December 30, 2016

Johnny Browning
6200 Shattuck Partners, LLC
15 Mulberry Court, #5
Belmont, CA 94002
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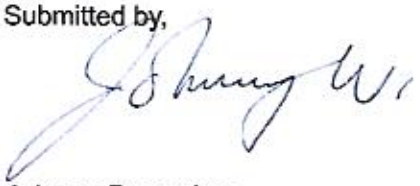
RECEIVED
By Alameda County Environmental Health 2:05 pm, Jan 12, 2017

Re.: Addendum to Data Gap Investigation Work Plan and Site Conceptual Model
Automasters
6200 Shattuck Avenue
Oakland, California
ACEH Case #RO0002935

I declare, that to the best of my knowledge at the present time, 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.

ADDENDUM TO
DATA GAP INVESTIGATION WORK PLAN
AND SITE CONCEPTUAL MODEL

Automasters
Leaking Underground Tank Site
6200 Shattuck Avenue
Oakland
Case No. RO0002935

Prepared For:
6200 Shattuck Partners LLC
Oakland

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

December 2016

California State Contractor's License No. 734244
PHONE: 707. 451.1360 • FAX: 707.447.0631 • PO BOX 5891 • VACAVILLE, CALIFORNIA 95696

ACKNOWLEDGMENTS

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

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

This Workplan Addendum 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; phone, 707.451.1360. Principal author is Mr. Brian W. West, PE. (Registered California Civil Engineer No. 32319 - expires 12/31/18.)

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APPENDICES

1.0 INTRODUCTION

West & Associates Environmental Engineers, Inc. (W&A) has prepared this Addendum to the August 2016 Data Gap Investigation Work Plan and Site Conceptual Model and (WP-SCM) for Automasters and 6200 Shattuck Partners, LLC, based on the comments included in the Alameda County Department of Environmental Health (ACDEH) directive letter dated November 29, 2016. The unauthorized release from the former underground storage tanks (USTs) at the Automasters site (the Site) has been assigned ACDEH Case #RO0002935. The Site is located at 6200 Shattuck Avenue in Oakland, California and is currently used as an independent automotive repair facility.

2.0 SITE BACKGROUND

In addition to the Site conditions and history described in the August 2016 WP-SCM, it is noted that ACDEH has expressed concerns regarding the possible "existence of another former UST pit or possibly a lack of precision of the locations of the former USTs and dispenser." This concern is the rationale behind addition of borings B-13, B-14 and B-15 as described in Section 6.0 and shown on *Figure 6*.

3.0 SITE CONCEPTUAL MODEL

The Site Conceptual Model submitted in the August 2016 WP-SCM has been amended to incorporate the request for groundwater grab samples rather than monitoring wells, revised/additional locations for these groundwater grab samples, three additional soil boring locations, one additional sampling location for potential waste oil spills, and additional analyses to be performed on soil and groundwater samples collected during this Site investigation. The revised SCM in *Table 1* addresses these issues and the ACDEH comments regarding both geophysical and utility surveys to be performed at the Site. Data gaps identified in the revised SCM are summarized along with the proposed investigation activities to close these gaps in the revised *Table 2*. These tables are included in *Appendix B*.

4.0 SENSITIVE RECEPTORS

Table 1 and *Table 2* have been amended to reflect the fact that the sensitive receptor survey performed for the Site will include an expanded utility survey to include any maps and other information available from the City of Oakland re: utility locations and depths, along with a procedure to determine utility locations if detailed maps are not available.

5.0 DATA GAPS

Data gaps identified in the ACDEH letter dated November 29, 2016 will be addressed as described in the revised *Table 2* and the additional site assessment activities described in Section 6 of this WP-SCM Addendum.

6.0 REMEDIAL INVESTIGATION WORK PLAN

The August 2016 WP-SCM is amended as follows:

- Eight additional soil borings are added (at the locations shown on *Figure 6* as B-8 through B15) to evaluate the potential for the presence of another former UST pit or other secondary source of subsurface contamination.

- In order to assess the potential for waste oil contamination, soil samples will be collected at both 3 feet bgs and 10 feet bgs from four locations as indicated on *Figure 7*.

- The shallow soil samples collected from borings WB-1, WB-2, WB-3 & WB-4 will be analyzed for semi-volatile organic compounds (SVOCs), including poly-aromatic hydrocarbons (PAHs), by EPA Method 8270 using the Selected Ion Monitoring (SIM) mode and CAM 5 metals (cadmium, chromium, lead, nickel and zinc) to determine whether waste oil spills have impacted shallow sub-surface soils adjacent to or underneath the building where waste oil has historically been stored.

- The three groundwater monitoring wells (MW-104, MW-105 and MW-106) proposed in our August 2016 'Data Gap Investigation Workplan' will be replaced groundwater grab samples collected from six areas on the south and west side of the Automasters site.

  As illustrated on *Figure 8*, three general locations designated as A, B & C, have been identified on the south side of the Automasters property and three locations designated as D, E & F, have been identified on the west side where temporary borings could be advanced to groundwater. The precise boring location within each of the six areas will be determined in the field based on site conditions. At each boring location, a direct push probe will be advanced into the saturated zone. A grab sample will be collected from groundwater accumulated in the probe. After the grab groundwater sample is collected, the probe will be retracted and the boring abandoned.

- The general area of the geophysical survey proposed to be performed is illustrated on *Figure 9*.

- The utility survey will include a description of the procedures to be followed if detailed utility maps are not available from the City of Oakland or other sources.

All four new figures are included in *Appendix A*.

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 ACDEH. 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 the approved Workplan
- A description of all field work performed
- Scaled site diagram accurately locating all monitoring well and soil boring 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-WP Addendum has been uploaded to the ACDEH web site per instructions included with the ACDEH letter requesting these documents. Once approved by ACDEH, it will be uploaded to the Automasters GeoTracker Domain, Global ID T0619748201. The upload certificate is presented in *Appendix D*.

APPENDIX A

Figures

WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

PO Box 5891, Vacaville, CA 95696

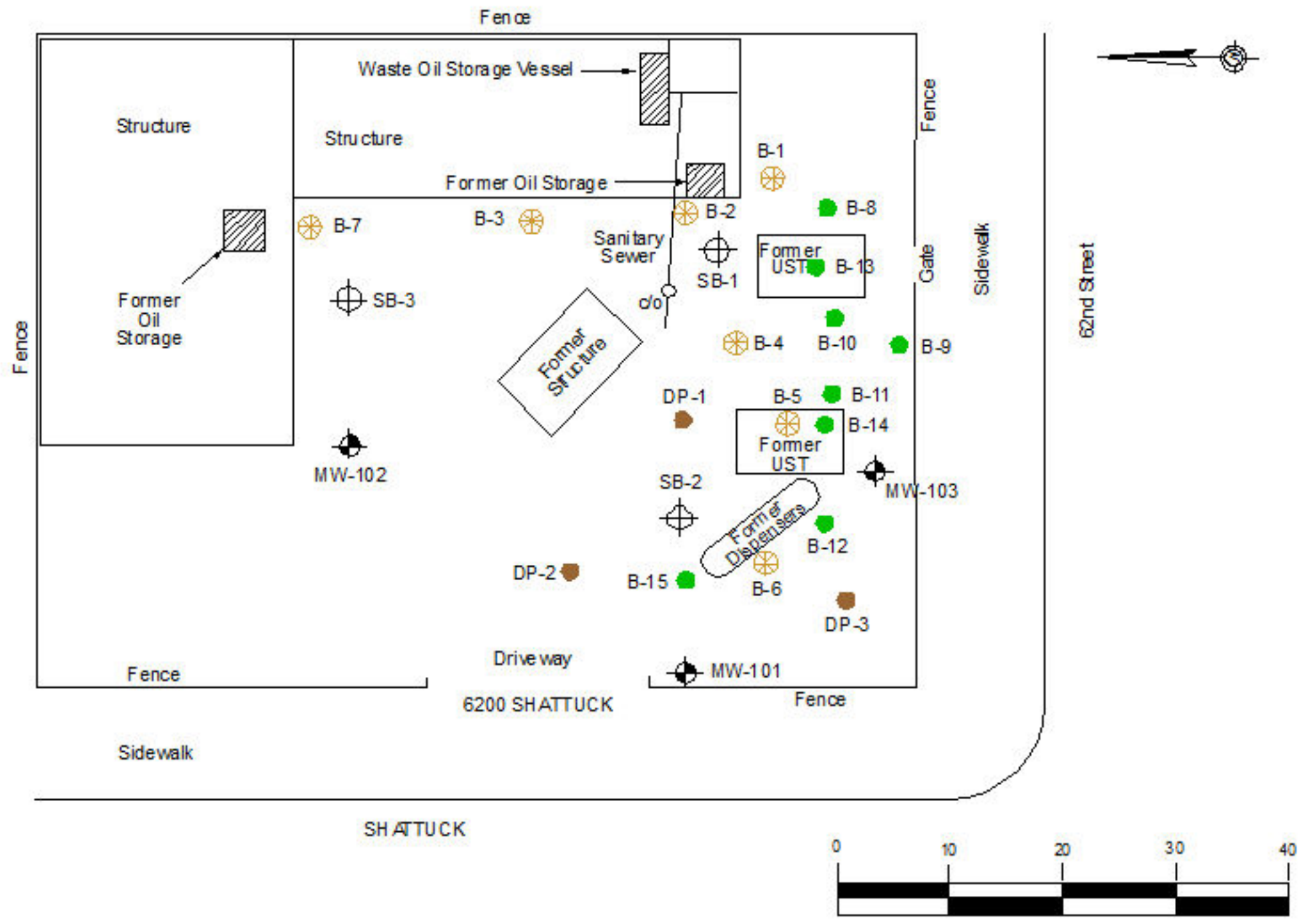
Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14ft

Legend

- Existing Groundwater Monitoring Well
- Pangea Boring (2006)
- Deep Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Proposed Soil Boring Location

FIGURE 6

Proposed Soil Borings



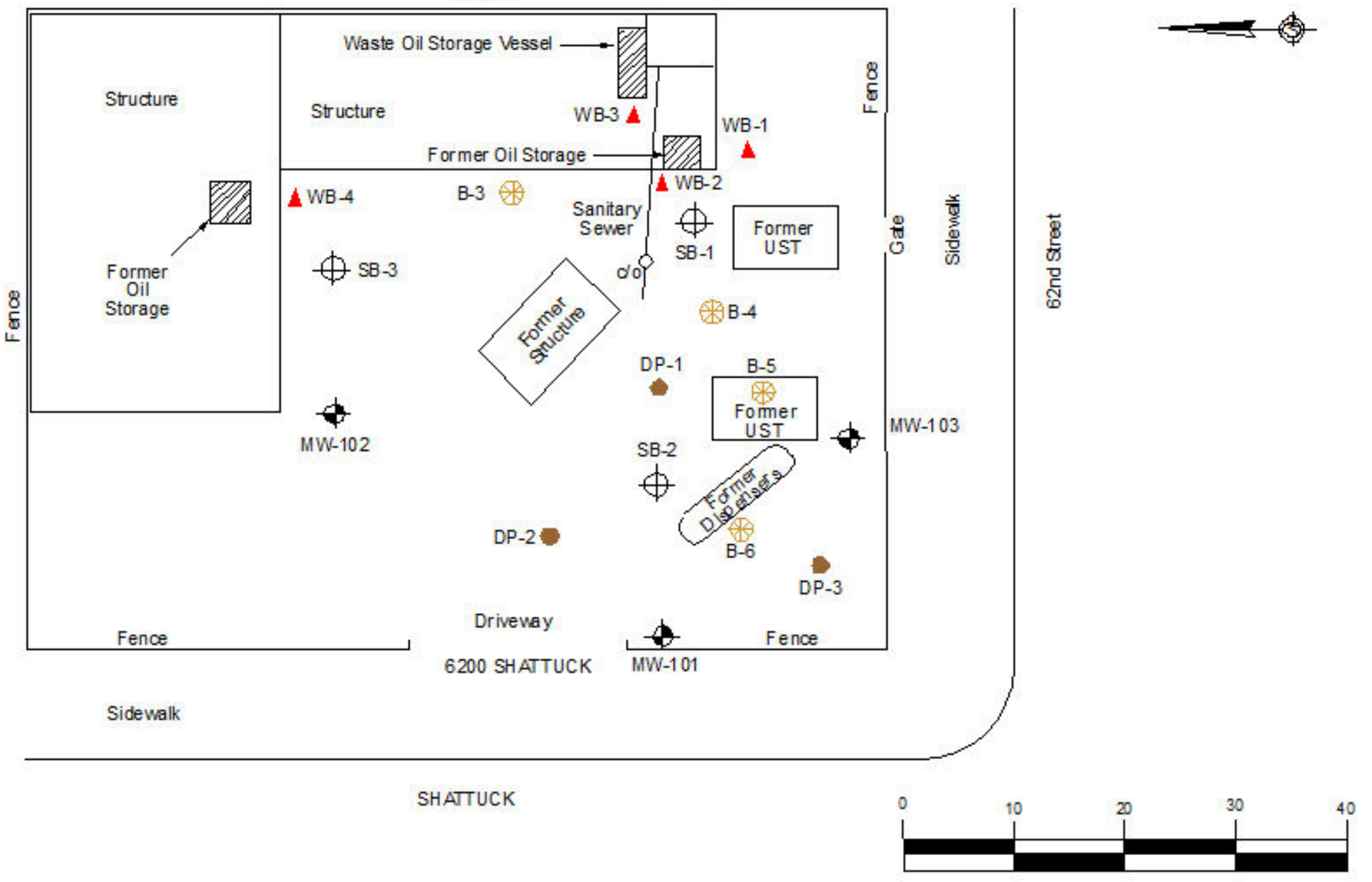
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS
PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14 ft

Legend

- Existing Monitoring Well
- Pangea Boring (2006)
- Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Proposed Waste Oil Contamination Soil Boring Locations

FIGURE 7
Proposed Soil Borings
Waste Water
Investigation



WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** See Below

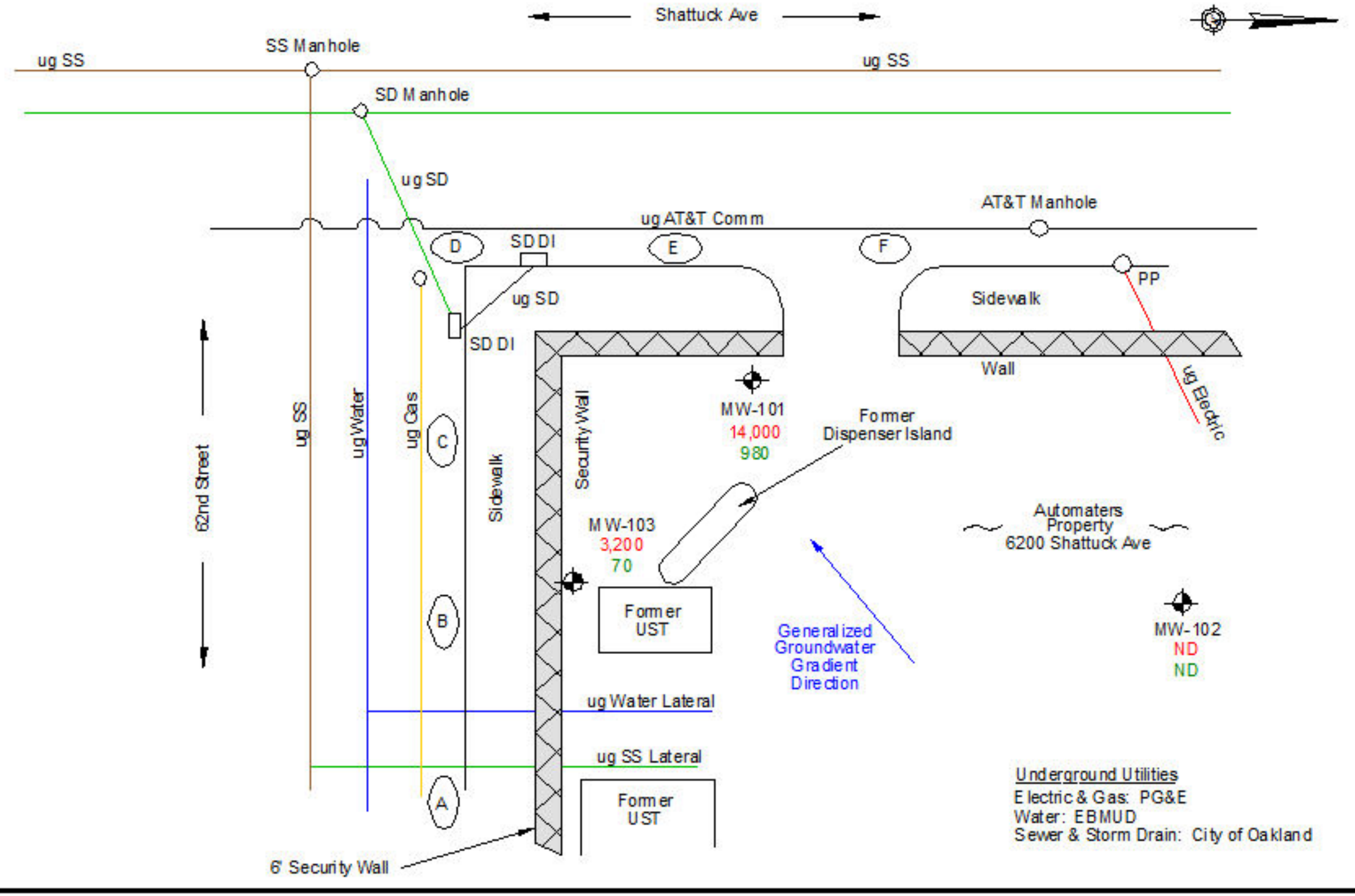
Legend

SD - Storm Drain
SS - Sanitary Sewer
DI - Drop Inlet
ug - Underground
MW - Monitoring Well
PP - Power Pole

(A) Grab Groundwater Collection Location

Groundwater Contaminant Concentrations
14,000 ug/l TPh-gas
980 ug/l Benzene
(July 2016)

FIGURE 8
Proposed Groundwater Grab Sample Collection Locations



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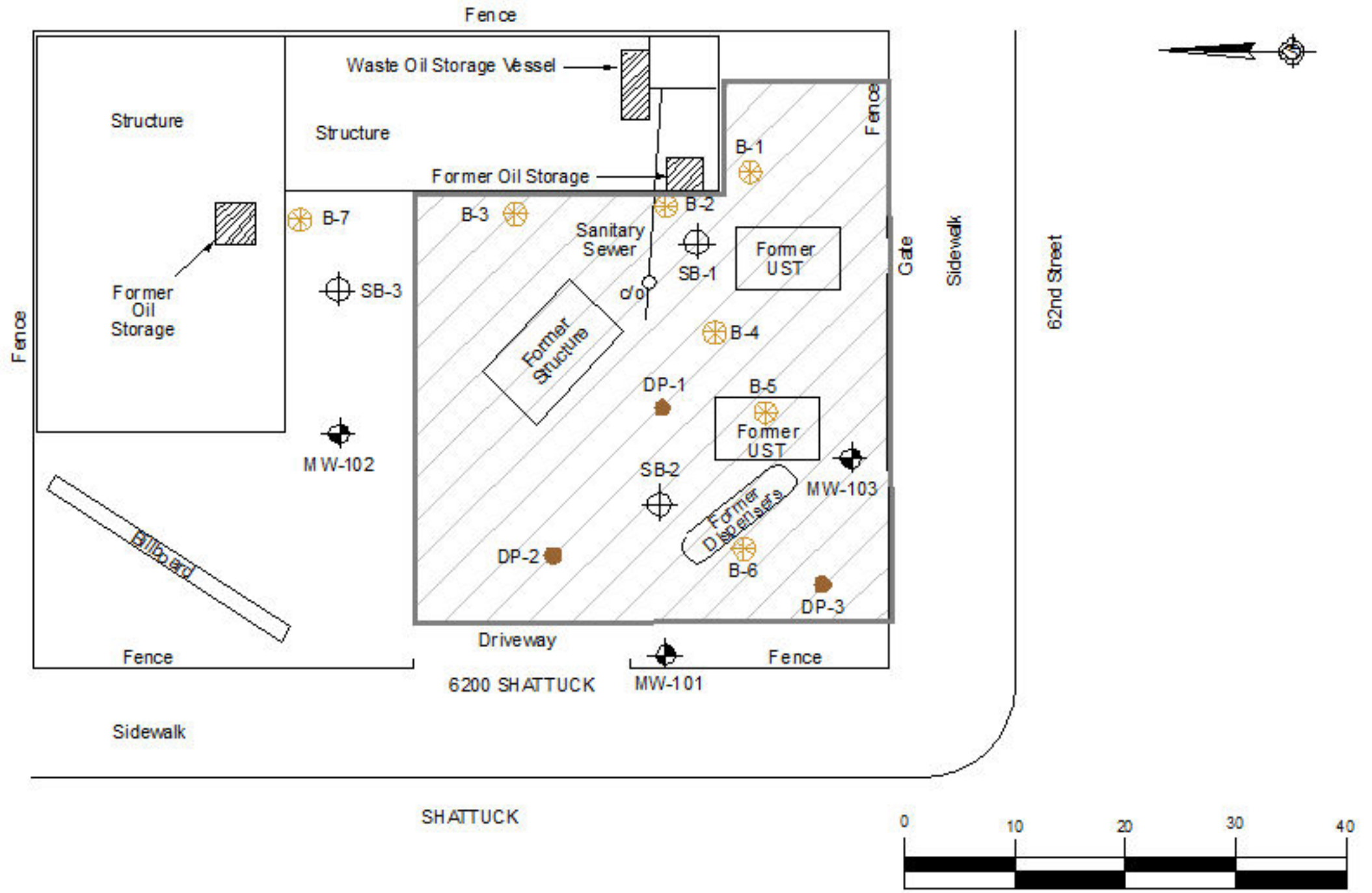
PO Box 5891, Vacaville, CA 95696

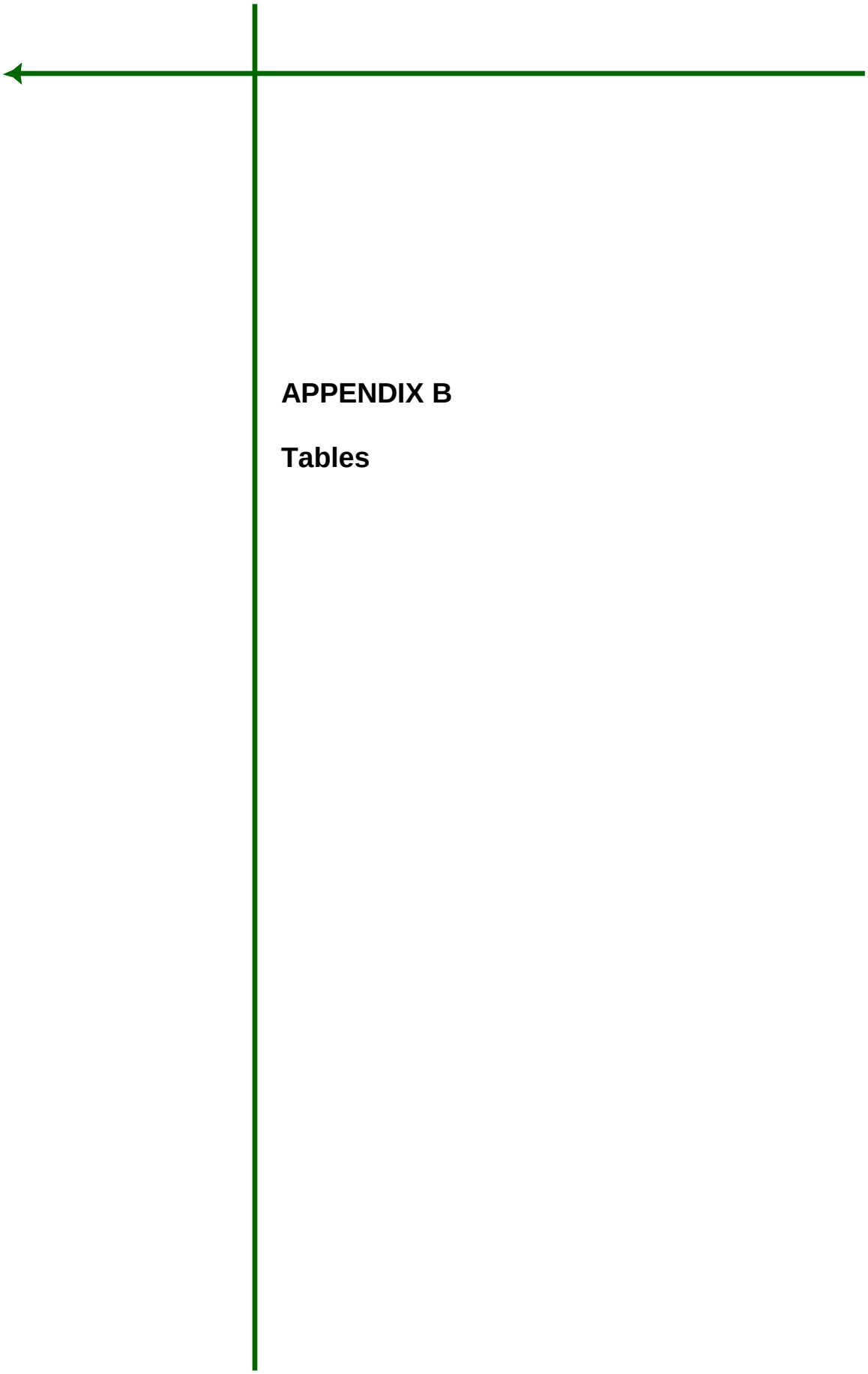
Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14 ft

Legend

- Existing Monitoring Well
- Pangea Boring (2006)
- Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Study Area Boundary

FIGURE 9
Geophysical Survey
Proposed Study Area





APPENDIX B

Tables

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

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 Paleocene 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 the 2006 and 2015 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 10 to 12 feet bgs. The 2015 remedial investigation confirmed that shallow soils are predominately silty clay to clayey silt with a sand and gravel lens at 10 to 12 feet bgs. The depth to first groundwater ranges from approximately 3 to 6 feet bgs.	None	N/A
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

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
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. A well survey was also performed by Alameda County Public Works Agency (ACPWA) in 2016. The only wells identified by ACPWA within the 2,000-foot search radius were groundwater monitoring wells and cathodic protection wells.	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. There is no UST removal report or other definitive documentation that no other USTs or underground piping remain at the 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, and/or USTs themselves. There is no known history of leaks or spills from the aboveground waste oil storage vessels (former or current) or other aspects of the automotive repair operation. Seven shallow soil samples collected near the current and former waste oil storage areas were all clean, indicating that there has been no environmental impact from waste oil handling operations at the site. The volume of this release is very difficult to ascertain. Based on the lack of definitive documentation regarding removal of the USTs, a geophysical survey is required to determine whether any USTs or underground piping remain at the Site.	1. It is not known with certainty whether there are any USTs or underground piping remaining at the Site	Geophysical survey to determine whether any USTs or underground piping remain at the Site.

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
LNAPL		Light non-aqueous phase liquids (LNAPL) have not been encountered in any of the three groundwater monitoring wells installed in December 2015, either during the well development or subsequent sampling activities. Elevated soil and groundwater concentrations of TPH-g on the south side and southwest corner of the Site indicate the possible presence of LNAPL. The soil TPH-g concentrations at 10 to 11 feet bgs in three soil borings, SB-2, MW-101 and MW-103, range up to 3,100 mg/kg and are high enough to suggest that LNAPL may be present. Groundwater concentrations of TPH-g and benzene in MW-101 were 18,000 µg/L and 1,000 µg/L, respectively when the wells were sampled in December 2015. These concentrations are also high enough to suggest the potential presence of LNAPL at the Site.	2. Potential LNAPL based on TPH-g concentration at 10-11 feet bgs in three soil borings and the initial groundwater sample from downgradient well MW-101	Collect soil and groundwater grab samples from additional soil borings shown on *Figure 6* and determine if LNAPL is present
Source Removal Activities		It is reported that contaminated soil between the USTs was excavated and transported off-site for disposal. No records are available regarding the quantity or final destination of this soil.	None	N/A
Contaminants of Concern		Based on the information available from the Site owner and the 2006 and 2015 remedial investigation reports, contaminants of concern (COCs) are TPH-g, TPH-d, TPH-mo, and VOCs by EPA Method 8260B (including naphthalene). MtBE and other fuel oxygenates/additives were all reported as N.D. at the standard method detection limits in the 2006 and 2015 laboratory reports, so they are not COCs at this Site. Waste oil has been stored above grade at the Site and there is no evidence or documentation of spills from these containers. Nonetheless, it is possible that surface spills of waste oil over the years have resulted in subsurface contamination. Waste oil is known to contain semi-volatile organic compounds (SVOCs) and heavy metals, so SVOCs by EPA Method 8270 and CAM 5 metals are added to the previous list of COCs for samples collected in the vicinity of waste oil storage areas.	3. Potential that surface spills over the years have resulted in subsurface waste oil contamination	Collect shallow soil samples from four borings to be installed as shown on *Figure 7*. Additional analyses for these samples to include SVOCs by EPA Method 8270 and CAM 5 metals

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Soil		Significant concentrations of COCs were reported in five of the seven 20-foot deep borings installed in December 2015 (three of which were completed as monitoring wells). The highest concentrations were reported in the soil sample from MW-101 at 10 feet bgs, which had 3,100 mg/kg TPH-g, 2.5 mg/kg benzene, and 33 mg/kg naphthalene. Additional site investigation will be required to fully characterize the lateral extent of soil contamination, The scope of work for this site investigation is presented in Section 6 of the Data Gap Investigation Work Plan and Addendum. A brief description of the work to be performed is as follows: If the geophysical survey does not reveal the presence of additional USTs or underground piping, eight additional soil borings will be advanced to 20 feet bgs in the vicinity of the former USTs, piping and dispensers to determine whether a secondary source remains at the Site. The locations of these borings are shown on *Figure 6*. One of these borings will be left open overnight to allow collection of a groundwater "grab" sample. If the geophysical survey reveals that additional USTs and/or piping remain at the Site, this work plan will be amended accordingly. In addition, four shallow soil borings will be installed adjacent to B-1, B-2 and B-7 and the current waste oil storage area so that soil samples from these borings can be analyzed for SVOCs by EPA Method 8270 and CAM 5 metals. In order to further define the lateral extent of soil contamination, samples will also be collected at various depths from the groundwater grab sample boreholes to be installed as described below.	4. Lateral extent of soil contamination	Collect additional soil samples during RI to be performed as described in the work plan and addendum

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Groundwater		Three groundwater monitoring wells were installed in December 2015. The initial samples from MW-101 and MW-103 had significant concentrations of COCs, while upgradient well MW-102 was clean. TPH-g and benzene concentrations in MW-101 were 18,000 µg/L and 1,000 µg/L, respectively. Additional groundwater sampling locations will be required to determine the lateral extent of groundwater contamination as a result of this release. In this phase of the remedial investigation six groundwater grab samples will be collected from borings installed along the east side of Shattuck Avenue and the north side of 62nd Street as shown on *Figure 6*.	5. Extent of groundwater contamination	Collect groundwater grab samples from six locations along 62nd Street and Shattuck Avenue
		A utility survey performed in February 2016 determined that there are several utility corridors running along 62nd Street directly south of the Site and along Shattuck Avenue directly west of the Site. It is conceivable that these corridors are acting as preferential pathways for groundwater migration. Some utilities (notably East Bay MUD) do not have accurate drawings of their underground pipelines in the area, so additional work is required to determine their locations and depths.	6. Utility corridors that may act as preferential pathways for groundwater migration	Check with City of Oakland to see if they have additional utility maps; Get underground utility locating service to mark EBMUD pipelines, determine the depths of all utility corridors running adjacent to the Site along Shattuck Avenue and 62nd Street

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

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 mixed-use commercial and residential facilities. The Site and surrounding properties are zoned RM-4, Mixed Housing Residential Zone 4 as defined in Section 17.17.010 of the Municipal Code. The objective of this zoning classification is to maintain an enhanced residential area "characterized by a mix of single family homes, townhouses, small multi-unit buildings... and neighborhood businesses where appropriate". 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. The homes and small commercial establishments located downgradient from the Site are considered the only likely off-site receptors. Homes across Shattuck Avenue (west and southwest of the Site) have basements, so it is possible that contaminant migration may have caused vapor intrusion into these residences. A soil vapor survey has not been performed at the Site. Based on the soil data from 2015 and the potential for residential land use, the exposure scenarios listed in the LTCP have been evaluated using residential standards for shallow soils (< 5 feet bgs). The concentrations of benzene, ethylbenzene and naphthalene in shallow soil samples from all 13 locations were mostly non-detect and in all cases significantly below the thresholds listed in the residential column on *Table 1* in the Direct Contact and Outdoor Air Exposure section of the LTCP. However, shallow soil samples have not been analyzed for PAHs by EPA Method 8270 or CAM 5 metals, which could have been released during spills from the aboveground waste oil storage vessels. In order to evaluate the potential for vapor intrusion to indoor air, the concentrations of TPH-g and TPH-d in soils <10 feet bgs and the benzene concentration in groundwater must be compared with the scenarios depicted in the appendices of the LTCP. The sum of TPH-g & TPH-d concentrations in shallow soil samples from MW-101, MW-103 and DP-2 exceed 100 ppm and the benzene concentration in MW-101 is 1,000 µg/L. Consequently, the potential for vapor intrusion to indoor air cannot be dismissed without performing a soil vapor survey.	7. Potential that shallow soils contain SVOCs or metals from waste oil spills 8. Potential for soil vapor intrusion to indoor air 9. Potential for COC intrusion into basements downgradient from the Site	Collect shallow soil samples in the vicinity of borings B-1, B-2, B-7, and the current waste oil storage area, analyze for SVOCs and metals Perform a soil vapor survey Perform a soil vapor survey to determine whether any of the residences to the west or southwest of the Site (across Shattuck Avenue) have been impacted by this release

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

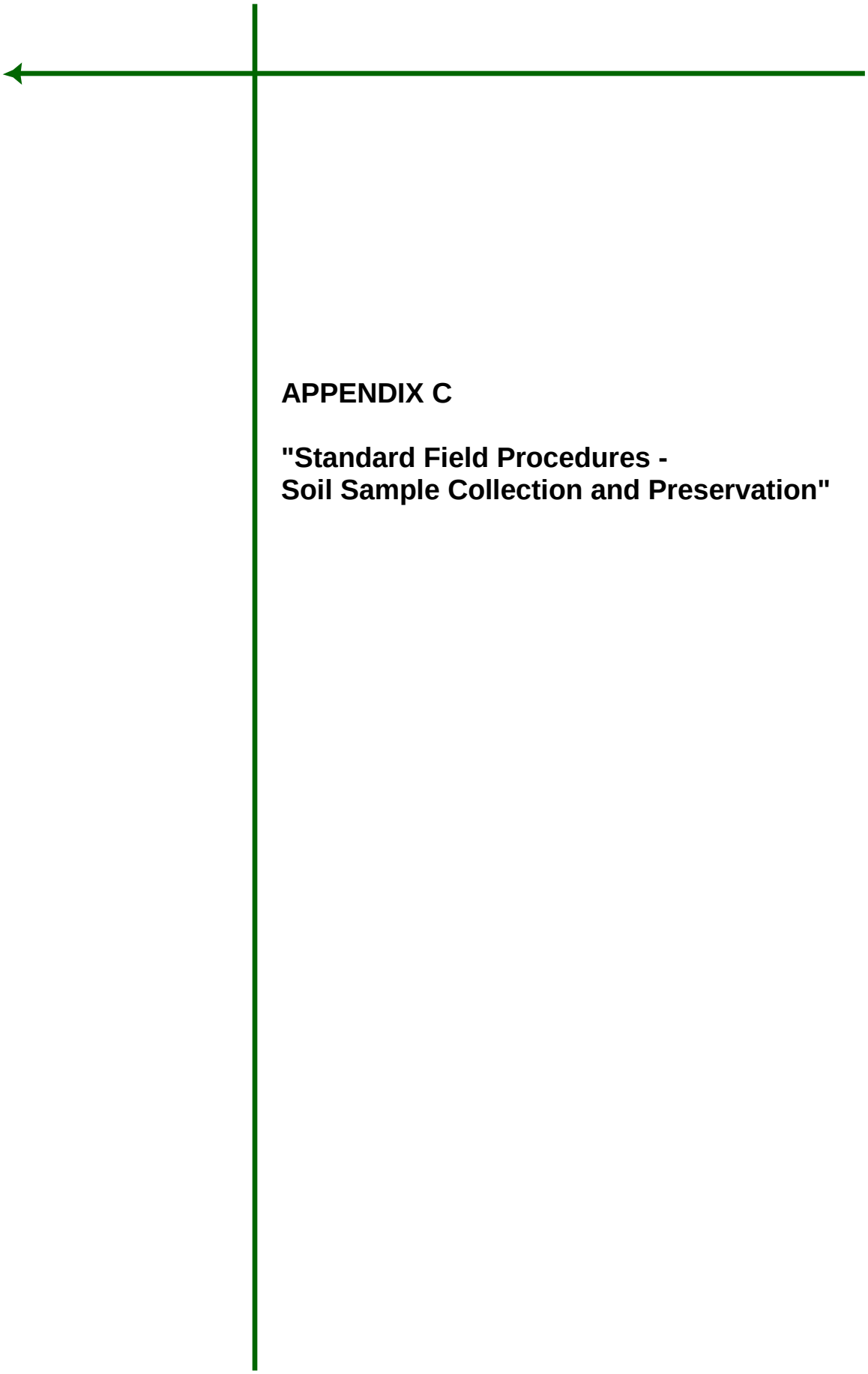
SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Risk Evaluation		A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites. Other potential receptors within 2,000 feet of the Site include the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site, and Colby Park, located 1,800 feet east of the Site. A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites. The other potential receptor within 2,000 feet of the Site is the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site. Colby Park, located 2,300 feet east of the Site is just outside the 2,000 foot radius. 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 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 will be prepared and submitted to ACDEH for approval.		

DATA GAP SUMMARY AND PROPOSED INVESTIGATION – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
1	It is not known with certainty whether there are any USTs or underground piping remaining at the Site	Geophysical survey using a magnetic survey and ground-penetrating radar (GPR) with a 500 MHz antenna over the area shown on *Figure 9*	GPR using a 500 MHz antenna is capable of locating buried pipes down to 3/16-inch diameter at depths up to 5 feet below grade	N/A
2	Potential LNAPL based on TPH-g concentration at 10-11 feet bgs in three soil borings and the initial groundwater sample from downgradient well MW-101	Collect soil samples from eight additional soil borings and one groundwater "grab" sample to determine if LNAPL is present	In order to determine whether there remains an unidentified primary or secondary source of contamination in the vicinity of the former USTs, additional sampling will be performed near the south side and southwest corner of the Site	TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and naphthalene) by EPA Method 8260B.
3	Waste oil has been stored above grade at the Site and there is no evidence or documentation of spills from these containers. Nonetheless, it is possible that surface spills of waste oil over the years have resulted in subsurface contamination.	Collect shallow soil samples from four additional shallow borings. Three of these borings will be installed adjacent to B-1, B-2 and B-7 and the fourth adjacent to the waste oil storage area inside the building. The locations of these borings are shown on *Figure 7*. Additional analyses for these samples to include SVOCs by EPA Method 8270 and CAM 5 metals	Waste oil is known to contain semi-volatile organic compounds (SVOCs) and heavy metals, so SVOCs by EPA Method 8270 and CAM 5 metals are added to the previous list of COCs for samples collected in the vicinity of waste oil storage areas.	SVOCs by EPA Method 8270, CAM 5 metals (in addition to the COCs already identified)
4	Lateral extent of soil contamination	Install eight additional soil borings at the locations shown on *Figure 6* (indicated as B-8 through B-15); collect soil samples from the boreholes installed in the parking lanes along 62nd Street and Shattuck Avenue	Significant levels of soil contamination were reported in some of the borings installed in December 2015, indicating that the lateral extent was not fully characterized	TPH-g,TPH-d, TPH-mo, and VOCs by EPA Method 8260B
5	Lateral extent of groundwater contamination	Collect groundwater grab samples from 6 additional locations in the parking lanes along 62nd Street and Shattuck Avenue, labeled A-F on *Figure 8*	The high concentrations of TPH-g in well MW-101 on the west side of the property and well MW-103 on the south side of the property indicate that the lateral extent of the groundwater plume is not fully defined	TPH-g, TPH-d, TPH-mo, and VOCs by EPA Method 8260B

DATA GAP SUMMARY AND PROPOSED INVESTIGATION – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
6	Utility corridors that may act as preferential pathways	Check with City of Oakland to see whether additional utility maps are available; Get underground utility locating service to mark EBMUD pipelines and determine depths of utility corridors in Shattuck Avenue and 62nd Street adjacent to the Site	Some utilities (notably EBMUD) do not have accurate drawings of their underground pipelines in the area, so additional work is required to determine their locations	N/A
7	Potential for direct contact or outdoor air exposure to SVOCs or metals	Collect shallow soil samples in the vicinity of borings B-1, B-2, B-7, and the current waste oil storage area, analyze these samples for SVOCs and metals	SVOCs or metals could have been released during spills from the waste oil storage vessels.	SVOCs by EPA Method 8270, CAM 5 metals
8	Potential for soil vapor intrusion to indoor air	Perform a soil vapor survey	The LTCP requires a soil vapor survey when (TPH-g + TPH-d) in shallow soils exceed 100 mg/kg or benzene in groundwater exceeds 1,000 µg/L. Both are the case at this Site.	TPH-g, VOCs by EPA Method 8260B
9	Potential for COC intrusion into basements downgradient from the Site	Perform a soil vapor survey to determine whether any of the residences west of the Site (across Shattuck Avenue) with basements have been impacted by this release	The basements in the houses structures have the potential to bring contamination into contact with their residents	TPH-g, VOCs by EPA Method 8260B



APPENDIX C

"Standard Field Procedures -
Soil Sample Collection and Preservation"

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.

SOIL SAMPLE COLLECTION AND PRESERVATION

Soil Borings

Undisturbed soil samples will be collected from open borings utilizing a hammer driven spilt spoon sampler fitted with new stainless steel or brass sleeves.

The spilt spoon sampler will be decontaminated between samples by a triple rinse procedure: 1.) Alconox solution, 2.) Water rinse, and 3.) Distilled water rinse.

Soil samples selected for analysis will be immediately capped and labeled. The capped sample sleeve will then be placed in a closed zip lock plastic bag.

Bagged samples will be immediately placed in an ice chest containing water ice or dry ice. Soil samples will be kept in a chilled state until transfer to the testing laboratory.

All soil samples for chemical analysis will be entered on a chain of custody form in the field which will accompany the complete sample set.

Shallow Soil Samples

The tool used to collect shallow soil samples will be decontaminated with a triple rinse procedure between samples.

Soil samples will be tightly packed into a glass, Teflon lidded, jar. Alternatively, the soil sample may be tightly packed into a brass or stainless steel sample sleeve.

Samples will be immediately sealed, labeled and placed into a closed zip lock plastic bag.

Bagged samples will be immediately placed in an ice chest containing water or dry ice. Soil samples will be kept in a chilled state until transfer to the testing laboratory.

All soil samples for chemical analysis will be entered on a chain of custody form in the field which will accompany the complete sample set.

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

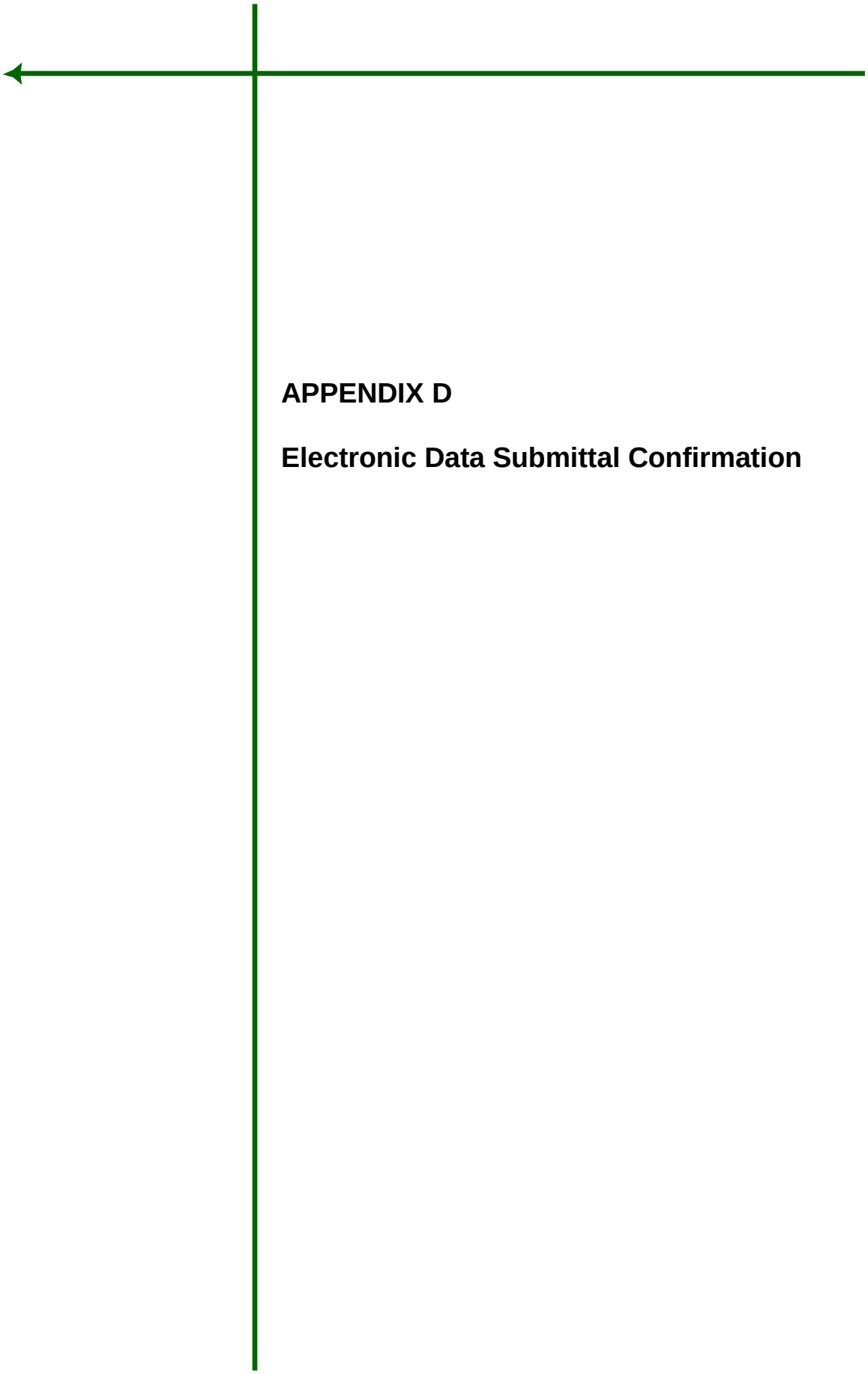
Laboratory quality assurance (QA) procedures include those required under the DTSC hazardous waste testing program. Laboratory-specific procedures are included in the laboratory's QA manual, including the use of method blanks, surrogate spikes, matrix spikes and matrix spike duplicates.

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

Electronic Data Submittal Confirmation

WEST ASSOCIATES
ENVIRONMENTAL ENGINEERS, INC.

ADDENDUM TO
DATA GAP INVESTIGATION WORK PLAN
AND SITE CONCEPTUAL MODEL

Automasters
Leaking Underground Tank Site
6200 Shattuck Avenue
Oakland
Case No. RO0002935

Prepared For:
6200 Shattuck Partners LLC
Oakland

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

December 2016

California State Contractor's License No. 734244
PHONE: 707. 451.1360 • FAX: 707.447.0631 • PO BOX 5891 • VACAVILLE, CALIFORNIA 95696

ACKNOWLEDGMENTS

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

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

This Workplan Addendum 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; phone, 707.451.1360. Principal author is Mr. Brian W. West, PE. (Registered California Civil Engineer No. 32319 - expires 12/31/18.)

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APPENDICES

1.0 INTRODUCTION

West & Associates Environmental Engineers, Inc. (W&A) has prepared this Addendum to the August 2016 Data Gap Investigation Work Plan and Site Conceptual Model and (WP-SCM) for Automasters and 6200 Shattuck Partners, LLC, based on the comments included in the Alameda County Department of Environmental Health (ACDEH) directive letter dated November 29, 2016. The unauthorized release from the former underground storage tanks (USTs) at the Automasters site (the Site) has been assigned ACDEH Case #RO0002935. The Site is located at 6200 Shattuck Avenue in Oakland, California and is currently used as an independent automotive repair facility.

2.0 SITE BACKGROUND

In addition to the Site conditions and history described in the August 2016 WP-SCM, it is noted that ACDEH has expressed concerns regarding the possible "existence of another former UST pit or possibly a lack of precision of the locations of the former USTs and dispenser." This concern is the rationale behind addition of borings B-13, B-14 and B-15 as described in Section 6.0 and shown on *Figure 6*.

3.0 SITE CONCEPTUAL MODEL

The Site Conceptual Model submitted in the August 2016 WP-SCM has been amended to incorporate the request for groundwater grab samples rather than monitoring wells, revised/additional locations for these groundwater grab samples, three additional soil boring locations, one additional sampling location for potential waste oil spills, and additional analyses to be performed on soil and groundwater samples collected during this Site investigation. The revised SCM in *Table 1* addresses these issues and the ACDEH comments regarding both geophysical and utility surveys to be performed at the Site. Data gaps identified in the revised SCM are summarized along with the proposed investigation activities to close these gaps in the revised *Table 2*. These tables are included in *Appendix B*.

4.0 SENSITIVE RECEPTORS

Table 1 and *Table 2* have been amended to reflect the fact that the sensitive receptor survey performed for the Site will include an expanded utility survey to include any maps and other information available from the City of Oakland re: utility locations and depths, along with a procedure to determine utility locations if detailed maps are not available.

5.0 DATA GAPS

Data gaps identified in the ACDEH letter dated November 29, 2016 will be addressed as described in the revised *Table 2* and the additional site assessment activities described in Section 6 of this WP-SCM Addendum.

6.0 REMEDIAL INVESTIGATION WORK PLAN

The August 2016 WP-SCM is amended as follows:

- Eight additional soil borings are added (at the locations shown on *Figure 6* as B-8 through B15) to evaluate the potential for the presence of another former UST pit or other secondary source of subsurface contamination.

- In order to assess the potential for waste oil contamination, soil samples will be collected at both 3 feet bgs and 10 feet bgs from four locations as indicated on *Figure 7*.

- The shallow soil samples collected from borings WB-1, WB-2, WB-3 & WB-4 will be analyzed for semi-volatile organic compounds (SVOCs), including poly-aromatic hydrocarbons (PAHs), by EPA Method 8270 using the Selected Ion Monitoring (SIM) mode and CAM 5 metals (cadmium, chromium, lead, nickel and zinc) to determine whether waste oil spills have impacted shallow sub-surface soils adjacent to or underneath the building where waste oil has historically been stored.

- The three groundwater monitoring wells (MW-104, MW-105 and MW-106) proposed in our August 2016 'Data Gap Investigation Workplan' will be replaced groundwater grab samples collected from six areas on the south and west side of the Automasters site.

  As illustrated on *Figure 8*, three general locations designated as A, B & C, have been identified on the south side of the Automasters property and three locations designated as D, E & F, have been identified on the west side where temporary borings could be advanced to groundwater. The precise boring location within each of the six areas will be determined in the field based on site conditions. At each boring location, a direct push probe will be advanced into the saturated zone. A grab sample will be collected from groundwater accumulated in the probe. After the grab groundwater sample is collected, the probe will be retracted and the boring abandoned.

- The general area of the geophysical survey proposed to be performed is illustrated on *Figure 9*.

- The utility survey will include a description of the procedures to be followed if detailed utility maps are not available from the City of Oakland or other sources.

All four new figures are included in *Appendix A*.

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 ACDEH. 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 the approved Workplan
- A description of all field work performed
- Scaled site diagram accurately locating all monitoring well and soil boring 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-WP Addendum has been uploaded to the ACDEH web site per instructions included with the ACDEH letter requesting these documents. Once approved by ACDEH, it will be uploaded to the Automasters GeoTracker Domain, Global ID T0619748201. The upload certificate is presented in *Appendix D*.

APPENDIX A

Figures

WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

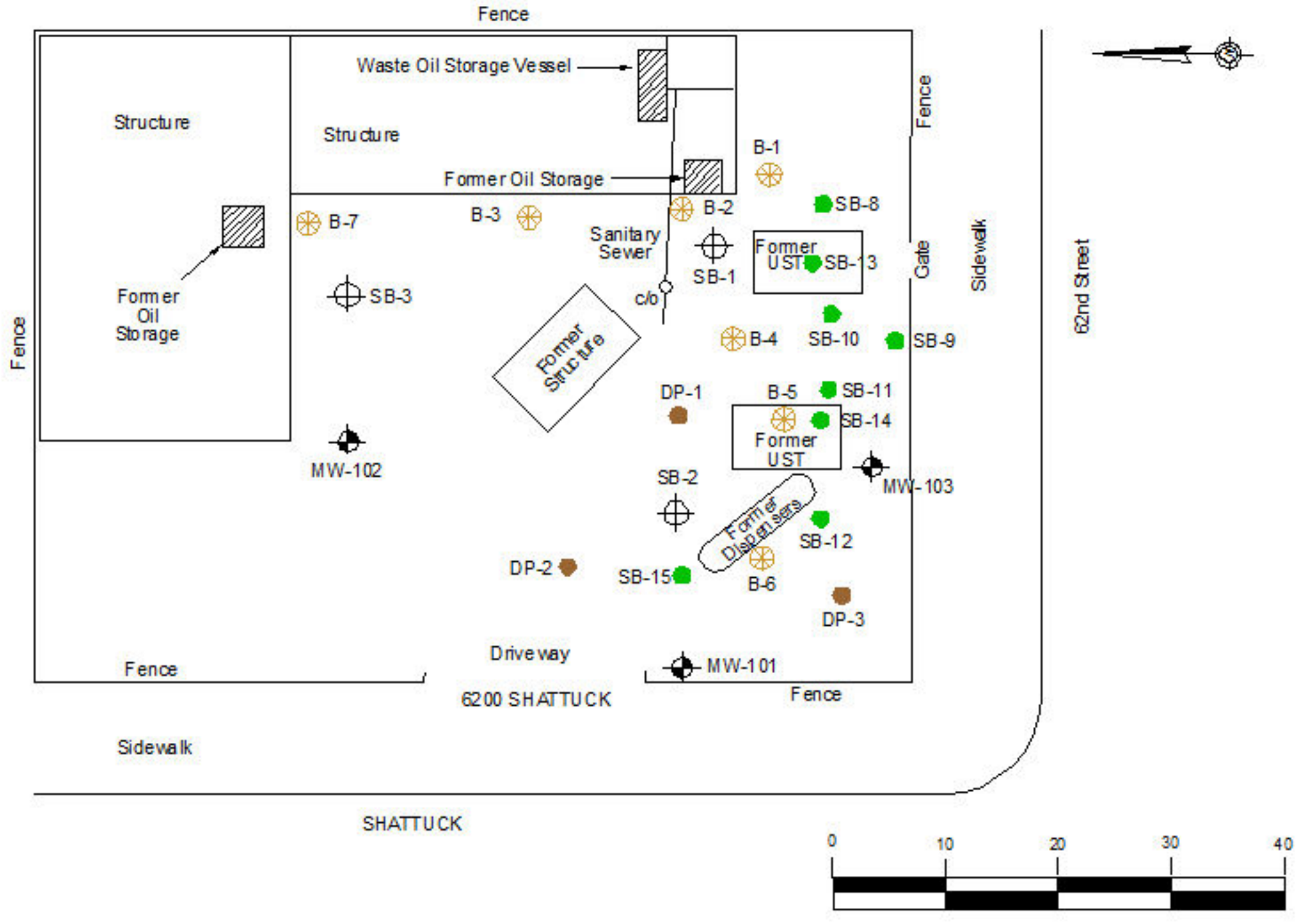
PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14 ft

Legend

- Existing Groundwater Monitoring Well
- Pangea Boring (2006)
- Deep Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Proposed Soil Boring Location

FIGURE 6
Proposed Soil Borings



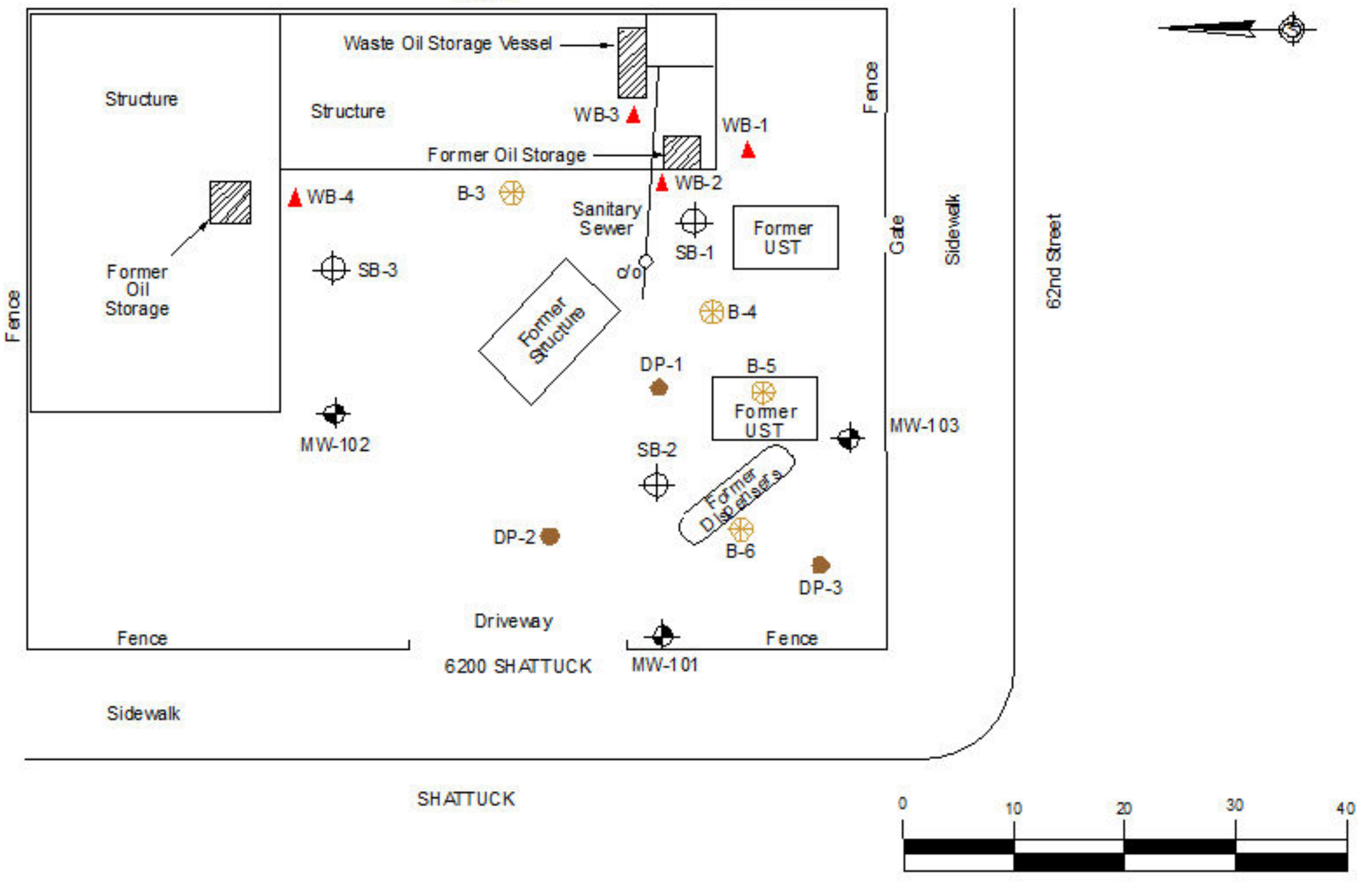
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS
PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14 ft

Legend

- Existing Monitoring Well
- Pangea Boring (2006)
- Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Proposed Waste Oil Contamination Soil Boring Locations

FIGURE 7
Proposed Soil Borings
Waste Water
Investigation



WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS

PO Box 5891, Vacaville, CA 95696

Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** See Below

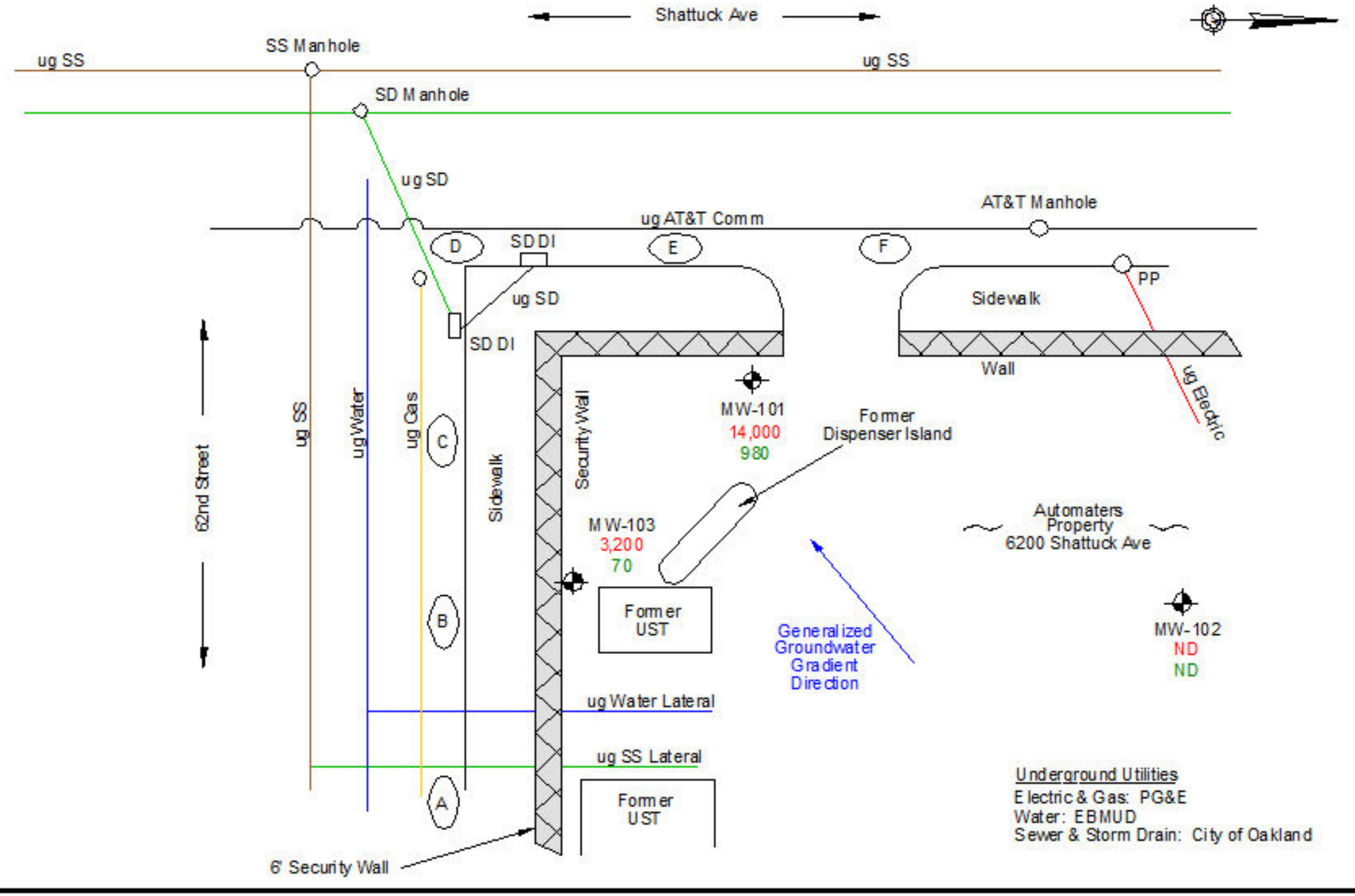
Legend

SD - Storm Drain
SS - Sanitary Sewer
DI - Drop Inlet
ug - Underground
MW - Monitoring Well
PP - Power Pole

(A) Grab Groundwater Collection Location

Groundwater Contaminant Concentrations
14,000 ug/l TPh-gas
980 ug/l Benzene
(July 2016)

FIGURE 8
Proposed Groundwater Grab Sample Collection Locations



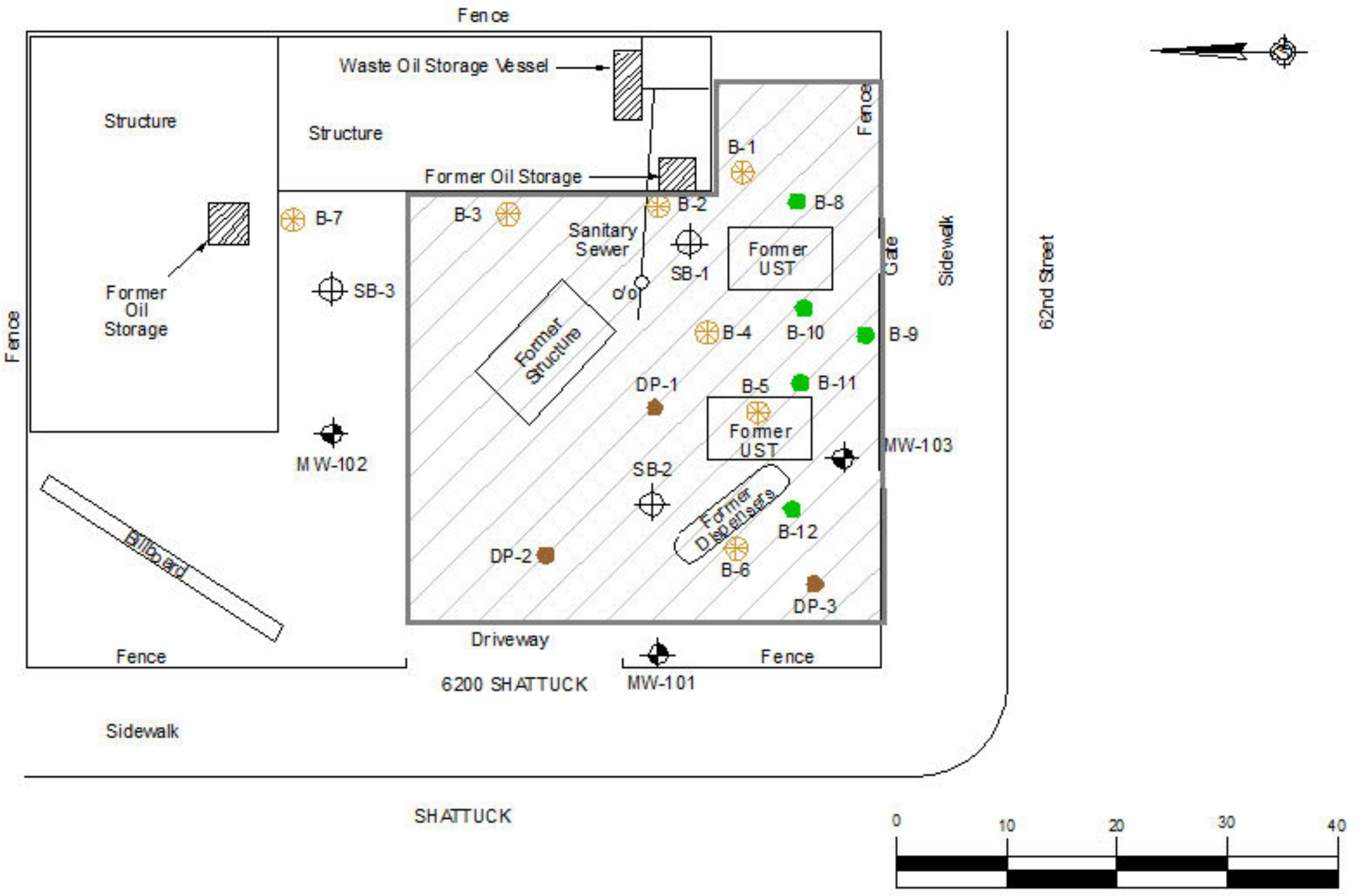
WEST & ASSOCIATES ENVIRONMENTAL ENGINEERS
PO Box 5891, Vacaville, CA 95696

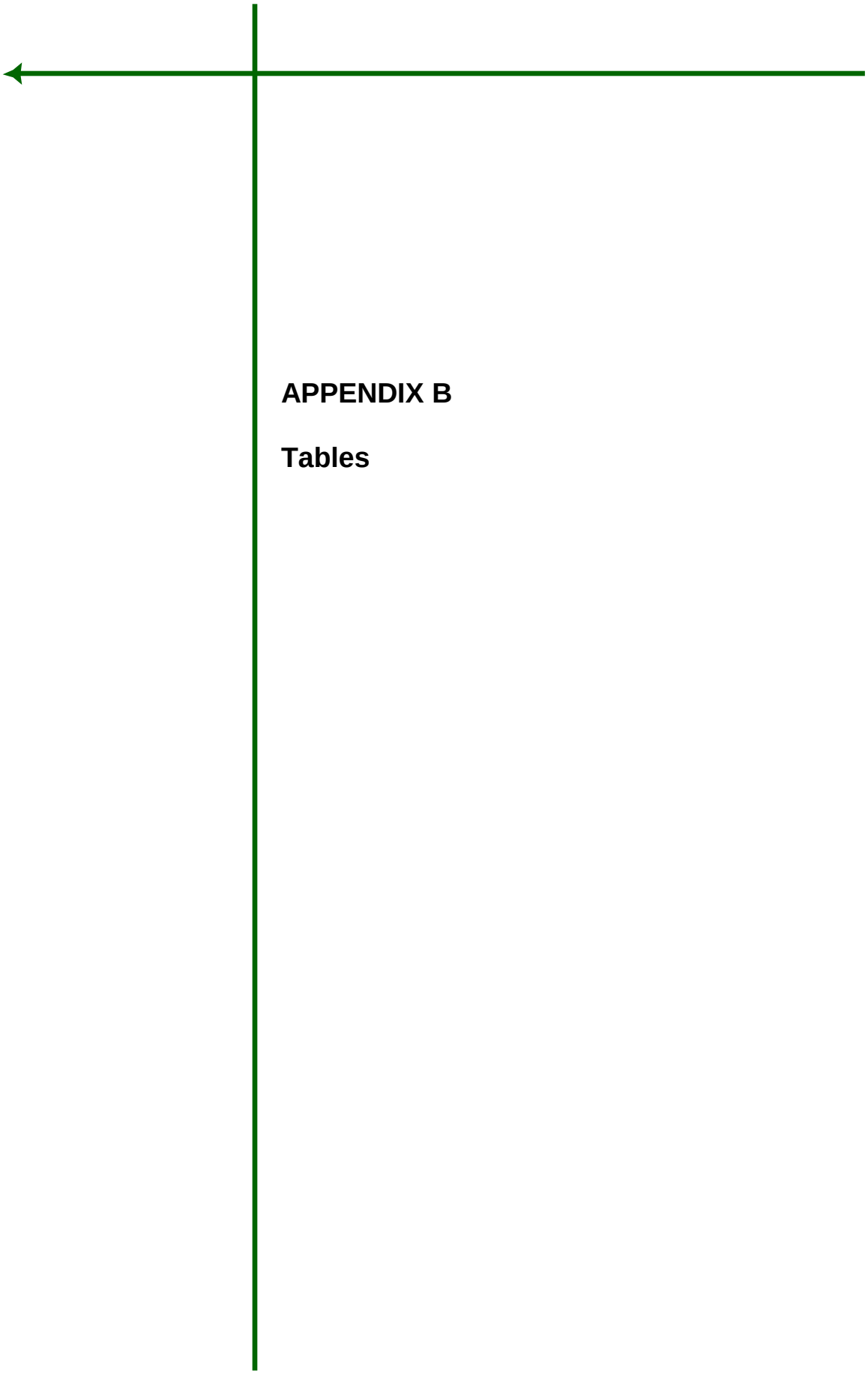
Project Name: Automasters	**Date:** Dec 2016
Location: 6200 Shattuck Avenue, Oakland, CA	
Drawing By: DLG	**Scale:** 1" = 14 ft

Legend

- Existing Monitoring Well
- Pangea Boring (2006)
- Soil Boring - Dec 2015
- Shallow Soil Sample - Dec 2015
- Study Area Boundary

FIGURE 9
Geophysical Survey
Proposed Study Area





APPENDIX B

Tables

DATA GAP SUMMARY AND PROPOSED INVESTIGATION – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
1	It is not known with certainty whether there are any USTs or underground piping remaining at the Site	Geophysical survey using a magnetic survey and ground-penetrating radar (GPR) with a 500 MHz antenna over the area shown on *Figure 9*	GPR using a 500 MHz antenna is capable of locating buried pipes down to 3/16-inch diameter at depths up to 5 feet below grade	N/A
2	Potential LNAPL based on TPH-g concentration at 10-11 feet bgs in three soil borings and the initial groundwater sample from downgradient well MW-101	Collect soil samples from eight additional soil borings and one groundwater "grab" sample to determine if LNAPL is present	In order to determine whether there remains an unidentified primary or secondary source of contamination in the vicinity of the former USTs, additional sampling will be performed near the south side and southwest corner of the Site	TPH-g, TPH-d, TPH-mo, and VOCs (including BTEX and naphthalene) by EPA Method 8260B.
3	Waste oil has been stored above grade at the Site and there is no evidence or documentation of spills from these containers. Nonetheless, it is possible that surface spills of waste oil over the years have resulted in subsurface contamination.	Collect shallow soil samples from four additional shallow borings. Three of these borings will be installed adjacent to B-1, B-2 and B-7 and the fourth adjacent to the waste oil storage area inside the building. The locations of these borings are shown on *Figure 7*. Additional analyses for these samples to include SVOCs by EPA Method 8270 and CAM 5 metals	Waste oil is known to contain semi-volatile organic compounds (SVOCs) and heavy metals, so SVOCs by EPA Method 8270 and CAM 5 metals are added to the previous list of COCs for samples collected in the vicinity of waste oil storage areas.	SVOCs by EPA Method 8270, CAM 5 metals (in addition to the COCs already identified)
4	Lateral extent of soil contamination	Install eight additional soil borings at the locations shown on *Figure 6* (indicated as B-8 through B-15); collect soil samples from the boreholes installed in the parking lanes along 62nd Street and Shattuck Avenue	Significant levels of soil contamination were reported in some of the borings installed in December 2015, indicating that the lateral extent was not fully characterized	TPH-g,TPH-d, TPH-mo, and VOCs by EPA Method 8260B
5	Lateral extent of groundwater contamination	Collect groundwater grab samples from 6 additional locations in the parking lanes along 62nd Street and Shattuck Avenue, labeled A-F on *Figure 8*	The high concentrations of TPH-g in well MW-101 on the west side of the property and well MW-103 on the south side of the property indicate that the lateral extent of the groundwater plume is not fully defined	TPH-g, TPH-d, TPH-mo, and VOCs by EPA Method 8260B

DATA GAP SUMMARY AND PROPOSED INVESTIGATION – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

Item #	Data Gap	Proposed Investigation	Rationale	Analyses
6	Utility corridors that may act as preferential pathways	Check with City of Oakland to see whether additional utility maps are available; Get underground utility locating service to mark EBMUD pipelines and determine depths of utility corridors in Shattuck Avenue and 62nd Street adjacent to the Site	Some utilities (notably EBMUD) do not have accurate drawings of their underground pipelines in the area, so additional work is required to determine their locations	N/A
7	Potential for direct contact or outdoor air exposure to SVOCs or metals	Collect shallow soil samples in the vicinity of borings B-1, B-2, B-7, and the current waste oil storage area, analyze these samples for SVOCs and metals	SVOCs or metals could have been released during spills from the waste oil storage vessels.	SVOCs by EPA Method 8270, CAM 5 metals
8	Potential for soil vapor intrusion to indoor air	Perform a soil vapor survey	The LTCP requires a soil vapor survey when (TPH-g + TPH-d) in shallow soils exceed 100 mg/kg or benzene in groundwater exceeds 1,000 µg/L. Both are the case at this Site.	TPH-g, VOCs by EPA Method 8260B
9	Potential for COC intrusion into basements downgradient from the Site	Perform a soil vapor survey to determine whether any of the residences west of the Site (across Shattuck Avenue) with basements have been impacted by this release	The basements in the houses structures have the potential to bring contamination into contact with their residents	TPH-g, VOCs by EPA Method 8260B

SITE CONCEPTUAL MODEL – REVISED DECEMBER 2016
Automasters
6200 Shattuck Ave, Oakland

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 Paleocene 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 the 2006 and 2015 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 10 to 12 feet bgs. The 2015 remedial investigation confirmed that shallow soils are predominately silty clay to clayey silt with a sand and gravel lens at 10 to 12 feet bgs. The depth to first groundwater ranges from approximately 3 to 6 feet bgs.	None	N/A
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

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SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
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. A well survey was also performed by Alameda County Public Works Agency (ACPWA) in 2016. The only wells identified by ACPWA within the 2,000-foot search radius were groundwater monitoring wells and cathodic protection wells.	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. There is no UST removal report or other definitive documentation that no other USTs or underground piping remain at the 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, and/or USTs themselves. There is no known history of leaks or spills from the aboveground waste oil storage vessels (former or current) or other aspects of the automotive repair operation. Seven shallow soil samples collected near the current and former waste oil storage areas were all clean, indicating that there has been no environmental impact from waste oil handling operations at the site. The volume of this release is very difficult to ascertain. Based on the lack of definitive documentation regarding removal of the USTs, a geophysical survey is required to determine whether any USTs or underground piping remain at the Site.	1. It is not known with certainty whether there are any USTs or underground piping remaining at the Site	Geophysical survey to determine whether any USTs or underground piping remain at the Site.

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SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
LNAPL		Light non-aqueous phase liquids (LNAPL) have not been encountered in any of the three groundwater monitoring wells installed in December 2015, either during the well development or subsequent sampling activities. Elevated soil and groundwater concentrations of TPH-g on the south side and southwest corner of the Site indicate the possible presence of LNAPL. The soil TPH-g concentrations at 10 to 11 feet bgs in three soil borings, SB-2, MW-101 and MW-103, range up to 3,100 mg/kg and are high enough to suggest that LNAPL may be present. Groundwater concentrations of TPH-g and benzene in MW-101 were 18,000 µg/L and 1,000 µg/L, respectively when the wells were sampled in December 2015. These concentrations are also high enough to suggest the potential presence of LNAPL at the Site.	2. Potential LNAPL based on TPH-g concentration at 10-11 feet bgs in three soil borings and the initial groundwater sample from downgradient well MW-101	Collect soil and groundwater grab samples from additional soil borings shown on *Figure 6* and determine if LNAPL is present
Source Removal Activities		It is reported that contaminated soil between the USTs was excavated and transported off-site for disposal. No records are available regarding the quantity or final destination of this soil.	None	N/A
Contaminants of Concern		Based on the information available from the Site owner and the 2006 and 2015 remedial investigation reports, contaminants of concern (COCs) are TPH-g, TPH-d, TPH-mo, and VOCs by EPA Method 8260B (including naphthalene). MtBE and other fuel oxygenates/additives were all reported as N.D. at the standard method detection limits in the 2006 and 2015 laboratory reports, so they are not COCs at this Site. Waste oil has been stored above grade at the Site and there is no evidence or documentation of spills from these containers. Nonetheless, it is possible that surface spills of waste oil over the years have resulted in subsurface contamination. Waste oil is known to contain semi-volatile organic compounds (SVOCs) and heavy metals, so SVOCs by EPA Method 8270 and CAM 5 metals are added to the previous list of COCs for samples collected in the vicinity of waste oil storage areas.	3. Potential that surface spills over the years have resulted in subsurface waste oil contamination	Collect shallow soil samples from four borings to be installed as shown on *Figure 7*. Additional analyses for these samples to include SVOCs by EPA Method 8270 and CAM 5 metals

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SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Soil		Significant concentrations of COCs were reported in five of the seven 20-foot deep borings installed in December 2015 (three of which were completed as monitoring wells). The highest concentrations were reported in the soil sample from MW-101 at 10 feet bgs, which had 3,100 mg/kg TPH-g, 2.5 mg/kg benzene, and 33 mg/kg naphthalene. Additional site investigation will be required to fully characterize the lateral extent of soil contamination, The scope of work for this site investigation is presented in Section 6 of the Data Gap Investigation Work Plan and Addendum. A brief description of the work to be performed is as follows: If the geophysical survey does not reveal the presence of additional USTs or underground piping, eight additional soil borings will be advanced to 20 feet bgs in the vicinity of the former USTs, piping and dispensers to determine whether a secondary source remains at the Site. The locations of these borings are shown on *Figure 6*. One of these borings will be left open overnight to allow collection of a groundwater "grab" sample. If the geophysical survey reveals that additional USTs and/or piping remain at the Site, this work plan will be amended accordingly. In addition, four shallow soil borings will be installed adjacent to B-1, B-2 and B-7 and the current waste oil storage area so that soil samples from these borings can be analyzed for SVOCs by EPA Method 8270 and CAM 5 metals. In order to further define the lateral extent of soil contamination, samples will also be collected at various depths from the groundwater grab sample boreholes to be installed as described below.	4. Lateral extent of soil contamination	Collect additional soil samples during RI to be performed as described in the work plan and addendum

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SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Petroleum Hydrocarbons in Groundwater		Three groundwater monitoring wells were installed in December 2015. The initial samples from MW-101 and MW-103 had significant concentrations of COCs, while upgradient well MW-102 was clean. TPH-g and benzene concentrations in MW-101 were 18,000 µg/L and 1,000 µg/L, respectively. Additional groundwater sampling locations will be required to determine the lateral extent of groundwater contamination as a result of this release. In this phase of the remedial investigation six groundwater grab samples will be collected from borings installed along the east side of Shattuck Avenue and the north side of 62nd Street as shown on *Figure 6*.	5. Extent of groundwater contamination	Collect groundwater grab samples from six locations along 62nd Street and Shattuck Avenue
		A utility survey performed in February 2016 determined that there are several utility corridors running along 62nd Street directly south of the Site and along Shattuck Avenue directly west of the Site. It is conceivable that these corridors are acting as preferential pathways for groundwater migration. Some utilities (notably East Bay MUD) do not have accurate drawings of their underground pipelines in the area, so additional work is required to determine their locations and depths.	6. Utility corridors that may act as preferential pathways for groundwater migration	Check with City of Oakland to see if they have additional utility maps; Get underground utility locating service to mark EBMUD pipelines, determine the depths of all utility corridors running adjacent to the Site along Shattuck Avenue and 62nd Street

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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 mixed-use commercial and residential facilities. The Site and surrounding properties are zoned RM-4, Mixed Housing Residential Zone 4 as defined in Section 17.17.010 of the Municipal Code. The objective of this zoning classification is to maintain an enhanced residential area "characterized by a mix of single family homes, townhouses, small multi-unit buildings... and neighborhood businesses where appropriate". 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. The homes and small commercial establishments located downgradient from the Site are considered the only likely off-site receptors. Homes across Shattuck Avenue (west and southwest of the Site) have basements, so it is possible that contaminant migration may have caused vapor intrusion into these residences. A soil vapor survey has not been performed at the Site. Based on the soil data from 2015 and the potential for residential land use, the exposure scenarios listed in the LTCP have been evaluated using residential standards for shallow soils (< 5 feet bgs). The concentrations of benzene, ethylbenzene and naphthalene in shallow soil samples from all 13 locations were mostly non-detect and in all cases significantly below the thresholds listed in the residential column on *Table 1* in the Direct Contact and Outdoor Air Exposure section of the LTCP. However, shallow soil samples have not been analyzed for PAHs by EPA Method 8270 or CAM 5 metals, which could have been released during spills from the aboveground waste oil storage vessels. In order to evaluate the potential for vapor intrusion to indoor air, the concentrations of TPH-g and TPH-d in soils <10 feet bgs and the benzene concentration in groundwater must be compared with the scenarios depicted in the appendices of the LTCP. The sum of TPH-g & TPH-d concentrations in shallow soil samples from MW-101, MW-103 and DP-2 exceed 100 ppm and the benzene concentration in MW-101 is 1,000 µg/L. Consequently, the potential for vapor intrusion to indoor air cannot be dismissed without performing a soil vapor survey.	7. Potential that shallow soils contain SVOCs or metals from waste oil spills 8. Potential for soil vapor intrusion to indoor air 9. Potential for COC intrusion into basements downgradient from the Site	Collect shallow soil samples in the vicinity of borings B-1, B-2, B-7, and the current waste oil storage area, analyze for SVOCs and metals Perform a soil vapor survey Perform a soil vapor survey to determine whether any of the residences to the west or southwest of the Site (across Shattuck Avenue) have been impacted by this release

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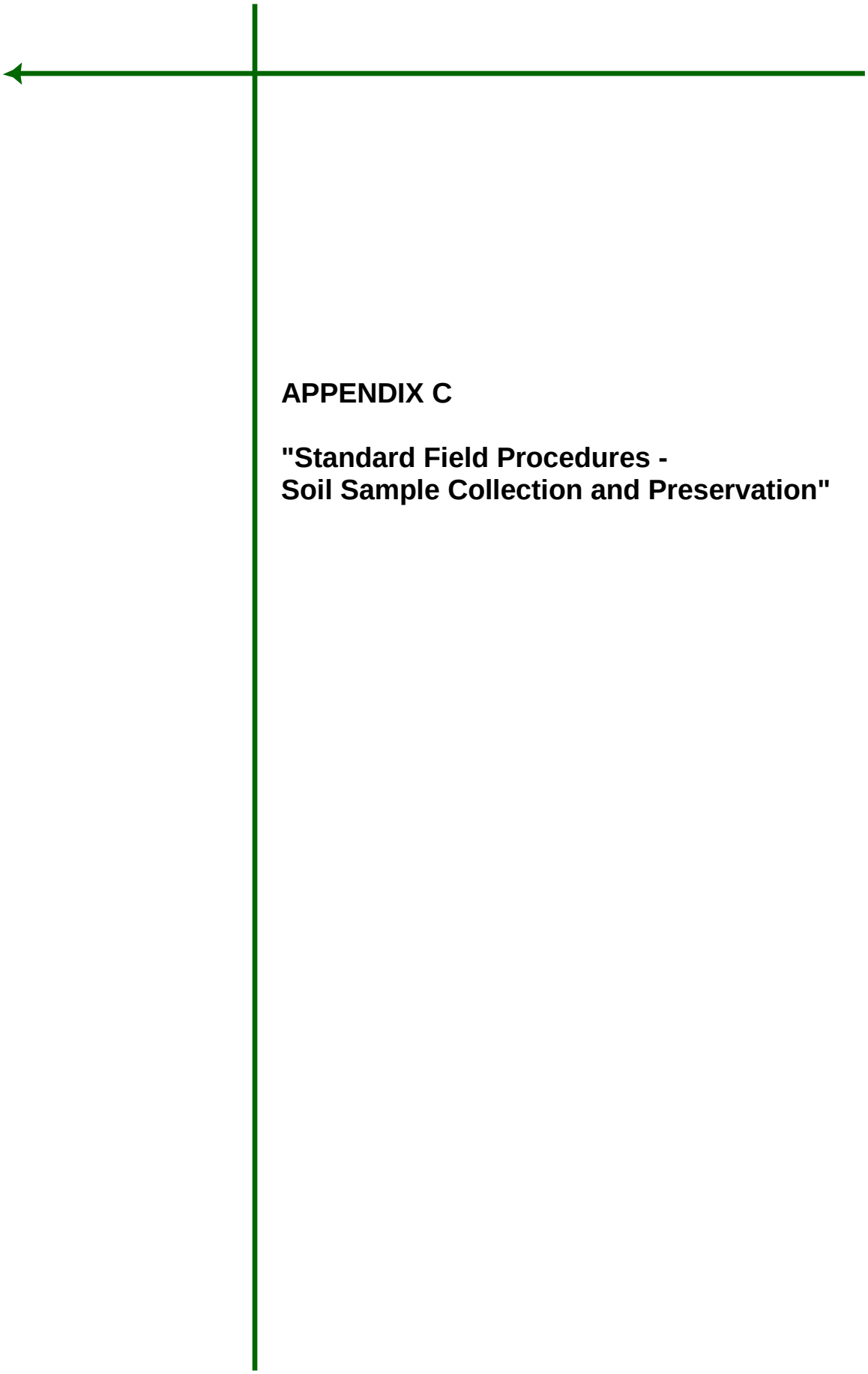
SCM Element	SCM Sub-Element	Description	Data Gap Item #	Resolution
Risk Evaluation		A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites. Other potential receptors within 2,000 feet of the Site include the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site, and Colby Park, located 1,800 feet east of the Site. A limited sensitive receptor evaluation has been performed based on Sensitive Receptor Surveys performed at nearby sites. The other potential receptor within 2,000 feet of the Site is the Sankofa Academy Elementary School, whose property begins 400 feet south of the Site. Colby Park, located 2,300 feet east of the Site is just outside the 2,000 foot radius. 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 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 will be prepared and submitted to ACDEH for approval.		



APPENDIX C

"Standard Field Procedures -
Soil Sample Collection and Preservation"

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.

SOIL SAMPLE COLLECTION AND PRESERVATION

Soil Borings

Undisturbed soil samples will be collected from open borings utilizing a hammer driven spilt spoon sampler fitted with new stainless steel or brass sleeves.

The spilt spoon sampler will be decontaminated between samples by a triple rinse procedure: 1.) Alconox solution, 2.) Water rinse, and 3.) Distilled water rinse.

Soil samples selected for analysis will be immediately capped and labeled. The capped sample sleeve will then be placed in a closed zip lock plastic bag.

Bagged samples will be immediately placed in an ice chest containing water ice or dry ice. Soil samples will be kept in a chilled state until transfer to the testing laboratory.

All soil samples for chemical analysis will be entered on a chain of custody form in the field which will accompany the complete sample set.

Shallow Soil Samples

The tool used to collect shallow soil samples will be decontaminated with a triple rinse procedure between samples.

Soil samples will be tightly packed into a glass, Teflon lidded, jar. Alternatively, the soil sample may be tightly packed into a brass or stainless steel sample sleeve.

Samples will be immediately sealed, labeled and placed into a closed zip lock plastic bag.

Bagged samples will be immediately placed in an ice chest containing water or dry ice. Soil samples will be kept in a chilled state until transfer to the testing laboratory.

All soil samples for chemical analysis will be entered on a chain of custody form in the field which will accompany the complete sample set.

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

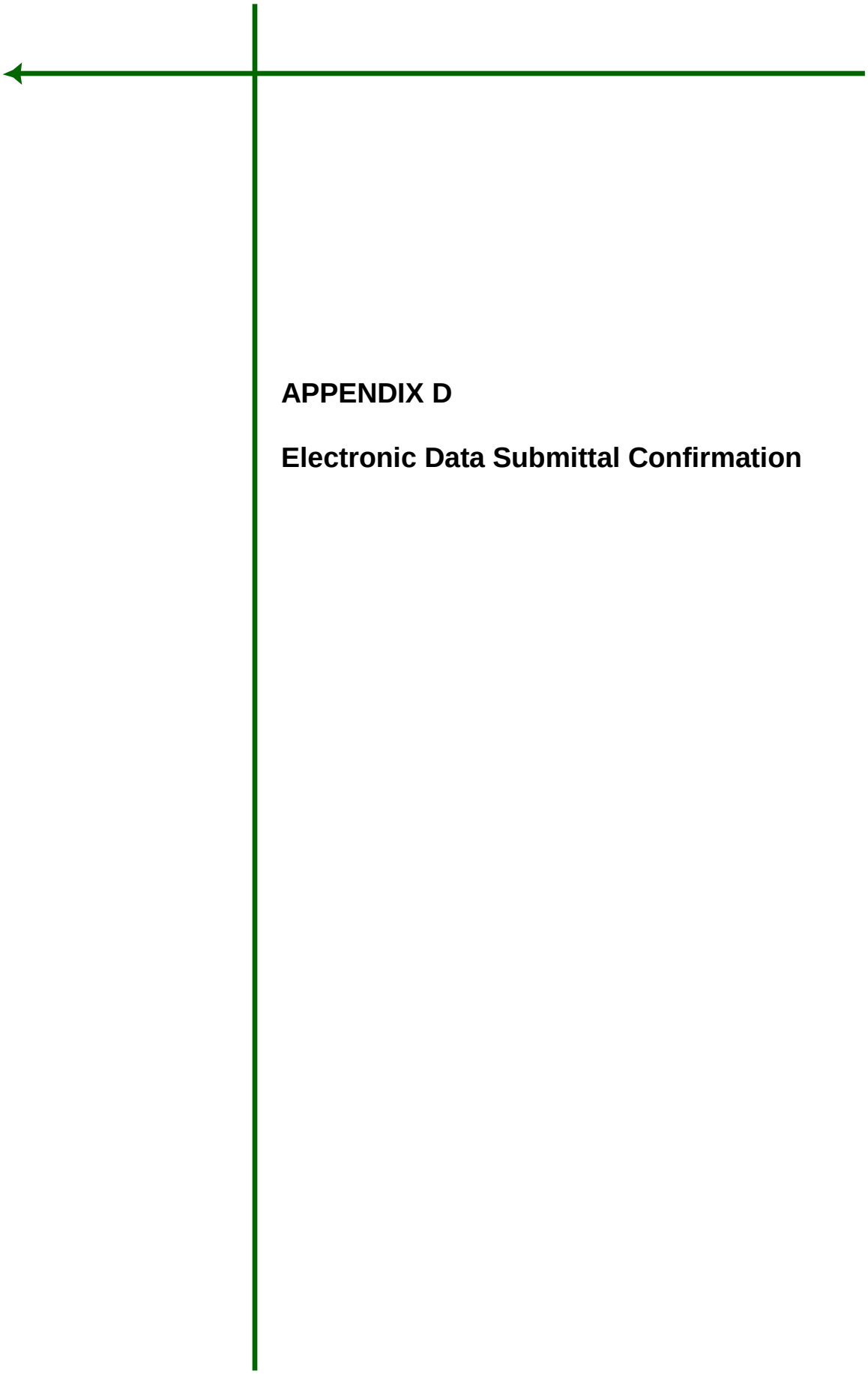
Laboratory quality assurance (QA) procedures include those required under the DTSC hazardous waste testing program. Laboratory-specific procedures are included in the laboratory's QA manual, including the use of method blanks, surrogate spikes, matrix spikes and matrix spike duplicates.

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

Electronic Data Submittal Confirmation

Your GEO_REPORT file has been successfully submitted!

Submittal Type:	**GEO_REPORT**
Report Title:	**Addendum to Data Gap Investigation WP & SCM**
Report Type:	**Site Investigation Workplan**
Report Date:	**12/30/2017**
Facility Global ID:	**T0619748201**
Facility Name:	**AUTOMASTERS**
File Name:	**Automasters Data Gap WP & SCM Addendum - Dec 2016.pdf**
Organization Name:	**West & Associates Environmental Engineers, Inc.**
Username:	**WESTENGINEERS**
IP Address:	**38.102.44.215**
Submittal Date/Time:	**1/9/2017 12:48:22 PM**
Confirmation Number:	**1953529059**