ND	ND	ND	ND	< 0.0048	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-50	5/4/06	15	2.0 H Y	6.0	< 0.93	--	--	< 0.0048	ND	ND	ND	ND	< 0.0048	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-51	5/4/06	15	< 0.99	< 5.0	< 1.1	--	--	0.0082	ND	ND	ND	ND	< 0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-52	5/4/06	15	1.9 H Y	< 5.0	10 H Y	--	--	< 0.005	ND	ND	ND	ND	0.0076	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-53	5/4/06	15	< 1.0	< 5.0	< 0.99	--	--	< 0.0045	ND	ND	ND	ND	< 0.0045	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-54	5/4/06	15	2.0 H Y	5.8	< 1.1	--	--	< 0.0046	ND	ND	ND	ND	< 0.0046	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-55	5/4/06	15	< 1.0	< 5.0	< 1.1	--	--	< 0.0049	ND	ND	ND	ND	< 0.0049	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-56	5/4/06	15	1.4 H Y	< 5.0	< 0.94	--	--	< 0.0046	ND	ND	ND	ND	< 0.0046	--	--	--	--	--	--	--	--	--	--	--	--	--
ESL-C NDW (Table B-2)			180	2,500	180	--	--	0.27	0.5	NE	NE	NE	4.7	11	NE	NE	NE	NE	NE	2.8	17	--	0.13	--	NE	--

Notes:
mg/kg = milligrams per kilogram
-- = not analyzed
< 1 = indicates not detected at the indicated laboratory detection limit
ND = Not detected at or greater than laboratory detection limit which varies, see laboratory report
NE = Not established
C = Presence confirmed, but RPD (Relative Percent Difference) between columns exceeds 40%

Y = Laboratory flag indicating sample exhibits chromatographic pattern which does not resemble standard
H = Laboratory flag indicating heavier hydrocarbons contributed to quantitation
a = Detected concentration of methylene chloride due to laboratory contaminator
L = Laboratory flag indicating lighter hydrocarbons contributed to quantitation
Z = Sample exhibits unknown single peak or peaks

TPHd = Total Petroleum Hydrocarbons quantified as diesel fuel
TPHg = Total Petroleum Hydrocarbons quantified as gasoline
TPHmo = Total Petroleum Hydrocarbons quantified as motor oil
PCBs = Polychlorinated Biphenyls
SFBRWQCB = San Francisco Bay Regional Water Quality Control Board
Table B-2: Shallow soils (less than 10 feet bgs) where groundwater is NOT a current or potential source of drinking water
ESL = Environmental Screening Levels established by the SFBRWQCB

Table 2
Soil Analytical Results from April 2010 Investigation
5885 Hollis Street
Emeryville, California

Sample	Sample	Sample Depth	TPHd	TPHmo	TPHg	Benzene	Ethylbenzene	Total Xylenes	Isopropylbenzene	Propylbenzene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	para-isopropyl toluene	n-butylbenzene	Naphthalene (8260)	Acetone	2-Butanone	1,2-Dichloroethane	Other VOCs	Benzo(a)pyrene	Napthalene (8270)	Phenanthrene	Other SVOCs
Location	Date	feet bgs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
HA-1	4/5/2010	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.067	<0.067	<0.067	ND
HA-2	4/5/2010	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.066	<0.066	<0.066	ND
HA-3	4/5/2010	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.066	<0.066	<0.066	ND
HA-4	4/5/2010	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.066	<0.066	<0.066	ND
TRCPT-1	4/5/2010	5.0	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.019	<0.0096	<0.0048	ND	<0.0049	<0.0049	<0.0049	ND
		9.5	--	--	--	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0093	<0.0047	ND	<0.005	<0.005	<0.005	ND
		18.0	--	--	--	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.019	<0.0093	<0.0046	ND	<0.005	<0.005	<0.005	ND
TRCPT-2	4/5/2010	5.0	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.010	<0.005	ND	<0.0049	<0.0049	<0.0049	ND
		9.5	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.019	<0.0097	<0.0049	ND	<0.005	<0.005	<0.005	ND
		18.0	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.019	<0.0097	<0.0048	ND	<0.0049	<0.0049	<0.0049	ND
TRCPT-3	4/2/2010	5.0	--	--	--	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0094	<0.0047	ND	<0.005	<0.005	<0.005	ND
		9.5	--	--	--	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.018	<0.0092	<0.0046	ND	<0.0049	<0.0049	<0.0049	ND	
		18.0	--	--	--	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0094	<0.0047	ND	<0.0049	<0.0049	<0.0049	ND	
TRCPT-4	4/2/2010	5.0	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.010	<0.005	ND	<0.0049	<0.0049	<0.0049	ND
		10.0	--	--	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.0099	<0.005	ND	<0.005	<0.005	<0.005	ND
		18.0	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.019	<0.0097	<0.0049	ND	<0.005	<0.005	<0.005	ND	
TRCPT-5	4/2/2010	5.0	67	6.3	680Y	<0.5	4	<0.5	1.3	4.8	1.1	<0.5	1	<0.5	4.6	4.9	<2	<1	<0.5	ND	--	--	--	--
		16.0	<0.99	<5.0	<1.0	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.020	<0.0098	<0.0049	ND	--	--	--
TRCPT-6	4/2/2010	7.0	<1.0	<5.0	<0.99	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.020	<0.0098	<0.0049	ND	--	--	--	--
		19.0	<0.99	<5.0	<1.0	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.020	<0.0098	<0.0049	ND	--	--	--	--
TRCPT-7	4/1/2010	6.0	220	80	690Y	<0.25	<0.25	<0.25	0.39	0.89	0.34	<0.25	0.52	0.64	1.2	<0.25	<1	<0.5	<0.25	ND	--	--	--	--
		16.0	<0.99	<5.0	<0.96	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.019	<0.096	<0.0048	ND	--	--	--	--
TRCPT-8	4/1/2010	10.0	<1.0	<5.0	<0.95	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0094	<0.0047	ND	--	--	--	--
		19.0	<1.0	<5.0	<0.98	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0093	<0.0047	ND	--	--	--	--
TRCPT-9	3/31/2010	10.0	2.5	<5.0	5.5	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	0.28	0.062	<0.0048	ND	--	--	--	--
		22.0	<1.0	<5.0	<0.93	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.019	<0.0094	<0.0047	ND	--	--	--	--
ESL-C NDW (Table B-2)			180	2,500	180	0.27	4.7	11	NE	NE	NE	NE	NE	NE	NE	2.8	0.5	NE	0.48	--	0.13	2.8	11	--

Notes:

Results presented in units indicated at top of table.
mg/kg = milligrams per kilogram (parts per million)
TPHd = Total Petroleum Hydrocarbons quantified as diesel fuel
TPHmo = Total Petroleum Hydrocarbons quantified as motor oil
TPHg = Total Petroleum Hydrocarbons quantified as gasoline
VOCs = Volatile Organic Compounds (see laboratory data sheets for complete list of VOCs analyzed)
SVOCs = Semivolatile Organic Compounds (see laboratory data sheets for complete list of SVOCs analyzed)
< 1 = indicates not detected at the indicated laboratory detection limit
ND = Not detected at or greater than the laboratory detection limit which varies, see laboratory report
Y = Laboratory flag indicating sample exhibits chromatographic pattern which does not resemble standard
-- = not analyzed
TPHg and VOCs analyzed by EPA Method 8260
TPHmo and TPHd analyzed by EPA Method 8015
SVOCs analyzed by EPA Method 8270

ESL = Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater by the San Francisco Bay Regional Water Quality Control Board (2007, revised May 2008).
ESL-C NDW (Table B-2): Shallow soils (less than 10 feet bgs) where groundwater is NOT a current or potential source of drinking water for commercial/industrial land use (SF-RWQCB, May 2008)
Concentrations in **bold** exceed the ESL
NE= Not established

Table 3
Summary of Historic Groundwater Analytical Data - Organics
5885 Hollis Street
Emeryville, California

Sample ID	Sample Date	TPHd µg/L	TPHmo µg/L	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethyl -benzene µg/L	Total xylenes µg/L	Isopropyl -benzene µg/L	Propyl -benzene µg/L	1,3,5- Trimethyl -benzene µg/L	1,2,4- Trimethyl -benzene µg/L	sec-Butyl -benzene µg/L	Naphthalene µg/L	Acetone µg/L	Other VOCs µg/L
TR-1	4/6/2000	130	ND	98	--	--	--	--	--	--	--	--	--	--	--	ND (8010)
TR-6	4/5/2000	ND	1,400	ND	< 5	< 5	< 5	<5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	ND (8260)
TR-9	4/6/2000	ND	420	ND	--	--	--	--	--	--	--	--	--	--	--	--
TR-12	4/6/2000	700	ND	3,300	--	--	--	--	--	--	--	--	--	--	--	ND (8010)
TR-23 (GW)	6/20/2005	8,400 L Y	--	28,000	4,300	< 25	990	300	120	240	45	160	< 25	380	< 500	ND (8260)
TR-24 (GW)	6/15/2005	6,800 L	--	91,000 Y	2,500	31	950	760	210	110	290	43	70	710	35	ND
TR-25 (GW)	1/20/2005	--	--	150,000 Y	2,500	< 10	3,600	1,720	--	--	--	--	--	--	--	--
TR-29 (GW)	1/20/2005	280 H Y	340 L	< 50	< 0.5	0.61 C	< 0.5	0.6	--	--	--	--	--	--	--	--
TR-30 (GW)	1/20/2005	640 H Y	960	< 50	< 0.5	0.85 C	< 0.5	0.85	--	--	--	--	--	--	--	--
TR-31 (GW)	1/20/2005	270 H Y	1,500	< 50	< 0.5	0.56 C	< 0.5	0.57	--	--	--	--	--	--	--	ND
ESL (Summary Table D)		210	210	210	46	130	43	100	NE	NE	NE	NE	NE	24	1,500	--

Notes:

Results presented in units indicated at top of table.

ug/l = micrograms per liter (parts per billion)

TPHg = Total Petroleum Hydrocarbons quantified as gasoline

TPHd = Total Petroleum Hydrocarbons quantified as diesel fuel

TPHmo = Total Petroleum Hydrocarbons quantified as motor oil

VOCs = Volatile Organic Compounds (see laboratory data sheets for complete list of VOCs analyzed)

< 5 = indicates not detected at the indicated laboratory detection limit

ND = Not detected at or greater than the laboratory detection limit which varies, see laboratory report

C = Presence confirmed, but RPD (Relative Percent Difference) between columns exceeds 40%

Y = Laboratory flag indicating sample exhibits chromatographic pattern which does not resemble standard

H = Laboratory flag indicating heavier hydrocarbons contributed to quantitation

L = Laboratory flag indicating lighter hydrocarbons contributed to quantitation

Z = Sample exhibits unknown single peak or peaks

NA = not analyzed

ESL = Environmental Screening Levels established by the SFBRWQCB, 2005

SFBRWQCB = San Francisco Bay Regional Water Quality Control Board

Summary Table D: Deep Soil (>3m bgs), Groundwater is NOT a current or potential source of drinking water.

Table 4
Groundwater Analytical Results from April 2010 Investigation
5885 Hollis Street
Emeryville, California

Sample ID	Sample Date	Sample Depth (feet bgs)	TPHd (µg/L)	TPHmo (µg/L)	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	m,p-Xylene (µg/L)	o-Xylene (µg/L)	Isopropylbenzene (µg/L)	Propylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)	1,2,4-Trimethylbenzene (µg/L)	sec-Butylbenzene (µg/L)	para-isopropyltoluene (µg/L)	n-butylbenzene (µg/L)	Naphthalene (8260) (µg/L)	Acetone (µg/L)	MtBE (µg/L)	2-Butanone (µg/L)	1,2-Dichloroethane (µg/L)	Other VOCs (µg/L)	Benzo(a)pyrene (µg/L)	Napthalene (8270) (µg/L)	Phenanthrene (µg/L)	Other SVOCs (µg/L)
TRCPT-1-GW	4/6/2010	20	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<10	<0.5	<10	<0.5	ND	--	--	--	--
TRCPT-2-GW	4/5/2010	20	--	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<10	<0.5	<10	<0.5	ND	<0.1	<0.1	<0.1	ND
TRCPT-3-GW	4/2/2010	20	--	--	--	<0.5	0.6	0.7	3.5	2.3	1.2	<0.5	<0.5	1.3	3.4	<0.5	<0.5	0.7	<2.0	21	<0.5	<10	<0.5	ND	<0.1	0.3	0.1	ND
TRCPT-4-GW	Boring left open for 6 hours. No measurable water.																											
TRCPT-5-GW	4/2/2010	20	210	<300	2,500y	140	0.7	100	11	10	1	23	56	4	6.6	6.8	3.8	23	46	42	<0.5	17	<0.5	ND				
TRCPT-6-GW	4/2/2010	11	240	1,700	300y	0.6	0.6	0.8	2.3	1.6	0.7	2.6	4.1	0.6	2	0.7	1	1.4	<2.0	34	0.8	11	<0.5	ND				
TRCPT-7-GW	4/1/2010	9	<500	<3,000	460y	<0.5	<0.5	0.6	0.5	0.5	<0.5	5.5	8.2	<0.5	<0.5	1.7	2.5	3.2	<2.0	<10	61	<10	11	ND				
TRCPT-8-GW	4/1/2010	20	<100	<600	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<10	<0.5	<10	<0.5	ND				
TRCPT-9-GW	4/1/2010	17	<100	<600	830y	24	<0.5	6.5	0.6	0.6	<0.5	5.3	5.9	1.7	0.6	1.4	2.1	2	<2.0	53	0.6	21	1.4	ND				
		50	<50	<300	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<10	<0.5	<10	<0.5	ND				
		ESL - NDW (Summary Table D)	210	210	210	46	130	43	100	NE	NE	NE	NE	NE	NE	NE	NE	NE	24	1,500	1,800	NE	200	--		24	4.6	--

Notes:
Results presented in units indicated at top of table.
ug/l = micrograms per liter (parts per billion)
TPHd = Total Petroleum Hydrocarbons quantified as diesel fuel
TPHmo = Total Petroleum Hydrocarbons quantified as motor oil
TPHg = Total Petroleum Hydrocarbons quantified as gasoline
VOCs = Volatile Organic Compounds (see laboratory data sheets for complete list of VOCs analyzed)
<0.5 = indicates not detected at the indicated laboratory detection limit
ND = Not detected at or greater than the laboratory detection limit which varies, see laboratory report
Y = Laboratory flag indicating sample exhibits chromatographic pattern which does not resemble standard
-- = not analyzed
TPHg and VOC analyzed using EPA Method 8260
TPHd and TPHmo analyzed using EPA Method 8015
SVOCs analyzed using EPA Method 8270

ESL = Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater by the San Francisco Bay Regional Water Quality Control Board (2007, revised May 2008).
ESL-NDW (Summary Table D): Deep soils (> 3 meters bgs) where groundwater is NOT a current or potential source of drinking water for commercial/industrial land use (SF-RWQCB, May 2008)
Concentrations in **bold** exceed the ESL
NE = not established

FIGURES



Base map: The Thomas Guide
Alameda County
1999



No scale

5885 HOLLIS STREET
Emeryville, California

SITE LOCATION MAP

Treadwell&Rollo

Date 06/24/10

Project No. 4954.02

Figure 1

5812 HOLLIS STREET

HOLLIS STREET

FORMER EXCAVATION EXTENT

Estimated Groundwater Flow Direction

1400 POWELL STREET

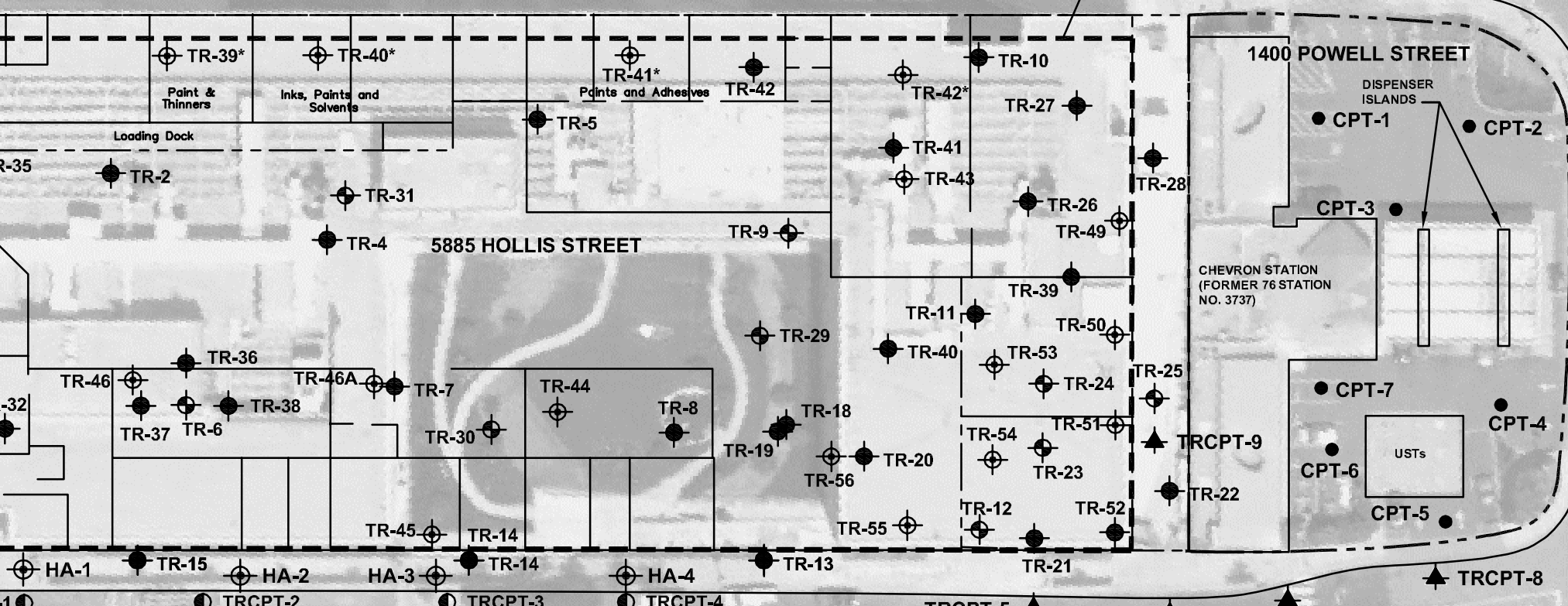
POWELL STREET

5885 HOLLIS STREET

CHEVRON STATION
(FORMER 76 STATION
NO. 3737)

59TH STREET

PELADEAU STREET



EXPLANATION

- ⊕ Historical boring location for soil and groundwater samples
- Historical boring location for soil samples
- ⊕ Hand auger soil sample location
- CPT boring and grab groundwater sample locations performed by Delta
- ▲ CPT soil and groundwater sample location by Treadwell & Rollo, Inc., April 2010
- ⊕ CPT soil and groundwater sample location by Treadwell & Rollo, Inc., April 2010
- * Sample ID inadvertently duplicated during post excavation sampling



0 50 Feet
Approximate scale

5885 HOLLIS STREET
Emeryville, California

**HISTORIC SOIL AND GROUNDWATER
SAMPLE LOCATIONS**

Date 06/24/10 | Project No. 4954.02 | Figure 2

Treadwell & Rollo

R:\Trgraphics\4900's\4954\02\4954.02 Benzopyrene and VOC Invest- April 2010.dwg 6/24/10

Basemap: Google Earth 2009.

5812 HOLLIS STREET

HOLLIS STREET

FORMER EXCAVATION EXTENT

1400 POWELL STREET

5885 HOLLIS STREET

CHEVRON STATION
(FORMER 76 STATION
NO. 3737)

PELADEAU STREET

Date	TPHd	TPHmo	TPHg
4/6/2000	ND	420	ND

Date	TPHd	TPHmo	TPHg
4/6/2000	130	ND	98

Date	TPHd	TPHmo	TPHg
1/20/2005	270 H Y	1,500	<50

Date	TPHd	TPHmo	TPHg
1/20/2005	280 H Y	340 L	<50

Date	TPHd	TPHmo	TPHg
6/15/2005	6,800 L	--	91,000 Y

Date	TPHd	TPHmo	TPHg
6/20/2005	8,400 L Y	--	28,000

Date	TPHd	TPHmo	TPHg
1/20/2005	--	--	150,000 Y

Date	Depth	TPHd	TPHmo	TPHg
4/1/2010	17	<100	<600	830 Y
4/1/2010	50	<50	<300	<50

Date	TPHd	TPHmo	TPHg
4/1/2010	<100	<600	<50

Date	TPHd	TPHmo	TPHg
4/5/2000	ND	1,400	ND

Date	TPHd	TPHmo	TPHg
1/20/2005	640 H Y	960	<50

Date	TPHd	TPHmo	TPHg
4/6/2000	700	ND	3,300

Date	TPHd	TPHmo	TPHg
4/2/2010	210	<300	2,500 Y

Date	TPHd	TPHmo	TPHg
4/2/2010	240	1,700	300 Y

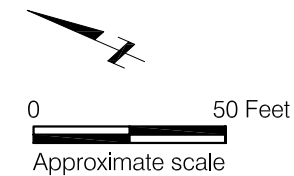
Date	TPHd	TPHmo	TPHg
4/1/2010	<500	<3,000	460 Y

EXPLANATION

- ▲ Additional CPT and soil and groundwater sampling location for dissolved petroleum hydrocarbon delineation, performed by Treadwell & Rollo, Inc., April 2010
- ⊕ Historical groundwater sampling location
- CPT boring and grab groundwater sample location performed by Delta

All concentrations reported in $\mu\text{g/L}$
ND = Not detected

Estimated
Groundwater Flow
Direction



5885 HOLLIS STREET
Emeryville, California

HISTORIC SHALLOW GROUNDWATER
RESULTS FOR TPH

Date 06/24/10 Project No. 4954.02 Figure 3

Treadwell & Rollo

R:\Trgraphics\4900's\4954.02\4954.02 Benzopyrene and VOC Invest- April 2010.dwg 7/12/10

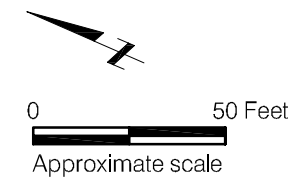
Basemap: Google Earth 2009.



EXPLANATION

- Additional CPT and soil and groundwater sampling location for dissolved petroleum hydrocarbon delineation, performed by Treadwell & Rollo, Inc., April 2010
- Historical groundwater sampling location
- CPT boring and grab groundwater sample location performed by Delta
- Proposed Treadwell & Rollo, Inc., monitoring well location
- Proposed Delta Environmental monitoring well locations

All concentrations reported in $\mu\text{g/L}$
 ND = Not detected



5885 HOLLIS STREET Emeryville, California		
PROPOSED MONITORING WELL LOCATIONS		
Date 06/24/10	Project No. 4954.02	Figure 4
Treadwell & Rollo		