RECEIVED

By Alameda County Environmental Health 11:35 am, Nov 15, 2016

October 9, 2016

Mr. Mark Detterman, P.G., C.E.G.
Alameda County Health Care Services Agency
Environmental Health Services
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

RE: Data Gap Work Plan

SITE: Sheaff's Garage
5930 College Avenue, Oakland, California
ACHCSA Fuel Leak Case No. RO0000377
GGE Project 2014

Dear Mr. Detterman:

Upon my authorization, Wheeler Group Environmental, LLC has prepared the attached *Data Gap Work Plan*, dated September 30, 2016, for the above-referenced property at 5930 College Avenue in Oakland, California. GGTR has uploaded an electronic copy of the document to the State Water Resources Control Board's GeoTracker Database System, as well as the Alameda County Health Care Services Agency FTP Site. Should you have any questions, please contact Mr. Brent Wheeler, Manager of Wheeler Group Environmental at (415) 686-8846 at your convenience.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document are true and correct to the best of my knowledge.

Respectfully Submitted,

Trustee

Dr. Brian R. Sheaff, Trustee
William G. Sheaff & Patricia Warren Restated Living Trust U/D/T 2/14/89

Distribution: (1) Addressee

DATA GAP WORK PLAN

Former Sheaff's Service Garage
5930 College Avenue, Oakland, California

Alameda County LOP Case No. RO0000377
San Francisco Bay Region 2 Case No. 01-2206
GeoTracker Global ID T0600102112

September 30, 2016

Prepared For:

Dr. Brian Sheaff

William G. Sheaff & Patricia Warren Restated Living Trust

1945 Parkside Avenue, Concord, California 94519

Prepared By:

Wheeler Group Environmental, LLC

369-B Third Street, Suite #221, San Rafael, CA 94901

WGE Project No. 2016106

Data Gap Work Plan

5930 College Avenue, Oakland, California

CONTENTS

Contents continued.....

WGE Project No. 2016106

DATA GAP WORK PLAN

FORMER SHEAFF'S SERVICE GARAGE
5930 College Avenue, Oakland, CA

September 30, 2016

INTRODUCTION

Wheeler Group Environmental, LLC (WGE) is pleased to submit this Data Gap Work Plan for the additional investigation activities at the property located at 5930 College Avenue in Oakland, California (Site). The work plan was prepared in response to the May 12, 2016 letter issued by Alameda County Department of Environmental Health (ACDEH) requesting additional investigation to resolve data gaps identified at the Site. The ACDEH refers to the fuel leak case at the Site by the historical business name "Sheaffs Service Garage" and as Fuel Leak Case No. RO0000377. Under the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, Local Oversight Program (LOP) contract, the ACDEH is the lead regulatory agency for the fuel leak case at the Site. The RWQCB manages the site as LUST Cleanup Site Case No. 01-2296 with GeoTracker Global Tracking Number T0600102112.

In their letter, the ACDEH presented the results of their review of work completed to date in determining if the Site is eligible for closure as a low risk site under the Low Threat Closure Policy (LTCP). ACDEH determined that the Site now meets most General Criteria, including LTCP General Criteria b-petroleum only release, e-Site Conceptual Model, f-Secondary Source Removal, and Media-Specific Criteria for Vapor Intrusion to Indoor Air and the Media-Specific Criteria for Direct Contact. ACDEH indicates that the Site does not meet the LTCP General Criteria d-Free Product or the Media-Specific Criteria for Groundwater. WGE representatives Brent Wheeler and Mark Youngkin met with ACDEH case officer Mark Detterman at his office on September 20, 2016, to discuss the outstanding issues at the Site preventing case closure.

In general accordance with the technical comments presented in the aforementioned letter, the purpose of this work plan is to describe the procedures and methods used to conduct the following additional site characterization activities: 1) further define the length and stability of the hydrocarbon-effected groundwater plume, and 2) investigate for potential on-site source areas of PCE contamination.

A copy of the ACEH correspondence is presented in Appendix B - Additional Documentation. Figure 1 is a *Site Location Map* showing the general location of the subject property. Figure 2 is a *Site Vicinity Map* showing land use of the surrounding neighborhood. Figure 3 is a *Site Plan* showing the approximate location of the former underground storage tanks (UST), historical soil borings, and existing groundwater monitoring field points MW-1, MW-2, MW-3 and PW-1.

SITE LOCATION

The Site is a commercial property located at 5930 College Avenue along the east side of College Avenue between Harwood Street and Chabot Road in Oakland, California. The Site lies approximately 0.2 mile (1,000 feet) north of Highway 24 and about two miles east of Interstate 80 and the San Francisco Bay. The elevation of the Site is approximately 195 feet above Mean Sea Level. The property is relatively flat lying with the local topographic relief directed toward the west-southwest in the general direction of the San Francisco Bay as shown on Figure 1, Site Location Map. The topographic map of Figure 1 depicts the area of the subject property as dense urban development. Figure 2, Site Vicinity Map, shows the mixed-use commercial-residential character of the surrounding neighborhood. Commercial-retail corridors are located along main thoroughfares such as College Avenue with residential neighborhoods situated between the corridors. The character of the Site's neighborhood has remained consistent since the 1950s.

SITE DESCRIPTION

The property is currently 100% occupied by Stauder Automotive Service for the maintenance and repair of automobiles. The building is a small single-story industrial-style building constructed in 1952. The Site is approximately 5,500 square feet in area with about 75% utilized by an industrial-style garage building and 25% used as an exterior paved storage yard/parking lot. Two underground storage tanks (UST) were formerly located beneath the sidewalk at the southwest corner of the Site. No active USTs, fuel storage, or fuel distribution system currently exist onsite. Most of the building consists of open work / storage area. The photograph on the cover page shows the open space configuration of the building.

Source of Water:	Municipal – EBMUD 100% imported surface water
Sewage Disposal:	Municipal to sewage treatment plant
Storm water	Catch basin drains to storm water conduits under nearby streets that discharge to San Francisco Bay
Solid Waste Disposal:	Municipal
Year of Construction:	circa 1952
Occupant	Stauder Automotive Service – 100%
Access to Property:	Driveway/roll-up and doorway from College Avenue

A sidewalk borders the western side of the building along the College Avenue frontage. The wall of a commercial-retail building constructed in 1978 abuts the subject building on the north. A narrow corridor-walkway runs along the southern wall of the subject building separating a multistory apartment building with ground floor retail and parking. The rear of the property contains a paved parking and storage yard. Two residence backyards adjoin the subject property along the southern and western borders. The property is completely paved with asphalt or concrete with the building constructed on a concrete slab.

A multistory commercial-residential building is adjacent to the Site on the south at 5916-20 College Avenue. This building contains a parking garage and a retail store (T-Mobile) on the ground floor with 12 multifamily apartments on upper floors. To the south and east of the Site is an older single-family residential neighborhood with residence backyards adjoining the Site's rear paved parking area. The surface channel of Harwood Branch creek is located within residential backyards about one block east and up-gradient of the Site. On the west, an Alameda County Flood Control District cutoff storm water conduit (90" diameter) associated with Harwood Branch creek is located within College Avenue. College Square is currently occupied by a restaurant (Barclays Restaurant & Pub) and office space (5940 College Avenue). This commercial development's ground floor retail space and parking garage are approximately 3-4 feet below the grade of the subject property. The street utility map indicates the sanitary sewer connection for College Square is located along the southern boundary of the property. A sump pump pit is located near the former location of Gettler-Ryan well GR-MW1 (See Figure 3 – Site Plan).

SITE HISTORY

According to a 1911 Sanborn map, the subject property and adjacent properties along the College Avenue between Harwood Avenue and Chabot Road (59th Street) were vacant lots in a developing residential neighborhood. The 1950 Sanborn map shows the subject property as a vacant lot and the adjacent property to the south occupied by the existing 12-unit apartment building. In 1952, an auto repair facility called Sheaffs Service Garage was constructed at the Site. Historical research shows that auto repair shops have continuously occupied the Site since construction in 1952. In the 1960s, the neighborhood appeared to be residential with commercial corridors along major streets such as College Avenue. A 1965 aerial photograph clearly shows that the subject building with the rear storage yard in the existing configuration. The property located at the northeast corner of Chabot Road and College Avenue was occupied by a gasoline station from approximately 1939 to 1965. A gasoline station also formerly existed at the northwest corner of Chabot Road and College Avenue at the current Dreyers Grand Ice Cream building. The adjacent property to the north was formerly occupied by Chevron Service Station #209339 prior to 1968 and was replaced with the existing commercial-retail development (College Square) circa 1978. In the 1982 aerial photograph, the neighborhood appears as currently existing. Figure 2 is a Site Vicinity Map showing land use of the surrounding neighborhood.

Golden Gate Tank Removal, Inc. (GGTR) and its affiliate Golden Gate Environmental, Inc. (GGE), have been the lead consultant on this site since May 1998, following UST removal activities at the Site in October 1996. On August 19, 2016, Dr. Brian Sheaff contracted with WGE to prepare/complete GGTR's Data Gap Investigation Work Plan, perform a follow-up meeting with ACDEH staff, and conduct the 4th Quarter 2016 Groundwater Monitoring event at the subject property.

GROUNDWATER MONITORING & SAMPLING

The scope of work for the 2nd Quarter 2016 groundwater monitoring and sampling event included the following:

- Monitoring, purging and sampling of field points MW-1, MW-2, MW-3 and PW-1
- Laboratory analysis of groundwater samples
- Waste management
- Electronic data upload to GeoTracker Database System
- Data interpretation

In their May 12, 2016 letter, the ACDEH allowed the laboratory analysis for Poly-Aromatic Hydrocarbons (PAH) by Method SW8270C and TPH as Motor Oil by Method SW8015B(M) to be discontinued. ACDEH also requested that the groundwater samples from wells MW-1 and MW-2 be analyzed for TPH as Diesel with and without Silica Gel Cleanup (SG) in an attempt to determine the extent of natural biodegradation of the extractable range hydrocarbons. ACDEH also requested that all on-site wells be analyzed for PCE and breakdown products. On June 7, 2016, GGTR in conjunction with Dysert Environmental, Inc. (DEI) monitored and sampled wells MW-1, MW-2, MW-3 and piezometer PW-1.

Groundwater Monitoring and Sampling

Prior to purging and sampling, DEI removed the well cover and locking compression cap and allowed the water in each well column to stabilize for a minimum of 20 minutes. DEI then measured and recorded the depth to product/groundwater using a Keck electronic oil/water interface meter. Fluid levels were measured relative to the north side of the top of each well casing to the nearest 0.01 foot. No floating petroleum product was detected at the Site. An odor of petroleum or gasoline was noted in all wells. Groundwater depths ranged from 8.63 in well MW-2 to 10.05 feet below grade in well MW-3.

DEI subsequently purged groundwater from the monitor wells using a peristaltic pump (average flow rate @ 200 milliliters per minute), and simultaneously monitored and recorded the pH, temperature, and specific conductivity of the purged well water. DEI terminated well purging after evacuation of approximately 2.4 liters of water from each well and three successive readings of each parameter varied by less than 0.1, 10%, and 3%, respectively. DEI transferred the purge water directly to a 55-gallon, D.O.T.-approved steel drum.

After the groundwater in each well recharged sufficiently to allow sample collection (at least 80% of initial depth to water), DEI recovered a groundwater sample using a peristaltic pump with dedicated tubing lowered just below the last measured groundwater level. The groundwater sample was collected from the discharge end of the dedicated tubing into pre-cleaned, laboratory-provided sample containers. The sample containers were sealed with Teflon caps and all volatile organic analysis (VOA) vials were inverted and checked to ensure that no entrapped air was present. The samples were properly labeled and stored in a cooler chilled to approximately 4ºC. Attachment B contains a copy of the Fluid-Level Monitoring Data Form and Well Purging/Sampling Data Sheets for this event.

Waste Management

The well purge and equipment wash and rinse water generated during this event was transferred directly to a D.O.T.-approved, 55-gallon drum, appropriately labeled and sealed, and temporarily stored onsite in a secure area for use with future groundwater monitoring/investigation work.

Water Sample Analytical Methods

On June 7, 2016, DEI submitted all groundwater samples under formal chain of custody command for delivery on June 8, 2016 to Torrent Laboratory, Inc., a State-certified analytical laboratory (CA ELAP #1991) in Milpitas, California, for laboratory analysis of the following fuel constituents:

- Total Petroleum Hydrocarbons (TPH) as Gasoline by Method 8260TPH
- TPH as Diesel by Method SW8015B(M)
- Naphthalene by Method SW8260B
- Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX) by Method SW8260B
- Volatile Organic Compounds (Full List) by Method SW8260B, to include Perchloroethylene (PCE) & 5 Breakdown Compounds; Trichloroethylene (TCE), 1,1-Dichloroethylene (1,1-DCE), cis-1,2-DCE, trans-1,2-DCE, Vinyl Chloride by Method SW8260B

The samples collected in MW-1 & MW-2 were additionally analyzed for TPH as Diesel with Silica Gel Cleanup. Tables 1 and 2 attached present a summary of the analytical results for the sampling event as well as previous monitoring/sampling events at the Site. Attachment A includes a copy of the Laboratory Certificate of Analysis and associated Chain of Custody Record for this event.

Torrent submitted their certified analytical report on June 15, 2016. Torrent completed all volatile organic analyses within the 14-day required time limit for analysis. Torrent reported that no issues were encountered with the receiving, preparation, analysis or reporting of the results associated with the submitted samples. GGTR directed Torrent to submit all analytical data in electronic deliverable format (EDF) in accordance with the State Water Resources Control Board’s GeoTracker database system.

The laboratory analytical report contains notes pertaining to the analysis of TPH as gasoline and TPH as Diesel as follows:

Sample ID	Laboratory Analysis Note
MW-1	X- Sample chromatogram does not match pattern of referenced Gasoline standard. Reported TPH value includes amount due to discrete peaks and heavy end hydrocarbons (possibly aged gasoline) within range of C5-C12 quantified as gasoline.
	X- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.
MW-2	X- Although TPH as Gasoline constituents are present, sample chromatogram does not resemble pattern of reference Gasoline standard.
	X- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.
MW-3	X- Does not match pattern of reference Gasoline standard. Hydrocarbons in the range of C5-C12 quantified as Gasoline.
	X- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.
PW-1	No notes present in laboratory analytical report

GeoTracker Electronic Submittal

Torrent submitted all analytical data in electronic deliverable format (EDF) via the Internet. GGTR uploaded the analytical data as well as the Fluid-Level Monitoring Data (GEO_WELL) for this event to the State Water Resources Control Board's GeoTracker Database System. GGTR also uploaded a copy of this report in Portable Data Format (PDF) to the GeoTracker Database. Attachment B includes a copy of each associated GeoTracker Upload Confirmation Sheet.

Groundwater Monitoring Results

For the June 7, 2016 event, the groundwater elevations calculated relative to the top of well casing in wells MW-1, MW-3 and PW-1 ranged between 185.17 feet in well MW-3 and 187.47 feet in piezometer PW-1, as referenced to Mean Sea Level (MSL), a range of 2.3 feet. The groundwater elevation and coordinate data for each monitoring event was entered into the EPA On-Line Tools for Site Assessment Calculation, Hydraulic Gradient – Magnitude and Direction. This tool calculates gradient by a least-squares fitting of the data to a plane and used to calculate the approximate groundwater hydraulic gradient and flow direction across the Site. The attached Figure 4, titled

Groundwater Data Diagram – June 2016 shows the groundwater data for the subject monitoring event. The EPA On-Line Tools for Site Assessment Calculation sheet is included in Attachment A.

During the June 7, 2016 monitoring event, the groundwater flow direction beneath the Site was estimated at North 166º East under a hydraulic gradient of approximately 0.05 ft/ft. The groundwater flow direction for the June 2016 event shifted approximately 95º to the east, as compared to the November 2015 event, and is consistent with historical data for the Site with the flow direction ranging widely from south to northwest. The large variation in groundwater flow direction is inconsistent with previous studies at nearby former gasoline stations. The wide variation in flow direction data may be attributed to the subject monitor array consisting of few monitor wells arranged in a linear direction within the narrow site boundaries. One site well MW-2 has previously been excluded from flow direction calculations for inconsistencies in groundwater elevation data.

Results of Groundwater Sampling and Laboratory Analysis

The attached Tables 3A & 3B include the groundwater analysis results for the June 7, 2016 event and the associated laboratory report is included in Attachment A. As shown on Table 3A, the laboratory reported concentrations of TPH as gasoline ranging from ND<50 µg/l in piezometer PW-1 to 18,000 µg/l in well MW-1 in groundwater samples. Benzene concentrations ranged between ND<0.5 µg/l in piezometer PW-1 to 3100 µg/l in well MW-1.

As compared with the November 2015 event, the TPH as Gasoline concentration slightly increased in well MW-1 from 14,000 to 18,000 µg/l; however, the Benzene concentration decreased from 3900 to 3100 µg/l. The TPH as Gasoline concentration slightly increased in well MW-2 from 3100 to 4600 µg/l; however, the Benzene concentration decreased from 220 to 160 µg/l. The TPH as Gasoline concentration slightly decreased in well MW-3 from 4100 to 2900 µg/l and the Benzene concentration decreased from 660 to 190 µg/l. No detectable TPH as Gasoline or Benzene was reported in piezometer PW-1. Naphthalene was reported in well MW-1 at 180 µg/l, in well MW-1 at 32 µg/l, in well MW-3 at 17 µg/l, and naphthalene was not detected in piezometer PW-1.

Per the most recent ACDEH Letter dated May 12, 2016, samples collected from each monitoring well were to be additionally analyzed for Naphthalene and TPH as diesel. The analysis of PAHs and TPH as Motor Oil was discontinued. TPH as diesel was detected in MW-1, MW-2, MW-3 and PW-1 at concentrations of 2500, 2600, 840 and ND<100 µg/l, respectively. The laboratory analytical report noted that for each TPH as gasoline and diesel sample results from wells MW-1, MW-1 and MW-3, the chromatographic pattern does not resemble the typical reference standard.

In their May 12, 2016 letter, the ACDEH also requested that the groundwater samples from wells MW-1 and MW-2 be analyzed for TPH as Diesel with and without Silica Gel Cleanup (SG) in an attempt to determine the extent of natural biodegradation of the extractable-ranged hydrocarbons. The results of the laboratory analysis are presented in the following table:

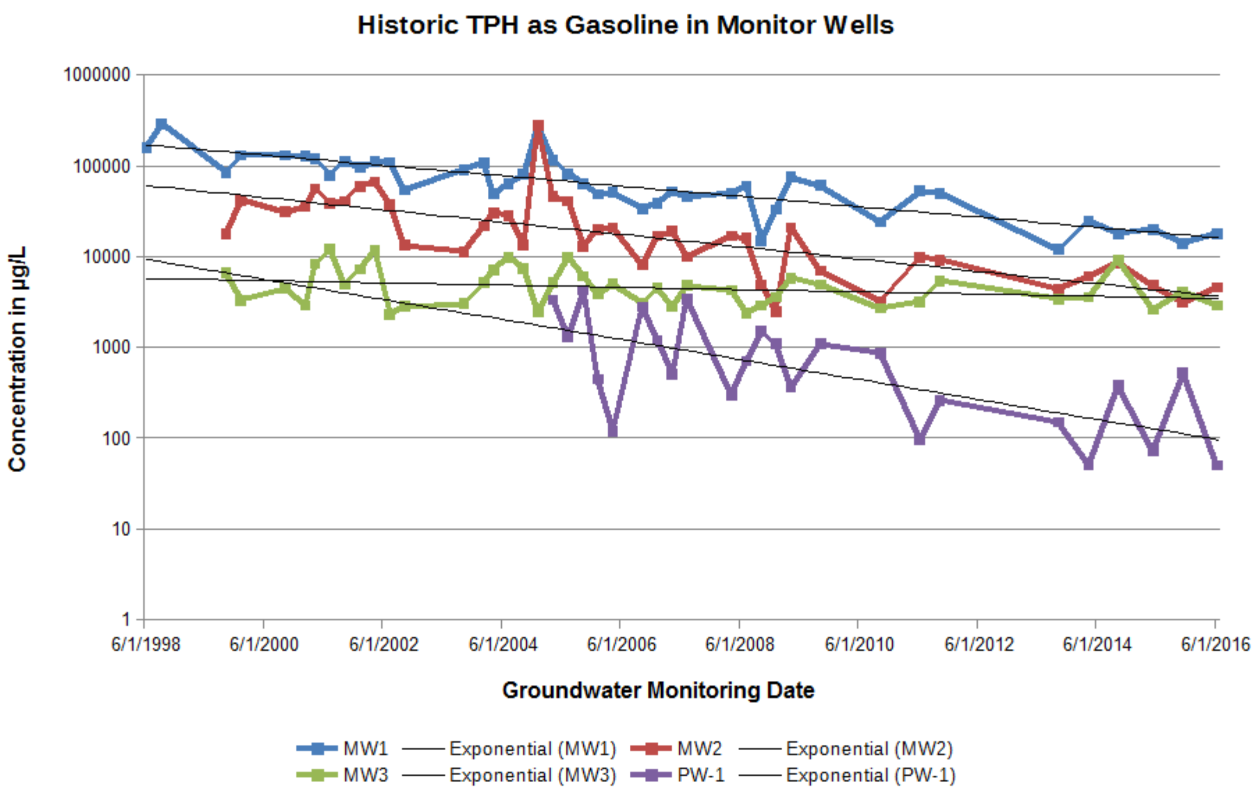
Well ID	Laboratory Analysis	Silica Gel Cleanup	TPH as Diesel in mg/l	Percent decrease
MW-1	SW8015B(M)	No	2.5	
MW-1	SW8015B(M)	Yes	0.21	84 %
MW-2	SW8015B(M)	No	2.6	
MW-2	SW8015B(M)	Yes	0.22	85 %

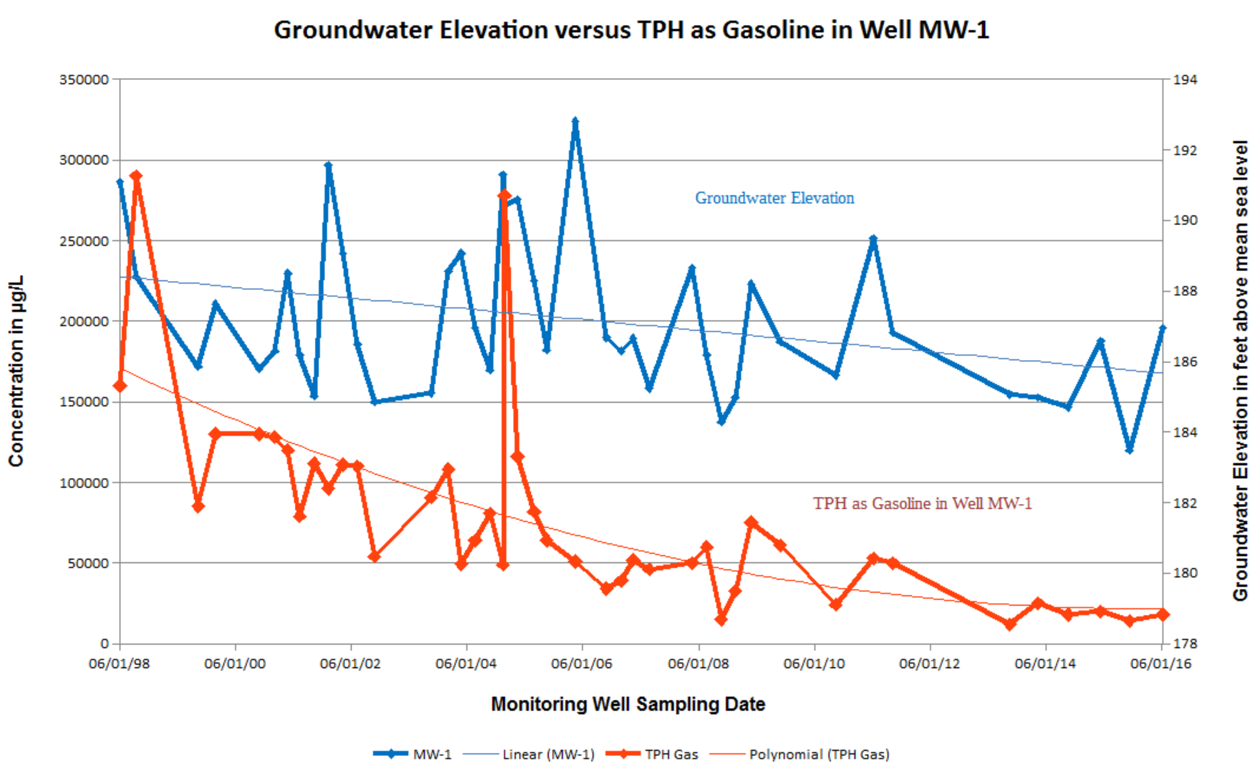
The effect of silica gel cleanup on the water samples analyzed by TPH as Diesel method is to reduce the concentration of TPH as Diesel by 84% in the water sample from well MW-1 and 85% in the water sample from well MW-2.

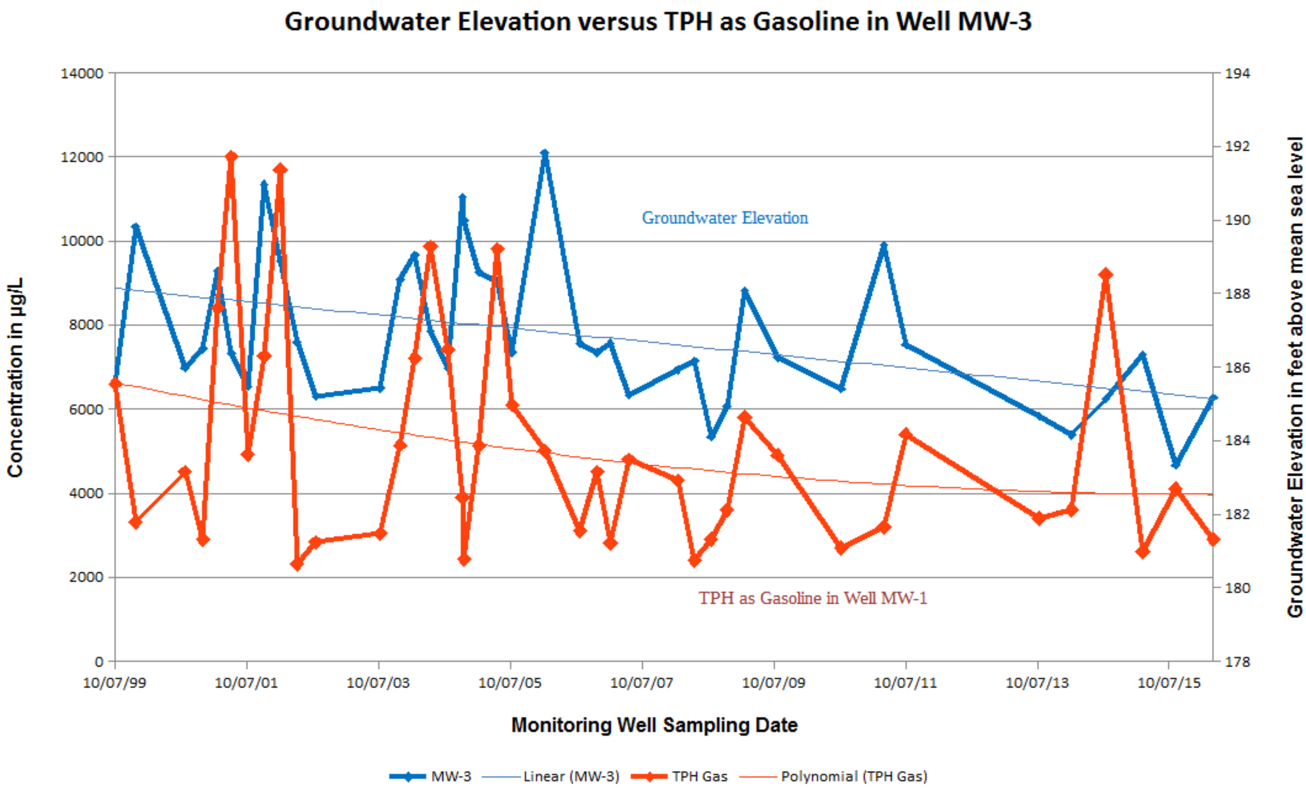
PCE was detected in the groundwater sample collected in well PW-1 at a concentration of 79 µg/l, increasing from the 39 µg/l concentration measured during the November 2016 event. As shown on Table 2, the recently measured PCE concentration of 79 µg/l is below the historical high values for PCE of 120 and 110 µg/l reported in April 2009 and 2014, respectively. The PCE breakdown products of TCE and Cis-1,2-DCE were measured in piezometer PW-1 at concentrations of 6.4 µg/l and 43 µg/l, respectively, during this event. Table 3B includes a summary of the historical groundwater VOC analysis results for the June 2016 event and the complete VOC laboratory report for well PW-1 is included in Attachment A.

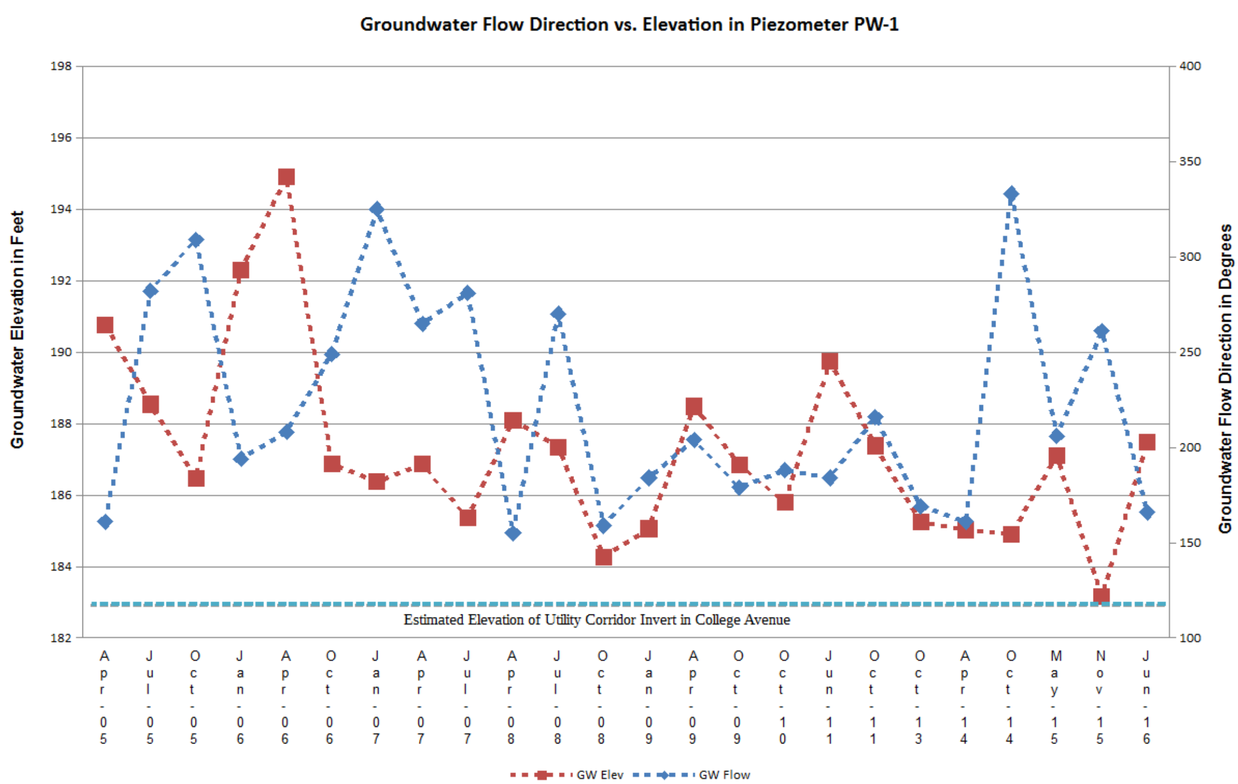
In their May 12, 2016 letter, the ACDEH requested that all on-site wells be analyzed for PCE and breakdown products. During the June 2016 sampling, no PCE, TCE, cis-1,2-DCE, or Vinyl Chloride was detected in the groundwater samples from wells MW-1, MW-2 and MW-3. PCE and breakdown products were previously analyzed in wells MW-1, MW-2 and MW-3 from February 2004 through April 2008. No PCE, TCE, cis-1,2-DCE or Vinyl Chloride was detected in 15 sampling events and the laboratory analysis was discontinued in the July 2008 monitoring event.

In their May 12, 2016 letter, the ACDEH also requested the generation of a groundwater hydrograph plotting depth to water and groundwater concentrations versus time to help illustrate concentration stability of groundwater as it appears that significant changes are present during periods of time with higher groundwater levels. In the June 1, 2009 *Soil and Water Investigation Work Plan & Site Conceptual Model*, Golden Gate Environmental, Inc. submitted charts including a hydrograph. GGTR has updated several of the charts as shown on the following pages. The following chart plots gasoline concentrations in monitor wells versus time displaying an overall decreasing trend in contaminant concentrations following primary source removal in 1996. The recently measured concentrations appear consistent with the historical trend lines.


Historic TPH as Gasoline in Monitor Wells
Concentration in µg/L
1000000
100000
10000
1000
100
10
1
6/1/1998
6/1/2000
6/1/2002
6/1/2004
6/1/2006
6/1/2008
6/1/2010
6/1/2012
6/1/2014
6/1/2016
Groundwater Monitoring Date
MW1
Exponential (MW1)
MW2
Exponential (MW2)
MW3
Exponential (MW3)
PW-1
Exponential (PW-1)


Groundwater Elevation versus TPH as Gasoline in Well MW-1
Concentration in µg/L
350000
300000
250000
200000
150000
100000
50000
0
194
192
190
188
186
184
182
180
178
Groundwater Elevation in feet above mean sea level
Groundwater Elevation
TPH as Gasoline in Well MW-1
06/01/98
06/01/00
06/01/02
06/01/04
06/01/06
06/01/08
06/01/10
06/01/12
06/01/14
06/01/16
Monitoring Well Sampling Date
MW-1
Linear (MW-1)
TPH Gas
Polynomial (TPH Gas)


Groundwater Elevation versus TPH as Gasoline in Well MW-3
Concentration in µg/L
Groundwater Elevation in feet above mean sea level
Groundwater Elevation
TPH as Gasoline in Well MW-1
Monitoring Well Sampling Date
MW-3
Linear (MW-3)
TPH Gas
Polynomial (TPH Gas)


Groundwater Flow Direction vs. Elevation in Piezometer PW-1
Groundwater Elevation in Feet
Groundwater Flow Direction in Degrees
Estimated Elevation of Utility Corridor Invert in College Avenue
GW Elev
GW Flow

DATA GAP INVESTIGATION

In general accordance with the technical comments presented in the May 12, 2016 ACDEH letter, the purpose of this work plan is to describe the procedures and methods used to conduct the following additional site characterization activities: 1) further define the length and stability of the hydrocarbon-effected groundwater plume, and 2) investigate for potential on-site source areas of PCE contamination. The proposed sampling locations are shown on Figure 5, Proposed Work. The following sections describe the procedures for the additional investigation work.

Scope/Sequence of Proposed Work Activities

The general scope of work and sequence of activities described and recommended in this work plan is outlined as follows:

- Obtain soil boring permit from the Alameda County Public Works Agency and minor encroachment permit and excavation permit from the City of Oakland Planning & Building Department
- Revise the existing Site Health & Safety Plan for all newly-proposed field work
- Using drilling equipment, drill and install temporary well casing in the borehole at new boring location B35 in the interior of shop and recover one (1) grab groundwater sample to evaluate the natural degradation of the petroleum plume near the former location of historic boring B3. Recover soil samples at 0-5 and 5-10 feet and the groundwater interface
- Using drilling equipment, drill and recover discrete soil samples at depths of 2, 5 and 10 feet below grade in the interior of shop and rear courtyard from three (3) boring locations labeled B36, B37 and B38 to evaluate potential source area of PCE contamination along the northern boundary of the subject property and potential sanitary line location along southern boundary of adjoining College Square property
- Install temporary well casing in boreholes B36, B37 and B38 and recover four (4) grab groundwater samples
- Recover three (3) soil gas samples from three new vapor sampling probes B36V, B37V and B38V in separate adjacent boreholes at locations B36, B37 and B38
- Recover six (6) soil gas samples from existing vapor sampling points SG-1, SG-2, SG-3, B28V, B29V and B31V
- Using drilling equipment, drill two exploratory borings labeled B39 and B40 to 12 feet below grade in the western parking lane of College Avenue to evaluate the down-gradient extent of petroleum hydrocarbon contamination and recovered a soil sample from the groundwater interface and a grab groundwater sample in both borings
- Obtain a site access agreement with the adjoining property owner at 5916-5920 College Avenue and obtain one grab groundwater sample from the elevator pit or sump if available. If not, utilize concrete coring and drilling equipment to recover one grab groundwater sample from first water beneath the building from a new exploratory boring labeled B41
- Back fill all boreholes as required per applicable guidelines and store all drill cuttings, solid waste and liquid wastes in secured containers pending off-site disposal

- Obtain site access with adjoining property owner and collect grab groundwater sample from sump pit or elevator pit in lowest level of building
- Transport and submit under chain-of-custody control, selected soil, soil gas and groundwater samples to a State-certified stationary laboratory for laboratory analyses
- Upload all investigative analytical data and required documentation to the State GeoTracker Database System and Alameda County FTP site
- Profile and transport all solid (auger soil cuttings) and liquid waste to respective State-licensed disposal facilities
- Interpret all data and prepare a report summarizing the field activities, findings, and conclusions of the additional site characterization activities.
- Distribute the final report with findings and recommendations to client and environmental cleanup oversight program

The following table presents a summary of the proposed investigative, sampling and laboratory analysis activities:

Label	*Depth Feet*	*Sampling Location & Purpose*	*Sample Data Recovered*	*Laboratory Analyses*
B35	12	In shop interior at southern boundary to determine degree of natural degradation of petroleum plume next to adjoining property	Soil samples at 0-5, 5-10 feet and groundwater interface, grab groundwater sample at approx. 8-10 feet bgs	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B36 B36V	5	In rear courtyard near catch basin and separator to evaluate source of PCE contamination	Soil samples at 2, 5 and 10 feet, soil gas sample at 5 feet in adjacent boring B36V	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B37 B37V	12	In rear courtyard at northeast corner of property to evaluate source of PCE contamination	Soil samples at 2, 5 and 10 feet, grab groundwater sample at approx. 8-12 feet bgs, soil gas sample at 6.5 feet in adjacent boring B37V	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B38 B38V	12	In shop interior near northern boundary to evaluate source of PCE contamination	Soil samples at 2, 5 and 10 feet, grab groundwater sample at approx. 8-12 feet bgs, soil gas sample at 6.5 feet in adjacent boring B38V	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B39	12	Hollow-stem auger boring in western parking lane of College Avenue to sample down-gradient groundwater	Soil samples at 0-5, 5-10 feet and groundwater interface, grab groundwater sample at approx. 8-10 feet bgs	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B40	12	Hollow-stem auger boring in western parking lane of College Avenue to sample down-gradient groundwater	Soil samples at 0-5, 5-10 feet and groundwater interface, grab groundwater sample at approx. 8-10 feet bgs	TPH as Gasoline, TPH as Diesel, VOC, naphthalene

Existing	4-6 ft	Existing soil gas sampling probes	Repeat sampling of existing soil gas probes SG-1, SG-2, SG-3, SSV-1, B28V, B29V and B31V to use in evaluating soil gas sampling results of new soil gas probes	TPH as Gasoline, TPH as Diesel, VOC, naphthalene
B41	First water	Sump or elevator pit of adjoining apartment building to determine extent of groundwater plume beneath building	One grab water sample from sump or elevator pit or boring to first water	TPH as Gasoline, TPH as Diesel, VOC, naphthalene

Description of Proposed Work Activities

To resolve the data gaps identified in the May 12, 2016 ACEH letter, GGTR proposes the following investigation activities at the Site. GGTR recommends additional investigative sampling in the Site's shop and rear courtyard area as shown on Figure 5, Proposed Work. The purpose of the investigation is 1) determine down-gradient degradation of hydrocarbon plume at southern boundary of Site, and 2) to determine extent of PCE contamination of soil gas and groundwater. These tasks would require the following actions:

1) One exploratory boring (B35) to approximately 12 fbg would be placed adjacent to the southern property boundary to assess groundwater for the degradation of petroleum hydrocarbons contamination at the former location of boring B3. A grab groundwater sample would be recovered from the boring at approximately 8-10 feet bgs. Soil samples would be recovered from 0-5 feet, 5-10 feet and the groundwater interface zone for laboratory analysis.

2) Three (3) exploratory borings (B36, B37, B38) would be located in the interior of the subject building and rear courtyard to assess soil, soil gas and groundwater for PCE contamination. The soil samples would be collected at 2, 5 and 10 feet below grade. The grab groundwater sample would be collected from approximately 8-10 feet below grade depending on the seasonal depth to water in borings B37 and B38. No groundwater sample would be recovered at location B36 due to the close proximity of piezometer PW-1. In a separate boring at each location B36V, B37B and B38V, a soil gas sample would be recovered from a depth of 6½ feet bgs allowing for the default 1½ foot depth of building foundation.

3) GGTR is proposing to recover soil gas samples from six existing soil gas and sub-slab sampling probes SG-1, SG-1, SG-3, SSV-1, B28V, B29V and B31V to further evaluate subsurface soil gas and oxygen conditions beneath the Site for PCE contamination.

4) Two new exploratory borings B39 and B40 would be located in the western parking lane of College Avenue in a third attempt to recover a groundwater sample to assess the down-gradient

extent of the petroleum hydrocarbon plume at the Site. This time, both borings will be drilled with hollow-stem auger equipment to a depth of approximately 12 fbg. A grab groundwater sample would be recovered in both borings at approximately 8-10 fbg. A soil sample would be recovered from the groundwater interface zone for laboratory analysis in case a water sample cannot be recovered.

5) Obtain a site access agreement and collect one grab groundwater sample from the elevator pit or sump in the lowest level of the adjoining multi-story building at 5916-1920 College Avenue. If such pit or sump is not present, use concrete coring and drilling equipment and drill one exploratory boring B41 to 12 fbg and recover one grab groundwater sample from first water beneath the building.

The soils encountered in all borings would be continuously logged for lithology and obvious evidence of contamination (vapor & staining). Discrete soil samples would be recovered for laboratory analysis at any interval where obvious evidence of soil contamination is observed.

The following sections describe the procedures for performing the proposed work.

Health And Safety Plan

All contractors will be responsible for operating in accordance with the most current requirements of State and Federal Standards for Hazardous Waste Operations and Emergency Response (Cal. Code Regs., tit. 8, section 5192; 29 CFR 1910.120). Onsite personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in the State General Industry and Construction Safety Orders (Cal. Code Regs., tit. 8) and Federal Construction Industry Standards (29 CFR 1910 and 29 CFR 1926), as well as other applicable federal, state and local laws and regulations. All personnel shall operate in compliance with all California OSHA requirements.

In addition, California OSHA’s Construction Safety Orders (especially Cal. Code Regs., tit. 8, sections 1539 and 1541) will be followed as appropriate. GGTR has previously prepared a site-specific Health & Safety Plan (HASP) for the Site in accordance with current health and safety standards as specified by the federal and California OSHA's and has been submitted as part of previous work plans. The HASP will be reviewed and updated if needed for the current work. The provisions of the HASP are mandatory for all personnel of the proposed project and its contractors who are at the Site. The contractor and its subcontractors doing fieldwork in association with this work plan will either adopt and abide by the HASP or shall develop their own safety plans which, at a minimum, meet the requirements of this HASP. All onsite personnel shall read the HASP and sign the “Plan Acceptance Form” before starting daily Site activities.

Field Procedures for Investigation Activities

PRE-FIELD WORK ACTIVITIES

WGE will obtain all necessary drilling and encroachment permits from the Alameda County Public Works Agency and City of Oakland. WGE will notify all property owners and tenants as well as the ACEH of all scheduled work activities. At least 72 hours before commencing field activities, WGE will visit the site and outline the proposed work areas in white surface paint and subsequently notify Underground Service Alert (USA) to locate and mark any subsurface utilities extending through the designated work areas.

WGE will notify the property owners, tenants, and regulatory agency representatives of all scheduled fieldwork and arrange and schedule all drilling and laboratory subcontractor services. Prior to commencing drilling activities, WGE will conduct a tailgate safety meeting with all site personnel addressing all information provided in the Community Site Health & Safety Plan. WGE will direct the subcontracted driller to hand auger each proposed boring location to clear for unmarked subsurface utilities.

DRILLING & SOIL SAMPLING

Each proposed soil boring within the property boundaries will be drilled by a California-licensed Water Well Drilling Contractor (C-57) using a limited access, direct-push drill rig equipped with 2¼-inch-diameter steel, concentrically-cased percussion drill tubes. While simultaneously casing the borehole with the outer drill tubes, soil samples will be collected in each boring using a 1.5-inch-diameter, butyrate plastic, tube-lined, core sampler (inner tube) driven in 4-foot increments into relatively undisturbed soil. The two borings in the western parking lane will be drilled and soil samples recovered using a truck-mounted hollow-stem auger drill rig to increase the probability of recovering a water sample.

WGE will classify and log all soil extracted from each borehole using the Unified Soil Classification System and Munsell Soil Color Chart, and monitor and record the organic vapor concentrations of soil samples using a MiniRae® photo ionization detector (PID). All borings will be logged under the supervision of a California-registered Civil Engineer/Geologist.

Soil samples retained for laboratory analysis of petroleum hydrocarbons will be immediately sealed with Teflon tape and plastic caps, appropriately labeled, and placed in a cooler chilled to approximately 4º Centigrade. Soil samples retained for laboratory analysis of VOC will be collected using a Terra Core sampler to extract a 5-gram sample of soil from the split open plastic sample tube into a 40-ml vial preserved with sodium bisulfate (EPA 5035), appropriately labeled, and placed in a cooler chilled to approximately 4º Centigrade.

All down-hole drilling and sampling equipment will be cleaned between each boring location using a non-phosphate Alconox® solution and double rinsed using clean, potable water. A Chain-of-Custody form will be initiated by WGE personnel at the time of sampling and will accompany the soil samples to a State-certified environmental laboratory using California Department of Health Services approved analytical methods.

GRAB GROUNDWATER SAMPLING

Following soil sample collection and drilling of each borehole, WGE will instruct the drilling contractor to install factory-sealed ¾-inch slotted PVC well screen with a bottom cap into each cased borehole to its total depth, to expedite sampling and pre-filter the groundwater of coarse-grained sediments. WGE will direct the driller to extract the outer drill tubes 1 to 2 feet, exposing the PVC casing to the surrounding strata and groundwater.

WGE will initially measure and record the depth to groundwater and presence of free-floating product in each temporary piezometer using an electronic water/oil interface meter and determine when groundwater levels stabilize. WGE will obtain all measurements relative to the approximate north side of the top of casing (TOC), with an accuracy of 0.01 foot. WGE will then collect a grab groundwater sample from each borehole using a peristaltic pump (average flow rate @ 100 to 150 milliliters per minute) and dedicated 0.25-inch-diameter Teflon tubing. The groundwater sample will be immediately removed from the boring and carefully decanted from the end of the tubing into pre-cleaned, laboratory-provided sample containers. The volatile water samples will be poured directly into laboratory cleaned 40-milliliter volatile organic analysis (VOA) vials to prevent loss of any volatile constituents. The vials will be filled slowly and in such a manner that the meniscus extends above the top of the VOA vial. After the vials are filled and capped, they will be inverted to insure there is no head space or entrapped air bubbles. The samples will be sealed with Teflon caps, properly labeled, and stored in a cooler chilled to approximately 4ºC.

As an alternative, based on subsurface conditions, the driller may elect to advance additional steel drill tubes retrofitted with a hydropunch sample point to approximately 10 fbg. WGE will first confirm that groundwater has not entered the drill tubes by lowering an electronic measuring tape to the total depth of the borehole. The driller will then extract the steel drill tube approximately 6 inches, exposing the perforated portion of the drive point to the surrounding strata, and subsequently collect a representative, depth discrete grab sample of the groundwater at depth using a peristaltic pump and new dedicated tubing. Sample collection and preservation will be similar to that discussed above.

SOIL GAS SAMPLING PROBE INSTALLATION

WGE will install semi-permanent soil gas probes and collect associated soil gas samples from separate boreholes adjacent to the proposed boring locations B36, B37 and B38. The soil gas probe will be installed from 0-5 fbg in boring B36 within the middle of the rear courtyard away from building foundations. The soil gas probes in borings B37 and B38, located adjacent to the building foundation, will be installed from 0-6.5 fbg. As above, each proposed boring will be drilled by a California-licensed Water Well Drilling Contractor (C-57) using a limited access, direct-push drill rig equipped with 2¼-inch-diameter steel, concentrically-cased percussion drill tubes, advanced to the final depth of 5 or 6.5 fbg. Figure 6, titled *Proposed Soil Vapor Probe Construction Diagram* shows schematic representations of a single vapor probe constructed to 5 and 6.5 fbg.

Once the designated target depth of 5 or 6.5 feet is reached, the drive rod is removed and a semi-permanent vapor probe is constructed in the bottom of the borehole. At each target depth, a screened 2-inch vapor probe is installed on the down hole end of 1/4-inch Teflon tubing and extends approximately 12 inches above grade surface. The screened probe is encased in a 12-inch thick sand pack. Approximately 12 inches of dry granular bentonite is placed on top of the sand pack, followed by 2 to 3 feet of hydrated granular bentonite. Rapid set Portland cement will then be poured in the borehole between 0.5 and 1.5 fbg to form a surface seal. The top of the tubing is capped and contained within a flush-mounted well box with cover and placed in concrete to prevent surface water infiltration. Between vapor boring locations, the metal push-rod assembly will be washed and triple-rinsed with potable water void of VOCs.

A soil gas sample will be collected at each location following the procedures provided in DTSC's April 2015 *Advisory – Active Soil Gas Investigations*, and discussed below. Following initial sampling, the vapor probe will remain installed for follow up confirmation sampling or other required sampling interval required by the local oversight agency.

SOIL GAS SAMPLING

A soil gas sample will be collected at each location following the procedures provided in DTSC's April 2015 *Advisory – Active Soil Gas Investigations*. The appropriate purge volume for this site was previously determined using a step purge volume testing program with test volumes of 1, 3, and 10 volumes. A purge volume of 3 volumes was determined to be appropriate for this site. In accordance with the current advisory for soil gas investigations, to allow the soil vapor conditions to approach representative, ambient conditions after probe emplacement using GeoProbe (direct push) technology, shut-in tests, leak testing, purging volume testing, and soil gas sampling should not be conducted until equilibration has occurred, at least 2 hours following completion of probe installation. A brief description of each soil gas assembly test is provided below.

A laboratory-supplied 6-liter purge canister and a 1-liter sample canister will be connected into a manifold using an inline 2-micron filter, a flow controller preset at a 100-150 milliliters/minute flow rate, and a dual valve assembly (V_1 and V_2). The sample canister, manifold, valves and the superior portion of the sub-slab vapor probe (at grade surface) will be connected using laboratory supplied Teflon tubing and Swagelok compression fittings. The sample canister and manifold assembly will be connected directly to the above-grade tubing of the newly-installed vapor probe. Clean laboratory-supplied canisters, manifold assemblies, and new Teflon tubing will be used at each sampling location. See Figure 7 titled Schematic of Soil Vapor Sampling.

Vacuum gauges will be pre-connected directly to each Summa canister at the laboratory. Per soil gas advisory specifications, flow rates between 100 and 200 milliliters per minute and an applied vacuum less than 100 inches of water should be maintained throughout purging and sampling to minimize both ambient air infiltration from dilution of samples and partitioning of vapors from pore water to soil gas, to help ensure collection of a representative soil gas sample.

SHUT-IN TEST

A shut-in test should be conducted at every vapor sampling location to check for leaks in the above-grade sampling system. After assembly of the soil vapor sampling train as shown in Figure 7, WGE will close Valve V_1 and apply a vacuum at the 6-liter purge canister and continually observe the vacuum gauge(s) for at least 1 minute (standard time @ 10 minutes) to confirm that there is no observable loss in vacuum. Should a loss in vacuum occur, WGE will immediately close the valve at the purge canister and adjust all inline fittings between V_1 and the purge and sample canisters. After validation of the shut-in test is completed, the soil gas sampling train should not be disconnected or altered, and the subsequent leak test can be performed.

LEAK TEST

A leak test is conducted at every vapor sampling location during sample collection to check if ambient air is introduced into the soil gas sample and evaluate overall integrity of the sample. The introduction of ambient air into the soil gas sample will likely dilute or alter the actual site contaminant concentration. Atmospheric leakage generally occurs through faulty valves/gauges and loose fittings in the soil gas sampling train, and by advection through voids in the vapor probe construction material, borehole wall and directly through the soil column itself.

The leak check compound, isopropyl alcohol (IPA; CAS #67-63-0), is applied at the vapor probe inlet at grade surface, throughout the duration of the sampling event. WGE recommends using a shroud enclosure during the sampling of each vapor probe to ensure that a relatively high concentration of the leak check compound is maintained throughout the sampling event, and that the volatile tracer concentrations within the shroud be monitored and recorded periodically (@ 3-4 minute intervals) using a calibrated Photo Ionization Detector.

The shroud enclosure volume should be minimal, and the enclosure should be placed over the inlet of the soil vapor probe and contain at least the vapor tight valve V_1 and associated sections of Teflon tubing. IPA would be applied directly to a gauze or cloth and placed on the floor surface near the vapor probe inlet, whereas a gaseous tracer compound would be infused directly surrounding the vapor sampling train assembly within the shroud enclosure. The selected leak check compound should not be a suspected site contaminant, and should be included in the laboratory analyte list. If warranted, a leak check sample canister (or associated tubing inlet) can be placed within the shroud enclosure and sampled concurrently with the soil gas sample.

SOIL GAS SAMPLE COLLECTION

After a sufficient volume of vapor has been evacuated from the sampling assembly, WGE will perform soil gas sample collection. If a leak check canister is utilized, it will be connected to a separate manifold system "J-Tube" consisting of a 2-micron filter, flow controller, and a single valve assembly, and connected directly to Teflon tubing that extends within the shroud enclosure. WGE will place clean gauze saturated with IPA within the interior of the shroud enclosure throughout the duration of each sampling period, and continuously monitor the interior atmospheric concentration of the shroud with a MiniRae® PID. WGE will record the interior shroud VOC concentrations approximately every two to three minutes.

WGE will initially close the purge canister and open the valves for the 1-liter (soil gas) or 6-liter (sub-slab vapor) sample and leak detection canisters, and begin sample collection. Sampling will be terminated at each location when the sample canister vacuum gauge shows approximately 5 inches of mercury (adequate sample volume and suggested vacuum for sample extraction according to laboratory). Each sample canister will be disconnected from the sample train assembly, appropriately labeled and placed in a box or cooler (non-chilled) for transport to the laboratory. The results of the soil vapor analysis will be confirmed with duplicate soil vapor samples (at a rate of 10% of the soil vapor samples) collected simultaneously in additional Summa canisters utilizing a duplicate manifold assembly. Soil gas probe construction specifications, sampling equipment serial numbers, initial/final purge and sample volumes and all associated shut in, leak check and soil gas sampling data will be recorded on field data sheets for each sampling point and provided in the Data Gap Investigation Report.

BACK FILLING

Immediately following sampling activities in all soil borings without semi-permanent vapor probes, WGE will direct the subcontracted driller to extract drill tubes from each borehole and backfill with neat Portland cement up to approximately 0.5 fbg. The balance of each borehole will be backfilled with appropriate surface material (i.e., concrete, asphalt, etc.) to restore original site conditions. Any boreholes containing groundwater will be backfilled by pumping Portland cement (6 gallons water per 94-pound bag of Portland cement) through a tremie pipe and grouting upward from the bottom of the boring; gravity flow of grout through a funnel will not be allowed. Any water discharging the boring during grouting will be managed as a hazardous waste (contained and collected with absorbent for placement in 55-gallon drum(s). In boreholes fitted with semi-permanent vapor probes (no future sampling required), the vapor probe and tubing will be pulled from the hole and the hole sealed at the surface with cement.

GRAB GROUNDWATER SAMPLING OF SUMP OR ELEVATOR PIT

In the September 21, 2016, project meeting with Mark Detterman, Alameda County Department of Environmental Health requested evaluation of the adjoining apartment building for vapor intrusion potential with concern for potential vapor intrusion associated with the building elevator. Upon signing of a site access agreement, WGE will inspect the elevator equipment at the multi-story building for an elevator pit or piston shaft beneath the building. WGE will obtain a grab groundwater sample from the elevator pit or any other sump within the lowest level of the building. If no such pit or sump exists, WGE will core the concrete floor of the lowest level and recover a grab groundwater sample from one exploratory boring using the procedures for drilling and groundwater sampling discussed in other sections of this report.

Waste Management

All hydrocarbon-impacted soil generated during the additional soil boring installation activities will be transferred directly to 55-gallon drums and temporarily stored onsite in a secure area. Pending receipt of the composite stockpile soil sample analysis, WGE and subcontractors will subsequently profile and transport the drummed waste to an appropriate licensed disposal facility under uniform waste manifest. A copy of the solid waste manifest and associated weight ticket will be included in the technical report.

All borehole purge water and equipment wash and rinse water generated during the investigation activities will be transferred to separate 55-gallon D.O.T.-approved steel drum(s) and stored onsite in a secure area. All waste water containers will be sealed and appropriately labeled and securely stored onsite pending future disposal at a State-licensed disposal or recycling facility. The liquid waste will be profiled for disposal/recycling under uniform waste manifest following receipt of the laboratory results of groundwater sample analysis.

Laboratory Analysis Plan

LABORATORY ANALYSIS OF SOIL SAMPLES

WGE will submit the soil samples under formal chain of custody command to a State-certified analytical laboratory for laboratory analysis of the following fuel constituents:

- Total Petroleum Hydrocarbons (TPH) as gasoline (EPA 8260TPH) and diesel (EPA 8015B(M)
- Polynuclear Aromatic Hydrocarbons (PAHs), Naphthalene (EPA 8270C)
- Volatile Organic Compounds (Full List) by EPA Method 8260B, to include Perchloroethene (PCE), Trichloroethene (TCE), 1,1-Dichloroethene (1,1-DCE), cis-1,2-Dichloroethene (cis-1,2-DCE), trans-1,2-Dichloroethene (trans-1,2-DCE) and Vinyl Chloride

LABORATORY ANALYSIS OF GROUNDWATER SAMPLES

WGE will submit all grab groundwater samples collected under formal chain of custody command to a State-certified analytical laboratory for laboratory analysis of the following constituents:

- Total Petroleum Hydrocarbons (TPH) as Gasoline by EPA Method SW8260B

- TPH as Diesel by Method SW8015B(M) with and without silica gel cleanup
- Volatile Organic Compounds (Full List) by EPA Method SW8260B, to include Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX), Naphthalene, PCE, TCE, 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE.

The laboratory will complete all volatile organic analyses within the 14-day required time limit for analysis. Tables in the technical report will present a summary of the analytical results for this event as well as previous monitoring events at the Site.

LABORATORY ANALYSIS OF SOIL GAS SAMPLES

WGE will submit sub-slab vapor and soil gas samples under chain of custody command to a State-certified laboratory for chemical analysis. The samples will be analyzed using the following California Department of Health Services approved methods:

- Volatile Organic Compounds (VOCs; Full List) by EPA Method ETO15
- TPH as Gasoline by EPA Method ET015

Approximately 10% duplicate soil gas samples will be submitted for chemical analysis under chain of custody command to Torrent Laboratory. The leak check canister sample will be analyzed only for 2-Propanol (Isopropyl Alcohol – IPA) by EPA Method TO-15. A copy of the certified laboratory analytical report associated with the sampling event will be presented in the technical report.

SCHEDULE

WGE anticipates beginning the additional field activities within two to three weeks of receiving client authorization to proceed, and upon permit acquisition and subcontracted driller availability. The aforementioned technical report should be available within 45 to 60 days following receipt of all sample analytical results.

GEOTRACKER ELECTRONIC SUBMITTAL

WGE will direct the laboratory to submit all analytical data in electronic deliverable format (EDF) via the Internet. All soil/groundwater sample analytical data will be uploaded to the State Water Resources Control Board's GeoTracker Database System. Also, a site plan, geologic boring logs, and construction log of each newly-installed boring/vapor well, as well as a copy of the report of findings will be uploaded in Portable Data Format (PDF) to the State GeoTracker Database. An appendix of the resulting technical report will include a copy of each associated GeoTracker Upload Confirmation Form.

REPORT PREPARATION & DISTRIBUTION

The technical report and all future correspondence associated with WGE Project 9497 will be submitted to:

Mr. Mark Detterman, P.G., C.E.G.
Alameda County Health Care Services Agency
Tank Removal Health Services
Tank Removal Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577 **(***1Electronic Copy via ACHCSA FTP Site)*

Dr. Brian R. Sheaff, D.D.S.
1945 Parkside Drive
Concord, CA 94519 *(1 Copy; Bound)*

LIMITATIONS

It should be understood that all environmental assessments are inherently limited in that conclusions are drawn and recommendations developed from information obtained from limited research and visual observations. Subsurface conditions change significantly with distance and time and therefore may differ from the conditions implied by subsurface investigation. It must be noted that no investigation can absolutely rule out the existence of any hazardous or petroleum substances at a given site. Existing hazardous materials and contaminants can escape detection using these methods. The work performed in conjunction with this assessment and the data developed are intended as a description of available information at the dates and location given. WGE professional services have been performed, with findings obtained and recommendations prepared in accordance with customary principles and practices in the field of environmental science, at the time of the assessment.

This warranty is in lieu of all other warranties either expressed or implied. WGE is not responsible for the accuracy of information reported by others or the independent conclusions, opinions or recommendations made by others based on the field exploration presented in this report. The findings contained in this report are based upon information contained in previous reports of corrective action activities performed at the subject property and based upon site conditions as they existed at the time of the investigation, and are subject to change. The scope of services conducted in execution of this phase of investigation may not be appropriate to satisfy the needs of other users and any use or reuse of this document and any of its information presented herein is at the sole risk of said user. The figures, drawings and plates presented in this document are only for the purposes of environmental assessment and no other use is recommended. No other third party may rely on this report, figures or plates for any other purpose.

CERTIFICATION

This document has been prepared in accordance with generally accepted environmental practices exercised by professional geologists, scientists, and engineers. No warranty, either expressed or implied, is made as to the professional advice presented herein. The findings conclusions, and recommendations contained in this document are based upon information contained in previous reports of corrective action activities performed at the subject property and based upon site conditions as they existed at the time of the investigation, and are subject to change.

The conclusions presented in this document are professional opinions based solely upon visual observations of the subject property and vicinity, and interpretation of available information as described in this report. The scope of services conducted in execution of this investigation may not be appropriate to satisfy the needs of other users and any use or reuse of this document and any of its information presented herein is at sole risk of said user.

Golden Gate Tank Removal, Inc.

By:

Brent A. Wheeler
Project Engineer

Mark Youngkin
Professional Geologist No. 3888

PROFESSIONAL GEOLOGIST
MARK T. YOUNGKIN
NUMBER 3888
Expires
4-30-2017
STATE OF CALIFORNIA

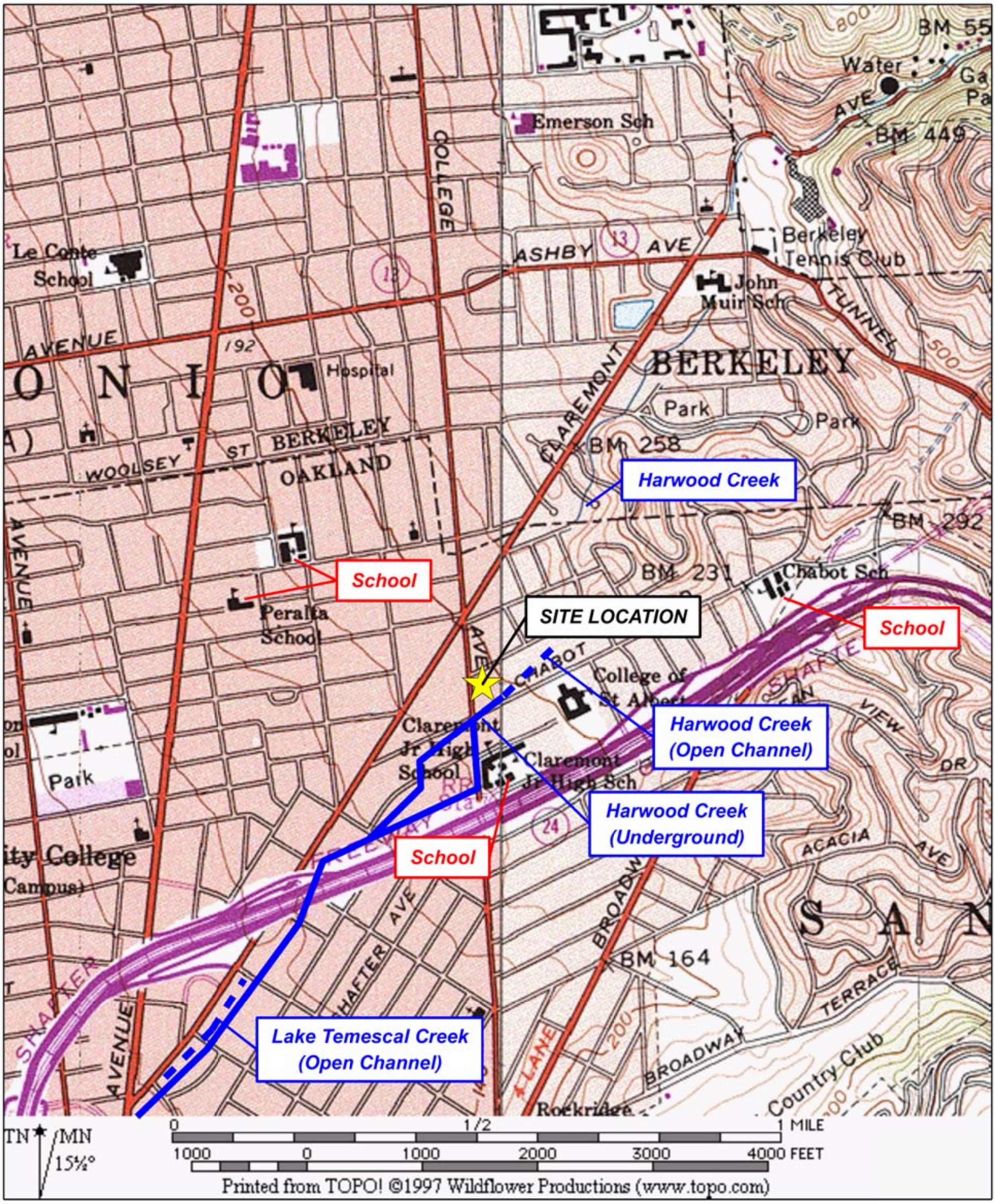
DATA GAP WORK PLAN

Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

ACHCSA Fuel Leak Case No. RO0000377
WGE Project # 2016105

FIGURES

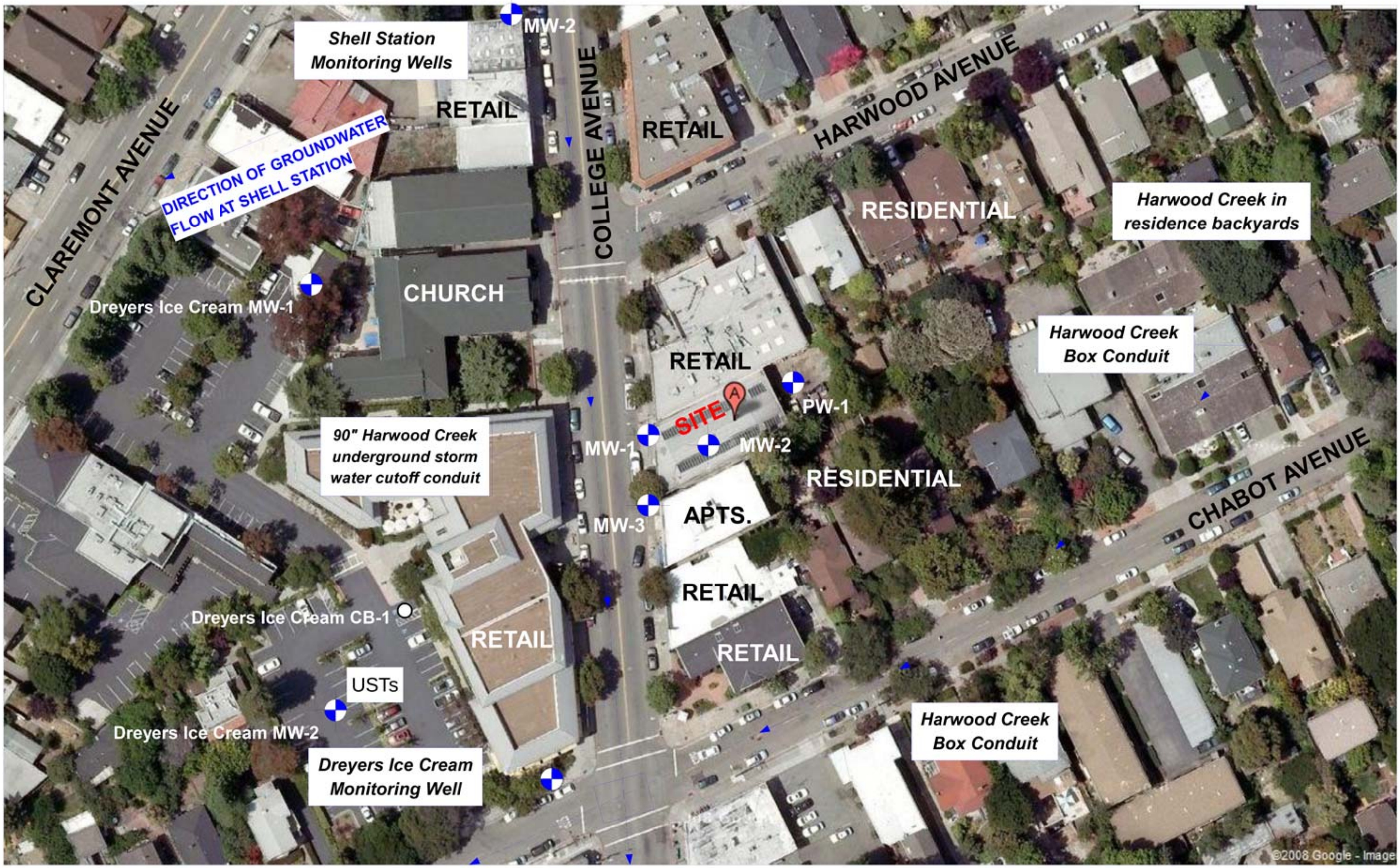
Wheeler Group Environmental, LLC
369-B Third Street, Suite #221, San Rafael, CA 94901



WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelergroupenvironmental.com

SITE LOCATION MAP
Data Gap Investigation
5930 College Avenue
Oakland, California

Project No. 2016106	*FN: 2016106_Fig.1*	*Revision By:baw/0916*	***Figure 1***

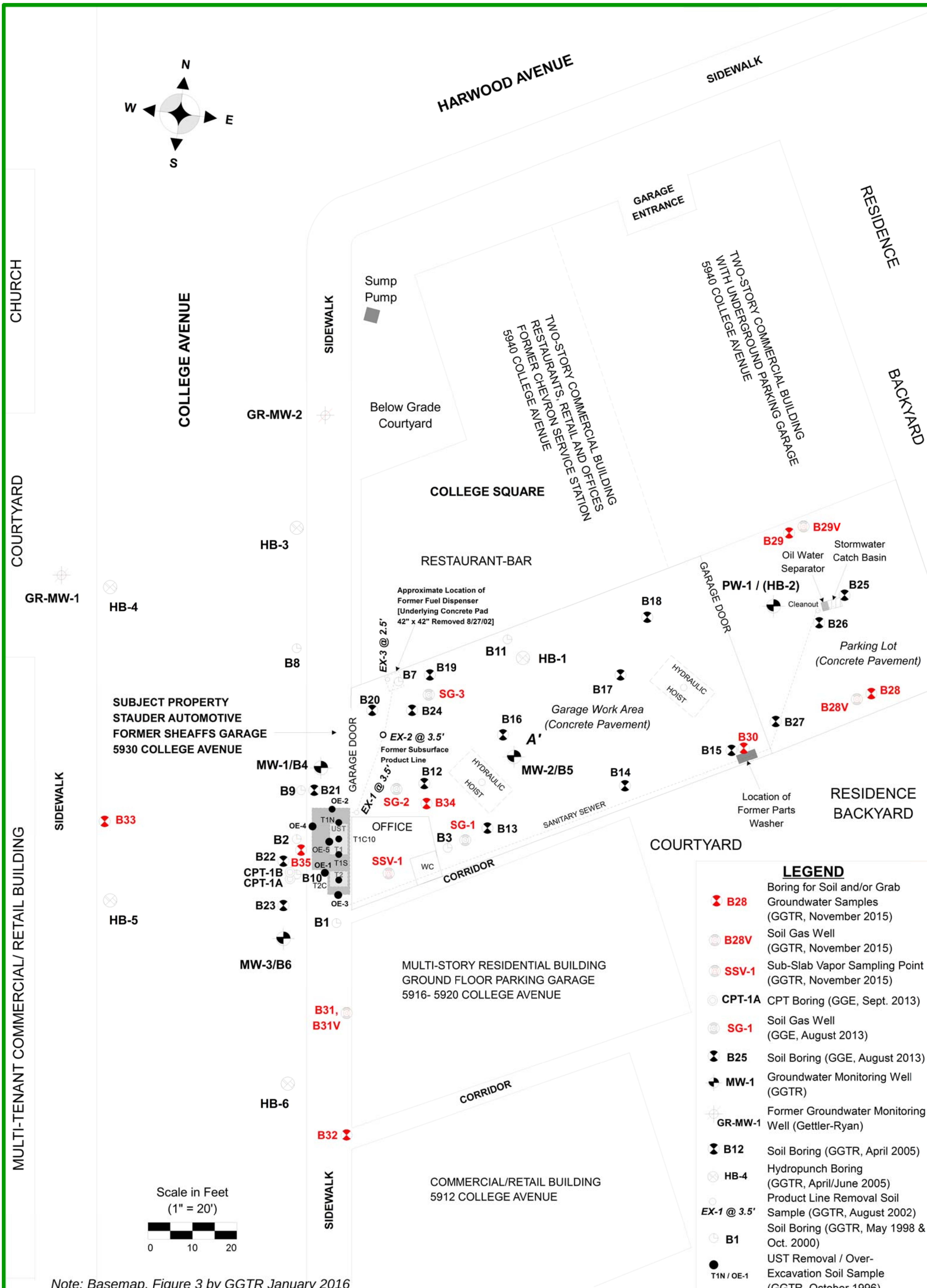


Base Map from Google Maps, 2008, at a scale of about 1"=100 feet with North to top of map.

WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelergroupenvironmental.com

SITE LOCATION MAP
Data Gap Investigation
5930 College Avenue
Oakland, California

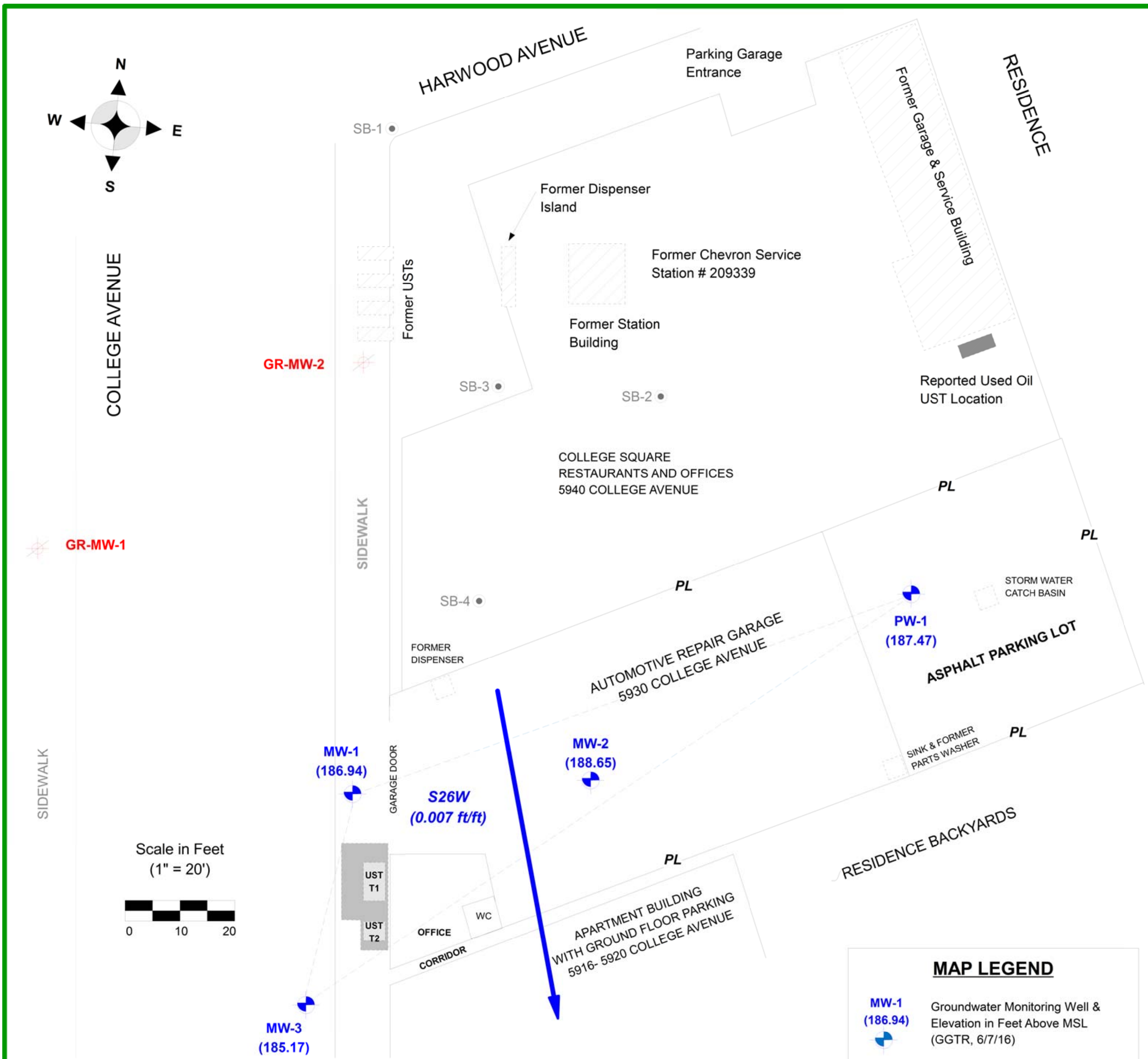
Project No. 2016106	FN: 2016106_Fig.1	Revision By:baw/0916	**Figure 1**



WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelegroupenvironmental.com

SITE PLAN
Former Sheaff''s Service Garage
5930 College Avenue, Oakland, CA 94618

GGTR Project No. 2016106	Figure Revised: baw 01/2016	October 2016	**Figure 3**



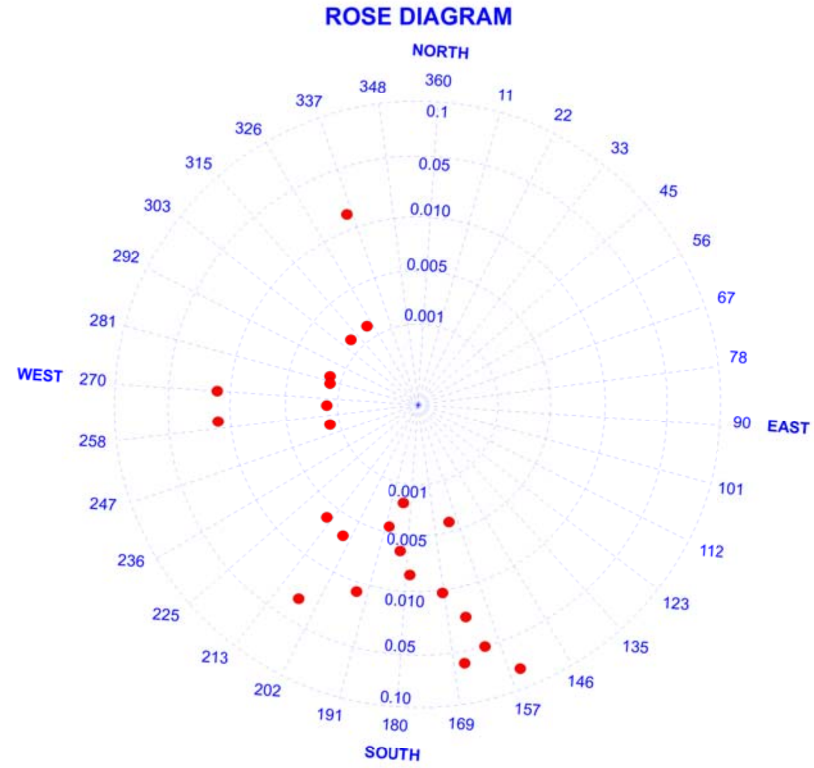
MAP LEGEND

MW-1 (186.94)	Groundwater Monitoring Well & Elevation in Feet Above MSL (GGTR, 6/7/16)
GR-MW-1	Gettler-Ryan Groundwater Monitoring Well, Destroyed Oct. 2014
	Approximate Groundwater Flow Direction and Hydraulic Gradient (GGTR, 6/7/16)
ug/L	Micrograms per liter
	Approx. Limit of Former UST Excavation
PL	Property Line

Wells MW-1, MW-3 & PW-1:

Date	Groundwater Flow Direction / Hydraulic Gradient (ft/ft)
4/14/05	161.3@0.05
7/26/05	282.5@0.002
10/14/05	309.9@0.002
1/13/06	194.8@0.016
04/14/06	208.5@0.026
10/26/06	249.9@0.002
01/30/07	325@0.002
04/13/07	265.9@0.002
07/24/07	281.8@0.002
4/21/08	155.2@0.072
7/22/08	270.4@0.012
10/21/08	159.5@ 0.004
1/19/09	184 @ 0.0017
10/27/09	179 @ 0.008
10/14/10	188 @ 0.004
6/9/11	184 @ 0.006
10/7/11	216 @ 0.006
10/16/2013	169.1@0.012
4/14/2014	161.6@0.025
10/20/2014	333.4@0.014
5/13/2015	206 @ 0.007
11/11/2015	261 @ 0.015
6/7/2016	**166 @ 0.052**

ROSE DIAGRAM



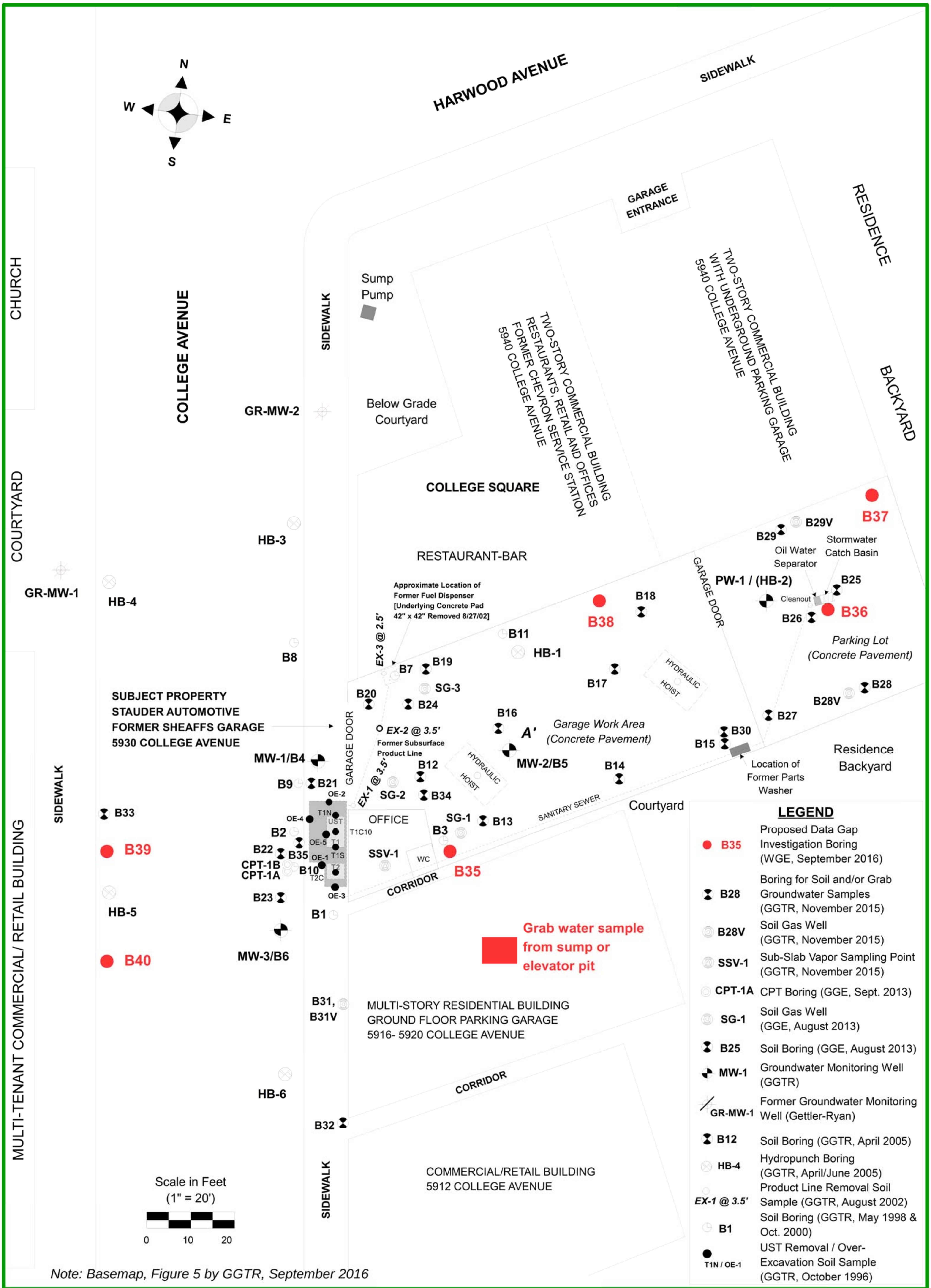
Rose diagram showing historic flow direction & gradient. Circles show recent data from three wells MW-1, MW-3 & PW-1 since April 14, 2005. Note non-linear scale for gradient to accommodate large variation in data.

Note: Basemap, Figure 4 by GGTR, June 2016

WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelegroupenvironmental.com

GROUNDWATER DATA DIAGRAM
June 2016
Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

WGE Project No. 2016106 | *October 2016* | ***Figure 4***



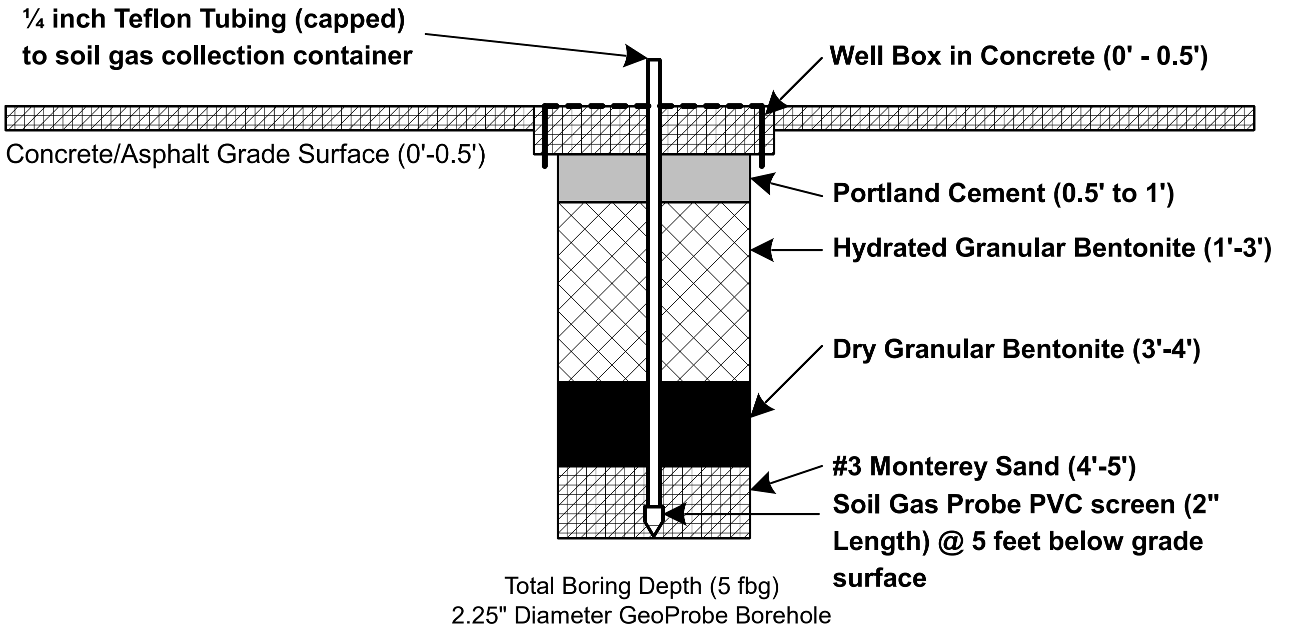
WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelergroupenvironmental.com

PROPOSED WORK
Former Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

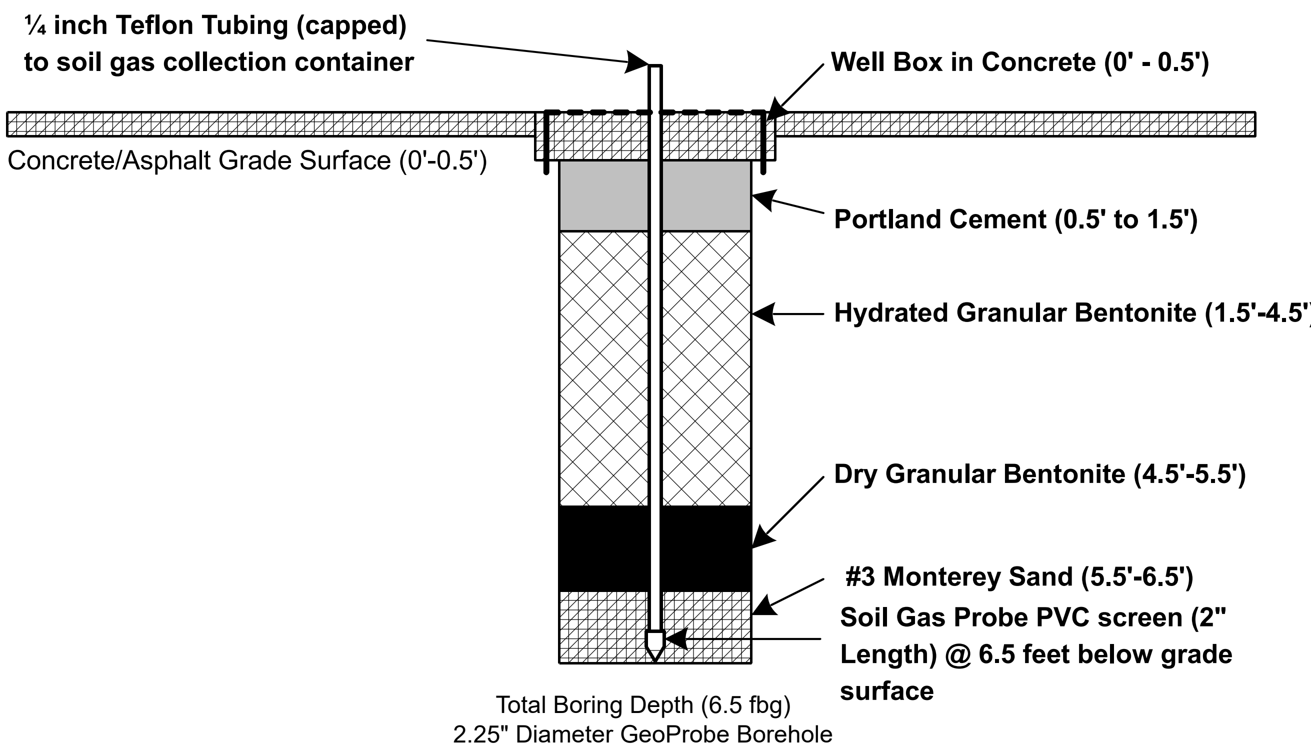
WGE Project No. 2016106	Figure Revised: 10/08/2016	September 2016	**Figure 5**

Soil Vapor Probe

Construction Schematic (0' to 5')



Construction Schematic (0' to 6.5')

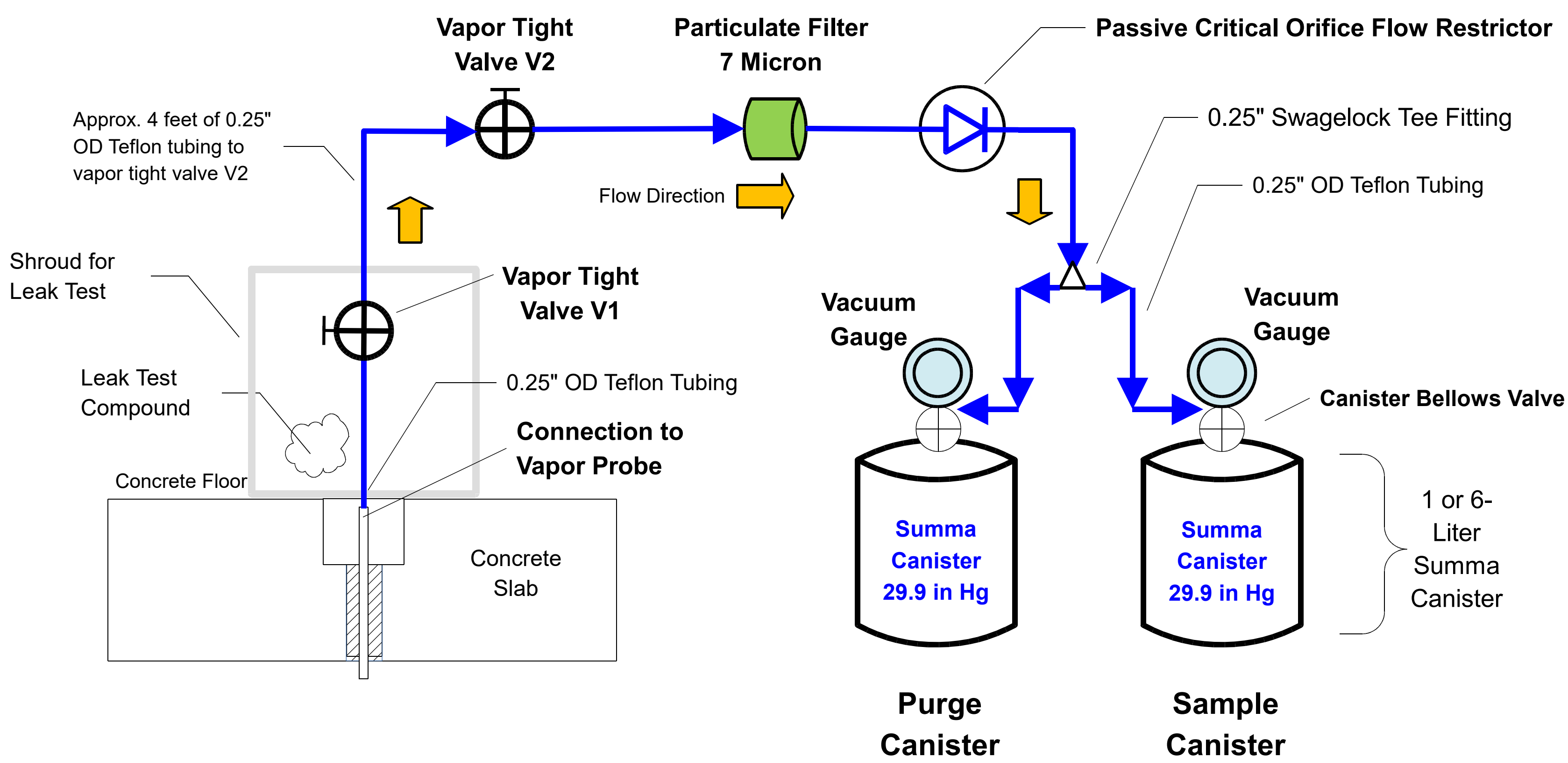


WHEELER GROUP ENVIRONMENTAL, LLC
369-B Third Street, Suite #221
San Rafael, CA 94901
P: (415) 686-8846
E:bwheeler@wheelegroupenvironmental.com

PROPOSED SOIL VAPOR PROBE CONSTRUCTION DIAGRAM (5' & 6.5' Total Depths)

Fn: SG Probe Construction	*Not To Scale*	***Figure 6***

NOT TO SCALE - SKETCH ONLY



All tubing is nominal 0.25" OD (0.17" ID) Teflon (lab or food grade)
All fittings are 0.25" Swagelock type

Laboratory Analysis, Summa canisters, flow restrictor, particulate filter, bellows valves, and vacuum gauges provided by Torrent Laboratories, Inc.

Wheeler Group Environmental, LLC
369-B Third Street, Suite #221, San Rafael, CA

Schematic of Soil Vapor Sampling

WGE Project No. 2016106	August 2016	**Figure 7**

DATA GAP WORK PLAN

Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

ACHCSA Fuel Leak Case No. RO0000377
WGE Project # 2016105

TABLES

Wheeler Group Environmental, LLC
369-B Third Street, Suite #221, San Rafael, CA 94901

TABLE 3A

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-1	6/1/98		4.81	191.09	slight sheen	160000	NA	1900	28000 / 21000 / 3800 / 21000	NA
	9/10/98		7.5	188.4	Odor	290000	NA	440	<50 / 25000 / 7100 / 32000	NA
	10/7/99		10.04	185.86	Odor	85000	NA	1100	20000 / 13000 / 3800 / 17000	NA
	1/26/00		8.26	187.64	slight sheen	130000	NA	470	25000 / 18000 / 4500 / 22000	NA
	10/25/00		10.1	185.8	Odor	130000	NA	1300	23000 / 12000 / 3900 / 18000	NA
	2/2/01		9.61	186.29	Odor	128000	NA	780	19000 / 11000 / 3800 / 18000	NA
	4/25/01	195.9	7.39	188.51	Odor	120000	NA	900	21000 / 13000 / 390 / 18000	NA
	7/10/01		9.72	186.18	Odor	79000	NA	660	15000 / 7800 / 3000 / 15000	NA
	10/8/01		10.88	185.02	Odor/sheen	112000	NA	374	25300 / 11800 / 4280 / 20600	NA
	1/7/02		4.34	191.56	Odor	96100	NA	596	21100 / 13500 / 4160 / 21900	NA
	4/8/02		6.84	189.06	slight odor	111000	NA	679	21200 / 13400 / 4230 / 21000	NA
	7/9/02		9.4	186.5	slight odor	110000	NA	570	20300 / 13300 / 4060 / 19800	NA
	10/23/02		11.04	184.86	None	54100	NA	1010 (1080)**	10800 / 3870 / 2320 / 9440	NA
	10/15/03		10.8	185.1	None	90700	NA	724	17800 / 4740 / 3150 / 13900	NA
	2/2/04		7.35	188.55	None	108000	NA	194	14200 / 7420 / 3450 / 19800	NA
	4/23/04		6.83	189.07	slight odor	49200	NA	114	7910 / 1480 / 1810 / 10100	NA
	7/19/04		8.95	186.95	Odor	63900	NA	303	7260 /2270 / 2510 / 10100	NA
	10/22/04		10.15	185.75	None	80700	NA	493 (296)**	13900 / 1670 / 3550 / 15200	NA
	1/21/05		5.45	190.45	Odor	278000	NA	271 (174)**	14700 / 25300 / 10800 / 73500	NA
	4/14/05		5.3	190.6	Odor /sheen	116000	NA	366 (410)**	15100 / 7080 / 4220 / 20700	NA
	7/26/05		7.6	188.3	Odor	82000	NA	ND<250	12000 / 4500 / 3300 / 14000	NA
	10/14/05		9.58	186.32	Odor/sheen	64000	NA	ND<250	13000 / 5700 / 3400 / 16000	NA
	1/13/06		4.6	191.3	Odor/sheen	49000	NA	ND<250	12000 / 5300 / 3500 / 17000	NA
	4/14/06		3.08	192.82	Odor	51000	NA	270	14000 / 5300 / 3500 / 17000	NA
	10/26/06		9.22	186.68	Odor	34000	NA	ND<250	12000 / 1600 / 3100 / 8600	NA
	1/30/07		9.6	186.3	Odor	39000	NA	ND<200	10000 / 2200 / 2900 / 10000	NA
	4/13/07		9.24	186.66	NM	52000	NA	150	9100 / 2600 / 3100 / 11000	NA
	7/24/07		10.67	185.23	None	46000	NA	240	10000 / 1200 / 3500 / 6200	NA
	4/21/08		7.24	188.66	None	50000	NA	ND<100	7800 / 1500 / 3000 / 12000	NA
	7/22/08		9.71	186.19	Odor	60000	NA	470[1]	8100 / 1500 / 2700 / 9800	NA
	10/21/08		11.63	184.27	Odor	15000	NA	110	4900 / 430 / 1900 / 2260	NA
	1/19/09		10.91	184.99	Odor/Sheen	33000	NA	143	8830/837/2160/3880	NA
	4/27/09		7.7	188.2	Odor	75000	NA	53	8500/2100/2300/11000	NA
	10/27/09		9.34	186.56	Odor	61000	NA	75	8300/1500/2600/7900	NA
	10/14/10		10.3	185.6	Clear/Odor	24000[2]	NA	220	8100/820/2200/4400	NA
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont'd)

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-1	6/9/11	195.9	6.38	189.5	Clear/Odor	53000	NA	NA	14000/3000/3800/16900	NA
	10/7/11		9.08	186.82	None	50000[2]	NA	89	9200/1500/4200/13500	NA
	10/16/13		10.83	185.07	Clear	12000[2]	NA	ND<21	2400/330/1500/2780	NA
	4/14/14		10.92	184.98	Clear	25000[6]	3000[7,8]	ND<21	3000/480/2100/6700	500[9]
	10/20/14		11.2	184.7	Clear/Odor	18000[2]	2000[7,8]	63	5600/300/2000/910	300[9]
	5/13/15		9.33	186.57	Clear/Odor	20000	2600[7,8]	57	2700/340/1600/2760	360[9]
	11/11/15		12.42	183.48	Clear/Odor	14000[5]	4100[7,8]	49	3900/91/750/288.5	130[9]
	6/7/16		**8.96**	**186.94**	**Turbid/Odor**	**18000[2,5]**	**2500(210)[7,10]**	**41**	**3100/220/1300/2390**	**180**
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont.)

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-2	10/7/99	51.42*	11.49	39.93	slight/odor	18000	NA	490	3000 / 1700 / 1000 / 3900	NA
	1/26/00	51.42*	7.85	43.57	None	42000	NA	560	9300 / 2200 / 2300 / 7700	NA
	10/25/00	51.42*	11.57	39.85	slight/odor	31000	NA	500	5500 / 370 / 1700 / 2600	NA
	2/2/01	51.42*	10.77	40.65	Odor	36000	NA	400	4300 / 530 / 1800 / 4500	NA
	4/25/01	197.28	8.52	188.76	Odor	56000	NA	460	6700 / 1700 / 2600 / 8200	NA
	7/10/01		11.05	186.23	Odor	39000	NA	180	6200 / 730 / 2300 / 6100	NA
	10/8/01		12.79	184.49	Odor/sheen	40700	NA	6460	6310 / 399 / 2100 / 5320	NA
	1/7/02		4.92	192.36	Odor	59600	NA	366**	10300 / 3250 / 4180 / 14400	NA
	4/8/02		8.4	188.88	slight odor	66700	NA	583**	10200 / 2670 / 3840 / 13200	NA
	7/9/02		10.55	186.73	slight odor	37100	NA	303 (298)**	5340 / 890 / 2110 / 6920	NA
	10/23/02		13.85	183.43	None	13300	NA	322 (360)**	2420 / 216 / 922 / 1470	NA
	10/15/03		12.38	184.9	None	11300	NA	264 (322)**	2660 / 51 / 1180 / 1220	NA
	2/2/04		8.8	188.48	None	21700	NA	168 (200)**	2130 / 51 / 1030 / 2060	NA
	4/23/04		8.4	188.88	Slight odor	30400	NA	112 (203)**	3570 / 322 / 1620 / 4140	NA
	7/19/04		10.3	186.98	Odor	28300	NA	283 (373)**	2540 / 239 /1320 / 2300	NA
	10/22/04		10.25	187.03	Mod odor	13500	NA	273 (229)**	1790 / 54 / 892 / 915	NA
	1/21/05		6.65	190.63	Mod odor	278000	NA	161 (163)**	5980 / 1030 / 2890 / 9070	NA
	4/14/05		8.7	188.58	None	46100	NA	155 (150)**	5170 / 787 / 2530 / 6010	NA
	7/26/05		8.95	188.33	Mod odor	41000	NA	ND (ND)**	5600 / 550 / 2600 / 4600	NA
	10/14/05		10.92	186.36	Odor/sheen	13000	NA	130	2900 / 100 / 1300 / 1200	NA
	1/13/06		5.48	191.8	Odor	20000	NA	ND<100	4900 / 490 / 2400 / 4200	NA
	4/14/06		3.61	193.67	Odor	21000	NA	ND<100	4000 / 740 / 2300 / 5100	NA
	10/26/06		10.58	186.7	Odor	8200	NA	68	1400 / 51 / 840 / 500	NA
	1/30/07		10.98	186.3	Odor	17000	NA	62	3200 / 150 / 2200 / 1800	NA
	4/13/07		10.54	186.74	NM	19000	NA	57	2000 / 85 / 1300 / 1100	NA
	7/24/07		12.04	185.24	None	10000	NA	84	1300 / 41 / 710 / 270	NA
	4/21/08		8.01	189.27	None	17000	NA	48	1800 / 100 / 1400 / 1300	NA
	7/22/08		11.12	186.16	None	16000	NA	100[1]	1900 / 98 / 1600 / 741	NA
	10/21/08		13.11	184.17	Odor/sheen	4900	NA	65	700 / 20 / 370 / 52	NA
	1/19/09		12.31	184.97	Odor	2500	NA	90	167/8.49/114/50.3	NA
	4/27/09		9.01	188.27	Odor/sheen	21000	NA	ND<0.5	1700/130/1100/1800	NA
	10/27/09		10.52	186.76	Odor	7000	NA	ND<0.5***	510/19/330/160	NA
	10/14/2010		11.56	185.72	None	3200[2]	NA	35	460/16/230/110	NA
	6/9/2011		7.67	189.61	Clear/Odor	9900	NA	NA	1900/75/1100/1013	NA
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont'd)

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-2	10/7/2011	197.28	10.42	186.86	Clear/Odor	9200[4]	NA	ND<22	810/34/610/100	NA
	10/16/2013		12.18	185.1	Clear/Odor	4400[2,5]	NA	ND<4.2	780/33/200/39.8	NA
	4/14/2014		12.34	184.94	Clear/Odor	6100[2]	2500[7,8]	ND<2.1	530/270/19/47.6	86[9]
	10/20/2014		12.54	184.74	Clear/Odor	8600[2]	3700[7,8]	15	140/5.6/73/20.9	24[9]
	5/13/2015		10.48	186.8	Clear/Odor	4800[2]	2300[7,8]	7.7	220/10/96/38	30[9]
	11/11/15		14.19	183.09	Clear/Odor	3100[2]	2100[7,8]	7.2	220/7.1/38/15	ND<11[9]
	6/7/16		**8.63**	**188.65**	**Clear/Odor**	**4600[2]**	**2600(220)[7,10]**	**ND<5.3**	**160/ND<5.3/71/22**	**32**
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont.)
Historical Groundwater Levels & Hydrocarbon Analytical Results
5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-3	10/7/99		9.67	185.55	None	6600	NA	390	310 / 110 / 430 / 1000	NA
	1/26/00		5.4	189.82	None	3300	NA	40	110 / 8 / 100 / 32	NA
	10/25/00		9.24	185.98	Slight odor	4500	NA	ND	100 / 2 / 120 / 130	NA
	2/2/01		8.73	186.49	Slight odor	2900	NA	35	35 / 3 / 160 / 298	NA
	4/25/01	195.22	6.61	188.61	Slight odor	8400	NA	56	260 / 33 / 290 / 510	NA
	7/10/01		8.85	186.37	Slight odor	12000	NA	35	39 / 10 / 690 / 1600	NA
	10/8/01		9.75	185.47	Odor/sheen	4913	NA	52	108 / 4 / 99 / 133	NA
	1/7/02		4.25	190.97	Odor/sheen	7260	NA	81.7**	723 / 138 / 492 / 887	NA
	4/8/02		6.33	188.89	Odor	11700	NA	ND**	540 / 108 / 706 / 1710	NA
	7/9/02		8.56	186.66	Odor	2320	NA	28.3 (20)**	37.1 / 4.7 / 98.5 / 187	NA
	10/23/02		10.02	185.2	Odor/sheen	2830	NA	ND (ND)**	46.8 / 4.7 / 43.6 / 65.5	NA
	10/15/03		9.8	185.42	Odor/sheen	3040	NA	ND (ND)**	91.3 / 8.4 / 69.9 / 148	NA
	2/2/04		6.85	188.37	Odor/sheen	5140	NA	ND (ND)**	126 / 8.7 / 134 / 238	NA
	4/23/04		6.17	189.05	None	7210	NA	ND (ND)**	227 / 39.5 / 448 / 879	NA
	7/19/04		8.25	186.97	Slight odor	9860	NA	ND (ND)**	20.4 / 3.2 / 30.6 / 117	NA
	10/22/04		9.25	185.97	None	7420	NA	96 (21)**	152 / 12.8 / 267 / 480	NA
	1/21/05		5.22	190	Slight odor	2420	NA	ND (ND)**	111 / 11.4 / 139 / 265	NA
	4/14/05		6.64	188.58	Odor/sheen	5130	NA	54 (41.4)**	357 / 19.4 / 287 / 510	NA
	7/26/05		6.9	188.32	None	9800	NA	ND (21)**	200 / 23 / 220 / 360	NA
	10/14/05		8.83	186.39	Odor/sheen	6100	NA	ND	76 / 19 / 170 / 350	NA
	1/13/06		4.61	190.61	Odor	3900	NA	24	380 / 17 / 230 / 300	NA
	4/14/06		3.41	191.81	Odor	5000	NA	69	760 / 44 / 230 / 190	NA
	10/26/06		8.57	186.65	Odor	3100	NA	17	120 /9.8 /55 / 54	NA
	1/30/07		8.83	186.39	Odor	4500	NA	ND<10	90 /7.6 / 75 / 44	NA
	4/13/07		8.57	186.65	NM	2800	NA	ND<5	55 / 4.9 / 19 / 6.1	NA
	7/24/07		9.98	185.24	None	4800	NA	ND<5	140 / 8.3 / 66 / 22	NA
	4/21/08		9.3	185.92	None	4300	NA	ND<5	200 / 11 / 30 / 14	NA
	7/22/08		9.05	186.17	None	2400	NA	53[1]	140 / 13 / 26 / 18.5	NA
	10/21/08		11.12	184.1	Slight Odor	2900	NA	2.2	170 / 9.2 / 99 / 25.8	NA
	1/19/09		10.29	184.93	Odor	3600	NA	ND<0.5	148/6.73/24.5/22.1	NA
	4/27/09		7.15	188.07	Odor/sheen	5800.00	NA	8.8	370/12/82/84	NA
	10/27/09		8.96	186.26	Odor	4900[2]	NA	ND<0.5***	130/8.5/89/130	NA
	10/14/2010		9.76	185.46	None	2700[2]	NA	ND<4.4	270/11/290/399.2	NA
	6/9/2011		5.92	189.3	Clear/Odor	3200[2]	NA	NA	220/ND<4.4/37/20	NA
	10/7/2011		8.6	186.62	None	5400[2]	NA	ND<4.4	140/7.0/160/67	NA
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont'd)

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
MW-3	10/16/2013	195.22	10.56	184.66	Lt. Gray/Odor	3400[2]	NA	ND<4.2	990/58/75/71	NA
	4/14/2014		11.07	184.15	Clear	3600[2]	700[7,8]	ND<1.1	400/22/24/13.3	4.0[9]
	10/20/2014		10.09	185.13	Clear/Odor	9200[2]	25000[7,8]	9.2	180/8.4/21/11	ND<2.1[9]
	5/13/2015		8.89	186.33	Clear	2600[2]	630[7,8]	6.1	110/6.1/7.4/ND≤8.4	ND<8.4[9]
	11/11/15		11.89	183.33	Clear/Odor	4100[2]	760[7,8]	9.5	660/21/250/52	ND<8.4[9]
	6/7/16		**10.05**	**185.17**	**Clear/Odor**	**2900[2]**	**840[7]**	**5.9**	**190/6.0/4.2/ND<8.4**	**17**
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table & Notes Following

TABLE 3A (Cont.)

Historical Groundwater Levels & Hydrocarbon Analytical Results

5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation (ft, MSL)	Depth to GW (ft, TOC)	Water Elevation (ft, MSL)	Product Odor/ Sheen	TPH-G (ug/L)	TPH-D (ug/L)	MTBE (ug/L)	BTEX (ug/L)	Naphthalene (ug/L)
PW-1	4/14/05	197.17	6.4	190.77	None	3360	NA	ND (ND**)	62.8 / 6.7 / 79.5/ 317	NA
	7/26/05		8.63	188.54	None	1300	NA	ND (ND**)	22 / ND / 48 / 110	NA
	10/14/05		10.71	186.46	None	4300	NA	ND	93 /1.2 / 100 / 140	NA
	1/13/06		4.87	192.3	None	450	NA	ND<2.0	10 / ND / 37 / 72	NA
	4/14/06		2.27	194.9	Odor	120	NA	ND<2.0	2.3 / ND<1.0 / 3.5 /9.3	NA
	10/26/06		10.3	186.87	Odor	2800	NA	ND<10	61 / ND<5.0 / 130 / 34	NA
	1/30/07		10.8	186.37	Odor	1200	NA	ND<2	22 / ND<1.0 / 100 / 200	NA
	4/13/07		10.31	186.86	NM	510	NA	ND<1	6 / ND<0.5 / 30 / 56	NA
	7/24/07		11.81	185.36	None	3400	NA	ND<5	63 / ND<2.5 / 180 / 5.6	NA
	4/21/08		9.08	188.09	None	300	NA	ND<1	3 / ND<0.5 / 16 / 26	NA
	7/22/08		9.83	187.34	None	710.00	NA	3.1[1]	9.3 / 1.2[1]/ 49 / 67.86	NA
	10/21/08		12.9	184.27	None	1500[2]	NA	1	20 / ND<0.5 / 57 / 20	NA
	1/19/09		12.11	185.06	Odor/sheen	1100[2]	NA	ND<0.5	12.3/ND<0.5/30.8/9.20	NA
	4/27/2009		8.69	188.48	None	360[3]	NA	ND<0.5	2.7/ND<0.5/12/18	NA
	10/27/2009		10.32	186.85	None	1100[2]	NA	ND<0.5	12/ND<0.5/36/34	NA
	10/14/2010		11.38	185.79	None	860[3]	NA	ND<0.5	8.8/.55/44/44	NA
	6/9/2011		7.43	189.74	None	96[3]	NA	ND<0.5	ND<0.5/ND<0.5/3.1/2.5	NA
	10/7/2011		9.79	187.38	None	260[5]	NA	ND<0.5	ND<0.5/ND<0.5/5.9/4.5	NA
	10/16/2013		11.91	185.26	Clear	150[2,5]	NA	ND<0.5	0.87/ND<0.5/ND<0.5/ND≤1.0	NA
	4/14/2014		12.14	185.03	Clear	ND<50	ND<0.1[8]	ND<0.5	ND<0.5/ND<0.5/ND<0.5/ND≤1.0	ND<0.5[9]
	10/20/2014		12.28	184.89	Clear	380[2]	140[7,8]	ND<0.5	2.4/ND<0.5/11/4.0	2.3[9]
	5/13/2015		10.06	187.11	Clear	72[2]	ND<0.1[7,8]	ND<0.5	ND<0.5/ND<0.5/ND<0.5/ND≤1.0	ND<1.0[9]
	11/11/15		14.02	183.15	Clear	520[2]	140[7,8]	ND<0.5	3.8/ND<0.5/0.55/ND≤1.0	ND<1.0[9]
	6/7/16		**9.7**	**187.47**	**Clear/Odor**	**ND<50**	**ND<100**	**ND<0.5**	**ND<0.5/ND<0.5/ND<0.5/ND≤1.0**	**ND<1.0**
SF Bay RWQCB February 2016 ESL						**100**	**100**	**1200**	**1.1 / 3600 / 13 / 1300**	**20**

Table Notes Following

TABLE 3A (Cont'd)
Historical Groundwater Levels & Hydrocarbon Analytical Results
5930 College Avenue, Oakland, CA

Table 3A Notes:

ft, MSL = feet Above Mean Sea Level
TOC = Top of Well Casing
GW = Depth to Groundwater in feet Below TOC
TPH-G = Total Petroleum Hydrocarbons as Gasoline
MTBE = Methyl Tertiary Butyl Ether
BTEX = Benzene / Toluene / Ethylbenzene / Total Xylenes
ug/L = micrograms per liter
ND = Not detected above laboratory reporting limit
[1]=Presence confirmed, but Relative Percentage Difference (RPD) between columns exceeds 40%
[2]=Sample exhibit chromatographic pattern that does not resemble standard; See laboratory report for additional information
[3]=Although TPH-gas compounds are present, value is elevated due to discrete peak (PCE) within C5-C12 range quantified as gasoline
[4]=Reported value is elevated due to contribution from heavy end hydrocarbons within C5-C12 range quantified as gasoline
[5]=Result is elevated due to contribution from heavy end hydrocarbons and discrete peak of non-fuel compound within C5-C12 range quantified as gasoline
[6]=Reported TPH value includes amount due to discrete peak (See 8260B results - elevated aromatic compounds)
[7]= Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.
[8]= Sample also analyzed for TPH as Motor Oil (EPA Method SW8015B); See Lab Report for Sample Results
[9]= Sample also analyzed for Polycyclic Aromatic Hydrocarbons (PAHs) by EPA Method SW8270C; See Lab Report for Sample Results
[10]= Sample also analyzed for TPH as Diesel w/Silica Gel Cleanup; results shown in parentheses adjacent to table entry
* = Arbitrary datum point with assumed elevation of 50 ft used prior to MSL survey on 4/ 25/01
** = Concentration confirmed by EPA Method 8260
** = Sample also analyzed for other Fuel oxygenates (EPA Method 8260); All results ND (See Lab Report)

SF Bay RWQCB/ESL = San Francisco Bay Regional Water Quality Control Board's Interim Final - February 2016, Environmental Screening Level for shallow groundwater at a residential use permitted site (Groundwater Vapor Intrusion Human Health Risk)

Well Construction Data:

Well #	*Total Depth (ft, TOC)*	*Screen Interval (ft)*	*Installation Date*
MW-1	*14.5*	*5 to TD*	*5/20/1998*
MW-2	*19.6*	*5 to TD*	*10/2/1999*
MW-3	*19*	*5 to TD*	*10/2/1999*
PW-1	*19.8*	*5 to TD*	*4/5/2005*

TABLE 3B
Historical Groundwater VOC Analytical Results in PW-1
5930 College Avenue, Oakland, CA

Well ID	Sample Date	Casing Elevation feet MSL	Depth to GW (feet) TOC	Water Elevation (ft, MSL)	IPB (ug/L)	N-PB (ug/L)	1,3,5-TMB (ug/L)	1,2,4-TMB (ug/L)	Naphthalene (ug/L)	TCE (ug/L)	cis-1,2-DCE (ug/L)	Vinyl Chloride (ug/L)	PCE (ug/L)
MW-1	**6/7/16**	**195.9**	**8.96**	**186.94**	**39**	**110**	**100**	**370**	**180**	**ND<4.2**	**ND<4.2**	**ND<4.2**	**ND<4.2**
MW-2	**6/7/16**	**197.28**	**8.63**	**188.65**	**30**	**96**	**ND<5.3**	**ND<5.3**	**32**	**ND<5.3**	**ND<5.3**	**ND<5.3**	**ND<5.3**
MW-3	**6/7/16**	**195.22**	**10.05**	**185.17**	**16**	**47**	**ND<4.2**	**ND<4.2**	**17**	**ND<4.2**	**ND<4.2**	**ND<4.2**	**ND<4.2**
PW-1	4/14/05	197.17	6.4	190.77	11	22	110	100	43	3.3	12	ND<0.5	84.9
	7/26/05		8.63	188.54	7.3	17	37	100	43	ND<1	7	ND<1	48
	10/14//05		10.71	186.46	28	72	67	120	43	4.1	29	ND<1	25
	1/13/06		4.87	192.3	ND<20	ND<10	ND<10	37	ND<10	1.4	5	ND<1	95
	4/14/06		2.27	194.9	ND<2	ND<10	ND<10	ND<10	ND<10	1.1	2.8	ND<1	68
	10/26/06		10.3	186.87	ND<10	ND<50	ND<50	ND<50	ND<50	6.2	32	ND<5.0	26
	1/30/07		10.8	186.37	ND<2	23	31	120	18	ND<1	11	ND<1	29
	4/13/07		10.31	186.86	2.4	6.1	7	30	6.8	0.84	4.7	ND<0.5	64
	7/24/07		11.81	185.36	ND<5.0	60	ND<25	ND<25	ND<25	ND<2.5	58	ND<2.5	50
	4/21/08		9.08	188.09	1.1	ND<5	ND<5	15	ND<5	0.88	3.7	ND<0.5	91
	7/22/08		9.83	187.34	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/21/08		12.9	184.27	17	14	5	15	5.1	6.2	56	0.6	44
	4/27/09		8.69	188.48	1.2	3.3	3.4	16	ND<1.0	1.4	4	ND<0.5	120
	10/27/09		10.32	186.85	6	4.8	ND<0.5	15	ND<1.0	ND<0.5	35	ND<0.5	78
	10/14/10		11.38	185.79	9.8	15	12	44	4	5	61	ND<0.5	35
	6/9/11		7.43	189.74	0.55	1.7	0.98	3.7	ND<1.0	0.85	1.4	ND<0.5	86
	10/7/11		9.79	187.38	0.79	1.8	0.99	3.8	1.2	0.63	2	ND<0.5	76
	10/16/13		11.91	185.26	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0	2.7	12	ND<0.5	45
	4/14/14		12.14	185.03	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0	1.4	3.3	ND<0.5	110
	10/20/14		12.28	184.89	1.8	2.9	1	2.3	2.3	6.4	33	ND<0.5	36
	5/13/15		10.06	187.11	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0	2.6	2.6	ND<0.5	93
	11/11/15		14.02	181.2	0.92	ND<0.5	ND<0.5	ND<0.5	ND<1.0	11	43	ND<0.5	39
	6/7/16		**9.7**	**187.47**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<0.5**	**ND<1.0**	**6.4**	**12**	**ND<0.5**	**79**
SF Bay RWQCB February 2016 ESL					**NC**	**NC**	**NC**	**NC**	**20**	**5.6**	**110**	**0.061**	**3**

Table Notes Following

TABLE 3B (Cont'd)
Historical Groundwater Levels & Hydrocarbon Analytical Results
5930 College Avenue, Oakland, CA

Table 3B Notes:

ft, MSL = feet Above Mean Sea Level
TOC = Top of Well Casing
GW = Depth to Groundwater in feet Below TOC
VOC = Volatile Organic Compounds
IPB = Isopropylbenzene
n-PB = n-Propylbenzene
1,3,5-TMB = 1,3,5-Trimethylbenzene
1,2,4-TMB = 1,2,4-Trimethylbenzene
sec-BB = sec-Butylbenzene
n-BB = n-Butylbenzene
TCE = Trichloroethene
MC = Methylene Chloride
cis-1,2-DCE = cis-1,2-Dichloroethene
PCE = Perchloroethene or Tetrachloroethene
ug/l = micrograms per liter
ND = Not detected above laboratory reporting limit
NC = No Criteria Listed
NA = Not Analyzed
SF Bay RWQCB/ESL = San Francisco Bay Regional Water Quality Control Board's Interim Final - February 2016, Environmental Screening Level for shallow groundwater at a residential use permitted site (Groundwater Vapor Intrusion Human Health Risk)

Well Construction Data:

Well #	*Total Well Depth (ft,TOC)*	*Screen Interval (ft)*	*Installation Date*
MW-1	*14.5*	*5 to TD*	*4/5/2005*
MW-2	*19.6*	*5 to TD*	*5/20/1998*
MW-3	*19*	*5 to TD*	*10/2/1999*
PW-1	*19.8*	*5 to TD*	*10/2/1999*

DATA GAP WORK PLAN

Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

ACHCSA Fuel Leak Case No. RO0000377
WGE Project # 2016105

APPENDIX A

GROUNDWATER MONITORING & SAMPLING

FLUID-LEVEL MONITORING DATA SHEETS
WELL PURGING/SAMPLING DATA SHEETS
LABORATORY CERTIFICATE OF ANALYSES
CHAIN-OF-CUSTODY RECORD
GEOTRACKER UPLOAD CONFIRMATION SHEETS
EPA ON-LINE TOOLS FOR SITE ASSESSMENT CALCULATION SHEET

Wheeler Group Environmental, LLC
369-B Third Street, Suite #221, San Rafael, CA 94901

FLUID-LEVEL MONITORING DATA

Project Name: STAUDER AUTOMOTIVE ~~FORMER~~ SHEAFFS GARAGE Date: 6-7-2016

Project/Site Location: 5930 COLLEGE AVE. OAKLAND CA

Technician: RICHARD VASQUEZ Method: ELECTRONIC

Boring/ Well	Depth to Water (feet)	Depth to Product (feet)	Product Thickness (feet)	Total Well Depth (feet)	Comments
PW-1	9.70	ND	NA	19.78	@ 0920
MW-3	10.05	↓	↓	19.03	@ 0922
MW-2	8.63	↓	↓	19.58	@ 0924 H2O BELOW TOC
MW-1	8.96	↓	↓	14.46	@ 0926

Measurements referenced to top of well casing. NORTH SHARPIE MARK

Page 1 of 1

N/D = NONE DETECTED

N/A = NON APPLICABLE

WELL NUMBER / FIELD POINT ID: MW-1
DATE: 6-7-2016
PROJECT / GLOBAL ID: T0600102112
SITE LOCATION: 5930 College Ave
CITY: Oakland **STATE: CA**

PURGE DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

casing diameter (inches)	*circle one*	0.75	1	1.5	2	4	6
casing volumes (**gallons**/liters)	*circle one*	0.02	0.041	0.092	0.163	0.653	1.469

WELL DATA

SAMPLER/S: Richard Vasquez
WELL NUMBER / FIELD POINT ID: MW-1
SCREEN INTERVAL (if known):
A. TOTAL WELL DEPTH: 14.46
B. DEPTH TO WATER: 8.96
C. WATER HEIGHT (A-B): 5.5
D. WELL CASING DIAMETER: 2
E. CASING VOLUME: 0.2/0.75
F. SINGLE CASE VOLUME (CxE): 1.1

PURGE DATA

START TIME: 1030
PUMP DEPTH: 12'
FINISH TIME: 1042
PUMP DEPTH: 12'

SAMPLE TIME 1053

DEPTH TO WATER: 9.24 **TIME MEASURED:** 1049
SAMPLE APPEARANCE / ODOR: TURBID SOME FUEL ODOR
~TOTAL LITERS PURGED: 2.4
NOTE: 1 liter = 0.264172 Gallons and 1 Gallon = 3.78541

WELL FLUID PARAMETERS

Time (interval 3 to 5 min.)	0	3	6	9	12			
~Total Volume Purged (L)	0	0.6	1.2	1.8	2.4			
pH (su)	6.82	6.75	6.74	6.73	6.72			
Temperature (Celsius)	18.6	18.3	18.3	18.4	18.4			
COND / SC (us/cm)	1876	1920	1922	1923	1925			
DO (mg/L / %)	N/A							
ORP (mV)								
DTW (ft.)	8.96	9.23						
~Pump Depth (ft)	12'	→						
~Pump Rate (mL/min.)	200 mL pmin	→						

PAGE 1 **OF** 1

WELL NUMBER / FIELD POINT ID: MW-2
DATE: 6-7-2016
PROJECT / GLOBAL ID: T0600102112
SITE LOCATION: 5930 College Ave.
CITY: Oakland STATE: CA

PURGE DEVICE

circle one submersible pump **peristaltic pump** bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump **peristaltic pump** bladder pump disposable bailer

casing diameter (inches) *circle one* 0.75 1 1.5 **2** 4 6
casing volumes (**gallons**/liters) *circle one* 0.02 0.041 0.092 **0.163** 0.653 1.469

WELL DATA

SAMPLER/S: Richard Vasquez
WELL NUMBER / FIELD POINT ID: MW-2
SCREEN INTERVAL (if known):
A. TOTAL WELL DEPTH: 19.58
B. DEPTH TO WATER: 8.63
C. WATER HEIGHT (A-B): 10.95
D. WELL CASING DIAMETER: 2
E. CASING VOLUME: 0.2 10.75
F. SINGLE CASE VOLUME (CxE): 2.19

PURGE DATA

START TIME: 1014
PUMP DEPTH: 13'
FINISH TIME: 1026
PUMP DEPTH: 13'

SAMPLE TIME 1150

DEPTH TO WATER: 8.63 TIME MEASURED: 1140
SAMPLE APPEARANCE / ODOR: CLEAR STRONG FUEL ODOR
~TOTAL LITERS PURGED: 2.4
NOTE: 1 liter = 0.264172 Gallons and 1 Gallon = 3.78541

WELL FLUID PARAMETERS

Time (interval 3 to 5 min.)	0	3	6	9	12			
~Total Volume Purged (L)	0	0.6	1.2	1.8	2.4			
pH (su)	6.59	6.69	6.72	6.73	6.72			
Temperature (Celsius)	18.7	18.8	18.9	18.9	18.9			
COND / SC (us/cm)	2191	2228	2243	2244	2244			
DO (mg/L / %)	N/A							
ORP (mV)								
DTW (ft.)	8.63	10.64	10.80	10.98	11.14			
~Pump Depth (ft)	13'							
~Pump Rate (mL/min.)	200 mL pmin							

PAGE 1 OF 1

WELL NUMBER / FIELD POINT ID: MW-3
DATE: 6-7-16
PROJECT / GLOBAL ID: T0600102112
SITE LOCATION: 5930 COLLEGE AVE
CITY: OAKLAND STATE: CA

PURGE DEVICE

circle one submersible pump **peristaltic pump** bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump **peristaltic pump** bladder pump disposable bailer

casing diameter (inches)	*circle one*	0.75	1	1.5	**2**	4	6
casing volumes (gallons/liters)	*circle one*	0.02	0.041	0.092	**0.163**	0.653	1.469

WELL DATA

SAMPLER/S: RICHARD YASBOUEZ
WELL NUMBER / FIELD POINT ID: MW-3
SCREEN INTERVAL (if known):
A. TOTAL WELL DEPTH: 19.03
B. DEPTH TO WATER: 10.05
C. WATER HEIGHT (A-B): 8.98
D. WELL CASING DIAMETER: 2
E. CASING VOLUME: 0.163
F. SINGLE CASE VOLUME (CxE): 1.46374

PURGE DATA

START TIME: 0955
PUMP DEPTH: 15-
FINISH TIME: 1007
PUMP DEPTH: 15-

SAMPLE TIME 1015

DEPTH TO WATER: 10.05 TIME MEASURED: 1012
SAMPLE APPEARANCE / ODOR: CLEAR STRONG FUEL ODOR
~TOTAL LITERS PURGED: 2.4
NOTE: 1 liter = 0.264172 Gallons and 1 Gallon = 3.78541

WELL FLUID PARAMETERS

Time (interval 3 to 5 min.)	0	3	6	9	12			
~Total Volume Purged (L)	0	0.6	1.2	1.8	2.4			
pH (su)	6.99	6.69	6.65	6.56	6.55			
Temperature (Celsius)	18.0	17.9	17.9	17.9	17.9			
COND / SC (us/cm)	5.3	6.1	6.4	6.1	6.4			
DO (mg/L / %)	N/A							
ORP (mV)								
DTW (ft.)	10.05	9.34	9.28	9.56	9.80			
~Pump Depth (ft)	15-							
~Pump Rate (mL/min.)	200mL P.MIN							

WELL NUMBER / FIELD POINT ID: PW-1
DATE: 6-7-16
PROJECT / GLOBAL ID: T0600102112
SITE LOCATION: 5930 COLLEGE AVE
CITY: OAKLAND STATE: CA

PURGE DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

SAMPLING DEVICE

circle one submersible pump peristaltic pump bladder pump disposable bailer

casing diameter (inches)	*circle one*	0.75	1	1.5	2	4	6
casing volumes (**gallons**/liters)	*circle one*	0.02	0.041	0.092	0.163	0.653	1.469

WELL DATA

SAMPLER/S:	RICHARD VASQUEZ
WELL NUMBER / FIELD POINT ID:	PW-1
SCREEN INTERVAL (if known):	
A. TOTAL WELL DEPTH:	19.78
B. DEPTH TO WATER:	9.70
C. WATER HEIGHT (A-B):	10.08
D. WELL CASING DIAMETER:	2
E. CASING VOLUME:	0.163
F. SINGLE CASE VOLUME (CxE):	1.64304

PURGE DATA

START TIME:	0935
PUMP DEPTH:	15
FINISH TIME:	0947
PUMP DEPTH:	15

SAMPLE TIME 1130

DEPTH TO WATER: 9.70 TIME MEASURED: 1125
SAMPLE APPEARANCE / ODOR: CLEAR STRONG FUEL ODOR
~TOTAL LITERS PURGED: 2.4
NOTE: 1 liter = 0.264172 Gallons and 1 Gallon = 3.78541

WELL FLUID PARAMETERS

Time (interval 3 to 5 min.)	0	3	6	9	12			
~Total Volume Purged (L)	0	0.6	1.2	1.8	2.4			
pH (su)	7.09	6.70	6.58	6.60	6.60			
Temperature (Celsius)	17.7	17.6	17.6	17.6	17.6			
COND / SC (us/cm)	783	775	771	768	769			
DO (mg/L / %)	NA							
ORP (mV)								
DTW (ft.)	9.70	9.94	10.07	10.21	10.38			
~Pump Depth (ft)	15'							
~Pump Rate (mL/min.)	200 mL P. MIN							

PAGE 1 OF 1

Golden Gate Tank Removal
1480 Carroll Ave
San Francisco, California 94124
Tel: 415-512-1555
Email: b.wheeler@ggtr.com

RE: 5930 College Avenue, Oakland

Work Order No.: 1606047

Dear Brent Wheeler:

Torrent Laboratory, Inc. received 4 sample(s) on June 08, 2016 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Patti Sandrock
QA Officer

June 15, 2016
Date

Date: 6/15/2016

Client: Golden Gate Tank Removal

Project: 5930 College Avenue, Oakland

Work Order: 1606047

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Analytical, Inc.

Sample Result Summary

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

MW-1 1606047-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Benzene	SW8260B	42	5.4	21	3100	ug/L
Ethyl Benzene	SW8260B	42	6.4	21	1300	ug/L
m,p-Xylene	SW8260B	42	5.6	42	2000	ug/L
TPH as Gasoline	8260TPH	42	1300	2100	18000	ug/L
MTBE	SW8260B	8.4	1.4	4.2	41	ug/L
TAME	SW8260B	8.4	1.5	4.2	71	ug/L
Toluene	SW8260B	8.4	1.2	4.2	220	ug/L
o-Xylene	SW8260B	8.4	1.3	4.2	390	ug/L
Styrene	SW8260B	8.4	1.8	4.2	13	ug/L
Isopropyl Benzene	SW8260B	8.4	0.81	4.2	39	ug/L
n-Propylbenzene	SW8260B	8.4	0.65	4.2	110	ug/L
1,3,5-Trimethylbenzene	SW8260B	8.4	0.62	4.2	100	ug/L
1,2,4-Trimethylbenzene	SW8260B	8.4	0.70	4.2	370	ug/L
n-Butylbenzene	SW8260B	8.4	0.68	4.2	70	ug/L
Naphthalene	SW8260B	8.4	1.1	8.4	180	ug/L
TPH as Diesel	SW8015B(M)	2	0.0800	0.20	2.5	mg/L
TPH as Diesel (SG)	SW8015B(M)	1	0.0400	0.10	0.21	mg/L

Sample Result Summary

Report prepared for:	Brent Wheeler	Date Received:	06/08/16
	Golden Gate Tank Removal	Date Reported:	06/15/16

MW-2 1606047-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Benzene	SW8260B	10.5	1.3	5.3	160	ug/L
Ethyl Benzene	SW8260B	10.5	1.6	5.3	71	ug/L
m,p-Xylene	SW8260B	10.5	1.4	11	22	ug/L
Isopropyl Benzene	SW8260B	10.5	1.0	5.3	30	ug/L
n-Propylbenzene	SW8260B	10.5	0.81	5.3	96	ug/L
sec-Butyl Benzene	SW8260B	10.5	0.96	5.3	7.2	ug/L
n-Butylbenzene	SW8260B	10.5	0.85	5.3	26	ug/L
Naphthalene	SW8260B	10.5	1.4	11	32	ug/L
TPH as Gasoline	8260TPH	10.5	330	530	4600	ug/L
TPH as Diesel	SW8015B(M)	2	0.0800	0.20	2.6	mg/L
TPH as Diesel (SG)	SW8015B(M)	1	0.0400	0.10	0.22	mg/L

MW-3 1606047-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
MTBE	SW8260B	8.4	1.4	4.2	5.9	ug/L
Benzene	SW8260B	8.4	1.1	4.2	190	ug/L
Toluene	SW8260B	8.4	1.2	4.2	6.0	ug/L
Ethyl Benzene	SW8260B	8.4	1.3	4.2	4.2	ug/L
Isopropyl Benzene	SW8260B	8.4	0.81	4.2	16	ug/L
n-Propylbenzene	SW8260B	8.4	0.65	4.2	47	ug/L
sec-Butyl Benzene	SW8260B	8.4	0.77	4.2	5.2	ug/L
n-Butylbenzene	SW8260B	8.4	0.68	4.2	38	ug/L
Naphthalene	SW8260B	8.4	1.1	8.4	17	ug/L
TPH as Gasoline	8260TPH	8.4	260	420	2900	ug/L
TPH as Diesel	SW8015B(M)	1	0.0400	0.10	0.84	mg/L

Sample Result Summary

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

PW-1 1606047-004

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
cis-1,2-Dichloroethene	SW8260B	1	0.19	0.50	12	ug/L
Trichloroethylene	SW8260B	1	0.13	0.50	6.4	ug/L
Tetrachloroethylene	SW8260B	1	0.14	0.50	79	ug/L

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:** **Date Reported:**	06/08/16 06/15/16

Client Sample ID:	MW-1	**Lab Sample ID:**	1606047-001A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:53		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Benzene	SW8260B	NA	06/09/16	42	5.4	21	3100		ug/L	430470	NA
Ethyl Benzene	SW8260B	NA	06/09/16	42	6.4	21	1300		ug/L	430470	NA
m,p-Xylene	SW8260B	NA	06/09/16	42	5.6	42	2000		ug/L	430470	NA
(S) Dibromofluoromethane	SW8260B	NA	06/09/16	42	61.2	131	107		%	430470	NA
(S) Toluene-d8	SW8260B	NA	06/09/16	42	75.1	127	104		%	430470	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/09/16	42	64.1	120	105		%	430470	NA
Dichlorodifluoromethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Chloromethane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Vinyl Chloride	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Bromomethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Trichlorofluoromethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
1,1-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Freon 113	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
Methylene Chloride	SW8260B	NA	06/09/16	8.4	1.9	42	ND		ug/L	430470	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
MTBE	SW8260B	NA	06/09/16	8.4	1.4	4.2	41		ug/L	430470	NA
tert-Butanol	SW8260B	NA	06/09/16	8.4	13	42	ND		ug/L	430470	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
1,1-Dichloroethane	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
ETBE	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
2,2-Dichloropropane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Bromochloromethane	SW8260B	NA	06/09/16	8.4	1.7	4.2	ND		ug/L	430470	NA
Chloroform	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
Carbon Tetrachloride	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
1,1,1-Trichloroethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
1,1-Dichloropropene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
TAME	SW8260B	NA	06/09/16	8.4	1.5	4.2	71		ug/L	430470	NA
1,2-Dichloroethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
Trichloroethylene	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
Dibromomethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
1,2-Dichloropropane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Bromodichloromethane	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
cis-1,3-Dichloropropene	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
Toluene	SW8260B	NA	06/09/16	8.4	1.2	4.2	220		ug/L	430470	NA

SAMPLE RESULTS

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

Client Sample ID:	MW-1	**Lab Sample ID:**	1606047-001A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:53		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Tetrachloroethylene	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/09/16	8.4	1.9	4.2	ND		ug/L	430470	NA
1,1,2-Trichloroethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
Dibromochloromethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
1,3-Dichloropropane	SW8260B	NA	06/09/16	8.4	0.86	4.2	ND		ug/L	430470	NA
1,2-Dibromoethane	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
Chlorobenzene	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
o-Xylene	SW8260B	NA	06/09/16	8.4	1.3	4.2	390		ug/L	430470	NA
Styrene	SW8260B	NA	06/09/16	8.4	1.8	4.2	13		ug/L	430470	NA
Bromoform	SW8260B	NA	06/09/16	8.4	1.8	8.4	ND		ug/L	430470	NA
Isopropyl Benzene	SW8260B	NA	06/09/16	8.4	0.81	4.2	39		ug/L	430470	NA
Bromobenzene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/09/16	8.4	0.90	4.2	ND		ug/L	430470	NA
n-Propylbenzene	SW8260B	NA	06/09/16	8.4	0.65	4.2	110		ug/L	430470	NA
2-Chlorotoluene	SW8260B	NA	06/09/16	8.4	0.64	4.2	ND		ug/L	430470	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/09/16	8.4	0.62	4.2	100		ug/L	430470	NA
4-Chlorotoluene	SW8260B	NA	06/09/16	8.4	0.74	4.2	ND		ug/L	430470	NA
tert-Butylbenzene	SW8260B	NA	06/09/16	8.4	0.68	4.2	ND		ug/L	430470	NA
1,2,3-Trichloropropane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/09/16	8.4	0.70	4.2	370		ug/L	430470	NA
sec-Butyl Benzene	SW8260B	NA	06/09/16	8.4	0.77	4.2	ND		ug/L	430470	NA
p-Isopropyltoluene	SW8260B	NA	06/09/16	8.4	0.78	4.2	ND		ug/L	430470	NA
1,3-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.87	4.2	ND		ug/L	430470	NA
1,4-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.58	4.2	ND		ug/L	430470	NA
n-Butylbenzene	SW8260B	NA	06/09/16	8.4	0.68	4.2	70		ug/L	430470	NA
1,2-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.48	4.2	ND		ug/L	430470	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Hexachlorobutadiene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/09/16	8.4	1.0	4.2	ND		ug/L	430470	NA
Naphthalene	SW8260B	NA	06/09/16	8.4	1.1	8.4	180		ug/L	430470	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/09/16	8.4	2.0	4.2	ND		ug/L	430470	NA
(S) Dibromofluoromethane	SW8260B	NA	06/09/16	8.4	61.2	131	115		%	430470	NA
(S) Toluene-d8	SW8260B	NA	06/09/16	8.4	75.1	127	105		%	430470	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/09/16	8.4	64.1	120	106		%	430470	NA

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-1	**Lab Sample ID:**	1606047-001A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:53		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/9/16	06/09/16	42	1300	2100	18000	x	ug/L	430470	17337
(S) 4-Bromofluorobenzene	8260TPH	6/9/16	06/09/16	42	41.5	125	95.2		%	430470	17337

NOTE: x- Sample chromatogram does not match pattern of reference Gasoline standard. Reported TPH value includes amount due to discrete peaks and heavy end hydrocarbons (possibly aged gasoline) within range of C5-C12 quantified as gasoline.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-1	**Lab Sample ID:**	1606047-001B
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:53		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	6/9/16	06/13/16	2	0.0800	0.20	2.5	x	mg/L	430503	17332
Pentacosane (S)	SW8015B(M)	6/9/16	06/13/16	2	64.2	123	121		%	430503	17332

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/11/16	06/11/16	1	0.0400	0.10	0.21	x	mg/L	430501	17346
Pentacosane (S)	SW8015B(M)	6/11/16	06/11/16	1	50.8	139	94.6		%	430501	17346

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:** 06/08/16 **Date Reported:** 06/15/16

Client Sample ID:	MW-2	**Lab Sample ID:**	1606047-002A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:50		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/09/16	10.5	1.9	5.3	ND		ug/L	430470	NA
Chloromethane	SW8260B	NA	06/09/16	10.5	1.7	5.3	ND		ug/L	430470	NA
Vinyl Chloride	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Bromomethane	SW8260B	NA	06/09/16	10.5	1.9	5.3	ND		ug/L	430470	NA
Trichlorofluoromethane	SW8260B	NA	06/09/16	10.5	1.9	5.3	ND		ug/L	430470	NA
1,1-Dichloroethene	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Freon 113	SW8260B	NA	06/09/16	10.5	2.0	5.3	ND		ug/L	430470	NA
Methylene Chloride	SW8260B	NA	06/09/16	10.5	2.4	53	ND		ug/L	430470	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/09/16	10.5	2.0	5.3	ND		ug/L	430470	NA
MTBE	SW8260B	NA	06/09/16	10.5	1.8	5.3	ND		ug/L	430470	NA
tert-Butanol	SW8260B	NA	06/09/16	10.5	16	53	ND		ug/L	430470	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/09/16	10.5	1.3	5.3	ND		ug/L	430470	NA
1,1-Dichloroethane	SW8260B	NA	06/09/16	10.5	1.4	5.3	ND		ug/L	430470	NA
ETBE	SW8260B	NA	06/09/16	10.5	1.8	5.3	ND		ug/L	430470	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/09/16	10.5	2.0	5.3	ND		ug/L	430470	NA
2,2-Dichloropropane	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Bromochloromethane	SW8260B	NA	06/09/16	10.5	2.1	5.3	ND		ug/L	430470	NA
Chloroform	SW8260B	NA	06/09/16	10.5	1.3	5.3	ND		ug/L	430470	NA
Carbon Tetrachloride	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
1,1,1-Trichloroethane	SW8260B	NA	06/09/16	10.5	1.0	5.3	ND		ug/L	430470	NA
1,1-Dichloropropene	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Benzene	SW8260B	NA	06/09/16	10.5	1.3	5.3	160		ug/L	430470	NA
TAME	SW8260B	NA	06/09/16	10.5	1.8	5.3	ND		ug/L	430470	NA
1,2-Dichloroethane	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
Trichloroethylene	SW8260B	NA	06/09/16	10.5	1.3	5.3	ND		ug/L	430470	NA
Dibromomethane	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
1,2-Dichloropropane	SW8260B	NA	06/09/16	10.5	1.8	5.3	ND		ug/L	430470	NA
Bromodichloromethane	SW8260B	NA	06/09/16	10.5	1.3	5.3	ND		ug/L	430470	NA
cis-1,3-Dichloropropene	SW8260B	NA	06/09/16	10.5	1.0	5.3	ND		ug/L	430470	NA
Toluene	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
Tetrachloroethylene	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/09/16	10.5	2.4	5.3	ND		ug/L	430470	NA
1,1,2-Trichloroethane	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
Dibromochloromethane	SW8260B	NA	06/09/16	10.5	1.0	5.3	ND		ug/L	430470	NA
1,3-Dichloropropane	SW8260B	NA	06/09/16	10.5	1.1	5.3	ND		ug/L	430470	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

Client Sample ID: MW-2
Lab Sample ID: 1606047-002A
Project Name/Location: 5930 College Avenue, Oakland
Sample Matrix: Groundwater
Project Number:
Date/Time Sampled: 06/07/16 / 11:50
Tag Number: 5930 College Avenue

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
1,2-Dibromoethane	SW8260B	NA	06/09/16	10.5	2.0	5.3	ND		ug/L	430470	NA
Chlorobenzene	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
Ethyl Benzene	SW8260B	NA	06/09/16	10.5	1.6	5.3	71		ug/L	430470	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/09/16	10.5	1.0	5.3	ND		ug/L	430470	NA
m,p-Xylene	SW8260B	NA	06/09/16	10.5	1.4	11	22		ug/L	430470	NA
o-Xylene	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Styrene	SW8260B	NA	06/09/16	10.5	2.2	5.3	ND		ug/L	430470	NA
Bromoform	SW8260B	NA	06/09/16	10.5	2.2	11	ND		ug/L	430470	NA
Isopropyl Benzene	SW8260B	NA	06/09/16	10.5	1.0	5.3	30		ug/L	430470	NA
Bromobenzene	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/09/16	10.5	1.1	5.3	ND		ug/L	430470	NA
n-Propylbenzene	SW8260B	NA	06/09/16	10.5	0.81	5.3	96		ug/L	430470	NA
2-Chlorotoluene	SW8260B	NA	06/09/16	10.5	0.80	5.3	ND		ug/L	430470	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/09/16	10.5	0.78	5.3	ND		ug/L	430470	NA
4-Chlorotoluene	SW8260B	NA	06/09/16	10.5	0.92	5.3	ND		ug/L	430470	NA
tert-Butylbenzene	SW8260B	NA	06/09/16	10.5	0.85	5.3	ND		ug/L	430470	NA
1,2,3-Trichloropropane	SW8260B	NA	06/09/16	10.5	1.5	5.3	ND		ug/L	430470	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/09/16	10.5	0.87	5.3	ND		ug/L	430470	NA
sec-Butyl Benzene	SW8260B	NA	06/09/16	10.5	0.96	5.3	7.2		ug/L	430470	NA
p-Isopropyltoluene	SW8260B	NA	06/09/16	10.5	0.97	5.3	ND		ug/L	430470	NA
1,3-Dichlorobenzene	SW8260B	NA	06/09/16	10.5	1.1	5.3	ND		ug/L	430470	NA
1,4-Dichlorobenzene	SW8260B	NA	06/09/16	10.5	0.72	5.3	ND		ug/L	430470	NA
n-Butylbenzene	SW8260B	NA	06/09/16	10.5	0.85	5.3	26		ug/L	430470	NA
1,2-Dichlorobenzene	SW8260B	NA	06/09/16	10.5	0.60	5.3	ND		ug/L	430470	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/09/16	10.5	1.6	5.3	ND		ug/L	430470	NA
Hexachlorobutadiene	SW8260B	NA	06/09/16	10.5	2.0	5.3	ND		ug/L	430470	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/09/16	10.5	1.3	5.3	ND		ug/L	430470	NA
Naphthalene	SW8260B	NA	06/09/16	10.5	1.4	11	32		ug/L	430470	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/09/16	10.5	2.4	5.3	ND		ug/L	430470	NA
(S) Dibromofluoromethane	SW8260B	NA	06/09/16	10.5	61.2	131	104		%	430470	NA
(S) Toluene-d8	SW8260B	NA	06/09/16	10.5	75.1	127	107		%	430470	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/09/16	10.5	64.1	120	102		%	430470	NA

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-2	**Lab Sample ID:**	1606047-002A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:50		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/9/16	06/09/16	10.5	330	530	4600	x	ug/L	430470	17337
(S) 4-Bromofluorobenzene	8260TPH	6/9/16	06/09/16	10.5	41.5	125	101		%	430470	17337

NOTE: x - Although TPH as Gasoline constituents are present, sample chromatogram does not resemble pattern of reference Gasoline standard.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-2	**Lab Sample ID:**	1606047-002B
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:50		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	6/9/16	06/13/16	2	0.0800	0.20	2.6	x	mg/L	430503	17332
Pentacosane (S)	SW8015B(M)	6/9/16	06/13/16	2	64.2	123	122		%	430503	17332

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/11/16	06/11/16	1	0.0400	0.10	0.22	x	mg/L	430501	17346
Pentacosane (S)	SW8015B(M)	6/11/16	06/11/16	1	50.8	139	109		%	430501	17346

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

Client Sample ID:	MW-3	**Lab Sample ID:**	1606047-003A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:15		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Chloromethane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Vinyl Chloride	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Bromomethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Trichlorofluoromethane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
1,1-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Freon 113	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
Methylene Chloride	SW8260B	NA	06/09/16	8.4	1.9	42	ND		ug/L	430470	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
MTBE	SW8260B	NA	06/09/16	8.4	1.4	4.2	5.9		ug/L	430470	NA
tert-Butanol	SW8260B	NA	06/09/16	8.4	13	42	ND		ug/L	430470	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
1,1-Dichloroethane	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
ETBE	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
2,2-Dichloropropane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Bromochloromethane	SW8260B	NA	06/09/16	8.4	1.7	4.2	ND		ug/L	430470	NA
Chloroform	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
Carbon Tetrachloride	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
1,1,1-Trichloroethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
1,1-Dichloropropene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Benzene	SW8260B	NA	06/09/16	8.4	1.1	4.2	190		ug/L	430470	NA
TAME	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
1,2-Dichloroethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
Trichloroethylene	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
Dibromomethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
1,2-Dichloropropane	SW8260B	NA	06/09/16	8.4	1.5	4.2	ND		ug/L	430470	NA
Bromodichloromethane	SW8260B	NA	06/09/16	8.4	1.1	4.2	ND		ug/L	430470	NA
cis-1,3-Dichloropropene	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
Toluene	SW8260B	NA	06/09/16	8.4	1.2	4.2	6.0		ug/L	430470	NA
Tetrachloroethylene	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/09/16	8.4	1.9	4.2	ND		ug/L	430470	NA
1,1,2-Trichloroethane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
Dibromochloromethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
1,3-Dichloropropane	SW8260B	NA	06/09/16	8.4	0.86	4.2	ND		ug/L	430470	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

Client Sample ID: MW-3
Project Name/Location: 5930 College Avenue, Oakland
Project Number:
Date/Time Sampled: 06/07/16 / 10:15
Tag Number: 5930 College Avenue
Lab Sample ID: 1606047-003A
Sample Matrix: Groundwater

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
1,2-Dibromoethane	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
Chlorobenzene	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
Ethyl Benzene	SW8260B	NA	06/09/16	8.4	1.3	4.2	4.2		ug/L	430470	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/09/16	8.4	0.81	4.2	ND		ug/L	430470	NA
m,p-Xylene	SW8260B	NA	06/09/16	8.4	1.1	8.4	ND		ug/L	430470	NA
o-Xylene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Styrene	SW8260B	NA	06/09/16	8.4	1.8	4.2	ND		ug/L	430470	NA
Bromoform	SW8260B	NA	06/09/16	8.4	1.8	8.4	ND		ug/L	430470	NA
Isopropyl Benzene	SW8260B	NA	06/09/16	8.4	0.81	4.2	16		ug/L	430470	NA
Bromobenzene	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/09/16	8.4	0.90	4.2	ND		ug/L	430470	NA
n-Propylbenzene	SW8260B	NA	06/09/16	8.4	0.65	4.2	47		ug/L	430470	NA
2-Chlorotoluene	SW8260B	NA	06/09/16	8.4	0.64	4.2	ND		ug/L	430470	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/09/16	8.4	0.62	4.2	ND		ug/L	430470	NA
4-Chlorotoluene	SW8260B	NA	06/09/16	8.4	0.74	4.2	ND		ug/L	430470	NA
tert-Butylbenzene	SW8260B	NA	06/09/16	8.4	0.68	4.2	ND		ug/L	430470	NA
1,2,3-Trichloropropane	SW8260B	NA	06/09/16	8.4	1.2	4.2	ND		ug/L	430470	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/09/16	8.4	0.70	4.2	ND		ug/L	430470	NA
sec-Butyl Benzene	SW8260B	NA	06/09/16	8.4	0.77	4.2	5.2		ug/L	430470	NA
p-Isopropyltoluene	SW8260B	NA	06/09/16	8.4	0.78	4.2	ND		ug/L	430470	NA
1,3-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.87	4.2	ND		ug/L	430470	NA
1,4-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.58	4.2	ND		ug/L	430470	NA
n-Butylbenzene	SW8260B	NA	06/09/16	8.4	0.68	4.2	38		ug/L	430470	NA
1,2-Dichlorobenzene	SW8260B	NA	06/09/16	8.4	0.48	4.2	ND		ug/L	430470	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/09/16	8.4	1.3	4.2	ND		ug/L	430470	NA
Hexachlorobutadiene	SW8260B	NA	06/09/16	8.4	1.6	4.2	ND		ug/L	430470	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/09/16	8.4	1.0	4.2	ND		ug/L	430470	NA
Naphthalene	SW8260B	NA	06/09/16	8.4	1.1	8.4	17		ug/L	430470	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/09/16	8.4	2.0	4.2	ND		ug/L	430470	NA
(S) Dibromofluoromethane	SW8260B	NA	06/09/16	8.4	61.2	131	116		%	430470	NA
(S) Toluene-d8	SW8260B	NA	06/09/16	8.4	75.1	127	107		%	430470	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/09/16	8.4	64.1	120	102		%	430470	NA

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-3	**Lab Sample ID:**	1606047-003A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:15		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/9/16	06/09/16	8.4	260	420	2900	x	ug/L	430470	17337
(S) 4-Bromofluorobenzene	8260TPH	6/9/16	06/09/16	8.4	41.5	125	83.2		%	430470	17337

NOTE: x-Does not match pattern of reference Gasoline standard. Hydrocarbons in the range of C5-C12 quantified as Gasoline.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	MW-3	**Lab Sample ID:**	1606047-003B
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 10:15		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	6/9/16	06/11/16	1	0.0400	0.10	0.84	x	mg/L	430502	17332
Pentacosane (S)	SW8015B(M)	6/9/16	06/11/16	1	64.2	123	102		%	430502	17332

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	PW-1	**Lab Sample ID:**	1606047-004A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:30		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/09/16	1	0.18	0.50	ND		ug/L	430470	NA
Chloromethane	SW8260B	NA	06/09/16	1	0.16	0.50	ND		ug/L	430470	NA
Vinyl Chloride	SW8260B	NA	06/09/16	1	0.16	0.50	ND		ug/L	430470	NA
Bromomethane	SW8260B	NA	06/09/16	1	0.18	0.50	ND		ug/L	430470	NA
Trichlorofluoromethane	SW8260B	NA	06/09/16	1	0.18	0.50	ND		ug/L	430470	NA
1,1-Dichloroethene	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
Freon 113	SW8260B	NA	06/09/16	1	0.19	0.50	ND		ug/L	430470	NA
Methylene Chloride	SW8260B	NA	06/09/16	1	0.23	5.0	ND		ug/L	430470	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/09/16	1	0.19	0.50	ND		ug/L	430470	NA
MTBE	SW8260B	NA	06/09/16	1	0.17	0.50	ND		ug/L	430470	NA
tert-Butanol	SW8260B	NA	06/09/16	1	1.5	5.0	ND		ug/L	430470	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/09/16	1	0.13	0.50	ND		ug/L	430470	NA
1,1-Dichloroethane	SW8260B	NA	06/09/16	1	0.13	0.50	ND		ug/L	430470	NA
ETBE	SW8260B	NA	06/09/16	1	0.17	0.50	ND		ug/L	430470	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/09/16	1	0.19	0.50	12		ug/L	430470	NA
2,2-Dichloropropane	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
Bromochloromethane	SW8260B	NA	06/09/16	1	0.20	0.50	ND		ug/L	430470	NA
Chloroform	SW8260B	NA	06/09/16	1	0.13	0.50	ND		ug/L	430470	NA
Carbon Tetrachloride	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
1,1,1-Trichloroethane	SW8260B	NA	06/09/16	1	0.097	0.50	ND		ug/L	430470	NA
1,1-Dichloropropene	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
Benzene	SW8260B	NA	06/09/16	1	0.13	0.50	ND		ug/L	430470	NA
TAME	SW8260B	NA	06/09/16	1	0.17	0.50	ND		ug/L	430470	NA
1,2-Dichloroethane	SW8260B	NA	06/09/16	1	0.14	0.50	ND		ug/L	430470	NA
Trichloroethylene	SW8260B	NA	06/09/16	1	0.13	0.50	6.4		ug/L	430470	NA
Dibromomethane	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
1,2-Dichloropropane	SW8260B	NA	06/09/16	1	0.17	0.50	ND		ug/L	430470	NA
Bromodichloromethane	SW8260B	NA	06/09/16	1	0.13	0.50	ND		ug/L	430470	NA
cis-1,3-Dichloropropene	SW8260B	NA	06/09/16	1	0.096	0.50	ND		ug/L	430470	NA
Toluene	SW8260B	NA	06/09/16	1	0.14	0.50	ND		ug/L	430470	NA
Tetrachloroethylene	SW8260B	NA	06/09/16	1	0.14	0.50	79		ug/L	430470	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/09/16	1	0.23	0.50	ND		ug/L	430470	NA
1,1,2-Trichloroethane	SW8260B	NA	06/09/16	1	0.14	0.50	ND		ug/L	430470	NA
Dibromochloromethane	SW8260B	NA	06/09/16	1	0.096	0.50	ND		ug/L	430470	NA
1,3-Dichloropropane	SW8260B	NA	06/09/16	1	0.10	0.50	ND		ug/L	430470	NA

SAMPLE RESULTS

Report prepared for: Brent Wheeler
Golden Gate Tank Removal

Date Received: 06/08/16
Date Reported: 06/15/16

Client Sample ID:	PW-1	**Lab Sample ID:**	1606047-004A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:30		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
1,2-Dibromoethane	SW8260B	NA	06/09/16	1	0.19	0.50	ND		ug/L	430470	NA
Chlorobenzene	SW8260B	NA	06/09/16	1	0.14	0.50	ND		ug/L	430470	NA
Ethyl Benzene	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/09/16	1	0.096	0.50	ND		ug/L	430470	NA
m,p-Xylene	SW8260B	NA	06/09/16	1	0.13	1.0	ND		ug/L	430470	NA
o-Xylene	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
Styrene	SW8260B	NA	06/09/16	1	0.21	0.50	ND		ug/L	430470	NA
Bromoform	SW8260B	NA	06/09/16	1	0.21	1.0	ND		ug/L	430470	NA
Isopropyl Benzene	SW8260B	NA	06/09/16	1	0.097	0.50	ND		ug/L	430470	NA
Bromobenzene	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/09/16	1	0.11	0.50	ND		ug/L	430470	NA
n-Propylbenzene	SW8260B	NA	06/09/16	1	0.078	0.50	ND		ug/L	430470	NA
2-Chlorotoluene	SW8260B	NA	06/09/16	1	0.076	0.50	ND		ug/L	430470	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/09/16	1	0.074	0.50	ND		ug/L	430470	NA
4-Chlorotoluene	SW8260B	NA	06/09/16	1	0.088	0.50	ND		ug/L	430470	NA
tert-Butylbenzene	SW8260B	NA	06/09/16	1	0.081	0.50	ND		ug/L	430470	NA
1,2,3-Trichloropropane	SW8260B	NA	06/09/16	1	0.14	0.50	ND		ug/L	430470	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/09/16	1	0.083	0.50	ND		ug/L	430470	NA
sec-Butyl Benzene	SW8260B	NA	06/09/16	1	0.092	0.50	ND		ug/L	430470	NA
p-Isopropyltoluene	SW8260B	NA	06/09/16	1	0.093	0.50	ND		ug/L	430470	NA
1,3-Dichlorobenzene	SW8260B	NA	06/09/16	1	0.10	0.50	ND		ug/L	430470	NA
1,4-Dichlorobenzene	SW8260B	NA	06/09/16	1	0.069	0.50	ND		ug/L	430470	NA
n-Butylbenzene	SW8260B	NA	06/09/16	1	0.081	0.50	ND		ug/L	430470	NA
1,2-Dichlorobenzene	SW8260B	NA	06/09/16	1	0.057	0.50	ND		ug/L	430470	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/09/16	1	0.15	0.50	ND		ug/L	430470	NA
Hexachlorobutadiene	SW8260B	NA	06/09/16	1	0.19	0.50	ND		ug/L	430470	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/09/16	1	0.12	0.50	ND		ug/L	430470	NA
Naphthalene	SW8260B	NA	06/09/16	1	0.14	1.0	ND		ug/L	430470	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/09/16	1	0.23	0.50	ND		ug/L	430470	NA
(S) Dibromofluoromethane	SW8260B	NA	06/09/16	1	61.2	131	114		%	430470	NA
(S) Toluene-d8	SW8260B	NA	06/09/16	1	75.1	127	107		%	430470	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/09/16	1	64.1	120	107		%	430470	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:**	06/08/16
		Date Reported:	06/15/16

Client Sample ID:	PW-1	**Lab Sample ID:**	1606047-004A
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:30		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/9/16	06/09/16	1	31	50	ND		ug/L	430470	17337
(S) 4-Bromofluorobenzene	8260TPH	6/9/16	06/09/16	1	41.5	125	68.3		%	430470	17337

SAMPLE RESULTS

Report prepared for:	Brent Wheeler Golden Gate Tank Removal	**Date Received:** 06/08/16 **Date Reported:** 06/15/16

Client Sample ID:	PW-1	**Lab Sample ID:**	1606047-004B
Project Name/Location:	5930 College Avenue, Oakland	**Sample Matrix:**	Groundwater
Project Number:			
Date/Time Sampled:	06/07/16 / 11:30		
Tag Number:	5930 College Avenue		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	6/9/16	06/11/16	1	0.0400	0.10	ND		mg/L	430502	17332
Pentacosane (S)	SW8015B(M)	6/9/16	06/11/16	1	64.2	123	89.6		%	430502	17332

MB Summary Report

Work Order:	1606047	**Prep Method:**	3510_TPH	**Prep Date:**	06/09/16	**Prep Batch:**	17332
Matrix:	Water	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/09/16	**Analytical Batch:**	430467
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel	0.0440	0.10	ND	
TPH as Motor Oil	0.0920	0.40	ND	
Pentacosane (S)			119	

Work Order:	1606047	**Prep Method:**	5030	**Prep Date:**	06/09/16	**Prep Batch:**	17337
Matrix:	Water	**Analytical Method:**	8260TPH	**Analyzed Date:**	06/09/16	**Analytical Batch:**	430470
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Gasoline	31	50	ND	
(S) 4-Bromofluorobenzene			53.2	

Work Order:	1606047	**Prep Method:**	3510_TPH SG	**Prep Date:**	06/11/16	**Prep Batch:**	17346
Matrix:	Water	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/11/16	**Analytical Batch:**	430501
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel (SG)	0.0440	0.10	ND	
TPH as Motor Oil (SG)	0.0920	0.40	ND	
Pentacosane (S)			101	

483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.263.5258 | fax: 408.263.8293 | www.torrentlab.com

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	1606047	Prep Method:	NA	Prep Date:	NA	Prep Batch:	NA
Matrix:	Water	Analytical Method:	E624	Analyzed Date:	06/09/16	Analytical Batch:	430470
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	0.41	1.0	ND	
Chloromethane	0.41	1.0	ND	
Vinyl Chloride	0.37	1.0	ND	
Bromomethane	0.37	1.0	ND	
Chloroethane	0.34	2.0	ND	
Trichlorofluoromethane	0.29	1.0	ND	
1,1-Dichloroethene	0.38	1.0	ND	
Freon 113	0.18	1.0	ND	
Methylene Chloride	0.31	5.0	ND	
trans-1,2-Dichloroethene	0.38	1.0	ND	
MTBE	8.1	1.0	ND	
1,1-Dichloroethane	0.36	1.0	ND	
cis-1,2-Dichloroethene	0.28	1.0	ND	
Chloroform	0.40	1.0	ND	
Carbon Tetrachloride	0.33	1.0	ND	
1,1,1-Trichloroethane	0.37	1.0	ND	
1,1-Dichloropropene	0.34	1.0	ND	
Benzene	0.29	1.0	ND	
1,2-Dichloroethane	0.26	1.0	ND	
Trichloroethylene	0.32	1.0	ND	
1,2-Dichloropropane	0.40	1.0	ND	
Bromodichloromethane	0.33	1.0	ND	
cis-1,3-Dichloropropene	0.28	1.0	ND	
Toluene	0.38	1.0	ND	
Tetrachloroethylene	0.21	1.0	ND	
trans-1,3-Dichloropropene	0.37	1.0	ND	
1,1,2-Trichloroethane	0.23	1.0	ND	
Dibromochloromethane	0.91	1.0	ND	
Chlorobenzene	0.30	1.0	ND	
Ethyl Benzene	0.19	1.0	ND	
1,1,1,2-Tetrachloroethane	0.15	1.0	ND	
m,p-Xylene	0.20	1.0	ND	
o-Xylene	0.20	1.0	ND	
Bromoform	0.21	1.0	ND	
1,1,2,2-Tetrachloroethane	0.18	1.0	ND	
1,3-Dichlorobenzene	0.19	1.0	ND	
1,4-Dichlorobenzene	0.14	1.0	ND	
1,2-Dichlorobenzene	0.15	1.0	ND	
(S) Dibromofluoromethane			121	
(S) Toluene-d8			106	
(S) 4-Bromofluorobenzene			109	

MB Summary Report

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1606047	**Prep Method:**	3510_TPH	**Prep Date:**	06/09/16	**Prep Batch:**	17332
Matrix:	Water	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/09/16	**Analytical Batch:**	430467
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.0440	0.10	ND	1	124	113	9.80	50.3 - 125	30	
Pentacosane (S)			ND	200	121	112		57.9 - 125		

Work Order:	1606047	**Prep Method:**	5030	**Prep Date:**	06/09/16	**Prep Batch:**	17337
Matrix:	Water	**Analytical Method:**	8260TPH	**Analyzed Date:**	06/09/16	**Analytical Batch:**	430470
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Gasoline	31	50	ND	238.1	90.5	80.3	12.0	52.4 - 127	30	
(S) 4-Bromofluorobenzene			53.2	11.9	92.0	90.0		41.5 - 125		

Work Order:	1606047	**Prep Method:**	3510_TPH SG	**Prep Date:**	06/11/16	**Prep Batch:**	17346
Matrix:	Water	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/11/16	**Analytical Batch:**	430501
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.0440	0.10	ND	1	60.9	63.9	4.84	36.5 - 91.3	30	
Pentacosane (S)			ND	200	89.5	92.0		50.8 - 139		

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1606047	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Water	**Analytical Method:**	E624	**Analyzed Date:**	06/09/16	**Analytical Batch:**	430470
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.29	1.0	ND	17.86	85.7	89.4	4.29	61.4 - 129	30	
Benzene	0.33	1.0	ND	17.86	80.2	84.3	5.04	66.9 - 140	30	
Trichloroethylene	0.38	1.0	ND	17.86	86.8	87.9	1.28	69.3 - 144	30	
Toluene	0.19	1.0	ND	17.86	85.2	89.0	4.44	76.6 - 123	30	
Chlorobenzene	0.14	1.0	ND	17.86	83.9	86.6	3.09	73.9 - 137	30	
(S) Dibromofluoromethane			ND	17.86	96.0	103		61.2 - 131		
(S) Toluene-d8			ND	17.86	92.7	95.1		75.1 - 127		
(S) 4-Bromofluorobenzene			ND	17.86	94.7	97.5		64.1 - 120		

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.	
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.	
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)	
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.	
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)	
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.	
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero	
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.	
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates	
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis	
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.	
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg.m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)	

LABORATORY QUALIFIERS:

B - Indicates when the anlayte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Torrent LABORATORY, INC.

Sample Receipt Checklist

Client Name: Golden Gate Tank Removal

Project Name: 5930 College Avenue, Oakland

Work Order No.: 1606047

Date and Time Received: 6/8/2016 10:30

Received By: ke

Physically Logged By: ke

Checklist Completed By: ke

Carrier Name: First Courier

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	No	Temperature:	0	°C
Water-VOA vials have zero headspace?	Yes			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: na

pH Adjusted by: na

Login Summary Report

Client ID:	TL5128 Golden Gate Tank Removal	**QC Level:**	
Project Name:	5930 College Avenue, Oakland	**TAT Requested:**	5+ day:0
Project # :		**Date Received:**	6/8/2016
Report Due Date:	6/15/2016	**Time Received:**	10:30

Comments:

Work Order # : ***1606047***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1606047-001A	MW-1	06/07/16 10:53	Water	12/27/15			EDF W_GCMS-GRO W_8260Full	
1606047-001B	MW-1	06/07/16 10:53	Water	12/27/15			W_TPHDO W_TPHDOSG	
Sample Note:	TPH d w/ & w/o silica gel cleanup							
1606047-002A	MW-2	06/07/16 11:50	Water	12/27/15			W_GCMS-GRO W_8260Full	
1606047-002B	MW-2	06/07/16 11:50	Water	12/27/15			W_TPHDO W_TPHDOSG	
1606047-003A	MW-3	06/07/16 10:15	Water	12/27/15			W_8260Full W_GCMS-GRO	
1606047-003B	MW-3	06/07/16 10:15	Water	12/27/15			W_TPHDO	
1606047-004A	PW-1	06/07/16 11:30	Water	12/27/15			W_GCMS-GRO W_8260Full	
1606047-004B	PW-1	06/07/16 11:30	Water	12/27/15			W_TPHDO	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.

483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258 RESET
FAX: 408.263.8293
www.torrentlab.com

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO 1606047

Company Name: Golden Gate Tank Removal, Inc.	Location of Sampling: 5930 College Avenue, Oakland
Address: 1480 Carroll Avenue	Purpose: 2nd Quarter 2016 Groundwater Monitoring/Sampling
City: San Francisco State: CA Zip Code: 94124	Special Instructions / Comments: Global ID: T0600102112. Field Point ID=Sample ID
Telephone: 415-512-1555 FAX: 415-512-0964	
REPORT TO: Brent Wheeler SAMPLER: DEI R. VASQUEZ	P.O. #: GGTR 9497 EMAIL: b.wheeler@ggtr.com

TURNAROUND TIME: ☐ 10 Work Days ☐ 3 Work Days ☐ Noon - Nxt Day ☐ 7 Work Days ☐ 2 Work Days ☐ 2 - 8 Hours ☑ 5 Work Days ☐ 1 Work Day ☐ Other

SAMPLE TYPE: ☐ Storm Water ☐ Air ☐ Waste Water ☐ Other ☑ Ground Water ☐ Soil

REPORT FORMAT: ☐ QC Level IV ☑ EDF ☐ Excel / EDD

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	TPH-G (8260)	VOCs (Full List)	TPH-D (8015M)	TPH-D w/ SGCU						REMARKS
001A	MW-1	6-7-16/ 1053	GW	7	Misc.	✔	✔	✔	✔						
002A	MW-2	6-7-16/ 1150	GW	7	Misc.	✔	✔	✔	✔						
003A	MW-3	6-7-16/ 1015	GW	5	Misc.	✔	✔	✔							
004A	PW-1	6-7-16/ 1130	GW	5	Misc.	✔	✔	✔							

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	R. RICHARD VASQUEZ		6-7-16	1300	FR#01		6-7-16	1300
2	FR#01	Anthony Vega	6-8-16	8:45AM	FedEx	Andrew Aaron	6-8-16	8:45

Were Samples Received in Good Condition? ☑ Yes ☐ NO Samples on Ice? ☑ Yes ☐ NO Method of Shipment Fed Ex Cty Sample seals intact? ☐ Yes ☐ NO ☑ N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made. 0°C #1 Page 1 of 1

Log In By: ______ Date: ______ Log In Reviewed By: ______ Date: ______

Relinquished (FEDEX) ANDREW AARON 6/8/16 10:30AM Rec'd Karine Bros 6-8-16 10:30

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**EDF**
Report Title:	**2nd Quarter 2016 Groundwater Monitoring Results**
Report Type:	**Monitoring Report - Semi-Annually**
Facility Global ID:	**T0600102112**
Facility Name:	**SHEAFFS SERVICE GARAGE**
File Name:	**GGTR 1606047 College Ave EDF.zip**
Organization Name:	**Golden Gate Tank Removal**
Username:	**GGTR**
IP Address:	**76.126.107.191**
Submittal Date/Time:	**10/2/2016 11:20:34 AM**
Confirmation Number:	**6066087722**

VIEW QC REPORT

VIEW DETECTIONS REPORT

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	GEO_WELL
Report Title:	2nd Quarter 2016 Groundwater Monitoring Results
Facility Global ID:	T0600102112
Facility Name:	SHEAFFS SERVICE GARAGE
File Name:	GEO_WELL.zip
Organization Name:	Golden Gate Tank Removal
Username:	GGTR
IP Address:	76.126.107.191
Submittal Date/Time:	10/2/2016 11:22:35 AM
Confirmation Number:	3713057100

EPA United States Environmental Protection Agency

https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/gradient4plus-ns.html

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient – Magnitude and Direction

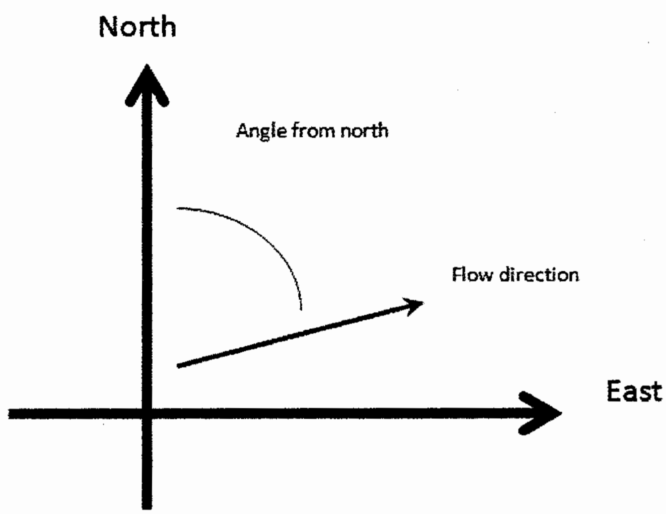
Gradient Calculation from fitting a plane to as many as thirty points

$a x_1 + b y_1 + c = h_1$
$a x_2 + b y_2 + c = h_2$
$a x_3 + b y_3 + c = h_3$
. . .
$a x_{30} + b y_{30} + c = h_{30}$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

$i = 1,2,3, \ldots, 30$
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant



Inputs

Example Data Set 1 | Example Data Set 2 | Calculate | Clear
Save Data | Recall Data | Go Back

Site Name	5930 College Ave, Oak			
Date	6/7/16	Current Date		
Calculation basis	Head			
Coordinates ft				
I.D.		x-coordinate	y-coordinate	head ft
1)	MW-1	6055822.91	2135878.96	186.94
2)	MW-3	6055818.98	2135842.80	185.17
3)	PW-1	6055924.91	2135914.96	187.47
4)				
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				
15)				
16)				
17)				

18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				
28)				
29)				
30)				

Results

Number of Points Used in Calculation	3
Max. Difference Between Head Values	0.7010
Gradient Magnitude (i)	0.05186
Flow direction as degrees from North (positive y axis)	166.0
Coefficient of Determination (R^2)	1.00

WCMS

Last updated on Tuesday, February 23, 2016

DATA GAP WORK PLAN

Sheaff's Service Garage
5930 College Avenue, Oakland, CA 94618

ACHCSA Fuel Leak Case No. RO0000377
WGE Project # 2016105

APPENDIX B

ADDITIONAL DOCUMENTATION

Alameda County Department of Environmental Health Letter - May 12, 2016

Wheeler Group Environmental, LLC
369-B Third Street, Suite #221, San Rafael, CA

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Acting Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

May 12, 2016

Dr. Brian Sheaff
William G. Sheaff & Patricia Warren Restated Living Trust U/D/T 2/14/89
1945 Parkside Drive
Concord, CA 94519
(sent via e-mail: drsheaff@pacbell.net)

Subject: Request for Data Gap Work Plan; Fuel Leak Case No. RO0000377 and Geotracker Global ID T0600102112, Sheaffs Service Garage, 5930 College Avenue, Oakland, CA 94618

Dear Dr. Brian Sheaff:

Alameda County Department of Environmental Health (ACDEH) staff has reviewed the case file including the *Data Gap Investigation Report*, dated March 15, 2016. The report was prepared and submitted on your behalf by Golden Gate Environmental, Inc (GGEI). Thank you for submitting the report. The data collected has helped resolve questions regarding the site with respect to the State Water Board's Low Threat Closure Policy (LTCP).

ACDEH has evaluated the data and recommendations presented in the above referenced report, in conjunction with the case files, to determine if the site is eligible for closure as a low risk site under the LTCP. Based on ACDEH staff review, we have determined that the site now additionally meets most General Criteria, including the LTCP General Criteria b, (petroleum only release), e (Site Conceptual Model), f (Secondary Source Removal), as well as the Media-Specific Criteria for Vapor Intrusion to Indoor Air and the Media-Specific Criteria for Direct Contact. In ACDEHs review, the site does not meet the LTCP General Criteria d (Free Product), or the Media-Specific Criteria for Groundwater (see Geotracker for a copy of the LTCP review, and below for further details).

Please be aware that while ACDEH has found that the release consisted of petroleum only, one of the remaining concerns at the site includes the presence of tetrachloroethene (PCE) in soil vapor, and PCE and its degradation products including Trichloroethene (TCE), cis-1,2-Dichloroethene (cis-1,2-DCE), and sporadically vinyl chloride (VC) in groundwater beneath the site. This contaminant does not appear to be associated with the petroleum release and may require the opening of a separate non-UST funded case to manage the investigation and potential cleanup of this contamination. ACDEH understands that an offsite source for the PCE may be present upgradient of the site; however, ACDEH notes that an onsite source may also be present, and additional work is necessary to confirm these potential conditions (see below for more details).

At this juncture ACDEH requests that you prepare a Data Gap Investigation Work Plan that is supported by a focused Site Conceptual Model (SCM) to address the Technical Comments provided below. Prior to submitting the work plan, ACDEH would like to invite you to a meeting to discuss the site and strategize about the most efficient path towards closure. ACDEH requests notification of suitable dates and times for the meeting by the date listed below.

TECHNICAL COMMENTS

1. **LTCP Media Specific Criteria for Groundwater** – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

a. **Groundwater Plume Length** – Based on the rose diagram (Figure 4) in the referenced report, groundwater flow direction at the site appears to be bi-directional, either to the west to northwest and to the south to southeast, and appears to include a somewhat prominent gap between these two flow directions. It has been presumed that these flow directions are influenced at times by groundwater flow associated with utilities in College Avenue, presumably including the 90-inch Harwood Creek storm water cutoff conduit located beneath the street.

   Based on the lack of success in collecting groundwater on the west side of College Avenue after two attempts, it appears that groundwater flow, including the groundwater plume, to the west may be limited by the 90-inch storm water conduit. Alternatively, grab groundwater analytical data collected from soil bore CB-1 in June 1999 at the Dryers Grand Ice Cream site (RO0000153 or T0600100466; 5929 College Avenue, Oakland, CA 94618), is cited as providing an estimate on the length of the groundwater plume from the subject site. This grab groundwater sample detected 550 micrograms per liter [µg/l] Total Petroleum Hydrocarbons as diesel [TPHd], <0.5 µg/l benzene, toluene, ethylbenzene, and total xylenes, and <5.0 methyl tert butyl either (MTBE). Bore CB-1 is considered upgradient of the Dryers Grand Ice Cream release, but is cited to be downgradient of the subject site.

   Conversely, the length of the groundwater plume to the southeast has not been defined; however, sensitive receptors, including basement or other dewatering facilities that can intercept groundwater and potentially discharge it to surface conveyance (curb and storm drain conduits) have been sought, as they have to the west to northwest. A subsurface parking garage was located approximately 460 to 570 feet south of the site; however, the Harwood Creek Underground Culvert is located approximately 250 feet south of the site and may also provide a level of protection to this underground structure.

   Evident staining and hydrocarbon odors observed in soil bore SB31 in November 2015 documents that the hydrocarbon release traveled to the south to southeast of the former UST locations, as does the grab groundwater sample collected at soil bore B3 in May 1998. The grab groundwater was first encountered at a depth of approximately 6.5 feet below grade surface (bgs), and contained 1,000,000 µg/l TPHg, 7,000 µg/l Total Extractable Petroleum Hydrocarbons (TEPH), 17,000 µg/l benzene, 20,000 µg/l ethylbenzene, 18,000 µg/l MTBE, among other fuel contaminants. The LTCP *Technical Justification for Vapor Intrusion Media-Specific Criteria* (March 2012) states that these concentrations are indicative of Light Non-Aqueous Phase Liquids (LNAPL).

   While ACDEH expects these concentrations to have undergone a reduction in the intervening years, as can be seen by proxy in well MW-1 which underwent an order of magnitude reduction between June 1998 and November 2015 (160,000 µg/l to 14,000 µg/l TPHg and 28,000 µg/l to 3,900 µg/l benzene), concentrations in grab groundwater sample B3 were an order of magnitude above the highest concentrations seen in MW-1 and represent a location downgradient from the former USTs rather than upgradient as at MW-1. Thus it appears appropriate to determine the magnitude of the reduction in order to determine if LNAPL extends offsite beneath the adjacent apartment building (not acceptable within the LTCP criteria), and to determine if corrective action is necessary to preclude this.

   Please present a strategy in the Data Gap Work Plan requested below in Technical Comment 4 to address this item. Alternatively, please provide justification of why the site satisfies the Media-Specific Criteria for Groundwater in the focused SCM described in Technical Comment 4 below.

2. **Tetrachloroethene and Daughter Compound Contamination** – The referenced site investigation documented PCE contamination in soil vapor and in groundwater at the site, and concluded that an offsite location may be the source of the contamination. ACDEH is similarly aware of the reported former (?) presence of a waste oil UST at the former Chevron Service Station (Chevron #20-9339 / College Square, 5940 College Avenue, RO0000464, T06019752694). ACDEH is in general agreement that the highest PCE contamination detected in soil vapor during the current site work is

proximal to the northern property line. ACDEH observes that two lines of evidence suggest the PCE contamination may be either proximal to the subject site, or potentially associated with the subject site. This includes the detection of only PCE in soil vapor at the site, and not daughter breakdown products, suggesting a very nearby source area in soil; either on- or offsite. Secondly, the detection of PCE, and related daughter breakdown products in groundwater and grab groundwater at generally decreasing concentrations towards the south and west.

Therefore, please present a strategy in the Data Gap Work Plan requested below in Technical Comment 4 to collect sufficient data to isolate the source area and to define the extent of PCE, and related contamination onsite. This is expected to include both vapor and groundwater analytical data.

3. **Groundwater Monitoring** – Please continue to conduct semi-annual groundwater monitoring events at the site and submit reports in accordance with the schedule below. Please continue to include analysis for naphthalene and TPHd; however, PAHs and TPHmo can be removed from the analytical suite in future groundwater monitoring events. In order to help resolve the source area of the PCE contamination, please collect samples for the analysis for PCE and its daughter products from all wells. If chlorinated solvent analytical data has previously been collected from site wells other than PW-1, please tabulate and include the data in future reports. Please collect groundwater samples from wells MW-1 and MW-2 and conduct analysis for TPHd with and without Silica Gel Cleanup (SGC) in an attempt to determine the extent of natural biodegradation of the extractable-ranged hydrocarbons. This is consistent with the San Francisco Bay Regional Water Quality Control Board (RWQCB) recommendations for SGC. The need for continued analysis of these contaminants should be evaluated further thereafter.

   ACDEH additionally requests the generation of a groundwater hydrograph plotting depth to water and groundwater concentrations versus time to help illustrate concentration stability of groundwater. It appears that significant concentration changes are present during periods of time with higher groundwater levels.

4. **Data Gap Investigation Work Plan and Focused Site Conceptual Model** – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with a focused SCM and Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to.

   In order to expedite review, ACDEH requests the focused SCM be presented in a tabular format that highlights the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure under the LTCP. Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACDEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the following specified file naming convention and schedule:

- **July 29, 2016** – Data Gap Work Plan
  (File to be named: RO377_WP_R_yyyy-mm-dd)

- **July 29, 2016** – First 2016 Semi-Annual Groundwater Monitoring Event (can be combined with above report); (File to be named: RO377_GWM_R_yyyy-mm-dd)

- **60 Days After Work Plan Approval** – Site Investigation
  (File to be named: RO377_SWI_R_yyyy-mm-dd)

- **January 27, 2017** – Second 2016 Semi-Annual Groundwater Monitoring Event; (File to be named: RO377_GWM_R_yyyy-mm-dd)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

Mark

Digitally signed by Mark Detterman
DN: cn=Mark Detterman, o=ACEH, ou=ACEH, email=mark.detterman@acgov.org, c=US
Date: 2016.05.12 13:56:56 -07'00'

Mark Detterman, P.G., C.E.G.
Senior Hazardous Materials Specialist

Enclosures: Attachment 1 - Responsible Party(ies) Legal Requirements/Obligations & ACDEH Electronic Report Upload (ftp) Instructions

cc: John Accacian, 5930 College Avenue, Oakland, CA 94618 (sent via electronic mail: jjjracingaol@yahoo.com)

Brent Wheeler, Golden Gate Environmental, Inc, 1455 Yosemite Avenue, San Francisco, CA 94124 (sent via electronic mail: b.wheeler@ggtr.com)

Mark Youngkin, Golden Gate Environmental, Inc, 1455 Yosemite Avenue, San Francisco, CA 94124 (sent via electronic mail to: geomark@sbcglobal.net)

Dilan Roe, ACDEH, (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman, ACDEH, (sent via electronic mail to mark.detterman@acgov.org)
Electronic file, GeoTracker