

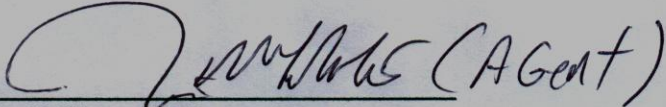
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By Alameda County Environmental Health at 11:55 am, Oct 13, 2014

PERJURY STATEMENT

Subject: 1395 MacArthur Boulevard, San Leandro, California
**Soil Vapor Extraction Pilot Test Report and Interim Remedial Action
Work Plan**

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Handwritten signature of William Mathews Brooks in black ink, with the word "(AGENT)" written in parentheses to the right of the signature.

Mr. William Mathews Brooks
4725 Thornton Avenue
Fremont, CA, 94536

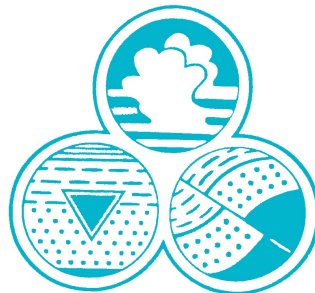
**Soil Vapor Extraction Pilot Test Report & Interim Remedial Action Work Plan
SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California**

01 October 2014
AGE Project No. 12-2461

PREPARED FOR:

Mr. William Matthew Brooks
ARDENBROOK, INC.

PREPARED BY:



Advanced GeoEnvironmental, Inc.

Stockton • San Francisco Bay Area • Monterey • Los Angeles • Spokane • Reno •

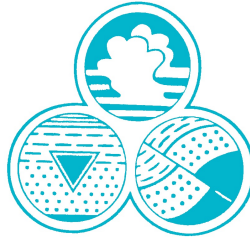
Dallas

(800) 511-9300

www.advgeoenv.com

**Soil Vapor Extraction Pilot Test Report & Interim Remedial Action
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(800) 511-9300
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PREPARED BY:

A handwritten signature in blue ink that reads "Daniel Villanueva".

Daniel J. Villanueva
Project Geologist

PROJECT MANAGER:

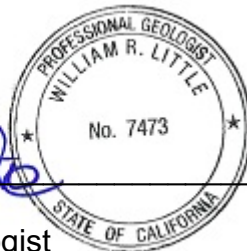
A handwritten signature in blue ink that reads "Daniel Villanueva".

Daniel J. Villanueva
Project Geologist

REVIEWED BY:

A handwritten signature in blue ink that reads "William R. Little".

William R. Little
Senior Project Geologist
California Professional Geologist No. 7473



**Soil Vapor Extraction Pilot Test Report & Interim Remedial Action
Work Plan**

**SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California**

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Soil Vapor Extraction Pilot Test Report & Interim Remedial Action Work Plan

SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California

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- Appendix D – *Laboratory Analytical Report*
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- Appendix F – *Mass-Volume Calculations*
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**Soil Vapor Extraction Pilot Test Report & Interim Remedial Action
Work Plan
SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California**

1.0. INTRODUCTION

At the request of William Mathew Brooks, *Advanced GeoEnvironmental, Inc.* (AGE) has prepared this remediation feasibility report for 1395 MacArthur Boulevard, San Leandro, California (site). The report documents the installation of one soil vapor extraction (SVE) well, three observation wells and the performance of an 8-hour SVE pilot test. This report also includes an interim remedial action work plan that details the installation of additional SVE wells and an interim SVE remediation system at the site. The location of the site is illustrated in Figure 1. A plan of the site is illustrated in Figure 2. Well construction details are summarized in Table 1.

The work was performed as approved by Alameda County Environmental Health Department (ACEHD) directive letter dated 18 July 2014 (Appendix A).

The following is a brief summary of activities conducted at the site:

- 21 August 2014 – Advancement of pilot borings VW-1 and VW-2 to a depth of 7 feet below surface grade (bsg) for installation of one SVE well and one observation well. Soil samples were not collected during drilling. Wells VW-1 and VW-2 were completed as a two-inch diameter wells screened between 2 feet and 7 feet bsg.
- 22 August 2014 – Advancement of pilot borings VW-3 and VW-4 to a depth of 7 feet bsg for installation of two observation wells. Soil samples were not collected during drilling. Wells VW-3 and VW-4 were completed as a two-inch diameter wells screened between 2 feet and 7 feet bsg;
- 26 August 2014 – Initiation and completion of 8-hour SVE pilot test.

2.0. WELL INSTALLATION PROCEDURES

On 21 and 22 August 2014, one SVE well (VW-1) and three observation wells (VW-2, VW-3 and VW-4) were installed within the subject building.

2.1 DRILLING

On 21 and 22 August 2014, four soil borings (VW-1 through VW-4) were advanced at the site, under Alameda County Public Work drilling permits (Appendix B), utilizing a 7-inch diameter hand auger. All borings were advanced to a depth of 7 feet bsg. Auger returns generated by drilling were containerized in properly labeled Department of Transportation (DOT)-approved model 17H 55-gallon drums and were stored on-site.

2.2. WELL COMPLETIONS

Pilot borings VW-1 through VW-4 were single-completed as shallow SVE wells utilizing 2-inch diameter, schedule 40 polyvinylchloride (PVC) well casing. Blank well casing was installed at depths from near surface grade to 2 feet bsg, while 0.020-inch slotted screen was installed from 2 feet to 7 feet bsg. A filter pack, consisting of #3 Monterey sand, was installed from 2 feet to 7 feet bsg. A nominal 1.5-foot bentonite seal (bentonite was installed above the filter pack and hydrated to seal all the wells; cement was not used during installations. Following installation a water-tight, traffic-rated well box was installed over the well. As-built well construction diagrams are depicted on boring logs, which have been included in Appendix C. Boring logs were uploaded to the State Geotracker database under confirmation numbers 3640021622, 8862510025, 6096091985 and 3261679947.

3.0 8-HOUR SOIL VAPOR EXTRACTION AND AIR SPARGE PILOT TEST

On 26 August 2014, an 8-hour SVE pilot test was conducted at the site, to evaluate the remedial effectiveness of the SVE technology on the residual chlorinated hydrocarbon impact at the site. Vapor well VW-1 (screened 2-7 feet) was utilized as the vapor extraction point. SVE observation wells VW-2 through VW-4 were utilized as observation points for SVE data.

The SVE pilot test was conducted by utilizing a 2¹/₂-horsepower, regenerative vacuum blower to extract soil-vapor from SVE well VW-1. The inlet of the SVE vacuum blower was connected to the well-head at VW-1 utilizing 2-inch diameter PVC piping through a soil vapor knock-out drum. The outlet of the SVE-vacuum blower was attached to four, 200-pound, vapor-phase activated carbon adsorption canisters located adjacent to the vacuum blower.

3.1. SOIL VAPOR EXTRACTION AND AIR SPARGE PILOT TEST PROCEDURES

On 26 August 2014, the SVE pilot test was initiated at the site at 10:00 AM and continued for approximately eight hours. The pilot test was terminated at 06:00 AM

following the 8-hour operational period. Utilizing the above referenced vacuum blower and air compressor, an induced vacuum potential was applied at the well head of vapor well VW-1. Thereafter, the vacuum-induced pressure reduction was monitored at half-hour intervals from the extraction well VW-1 and all three observation wells, which were pre-connected with air-tight well caps and Dwyer Magnehelic vacuum gauges fitted to each observation well.

During the SVE pilot test, the soil-vapor extracted from well VW-1 was monitored at the inlet of the vacuum blower for organic vapor and for air flow rate. Organic vapor concentrations were measured utilizing a portable organic vapor meter (OVM) equipped with a photo-ionization detector (PID: Mini Rae 3000, calibrated to isobutylene). The flow rate was monitored prior to the Inlet of the unit using a flow totalizer rotometer. The organic vapor concentrations and flow rates were measured at half-hour intervals and logged on field sheets; SVE pilot test field measurements are summarized in Table 2.

3.2. SVE PILOT TEST SAMPLING AND ANALYSIS

During the 8-hour SVE pilot test, a total of four influent and one effluent soil-vapor samples were collected from the extracted soil-vapor flow. The influent soil-vapor samples were collected from a brass-fitted sampling port located near the outlet of the vacuum blower; the effluent soil-vapor sample was collected from a sampling port located downstream of the last carbon treatment canister. The soil-vapor samples were each collected by attaching a Tedlar bag to the influent or effluent sample port with polyethylene tubing, and allowing the positive displaced air flow to fill each tedlar bag. Samples were transported in a dry container under chain-of-custody to Cal Tech Environmental Laboratories, a California Department of Public Health (CDPH)-certified laboratory. Each sample was analyzed within 72 hours for volatile organic compounds by EPA method 8260B.

4.0. SVE PILOT TEST FINDINGS

Analytical results of SVE soil-vapor samples and pilot test results are based on field data collected on 26 August 2014.

4.1. ANALYTICAL RESULTS OF SOIL-VAPOR SAMPLES

A total of four influent soil-vapor samples were submitted to CTEL for analysis of the constituents listed in Section 3.2. Tetrachloroethene (PCE) was detected in all four influent samples at concentrations of 48,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), 43,000 $\mu\text{g}/\text{m}^3$, 42,000 $\mu\text{g}/\text{m}^3$, 39,000 $\mu\text{g}/\text{m}^3$ and 32,000 $\mu\text{g}/\text{m}^3$.

No additional constituents of concern were reported at or above laboratory reporting limits in the soil-vapor samples analyzed. Analytical results of the soil-vapor samples are summarized in Table 3. The laboratory report (CTEL Project No. CT214-1408148) and chain-of-custody forms are included in Appendix D. The laboratory electronic deliverable format (EDF) files were QA/QC checked and uploaded to the state GeoTracker database under confirmation number 2360053777

4.2. SVE PILOT TEST RESULTS

On 26 August 2014, the SVE pilot test was operated at the site for approximately 8-hours. From the inlet of the SVE vacuum blower, the maximum SVE flow rate extracted from VW-1 was measured to be 6 standard cubic feet per minute (SCFM); the OVM readings were measured between 13.7 parts per million volume (ppmv) at the start of the pilot test and 7.0 ppmv at the end of the pilot test; the induced SVE vacuum extracted from well VW-1 was consistently measured at 6 inches of water. SVE field measurements are summarized in Table 2.

The vacuum-induced pressure reduction was monitored from surrounding observation points (VW-2 through VW-4) with Magnehilic vacuum gauges. The greatest induced vacuum measurement was observed at well VW-3 (located 10 feet north of VW-1) and VW-2 (located 13 east of VW-1). At the conclusion of the pilot test, a very slight vacuum was measured from well VW-4 (located 24 feet northeast of VW-1) at vacuum measurements of 0.05 inches of water.

The maximum vacuum measurements collected from wells VW-2 through VW-4 during the 8-hour SVE pilot test were plotted versus the distance of each well relative to VW-1. The effective radius of influence was determined by drawing a best-fit line through these data points to correlate distance to vacuum data (Appendix E). At a vacuum potential of 0.10 inches of water, the radius of influence is approximately 17.25 feet. Based on the United States EPA-prepared document, *How to Evaluate Alternative Cleanup Technologies For UST sites* the radius of influence is considered to be the distance from the extraction well at which a vacuum of at least 0.1 inches of water is observed. Based upon an effective vacuum potential of 0.1 inches of water, the projected radius of influence at the site will be approximately 17.25 feet. Figure 4 depicts the effective SVE radius of influence for the above 8-hour pilot test.

4.3. MASS CALCULATION OF RECOVERED PRODUCTS

The SVE hydrocarbon mass removed during the SVE/AS pilot test operating period was calculated using the equation: $M = C \cdot Q \cdot t$
where:

M = cumulative mass recovered (kg)
C = vapor concentration (kg/m^3)
Q = extraction flow rate (m^3/hr)
t = operational period, in hours

Results from the August 2014 SVE pilot test were used to calculate the approximate mass of extracted chlorinated hydrocarbons during the 8-hour operational period. During the pilot test, the combined mass of SVE chlorinated hydrocarbons extracted by SVE operations was calculated to be approximately 0.0071 pounds, or equivalent to a total volume of approximately 0.0011 gallons of chlorinated hydrocarbons removed. The volume/mass calculations for extracted hydrocarbons are included with Appendix F.

5.0. SUMMARY

The implications from the 8-hour SVE pilot test are as follows:

- On 26 August 2014, an 8-hour SVE pilot test was performed at the site, as proposed. The SVE test was conducted by applying a vacuum at SVE well VW-1 (screened between 2 and 7 feet bsg), and collecting induced vacuum measurements from observation wells VW-2, VW-3 and VW-4.
- From the inlet of the SVE vacuum blower, the maximum SVE flow rate was measured to be 36 SCFM; the OVM readings were observed to be between 6.5 ppmv and 13.7 ppmv; the induced SVE vacuum extracted from well VW-1 was consistently measured at 6 inches of water (Table 2).
- The greatest induced vacuum measurements were observed from well VW-3 at induced vacuum measurements of 0.15 inches of water. At the conclusion of the pilot test, a very slight vacuum was measured from well VW-4 at a vacuum measurement of 0.05 inches of water (Table 2).
- PCE was detected in all five SVE influent samples at concentrations ranging from 32,000 $\mu\text{g}/\text{l}$ and 48,000 $\mu\text{g}/\text{l}$. No other constituents of concern were detected in influent samples collected during the pilot test. Furthermore, constituents of concern were not detected in the effluent sample collected during the pilot test (Table 3).
- Based upon an effective vacuum potential of 0.1 inches of water, the theoretical radius of influence of SVE is estimated at 17.25 feet (Figure 4; Appendix D).
- The combined mass of SVE hydrocarbons extracted during the 8-hour SVE pilot test was calculated to be approximately 0.0071 pounds, or equivalent to a volume of approximately 0.0011 gallons of extracted chlorinated hydrocarbons (Appendix F).

6.0. CONCLUSIONS

Based on high influent concentrations in soil-vapor samples and the projected radius of influence (approximately 17.25 feet), SVE should effectively reduce adsorbed and vapor-phase chlorinated hydrocarbon concentrations beneath the subject facility and part of the adjacent most unit. AGE concludes that soil vapor extraction could be used as a feasible interim remediation option for treatment of chlorinated hydrocarbon-impact at the site.

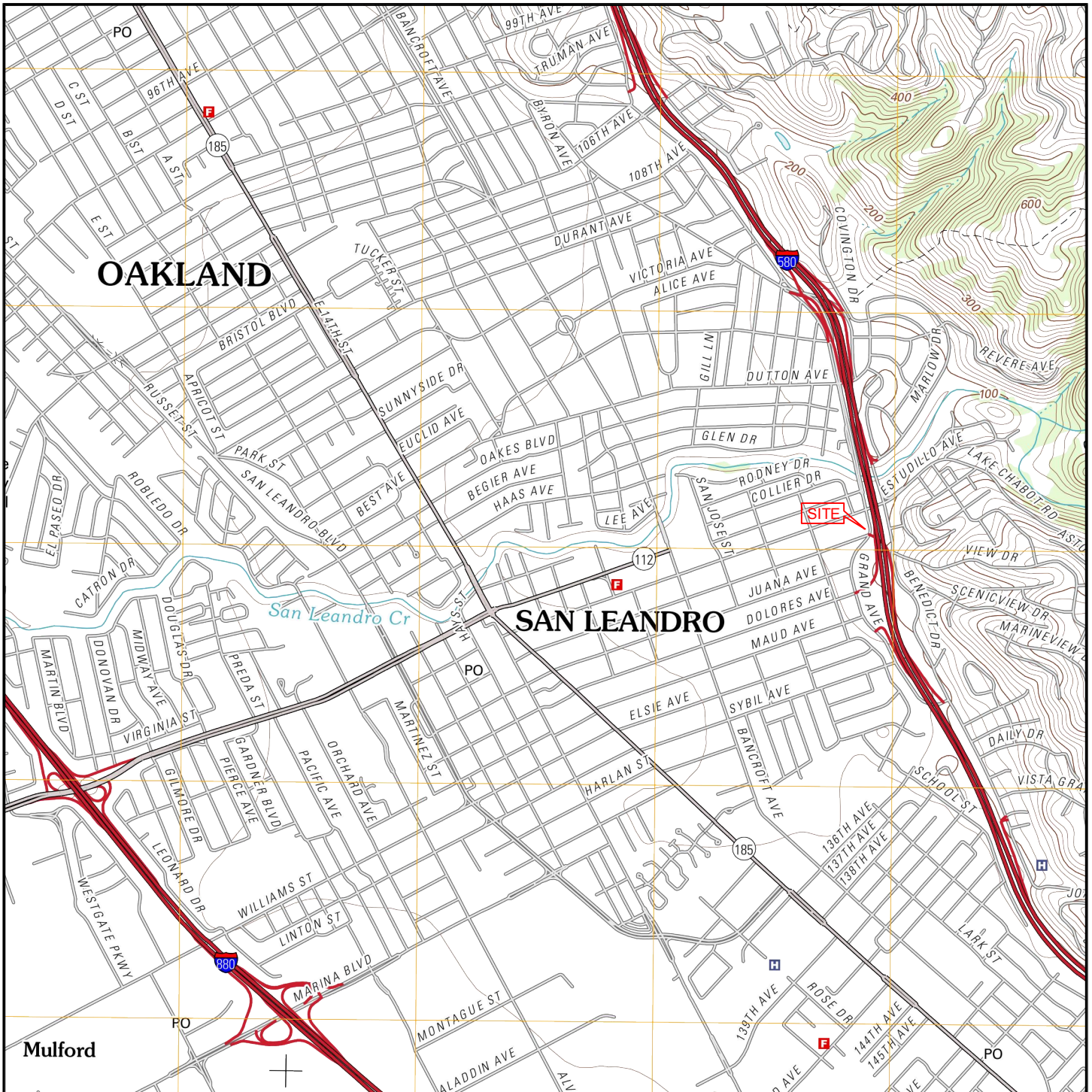
7.0. RECOMMENDATIONS

Based on the findings of this investigation, AGE recommends preparation of an interim remedial work plan to remediate chlorinated hydrocarbon impact beneath the subject unit. An interim remediation work plan proposing additional vapor extraction wells and a fixed SVE system has been included as Appendix G.

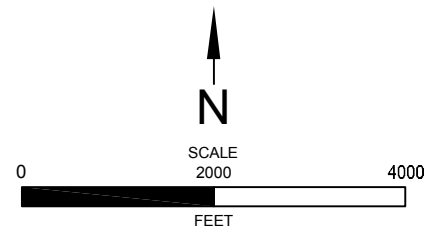
8.0. LIMITATIONS

Our professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar localities. The findings were based upon analytical results provided by an independent laboratory. Evaluation of the geologic/hydrogeologic conditions at the site for the purpose of this investigation was made from a limited number of available data points (soil-vapor samples) and subsurface conditions may vary away from these data points. No other warranty, expressed or implied, is made as to the professional interpretations, opinions and recommendations contained in this report.

FIGURES



SAN LEANDRO QUADRANGLE, CALIFORNIA
 7.5 MINUTE SERIES (U.S. GEOLOGICAL SURVEY)



LOCATION MAP
 SWISS VALLEY CLEANERS
 1395 MacArthur Boulevard
 SAN LEANDRO, CALIFORNIA



Advanced
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PROJECT NO. AGE-NC-12-2461	FILE: LOCATION	FIGURE:
DATE: 21 MAY, 2013	DRAWN BY: MAC	1

LEGEND

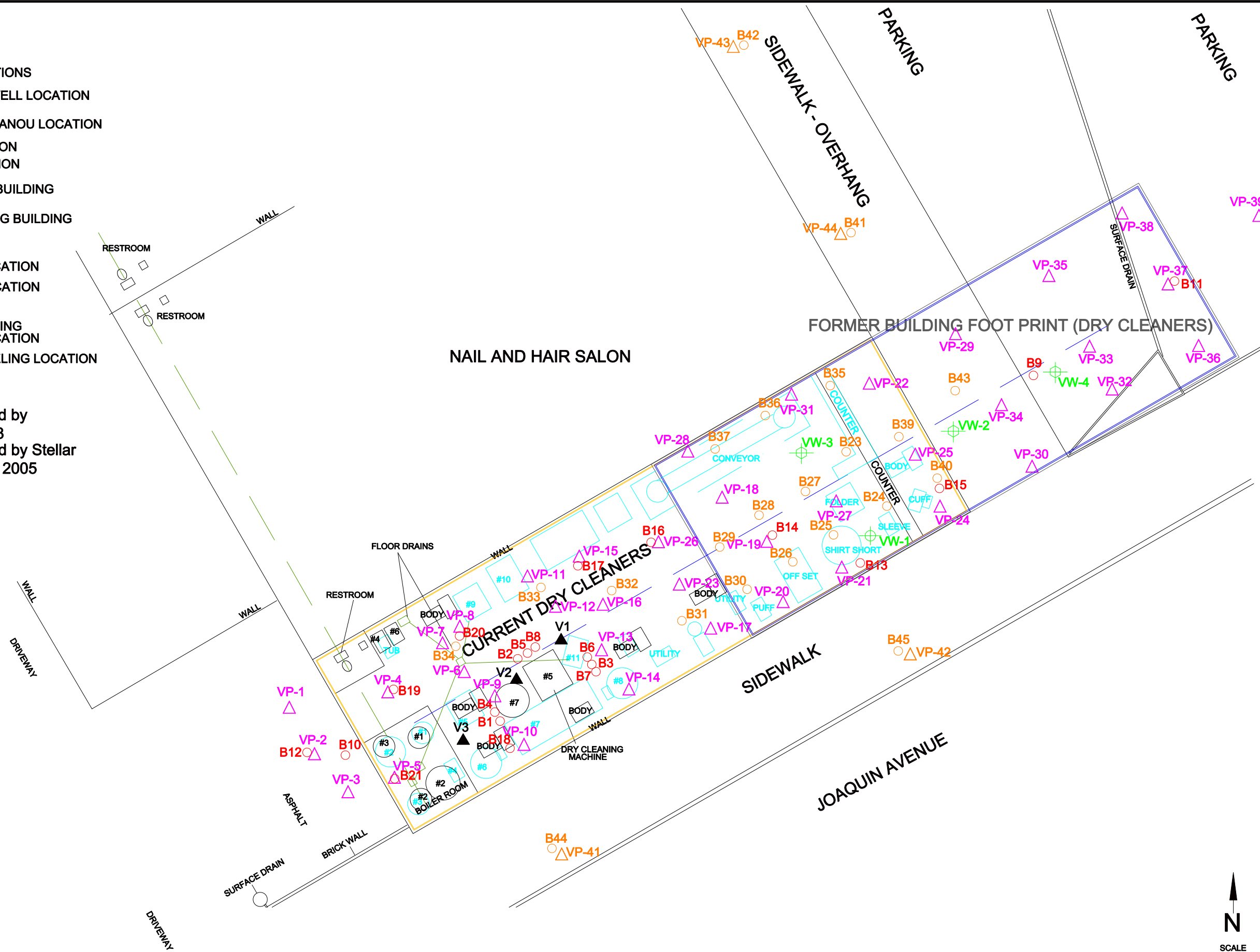
- B9 ○ SOIL BORING LOCATION
- V1 ▲ SOIL VAPOR LOCATIONS
- △ SOIL VAPOR SURVEY LOCATIONS
- ⊕ SOIL VAPOR EXTRACTION WELL LOCATION
- ◇ SURFACE DRAIN/SEWER CLEANOUT LOCATION
- SEWER LINE LOCATION
- WATER LINE LOCATION
- CURRENT DRY CLEANING BUILDING
- HISTORICAL DRY CLEANING BUILDING
- #8 ○ GARMENT CLEANING CHEMICAL RECOVERY LOCATION
- CUFF □ GARMENT HANDLING LOCATION
- #8 ○ FORMER GARMENT CLEANING CHEMICAL RECOVERY LOCATION
- CUFF □ FORMER GARMENT HANDLING LOCATION


Notes:

Borings B1 through B3 advanced by Hageman-Aguiar in August 1998
 Borings B4 through B6 advanced by Stellar Environmental Solutions in April 2005

- #1 - HOT WATER HEATER
- #2 - BOILER
- #3 - COMPRESSOR
- #4 - COMPT.
- #5 - RECLAIMER
- #6 - FILTER
- #7 - CLEANING UNIT
- #8 - SNIFF-O-MISER (RECOVERY)
- #9 - WX
- #10 - TUMBLER
- #11 - SPOT CLEANER
- #1 - HOT WATER HEATER
- #2 - BOILER
- #3 - COMPRESSOR
- #4 - SMALL DRY CLEANING UNIT
- #5 - LARGE DRY CLEANING UNIT
- #6 - SMALL DRYING UNIT
- #7 - RECLAIMER

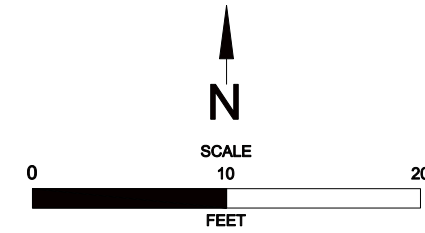
VP-40
 △
 B38
 ○
 FENCE LINE




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PROJECT NO. AGE-12-2461	FILE:
DATE: SEPTEMBER 2014	DRAWN BY: MAC
FIGURE: 2	

SITE PLAN
 SWISS VALLEY CLEANERS
 1395 MACARTHUR BOULEVARD
 SAN LEANDRO, CALIFORNIA



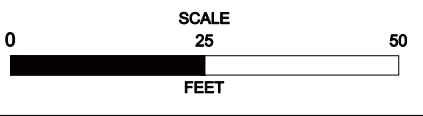


LEGEND

- V1 ▲ SOIL VAPOR LOCATIONS
- △ SOIL VAPOR SURVEY LOCATIONS
- ◇ SURFACE DRAIN/SEWER CLEANOUT LOCATION
- SEWER LINE LOCATION
- WATER LINE LOCATION
- CURRENT DRY CLEANING BUILDING
- HISTORICAL DRY CLEANING BUILDING

Notes:

Borings B1 through B3 advanced by Hageman-Aguilar in August 1998
 Borings B4 through B6 advanced by Stellar Environmental Solutions in April 2005



REGIONAL SITE PLAN
SWISS VALLEY CLEANERS
1395 MACARUTHER BOULEVARD
SAN LEANDRO, CALIFORNIA

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PROJECT NO. AGE-NC-SC	FILE: FILE	3
DATE: MAY 2014	DRAWN BY: MAC	

LEGEND

- B9 ○ SOIL BORING LOCATION
- V1 ▲ SOIL VAPOR LOCATIONS
- △ SOIL VAPOR SURVEY LOCATIONS
- ⊕ SOIL VAPOR EXTRACTION WELL LOCATION
- ⊕ OBSERVATION WELL LOCATION
- △ PROPOSED SOIL-VAPOR AND SOIL SAMPLING LOCATIONS
- △ PROPOSED SHALLOW SOIL SAMPLING LOCATIONS
- ◇ SURFACE DRAIN/SEWER CLEANOUT LOCATION

- SEWER LINE LOCATION
- WATER LINE LOCATION

- CURRENT DRY CLEANING BUILDING
- HISTORICAL DRY CLEANING BUILDING

- #8 GARMET CLEANING CHEMICAL RECOVERY LOCATION
- CUFF GARMET HANDELING LOCATION
- #8 FORMER GARMET CLEANING CHEMICAL RECOVERY LOCATION
- CUFF FORMER GARMET HANDELING LOCATION

Notes:

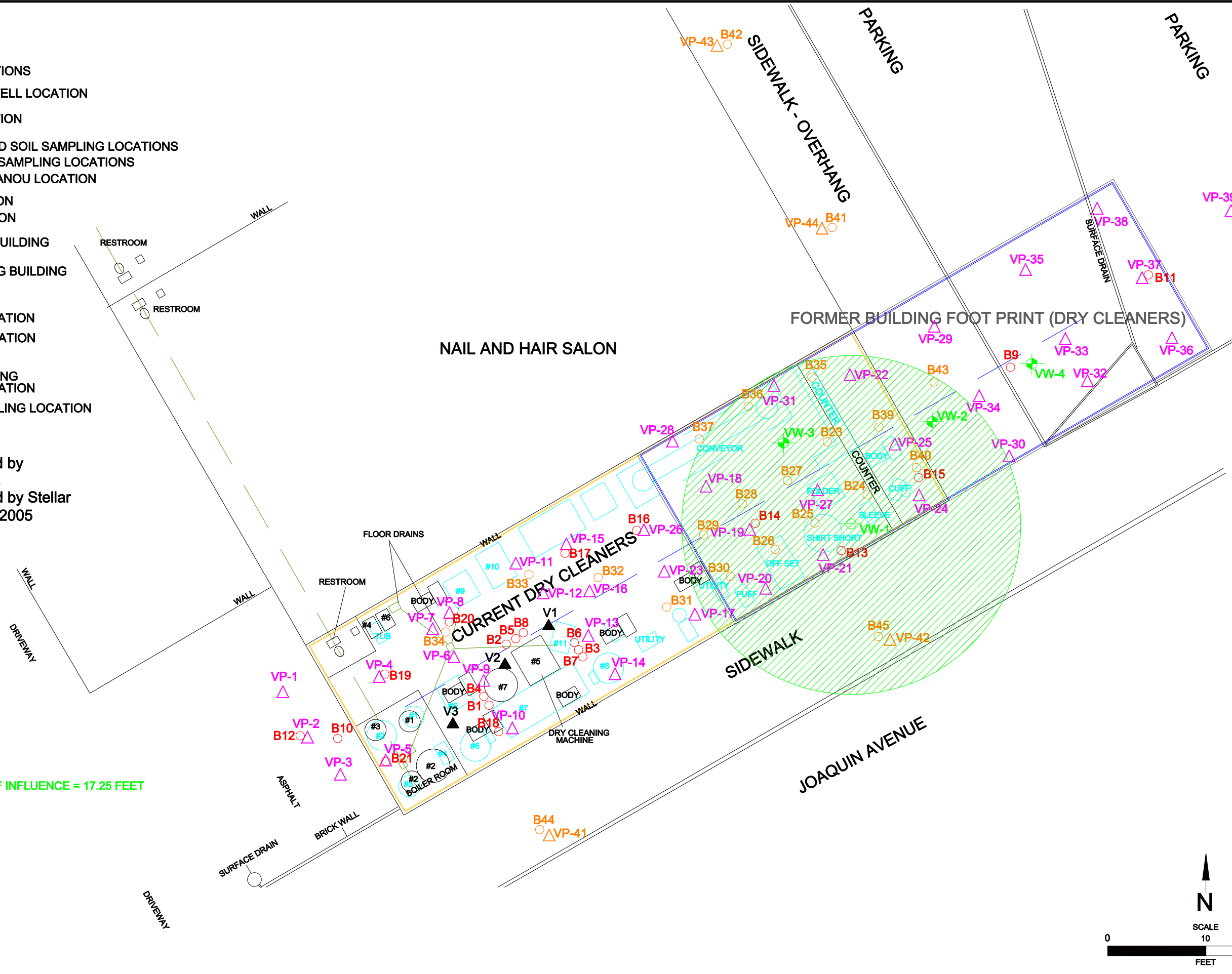
Borings B1 through B3 advanced by Hageman-Aguiar in August 1998
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- #1 - HOT WATER HEATER
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- #10 - TUMBLER
- #11 - SPOT CLEANER

- #1 - HOT WATER HEATER
- #2 - BOILER
- #3 - COMPRESSOR
- #4 - SMALL DRY CLEANING UNIT
- #5 - LARGE DRY CLEANING UNIT
- #6 - SMALL DRYING UNIT
- #7 - RECLAIMER

 THEORETICAL RADIUS OF INFLUENCE = 17.25 FEET

VP-40
 B38



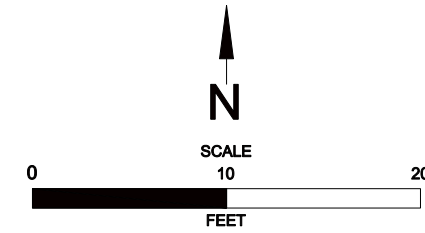
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PROJECT NO. AGE-12-2461
 DATE: SEPTEMBER 2014

FILE:
 DRAWN BY: MAC

FIGURE:
 4

THEORETICAL SVE RADIUS OF INFLUENCE
SWISS VALLEY CLEANERS
 1395 MACARTHUR BOULEVARD
 SAN LEANDRO, CALIFORNIA



LEGEND

- B9 ○ SOIL BORING LOCATION
- V1 ▲ SOIL VAPOR LOCATIONS
- △ SOIL VAPOR SURVEY LOCATIONS
- ⊕ SOIL VAPOR EXTRACTION WELL LOCATION
- ⊕ PROPOSED SOIL VAPOR EXTRACTION WELL LOCATION

- ◇ SURFACE DRAIN/SEWER CLEANOUT LOCATION
- - - SEWER LINE LOCATION
- - - WATER LINE LOCATION

- CURRENT DRY CLEANING BUILDING
- HISTORICAL DRY CLEANING BUILDING

- #8 GARMENT CLEANING CHEMICAL RECOVERY LOCATION
- CUFF GARMENT HANDLING LOCATION
- #8 FORMER GARMENT CLEANING CHEMICAL RECOVERY LOCATION
- CUFF FORMER GARMENT HANDLING LOCATION

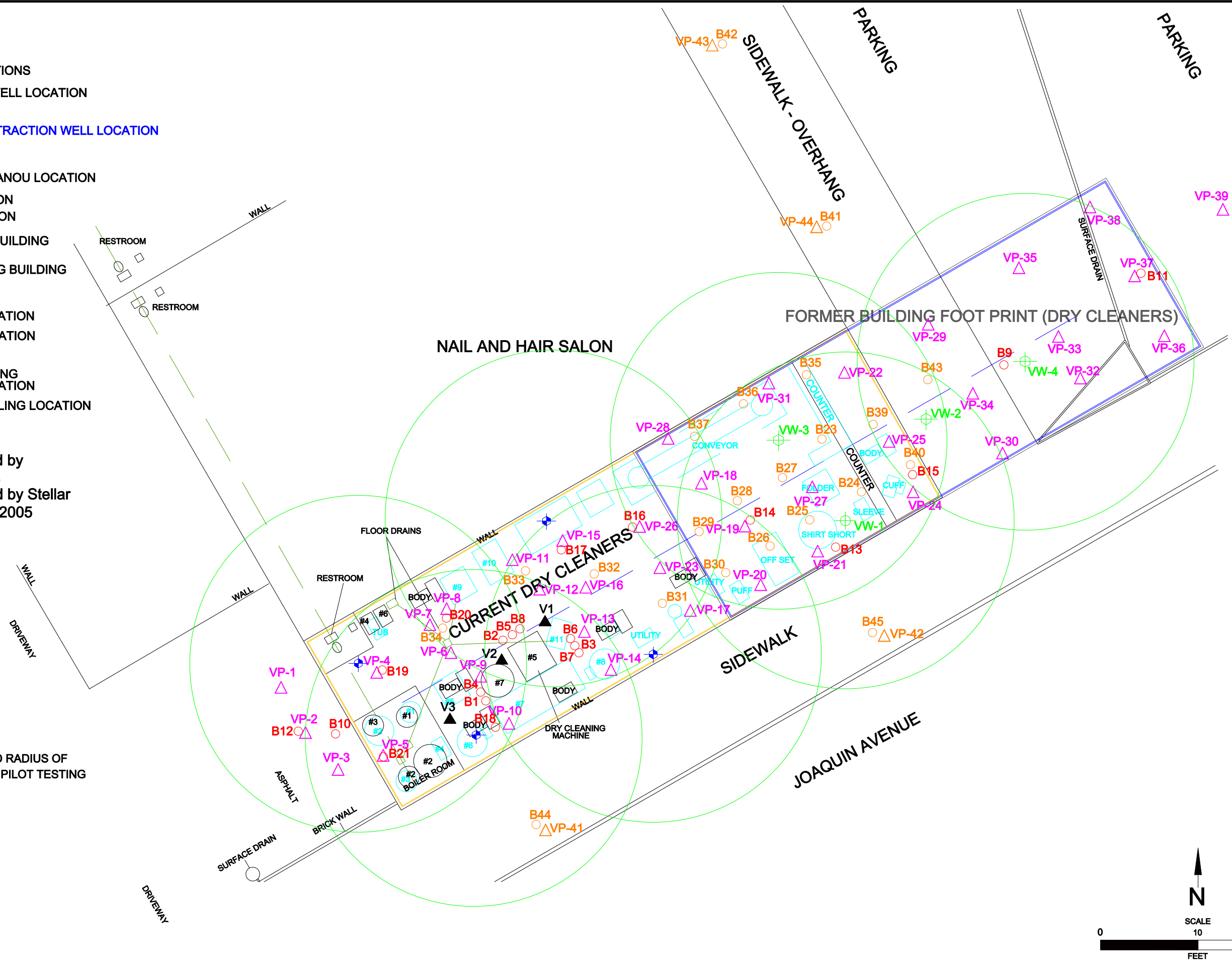
Notes:

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 Borings B4 through B6 advanced by Stellar Environmental Solutions in April 2005

- #1 - HOT WATER HEATER
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- #11 - SPOT CLEANER
- #1 - HOT WATER HEATER
- #2 - BOILER
- #3 - COMPRESSOR
- #4 - SMALL DRY CLEANING UNIT
- #5 - LARGE DRY CLEANING UNIT
- #6 - SMALL DRYING UNIT
- #7 - RECLAIMER

○ ESTIMATED OR PROJECTED RADIUS OF INFLUENCE BASED ON SVE PILOT TESTING

VP-40
 △ FENCE LINE
 B38 ○



PROPOSED INTERIM SOIL VAPOR EXTRACTION WELL LOCATIONS
 SWISS VALLEY CLEANERS
 1395 MACARTHUR BOULEVARD
 SAN LEANDRO, CALIFORNIA

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PROJECT NO. AGE-12-2461
 DATE: OCTOBER 2013

FILE:
 DRAWN BY: MAC

FIGURE: 5

LEGEND

- B9 ○ SOIL BORING LOCATION
- V1 ▲ SOIL VAPOR LOCATIONS
- △ SOIL VAPOR SURVEY LOCATIONS
- ⊕ SOIL VAPOR EXTRACTION WELL LOCATION
- ⊕ PROPOSED SOIL VAPOR EXTRACTION WELL LOCATION

◇ SURFACE DRAIN/SEWER CLEANOUT LOCATION

--- SEWER LINE LOCATION

--- WATER LINE LOCATION

— CURRENT DRY CLEANING BUILDING

— HISTORICAL DRY CLEANING BUILDING

#8 ○ GARMENT CLEANING CHEMICAL RECOVERY LOCATION

CUFF ○ GARMENT HANDELING LOCATION

#8 ○ FORMER GARMENT CLEANING CHEMICAL RECOVERY LOCATION

CUFF ○ FORMER GARMENT HANDELING LOCATION

Notes:

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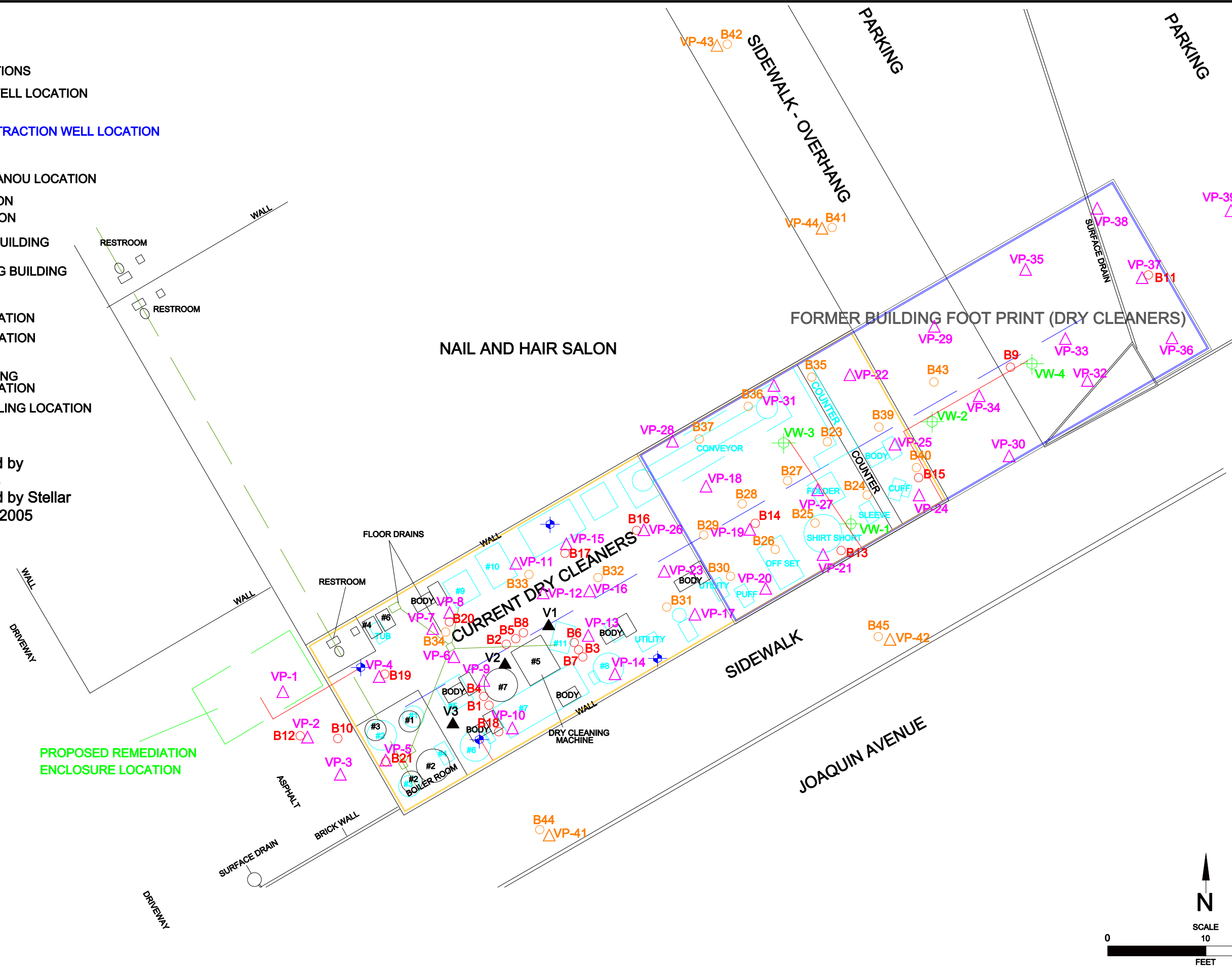
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- #5 - LARGE DRY CLEANING UNIT
- #6 - SMALL DRYING UNIT
- #7 - RECLAIMER

— PROPOSED TRENCH LOCATIONS

PROPOSED REMEDIATION ENCLOSURE LOCATION

VP-40
 △
 B38
 ○



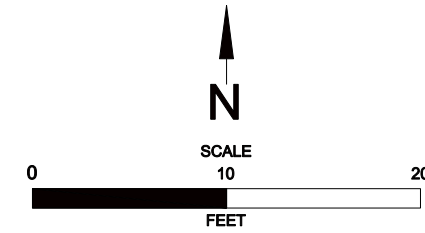
Advanced GeoEnvironmental, Inc.
 www.advgeoenv.com

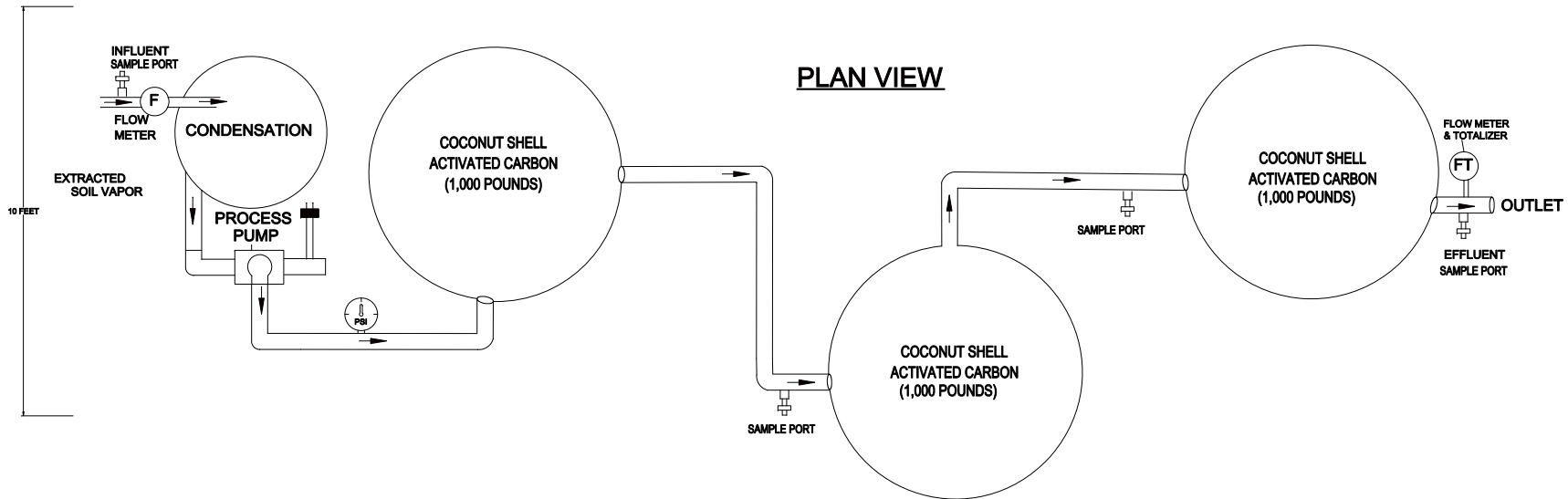
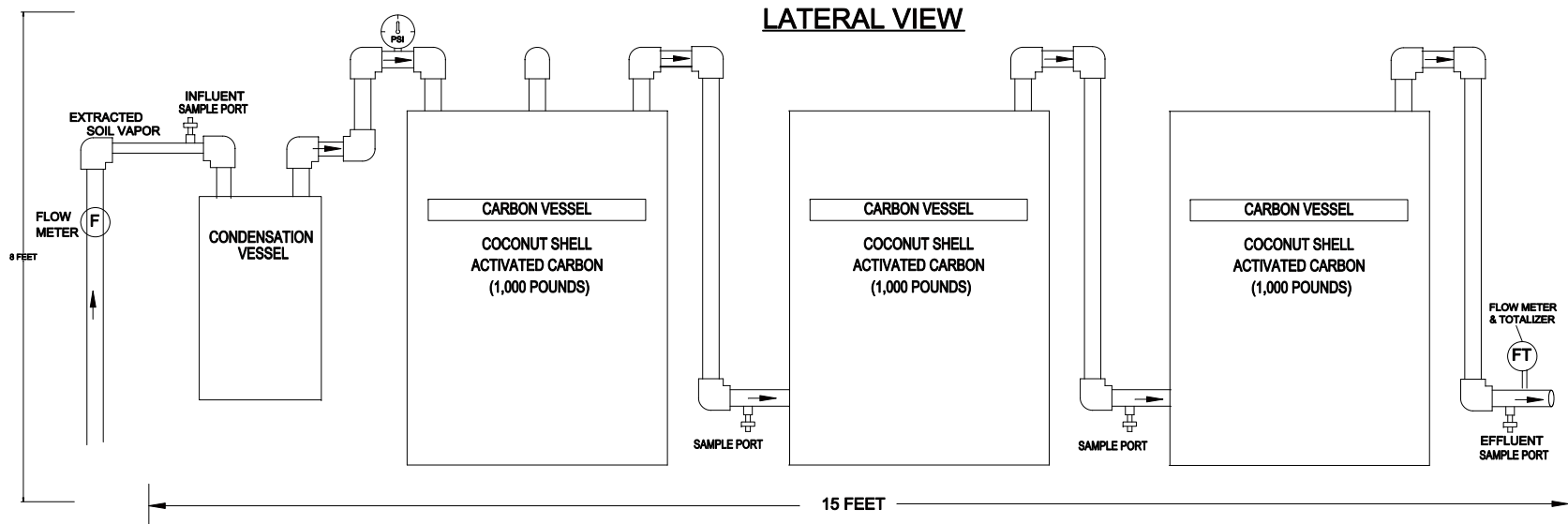
PROJECT NO. AGE-12-2461
 DATE: OCTOBER 2013

FILE:
 DRAWN BY: MAC

FIGURE: 6

PROPOSED TRENCH AND ENCLOSURE LOCATIONS
 SWISS VALLEY CLEANERS
 1395 MACARTHUR BOULEVARD
 SAN LEANDRO, CALIFORNIA





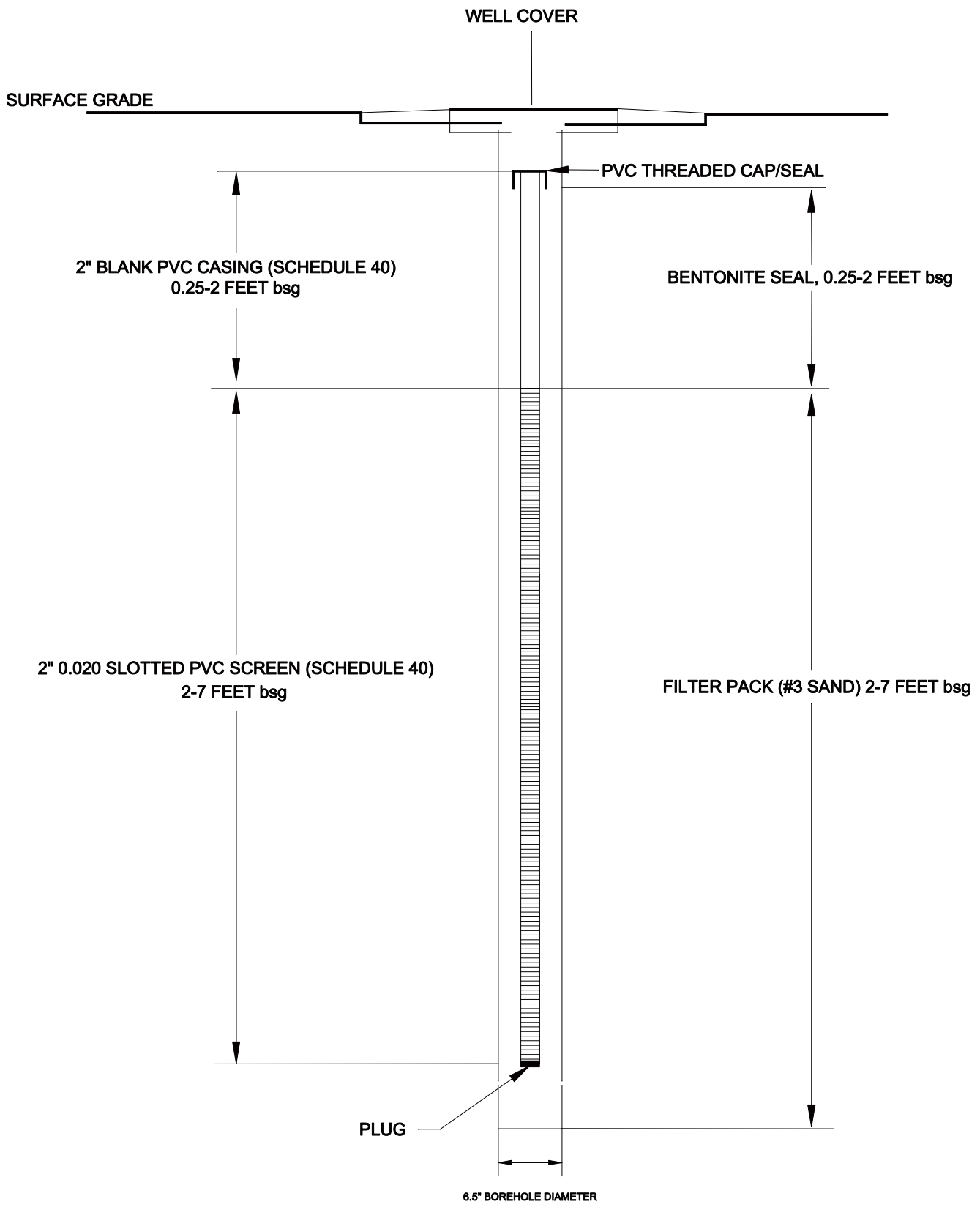
NOTE: Design is approximate and is subject to change.

REMEDICATION SYSTEM DESIGN
SWISS VALLEY CLEANERS
ADDRESS
SAN LEANDRO, CALIFORNIA



Advanced
GeoEnvironmental, Inc.
www.advgeoenv.com

PROJECT NO. AGE - 12-2461	FILE:	FIGURE:
DATE: SEPTEMBER 2014	DRAWN BY: MAC	7



ALL DEPTHS RELATIVE TO SURFACE GRADE
NOT TO SCALE

PROPOSED SOIL VAPOR WELL
SWISS VALLEY CLEANERS
1395 MacArthur Boulevard
SAN LEANDRO, CALIFORNIA



Advanced
GeoEnvironmental, Inc.
 www.advgeoenv.com

PROJECT NO. AGE-12-2461	FILE: ESL	FIGURE:
DATE: MAY 2014	DRAWN BY: MAC	8

TABLES

TABLE 1
WELL CONSTRUCTION DETAILS
 Swiss Valley Cleaners
 1395 MacArthur Boulevard, San Leandro, California

Well ID	Installation Date	Borehole Diameter (inch)	Total Drilled Depth (feet bsg)	Total Well Depth (feet bsg)	Casing Elevation (ft MSL)	Well Casing Material	Slot Size (inch)	Screen Interval (feet)	Filter Pack Interval (feet bsg)	Bentonite Interval (feet bsg)	Grout Interval (feet bsg)
VW-1	08-21-2014	7	7	7	NM	PVC	0.020	2 to 7	2 to 7	0.5 to 2	none
VW-2	08-21-2014	7	7	7	NM	PVC	0.020	2 to 7	2 to 7	0.5 to 2	none
VW-3	08-22-2014	7	7	7	NM	PVC	0.020	2 to 7	2 to 7	0.5 to 2	none
VW-4	08-22-2014	7	7	7	NM	PVC	0.020	2 to 7	2 to 7	0.5 to 2	none

Notes:

bsg: below surface grade
 NM: Not measured

TABLE 2
SVE PILOT TEST FIELD PARAMETERS
 Swiss Valley Cleaners
 1395 MacArthur Boulevard, San Leandro, California

Time	Date	Flow (SCFM)	Influent PID (ppm)	Effluent PID (ppm)	Vacuum Measurements (IOW)			
					VW-1 (extraction well) (IOW)	VW-2 (IOW)	VW-3 (IOW)	VW-4 (IOW)
Baseline	8/26/2014	-	-	-	0	0	0	0
1000	8/26/2014	36	13.7	0	6.0	0	0.10	0
1030	8/26/2014	35	11.0	0	6.0	0.5	0.15	0
1100	8/26/2014	35	11.2	0	6.0	0.5	0.15	0
1130	8/26/2014	35	9.4	0	6.0	0.5	0.15	0
1200	8/26/2014	35	9.2	0	6.0	0.5	0.15	0
1230	8/26/2014	35	9.6	0	6.0	0.5	0.15	0
1300	8/26/2014	35	9.1	0	6.0	0.5	0.15	0
1330	8/26/2014	35	8.6	0	6.0	0.5	0.15	0
1400	8/26/2014	35	8.2	0	6.0	0.5	0.15	0
1430	8/26/2014	35	7.5	0	6.0	0.5	0.15	0
1500	8/26/2014	35	8.3	0	6.0	0.5	0.15	0.05
1530	8/26/2014	35	7.2	0	6.0	0.5	0.15	0.05
1600	8/26/2014	35	7.0	0	6.0	0.5	0.15	0.05

TABLE 2
SVE PILOT TEST FIELD PARAMETERS
 Swiss Valley Cleaners
 1395 MacArthur Boulevard, San Leandro, California

Time	Date	Flow (SCFM)	Influent PID (ppm)	Effluent PID (ppm)	Vacuum Measurements (IOW)			
					VW-1 (extraction well) (IOW)	VW-2 (IOW)	VW-3 (IOW)	VW-4 (IOW)
1630	8/26/2014	35	6.5	0	6.0	0.5	0.15	0.05
1700	8/26/2014	35	6.7	0	6.0	0.10	0.15	0.05
1730	8/26/2014	35	7.4	0	6.0	0.10	0.15	0.05
1800	8/26/2014	35	7.0	0	6.0	0.10	0.15	0.05
post	8/26/2014	-	-	-	0	0	0	0

Notes:

IOW: Inches of Water

SCFM: Standard Cubic Feet per Water

ppm: parts per million

TABLE 3
SVE PILOT TEST SOIL VAPOR ANALYTICAL DATA
 Swiss Valley Cleaners
 1395 MacArthur Boulevard, San Leandro, California

Sample ID	Date	EPA 8260B					
		Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,1- Dichloroethene (1,1-DCE)	Trans 1,2- Dichloroethene (Trans 1,2-DCE)	Cis 1,2- Dichloroethene (Cis 1,2-DCE)	Vinyl Chloride (VC)
Influent/Start	08-26-2014	48,000	<200	<200	<200	<200	<200
Influent/1200	08-26-2014	43,000	<200	<200	<200	<200	<200
Influent/1400	08-26-2014	42,000	<200	<200	<200	<200	<200
Influent/1600	08-26-2014	39,000	<200	<200	<200	<200	<200
Influent/End	08-26-2014	32,000	<200	<200	<200	<200	<200
Effluent	08-26-2014	<200	<200	<200	<200	<200	<200

Notes:

All sample concentrations reported in micrograms per cubic meter

<: Indicates constituents were not detected at a concentration greater than the reporting limit shown.

NA: Not analyzed.

APPENDIX A



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

July 18, 2014

Mr. William Mathews Brooks
4725 Thornton Avenue
Fremont, CA 94536
(Sent via electronic mail to REWMB@aol.com)

Subject: Request for Tennant Notification, Risk Characterization and Uncertainty Analysis; Site Cleanup Program (SCP) Case No. RO0003120 and GeoTracker Global ID T10000005063, Swiss Valley Cleaners, 1395 MacArthur Blvd, Oakland, CA 94577

Dear Mr. Brooks:

Alameda County Environmental Health (ACEH) has reviewed the *Indoor Air Sampling Report – Second Quarter 2014*, dated July 1, 2014, prepared and submitted on your behalf by Advanced GeoEnvironmental, Inc. (AGE). Thank you for submitting the report. The report documented an additional, confirmatory, indoor air sampling event after documentation of elevated halogenated volatile organic compounds in soil vapor concentrations beneath the subject property and in indoor air samples multiple suites in the shopping center space.

Based on the review of the case file ACEH requests that you address the following technical comments and send us the documents requested below.

TECHNICAL COMMENTS

- 1. Risk Characterization and Uncertainty Analysis** – Consistent with the October 2011 DTSC *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*, ACEH requests that a Risk Characterization and an Uncertainty Analysis be conducted in order to preliminarily determine health risks at the subject site. If the estimated risk is greater than 10^{-4} or the Hazard Index is less than 1, response actions are needed (vapor intrusion mitigation and source remediation).
- 2. Post-Indoor Air Sampling Notification of Building Occupants** – The referenced indoor air sampling report recommends public notification fact sheets be generated to communicate the results of the indoor air sampling to building occupants. ACEH is in agreement with this recommendation and requests that the fact sheets conform to the requirements of the March 2012 Department of Toxic Substances Control (DTSC) *Vapor Intrusion Public Participation Advisory*. Consistent with the referenced October 2011 DTSC *Vapor Intrusion Guidance* this should be done individually or in small groups.
- 3. Interim Mitigation Measures** – The referenced indoor air sampling report recommends the modification of the Heating, Ventilation, and Air Conditioning (HVAC) system in three units adjacent to the subject suite, and the installation of fresh air and exhaust fans. At this time, ACEH is generally agreement with this recommendation and requests investigation into the alteration of the HVAC system to provide positive pressure within the units to reduce vapor intrusion exposures. This is in general conformance with the referenced October 2011 DTSC *Vapor Intrusion Guidance*. Consistent with this guidance, ACEH does not consider mitigation to be a long-term solution. ACEH considers remediation and mitigation as complimentary components of a response action for Volatile Organic Compounds (VOCs).
- 4. Interim Remedial Actions** – The referenced indoor air sampling report recommends the installation of Soil Vapor (SVE) pilot test wells. ACEH has previously approved the installation of pilot wells (directive

letter dated March 11, 2014); however, requested that the wells be located based on the results of the soil grid sampling investigation. Please be aware that ACEH considers the plot testing to be a form of interim remedial action. Please also be aware that a Remedial Action Plan will be required to evaluate feasible alternatives for the site, to incorporate the results of the proposed pilot test, and to recommend final alternatives in accordance with DTSC guidelines.

TECHNICAL REPORT REQUEST

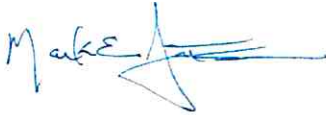
Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the specified file naming convention below, according to the following schedule:

- **August 22, 2014** – Risk Characterization and Uncertainty Analysis
File to be named: RO3120_SWI_R_yyyy-mm-dd

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>. If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,



Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou,
email, c=US
Date: 2014.07.18 18:03:34 -07'00'

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

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

cc: Daniel Villanueva, Advanced GeoEnvironmental, Inc, 837 Shaw Road, Stockton, CA 95215
(sent via electronic mail to DVillanueva@advgeoenv.com)

William Little, Advanced GeoEnvironmental, Inc, 837 Shaw Road, Stockton, CA 95215
(sent via electronic mail to WLittle@advgeoenv.com)

Dilan Roe (sent via electronic mail to dilan.roe@acgov.org)

Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	REVISION DATE: May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Please **do not** submit reports as attachments to electronic mail.
- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not** password protect the document. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

- 1) Obtain User Name and Password
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to deh.loptoxic@acgov.org
 - b) In the subject line of your request, be sure to include "ftp PASSWORD REQUEST" and in the body of your request, include the **Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
 - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.



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

September 16, 2014

Mr. William Mathews Brooks
4725 Thornton Avenue
Fremont, CA 94536
(Sent via electronic mail to REWMB@aol.com)

Subject: Request for Work Plan; Site Cleanup Program (SCP) Case No. RO0003120 and GeoTracker
Global ID T10000005063, Swiss Valley Cleaners, 1395 MacArthur Blvd, Oakland, CA 94577

Dear Mr. Brooks:

Alameda County Environmental Health (ACEH) has reviewed the *Site Assessment Report*, dated July 14, 2014 and the *Risk Characterization and Uncertainty Analysis Report*, dated August 5, 2014, prepared and submitted on your behalf by Advanced GeoEnvironmental, Inc, (AGE). Thank you for submitting the reports.

The site assessment report documented the installation of soil bores SB23 to SB45, the sampling of shallow soil and the sampling of soil vapor at a depth of 5 feet below surface grade (bgs) in an effort to delineate the lateral extent of soil and soil vapor contamination at the site. The subsurface work was generally conducted concurrently with indoor air sampling at a number of commercial suites at the shopping center and reported on in the *Indoor Air Sampling Report – Second Quarter 2014*, dated July 1, 2014. The *Risk Characterization and Uncertainty Analysis Report* was requested in a July 18, 2014 directive letter as a result of the review of the indoor air sampling data and report in which indoor air concentrations of tetrachloroethene (PCE) above acceptable regulatory screening levels. The risk evaluation provided a list of major assumptions which appear appropriate, a list of uncertainties identified at the site, and used RISC5 software to calculate a preliminary risk assessment based on site specific data. The resulting calculations indicated a cancer risk of 8.4×10^{-6} and a hazard index of 0.015. The preliminary results indicate that an imminent health risk concern may not appear to be present. Thank you for the analysis.

Based on the review of the case file ACEH requests that you address the following technical comments and send us the documents requested below.

TECHNICAL COMMENTS

- 1. SVE Pilot Test** – As previously communicated, ACEH is in general agreement with conducting the Soil Vapor Extraction (SVE) pilot test, using the modified well screening interval (2 to 7 feet bgs) proposed in the *Site Assessment Report*. Please submit a Remedial Action Plan (RAP) that evaluates a minimum of three feasible alternatives for the site, to incorporate the results of the pilot test, and to recommend final alternatives in accordance with DTSC guidelines, by the date identified below.
- 2. Delineation of Chlorinated Solvent Soil and Soil Vapor Plumes** – ACEH is in general agreement with the recommendation contained in the *Site Assessment Report* for the lateral delineation of the soil and soil vapor contaminant plume at the site. Please submit a work plan for the work by the date identified below.
- 3. Sub-Slab Vapor Concentrations** – ACEH is also in general agreement with the recommendation contained in the *Site Assessment Report* for the installation of sub-slab vapor points in order to evaluate vapor concentrations below the slab. Please submit a work plan for the work by the date identified below; both work plans can be combined into a single document.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Mark Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with Attachment 1 and the specified file naming convention below, according to the following schedule:

- **November 14, 2014** – Remedial Action Plan
File to be named: RO3120_RAP_R_yyyy-mm-dd
- **November 7, 2014** – Work Plans
File to be named: RO3120_WP_R_yyyy-mm-dd

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>. If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,

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

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
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William Little, Advanced GeoEnvironmental, Inc, 837 Shaw Road, Stockton, CA 95215
(sent via electronic mail to WLittle@advgeoenv.com)

Dilan Roe (sent via electronic mail to dilan.roe@acgov.org)
Mark Detterman, ACEH, (sent via electronic mail to mark.detterman@acgov.org)
Geotracker, Electronic File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

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UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

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Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	REVISION DATE: May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

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RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

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 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

Alameda County Public Works Agency - Water Resources Well Permit



Public Works Agency
— Alameda County —

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 08/12/2014 By jamesy

Permit Numbers: W2014-0737 to W2014-0740
Permits Valid from 08/21/2014 to 08/25/2014

Application Id:	1407360625224	City of Project Site:	Alameda
Site Location:	1395 MacArthur Boulevard	Completion Date:	08/25/2014
Project Start Date:	08/21/2014	Assigned Inspector: Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org	
Applicant:	Advanced GeoEnvironmental Inc. - Daniel Villanueva 837 Shaw Road, Stockton, CA 95215	Phone:	209-467-1006
Property Owner:	William Brooks 4725 Thornton Avenue, Fremont, CA 94536	Phone:	--
Client:	** same as Property Owner **	Phone:	209-467-1006
Contact:	Villanueva Daniel	Cell:	209-601-3541

Receipt Number: WR2014-0324	Total Due:	\$1588.00
Payer Name : Robert Marty	Total Amount Paid:	\$1588.00
Paid By: VISA		PAID IN FULL

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 4 Wells
Driller: Advanced GeoEnvironmental Inc. - Lic #: 680227 - Method: Hand **Work Total: \$1588.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2014-0737	08/12/2014	11/19/2014	VW-1	7.00 in.	2.00 in.	2.00 ft	7.00 ft
W2014-0738	08/12/2014	11/19/2014	VW-2	7.00 in.	2.00 in.	2.00 ft	7.00 ft
W2014-0739	08/12/2014	11/19/2014	VW-3	7.00 in.	2.00 in.	2.00 ft	7.00 ft
W2014-0740	08/12/2014	11/19/2014	VW-4	7.00 in.	2.00 in.	2.00 ft	7.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
2. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities

Alameda County Public Works Agency - Water Resources Well Permit

or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Include permit number and site map.
 5. Applicant shall submit the copies of the approved encroachment permit to this office within 60 days.
 6. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
 7. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.
 8. Minimum surface seal thickness is two inches of cement grout placed by tremie.
 9. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.
 10. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.
-

APPENDIX C



**Advanced
GeoEnvironmental, Inc.**

837 Shaw Road, Stockton, CA 95215
(209) 467-1006 FAX: (209) 467-1118

BORING LOG

BOREHOLE NO.: **VW-1**

TOTAL DEPTH: **7 feet**

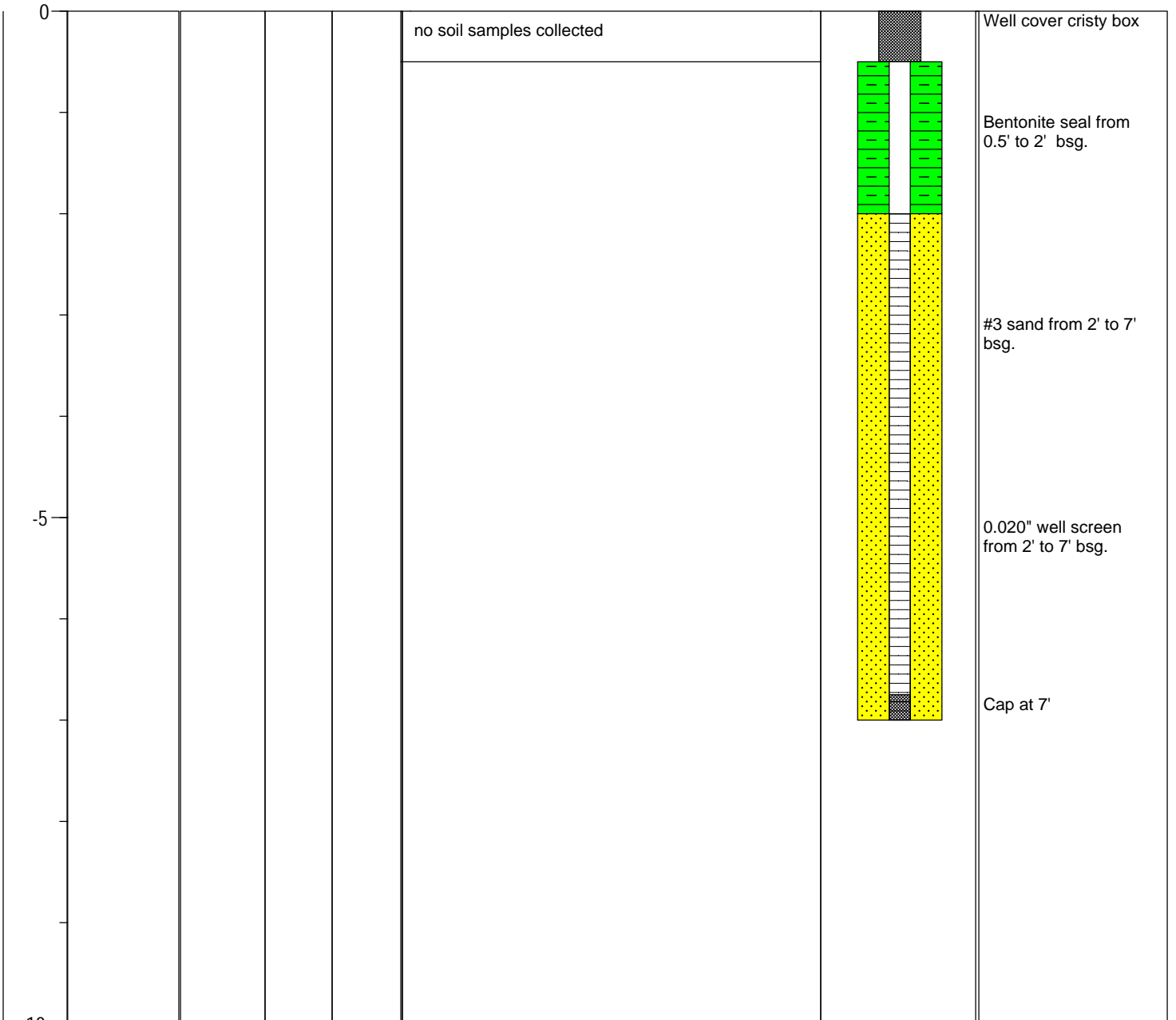
Project: SWISS VALLEY CLEANERS
 Site Location: 1395 MacArthur Boulevard
 SAN LEANDRO, CALIFORNIA
 Project No.: AGE- 12-2461

Drilling Co.: AGE
 Rig/Auger Type: 7" Hand Auger
 Logged By: D. Villanueva
 Reviewed By: William Little
 Date(s) Drilled: 08-21-2014

Notes: Soil boring completed as 2" soil vapor extraction well.

☒ Water Level Before Drilling
 ☑ Water Level After Drilling
 Page 1 of 1

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
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**Advanced
GeoEnvironmental, Inc.**

837 Shaw Road, Stockton, CA 95215
(209) 467-1006 FAX: (209) 467-1118

BORING LOG

BOREHOLE NO.: **VW-2**

TOTAL DEPTH: **7 feet**

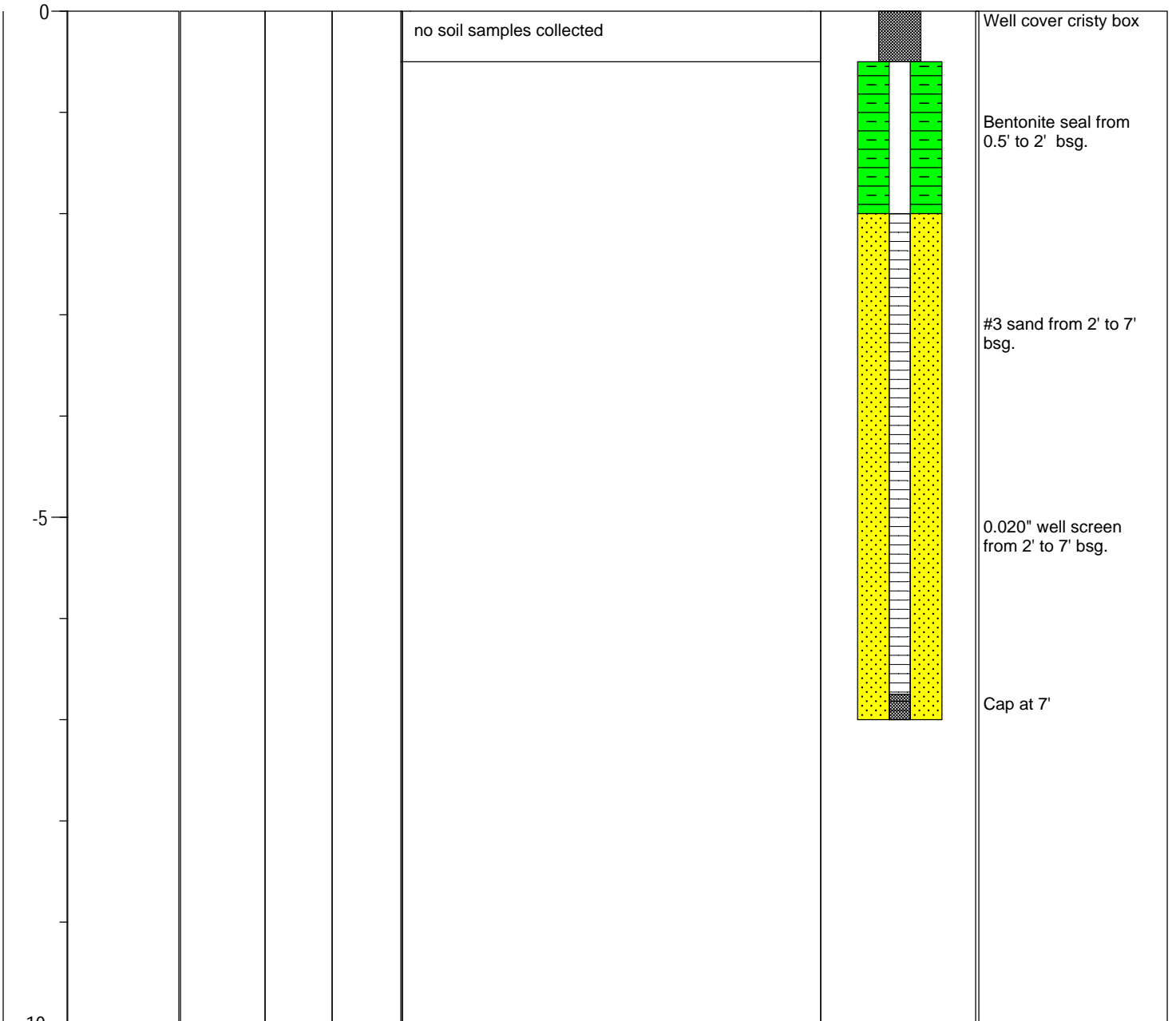
Project: SWISS VALLEY CLEANERS
 Site Location: 1395 MacArthur Boulevard
 SAN LEANDRO, CALIFORNIA
 Project No.: AGE- 12-2461

Drilling Co.: AGE
 Rig/Auger Type: 7" Hand Auger
 Logged By: D. Villanueva
 Reviewed By: William Little
 Date(s) Drilled: 08-21-2014

Notes: Soil boring completed as 2" soil vapor extraction well.

☒ Water Level Before Drilling
 ☑ Water Level After Drilling
 Page 1 of 1

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
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**Advanced
GeoEnvironmental, Inc.**

837 Shaw Road, Stockton, CA 95215
(209) 467-1006 FAX: (209) 467-1118

BORING LOG

BOREHOLE NO.: **VW-3**

TOTAL DEPTH: **7 feet**

Project: SWISS VALLEY CLEANERS
 Site Location: 1395 MacArthur Boulevard
 SAN LEANDRO, CALIFORNIA
 Project No.: AGE- 12-2461

Drilling Co.: AGE
 Rig/Auger Type: 7" Hand Auger
 Logged By: D. Villanueva
 Reviewed By: William Little
 Date(s) Drilled: 08-22-2014

Notes: Soil boring completed as 2" soil vapor extraction well.

☒ Water Level Before Drilling
 ☑ Water Level After Drilling

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
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0					no soil samples collected		Well cover crisy box
							Bentonite seal from 0.5' to 2' bsg.
							#3 sand from 2' to 7' bsg.
-5							0.020" well screen from 2' to 7' bsg.
							Cap at 7'
10							



**Advanced
GeoEnvironmental, Inc.**

837 Shaw Road, Stockton, CA 95215
(209) 467-1006 FAX: (209) 467-1118

BORING LOG

BOREHOLE NO.: **VW-4**

TOTAL DEPTH: **7 feet**

Project: SWISS VALLEY CLEANERS
Site Location: 1395 MacArthur Boulevard
SAN LEANDRO, CALIFORNIA
Project No.: AGE- 12-2461

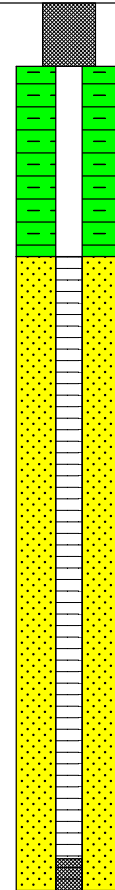
Drilling Co.: AGE
Rig/Auger Type: 7" Hand Auger
Logged By: D. Villanueva
Reviewed By: William Little
Date(s) Drilled: 08-22-2014

Notes: Soil boring completed as 2" soil vapor extraction well.

☒ Water Level Before Drilling
☑ Water Level After Drilling

Depth	Sample ID	Blows (per 6")	PID (ppm)	Soil Symbol	USCS Class and Soil Description	Well Completion	Well Description
-------	-----------	----------------	-----------	-------------	---------------------------------	-----------------	------------------

0					no soil samples collected		Well cover crisy box
							Bentonite seal from 0.5' to 2' bsg.
							#3 sand from 2' to 7' bsg.
-5							0.020" well screen from 2' to 7' bsg.
							Cap at 7'
10							



APPENDIX D

CAL TECH Environmental Laboratories



6814 Rosecrans Avenue, Paramount, CA 90723-3146
 Telephone: (562) 272-2700 Fax: (562) 272-2789

ANALYTICAL RESULTS*

CTEL Project No: CT214-1408148

Client Name: Advanced Geo Environmental, Inc.

837 Shaw Road

Stockton, CA 95215

Phone:(209) 467-1006

Fax: (209) 467-1118

Attention: Mr. Daniel Villanueva

Project ID: Global ID:

Project Name: Swiss Valley Cleaners

Date Sampled: 08/26/14 @ 10:10 am

Matrix: Air

Date Received: 08/28/14 @ 09:30 am

Date Analyzed: 08/28/14

Laboratory ID:	1408-148-1	1408-148-2	1408-148-3	Method	Units:	Detection Limit
Client Sample ID:	Influent/Start	Influent/1200	Influent/1400			
Dilution	1	1	1			
Dichlorodifluoromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Vinyl Chloride	ND	ND	ND	EPA 8260B	ug/m3	200
Bromomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Trichlorofluoromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Iodomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Acetone	ND	ND	ND	EPA 8260B	ug/m3	2000
1,1-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
t-Butyl Alcohol (TBA)	ND	ND	ND	EPA 8260B	ug/m3	2000
Methylene Chloride	ND	ND	ND	EPA 8260B	ug/m3	2000
Freon 113	ND	ND	ND	EPA 8260B	ug/m3	200
Carbon disulfide	ND	ND	ND	EPA 8260B	ug/m3	200
trans,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Methyl-tert-butyl-ether(MtBE)	ND	ND	ND	EPA 8260B	ug/m3	200
1,1-Dichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Vinyl acetate	ND	ND	ND	EPA 8260B	ug/m3	10000
Diisopropyl Ether (DIPE)	ND	ND	ND	EPA 8260B	ug/m3	200
Methyl Ethyl Ketone	ND	ND	ND	EPA 8260B	ug/m3	200
cis,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromochloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloroform	ND	ND	ND	EPA 8260B	ug/m3	200
2,2-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Ethyl-t-butyl ether (ETBE)	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,1-Trichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,1-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
Carbon Tetrachloride	ND	ND	ND	EPA 8260B	ug/m3	200
Benzene	ND	ND	ND	EPA 8260B	ug/m3	200
t-Amyl Methyl Ether (TAM)	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Trichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Dibromomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Bromodichloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
2-Chloroethylvinylether	ND	ND	ND	EPA 8260B	ug/m3	1000
cis,1,3-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
4-Methyl-2-pentanone(MI)	ND	ND	ND	EPA 8260B	ug/m3	2000
trans,1,3-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
Toluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,2-Trichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200

(Continued)

TOTALLY DEDICATED TO CUSTOMER SATISFACTION

Project ID: Global ID:
 Project Name: Swiss Valley Cleaners

Laboratory ID:	1408-148-1	1408-148-2	1408-148-3	Method	Units	Detection Limit
Client Sample ID:	Influent/Start	Influent/1200	Influent/1400			
1,2-Dibromoethane(EDB)	ND	ND	ND	EPA 8260B	ug/m3	200
1,3-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Dibromochloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
2-Hexanone	ND	ND	ND	EPA 8260B	ug/m3	2000
Tetrachloroethene	48000	43000	42000	EPA 8260B	ug/m3	200
Chlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,1,2-Tetrachloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Ethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
m,p-Xylene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromoform	ND	ND	ND	EPA 8260B	ug/m3	200
Styrene	ND	ND	ND	EPA 8260B	ug/m3	200
o-Xylene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,2,2-Tetrachloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,3-Trichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Isopropylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
2-Chlorotoluene	ND	ND	ND	EPA 8260B	ug/m3	200
n-Propylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
4-Chlorotoluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,3,5-Trimethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
tert-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,4-Trimethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
sec-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,3-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,4-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
p-Isopropyltoluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
n-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2 Dibromo-3-Chloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,4-Trichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Naphthalene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,3-Trichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Hexachlorobutadiene	ND	ND	ND	EPA 8260B	ug/m3	200

ND = Not Detected at the indicated Detection Limit

SURROGATE SPIKE	% SURROGATE RECOVERY			Control Limit
Dibromofluoromethane	91	87	89	70-130
1,2 Dichloromethaned4	91	85	86	70-130
Toluene-d8	103	102	94	70-130
Bromofluorobenzene	103	93	103	70-130

CTEL Project No: CT214-1408148
Client Name: Advanced Geo Environmental, Inc.
 837 Shaw Road
 Stockton, CA 95215
Attention: Mr. Daniel Villanueva

Phone:(209) 467-1006
Fax: (209) 467-1118

Project ID: Global ID:
Project Name: Swiss Valley Cleaners

Date Sampled: 08/26/14 @ 16:00 p.m.
Date Received: 08/28/14 @ 09:30 am
Date Analyzed: 08/28/14

Matrix: Air

Laboratory ID:	1408-148-4	1408-148-5	1408-148-6	Method	Units:	Detection Limit
Client Sample ID:	Influent/1600	Influent/End	Effluent			
Dilution	1	1	1			
Dichlorodifluoromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Vinyl Chloride	ND	ND	ND	EPA 8260B	ug/m3	200
Bromomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Trichlorofluoromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Iodomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Acetone	ND	ND	ND	EPA 8260B	ug/m3	2000
1,1-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
t-Butyl Alcohol (TBA)	ND	ND	ND	EPA 8260B	ug/m3	2000
Methylene Chloride	ND	ND	ND	EPA 8260B	ug/m3	2000
Freon 113	ND	ND	ND	EPA 8260B	ug/m3	200
Carbon disulfide	ND	ND	ND	EPA 8260B	ug/m3	200
trans,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Methyl-tert-butyl-ether(MtBE)	ND	ND	ND	EPA 8260B	ug/m3	200
1,1-Dichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Vinyl acetate	ND	ND	ND	EPA 8260B	ug/m3	10000
Diisopropyl Ether (DIPE)	ND	ND	ND	EPA 8260B	ug/m3	200
Methyl Ethyl Ketone	ND	ND	ND	EPA 8260B	ug/m3	200
cis,1,2-Dichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromochloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
Chloroform	ND	ND	ND	EPA 8260B	ug/m3	200
2,2-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Ethyl-t-butyl ether (ETBE)	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,1-Trichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,1-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
Carbon Tetrachloride	ND	ND	ND	EPA 8260B	ug/m3	200
Benzene	ND	ND	ND	EPA 8260B	ug/m3	200
t-Amyl Methyl Ether (TAM)	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Trichloroethene	ND	ND	ND	EPA 8260B	ug/m3	200
Dibromomethane	ND	ND	ND	EPA 8260B	ug/m3	200
Bromodichloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
2-Chloroethylvinylether	ND	ND	ND	EPA 8260B	ug/m3	1000
cis,1,3-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
4-Methyl-2-pentanone(MI)	ND	ND	ND	EPA 8260B	ug/m3	2000
trans,1,3-Dichloropropene	ND	ND	ND	EPA 8260B	ug/m3	200
Toluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,2-Trichloroethane	ND	ND	ND	EPA 8260B	ug/m3	200

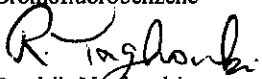
(Continued)

Project ID: Global ID:
Project Name: Swiss Valley Cleaners

Laboratory ID:	1408-148-4	1408-148-5	1408-148-6	Method	Units	Detection Limit
Client Sample ID:	Influent/1600	Influent/End	Effluent			
1,2-Dibromoethane(EDB)	ND	ND	ND	EPA 8260B	ug/m3	200
1,3-Dichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Dibromochloromethane	ND	ND	ND	EPA 8260B	ug/m3	200
2-Hexanone	ND	ND	ND	EPA 8260B	ug/m3	2000
Tetrachloroethene	39000	32000	ND	EPA 8260B	ug/m3	200
Chlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,1,2-Tetrachloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
Ethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
m,p-Xylene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromoform	ND	ND	ND	EPA 8260B	ug/m3	200
Styrene	ND	ND	ND	EPA 8260B	ug/m3	200
o-Xylene	ND	ND	ND	EPA 8260B	ug/m3	200
1,1,2,2-Tetrachloroethane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,3-Trichloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
Isopropylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Bromobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
2-Chlorotoluene	ND	ND	ND	EPA 8260B	ug/m3	200
n-Propylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
4-Chlorotoluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,3,5-Trimethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
tert-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,4-Trimethylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
sec-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,3-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,4-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
p-Isopropyltoluene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2-Dichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
n-Butylbenzene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2 Dibromo-3-Chloropropane	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,4-Trichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Naphthalene	ND	ND	ND	EPA 8260B	ug/m3	200
1,2,3-Trichlorobenzene	ND	ND	ND	EPA 8260B	ug/m3	200
Hexachlorobutadiene	ND	ND	ND	EPA 8260B	ug/m3	200

ND = Not Detected at the indicated Detection Limit

SURROGATE SPIKE	% SURROGATE RECOVERY			Control Limit
Dibromofluoromethane	100	87	87	70-130
1,2 Dichloromethaned4	108	89	86	70-130
Toluene-d8	103	104	103	70-130
Bromofluorobenzene	91	94	99	70-130


 Roobik Yaghoubi
 Acting Laboratory Director

*The results are base upon the samples received. Samples are not homogeneous.

Cal Tech Environmental Laboratories, Inc. ELAP ID #: 2424

CAL TECH Environmental Laboratories



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QA/QC Report

Method: 8260B / TO15

Matrix: Water / Air

Date Analyzed: 8/28/2014

Date Extracted: 8/28/2014

Perimeters	Conc. ug/L		Spike Added	Recovery %		Control Rec.	Limits RPD	RPD
	MS	MSD		MS	MSD			
1,1-Dichloroethene	46	45	50	92	90	70-130	20	2
Benzene	47	45	50	94	90	70-130	20	4
Trichloroethene	50	53	50	100	106	70-130	20	6
Toluene	49	52	50	98	104	70-130	20	6
Chlorobenzene	47	48	50	94	96	70-130	20	2
m,p-Xylenes	96	92	100	96	92	70-130	20	4

MS: Matrix Spike

MSD: Matrix Spike Duplicate

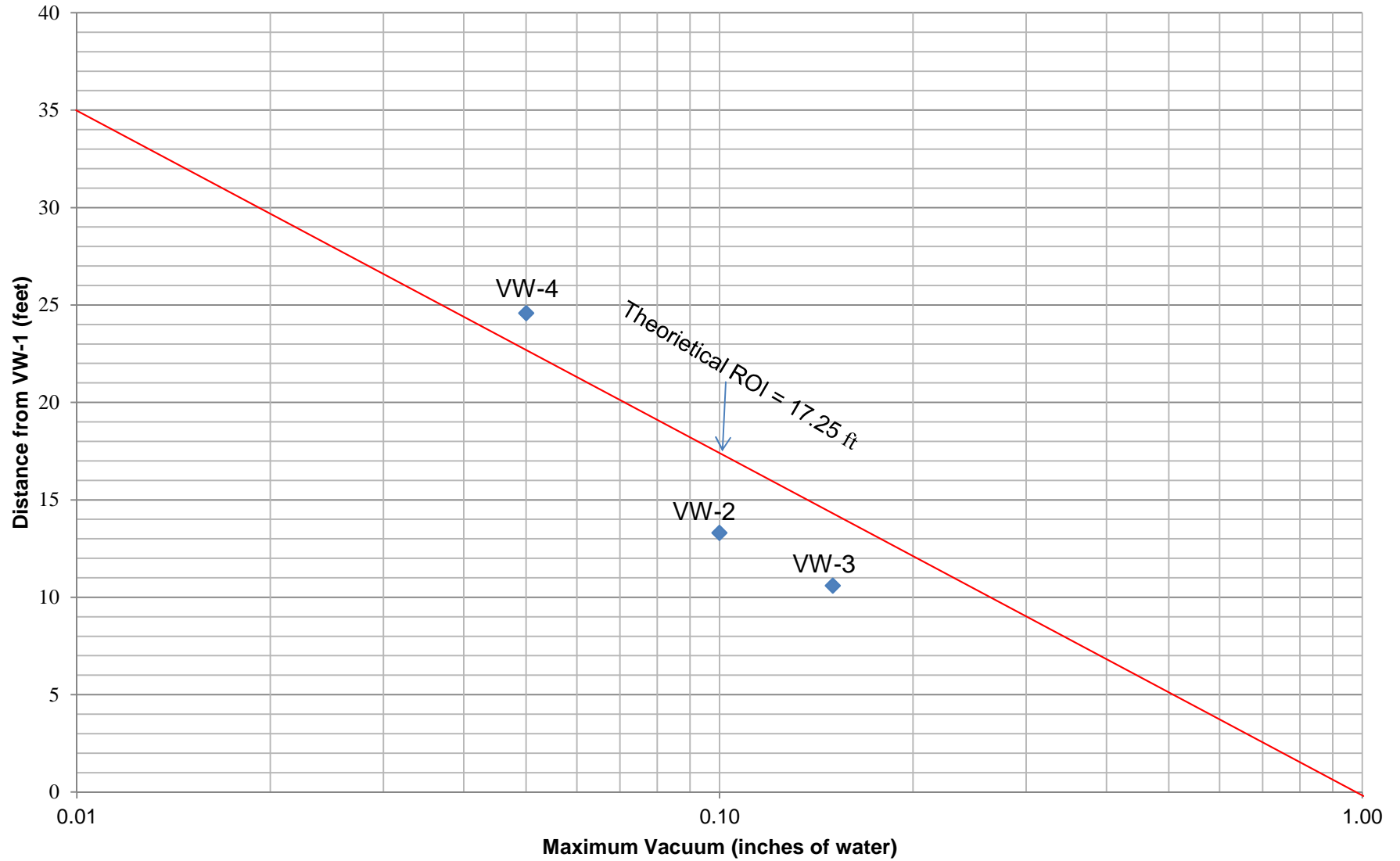
RPD: Relative Percent Difference of MS and MSD

Perimeters	Method Blank	Units	Det. Limit
1,1-Dichloroethene	ND	ug/L	1
Benzene	ND	ug/L	0.5
Trichloroethene	ND	ug/L	0.5
Toluene	ND	ug/L	0.5
Chlorobenzene	ND	ug/L	0.5
m,p-Xylenes	ND	ug/L	0.6
MTBE	ND	ug/L	1
TBA	ND	ug/L	10
DIPE	ND	ug/L	1
ETBE	ND	ug/L	1
TAME	ND	ug/L	1
1,2-Dichloroethane	ND	ug/L	0.5
EDB	ND	ug/L	0.5
Ethylbenzene	ND	ug/L	0.5
o-Xylene	ND	ug/L	0.6
TCE	ND	ug/L	1
PCE	ND	ug/L	1

TOTALLY DEDICATED TO CUSTOMER SATISFACTION

APPENDIX E

Distance Vs. Max Vacuum
SVE Pilot Study - August 2014
SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California



APPENDIX F

APPENDIX F
MASS-VOLUME CALCULATIONS (VW-1)
 Swiss Valley Cleaners
 1395 MacArthur Boulevard
 San Leandro, California

$M = C \times Q \times t$

C = vapor concentration (kg/m³)

To convert, multiply by: 0.000001

Q = extraction flow rate (m³/hr)

To convert, multiply by: 60 min/hr

t = operational period (hrs)

and: 0.0283168 m³/ft³

$M(\text{kg}) = (\text{Avg concentration})(0.000001) \times [\text{flow}(\text{ft}^3/\text{min})](60 \text{ min/hr})(0.0283168 \text{ m}^3/\text{ft}^3) \times \text{time}(\text{hrs})$

Converting kg of M to lbs of M, multiply by: 2.2046 lbs/kg

Converting lbs of M to gal of M, multiply by: 0.16 gal/lb

Time Interval	Hours	Average Flow		PCE Concentration		PCE Extracted		
		scfm	m ³ /hr	µg/l	kg/m ³	kg	lbs	gallons
1000 to 1000	0.08	6	10	48	0.000048	0.0000	0.0001	0.00001
1000 to 1200	2.0	6	10	43	0.000043	0.0009	0.0019	0.0003
1200 to 1400	2.0	6	10	42	0.000042	0.0009	0.0019	0.0003
1400 to 1600	2.0	6	10	39	0.000039	0.0008	0.0018	0.0003
1600 to 1800	2.0	6	10	32	0.000032	0.0007	0.0014	0.0002
PCE Removed during Pilot Test:						0.0032	0.0071	0.0011

APPENDIX G

Interim Remedial Action Work Plan
SWISS VALLEY CLEANERS
1395 MacArthur Boulevard, San Leandro, California

INTRODUCTION

On behalf of Mr. William Mathews Brooks of Ardenbrook, Inc., *Advanced GeoEnvironmental, Inc. (AGE)* has prepared this work plan for soil remediation at 1395 MacArthur Boulevard, San Leandro, California. The purpose of this work plan is to detail the design, installation and operation of a carbon-based SVE system and four SVE wells to remediate tetrachloroethene (PCE) from the soil and soil-vapor associated with the unauthorized release of dry cleaning solvents at the site.

Based on the results of a SVE pilot test performed at the site on 26 August 2014, AGE is recommending the installation of an interim SVE system and augmenting the existing shallow-screened SVE wells VW-1 through VW-4 with four additional SVE wells within the subject suite.

The location of the site and the surrounding area are illustrated on Figure 1; a plan of the site is illustrated on Figure 2.

SCOPE OF WORK

Based on the results of the pilot study, AGE proposes to install, operate and maintain a SVE remediation system utilizing existing shallow SVE wells VW-1 through VW-4. Additionally AGE proposes to install four additional shallow SVE wells at locations based upon the theoretical radius of influence (ROI) determined in the pilot study.

Soil remediation field activities will consist of the following tasks:

- Pre-field work activities (permitting, power source determination);
- Underground utility mapping and clearances;
- Installation of additional SVE wells;
- Installation of a soil vapor extraction piping network and SVE system;
- Fenced enclosure installation;
- Soil vapor extraction system start-up period;
- Monitoring and maintenance activities; and
- Report preparation.

Each of these tasks is described in greater detail below.

PRE-FIELD WORK ACTIVITIES

Applicable site permits will be obtained from the City of San Leandro (i.e., electrical, building, plumbing, etc.) and from the Bay Area Air Quality Management District (BAAQMD). In addition, an update to the health and safety plan presently on-file will be prepared in accordance with *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (National Institute for Occupational Safety and Health Administration, U.S. Coast Guard and U.S. Environmental Protection Agency, 1985). Prior to mobilization, all underground trenching areas will be clearly marked and a utility clearance obtained through Underground Service Alert.

REMEDIATION WELLS

Currently, four SVE wells (VW-1 through VW-4) are installed on the site. All wells are installed to a total depth of seven feet below surface grade (bsg). Proposed wells will be installed within the subject facility in areas of previously encountered PCE impact. Based on the results of the pilot test, a theoretical radius of influence of approximately 17.25 feet was estimated for installed wells. The locations of the proposed additional SVE wells are depicted in Figure 5.

INSTALLATION OF REMEDIATION SYSTEM PIPING NETWORK

The remediation system piping network will be installed underground in a 1-foot wide by 1½-foot deep trench and above ground against the suite wall. The proposed underground trenching locations are depicted on Figure 6. In the trench, 2-inch diameter, schedule 40 PVC piping will be manifolded from the well-heads at each SVE well location, then routed to the proposed SVE unit (regenerative blower and related carbon filtration). Following piping placement, the trench will be backfilled with imported road-base sand, compacted, and resurfaced to grade with concrete.

PROPOSED SOIL REMEDIATION SYSTEM

The selected SVE treatment unit will consist of a condensation separator, a vacuum blower, a minimum of three virgin coconut carbon canisters (1,000 pounds each) and control components. The 2-inch diameter piping installed from the well-head at the SVE wells will be connected to the inlet of the condensation separator, which leads into the vacuum blower. The outlet from the vacuum blower will be routed through the three carbon vessels prior to release to the atmospheric air.

Induced vacuum will be measured utilizing a Magnehelic® vacuum gauge attached to the inlet of the blower; SVE vapor flow will be monitored using a Dwyer® DS-200 flow

sensor. Sampling ports will be installed upstream of the vacuum blower inlet to recover SVE influent vapor flow vapor stream samples, and downstream of the third carbon unit to recover effluent SVE vapor flow samples and to monitor the efficiency of hydrocarbon destruction. A schematic diagram of the SVE treatment unit is depicted on Figure 7.

The proposed location of the SVE system and fenced enclosure is in the rear of the facility and outside of the back door of the former dry cleaning facility (Figure 6). The selected location will not interfere with current businesses, delivery vehicles and other business. The SVE unit will be secured by a chain-linked, barbed-wire, gated enclosure approximately 12 feet wide, 16 feet long and 8 feet high. Electricity is readily available to the site.

REMEDIATION START-UP PERIOD

In order to monitor hydrocarbon destruction efficiency during the SVE start-up period (first week of operation), influent and effluent vapor samples will be collected on a daily basis and submitted to a State of California Department of Public Health (CDPH)-certified laboratory for analysis of volatile organic compounds (VOC's) by EPA method 8260B.

SVE operational parameters including soil-vapor concentrations, vapor flow and vacuum will be monitored on a daily basis to gauge the optimal destruction rate of recovered hydrocarbon vapors.

Following the SVE start-up period, soil vapor samples will be collected on a monthly basis and the SVE operational parameters will be monitored on a weekly basis to monitor cleanup progress.

MONITORING AND MAINTENANCE

Following the initial start-up period, influent and effluent vapor samples will be collected on a monthly basis and submitted to a CDPH-certified laboratory for analysis for VOC's. Laboratory report for vapor sample analyses, testing methods, laboratory quality assurance/quality control (QA/QC) reports and sample chain of custody documentation will be presented in quarterly reports.

The SVE remediation system will be maintained on a weekly basis according to manufacturer's recommendations (i.e., lubrication, system adjustments, etc.).

REPORT PREPARATION

Quarterly reports will be prepared presenting the findings from the SVE activities. The quarterly reports will include a description of work performed and the results of the influent and effluent vapor samples. Conclusions and recommendations will also be included in the reports, if applicable. The report will be in a format acceptable to ACWD guidelines and will be reviewed and signed by a California Professional Geologist.

FIELD PROCEDURES

All field procedures will be overseen by an AGE representative under the supervision of a California Professional Geologist. Procedures for underground piping installation, start-up period and weekly/monthly operation and maintenance procedures are described below.

PILOT BORING ADVANCEMENT

Four pilot soil borings will be advanced at the site to depths of approximately 7 feet bsg. The borings will be advanced utilizing a 7-inch hand auger. The locations of the proposed borings are illustrated on Figure 5. Cuttings generated during drilling activities will be temporarily containerized in DOT-approved 55-gallon drums. Upon characterization, the cuttings will be properly disposed at a licensed landfill facility.

WELL COMPLETION

Wells will be completed as single-casing soil vapor extraction and observation wells utilizing 2-inch diameter schedule 40 polyvinylchloride (PVC), 0.020-inch slotted well screen and blank well casing. A 5-foot length of well screen, from 2 feet to 7 feet bsg, is anticipated for installation of each shallow-screened well. After installing each well casing, a filter pack material consisting of #3 sand will be added to the top of the screen. A nominal bentonite seal will be placed above the filter pack to seal the wells.

A diagram illustrating the proposed constructions has been included as Figures 8.

REMEDIATION SYSTEM PIPING NETWORK

A network of 2-inch diameter, schedule 40 PVC piping will be installed from each remediation well in a series of trenches, approximately 12 inch wide and 18 inches deep. All PVC piping will be routed from each remediation well head to the SVE condensation entrapment tank, located inside the SVE remediation system fenced enclosure. A PVC ball valve will be installed at each SVE well head so that soil vapor

can be drawn from each well independently or from a combination of specific wells. Following piping placement, the trench will be backfilled with imported road-base sand, compacted, and resurfaced with concrete/asphalt. A view of the process piping layout is illustrated on Figure 6.

SOIL VAPOR EXTRACTION SYSTEM DESIGN

The SVE unit, consisting of a condensation separator, a vacuum blower and three 1,000 pound virgin coconut carbon filtration vessels, are proposed for chlorinated hydrocarbon vapor recovery at the site. The SVE unit should be able to extract soil vapor between 100 and 150 cubic feet per minute (cfm). The SVE unit will be connected through a manifold box to each SVE; chlorinated hydrocarbon vapors extracted from these wells will be sequentially routed through a condensation entrapment chamber and a vacuum blower before entering three vapor phase carbon scrubbers for final destruction. A diagram of a typical system is illustrated on Figure 7.

Induced vacuum measurements will be collected utilizing a Magnehelic® vacuum gauge attached near the inlet of the blower; SVE vapor flow will be monitored using a Dwyer® DS-200 flow sensor. Following the start-up period, the SVE vapor flow along the influent and effluent lines will be monitored weekly for the presence of organic vapor using an OVM equipped with a PID. Sampling ports will be installed upstream of the vacuum blower inlet to recover SVE influent soil vapor stream samples and downstream of the three 1,000-pound carbon vessels to sample effluent SVE vapor samples to monitor the efficiency of chlorinated hydrocarbon destruction.

SOIL VAPOR EXTRACTION MONITORING

During the start-up period for the SVE system, soil vapor samples will be collected and operational parameters will be monitored on a daily basis. The anticipated start-up period will be approximately one week.

Following the start-up period, the vapor extraction system will be monitored weekly using a PID and Dwyer® DS-200 flow sensor to ensure optimal destruction of recovered vapors and to monitor cleanup progress. The PID readings will be taken and recorded from the influent end of the vacuum blower unit and the effluent end of the third 1,000 pound carbon vessel. Operational parameters (air flow, air vacuum and volume of processed vapor) will be measured on a weekly basis to monitor and record soil-vapor volumes extracted and operational efficiency.

Vapor samples will be collected on a monthly basis from the influent and effluent end of the vapor extraction system utilizing an electric vacuum pump. The samples will be collected into Tedlar® bags and transported under chain of custody to a CDPH-certified

laboratory and analyzed for VOC's.