March 27, 2015

Johnny Browning
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Re.: Site Conceptual Model and Remedial Investigation Work Plan
Automasters
6200 Shattuck Avenue
Oakland, California
ACEH Case #RO0002935

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Submitted by,

Johnny Browning
LLC Manager
15 Mulberry Court, #5
Belmont, CA 94002

WEST ASSOCIATES
ENVIRONMENTAL ENGINEERS, INC.

SITE CONCEPTUAL MODEL AND REMEDIAL INVESTIGATION WORK PLAN

Automasters
Leaking Underground Tank Site
6200 Shattuck Avenue
Oakland
Case No. RO2935

Prepared For:
6200 Shattuck Partners LLC
Oakland

Prepared By:
West & Associates Environmental Engineers, Inc.
Vacaville

March 2015

California State Contractor's License No. 734244
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ACKNOWLEDGMENTS

This Workplan was prepared for our client, 6200 Shattuck Partners LLC and is intended for their exclusive use.

In the preparation of this Workplan, reliance was made of work product of Pangea, Inc.

This Workplan was prepared by West & Associates Environmental Engineers, Inc. West & Associates is located at 630 Eubanks Ct., Unit G, Vacaville, CA 95688; mailing address, PO Box 5891, Vacaville, CA 95696; 707. 451.1360. Principal author is Mr. Brian W. West, PE. (Registered California Civil Engineer No. 32319 - expires 12/31/16.)

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APPENDICES

1.0 INTRODUCTION

West & Associates Environmental Engineers, Inc. (W&A) has prepared this Site Conceptual Model and Remedial Investigation Work Plan for Automasters and 6200 Shattuck Partners, LLC, as a first step toward achieving case closure for Alameda County Environmental Health UST Case #RO0002935. The Automasters site (the Site) is located at 6200 Shattuck Avenue in Oakland, California and is currently used as an independent automotive repair facility. A Site location map is presented as *Figure 1* in ***Appendix A***.

The objective of this Site Conceptual Model (SCM) and Remedial Investigation Work Plan is to evaluate current Site conditions in relation to the Low Threat Closure Policy (LTCP) and determine if the Site is a good candidate for closure. If additional assessment and/or remediation activities are required, Automasters and 6200 Shattuck Partners, LLC will expeditiously perform all activities necessary to satisfy the requirements of Alameda County Environmental Health (ACEH) and receive their approval for case closure. Once this is accomplished they will be able to proceed with their current plan for development of the Site, i.e. converting the Site to a mixed-use commercial and residential property.

2.0 SITE BACKGROUND

The Automasters facility is located at the northeast corner of Shattuck Avenue and 62nd Street in an area of mixed residential and commercial land use. The elevation of the Site is 131 feet above mean sea level, with local topography sloping gently to the southwest (US Geological Survey [USGS], Oakland West Quadrangle, California). Surrounding properties are primarily single-family and multi-family residences with a few commercial buildings located along Shattuck Avenue to the south and northwest of the Site. The Assessor's Parcel Number for this Site is 15-1377-22.

Shortly after purchasing the Site in 1986, Mr. Glenn Logan contracted with Ray Walker Hydraulics of Pleasanton, CA to remove two small underground gasoline storage tanks (USTs) from the southern portion of the Site. W&A contacted Mr. Walker in December 2014 to gather more information on these USTs and determine whether any contaminated soil was encountered during their removal. Mr. Walker searched his archived files but did not have any written information on this Site as the work was performed almost 30 years ago. To the best of his recollection both USTs were used for gasoline and either 500 or 1,000 gallons in size.

Mr. Logan distinctly remembers that contaminated soil between the USTs was removed and transported off-site for disposal. Attempts to contact the Oakland Fire Department regarding this Site have been unsuccessful, so there is no written documentation of the quantity of soil removed or where it was taken.

The only site assessment activities at this Site were performed by Pangea in 2006. Three soil borings were advanced across the Site at the locations shown on *Figure 2*. Borings SB-1 and SB-3 were clean, i.e. there were no detectable concentrations of TPH-g, , BTEX compounds, fuel oxygenates, lead scavengers, TPH-d or TPH-motor oil detected in any of the soil samples collected from these borings. The sample collected from boring SB-2 at 11 feet below ground surface (bgs) was reported to contain TPH-g at 3,000 mg/kg, TPH-d at 850 mg/kg, naphthalene at 10 mg/kg, and negligible concentrations of BTEX compounds and fuel additives. The 8-foot and 16-foot deep samples from SB-2 had insignificant concentrations of TPH-g and TPH-d, indicating that the zone of contamination was very limited in vertical extent. Total lead concentrations in all samples were typical of background levels in the vicinity.

No groundwater was encountered during the drilling of this 48-foot deep borehole The SB-2 borehole was left open overnight with a 10-foot screen placed near the bottom, A groundwater "grab" sample was collected from SB-2 after allowing the borehole to remain open overnight. The depth to groundwater in this borehole was 8 feet bgs. TPH-g at 1,700 µg/L, TPH-d at 1,000 µg/, TPH-motor oil at 1,100 µg/L, and naphthalene at 440 µg/L were reported in this sample along with modest concentrations of BTEX compounds and fuel additives. This groundwater was in direct contact with the sand and gravel layer at 11-12 feet bgs, so it is unclear whether these results are indicative of actual groundwater concentrations.

3.0 SITE CONCEPTUAL MODEL

A Site Conceptual Model (CSM) has been prepared to aid in understanding of Site conditions and to identify any data gaps that need to be addressed. Using the format requested by ACEH, the SCM is presented in *Table 1*. Data gaps identified in the SCM are summarized along with the proposed investigation activities to close these gaps in *Table 2*. These tables are included in **Appendix B**.

The SCM will be amended to incorporate pertinent information gathered during subsequent remedial investigations and included in the NFAR for this Site. This SCM will be revised once additional soil, groundwater and soil vapor data become available as Remedial Investigation activities are completed.

Figure 3 presents a geological cross-section of Site conditions based on the boring logs for SB-1 and SB-2 included in the Pangea report.

4.0 SENSITIVE RECEPTORS

A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites.

No on-site water supply wells or other sensitive receptors exist at the Site. Based on the Pangea RI report from 2006, the only potential on-site receptor would be construction workers exposed to gasoline vapors while excavating into contaminated soil during Site development activities. Even this exposure is unlikely since the identified contamination is 11 feet bgs and the proposed development does not include an underground parking garage.

The homes and small commercial establishments west of the Site are located downgradient and are considered the only potential off-site receptors. The probability of this release having an impact on these receptors is very low based on the fact that significant concentrations of COCs were only found at a depth of 11 feet bgs.

A well survey of the area performed by Woodward Clyde Consultants (WCC) in 1986 found five wells within a one mile radius of the Site. Two of these wells are (or were) used for industrial purposes, two for irrigation, and one for domestic purposes. No municipal wells were identified anywhere near the Site. The closest well is the irrigation well at 3215 Adeline Street in Berkeley, approximately 1,340 feet west-northwest of the Site. The only other well within a 2000-foot radius of the Site is the domestic well, which is located 1,800 feet south-southeast (cross-gradient) from the Site. Mr. James Yoo of the Alameda Public Works Department confirmed that no new wells have been installed with a one-mile radius of the Site since the WCC well survey.

There are no surface water bodies within a 2,000 radius of the Site. The nearest surface water body is Claremont Creek, located approximately 0.8 miles northwest of the Site. San Francisco Bay is located 2 miles west of the Site.

Other potential receptors within 2,000 feet of the Site include the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site, and Colby Park, located 1,800 feet east of the Site. Based on the known direction of groundwater flow in the area, these receptors are cross-gradient and upgradient of the Site, so it is highly unlikely that they would be impacted by this release.

The locations of the wells and other potential receptors listed above are shown on *Figure 4***.**

5.0 DATA GAPS

Based on the limited site assessment activities performed to date it is clear that there are data gaps in our understanding of the lateral and vertical extent of this contamination plume. These data gaps are identified in the SCM (*Table 1*) The activities that will be performed to close these data gaps are presented in *Table 2*.

The first step in closing these data gaps will be to perform a thorough Site inspection to confirm that there are no other release sources. If additional potential sources are discovered, the Remedial Investigation (RI) Work Plan will be amended to evaluate the potential contamination caused by these sources. If there are no additional sources, the primary focus will be to collect additional soil and groundwater samples in the vicinity of Pangea boring SB-2. The initial effort in this regard will be to implement the RI Work Plan presented below (once it is approved by ACEH).

The shallow soil sampling results will indicate whether an on-site soil vapor assessment is warranted in order to properly evaluate Site conditions in relation to the LTCP. If it is determined that the plume has migrated off-site, it may be necessary to perform a soil vapor assessment of the adjacent residential and commercial buildings to determine the potential risk of soil vapor intrusion. Off-site migration will also necessitate a utility survey to determine whether there are utility corridors acting as preferential pathways and a site-specific Sensitive Receptor Survey.

6.0 REMEDIAL INVESTIGATION WORK PLAN

The limited data available at this Site needs to be supplemented with additional soil and groundwater sampling to be performed in order to apply for case closure under the LTCP. Based on the lack of any detectable concentrations of COCs in SB-1 and SB-3, it is believed that the lateral extent of soil contamination is relatively limited. The low concentrations of COCs in soil samples from SB-2 at 8 and 16 feet bgs suggest that the vertical extent is also limited, perhaps confined to the sand and gravel layer 11-12 feet bgs and the silty clay immediately below.

The only evidence of groundwater contamination is based on a grab sample collected from the SB-2 borehole. Grab samples frequently contain higher COC concentrations than samples collected from a properly developed well, so the nature and extent of groundwater impact as a result of this release is essentially unknown. The depth to first groundwater at two nearby sites ranges from 5 to 18 feet bgs, so it is possible that the 8-foot depth to water observed in the SB-2 borehole is indicative of Site conditions.

The information obtained by Pangea in their 2006 remedial investigation suggests that soil contamination exists in the vicinity of boring SB-2 at a depth of 11 to 12 feet bgs. In order to further define the lateral and vertical extent of this contamination six additional soil borings will be advanced to a minimum depth of 20 feet bgs using a hollow stem auger drill rig. Three of these borings will be completed as groundwater monitoring wells. Shallow soil samples will also be collected in the vicinity of the former USTs and dispenser island to determine whether there exists a secondary source of contamination.

No data has been generated regarding soil vapor conditions at the Site. After the lateral extent of soil contamination is determined by the additional soil sampling described below, it will be determined whether a soil vapor survey and/or utility survey is required to satisfy LTCP criteria for this Site. If so, an appropriate work plan will be prepared and submitted to ACEH for approval.

Proposed methods, equipment, materials and techniques to successfully complete the soil and groundwater investigation are as follows.

6.1 Pre-Field Activities

Prior to commencing any field work, a thorough Site inspection will be performed to determine whether there is any evidence suggesting that other potential release sources are present at the Site. These could include other USTs, sumps, lifts, etc. If any additional sources are discovered, the RI work plan will be amended to include additional investigation in the area(s) where they are located.

A site specific Health & Safety Plan (H&SP) will be then be prepared. A properly licensed (C-57) drilling subcontractor with expertise in environmental investigations will be retained. An application will be submitted to the Alameda County Public Works Agency for a well installation permit. The site will be marked for Underground Service Alert and a USA ticket opened no later than 48 hours prior to starting subsurface work. ACEH will be notified in advance of any field work. All field work will be directly supervised by a registered professional civil engineer or geologist.

6.2 Soil Boring and Groundwater Monitoring Well Installation

It is proposed to install six soil borings using a hollow stem auger rig and complete three of these borings as groundwater monitoring wells. Soil samples will be collected from each boring for laboratory testing at depths to be determined based on photoionization detector (PID) readings and visual observations of the auger cuttings. A minimum of two samples will be collected from each boring. The proposed locations of these soil borings are shown on *Figure 5.*

All soil borings will be made using a 12-inch diameter rotary hollow stem auger driven by a mobile B-53 (or equivalent) drill rig. The boring will be logged by a California licensed civil engineer or geologist. It is anticipated that total boring depth will be 20 feet bgs. Site work will be completed in conformance with West & Associates "Standard Field Procedures", included in this work plan as **Appendix C.**

In addition, it is proposed to collect shallow soil samples using either the drill rig or a hand auger from two locations that represent the UST backfill material. These samples will be collected from 3 to 5 feet bgs to provide data regarding a potential “secondary source” as defined in Item 4 of the ACEH letter.

Figure 5 shows the locations of these proposed soil borings, monitoring wells, and shallow soil samples.

6.3 Soil Sampling

Undisturbed soil samples will be collected from each soil boring using a split spoon sampler fitted with three 6-inch long sleeves. The lead 6-inch sleeve from each core will be field screened with a PID for the presence of contamination. Soil from the following sleeve will be sealed, labeled and preserved for chemical analysis in a State certified testing laboratory. In conformance with North Coast Region guidelines, soil samples for volatile analysis will be collected using an EPA method 5035 compliant procedure. In the absence of any detected contamination based on field screening, two soil samples for laboratory analysis will be collected from each boring.

Drill cuttings will be containerized on site in 55-gallon drums so they are isolated from the environment or human contact. Residue management is discussed in Section 6.9. The boring will be advanced to at least a total depth of 20 feet bgs. Based on field conditions encountered, a boring may be advanced beyond 20 feet bgs to follow contamination vertically to its termination.

6.4 Monitoring Well Construction

It is proposed to construct the three monitoring wells using 2-inch diameter, Schedule 40, PVC casing. The wells will be fitted with 0.020 slotted screen from 5 feet bgs to 20 feet bgs. A filter pack composed of Monterey No. 3 sand will be placed around the screened interval in each well. The filter pack will be placed to an elevation one foot higher than the top of the well screen. Above the filter pack, two vertical feet of hydrated 3/8” bentonite pellets will be placed. A Portland cement grout will be placed on top of the bentonite pellets. Grout will come to within one foot of the ground surface. A traffic rated "Christy" box will be cemented in place at the wellhead to complete the installation. The Christy box will be positioned at an elevation slightly above the surrounding pavement to promote surface runoff.

A cross-section illustrating the proposed monitoring well design is included in **Appendix D.**

6.5 Well Development

In conformance with the Alameda County Well Ordinance, a period of not less than 48 hours will elapse between well construction and well development. The wells will be developed by surging and dewatering. A surge block will be forced through the water column to pressurize groundwater in the filter pack. A high capacity electric submersible pump will be placed in the well after the surge activity to rapidly dewater the casing. The process of surging and dewatering will continue until purge water is free of visible silt or sediment.

All purge water will be considered contaminated and will be properly managed as described in Section 6.9

6.6 Well Survey

The wells will be surveyed for latitude, longitude and elevation by a person licensed to perform land surveys in California. Survey data will be properly formatted and uploaded to GeoTracker as described in **Section 8**.

6.7 Hydrologic Measurement and Calculations

To allow the aquifer to stabilize, at least 72 hours will be allowed to elapse between the well development activity and collection of hydrologic data. The static depth to groundwater in all three wells will be measured with an electronic sounding tape to an accuracy of 0.01 foot. The groundwater elevation will be calculated by subtracting the depth to groundwater from the well top elevation. Groundwater elevations will be plotted on a scaled site map and the groundwater gradient direction triangulated. Groundwater elevation isocontours will be plotted on the site map. The gradient magnitude will be extrapolated from the isocontours. Hydrologic data will be presented in the Report of Findings in both numeric and graphical formats.

6.8 Groundwater Sample Collection

Representative groundwater samples will be collected from each of the monitoring wells for chemical analysis in a subcontracted testing laboratory. No groundwater samples will be collected for a minimum of 72 hours after well development, to allow time for aquifer stabilization. The following groundwater sample procedure will be employed at each well:

A new bailer specifically designed to effectively capture and measure free phase product (FPP) will be used to retrieve a groundwater sample from the top of the water column. The groundwater in the bailer will be visibly inspected for FPP. The thickness of FPP present in each well will be measured and recorded. Also, the dissolved oxygen concentration of the groundwater will be measured.

An electric submersible pump will be lowered into the well. Using the pump, approximately three casing volumes of groundwater will be purged from the well. During the purge process, groundwater temperature, dissolved oxygen concentration, electrical conductivity and pH will be periodically measured. All purge data will be recorded on a standardized form for inclusion in the Report of Findings.

Once purging is complete, the pump will be removed from the well. The pump, cable and discharge line will be thoroughly decontaminated before reuse. Depth to groundwater rise will be monitored as the well re-charges. When the groundwater elevation rises higher than 80% of the static level, a groundwater sample will be collected.

A new bailer will be lowered into the well to retrieve the water sample to surface. The sample will be transferred into appropriate, laboratory supplied, containers, labeled and then chilled prior to laboratory delivery. All samples collected will be entered on a chain of custody record form.

6.9 Solid and Liquid Residue Management

Both solid and liquid residues will be generated during this environmental assessment project. Solid residues will be generated during the soil boring process. Liquid residues will be generated from equipment decontamination, well development and groundwater purging. All residues will be considered contaminated until proven otherwise. Soil cuttings will be placed in labeled 55-gallon drums for effective protection from the environment and human contact. Liquid residues will be stored in labeled 55-gallon drums. Representative samples will be collected from the soil and the water residues for waste profiling. It is anticipated that soil cuttings will be transported to the Class 2 Hay Road Landfill in Solano County. It is anticipated that liquid residues will be transported to InStrat (Rio Vista) for recycling. Disposal documentation for all residues will be included in the Report of Findings.

6.10 Laboratory Analysis of Soil and Groundwater Samples

Soil and groundwater samples will be submitted to a State certified testing laboratory for chemical analysis. All samples submitted for testing will be listed on a standardized Chain of Custody record which will accompany the sample set at all times. The COCs at the Automasters Site are TPH-g, BTEX compounds, naphthalene, and potentially MtBE. Each sample submitted to the laboratory in this RI will be analyzed for these COCs. If MtBE I not detected in the first round of sampling at this Site it will not be analyzed in subsequent sampling events.

All laboratory methods and procedures, including minimum detection limits, will comply with EPA guidelines. A copy of the original laboratory report, including lab QA/QC data, will be included in the Report of Findings. For any samples with TPH detections, the chromatograms and associated laboratory standards chromatograms will be included in the Report of Findings.

6.11 Quality Assurance/Quality Control

QA/QC measures to be employed on the Automasters remedial investigation project will conform with West & Associates' Standard Field Procedures, attached to this Workplan. To summarize, proposed QA/QC measures include:

- Assigning experienced and capable staff
- Following approved field procedures and techniques
- Utilizing appropriate equipment and supplies
- Relying on new, disposable, sampling supplies to the maximum extent possible
- Thorough and frequent decontamination of field equipment
- Maintaining detailed field notes
- Utilizing laboratory supplied sample containers
- Timely delivery of samples to the testing laboratory
- Keeping an unbroken Chain of Custody Record
- Adhering to EPA-approved analytical procedures

Any deviations from standard QA/QC protocol will be described in the Report of Findings.

7.0 REPORT OF FINDINGS

At the conclusion of this proposed remedial investigation project a written Report of Findings will be prepared and submitted to ACEH. This Report will be submitted within 30 days of receiving final analytical results.

The Report will include:

- An Executive Summary
- Selected background material
- A summary of any deviations from this Workplan
- A description of all field work performed
- Scaled site diagram accurately locating all monitoring well locations
- Well top survey data
- Boring logs
- Well completion diagram
- Analytical data in tabular format
- Original laboratory reports with Chain of Custody record
- A description of QA/QC results and any deviations from stated QA/QC procedures
- Technical discussion of investigative results
- Recommendations for further action, as appropriate
- Waste residue disposal documentation
- GeoTracker upload certification

8.0 GEOTRACKER UPLOAD

This SCM and RI Work Plan has been uploaded to the ACEH web site per instructions included with the ACEH letter requesting these documents. Once approved by ACEH, it will be uploaded to the Automasters GeoTracker Domain, Global ID T0619748201. The upload certificate is presented in *Appendix E*. Selected future work products will be uploaded to the GeoTracker database in conformance with State requirements. Future work products that will be uploaded include:

- Boring logs
- Well top survey data
- Analytical data
- Report of Findings

The GeoTracker upload certificate will be included in the Report of Findings.

APPENDIX A

Figures

WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

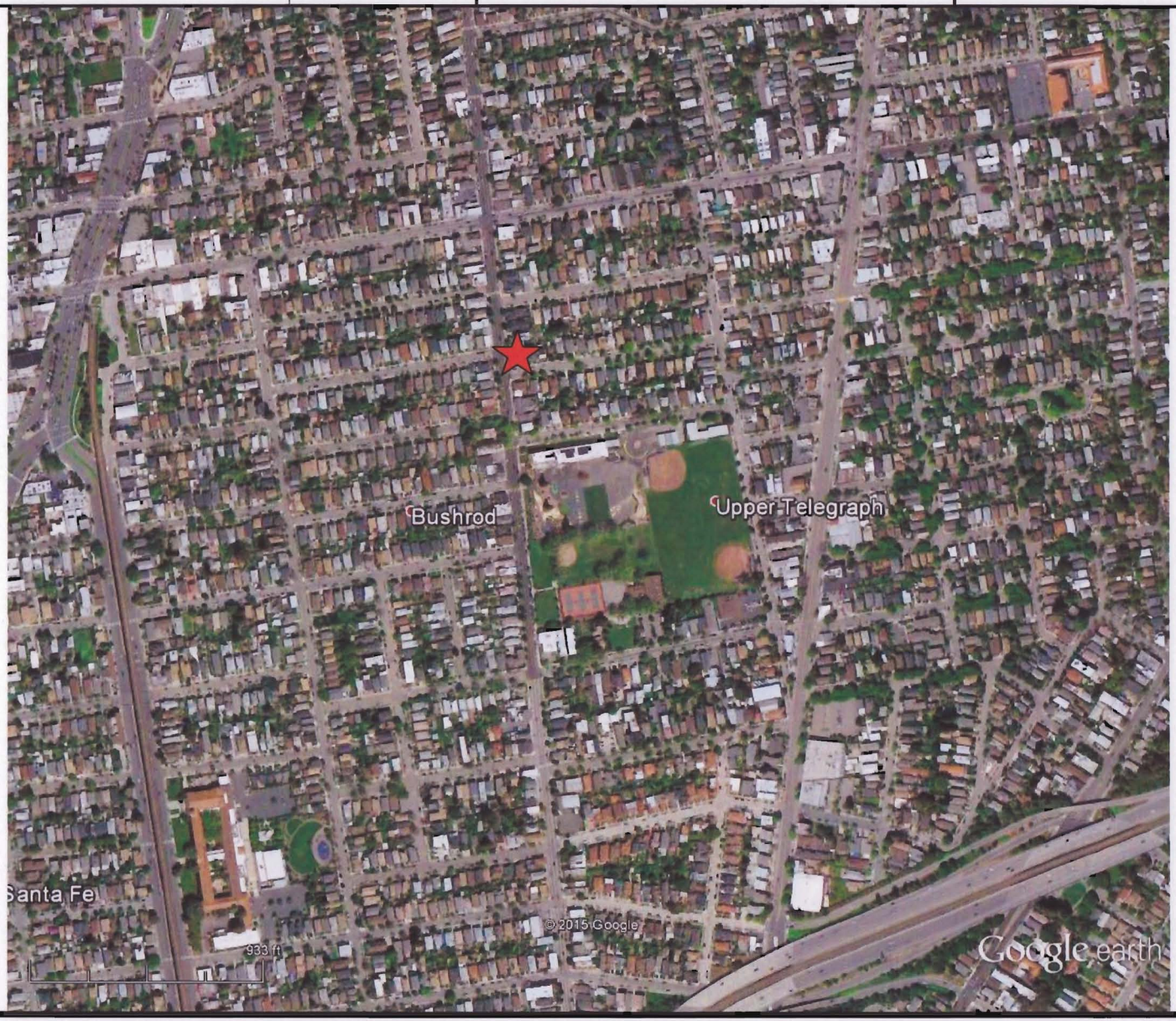
PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** March 2015
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** See Below

Legend

Site Location

FIGURE 1
Site Location



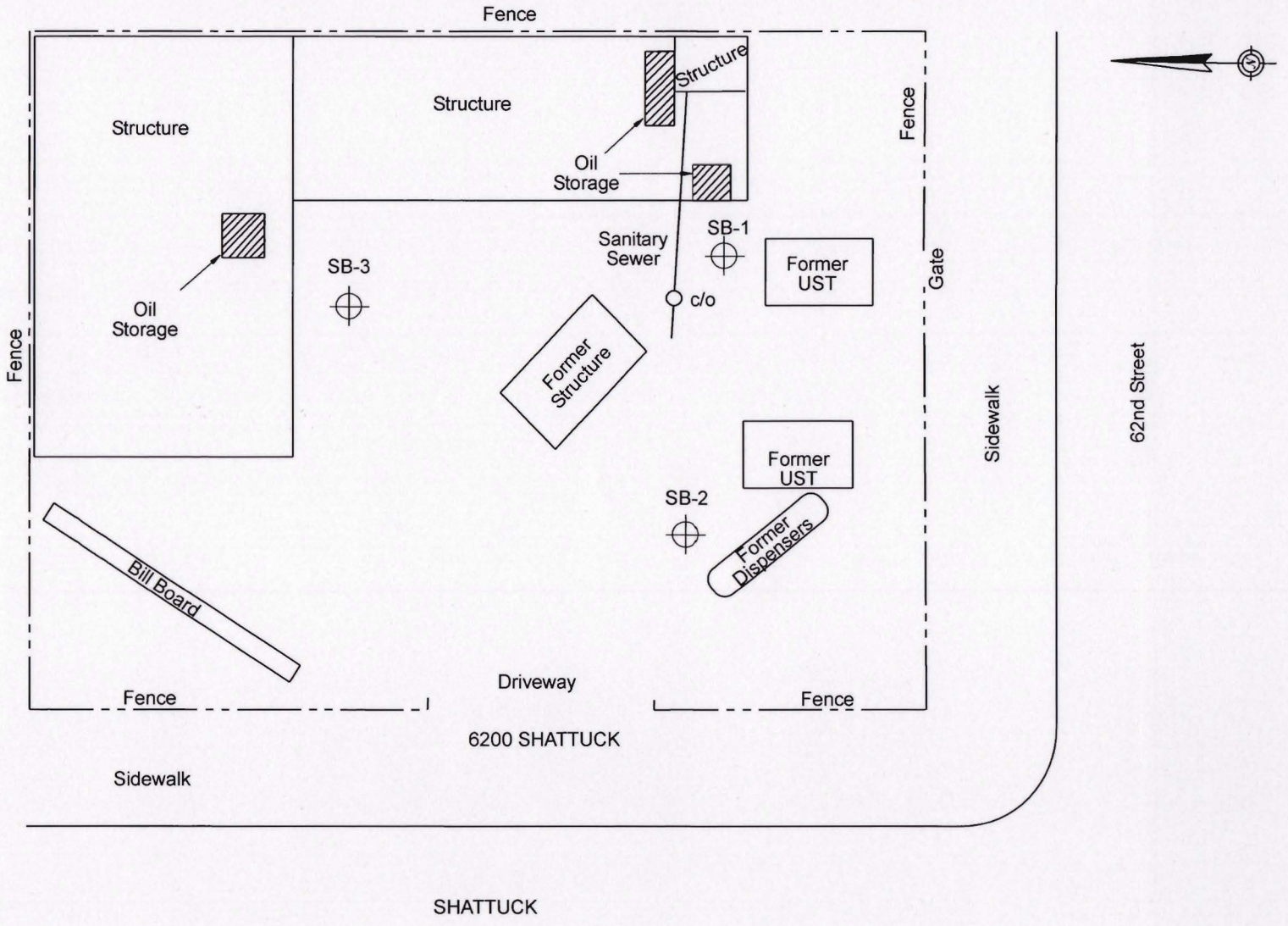
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** March 2015
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** NA

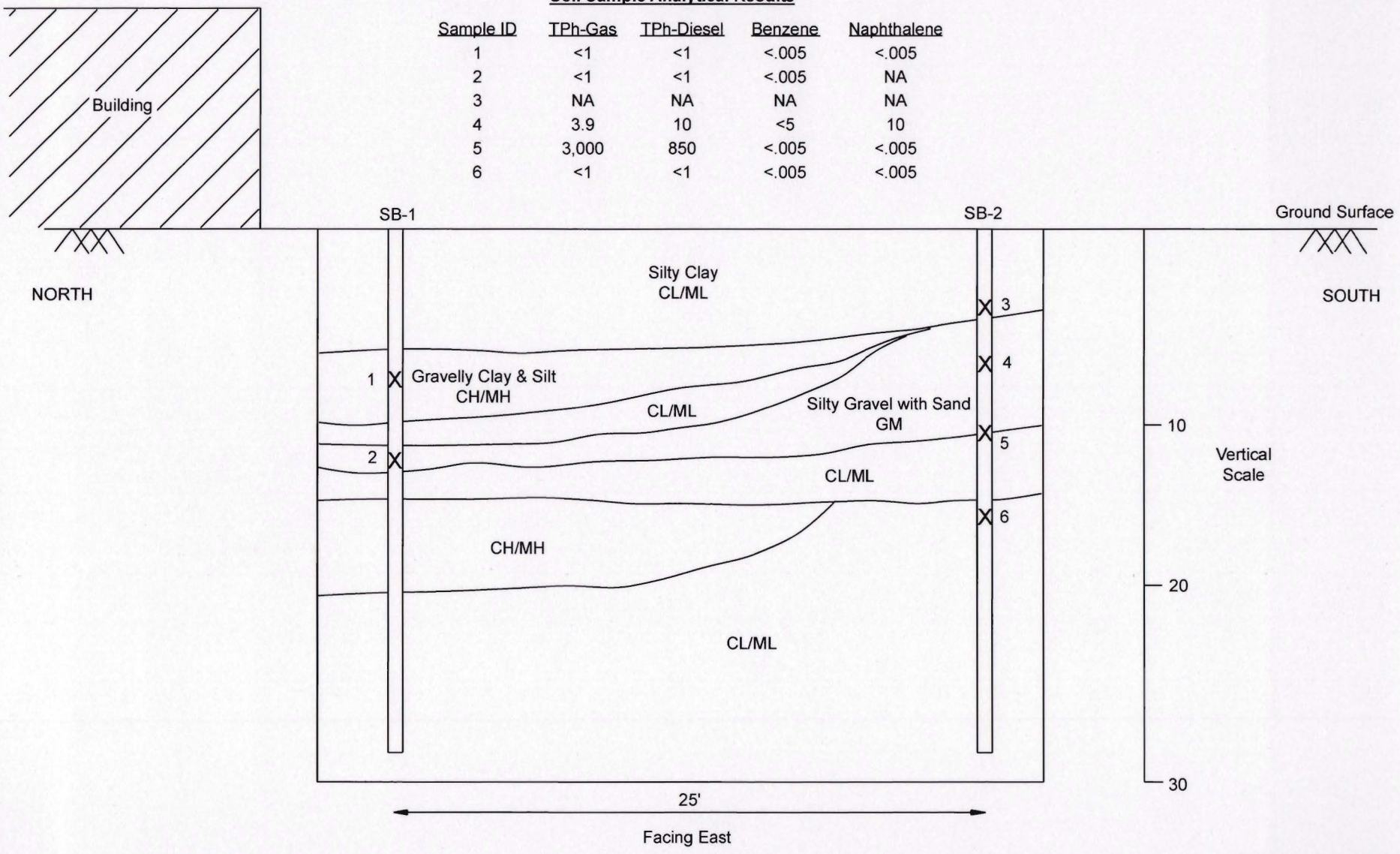
Legend

FIGURE 2
Site Layout



Soil Sample Analytical Results

Sample ID	TPh-Gas	TPh-Diesel	Benzene	Naphthalene
1	<1	<1	<.005	<.005
2	<1	<1	<.005	NA
3	NA	NA	NA	NA
4	3.9	10	<5	10
5	3,000	850	<.005	<.005
6	<1	<1	<.005	<.005



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PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	Date: March 2015
Location: 6200 Shattuck Ave, Oakland	
Drawing By: DLG	Scale: None

Legend

X Soil Sample Location

FIGURE 3
Geologic Cross-Section

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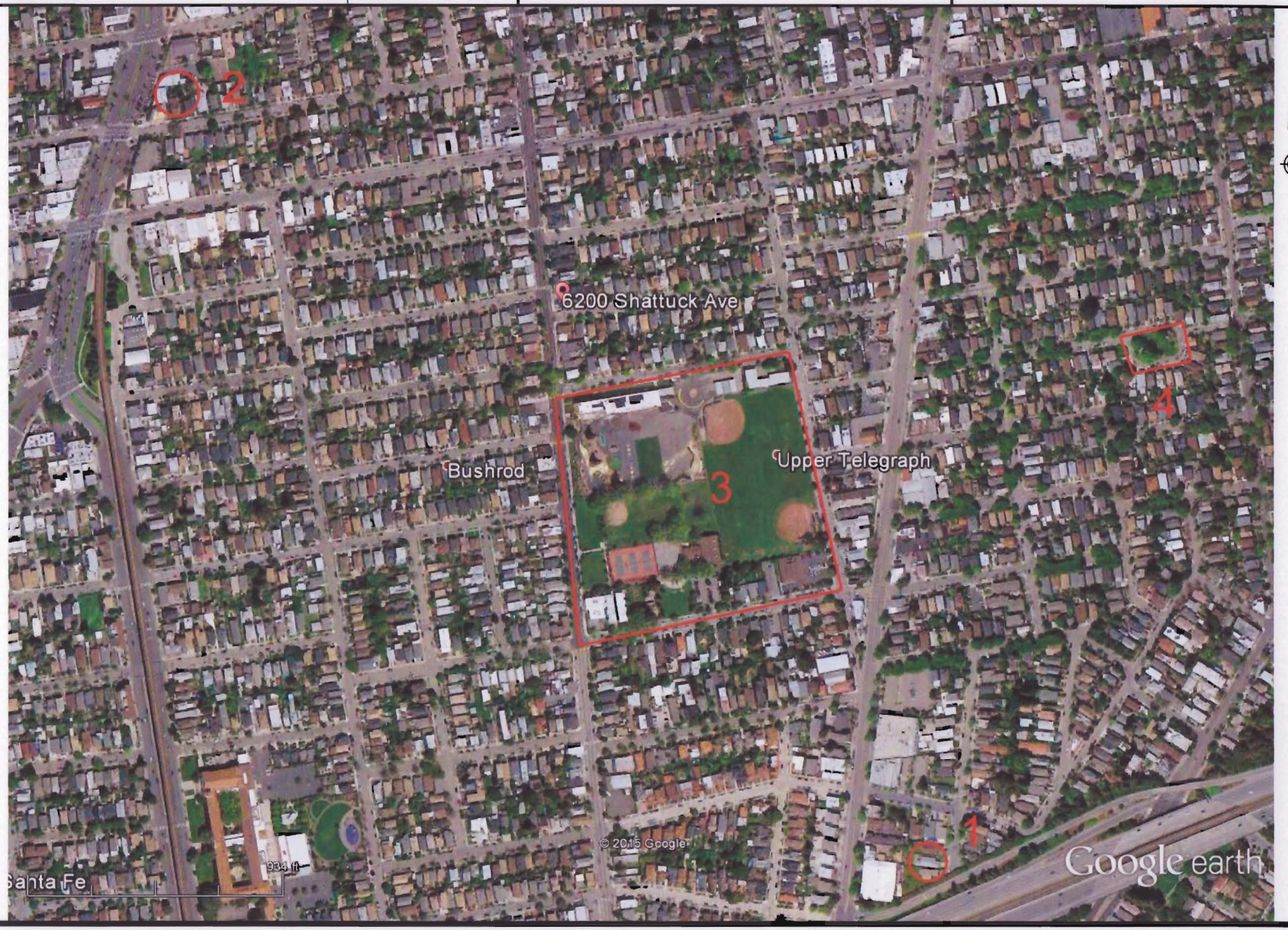
PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** March 2015
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** NA

Legend

1 - Domestic Well
2 - Irrigation Well
3 - Sankofa Academy
4 - Colby Park

FIGURE 4
Nearby Sensitive Receptors



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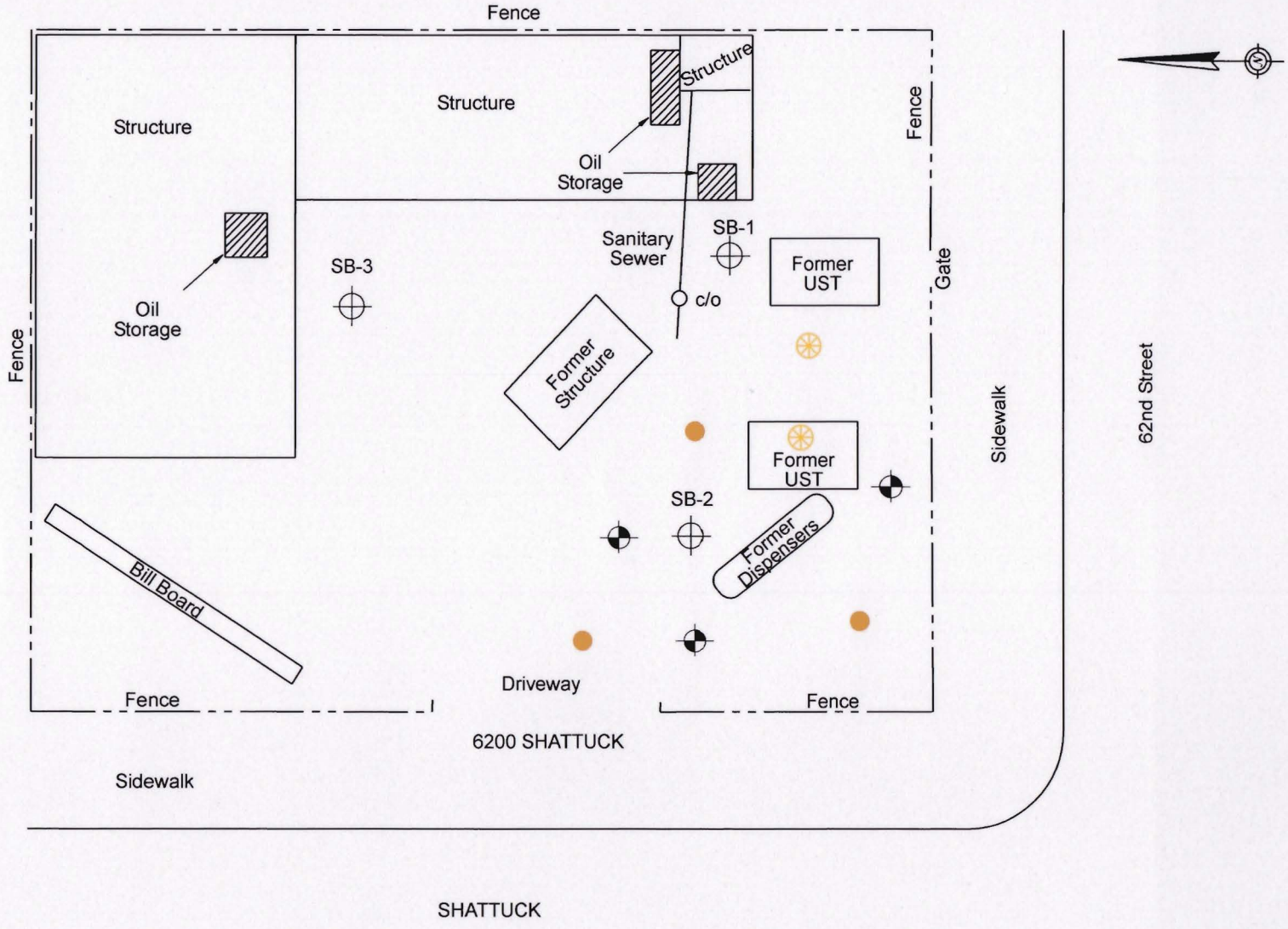
PO Box 5891, Vacaville, CA 95696

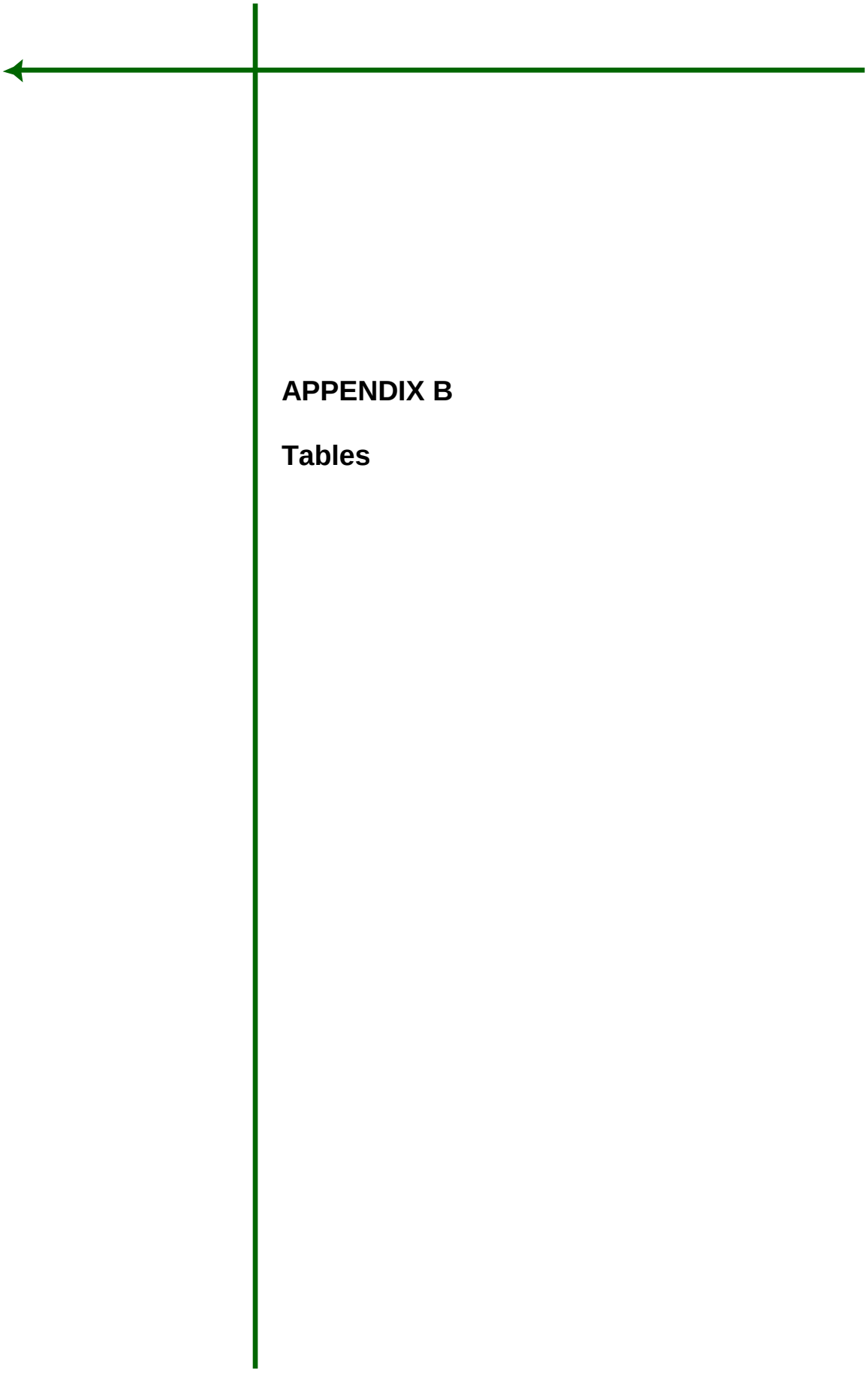
Project Name: Automasters	**Date:** March 2015
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** NA

Legend

- Proposed Monitoring Well
- Proposed Soil Boring
- Proposed Shallow Soil Sample (Backfill)

FIGURE 5
Proposed Monitoring Well and Soil Sampling Locations





APPENDIX B

Tables

TABLE 1 - SITE CONCEPTUAL MODEL
Automasters
6200 Shattuck Ave, Oakland
March 2015

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Geology and Hydrogeology	Regional	The Site is located within the San Francisco Bay structural depression of the Coast Ranges Physiographic Province, within the Oakland Sub-Area of the East Bay Plain. The Site is situated in a relatively flat area between the San Francisco Bay and the Oakland Hills. Bedrock in the area consists of sedimentary, metasedimentary, volcanic, and intrusive rocks from the Jurassic through Paleozene geologic periods. Quaternary-age marine and alluvial sediments ranging in thickness from 300 to 700 feet cover the bedrock. Near the surface this Site is underlain by Holocene alluvium and marsh deposits comprised of silts and clay. The Site lies within the Berkeley Alluvial Plain sub-area of the East Bay Plain groundwater basin. The primary water-bearing unit in this area is comprised of unconsolidated alluvial deposits from the Late Quaternary period. There is also a secondary, older, semi-consolidated deposit from the Neogene-Quaternary period. Groundwater within these deposits is primarily confined although some of the aquifers are unconfined. Throughout most of the Alameda County portion of the East Bay Plain the general direction of groundwater flow follows the surface topography and runs from east to west, i.e. from the Hayward Fault to the San Francisco Bay. Flow direction and velocity are occasionally influenced by buried stream channels that typically are oriented in an east to west direction.	None	N/A
	Site	Soil types encountered during site investigation activities consisted predominantly of silty clay to clayey silt with some sands and gravels to 36 feet below ground surface (bgs) and stiff clay from 36 feet to 48 feet bgs. The two borings advanced by Pangea closest to the former USTs and dispenser islands had a distinct sand and gravel lens at 11 to 12 feet bgs. Boring logs of the three Pangea soil borings are included in *Attachment N*. The only Site-specific information regarding depth to groundwater is the fact that when SB-2 was allowed to stand open overnight groundwater rose to 8 feet bgs by the next morning. Assuming that this is an unconfined or perched aquifer, it is likely that the depth to first encountered groundwater underlying the Site was approximately 8 feet bgs in June 2006. The depth to first groundwater at two nearby sites ranges from 5 to 18 feet bgs, supporting this assumption that the 8-foot depth to water observed in the SB-2 borehole was indicative of Site conditions at that time.	1. Depth to First-Encountered Groundwater	Determine During 2015 RI

TABLE 1 - SITE CONCEPTUAL MODEL
Automasters
6200 Shattuck Ave, Oakland
March 2015

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Surface Water Bodies		The nearest surface water body is Claremont Creek, located approximately 0.8 miles northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity. The San Francisco Bay is located approximately 2 miles west of the Site.	None	N/A
Nearby Wells		A well survey of the area performed by Woodward Clyde Consultants (WCC) in 1986 found five wells within a one mile radius of the Site. Two of these wells are (or were) used for industrial purposes, two for irrigation, and one for domestic purposes. No municipal wells were identified anywhere near the Site. The closest well is the irrigation well at 3215 Adeline Street in Berkeley, approximately 1,340 feet west-northwest of the Site. The only other well within a 2000-foot radius of the Site is the domestic well, which is located 1,800 feet south-southeast (cross-gradient) from the Site.	None	N/A
Release Source and Volume		The two USTs removed in 1986 comprise the only known release mechanism impacting soil and groundwater underlying this Site. The surrounding area is primarily residential and there are no current or former UST cases within 1,000 feet of the Site listed on GeoTracker. It is not known whether the UST release was from the piping, dispensers, or USTs themselves. Based on the location of SB-2 and the 11-foot depth at which significant contamination was encountered, it is logical that the release occurred from the USTs. There is no known history of leaks or spills from the aboveground waste oil storage tank or other aspects of the automotive repair operation. The fact that SB-3 was clean is a good indication that there are no other release mechanisms at the Site. There remains the potential, however, that other sources such as abandoned USTs, sumps or lifts are present at the Site. The volume of this release is very difficult to ascertain.	2. Other potential release sources	N/A
LNAPL		There are currently no monitoring wells located at the Site. Light non-aqueous phase liquids (LNAPL) were not observed in the groundwater “grab” sample collected from SB-2. The concentration of TPH-g in one soil sample collected from this borehole (3,000 mg/kg) suggests that it is conceivable that LNAPL are present.	3. Need monitoring wells at the Site	Install monitoring wells in the vicinity of SB-2
Source Removal Activities		It is reported that contaminated soil between the USTs was excavated and transported offsite for disposal. No records are available regarding the quantity or final destination of this soil.		

TABLE 1 - SITE CONCEPTUAL MODEL
Automasters
6200 Shattuck Ave, Oakland
March 2015

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Contaminants of Concern		Based on the information available from the Site owner and the Pangea report, contaminants of concern (COCs) are limited to TPH-g and BTEX compounds. The diesel and motor oil concentrations reported in a groundwater "grab" sample from SB-2 are not considered significant from the standpoint of achieving case closure under the LTCP. MtBE and other fuel oxygenates/additives were all reported as N.D. at the standard method detection limits in this groundwater sample and in all soil samples collected from the 3 boreholes.	None	NA
Petroleum Hydrocarbons in Soil		Based on the lack of any detectable concentrations of COCs in SB-1 and SB-3, it is believed that the lateral extent of soil contamination is relatively limited. The low concentrations of COCs in soil samples from SB-2 at 8 and 16 feet bgs suggest that the vertical extent is also limited, perhaps confined to the sand and gravel layer 11-12 feet bgs and the silty clay immediately below.	5. Lateral and vertical extent of soil contamination	Determine during 2015 RI
Petroleum Hydrocarbons in Groundwater		The only evidence of groundwater contamination is based on a grab sample collected from the SB-2 borehole. Grab samples frequently contain higher COC concentrations than samples collected from a properly developed well, so the nature and extent of groundwater impact as a result of this release is essentially unknown.	6. Nature and extent of groundwater contamination	Determine during 2015 RI

TABLE 1 - SITE CONCEPTUAL MODEL
Automasters
6200 Shattuck Ave, Oakland
March 2015

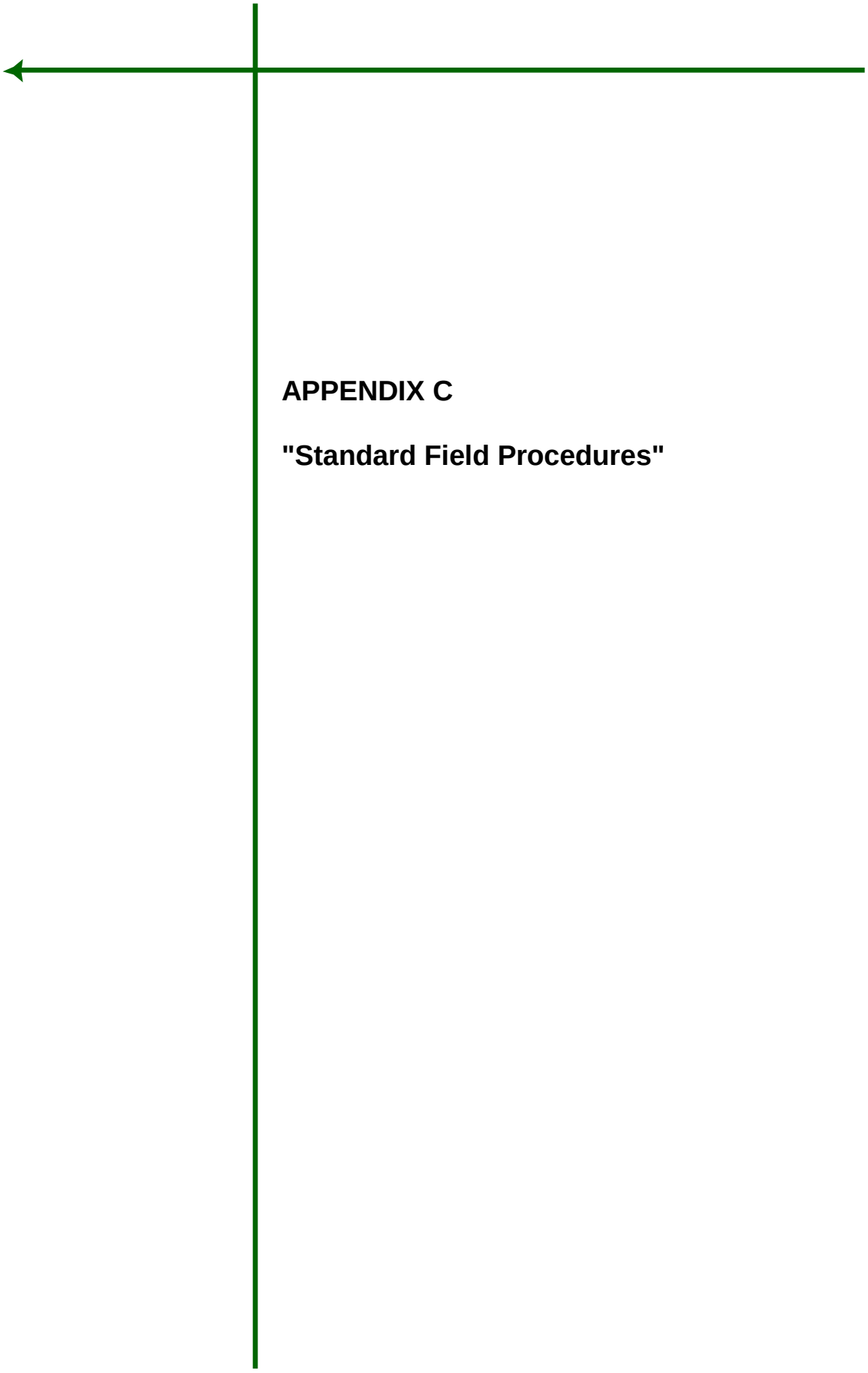
SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Risk Evaluation		The Site is currently used as an independent automotive repair facility. 6200 Shattuck Partners, LLC would like to proceed with development of the Site, involving demolition of the two existing garage buildings and construction of a mixed-use commercial and residential building. No data has been generated regarding soil vapor conditions at the Site. Based on the soil data from 2006, the only potential onsite receptor would be construction workers exposed to gasoline vapors while excavating into contaminated soil during Site development activities. Even this exposure is unlikely since the identified contamination is 11 feet bgs and the proposed residential development does not include an underground parking garage. The homes and small commercial establishments west of the Site are located downgradient and are considered the only likely offsite receptors. The probability of this release having an impact on these receptors is very low based on the fact that significant concentrations of COCs were only found at a depth of 11 feet bgs. A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites. Other potential receptors within 2,000 feet of the Site include the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site, and Colby Park, located 1,800 feet east of the Site. Based on the known direction of groundwater flow in the area these receptors are cross-gradient and upgradient of the Site, so it is highly unlikely that they would be impacted by this release. Identified potential human receptors include residents at the Site and nearby homes and apartments, workers and patrons of nearby commercial establishments, and construction workers involved with Site development. Once the 2015 Remedial Investigation has been completed it will be possible to perform a thorough evaluation of whether Site conditions might impact any of these receptors. As described in the LTCP, the data generated will be used to evaluate whether or not the following potential exposure pathways are complete for any of the identified receptors: incidental ingestion, dermal contact, dust inhalation, and vapor inhalation. If there are complete pathways that require mitigation, a Remedial Action Plan plan will be prepared and submitted to ACEH for approval.	7. Potential complete exposure pathways for identified receptors 8. Potential of receptors not yet identified	Determine during 2015 RI Perform site-specific Sensitive Receptor Survey

Table 2 - Data Gap Summary and Proposed Investigation
Automasters
6200 Shattuck Ave, Oakland
March 2015

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
1	Depth to first encountered groundwater (DTW)	Install three groundwater monitoring wells and measure dtw in each	Three wells are sufficient to determine dtw and groundwater gradient	Measure DTW in all three wells, determine groundwater gradient
2	Other potential release sources	Additional archival investigation and thorough Site inspection for visual evidence of additional USTs or other potential release sources	Site inspection by experienced engineer can uncover evidence of other USTs , sumps, lifts, etc. no longer in use at the Site	Visual inspection
3	Presence or absence of LNAPL	Using bailers specifically designed to capture and measure FPP to sample each of the three wells for LNAPL	LNAPL can easily be measured using teflon bailers which have been specifically designed to effectively capture and measure FPP	Visual inspection, product thickness measurement
4	TPH-g, Benzene and MtBE concentrations in groundwater	Install three groundwater monitoring wells and sample each well a minimum of two occasions (after installation and one to three months later)	The LTCP establishes specific thresholds for benzene and MtBE concentrations in groundwater that are used to evaluate whether case closure is warranted under the policy. Even though MtBE was not detected in the previous investigation, one round of analyses including MtBE is necessary	TPH-g, BTEX compounds and MtBE
5	Lateral and vertical extent of soil contamination	Install three groundwater monitoring wells and two to four additional soil borings. Figure 4 shows the locations of the wells and soil borings	The soil boring locations surround the area of known contamination (SB-2 the area between the former USTs)	TPH-g, BTEX compounds in soil and MtBE at depths to be determined by field screening with PID and visual observations
6	Nature and extent of groundwater contamination	Start with installation of three groundwater monitoring wells and sampling of each well a minimum of two occasions (after installation and one to three months later).; additional RI activities as warranted based on these results	Three wells are adequate to determine the DTW and groundwater gradient	TPH-g, BTEX compounds and MtBE in all three wells

Table 2 - Data Gap Summary and Proposed Investigation
Automasters
6200 Shattuck Ave, Oakland
March 2015

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
7	Potential complete exposure pathways for identified receptors	Await results of RI, determine whether soil vapor survey is required in order to satisfy LTCP criteria	Only known contamination is 11 feet bgs, too deep to require soil vapor survey	Unknown at this time
8	Potential of receptors not yet identified	Perform site-specific Sensitive Receptor Survey	May be required if RI determines that contamination extends off-site	N/A



APPENDIX C

"Standard Field Procedures"

STANDARD FIELD PROCEDURES
GROUNDWATER MONITORING

The methods and procedures used by West & Associates Environmental Engineers, Inc. for groundwater sampling are described below. These procedures for groundwater sampling are designed to provide consistent and reproducible results and ensure that the overall objectives of the monitoring program are achieved.

The following documents have been used as guidelines for the development of these procedures:

- *Leaking Underground Fuel Tank Field Manual,* State of California Leaking Underground Fuel Tank Task Force (revised 1989, as updated by memoranda)
- *Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities* (EPA-530/SW-611, August 1997)
- *RCRA Groundwater Monitoring Technical Enforcement Guidance Document* (OSWER 9950.1, September 1986)
- *Standard Guide for Sampling Groundwater Monitoring Wells* (ASTM, D 4448-85a)
- *Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites* (ASTM, D 5088-90)
- *Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)* (ASTM, D 4750-87)
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (EPA SW-846, Base Manual [3rd edition, November 1986], through Update III [June 1997])

HYDROLOGIC MONITORING

Before disturbing the water column, the static water level is measured in selected monitoring wells and piezometers.

The water level in wells and piezometers is measured with an electric depth to water gauge (DTWG) with cable markings at 0.01-foot increments. The water level is measured by lowering the sensor in to the monitoring well.

The DTWG is equipped with both visual and audible alarms. A sensitivity control compensates for very saline or conductive water. The electric sounder is decontaminated by washing with a detergent solution then rinsed with deionized water after each use. Depth to water is recorded to the nearest 0.01 foot on a field data form. The groundwater elevation at the monitoring well is calculated by subtracting the measured depth to water from the surveyed elevation of the top of the well casing. A witness mark on the casing is used as a fixed reference for make the depth to groundwater measurement.

FREE PHASE PRODUCT MEASUREMENT

The level and thickness of free phase floating hydrocarbon product in a well is measured using an interface meter and/or a clear bailer. The interface meter works on a principal similar to the electric DTWG, measuring both conductive and non-conductive liquid within the well. Floating product can also be measured using a clear, bottom-filling bailer. The bailer is lowered slowly in to the well until the bailer is approximately half submerged. The bailer is then retrieved from the well and the thickness of floating product in the bailer is measured. The thickness of floating product is recorded to the nearest 0.01 foot on the field data record form.

TOTAL WELL DEPTH

Total well depth is measured in monitoring wells Scheduled for sampling by lowering a probe to the bottom of the well and recording the depth. Total well depth, used to calculate purge volumes and to determine whether the well screen is partially obstructed by silt, is recorded to the nearest 0.1 foot on the Field Data Record form.

GROUNDWATER SAMPLE COLLECTION

Groundwater sample collection procedures include equipment cleaning, well purging, and sampling.

Equipment Cleaning

Before sampling event all downhole equipment, or items which come in contact with groundwater, are dissembled and cleaned thoroughly with detergent solution and then rinsed with deionized water. Any parts that may absorb contaminants, such as plastic pump valves, bladders, etc., are cleaned or replaced.

For electric submersible pumps used for well purging, all external pump surfaces and the discharge tube are cleaned prior to lowering the pump in to the water column. An aqueous solution of Liquinox (phosphate-free detergent), followed by deionized water, is run through the pump and discharge tubing to clean internal surfaces. Water is prevented from draining back through the pump by an inline check valve located immediately above the pump.

Monitoring Well Purging

Before sampling, standing water in the casing and sand pack is purged from the monitoring well using either a positive displacement polyvinyl chloride (PVC) hand pump, a portable or dedicated electric submersible pump, a PVC or polyethylene bailer, a centrifugal pump, a dedicated pneumatic bladder pump, or a peristaltic pump. Field measurements of pH, specific conductance, turbidity, and temperature are made at casing volume intervals during purging and recorded on field data sheets. The field measurements are used as indicator parameters to determine when a representative sample can be collected. Purging is generally performed until stabilization (± 10 percent variation) of the indicator parameters takes place. The amount of water purged before sampling is greater than or equal to three casing volumes, unless the well is dewatered. If a well dewaters during purging, it will be allowed to recharge for up to 24 hours; samples will be collected as soon as sufficient volume is available. If a well does not recharge sufficiently within 24 hours, the well will be considered dry for that sampling event.

Monitoring Well Sampling

Groundwater samples are collected using a Teflon bailer, an individually sealed disposable polyethylene bailer, a dedicated electric submersible or pneumatic bladder pump, or inline through a peristaltic pump with clean tubing. Wells are sampled in progression from "clean wells" to wells yielding poorer-quality water. The purpose of this procedure is to reduce the potential for cross contamination of wells by purging or sampling equipment.

Laboratory supplied clean glass bottles of a t least 40 milliliters volume fitted with Teflon-lined septa are used to collect samples for volatile organic analyses. These bottles are completely filled to prevent air from remaining in the container. A positive meniscus forms when the bottle is completely full. A convex Teflon®-lined septum is placed over the positive meniscus to eliminate air. After capping, the bottles are inverted and tapped to verify that they do not contain air bubbles. The sample containers for other parameters are filled, filtered as required, and capped.

To determine dissolved concentrations of metals, appropriate field filtration techniques are used. When using a bailer for sampling, a transfer vessel is filled with sample and fitted with a disposable 0.45-micron acrylic copolymer filter. Air pressure is applied to the transfer vessel forcing the sample through the filter; the filtrate is then directed in to the appropriate containers. If a pump is used for sampling, the filter is placed inline at the end of the discharge tubing and the filtrate directed into the appropriate containers. Each filter is used once and discarded.

SAMPLE PRESERVATION AND HANDLING

The following section specifies sample containers, preservation methods, and sample handling procedures.

Sample Containers and Preservation

Sample containers and preservatives vary with each type of analytical parameter. Container types and materials are selected to be non-reactive with the particular analytical parameter tested. Sample preservatives used are consistent with regulatory guidelines and specified analytical methods.

Sample Handling

All sample containers are labeled immediately following collection. Samples are kept chilled with blue ice until received by the laboratory. At the time of sampling, each sample is logged on a chain-of-custody record which accompanies the samples to the laboratory. Water samples are transported from the site by the sampler.

Upon receipt of the samples by laboratory personnel, the chain-of-custody record is signed and released, and a unique sample identification number is assigned to each sample container. This number is recorded on the chain-of-custody record and is used to identify the sample in all subsequent internal chain-of-custody and analytical records. The manger of the subcontracted laboratory ensures that the holding times for requested analyses are not exceeded.

SAMPLE DOCUMENTATION

The following procedures are used during sampling and analysis to provide chain-of-custody control during sample handling from collection through storage. Sample documentation includes the use of the following:

- Standardized field data record forms to document sampling activities in the field
- Labels to identify individual samples
- Chain-of-Custody record sheets for documenting possession and transfer of samples

Water Sample Field Data Record Forms

In the field, the ampler records the following information on a standardized water sample field data record form:

- Location
- Project Number
- Client Name
- Sample ID

- Name of Sampler
- Regulatory Agency
- Date and Time
- Pertinent Well Data (e.g., casing diameter, depth to water, well depth)
- Calculated and Actual Purge Volumes
- Purging Equipment Used
- Sampling Equipment Used
- Appearance of Sample (e.g., color, turbidity, sediment)
- Results of Field Analyses (e.g., temperature, pH, specific conductance)
- Purge Water Containment
- General Remarks, Including Well Accessibility and Integrity

The sampler signs the field data sheets.

Labels

Sample labels contain the following information:

- Project Number
- Sample ID (e.g. well designation)
- Sampler's Initials
- Date and Time of Collection
- Type of Preservative Used

Sampling and Analysis Chain-of-Custody Record

The sampling and analysis chain-of-custody record, initiated at the time of sampling contains, but is not limited to, the well number, sample type, analytical request, date of sampling, and the name of the sampler. The record sheet is signed and dated by the sampler when transferring the samples. Custody transfers are recorded for each individual sample. The number of custodians in the chain of possession is dept to a minimum. A copy of the sampling and analysis chain-of-custody record is returned to West & Associates Inc. for inclusion with analytical results.

FIELD QUALITY ASSURANCE PROCEDURES

Field quality assurance procedures are specified for each sampling event. Field quality assurance typically includes documenting field instrument calibration, and collecting and analyzing trip blanks, field blanks, equipment blanks, and duplicate samples.

The analysis of trip, field, and equipment blanks, prepared with organic-free water, are used to detect contamination introduces through sampling procedures, external field conditions, sample transportation, container preparation, sample storage, and the analytical process.

Trip blanks are prepared at the same time and location as the sample containers for a particular sampling event. Trip blanks accompany the containers to and from that event, but at no time are they opened or exposed to the atmosphere. Typically, one trip blank for volatile organic parameters will be included per sampling event.

Field blanks are prepared in the field so they are exposed to the ambient atmosphere at a specified monitoring point during sample collection to determine the influence of the external field conditions on sample integrity. Equipment blanks are prepared in the field to ensure that sampling equipment does not cross-contaminate water samples. Organic-free water is run through the properly cleaned or unused (if disposable) sampling equipment, collected and analyzed. One field blank or equipment blank for volatile organic parameters will typically be included per sampling event.

Duplicate samples are collected to assess sampling and analytical precision. For each sampling event including more than six wells, duplicate monitoring well samples will typically be collected at a frequency of 10 percent. Where possible, field duplicates are collected at sampling points known or suspected to contain chemical constituents of interest. Duplicates are packed and shipped blind to the laboratory for analysis with the samples from that particular event.

LABORATORY PROCEDURES

West & Associates Environmental Engineers, Inc. specifies analytical methods and procedures to ensure that proper analytical methods are applied; analytical results are accurate, precise and complete; and the overall objectives of the monitoring program are achieved.

Samples are analyzed in accordance with accepted analytical procedures by laboratories certified by the California Department of Health Services. The following publications are the primary references for analytical procedures:

- *Leaking Underground Fuel Tank Field Manual,* Stat of California Leaking Underground Fuel Tank Task Force (revised 1989, as updated by memoranda)
- *Methods for Chemical Analysis of Water and Wastes* (EPA 600/4-79-020, Revised March 1983)
- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA 821-B-96-005)
- *Standard Methods for the Examination of Water and Wastewater,* APHA, AWWA, WPCF, 20th edition.
- *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (EPA SW-846, Base Manual [3rd edition, November 1986], through Update III [June 1997])

LABORATORY QUALITY ASSURANCE PROCEDURES

Laboratory quality assurance (QA) procedures include those required under the DTSC hazardous waste testing program. Laboratory-specific procedures are included in the laboratory's QA manual, including the use of method blanks, surrogate spikes, matrix spikes and matrix spike duplicates.

Method blanks are analyzed daily to assess the effect of the laboratory environment on the analytical results. Method blanks are performed for each parameter analyzed.

Each sample analyzed for organic parameters contain surrogate spike compounds. The surrogate recovery is used to determine if the analytical instruments are operating within limits. Surrogate recoveries are compared to control limits established and updated by the laboratory based on its historical operation.

Matrix spikes are analyzed at a frequency of approximately 10 percent. Matrix spike results are evaluated to determine whether the sample matrix is interfering with the laboratory analysis and provide a measure of the accuracy of the analytical data. Matrix spike recoveries are compared to control limits established and updated by the laboratory based on its historical operation.

Laboratory quality control (QC) data are included with the analytical results. This QC data includes method blanks, surrogate spike recoveries (for organic parameters only), matrix spike recoveries, and matrix spike duplicates.

APPENDIX D

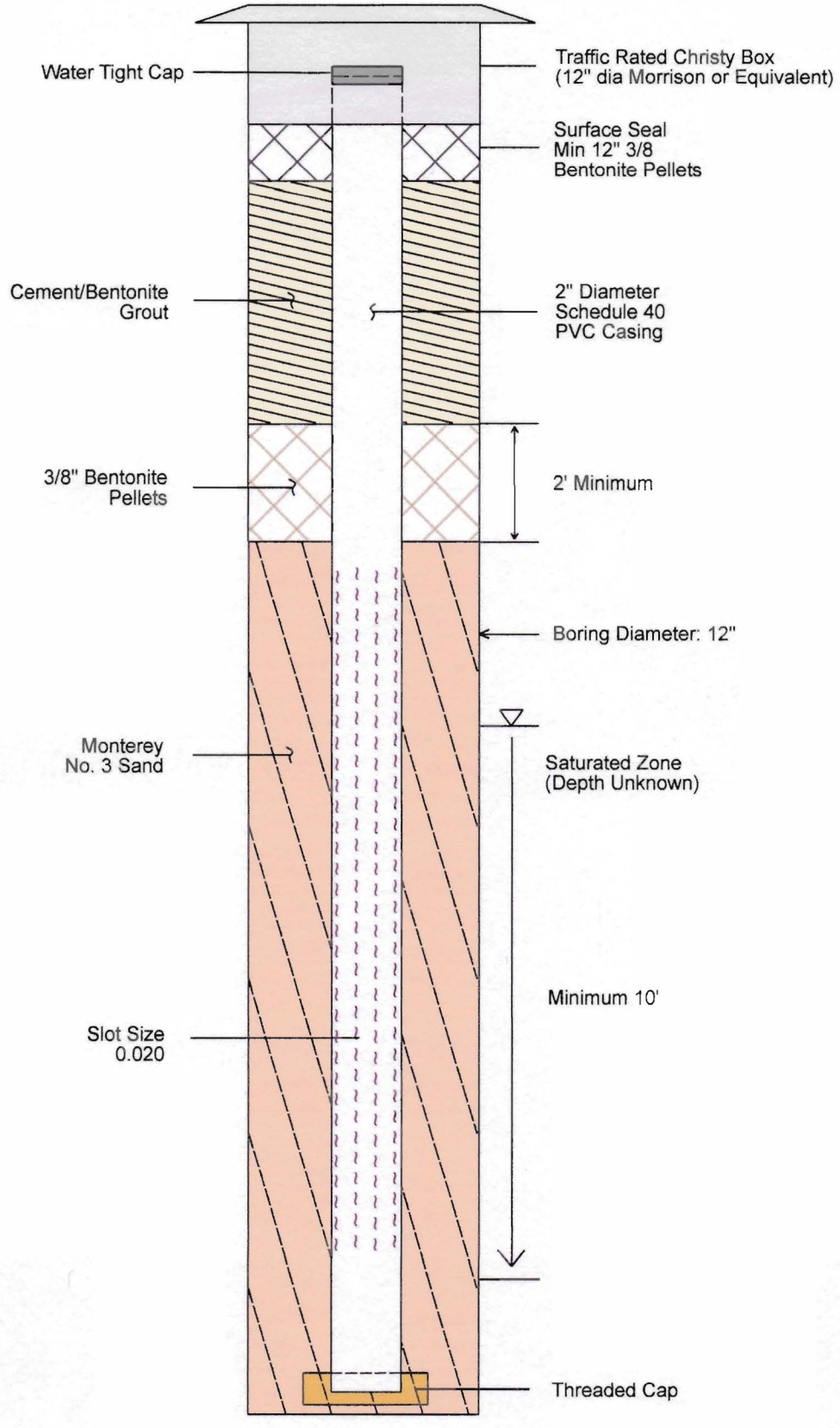
Monitoring Well Cross Section Design

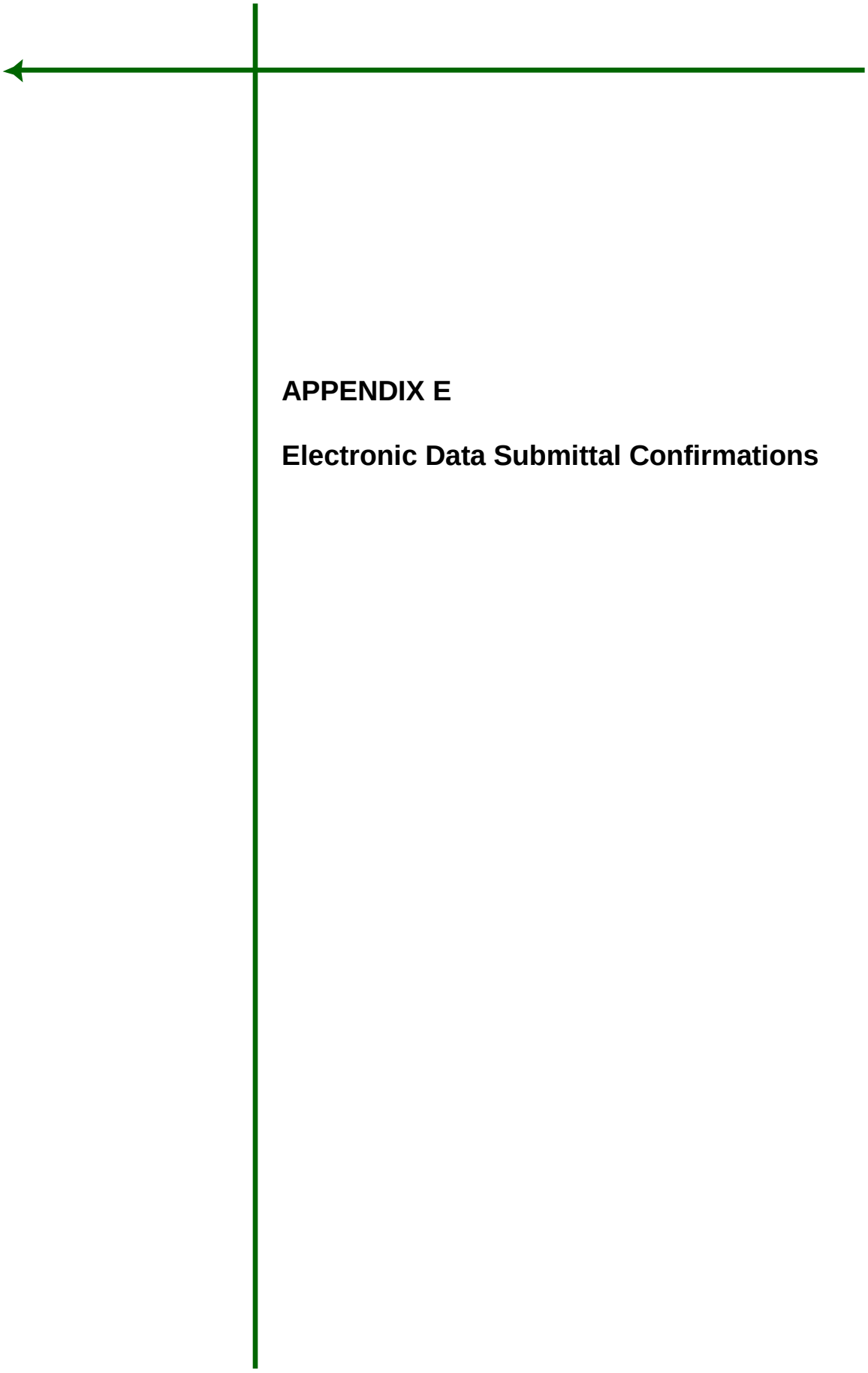
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** March 2015
Location: 6200 Shattuck Ave, Oakland	**Scale:** NA
Drawing By: DLG	

Groundwater Monitoring Well Cross Section





APPENDIX E

Electronic Data Submittal Confirmations

Your GEO_REPORT file has been successfully submitted!

Submittal Type:	**GEO_REPORT**
Report Title:	**Site Conceptual Model & Remed Investigation WP**
Report Type:	**Site Investigation Workplan**
Report Date:	**4/9/2015**
Facility Global ID:	**T0619748201**
Facility Name:	**AUTOMASTERS**
File Name:	**Site Conceptual Model & Remed Invest WP - Automaters.pdf**
Organization Name:	**West & Associates Environmental Engineers, Inc.**
Username:	**WESTENGINEERS**
IP Address:	**38.102.44.215**
Submittal Date/Time:	**4/13/2015 9:52:39 AM**
Confirmation Number:	**5794973790**