November 22, 2017

RE: Final Corrective Action Plan dated November 22, 2017
Chestnut Square Senior and Family Housing
1625 – 1635 Chestnut Street, Livermore, CA
Case Number: RO0003179
Geo Tracker Global ID: T10000007202

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

Signature

Polo Munoz
Company Officer or Legal Representative Name

Project Manager, MidPen Housing Corp.
Title

11/22/17
Date

PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared For:

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FINAL CORRECTIVE ACTION PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA
Site Cleanup Case RO0003179

NOVEMBER 22, 2017

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1.0 INTRODUCTION

This Corrective Action Plan (CAP) has been prepared by PES Environmental, Inc. (PES) on behalf of MidPen Housing Corporation (MidPen), for implementation during redevelopment of the property located at 1625-1635 Chestnut Street in Livermore, California (the subject property or site; see Plate 1). PES understands that the redevelopment plans for the subject property, known as the Senior and Family Housing Project, include grading and soil excavation for utilities, parking features/garages, foundations and elevator pits; and construction of two 4-story buildings with one floor of subterranean parking, associated at-grade parking, and landscaped areas. This CAP presents the proposed correction actions to address tetrachloroethene (PCE) in soil gas and polychlorinated biphenyls (PCBs) in soil. A Construction Soil and Groundwater Management Plan (SGMP) is also part of the proposed corrective action and is provided in Appendix A.

The proposed corrective action includes: (1) vapor mitigation at the building elevator pits to mitigate the potential for PCE in soil gas from entering the buildings; (2) installation of trench plugs, as needed, to minimize vapor migration along potential preferential pathways; and (3) excavation and offsite disposal of shallow soil containing PCBs above the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) Tier 1 Environmental Screening Levels (ESLs; RWQCB, 2016). The remaining soil at the site to be excavated for construction of the subsurface garages has been characterized as non-hazardous. In the event that unanticipated environmental conditions (e.g., the presence of stained soil or subsurface structures, such as a tank, piping, or sump) are discovered, the strategies and approaches presented in the SGMP will be implemented.

The Alameda County Department of Environmental Health (ACDEH) is the regulatory agency providing oversight for this project. The ACDEH has the authority to review, provide comments on, and approve all corrective action design documents submitted by (or on behalf of) the Owner (MidPen), including this CAP, the remedial construction plans, and the corrective action completion report. In addition, following submittal of an acceptable CAP Completion Report, the ACDEH will document that the subject property is suitable for its intended residential purpose.

2.0 SITE BACKGROUND

2.1 Site Location and Description

The site has the street addresses of 1625 Chestnut Street (APN 98-290-11-1) and 1635 Chestnut Street (APN 98-290-6-7) in Livermore, California. The subject property is currently developed as a vacant lot. The surrounding area consists of commercial and residential properties.

The subject property is approximately 2.2 acres and is bounded to the northwest by Chestnut Street, to the southwest by North P Street, to the southwest by the Western Pacific Railroad Right of Way, to the northeast by an adjacent vacant parcel that is also planned for redevelopment by others, and that is not a part of this CAP.

2.2 Site History

The site was primarily vacant and undeveloped land with residential dwellings prior to 1959. The southwest portion of the site was used for cattle staging during this time. A former gasoline service station existed in the northwest portion of the site starting from 1960 and was removed in 1973. The site was developed with commercial and retail buildings from 1973 to 2005. Demolition of vacant site buildings began in 2006 and concluded in August 2017. The site is currently vacant.

2.3 Geology and Hydrogeology

The subsurface investigation performed on the subject property in 2017 by ACC Environmental Consultants (ACC, 2017) indicates that site soils consist of silty clay with varied amounts of sand and gravel.

Groundwater underlies the site at depths ranging from 45 feet to 50 feet bgs (below ground surface). The groundwater flow direction generally follows local topography to the northwest.

2.4 Summary of Previous Environmental Activities

Subsurface investigation activities were conducted at the site in August 1989 by Kleinfelder (Kleinfelder, 1989), August 2009 by Enercon Services, Inc. (Enercon, 2009), February 2011 by URS (URS, 2011), October 2013 by ACC (ACC, 2013), and in June/July 2017 by ACC (ACC, 2017). These previous site investigations were documented in the Subsurface Investigation Report prepared by ACC (ACC, 2017) and are summarized below[1]. Plates 2 and 3 present a site plan with the sample locations.

2.4.1 1989 Kleinfelder Phase II ESA Soil Sampling

In August 1989, soil sampling was conducted as part of a Phase II Environmental Site Assessment (ESA) performed by Kleinfelder. Three soil borings (B-1, B-2 and B-3) were advanced to approximately 25 feet bgs within the boundary of the former gas station at 1625 Chestnut Street. The borings were located at the approximate location of the former underground storage tanks (USTs) and at each of two former fuel dispenser pump islands. Seven soil samples were submitted for analysis of total petroleum hydrocarbons (TPH) as gasoline (TPH-g), TPH as diesel (TPH-d), TPH as waste oil (TPH-wo), and benzene, toluene, ethylbenzene and xylenes (BTEX). TPH-wo waste oil was detected in one soil sample (soil boring B-3 at 10 feet bgs) from the vicinity of the former UST at a concentration of 20 milligrams per kilogram (mg/kg), below the RWQCB Tier 1 ESL for soil (5,100 for TPH-as motor oil). No other analytes were detected above laboratory reporting limits.

[1] The 2017 ACC report also included data collected from the adjacent vacant lot to the northeast. This site is also proposed for redevelopment but is not a part of the subject property, nor this CAP.

The report noted that groundwater is anticipated at approximately 50 feet bgs. Kleinfelder soil borings B-1 and B-3 (1989) appear to have been advanced in the UST pit, however soil borings logs from that investigation were not available.

2.4.2 2009 Enercon Phase II ESA Soil Sampling

In August 2009, soil sampling was conducted as part of a Phase II ESA for 1625 Chestnut Street performed by Enercon Services, Inc. Three soil borings were completed within the boundary of the former gas station. One boring was advanced to approximately 35 feet bgs (boring B-2) and two borings were advanced to approximately 49 feet bgs (B-1 and B-2). The soil borings were located at the approximate locations of the former UST pit (boring B-1) and fuel dispenser pump islands (B-2 and B-3). Two soil samples were collected from each soil boring at approximately 15 feet bgs and at the base of the soil boring.

Six soil samples were submitted for analysis of TPH-g, TPH-d, TPH-mo, and BTEX. Groundwater was not encountered. No analytes were detected above laboratory reporting limits. Soil data from these soil borings did not suggest significant subsurface impacts associated with the former USTs.

2.4.3 2011 URS Targeted Site Investigation

In February 2011, URS conducted a subsurface investigation at 1625 and 1635 Chestnut Street. The investigation included soil, soil gas, and groundwater sampling.

2.4.3.1 Soil Sampling

Soil sampling was conducted using direct-push technology at 14 locations (C1 to C14). The soil samples were submitted for analysis of BTEX, TPH-g, TPH-d, TPH-mo, polyaromatic hydrocarbons (PAHs), California Assessment Manual (CAM) 17 metals, and organochlorine pesticides (OCPs).

TPH-g, BTEX, and OCPs were not detected in soil. TPH-d and TPH-mo were detected in soil at concentrations below the RWQCB Tier 1 ESL for soil (230 mg/kg for TPH-d and 5,100 for TPH-mo). TPH-d was detected at a maximum concentration of 140 mg/kg (at sample location C4 at 5 feet bgs). TPH-mo was detected at a maximum concentration of 570 mg/kg (sample location C1 at 5 feet bgs). Additional sampling for TPH was recommended by URS prior to redevelopment at locations where TPH-d and TPH-mo detections were observed.

PAHs were detected in 3 out of 16 samples. Benzo(a)pyrene (BaP) and naphthalene were detected in soil at concentrations slightly above the RWQCB Tier 1 ESL for soil (0.016 mg/kg for BaP and 0.033 mg/kg for naphthalene). BaP was detected at a maximum estimated concentration of 0.021 mg/kg (at sample location C10 at 2 feet bgs). Naphthalene was detected at a maximum concentration of 0.036 mg/kg (at sample location C3 at 2 feet bgs).

Metals concentrations were consistent with naturally occurring background concentrations.

2.4.3.2 Soil Gas Sampling

During the 2011 investigation, soil vapor monitoring points were installed with screens at 5 feet bgs at 5 locations (C1 to C5). Five soil gas samples and one duplicate sample were submitted for analysis of VOCs. PCE and BTEX were detected in soil gas at concentrations below the RWQCB Tier 1 ESL for soil gas. PCE was detected at a maximum concentration of 49 micrograms per cubic meter ($\mu g/m^3$) at sample location C4. The maximum concentrations of BTEX was detected at sample location C5 with benzene at 40 $\mu g/m^3$, toluene at 78 $\mu g/m^3$, ethylbenzene at 61 $\mu g/m^3$, and total xylenes at 180 $\mu g/m^3$.

2.4.3.3 Groundwater Sampling

Groundwater sampling was conducted using a Cone Penetration Test (CPT) drill rig equipped with a hydropunch sampler at 5 locations (C1, C2, C9 and C12). Groundwater samples were collected between 43 and 49 feet bgs using a stainless-steel bailer. Four groundwater samples and one duplicate sample were submitted for analysis of VOCs, TPH-g, TPH-d, TPH-mo, and metals.

PCE and TPH-d were detected in groundwater at concentrations above the RWQCB Tier 1 ESL for groundwater (3.0 µg/L for PCE and 100 µg/L for TPH-d). PCE was detected at a maximum concentration of 15 µg/L at sample location C9 at 43 feet bgs. TPH-d was detected at a maximum concentration of 130 µg/L (82 µg/L in the duplicate sample) at sample location C2 at 49 feet bgs. Metals were detected in groundwater at concentrations below the RWQCB Tier 1 ESL for groundwater.

Available data indicates that PCE detected in groundwater has migrated onto the subject property from an off-site source. As stated in the 2011 URS Targeted Site Investigation Report (TSI): "*Review of the groundwater investigation conducted by Treadwell and Rollo (Treadwell and Rollo, 2009) at the nearby LASC/MOSC sites indicates that the Chestnut Street site is directly downgradient of the shallow groundwater PCE plumes associated with the LASC/MOSC sites. The April 2009 plume map in the Treadwell and Rollo report for shallow-zone PCE contamination (25 feet to 75 feet bgs) shows that the PCE plumes extend to the railroad tracks south of the Site. The highest concentration in the shallow PCE plumes identified by Treadwell and Rollo (2009), upgradient of the Site was 28 µg/L, which is higher than the onsite PCE concentrations found in groundwater. Additional migration of the contaminant plume would have occurred between April 2009 and the date of the current investigation (February 2011). It is likely that PCE concentrations detected in groundwater sampled during this TSI are attributable to an off-site, upgradient source (URS, 2011).*"

2.4.4 2013 ACC Phase II ESA Soil Sampling

In October 2013 soil sampling was conducted as part of a limited Phase II ESA performed by ACC Environmental Consultants (ACC) focused on the former gas station at 1625 Chestnut Street. Six soil borings (B1 through B6) were advanced to between approximately 20 and 48 feet bgs. Groundwater was not encountered during this investigation.

Seven soil samples were submitted for analysis of TPH-g, TPH-d, TPH-mo, VOCs, and lead. TPH-g, TPH-mo and VOCs were not detected. TPH-d was detected at a maximum concentration

of 4.8 mg/kg, below the RWQCB Tier 1 ESL for TPH-d in soil of 230 mg/kg. Lead was detected at a maximum concentration of 8.5 mg/kg, below the RWQCB Tier 1 ESL for lead in soil of 80 mg/kg.

2.4.5 2017 ACC Subsurface Investigation

In June 2017, ACC conducted a subsurface investigation at 1625 Chestnut Street to further assess subsurface conditions at the site with regards to the proposed redevelopment. The investigation included soil, soil gas, and groundwater sampling.

2.4.5.1 Soil Sampling

Soil sampling was conducted using direct-push technology at 45 locations. Soil sample locations targeted the former gas station (GS1 through GS14); proposed bioretention areas (BA5, BA6, BA7, BA8, BA11, and BA12); the area surrounding the existing hydraulic platform lift and transformer (SO1, SO2, SO3, EB8, EB9, EB10, EB11, EB12 and EB13); the northwestern property boundary (EB1, EB2 and EB3), and previous soil gas sample locations (SV8, SV9, SV11, SV12 and SV13). Additionally, soil samples were collected for waste characterization purposes for soils that will be excavated to create the subsurface garages and off-hauled during redevelopment (WC1 to WC8). The soil samples were submitted for analysis of VOCs TPH-g, TPH-d, TPH-mo, TPH as hydraulic oil (TPH-ho), PCBs, PAHs, and LUFT 5 metals.

PCE, benzene, toluene, and ethylbenzene were not detected in soil. Total xylenes were detected in one soil sample at a concentration of 0.011 µg/kg (WC3 at 10 feet bgs), below the RWQCB Tier 1 ESL of 2,300 µg/kg for total xylenes in soil.

TPH-g was not detected in soil. TPH-d and TPH-mo were detected in soil at concentrations below the RWQCB Tier 1 ESL for soil (230 mg/kg for TPH-d and 5,100 for TPH-mo). TPH-d was detected at a maximum concentration of 23 mg/kg (EB8 at 0.5 feet bgs). TPH-mo was detected at a maximum concentration of 740 mg/kg (EB8 at 0.5 feet bgs). Ten samples were analyzed for TPH-ho in the vicinity of the hydraulic platform lift and transformer. TPH-ho was detected at a maximum concentration of 69 mg/kg (EB12 at 0.5 feet bgs). No Tier 1 ESL is available for TPH-ho, however the detection is below the Tier 1 ESL for motor oil (5,100 mg/kg).

Total PCBs were detected in 3 out of 26 samples at a maximum concentration of 1.1 mg/kg (EB13 at 0.5 feet bgs) above the RWQCB Tier 1 ESL of 0.25 mg/kg for total PCBs in soil. Sample location EB13 is proximate to a former ground mounted transformer. The other detections of total PCBs were estimated concentrations of 0.012 mg/kg (EB9 at 0.5 feet bgs) and 0.022 mg/kg (EB10 at 0.5 feet bgs).

PAHs were detected in 3 out of 13 samples. BaP was detected in two samples with a maximum estimated concentration of 0.019 mg/kg (EB8 at 0.5 feet bgs) slightly above the RWQCB Tier 1 ESL of 0.016 mg/kg for BaP in soil. The other detection of BaP was an estimated concentration of 0.010 mg/kg (SO2 at 0.5 feet bgs). Benzo(b)fluoranthene, benzo(g,h,i)perylene, fluoranthene, and pyrene were detected in soil at concentrations below the RWQCB Tier 1 ESL for soil.

Benzo(b)fluoranthene was detected at a maximum estimated concentration of 0.034 mg/kg (EB8 at 0.5 feet bgs). Benzo(g,h,i)perylene was detected at a maximum concentration of 0.075 mg/kg (EB8 at 0.5 feet bgs). Fluoranthene was detected at a maximum estimated concentration of 0.0083 mg/kg (SO2 at 0.5 feet bgs). Pyrene was detected at a maximum estimated concentration of 0.012 mg/kg (SO2 at 0.5 feet bgs).

Lead was detected in one sample above the RWQCB Tier 1 ESL of 80 mg/kg for lead in soil with a maximum concentration of 150 mg/kg (GS4 at 5 feet bgs). Lead ranged from 4.0 to 18 mg/kg in the other 25 soil samples. Other metals concentrations were consistent with naturally occurring background concentrations.

2.4.5.2 Soil Gas Sampling

During the June/July 2017 investigation, soil vapor monitoring points were installed at 13 locations (SV1 to SV13). Soil vapor monitoring points were screened at 5 feet bgs (SV1, SV3, SV5, SV6, SV10, SV11, SV12 and SV13), 15 feet bgs (SV2, SV4 and SV7), and 20 feet bgs (SV8 and SV9). Soil gas samples at locations SV8 and SV9 were collected from the footprint of the planned building elevators at a depth of 20 feet bgs (i.e., 5 feet below the proposed future elevator pit bottom elevation of 15 feet bgs). Soil gas samples were re-collected at locations SV8 and SV9 in July 2017 due to elevated detections of the leak check compound (helium) in the June 2017 sample results. Soil gas samples were submitted for analysis of VOCs, oxygen, carbon dioxide, methane and helium.

PCE was detected in soil gas at concentrations above the RWQCB Tier 1 ESL for soil gas (240 $\mu g/m^3$ for PCE) in 3 out of 13 samples (SV10, SV11, and SV13 at 5 feet bgs). PCE was detected at a maximum concentration of 430 $\mu g/m^3$ at sample location C11 at 5 feet bgs.

TCE and BTEX were detected in soil gas at concentrations below the RWQCB Tier 1 ESL for soil gas. TCE was detected at a maximum concentration of 0.38 $\mu g/m^3$ at sample location SV8 at 20 feet bgs. The maximum concentrations of BTEX was detected in the duplicate sample at location C4 with benzene at 23 $\mu g/m^3$, toluene at 330 $\mu g/m^3$, ethylbenzene at 180 $\mu g/m^3$, and total xylenes at 800 $\mu g/m^3$.

3.0 DATA EVALUATION

Subsurface investigation activities were conducted at the site between August 1989 and July 2017. A total of 145 soil, 18 soil gas, and 4 groundwater samples have been collected from the site and the data are considered to be of sufficient number and quality to adequately define site conditions for the purpose of developing the CAP. Tables 1 through 6 summarize the historical soil, soil gas, and groundwater analytical results for the site.

The site data were compared to RWQCB Tier 1 ESLs as a conservative screening criteria for soil, soil gas, and groundwater to determine where corrective action may be necessary at the site. ESLs are considered to provide long-term protection of human health and the environment. Plates 2 and 3 present the historical sample locations at the site along with the footprint of the proposed buildings.

3.1 Soil

Total PCBs, PAHs (BaP and naphthalene) and metals (lead, arsenic, cobalt and nickel) exceeded their respective RWQCB Tier 1 ESL in soil as follows:

- Total PCBs exceeded the ESL of 0.25 mg/kg in soil at one location, EB13 at 0.5 feet bgs (concentration of 1.1 mg/kg) near the former transformer located at the southwest corner of the former building. Plate 5 shows the PCB concentration in soil located near the former transformer;

- BaP slightly exceeded the ESL of 0.016 mg/kg in soil at two locations: (1) soil boring EB8 at 0.5 feet bgs (estimated concentration of 0.019 mg/kg), located in the southwestern corner of the subject property; and (2) soil boring C10 at 2 feet bgs (estimated concentration of 0.021 mg/kg), located within the future Senior Building footprint;

- Because the BaP occurrence at boring C10 will be removed as part of site redevelopment, the one remaining occurrence at boring EB8 is not considered significant and worthy of remediation for the following reasons:

    - From a statistical perspective, the 95 Upper Confidence Limit (UCL) calculated from the site dataset for BaP in soil (using EPA's ProUCL software)[2] is 0.00711 mg/kg. This value is below the Tier 1 ESL;

    - The maximum detected BaP concentration of 0.019 mg/kg represents a theoretical cancer risk of 1.2 x 10-6. This estimated risk is essentially the same number as the acceptable risk level of 1.0 x 10-6; and

    - The EB8 location is in a proposed landscaped area to be planted with trees and shrubs and will not be reasonably accessible to future residents. The concentration of 0.019 mg/kg is below the construction worker ESL of 1.6 mg/kg, indicating that exposure to this soil by future construction workers is not a concern.

- Naphthalene slightly exceeded the ESL of 0.033 mg/kg in soil at one location, soil boring C3 at 2 feet bgs (concentration of 0.036 mg/kg), located just outside the northwestern edge of the future Senior Building footprint;

- The one naphthalene occurrence at boring C3 is not considered significant and worthy of remediation for the following reasons:

    - From a statistical perspective, this one occurrence of naphthalene represents an outlier at 1%, 5%, and 10% significance levels, using the ProUCL software;

[2] As a rule of thumb, the ProUCL software states that a minimum of 10 observations are needed to compute UCLs. The total number of B(a)P samples is 29. Additionally, the ProUCL software indicates it can compute UCLs based upon data sets consisting of at least 3 detected observations. There were a total of three B(a)P detections.

  - The maximum detected naphthalene concentration of 0.036 mg/kg represents a theoretical cancer risk of 1.1 x 10-6. This estimated risk is essentially the same number as the acceptable risk level of 1.0 x 10-6; and

  - The C3 location is in a proposed hardscaped area (beneath a concrete arcade patio) and will not be reasonably accessible to future residents. The concentration of 0.036 mg/kg is below the construction worker ESL of 350 mg/kg, indicating that exposure to this soil by future construction workers is not a concern.

- Lead exceeded the ESL of 80 mg/kg in soil at one location, soil boring GS4 at 5 feet bgs (concentration of 150 mg/kg), located at the northwestern edge of the future Senior Building footprint. This lead occurrence at boring GS4 will be removed as part of site redevelopment;

- A study published in 2009 by the Lawrence Berkeley National Laboratory (LBNL) presented upper estimates of regional background concentrations of metals (99^{th} percentile) to be used as representative of the upper range of ambient conditions. The selected maximum LBNL background level is the concentration value against which site concentration data are compared to determine whether the data represent site contamination. Sample concentrations greater than the maximum background levels are categorized as likely site contamination, whereas sample concentrations less than or equal to the maximum background levels are categorized as ambient concentrations. The LBNL estimate of the upper range of regional background conditions is 24 mg/kg for arsenic, 25 mg/kg for cobalt, and 272 mg/kg for nickel (LBNL, 2009);

- Arsenic exceeded the ESL of 0.067 mg/kg in soil across the site at concentrations ranging from 3.9 to 18 mg/kg. While the arsenic concentrations exceed the Tier 1 ESL in soil, concentrations are below the LBNL upper estimate of 24 mg/kg for background levels of arsenic, and therefore consistent with regional background levels and not considered worthy of remediation;

- Cobalt slightly exceeded the ESL of 23 mg/kg in soil at two locations, soil boring C11 at 5 feet bgs (concentration of 27 mg/kg) and soil boring C12 at 2 feet bgs (concentration of 31 mg/kg). Cobalt concentrations below the ESL in soil ranged from 6.6 to 20 mg/kg across the site. While cobalt concentrations slightly exceed the Tier 1 ESL in soil at two locations (C11 and C12), the concentrations (27 mg/kg and 31 mg/kg) are similar to the LBNL upper estimate of 25 mg/kg for background levels of cobalt, and therefore consistent with regional background levels and not considered worthy of remediation; and

- Nickel exceeded the ESL of 86 mg/kg in soil across the site at concentrations ranging from 38 to 360 mg/kg. While the nickel concentrations exceed the Tier 1 ESL in soil at three locations (C11, C12 and GS6), the concentrations (360 mg/kg, 350 mg/kg and 330 mg/kg) are similar to the LBNL upper estimate of 272 mg/kg for background levels of nickel, and therefore consistent with regional background levels and not considered worthy of remediation. Additionally, the nickel occurrence at boring GS6 will be removed as part of site redevelopment.

3.2 Soil Gas

PCE was the only analyte that exceeded its respective RWQCB Tier 1 ESL in soil gas. PCE exceeded the ESL of 240 mg/m^3 in soil gas at three locations (SV10, SV11 and SV13 at 5 feet bgs) clustered along the northwestern property boundary along Chestnut Street. PCE was detected above the ESL in soil gas at concentration of 340 mg/m^3 (SV10), 430 mg/m^3 (SV11), and 290 mg/m^3 (SV13).

As illustrated on Plate 5, the PCE soil gas plume associated with the highest concentrations of PCE is located along the northwestern property boundary and appears to extend off-site toward Chestnut Street. The PCE in soil gas is likely the result of either discharges of PCE into the sanitary sewer located in Chestnut Street and/or off-gassing from the underlying PCE groundwater plume (as discussed below) from off-site sources.

3.3 Groundwater

PCE and TPH-d were the only analytes that exceeded their respective RWQCB Tier 1 ESL in groundwater as follows:

- PCE exceeded the ESL of 3.0 µg/L in groundwater at three locations (C1 at 48 feet bgs, C2 at 49 feet bgs, and C9 at 43 feet bgs) across the site. PCE was detected above the ESL in groundwater at concentrations of 13 µg/L (C1), 14 µg/L (C2), and 15 µg/L (C9); and

- TPH-d exceeded the ESL of 100 µg/L in groundwater at one location, C2 at 49 feet bgs (concentration of 130 µg/L and 82 µg/L in the duplicate sample). The average of these two concentrations is 106 µg/L, which is slightly above the ESL. As TPH-d was not found at significant concentrations in soil, the low levels of TPH-d detected in groundwater at one location are unlikely to be a result of the former gasoline station operations.

The PCE detected in groundwater at concentrations of up to 15 µg/L at the site, is below the RWQCB residential groundwater ESL for vapor intrusion of 100 µg/L (deep groundwater, fine/coarse soil). Additionally, as discussed above, available data indicates that PCE detected in onsite groundwater has migrated from an upgradient off-site source where PCE in groundwater was detected at concentrations of up to 28 µg/L in 2009. For these reasons, remediation of PCE in groundwater at the site is not warranted.

4.0 PROPOSED CORRECTIVE ACTION

The proposed corrective action plan was developed based on an evaluation of the properties of the chemicals present in soil, soil gas, and groundwater, their distribution, and potential exposure pathways. The redevelopment of this site includes construction of two residential buildings with well-ventilated subterranean parking garages, private roadways, hardscaped areas, and landscaped areas. The objective of the CAP is to protect future site occupants by mitigating the

potential risk from direct contact with PCB affected soil and the potential vapor intrusion risk from PCE (and PCE degradation products) in soil gas into indoor air.

Based on the data evaluation discussed in Section 3.0, the proposed corrective action includes the following components:

- Excavation and offsite disposal of shallow soil containing PCBs above the RWQCB Tier 1 ESL is proposed to remove potential for direct contact with PCB affected soil at the site;

- Construction of a well-ventilated subsurface garage and installation of a vapor barrier at the building elevator pits is proposed to mitigate the potential for PCE in soil gas from entering the buildings;

- Installation of trench plugs within utility corridors to control soil gas migration offsite; and

- In the unlikely event that additional contaminated soils are found during construction, are not removed and remain on-site, geotextile fabric will be placed in excavations to limit direct exposure in future landscaped areas. Such an activity is not anticipated and is included only as a contingency remedy as a potential action for pre-approval by ACDEH.

Excavation of soil for the subterranean parking garages, utilities, foundations and elevator pits will the conducted in accordance with the Soil and Groundwater Management Plan (SGMP) prepared for the site (see Appendix A).

The following sections describe the individual components of the CAP.

4.1 Preliminary Activities

A model site-specific Health and Safety Plan (HASP) will be prepared in accordance with applicable OSHA regulations for cleanup activities conducted by contractors. The HASP will provide information that addresses the health risks and hazards, employee training assignments to assure compliance with Title 8 of the California Code of Regulations, personal protective equipment, personnel monitoring, site control measures, decontamination procedures, and an Emergency Response Plan. The Emergency Response Plan will address any reasonably foreseeable accident or upset conditions and outlines the procedures to be followed in the event of an emergency at the site. Emergencies that may occur at the site can include chemical spills, fires, explosions, and personal injuries. The remedial contractor, yet to be determined, will be required to develop a HASP, consistent the requirements of Title 8, for its workers.

Prior to conducting soil excavation, the remedial excavation contractor or general contractor will retain a private underground utility locating service to delineate subsurface utilities within and in the vicinity of the soil excavation area. If utilities necessary to ongoing functions of other areas of the site are identified within the excavation area, the remediation contractor will coordinate with the property owner or the property owner's representative to resolve utility relocation and to ensure that utility service to other areas is not disrupted. The remediation contractor will also be

responsible for contacting Underground Service Alert (USA) to notify utility clients of the excavation work.

4.2 Excavation of PCBs in Soil

The proposed soil excavation area is shown on Plate 6. Soil beneath and surrounding the former transformer where elevated PCBs were detected will be excavated over an area of approximately 340 square feet to a depth of approximately 2.5 feet bgs. The estimated volume of soil is expected to be approximately 32 bank (in-place) cubic yards. The extent of the excavation was selected based on previous soil sampling results that define the area of elevated PCB-affected soil. The excavation area includes four soil sample locations (EB10, EB11, EB12 and SO1) at 0.5 feet bgs and four soil sample locations (EB10, EB11, EB12 and EB13) at 2.5 feet bgs with PCB results below the ESL of 0.25 mg/kg. Therefore, it is not anticipated that verification soil sampling will be necessary. The extent of the excavation may be changed in the field based on observations made during the planned excavation. If deemed necessary, verification sampling will be conducted. Excavated soil will be disposed of at an approved offsite facility.

4.2.1 General Excavation Procedures

The specific equipment and means to implement the soil excavation will be at the discretion of the selected excavation contractor; though it is anticipated the work will be conducted using conventional earthmoving equipment (track- or tire-mounted excavators). Based on the existing analytical data, the anticipated excavation extents will be marked on the ground surface. Prior to excavation, any existing hardscape (i.e., asphalt pavement, concrete foundations and footings) overlying the anticipated excavation area will be removed and stockpiled in the vicinity of the excavation.

The excavated soil will be visually inspected for signs of contamination (e.g., discoloration, etc.). The excavated soil will be field screened for VOCs with a photoionization detector (PID). If PID readings above background are observed, soil samples will be collected and submitted to the project laboratory for VOC analysis using U.S. EPA Test Method 8260B. The PID will also be used to monitor the potential presence of VOCs in the breathing space. The horizontal and vertical limits of the planned soil removal may be adjusted to the extent practicable, based on the field observations and field screening results.

If verification sampling is necessary, the excavation will be left open pending receipt of the soil verification analytical results, and a temporary fence will be installed around the excavation to limit access. Upon completion of excavation activities, the excavation will be backfilled with imported fill material to match the existing grade. Fill materials will be selected following Section 4.2.6 of this CAP and the SGMP.

If soil is stockpiled prior to disposal, soil stockpiles will be constructed with plastic sheeting beneath (unless the ground surface is paved) and above the soil to prevent runon/runoff and fugitive dust and/or odor emissions. Stockpiled soil will be covered and secured at the end of each day. Stockpiled soil will be sampled for disposal purpose following the procedures in the SGMP.

4.2.2 Verification Sampling

If verification sampling is necessary to verify that excavation activities have successfully removed PCB concentrations in excess of the RWQCB Tier 1 ESL, verification soil matrix samples will be collected from the excavation sidewalls and bottom. Soil samples will be collected from the excavation as follows:

- Verification soil samples will be collected from the midpoint of excavation sidewalls at a frequency of approximately one sample per 20 linear feet of sidewall. Bottom samples will be collected from the excavation for every 400 square feet of excavation bottom;

- At each sampling location, a sample will be obtained directly from a freshly exposed surface of the bottom and/or sidewall of the excavation. Where the excavation is deeper than 4 feet bgs, it may be necessary to collect verification soil samples from intact soil within the excavator bucket. A final determination of sampling technique will be made after assessing actual site conditions during excavation; and

- To reduce the potential for cross-contamination between sampling locations, the excavator bucket will be thoroughly cleaned prior to initiating work and between each sampling location.

Following sample collection, the sample containers will be labeled for identification and immediately placed in a chilled, thermally insulated cooler containing bagged ice. The samples will be transported under chain-of-custody protocol to a California state-certified laboratory. The verification soil samples will be analyzed for PCBs using EPA Method 8082.

4.2.3 Transportation and Disposal Plan for Soil

The following activities will be performed as part of the offsite disposal plan: (1) completing soil profiling with the offsite disposal facility; (2) completing the waste manifest forms and documenting truck load volumes and/or weights; and (3) transportation of soil from the site to a permitted disposal facility. The environmental consultant will work with the construction contractor/manager to support waste acceptance evaluations, including collecting and directing laboratory analysis of soil samples in accordance with the criteria provided by the potential disposal facilities.

Following acceptance of the excavated soil at an appropriate disposal facility, the soil will be loaded into licensed haul trucks (end-dumps or transfers) and transported off the site following appropriate California and federal waste manifesting procedures. The waste manifest documentation will be provided to the truck driver hauling the soil offsite. As each truck is filled, an inspection will be made to verify that the soil and solid waste is securely covered and that the tires of the haul trucks are reasonably free of accumulated soil prior to leaving the site.

The work areas will be kept clean and free of excessive soil or debris. A street sweeper will be made available, as needed, to keep the loading area and haul roads clean. The soils will be wetted, as necessary, to reduce the potential for dust generation during loading and transportation activities.

Haul routes from the subject property will use surface streets to access the closest suitable freeway on-ramp. Truck traffic travelling along this surface street route will pass through commercial and light industrial areas only. No residential areas will be entered. Once on the freeway, the exact truck route will be dependent on the location of the applicable disposal facility. Specific haul routes from the subject property to the selected landfill sites will be determined once appropriate facilities have been identified for the excavated soil.

4.2.4 Dust Control

During excavation activities, depending on soil and weather conditions, there is potential to generate airborne dust. The objective of dust control measures is to reduce dust generation to minimize the impact on the surrounding area. Therefore, as required, the excavation contractor will apply a water mist to the excavation, as well as soil handling and haul routes to reduce the potential for dust generation. Soil will be wetted as needed to reduce the occurrence of visible dust. At a minimum, emission (dust) control measures will comply with those established by OSHA and the BAAQMD for construction-related activities[3]. Further dust control details are provided in the SGMP (Appendix A).

Dust level monitoring of air will be conducted to evaluate the potential exposure to site personnel and to offsite downwind receptors. The presence of airborne dust will be evaluated through the use of real time personal sampling equipment and perimeter air sampling. If the difference between the upwind and downwind dust monitoring levels exceeds 50 $\mu g/m^3$, additional dust control methods (i.e., applying additional water to disturbed areas) will be implemented. Dust level monitoring of air during construction activities are described in detail in the attached SGMP.

4.2.5 Decontamination Procedures

Equipment used for soil excavation and loading (including heavy equipment and truck tires) will be cleaned before leaving the Site. It is expected that the majority of soil can be removed using mechanical methods (e.g., scraping and dry brushing). Cleaning with water should only be performed as needed, because of the generation of additional waste requiring management. During soil excavation and loading, the work areas outside of the excavation itself will be kept reasonably clean and free of excessive soil or debris. Care will be exercised to minimize the potential for tracking any contaminated soil out of the work area. Accumulated soil will be placed onto the stockpile of excavated soil for subsequent disposal.

4.2.6 Selection of Fill Material

Imported fill material to be used at the site will be selected in accordance with the DTSC *Information Advisory, Clean Imported Fill Material, October 2001* (DTSC Advisory). Fill materials will be sampled and analyzed in accordance with the DTSC Advisory on the basis of the projected volume of fill material to be utilized. DTSC recommends appropriate selection

[3] Additionally, because VOCs are present in soil gas, notification will be provided to BAAQMD, as appropriate, in compliance with BAAQMD Regulation 8, Rule 40 requirements.

of the fill source area and sampling for specific analytes based on the source area location (e.g., fill from a source area near an existing highway should be sampled for lead and polynuclear aromatic hydrocarbons). To minimize the potential for use of contaminated fill, the fill source area must be documented. Proper documentation should include detailed information regarding the former land use, previous environmental site assessments and findings, and the results of any testing performed. According to the DTSC Advisory, if such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed for analytes based on knowledge of the prior land use and source area location.

The recommended sampling frequency should be based on either: (1) the area of the individual borrow area; or (2) the volume of the borrow area stockpiles (see DTSC Advisory for recommended sampling frequencies). Ideally, the samples should be collected from the borrow site, prior to delivery to the receiving site. However, if the borrow site cannot be sampled, the DTSC recommends alternative sampling procedures, whereby one sample per truckload is collected and analyzed for the compounds of concern. Fill material must be stockpiled off-Site until laboratory analyses have been received and reviewed. Composite sampling may, or may not, be appropriate depending on the borrow area homogeneity; however, composite sampling is not acceptable for volatile or semi-volatile organic compounds.

4.3 Installation of Vapor Barrier at Elevator Pits

The vapor barrier will be installed to mitigate the PCE that has been detected in soil gas samples collected on the site at locations adjacent to Chestnut Street and within the planned building footprints. The proposed Senior and Family Housing buildings are planned to be podium-style buildings with ventilated below grade parking; therefore, the vapor barrier will be installed at the elevator pits in the buildings to mitigate the potential vapor intrusion risk from subsurface vapors entering the building through entry points (such as cracks and openings) in the below grade elevator pits and migrating to upper floors via the elevator shafts. Plate 6 shows the proposed locations where the vapor barrier will be installed, which includes the elevator pits at the Senior and Family Housing residential buildings.

The EPRO E.Proformance system manufactured by EPRO Services, Inc. (EPRO) was selected as the vapor barrier membrane for this project to serve as a physical barrier to soil vapor due to its extremely low permeability. EPRO is a composite system that creates the ideal blend between constructability and chemical resistance by using both high density polyethylene (HDPE) and spray applied asphalt latex. The EPRO membrane will be applied to a nominal dry thickness of 80 mils at the elevator pits, which is the typical installation thickness for vapor intrusion applications at elevator pits and provides damage (i.e. puncture) resistance during installation and subsequent foundation installation. An elevator pit detail is shown on Plate 7.

4.3.1 Membrane Installation

The EPRO membrane installation will be performed during installation of the elevator pits and will consist of separate base, core, and bond layers and shown on Plate 7.

The membrane base layer will be installed per manufacturer recommendations (i.e. minimum overlap between adjacent sheets, seam sealing of sheets, etc.). Penetrations through the base

layer will be cut as necessary for utilities, foundation reinforcement, etc. The core layer will be spray-applied using manufacturer recommended equipment and installation techniques. The core layer will be applied to a minimum dry thickness of 80 mils. The layer will be applied with smooth and consistent motion and with the layers sprayed such that they are overlapping. The core layer will require a curing period of up to 24 hours prior to quality control testing. Installation of the bond layer will not occur until all quality control testing and repairs to the base and core layers have been completed. The bond layer will be installed per manufacturer recommendations. The bond layer seam seals will be allowed to cure for up to 24 hours prior to the beginning of pouring of the building slabs.

Any damage that penetrates the core layer prior to the pouring of the building slabs will require repair by a LST-certified installer.

4.3.2 Vapor Barrier Construction Quality Control

Construction quality control for the EPRO membrane will include, at a minimum, the following measures:

- Smoke testing will be performed on the horizontal portion of the membrane at the elevator pit bottom to demonstrate integrity of the applied membrane; and

- Selected coupon sampling and testing will be performed on the installed membrane to verify applied minimum thickness of 60 mils.

Appropriate smoke and coupon testing protocol will be described in detail in the project submittal provided by the manufacturer, LST. As a quality control step, inspection of the vapor barrier construction activities will be performed by PES to verify proper installation and construction. The vapor barrier installation activities will be documented in the corrective action completion report that will be submitted to ACDEH for review and approval following implementation of the corrective actions.

4.3.3 Vapor Barrier Repair

The vapor barrier, once installed and covered by the concrete elevator pit, cannot be accessed or directly inspected. It is possible that penetrations of the elevator pit walls or floor slab may be required (e.g., for utility repairs, improvements that involve sub-slab work, etc.). It is imperative that the floor or wall slab removal be conducted in such a way that adequate flaps of the vapor barrier remain around the entire perimeter of the area that is penetrated. This will permit the vapor barrier patches to be adhered to the existing vapor barrier in order to maintain a continuous vapor barrier across the elevator pit footprint. As with the initial vapor barrier installation activities, the vapor barrier repairs must be performed by a certified applicator, in order to maintain the product warranty.

If a planned penetration of the slab is to occur, it is recommended that the Owner retain a qualified environmental professional to prepare an action plan specific to the proposed penetrations and verify it is properly implemented. The action plan will include: provisions to collect data to verify that the work will not result in a health risk to building occupants; steps to protect the vapor barrier system, or (if it is to be breached) procedures to repair the barrier to its original condition in accordance with the design specifications; and, quality control procedures to verify the adequacy of any barrier repairs.

If information becomes available that indicates a possible failure of the vapor barrier, the building Owner shall take the following actions. A qualified environmental professional should be retained to evaluate the information indicating a suspected vapor barrier failure. The environmental professional should be asked to prepare, and the Owner should implement, an assessment plan to determine whether there is an actual failure of the vapor barrier and whether there is an associated health risk concern. As recommended by the environmental professional in the assessment plan, additional information may be collected to ascertain the condition and functionality of the vapor barrier. Based on its evaluation of the data, the environmental professional should be asked to prepare, and the Owner should implement, a corrections plan to remedy identified vapor barrier problems.

4.4 Trench Plugs

To prevent the potential migration of soil vapors along utility line corridors that run from areas with PCE in soil gas above the RWQCB Tier 1 ESLs to offsite locations or other areas of the site, trench plugs will be installed. The proposed new sanitary sewer, storm drain, and water utility lines to be installed at the site during redevelopment are shown on Plate 6. Based on a review of the proposed utility lines, a trench plug will be installed on the planned water line where it extends offsite along the eastern site boundary. Trench plugs will be constructed using a bentonite cement slurry. The bentonite cement slurry will consist of a mixture of 4% Type II cement and 2% powdered bentonite with clean sand and water. A temporary plywood frame will be constructed in the trench to serve as a form into which the slurry is placed. The slurry will be poured directly into the trench and allowed to harden in place for at least 24 hours. After the slurry has hardened, the temporary form can then be removed or remain in place. Additional trench plugs will be installed if deemed necessary.

Inspection of the trench plug construction activities will be performed by PES to verify proper installation and construction. The trench plugs will also be surveyed. The trench plug installation activities will be documented in the corrective action completion report that will be submitted to ACDEH for review and approval following implementation of the corrective actions.

4.5 Geotextile Placement

If needed, as a contingency remedy activity in the unlikely event that contaminated soils are left in place, following excavations of soil from landscaped areas, a non-biodegradable woven geotextile fabric (Mirafi Orange Delineation Non-Woven Geotextile or equivalent) will be placed at the base of the excavation as a marker.

4.6 Vapor Barrier Trench Plug Operations and Maintenance Plan

An Operation and Maintenance (O&M) Plan will be prepared for inspecting and maintaining the vapor barrier located at the elevator pits of the Senior and Family Buildings and the trench plug(s) at the site. The goal of the inspection and maintenance actions is to ensure that the integrity of the vapor barrier and trench plug(s) is maintained. The vapor barrier is installed directly beneath the concrete elevator pit walls and floor. The trench plug is installed in the below grade trench of the utility lines.

The O&M plan will specify annual inspections of the vapor barrier and trench plug(s), and performing the requested five-year reviews. The annual inspections will include inspection of each building elevator pit and the surface area around the trench plug location to document their continued integrity. The inspection will also include interview(s) with persons knowledgeable of any construction work conducted over the past year that may have encountered the vapor barrier at the elevator pits or the below grade trench plug(s). If damage or other deleterious conditions of the vapor barrier or trench plugs(s) are observed, the damaged component will be repaired or replaced to its original condition. The five-year review will describe the inspection and maintenance activities conducted over the past five years and include a review of the status and protectiveness of the vapor barrier and trench plug(s). The O&M plan will be submitted to ACDEH for review and approval.

5.0 PUBLIC NOTIFICATION

Public participation activities will be conducted prior to implementation of the corrective action. A Public Notice (fact sheet) describing the proposed corrective actions will be prepared and submitted, along with the required distribution list, for review and approval to ACDEH. Upon approval by ACDEH, the Public Notice will be distributed to the surrounding community within a 300-foot radius of the subject property.

6.0 REPORTING

Following completion of the corrective actions, PES will prepare and submit a corrective action completion report to ACDEH. The report will document the excavation and soil disposal activities and the vapor barrier installation activities. Upon review and approval of the completion report, ACDEH will confirm the adequacy of the use of the site for its intended residential use.

7.0 REFERENCES

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Lawrence Berkeley National Laboratory (LBNL), 2009. *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*. April.

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TABLES

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
Kleinfelder Phase II Subsurface Investigation																
B-1	15502	10.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15503	14.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
B-2	15506-c	2.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15507-c	5.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15509	15.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
B-3	15512	10.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	**20**	--	--
	15514	15.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
Enercon Services, Inc. Phase II ESA																
B-1	B-1-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-1-49'	49	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
B-2	B-2-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-2-35'	35	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
B-3	B-3-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-3-49.25'	49	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
URS Targeted Site Investigation																
C1	C1-2	2	2/16/2011	--	<5.1	<5.1	<5.1	<10	<0.26	**7.9**	--	<49	--	--	--	--
	C1-5	5	2/16/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	**100**	--	**570**	--	--	--	--
C2	C2-2	2	2/16/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**27**	--	**150**	--	--	--	--
	C2-5	5	2/16/2011	--	<4.1	<4.1	<4.1	<8.2	<0.20	<0.99	--	<49	--	--	--	--
	C2-60 (dup)	5	2/16/2011	--	<4.1	<4.1	<4.1	<8.2	<0.21	**32**	--	**210**	--	--	--	--
	C2-20	20	2/16/2011	--	<4.9	<4.9	<4.9	<9.7	<0.24	<0.99	--	<50	--	--	--	--
	C2-30	30	2/16/2011	--	<4.5	<4.5	<4.5	<9.0	<0.22	<1.0	--	<50	--	--	--	--
C3	C3-2	2	2/15/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	**39**	--	**140**	--	--	--	--
	C3-5	5	2/15/2011	--	<4.4	<4.4	<4.4	<8.8	<0.22	**110 J**	--	**470 J**	--	--	--	--
	C3-60 (dup)	5	2/15/2011	--	<5.3	<5.3	<5.3	<11	<0.26	<0.99 UJ	--	<50 UJ	--	--	--	--
	C3-20	20	2/15/2011	--	<4.0	<4.0	<4.0	<8.1	<0.20	<1.0	--	<50	--	--	--	--
	C3-30	30	2/15/2011	--	<6.3	<6.3	<6.3	<13	<0.32	<1.0	--	<50	--	--	--	--
C4	C4-2	2	2/16/2011	--	<4.2	<4.2	<4.2	<8.4	<0.21	<1.0	--	<50	--	--	--	--
	C4-60 (dup)	2	2/16/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	<0.99	--	<49	--	--	--	--
	C4-5	5	2/16/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**140**	--	**670**	--	--	--	--
C5	C5-2	2	2/16/2011	--	<4.3	<4.3	<4.3	<8.5	<0.21	**2.1**	--	<50	--	--	--	--
	C5-5	5	2/16/2011	--	<4.4	<4.4	<4.4	<8.7	<0.22	**10**	--	**130**	--	--	--	--

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				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
C6	C6-2	2	2/15/2011	--	<4.7	<4.7	<4.7	<9.5	<0.24	**38**	--	**210**	--	--	--	--
C8	C8-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**12**	--	**53**	--	--	--	--
C9	C9-2	2	2/15/2011	--	<6.1	<6.1	<6.1	<12	<0.30	<0.99	--	<49	--	--	--	--
	C9-60 (dup)	2	2/15/2011	--	<5.1	<5.1	<5.1	<10	<0.26	<0.99	--	<50	--	--	--	--
C10	C10-2	2	2/15/2011	--	<5.4	<5.4	<5.4	<11	<0.27	<0.99	--	<49	--	--	--	--
C11	C11-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.5	<0.21	<1.0	--	<50	--	--	--	--
C12	C12-2	2	2/15/2011	--	<4.4	<4.4	<4.4	<8.8	<0.22	<0.99	--	<50	--	--	--	--
C13	C13-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.6	<0.22	<0.99	--	<49	--	--	--	--
ACC Phase II ESA																
B1	B1-4'	4	10/24/2013	<4.5	<4.5	<4.5	<4.5	<9.1	<0.230	**--**	**4.8**	**--**	<49	**--**	**--**	**--**
	B1-16'	16	10/24/2013	<4.5	<4.5	<4.5	<4.5	<9.0	<0.230	--	<0.99	--	<49	--	--	--
B2	B2-4'	4	10/24/2013	<4.9	<4.9	<4.9	<4.9	<9.7	<0.240	--	<0.99	--	<50	--	--	--
B3	B3-4'	4	10/24/2013	<4.8	<4.8	<4.8	<4.8	<9.7	<0.240	--	<0.99	--	<50	--	--	--
B4	B4-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.4	<0.240	**--**	**4.2**	**--**	<49	**--**	**--**	**--**
B5	B5-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.5	<0.240	--	<1.0	--	<50	--	--	--
B6	B6-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.4	<0.230	--	<1.0	--	<50	--	--	--
ACC Subsurface Investigation																
SV8	SV8-15'	15	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
SV9	SV9-5'	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	**1.2**	--	**60**	--	--	--
	DUP1 (SV9-5')	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	**1.1**	<1.0	**6.4**	**5.7**	**--**	--	--
	SV9-15'	15	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
SV11	SV11-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SV12	SV12-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SV13	SV13-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
GS1	GS1-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS2	GS2-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS2-6'	6	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS3	GS3-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS4	GS4-5'	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	**3.0**	--	**38**	--	--	--
GS5	GS5-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS5-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050

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Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
GS6	GS6-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS6-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
GS7	GS7-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	**7.9**	--	--	--
	DUP2 (GS7-2')	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	<1.0	<1.0	<5.0	<5.0		--	--
GS8	GS8-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS8-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS9	GS9-8'	8	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
GS10	GS10-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS11	GS11-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS11-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS12	GS12-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS12-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
GS13	GS13-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS14	GS14-10'	10	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA5	BA5-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	**8.4**	--	--	--
	BA5-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA6	BA6-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
	BA6-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA7	BA7-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
	BA7-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA8	BA8-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	BA8-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA11	BA11-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	DUP6 (BA11-0.5')	0.5	6/8/2017	--	--	--	--	--	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	BA11-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
BA12	BA12-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	BA12-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
EB1	EB1-8'	8	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
EB2	EB2-4'	4	6/8/2017	--	--	--	--	--	<1.0	--	**2.4**	--	**47**	--	--	--
	EB2-8'	8	6/8/2017	--	--	--	--	--	<1.0	--	**4.3**	--	**120**	--	--	--
EB3	EB3-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	<1.0	--	<5.0	--	**180**	--	--	--
	EB3-6'	6	6/8/2017	ND	ND	ND	ND	ND	<1.0	--	**1.1**	--	**30**	--	--	--

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
EB8	EB8-0.5'	0.5	6/7/2017	--	--	--	--	--	<1.0	--	**23**	--	**740**	--	--	<0.050
	EB8-2.5'	2.5	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
EB9	EB9-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**14**	**0.012 J**
	EB9-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
EB10	EB10-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**5.5**	**0.022 J**
	EB10-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
EB11	EB11-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**22**	<0.050
	EB11-2.5	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**7.4**	<0.050
	DUP10 (EB11-2.5')	2.5	6/8/2017	--	--	--	--	--	<1.0	**2.5**	<1.0	<5.0	<5.0	--	--	--
EB12	EB12-0.5'	0.5	6/7/2017	--	--	--	--	--	--	--	--	--	--	--	**69**	<0.050
	EB12-2.5'	2.5	6/7/2017	--	--	--	--	--	--	--	--	--	--	--	**47**	<0.050
EB13	EB13-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**18**	**1.1**
	EB13-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
WC1	WC1-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC1-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC1-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC2	WC2-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP3 (WC2-0.5')	0.5	6/7/2017	--	--	--	--	--	<1.0	**3.7**	**2.7**	**32**	**22**	--	--	--
	WC2-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC2-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC3	WC3-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC3-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP4 (WC3-6')	6	6/7/2017	--	--	--	--	--	<1.0	**2.0**	**1.8**	**50**	**33**	--	--	--
	WC3-10'	10	6/7/2017	ND	ND	ND	ND	**0.011**	--	--	--	--	--	--	--	--
WC4	WC4-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC4-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC4-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC5	WC5-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC5-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP8 (WC5-6')	6	6/8/2017	ND	ND	ND	ND	ND	<1.0	**5.6**	**3.4**	**190**	**110**	--	--	--
	WC5-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC6	WC6-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC6-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC6-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
WC7	WC7-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP9 (WC7-0.5')	0.5	6/8/2017	ND	ND	ND	ND	ND	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	WC7-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC7-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC8	WC8-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC8-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC8-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SO1	SO1 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
SO2	SO2 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
SO3	SO3 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

VOCs = Volatile Organic Compounds.

PCE = Tetrachloroethene.

EB = Ethylbenzene.

TPH = Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g); diesel-range (TPH-d); motor oil-range (TPH-mo).

* = Analysis performed with silica gel cleanup.

TPH-wo = TPH as waste oil.

TPH-ho = TPH as hydraulic oil.

PCBs = Polychlorinated biphenyls.

µg/kg = micrograms per kilogram.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

c = Soil samples composited for one analysis.

J = Estimated concentration.

UJ = Estimated reporting limit.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 2
Soil Analytical Results Summary - PAHs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PAHs									
				Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)	Benzo(a) pyrene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Indeno (1,2,3-c,d) pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**
URS Targeted Site Investigation													
C1	C1-2	2	2/16/2011	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099
	C1-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
C2	C2-2	2	2/16/2011	**0.087**	**0.014**	**0.0095**	**0.009**	**0.011**	**0.011**	**0.011**	**0.0061**	<.005	**0.016**
	C2-5	5	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C2-60 (dup)	5	2/16/2011	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
C3	C3-2	2	2/16/2011	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	**0.036**	<.0099
	C3-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
	C3-60 (dup)	5	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C4	C4-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C4-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
C5	C5-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C5-5	5	2/16/2011	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
C8	C8-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C9	C9-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C9-60 (dup)	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
C10	C10-2	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
	C10-2 DUP	2	2/16/2011	**0.016J**	**0.031J**	**0.014**	**0.013**	**0.021J**	**0.022J**	**0.020J**	**0.01**	<.099	**0.031J**
C11	C11-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C12	C12-2	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
C13	C13-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
ACC Subsurface Investigation													
GS1	GS1-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
GS3	GS3-8'	8	6/7/2017	<0.010	**0.0016 J**	**--**	<0.010	<0.010	<0.010	<0.010	**--**	**--**	<0.010
GS8	GS8-2'	2	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	GS8-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
GS11	GS11-2'	2	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	GS11-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010

Table 2
Soil Analytical Results Summary - PAHs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PAHs									
				Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)	Benzo(a) pyrene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Indeno (1,2,3-c,d) pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**
BA11	BA11-0.5'	0.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	BA11-2.5'	2.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
BA12	BA12-0.5'	0.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	BA12-2.5'	2.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
EB8	EB8-0.5'	0.5	6/7/2017	<0.050	**0.034 J**	**--**	**0.075**	**0.019 J**	<0.050	<0.050	**--**	**--**	<0.050
	EB8-2.5'	2.5	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
SO2	SO2 [0.5']	0.5	7/21/2017	<0.020	**0.013 J**	**--**	**0.0079 J**	**0.010 J**	<0.020	**0.0083 J**	**--**	**--**	**0.012 J**
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

PAHs = Polyaromatic hydrocarbons.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

J = Estimated concentration.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals												
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
URS Targeted Site Investigation																
C1	C1-2	2	2/16/2011	**4.1 J**	**160 J**	<0.41 UJ	ND	**52 J**	**14 J**	**28 J**	**8.5 J**	**0.032 J**	<2.0 UJ	**100 J**	**24 J**	**45 J**
	C1-5	5	2/16/2011	**4.5 J**	**140 J**	<0.41 UJ	ND	**60 J**	**15 J**	**30 J**	**7.2 J**	**0.051 J**	<2.1 UJ	**130 J**	**26 J**	**44 J**
C2	C2-2	2	2/16/2011	**14 J**	**5.6 J**	<0.38 UJ	ND	**41 J**	**11 J**	**32 J**	**18 J**	**0.072 J**	<1.9 UJ	**88 J**	**20 J**	**52 J**
	C2-5	5	2/16/2011	**5.6 J**	**130 J**	<0.38 UJ	ND	**45 J**	**12 J**	**24 J**	**6.7 J**	**0.049 J**	<1.9 UJ	**96 J**	**20 J**	**39 J**
	C2-60 (dup)	5	2/16/2011	<4.1 UJ	**110 J**	<0.41 UJ	ND	**21 J**	**9.6 J**	**20 J**	**10 J**	**0.27 J**	<2.0 UJ	**38 J**	**18 J**	**30 J**
C3	C3-2	2	2/16/2011	<4.1	**110 J**	<0.41	ND	**39**	**9.1**	**23**	**7.7**	**0.031**	<2.0	**67**	**24**	**38**
	C3-5	5	2/16/2011	<4.0	**86**	<0.40	ND	**34**	**8.3**	**20**	**6.0**	**0.027**	<2.0	**65**	**21**	**35**
	C3-60 (dup)	5	2/16/2011	<4.2	**92**	<0.40	ND	**46**	**8.3**	**23**	**5.1**	**0.027**	<2.0	**68**	**24**	**34**
C4	C4-2	2	2/16/2011	**4.5 J**	**200 J**	<0.38 UJ	ND	**64 J**	**16 J**	**35 J**	**7.9 J**	**0.029 J**	<1.9 UJ	**120 J**	**27 J**	**50 J**
	C4-5	5	2/16/2011	<4.0 UJ	**85 J**	<0.40 UJ	ND	**33 J**	**6.6 J**	**15 J**	**4.1 J**	**0.031 J**	<2.0 UJ	**57 J**	**17 J**	**25 J**
C5	C5-2	2	2/16/2011	**5.7 J**	**230 J**	<0.38 UJ	ND	**120 J**	**19 J**	**37 J**	**8.3 J**	**0.067 J**	<1.9 UJ	**170 J**	**30 J**	**49 J**
	C5-5	5	2/16/2011	**5.0 J**	**180 J**	<0.38 UJ	ND	**63 J**	**18 J**	**33 J**	**8.9 J**	**0.075 J**	<1.9 UJ	**150 J**	**26 J**	**50 J**
C8	C8-2	2	2/16/2011	**5.8**	**230 J**	<0.42	ND	**84 J**	**19**	**40**	**9.5**	**0.041**	<2.1	**160**	**37**	**53**
	C8-5	5	2/16/2011	**5.5**	**210 J**	<0.40	ND	**86 J**	**19**	**36**	**8.9**	**0.087**	<2.0	**170**	**34**	**53**
C9	C9-2	2	2/16/2011	**5.5**	**230**	<0.41	ND	**82**	**20**	**37**	**8.4**	**0.035**	<2.1	**160**	**36**	**54**
	C9-60 (dup)	2	2/16/2011	**4.9**	**210**	<0.40	ND	**71**	**17**	**34**	**7.5**	**0.043**	<2.0	**140**	**31**	**48**
	C9-5	5	2/16/2011	**5.2**	**190 J**	<0.41	ND	**210 J**	**15**	**32**	**11**	**0.028**	**30**	**140**	**31**	**44**
C10	C10-2	2	2/16/2011	**5.6**	**220 J**	<0.40	ND	**76 J**	**17**	**33**	**12**	**0.054**	<2.0	**140**	**34**	**58**
	C10-5	5	2/16/2011	**4.6**	**160 J**	<0.40	ND	**71 J**	**14**	**28**	**8.0**	**0.066**	<2.0	**150**	**28**	**47**
C11	C11-2	2	2/16/2011	**5.9**	**200 J**	<0.41	ND	**88 J**	**19**	**41**	**9.7**	**0.079**	<2.1	**170**	**36**	**57**
	C11-5	5	2/16/2011	**4.7**	**120 J**	<0.41	ND	**160 J**	**27**	**20**	**5.4**	**0.034**	<2.0	**360**	**22**	**42**
C12	C12-2	2	2/16/2011	**6.4**	**260 J**	<0.41	ND	**94 J**	**31**	**40**	**9.3**	**0.047**	<2.1	**350**	**35**	**54**
	C12-5	5	2/16/2011	<3.8	**110 J**	<0.38	ND	**49 J**	**12**	**21**	**4.9**	**0.047**	<1.9	**140**	**20**	**35**
C13	C13-2	2	2/16/2011	**6.3**	**240 J**	<0.40	ND	**90 J**	**20**	**38**	**9.5**	**0.048**	<2.0	**200**	**36**	**56**
	C13-5	5	2/16/2011	**4.7**	**170 J**	<0.40	ND	**83 J**	**15**	**28**	**7.0**	**0.058**	<2.0	**170**	**28**	**51**
	C13-5 DUP	5	2/16/2011	**5.9**	**220 J**	**0.79**	ND	**100 J**	**19**	**34**	**10**	**0.052**	<2.1	**180**	**37**	**53**

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals													
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
ACC Phase II ESA																	
B1	B1-4'	4	10/24/2013	--	--	--	--	--	--	--	**7.2**	--	--	--	--	--	--
	B1-16'	16	10/24/2013	--	--	--	--	--	--	--	**8.1**	--	--	--	--	--	--
B2	B2-4'	4	10/24/2013	--	--	--	--	--	--	--	**7.9**	--	--	--	--	--	--
B3	B3-4'	4	10/24/2013	--	--	--	--	--	--	--	**8.0**	--	--	--	--	--	--
B4	B4-4'	4	10/24/2013	--	--	--	--	--	--	--	**8.5**	--	--	--	--	--	--
B5	B5-4'	4	10/24/2013	--	--	--	--	--	--	--	**6.0**	--	--	--	--	--	--
B6	B6-4'	4	10/24/2013	--	--	--	--	--	--	--	**6.8**	--	--	--	--	--	--
ACC Subsurface Investigation																	
GS1	GS1-8'	8	6/7/2017	--	--	--	--	--	--	--	**5.0**	--	--	--	--	--	--
GS2	GS2-2'	2	6/7/2017	--	--	--	--	--	--	--	**8.2**	--	--	--	--	--	--
	GS2-6'	6	6/7/2017	--	--	--	--	--	--	--	**6.8**	--	--	--	--	--	--
GS3	GS3-8'	8	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
GS4	GS4-5'	5	6/7/2017	--	--	--	--	--	--	--	**150**	--	--	--	--	--	--
GS5	GS5-4'	4	6/7/2017	--	--	--	<0.25	**82**	--	--	**9.1**	--	--	**180**	--	**63**	
	GS5-8'	8	6/7/2017	--	--	--	<0.25	**39**	--	--	**4.1**	--	--	**100**	--	**39**	
GS6	GS6-4'	4	6/7/2017	--	--	--	<0.25	**75**	--	--	**8.2**	--	--	**160**	--	**59**	
	GS6-10'	10	6/7/2017	--	--	--	<0.25	**87**	--	--	**5.3**	--	--	**330**	--	**46**	
GS7	GS7-2'	2	6/7/2017	--	--	--	--	--	--	--	**18**	--	--	--	--	--	--
GS8	GS8-2'	2	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
	GS8-8'	8	6/7/2017	--	--	--	--	--	--	--	**5.3**	--	--	--	--	--	--
GS10	GS10-8'	8	6/7/2017	--	--	--	--	--	--	--	**6.1**	--	--	--	--	--	--
GS11	GS11-2'	2	6/7/2017	--	--	--	--	--	--	--	**10**	--	--	--	--	--	--
	GS11-8'	8	6/7/2017	--	--	--	--	--	--	--	**13**	--	--	--	--	--	--
GS12	GS12-4'	4	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
	GS12-10'	10	6/7/2017	--	--	--	--	--	--	--	**4.1**	--	--	--	--	--	--
GS13	GS13-10'	10	6/7/2017	--	--	--	--	--	--	--	**5.7**	--	--	--	--	--	--
BA11	BA11-0.5'	0.5	6/8/2017	**8.0**	--	--	<0.25	**99**	--	--	**12**	--	--	**200**	--	**67**	
	BA11-2.5'	2.5	6/8/2017	**7.6**	--	--	<0.25	**100**	--	--	**11**	--	--	**230**	--	**69**	
BA12	BA12-0.5'	0.5	6/8/2017	**6.9**	--	--	<0.25	**81**	--	--	**8.5**	--	--	**160**	--	**61**	
	BA12-2.5'	2.5	6/8/2017	**8.7**	--	--	<0.25	**97**	--	--	**12**	--	--	**220**	--	**74**	

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals												
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
EB3	EB3-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	**7.8**	--	--	--	--	--
	EB3-6'	6	6/8/2017	--	--	--	--	--	--	--	**4.0**	--	--	--	--	--
EB8	EB8-0.5'	0.5	6/7/2017	**7.8**	--	--	<0.25	**49**	--	--	**6.4**	--	--	**94**	--	**53**
	EB8-2.5'	2.5	6/7/2017	**6.6**	--	--	<0.25	**77**	--	--	**8.2**	--	--	**170**	--	**62**
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

J = Estimated concentration.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 4
Soil Vapor Analytical Results Summary - Primary VOCs
1625 Chestnut Street, Livermore, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PCE (µg/m3)	TCE (µg/m3)	Benzene (µg/m3)	Toluene (µg/m3)	EB (µg/m3)	Total Xylenes (µg/m3)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**240**	**240**	**48**	**160,000**	**560**	**52,000**
URS Targeted Site Investigation									
C1	C1-SG	5	2/16/2011	<6.0	<4.8	**8.9**	**18**	**6.4**	**24**
C2	C2-SG	5	2/16/2011	**6.3**	<4.9	**5.4**	**6.1**	<4.0	<4.0
C3	C3-SG	5	2/16/2011	**46**	<4.6	<2.8	<3.3	<3.8	<3.8
	C6-SG (dup)	5	2/16/2011	**46**	<4.6	<2.8	<3.3	<3.8	<3.8
C4	C4-SG	5	2/16/2011	**49**	<5.1	**14**	**16**	**5.6**	**14**
C5	C5-SG	5	2/16/2011	**35**	<4.9	**40**	**78**	**61**	**180**
ACC Subsurface Investigation									
SV1	SV1-5'	5	6/14/2017	**47**	ND<2.8	ND<1.6	**3.1**	**3.9**	**31**
SV2	SV2-15'	15	6/14/2017	**140**	ND<2.8	**3.4**	**11**	**79**	**450**
SV3	SV3-5'	5	6/14/2017	**150**	ND<2.8	ND<1.6	ND<1.9	ND<2.2	ND<6.6
SV4	SV4-15'	15	6/14/2017	**150**	ND<2.8	**2.1**	**8.9**	**48**	**360**
	SVDUP	15	6/14/2017	**96**	ND<7.3	**23**	**330**	**180**	**800**
SV5	SV5-5'	5	6/14/2017	**11**	ND<2.8	ND<1.6	ND<1.9	**2.6**	**18**
SV6	SV6-5'	5	6/14/2017	**15**	ND<2.8	ND<1.6	ND<1.9	ND<2.2	ND<6.6
SV7	SV7-15'	15	6/14/2017	**54**	ND<2.8	**2.6**	**11**	**3.7**	**13**
SV8	SV8-20'	20	6/14/2017	~~**33**~~	~~ND<2.8~~	~~**11**~~	~~**27**~~	~~**4.3**~~	~~**8.6**~~
	SV8-20' (A)	20	7/24/2017	**54**	**0.38**	**2.5**	**0.63**	ND<2.2	**1.5**
SV9	SV9-20'	20	6/14/2017	~~**90**~~	~~ND<2.8~~	~~**2.2**~~	~~**12**~~	~~**2.8**~~	~~**14**~~
	SV9-20' (A)	20	7/24/2017	**190**	**0.31**	**1.1**	**0.59**	ND<2.2	**1.1**
SV10	SV10-5'	5	7/24/2017	**340**	**0.12**	**1.2**	**14**	**5.2**	**32**
SV11	SV11-5'	5	7/24/2017	**430**	ND<28	ND<16	ND<380	ND<440	ND<1300
SV12	SV12'-5	5	7/24/2017	**180**	**0.082**	**1.4**	**4.8**	**1.6**	**8.6**
SV13	SV13-5'	5	7/24/2017	**290**	**0.11**	**0.35**	**1.0**	**0.38**	**2.4**
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**240**	**240**	**48**	**160,000**	**560**	**52,000**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

VOCs = Volatile Organic Compounds.

PCE = Tetrachloroethene.

TCE = Tetrachloroethene.

EB = Ethylbenzene.

µg/m3 = micrograms per cubic meter.

feet bgs = feet below ground surface.

Soil Gas Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 5
Soil Vapor Analytical Results Summary - Additional VOCs
1625 Chestnut Street, Livermore, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Acetone (µg/m3)	Acrolein (µg/m3)	Acrylo-nitrile (µg/m3)	Benzyl chloride (µg/m3)	Bromo-dichloro-methane (µg/m3)	Bromo-form (µg/m3)	Bromo-methane (µg/m3)	1,3-Butadiene (µg/m3)	MEK (µg/m3)	Carbon Disulfide (µg/m3)	Carbon Tetra-chloride (µg/m3)	Chloro-benzene (µg/m3)	Chloro-form (µg/m3)	Cyclo-hexane (µg/m3)	1,2-Dibromo-ethane (µg/m3)	1,4-Dichloro-benzene (µg/m3)	Dichloro-difluoro-methane (µg/m3)	1,2-Dichloro-ethane (µg/m3)	DIPE (µg/m3)	1,4-Dioxane (µg/m3)	Ethanol (µg/m3)	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Helium (%)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**15,000,000**	--	--	--	**38**	**1,300**	**2,600**	--	--	--	**33**	**26,000**	**61**	--	**2.3**	**130**	--	**54**	--	**180**	--	--	--	--	--	--
ted Site Investigation																												
C1	C1-SG	5	2/16/2011	**27**	ND	ND	ND	ND	**10**	ND	**9.6**	**6.2**	<2.8	ND	ND	ND	**17**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C2	C2-SG	5	2/16/2011	**13**	ND	ND	ND	ND	**9.8**	ND	<2.0	<2.7	<2.8	ND	ND	ND	**21**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C3	C3-SG	5	2/16/2011	<8.2	ND	ND	ND	ND	<8.9	ND	<1.9	<2.6	<2.7	ND	ND	ND	<3.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
	C6-SG (dup)	5	2/16/2011	<8.2	ND	ND	ND	ND	<8.9	ND	<1.9	<2.6	<2.7	ND	ND	ND	<3.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C4	C4-SG	5	2/16/2011	**20**	ND	ND	ND	ND	**27**	ND	**14**	**3.6**	<2.9	ND	ND	ND	**28**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C5	C5-SG	5	2/16/2011	**39**	ND	ND	ND	ND	**22**	ND	**77**	**9.6**	**5.6**	ND	ND	ND	**25**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
surface Investigation																												
SV1	SV1-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**7.7**	**2.6**	**0.00014**	**0.15**
SV2	SV2-15'	15	6/14/2017	**290**	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**5.7**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.6**	**7.2**	**0.00023**	ND<0.050
SV3	SV3-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**11**	**6.3**	<0.000060	ND<0.050
SV4	SV4-15'	15	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**3.4**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.8**	**7.2**	<0.000060	**0.17**
	SVDUP	15	6/14/2017	ND<160	ND<16	ND<2.9	ND<7.1	ND<9.3	ND	ND<5.2	ND	ND<200	**13**	ND<8.5	ND<6.3	ND<6.5	**68**	ND<10	ND<8.1	ND<6.7	ND<5.5	ND<5.6	ND<4.9	ND<260	**32**	**5.3**	**0.000066**	**3.7**
SV5	SV5-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**14**	**5.2**	<0.000060	ND<0.050
SV6	SV6-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**2.7**	ND<2.0	**3.3**	ND<1.8	ND<96	**10**	**7.6**	<0.000060	ND<0.050
SV7	SV7-15'	15	6/14/2017	**9,500**	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	**160**	**7.9**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**2.6**	ND<2.0	ND<2.1	ND<1.8	**310**	**9.1**	**7.5**	**0.000067**	**0.10**
SV8	SV8-20'	20	6/14/2017	ND<60	ND<5.8	**12**	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**59**	ND<3.2	ND<2.4	ND<2.4	**69**	ND<3.9	ND<3.0	**3.6**	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.8**	**4.7**	**0.00060**	**6.6**
	SV8-20' (A)	20	7/24/2017	**160**	**9.6**	ND<1.1	ND<2.6	ND<3.5	ND	**3.5**	ND	**160**	**0.84**	**0.20**	ND<2.4	**1.2**	ND<18	ND<3.9	**0.16**	**5.4**	**0.050**	ND<2.1	ND<1.8	**14**	--	--	--	**0.19**
SV9	SV9-20'	20	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**6.3**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**7.2**	ND<2.0	ND<2.1	ND<1.8	ND<96	**10**	**2.7**	**0.00012**	**10**
	SV9-20' (A)	20	7/24/2017	**31**	**2.9**	ND<1.1	ND<2.6	ND<3.5	ND	**1.3**	ND	**71**	**2.6**	**0.20**	ND<2.4	**0.82**	ND<18	ND<3.9	**0.18**	**22**	**0.030**	ND<2.1	ND<1.8	**6.3**	--	--	--	ND<0.050
SV10	SV10-5'	5	7/24/2017	**19**	**5.6**	ND<1.1	**0.34**	**0.27**	ND	**1.9**	ND	**10**	**1.0**	**0.28**	ND<2.4	**2.6**	**1.3**	**0.050**	ND<3.0	**12**	**0.053**	ND<2.1	ND<1.8	**7.1**	--	--	--	ND<0.050
SV11	SV11-5'	5	7/24/2017	**29,000**	ND<230	ND<220	ND<530	ND<35	ND	ND<390	ND	ND<300	ND<320	ND<32	ND<470	ND<24	ND<350	ND<39	ND<31	ND<200	ND<21	ND<420	ND<18	**660**	--	--	--	ND<0.050
SV12	SV12'-5	5	7/24/2017	**27**	**2.5**	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	**6.6**	**1.1**	ND<3.2	**0.14**	**1.2**	**2.8**	ND<3.9	ND<3.0	**7.3**	**0.053**	ND<2.1	ND<1.8	ND<96	--	--	--	ND<0.050
SV13	SV13-5'	5	7/24/2017	**73**	ND<5.8	**1.2**	ND<2.6	**0.052**	ND	**4.4**	ND	**60**	**0.92**	**0.17**	ND<2.4	**0.61**	**1.0**	ND<3.9	ND<3.0	**5.7**	**0.038**	ND<2.1	**2.4**	**13**	--	--	--	ND<0.050
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**15,000,000**	--	--	--	**38**	**1,300**	**2,600**	--	--	--	**33**	**26,000**	**61**	--	**2.3**	**130**	--	**54**	--	**180**	--	--	--	--	--	--

Table 5
Soil Vapor Analytical Results Summary - Additional VOCs
1625 Chestnut Street, Livermore, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Ethyl Acetate (µg/m3)	4-Ethyl-toluene (µg/m3)	Freon 113 (µg/m3)	Heptane (µg/m3)	n-Heptane (µg/m3)	Hexane (µg/m3)	n-Hexane (µg/m3)	2-Hexanone (µg/m3)	MIBK (µg/m3)	Methylene chloride (µg/m3)	Methyl meth-acrylate (µg/m3)	MTBE (µg/m3)	Naph-thalene (µg/m3)	Propylene (µg/m3)	Styrene (µg/m3)	tert-Butyl Alcohol (µg/m3)	1,1,1,2-Tetra-chloro-ethane (µg/m3)	Tetra-hydro-furan (µg/m3)	1,1,1,-Trichloro-ethane (µg/m3)	Trichloro-fluoro-methane (µg/m3)	1,2,4-Trimethyl-benzene (µg/m3)	1,3,5-Trimethyl-benzene (µg/m3)	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Helium (%)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				--	--	--	--	--	--	--	--	--	510	--	5,400	41	--	470,000	--	190	--	520,000	--	--	--	--	--	--	--
ted Site Investigation																													
C1	C1-SG	5	2/16/2011	ND	ND	ND	ND	**4.1**	ND	**3.7**	ND	ND	ND	ND	ND	ND	**56**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C2	C2-SG	5	2/16/2011	ND	ND	ND	ND	**32**	ND	**110**	ND	ND	ND	ND	ND	ND	**48**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C3	C3-SG	5	2/16/2011	ND	ND	ND	ND	<3.5	ND	<3.0	ND	ND	ND	ND	ND	ND	**5.7**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
	C6-SG (dup)	5	2/16/2011	ND	ND	ND	ND	<3.5	ND	<3.0	ND	ND	ND	ND	ND	ND	<1.5	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C4	C4-SG	5	2/16/2011	ND	ND	ND	ND	**6.2**	ND	**7.1**	ND	ND	ND	ND	ND	ND	**170**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C5	C5-SG	5	2/16/2011	ND	ND	ND	ND	**15**	ND	**23**	ND	ND	ND	ND	ND	ND	**550**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
surface Investigation																													
SV1	SV1-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<6.0	ND<2.5	ND<2.5	**7.7**	**2.6**	**0.00014**	**0.15**
SV2	SV2-15'	15	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	**6.3**	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	**8.7**	ND<2.8	ND<2.8	**4.2**	ND<2.5	**8.6**	**7.2**	**0.00023**	ND<0.050
SV3	SV3-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**11**	**6.3**	<0.000060	ND<0.050
SV4	SV4-15'	15	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	**8.6**	**15**	ND	ND<2.2	ND<31	ND<3.5	**3.0**	ND<2.8	ND<2.8	**5.8**	ND<2.5	**8.8**	**7.2**	<0.000060	**0.17**
	SVDUP	15	6/14/2017	ND<4.9	**35**	ND<10	**56**	ND	ND<48	ND	ND<5.6	ND<5.6	ND<24	ND<5.6	**35**	ND<14	ND	**9.0**	ND<83	ND<9.3	ND<8.0	ND<7.3	ND<7.6	**83**	**34**	**32**	**5.3**	**0.000066**	**3.7**
SV5	SV5-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**14**	**5.2**	<0.000060	ND<0.050
SV6	SV6-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**10**	**7.6**	<0.000060	ND<0.050
SV7	SV7-15'	15	6/14/2017	**15**	**4.3**	ND<3.9	ND<21	ND	**27**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	**35**	ND<3.5	**93**	ND<2.8	ND<2.8	**5.0**	ND<2.5	**9.1**	**7.5**	**0.000067**	**0.10**
SV8	SV8-20'	20	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	**110**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**8.8**	**4.7**	**0.00060**	**6.6**
	SV8-20' (A)	20	7/24/2017	ND<1.8	ND<2.5	**0.94**	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	**4.1**	ND<2.1	ND<1.8	**0.49**	ND	ND<2.2	ND<31	ND<3.5	**16**	ND<2.8	**1.9**	ND<2.5	ND<2.5	--	--	--	**0.19**
SV9	SV9-20'	20	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	**2.7**	ND<2.5	**10**	**2.7**	**0.00012**	**10**
	SV9-20' (A)	20	7/24/2017	ND<1.8	ND<2.5	**0.87**	ND<21	ND	**2.8**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	**0.58**	ND	ND<2.2	ND<31	ND<3.5	**7.1**	**0.87**	**1.5**	ND<2.5	ND<2.5	--	--	--	ND<0.050
SV10	SV10-5'	5	7/24/2017	**1.3**	**3.6**	**1.1**	ND<21	ND	**1.2**	ND	**0.79**	**1.8**	**3.0**	ND<2.1	ND<1.8	**1.1**	ND	**0.43**	ND<31	**0.030**	**4.6**	**1.9**	**2.1**	**15**	**5.2**	--	--	--	ND<0.050
SV11	SV11-5'	5	7/24/2017	ND<370	ND<500	ND<780	ND<420	ND	ND<360	ND	ND<420	ND<420	ND<350	ND<420	ND<370	ND<53	ND	ND<430	ND<310	ND<35	ND<300	ND<550	ND<570	ND<500	ND<500	--	--	--	ND<0.050
SV12	SV12'-5	5	7/24/2017	ND<1.8	**1.3**	**1.2**	ND<21	ND	**2.2**	ND	ND<2.1	**0.62**	**7.0**	ND<2.1	ND<1.8	**0.82**	ND	**0.40**	ND<31	ND<3.5	**1.7**	ND<2.8	**2.5**	**3.6**	**1.0**	--	--	--	ND<0.050
SV13	SV13-5'	5	7/24/2017	**31**	**0.48**	**1.0**	ND<21	ND	**0.96**	ND	**5.1**	**69**	**2.7**	**0.75**	ND<1.8	**0.97**	ND	**0.44**	ND<31	ND<3.5	**11**	ND<2.8	**2.0**	**1.2**	ND<2.5	--	--	--	ND<0.050
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				--	--	--	--	--	--	--	--	--	510	--	5,400	41	--	470,000	--	190	--	520,000	--	--	--	--	--	--	--

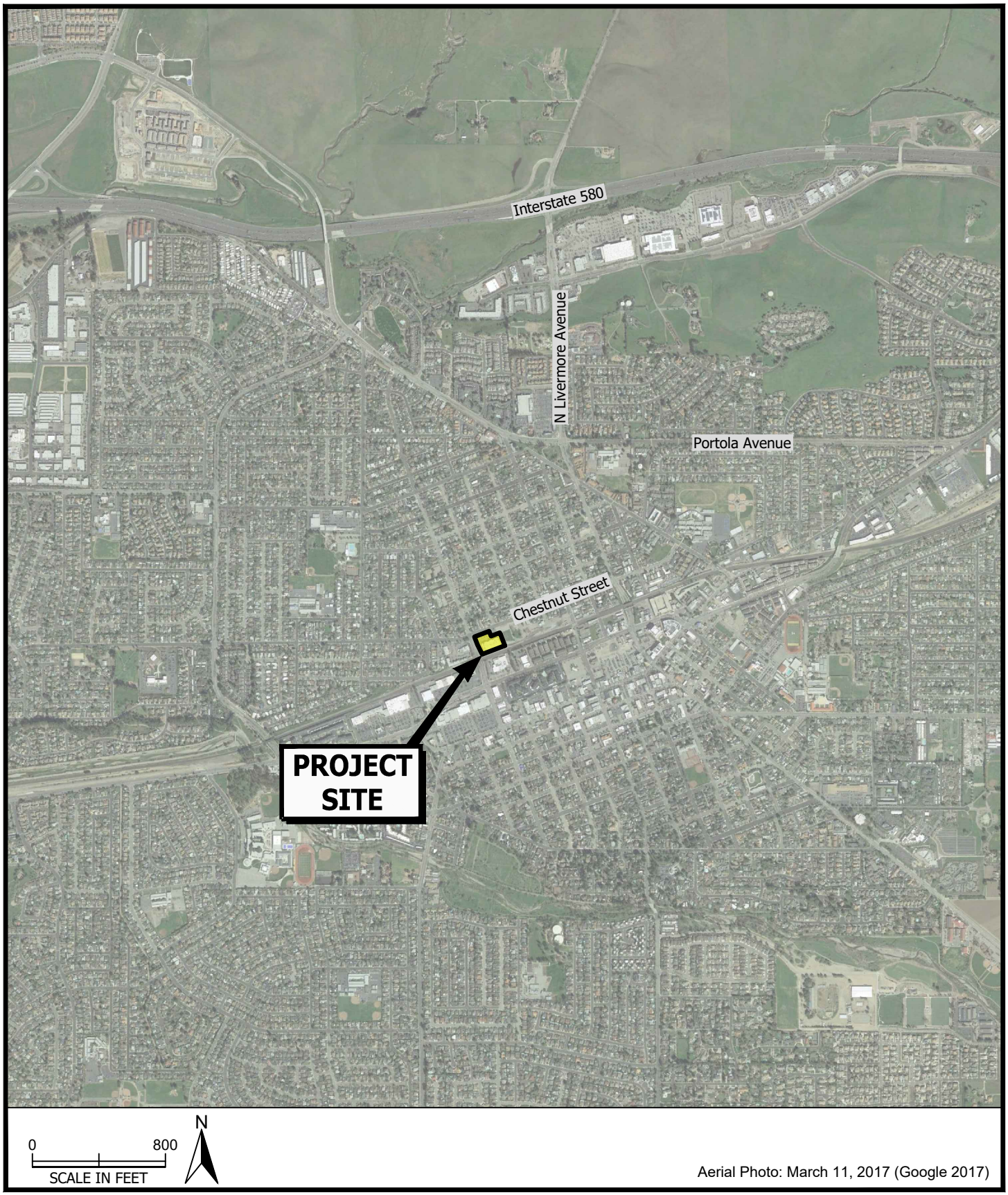
Notes:
Detections are shown in bold.
Results equal to or exceeding Tier 1 ESLs are shaded.
All data provide by ACC Environmental Consultants.
VOCs = Volatile Organic Compounds.
MEK = 2-Butanone.
DIPE = Disopropyl ether.
MIBK= 4-Methyl-2-pentanone.
MTBE= Methyl-t-butyl ether.
µg/m3 = micrograms per kilogram.
feet bgs = feet below ground surface.
J = Estimated concentration.
Soil Gas Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 6
Groundwater Analytical Results Summary (VOCs, TPH & Metals)
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Depth to Water (feet bgs)	Sample Date	VOCs						TPH			Metals									
				PCE (µg/L)	TCE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	EB (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Barium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
Groundwater Tier 1 ESLs (Feb. 2016, Rev. 3)				**3.0**	**5.0**	**2.5**	**0.016**	**3.8**	**60**	**100**	**100**	**--**	**1,000**	**50**	**3.0**	**3.1**	**2.5**	**0.051**	**100**	**8.2**	**19**	**81**
URS Targeted Site Investigation																						
C1	C1GW	48	2/17/2011	**13**	**0.71**	<0.50	<0.50	<0.50	<1.0	<50	<55	<110	**0.43**	**0.015**	**0.011**	<0.02	**0.0051**	<0.0002	**0.01**	**0.081**	**0.011**	<0.02
C2	C2GW	49	2/17/2011	**14**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	**130**	**400**	**0.47**	**0.086**	**0.024**	**0.044**	**0.0059**	<0.0002	**0.015**	**0.27**	**0.035**	**0.042**
	C20GS	49	2/17/2011	**12**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	**82**	**200**	**0.57**	**0.1**	**0.042**	**0.043**	**0.0099**	**0.0002**	**0.012**	**0.39**	**0.041**	**0.056**
C9	C9GW	43	2/17/2011	**15**	**0.53**	<0.50	<0.50	<0.50	<1.0	<50	**72**	**190**	**1.2**	**0.029**	**0.031**	**0.039**	**0.0094**	**0.0005**	**0.016**	**0.15**	**0.022**	**0.029**
C12	C12GW	45	2/17/2011	**2.4**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	<62	**120**	**0.35**	<0.01	**0.0023**	<0.02	<0.005	<0.0002	<0.01	**0.016**	<0.01	<0.02
Groundwater Tier 1 ESLs (Feb. 2016, Rev. 3)				**3.0**	**5.0**	**2.5**	**0.016**	**3.8**	**60**	**100**	**100**	**--**	**1,000**	**50**	**3.0**	**3.1**	**2.5**	**0.051**	**100**	**8.2**	**19**	**81**

Notes:
Detections are shown in bold.
Results equal to or exceeding Tier 1 ESLs are shaded.
All data provide by ACC Environmental Consultants.
VOCs = Volatile Organic Compounds.
PCE = Tetrachloroethene.
TCE = Tetrachloroethene.
EB = Ethylbenzene.
TPH = Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g); diesel-range (TPH-d); motor oil-range (TPH-mo).
µg/L = micrograms per liter.
feet bgs = feet below ground surface.
Groundwater Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

ILLUSTRATIONS

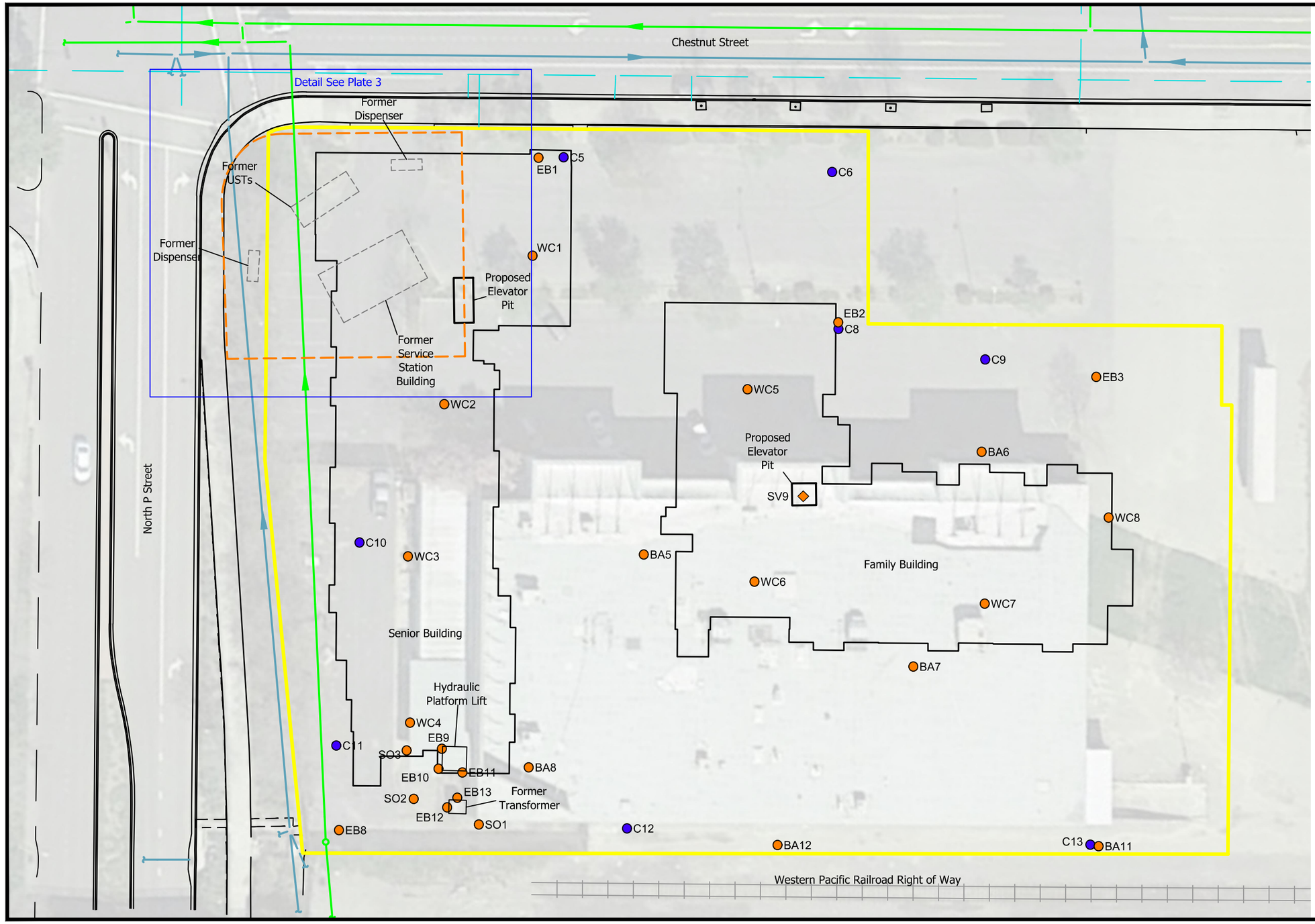


PES Environmental, Inc.
Engineering & Environmental Services

Site Location
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
1

1569.001.01.003	156900101003_CAPF_1-3	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- Domestic Water Line
- C1 — Sample Location (URS, 2011)
- B1 — Sample Location (ACC, 2013)
- SV1 — Sample Location (ACC, 2017)

Note: Samples located in the vicinity of former service station are shown on Site Detail plate 3

N

0 40

SCALE IN FEET

The original version of this figure contains color-indicated data. Black and white copies may not adequately represent the information presented.

Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
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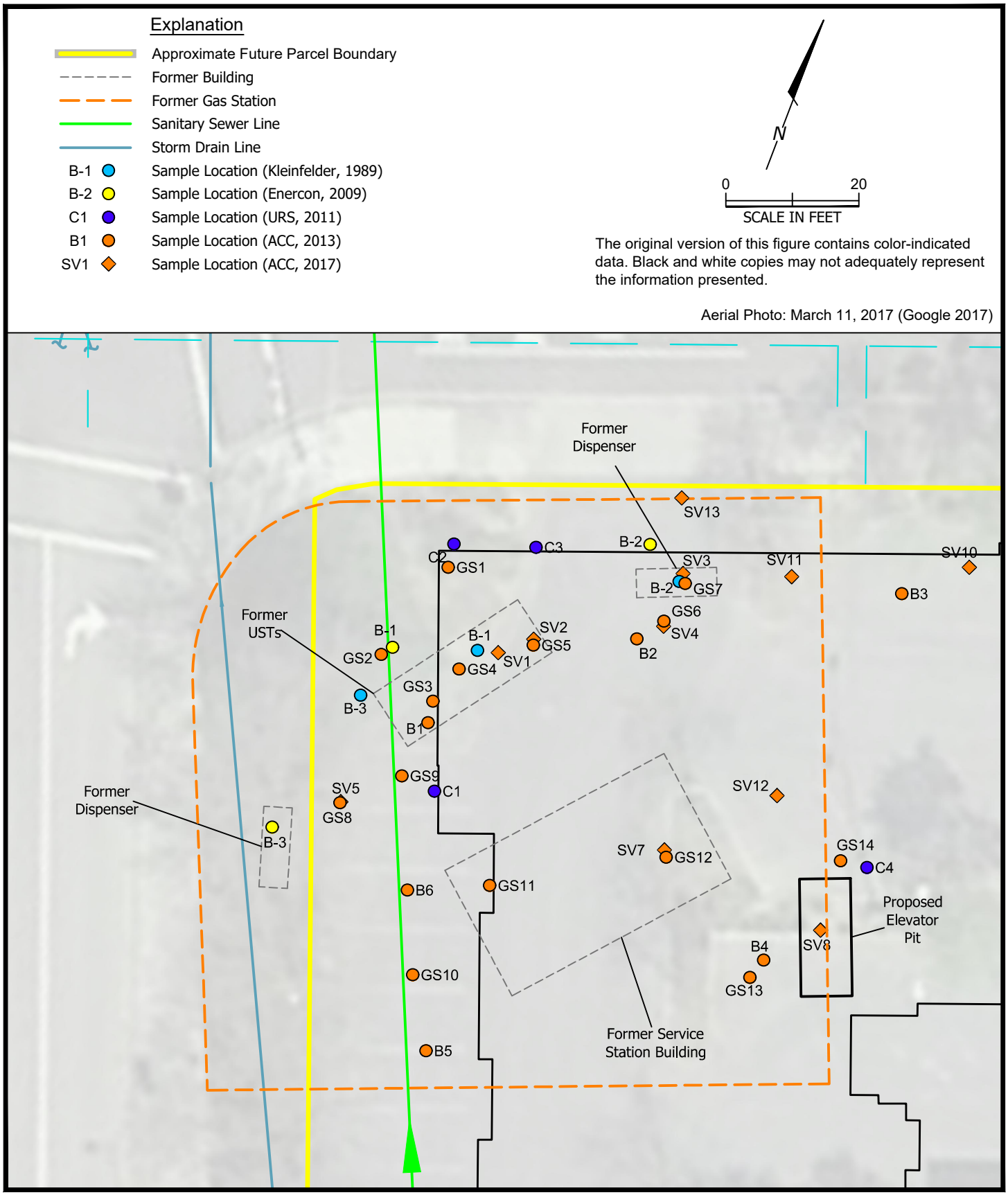
Site Plan and Sample Locations
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
2

1569.001.01.003	156900101003_CAPF_1-3	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



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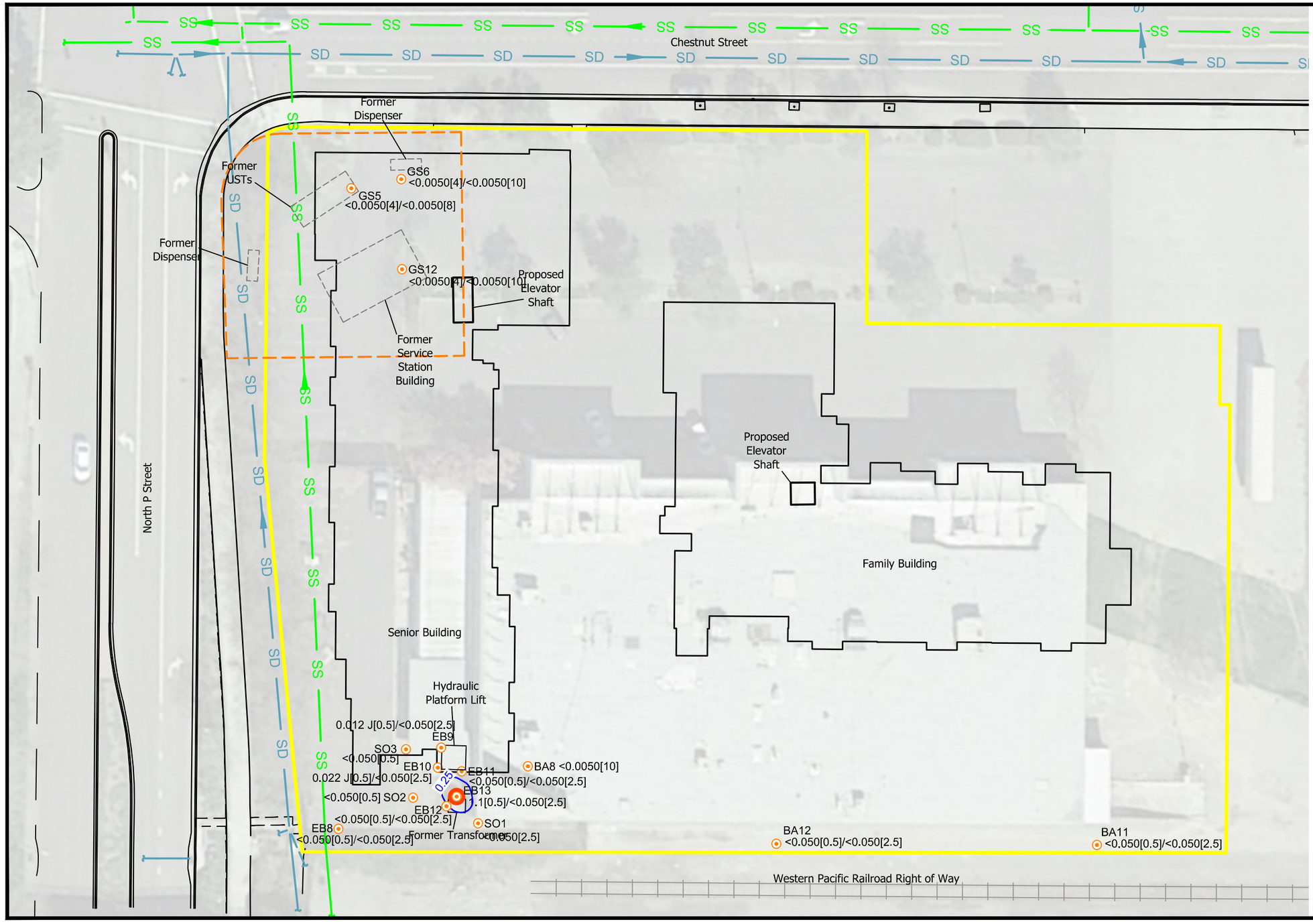
Site Detail
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
3

1569.001.01.003	156900101003_CAPF_1-3	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- EB8 — Soil Sample Location (ACC, 2017)
- 1.1[0.5] — Total PCB Concentration in milligram per kilogram (mg/kg) with depth of sample in feet below ground surface shown in brackets
- <0.050 — Not detected at or above the indicated laboratory detection limit
- 0.25 — Generalized PCB Soil Concentration Contours
- Concentration is greater than 2016 RWQCB Tier 1 ESL for PCBs in Soil (0.25 mg/kg)

N

0 40

SCALE IN FEET

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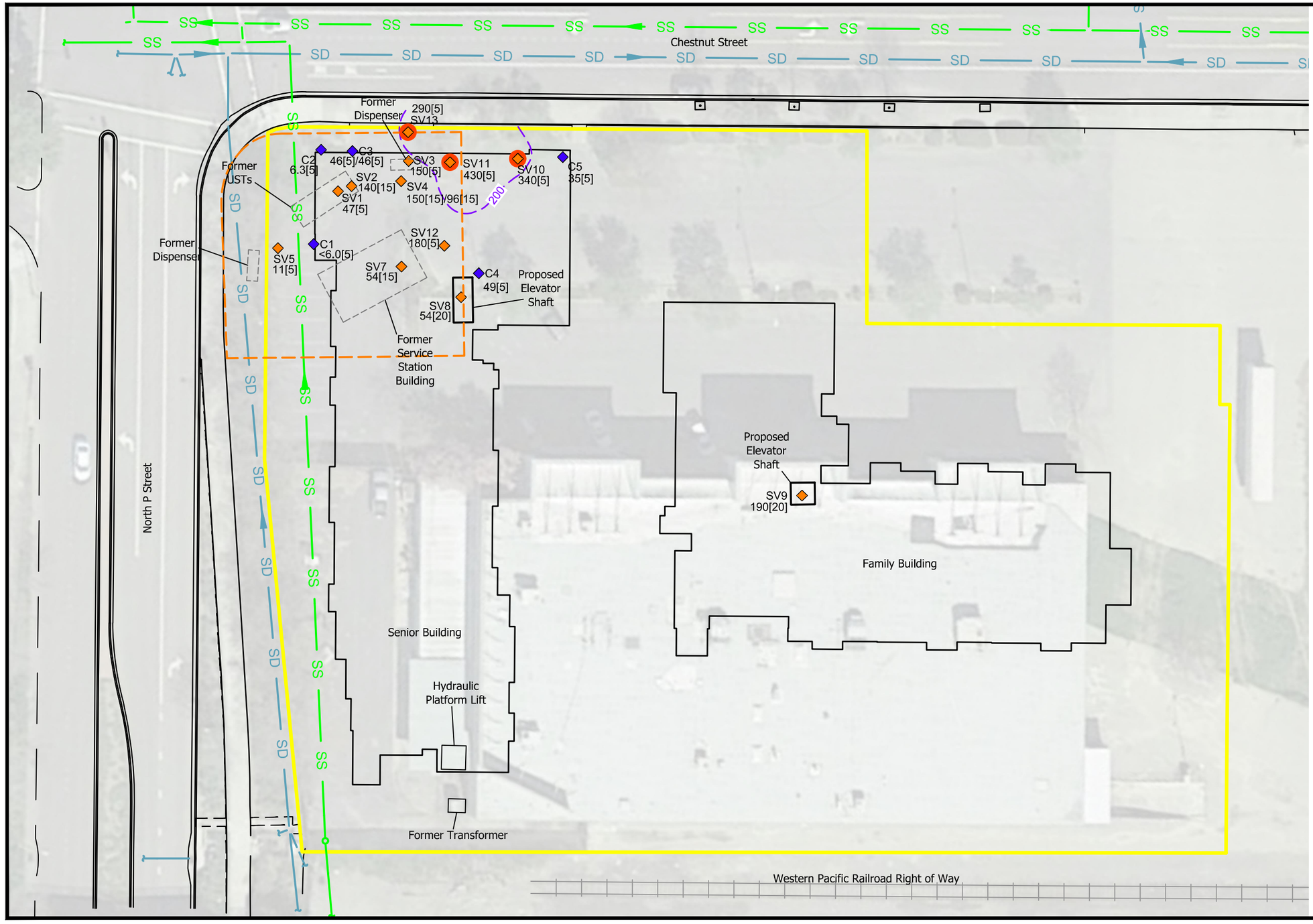
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

PCB Concentrations in Soil
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
4

1569.001.01.003	156900101003_CAPF_4-5	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- C1 — Soil Gas Sample Location (URS, 2011)
- SV1 — Soil Gas Sample Location (ACC, 2017)
- 6.3[5] — PCE Concentration in micrograms per cubic meter with depth of sample in feet below ground surface shown in brackets
- <6.0 — Not detected at or above the indicated laboratory detection limit
- 90/190 — Sample / Duplicate Sample
- 200 — Generalized Tetrachloroethene (PCE) Soil Gas Concentration Contours
- Concentration is greater than 2016 RWQCB Tier 1 ESL for PCE in Soil Gas (240 micrograms per cubic meter)

N

0 40

SCALE IN FEET

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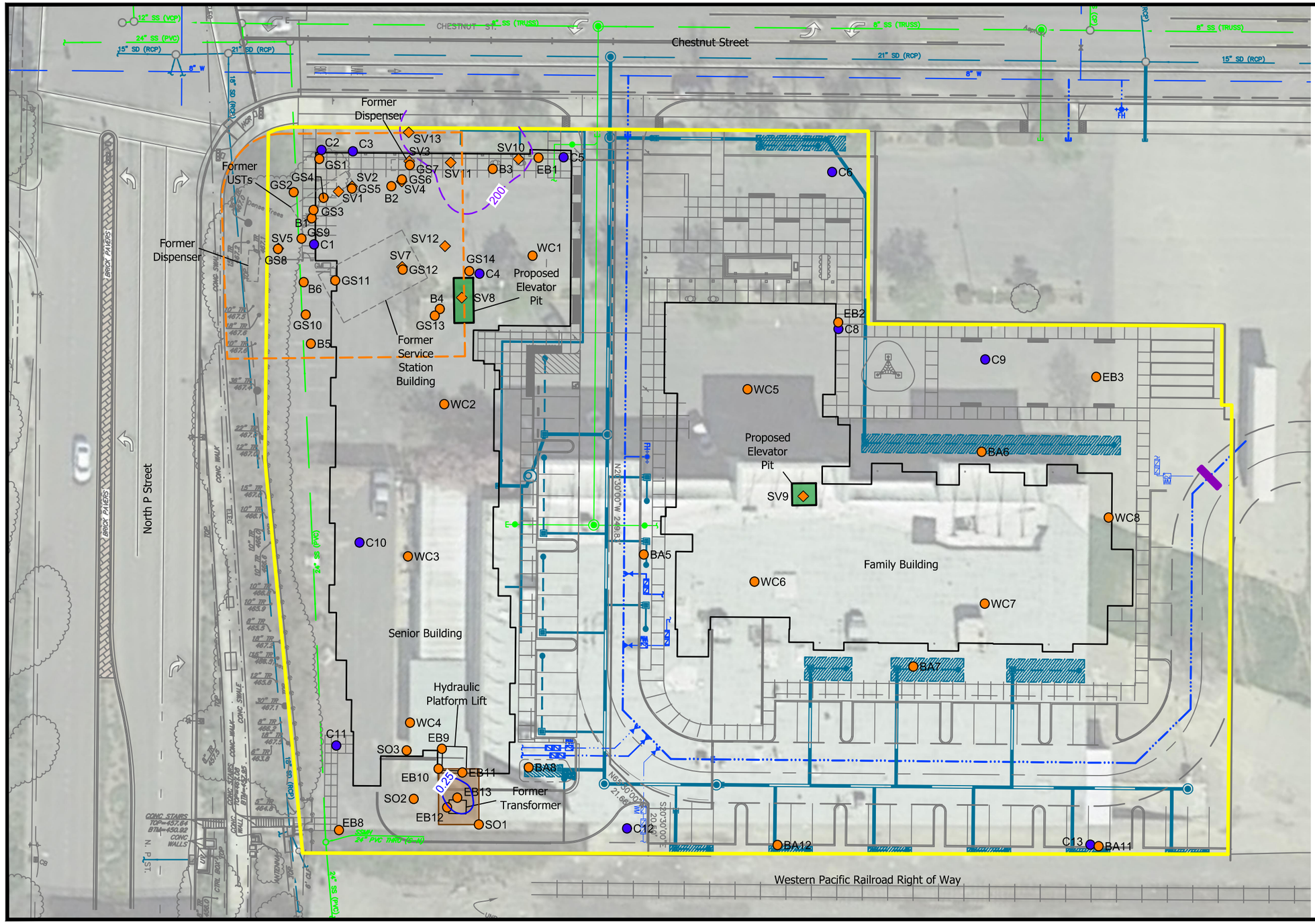
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

PCE Concentrations in Soil Gas
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
5

1569.001.01.003	156900101003_CAPF_4-5	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- Water Line
- C1 — Sample Location (URS, 2011)
- B1 — Sample Location (ACC, 2013)
- SV1 — Sample Location (ACC, 2017)
- Planned Area of Excavation
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits
- Trench Plug
- 0.25 — Generalized PCB Soil Concentration Contours
- 200 — Generalized Tetrachloroethene (PCE) Soil Gas Concentration Contours

N

0 40

SCALE IN FEET

The original version of this figure contains color-indicated data. Black and white copies may not adequately represent the information presented.

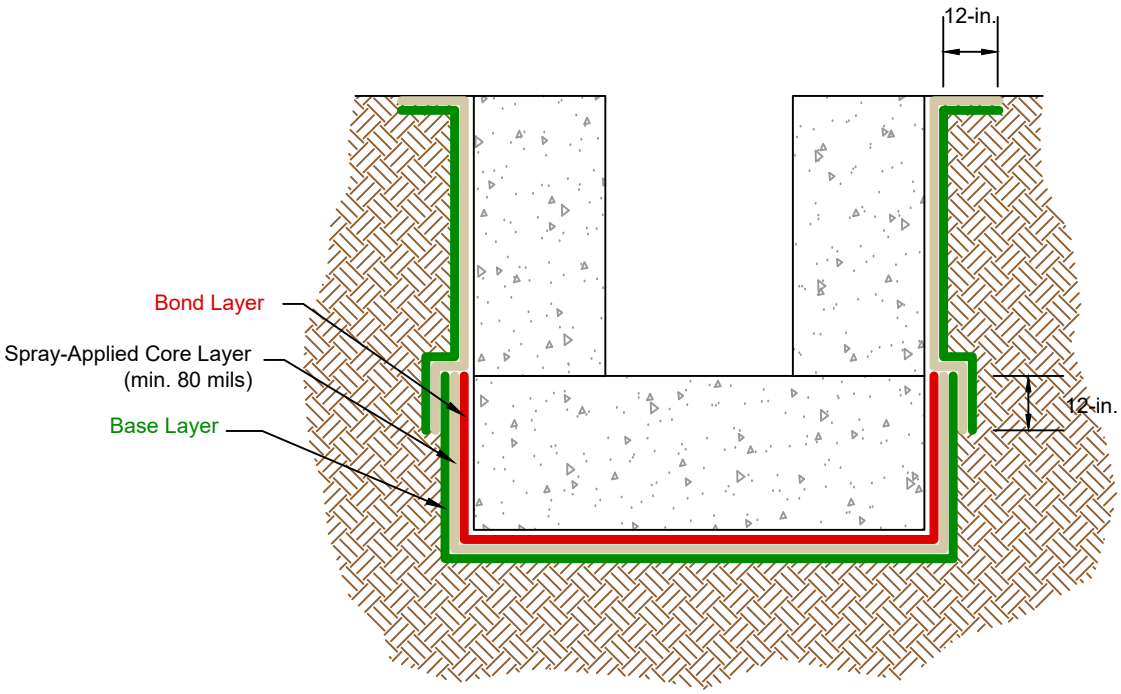
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

Proposed Soil Removal and Vapor Mitigation Areas
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE 6

1569.001.01.003	156900101003_CAPF_6	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Bond Layer = E.Shield 205
- Spray-Applied Core Layer = E.Spray
- Base Layer = E.Base 205

PES Environmental, Inc.
Engineering & Environmental Services

EPRO E.Proformance Elevator Pit Detail
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
7

1569.001.01.003	156900101003_CAPF_7	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

FINAL CONSTRUCTION SOIL AND GROUNDWATER MANAGEMENT PLAN

PES Environmental, Inc.
Engineering & Environmental Services

A Report Prepared For:

MidPen Housing Corporation
303 Vintage Park Drive, Suite 250
Foster City, California 94404

FINAL CONSTRUCTION SOIL AND GROUNDWATER MANAGEMENT PLAN SENIOR AND FAMILY HOUSING 1625-1635 CHESTNUT STREET LIVERMORE, CALIFORNIA Site Cleanup Case RO0003179

NOVEMBER 22, 2017

By:

Gregory George, P.G., C.E.G.
Project Geologist

Carl J. Michelsen, P.G., C.HG.
Principal Geochemist

1569.001.01.003

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LIST OF ILLUSTRATIONS

1.0 INTRODUCTION

This Construction Soil and Groundwater Management Plan (SGMP) has been prepared by PES Environmental, Inc (PES) on behalf of MidPen Housing Corporation (MidPen or Owner) for planned earthwork and subgrade construction activities associated with the redevelopment project at 1625 Chestnut Street in Livermore, California (Plate 1) with Alameda County Assessor's Parcel Numbers [APNs] 98-290-11-1 and the western portion of 98-290-6-7 (the site or subject property)[1]. The site covers a total of 2.2 acres and is currently vacant and developed with surface parking lots and the remnant concrete pad of a former building. The redevelopment project (Project) consists of: (1) demolition of the existing asphalt parking lots and concrete pad; (2) grading and soil excavation for utilities, parking features/garages, elevator shafts, and foundations; and (3) construction of two four-story buildings (Senior and Family Housing) with one floor of subterranean parking, associated at-grade parking, and landscaped areas.

The following activities constitute the work covered under this SGMP.

- **Subsurface Excavation, Construction or Repair** – any activity occurring beneath the grade level of existing or future ground surface;

- **Utility Line Work** – any subterranean inspection, excavation, or repair of electrical, telephone, water, sanitary sewer or storm drains occurring within or outside of existing vaults (conducted prior to excavation); and

- **Other** – other subgrade activities not expressly listed above (e.g., deep landscaping work, sub-slab work).

1.1 Lead Regulatory Oversight Agency for Environmental Site Cleanup

Due to the presence of these constituents in soil and soil gas, a Corrective Action Plan (CAP) has been prepared for the site, as required by the Alameda County Department of Environmental Health (ACDEH) Local Oversight Program for Hazardous Materials Releases (LOP)[2]. ACDEH is the lead regulatory oversight agency for the environmental investigation and cleanup actions at the Site under Site Cleanup Program Case (SCP) No. RO0003179. The CAP evaluates the information summarized above and describes the corrective actions necessary to safely prepare the site for the future development. Corrective actions include: (1) installation of a vapor mitigation barrier at the base of elevator shafts for each of the two buildings; (2) removal and offsite disposal of PCB-contaminated soils in the southwest portion of the site; and (3) installation of a trench plug at a water line. Furthermore, as discussed in the CAP, the soils to be excavated at the site (for construction of the subsurface garages) have been characterized as non-hazardous. A site plan showing former underground storage tanks (USTs), sample locations, and the CAP remedy, along with the future development, is provided in Plate 2. A complete record of environmental conditions at the Site may be obtained in the case files for RO0003179 (i.e., regulatory directives and correspondence, reports, analytical data, etc.) through

[1] PES understands that the APNs for the site are being changed in the near future.

[2] PES, 2017. *Final Corrective Action Plan, Senior and Family Housing, 1625 Chestnut Street, Livermore, California*. November 22.

review of both the State Water Resources Control Board's Geotracker database, and the ACDEH website at http://www.acgov.org/aceh/-index.htm.

1.2 SGMP Purpose and Objectives

This SGMP is designed to provide MidPen and the construction team guidance for proper handling and management of contaminated soil and groundwater during redevelopment activities. The goals of this SGMP are to provide detailed information regarding known environmental conditions at the Site and establish a decision-making structure to assist the construction team in the identification and management of contaminated media, when and if they are encountered. The objectives of this SGMP are as follows:

- Communicate information to site construction workers about site environmental conditions;
- Present protocols for appropriate community protection;
- Present guidelines for health and safety precautions for on-site workers who may access soil or groundwater that could contain residual chemicals of concern;
- Present notification and reporting requirements;
- Present protocols for management of known contaminated soil or extracted groundwater generated during site redevelopment activities; and
- Present contingency procedures in the event that localized areas of unanticipated chemically-affected soil or other subsurface features of environmental concern (e.g., sumps, USTs) are encountered during earthwork or excavation activities;

2.0 SITE INFORMATION

2.1 Site and Vicinity Characteristics

The site has the street addresses of 1625 Chestnut Street (APN 98-290-11-1) and 1635 Chestnut Street (the western portion of APN 98-290-6-7) in Livermore, California. The subject property is currently a vacant lot.

The site is approximately 2.2 acres and is bounded to the northwest by Chestnut Street, to the southwest by North P Street, to the northeast by a vacant lot, and the southeast by the Western Pacific Railroad Right of Way.

2.2 On-Site Structures and Historical Use

The site was primarily vacant and undeveloped land with residential dwellings prior to 1959. The southwest portion of the site was used for cattle staging during this time. A former gasoline service station existed in the northwest portion of the site starting from 1960 and was removed in 1973. The site was developed with commercial and retail buildings from 1973 to 2005.

Demolition of vacant site buildings began in 2006 and concluded in September 2017. The site is currently vacant.

2.3 Geology and Hydrogeology

The subsurface investigation performed on the subject property in 2017 by ACC Environmental Consultants (ACC, 2017) indicates site soils consist of silty clay with varied amounts of sand and gravel.

Groundwater underlies the site at depths ranging from 45 feet to 50 feet bgs. Groundwater flow direction generally follows local topography to the northwest.

2.4 Proposed Site Redevelopment

Proposed site redevelopment to Senior and Family Housing will include construction of two four-story multi-family and multi-senior residential buildings with subterranean parking extending to 10 feet bgs, associated at-grade parking, and landscaped areas. In addition, one elevator will service each building with associated pits extending to 15 feet bgs.

3.0 RESPONSIBILITIES FOR SGMP IMPLEMENTATION

Representatives for the subject property Owner shall oversee implementation of the SGMP at the site. A copy of this SGMP will be maintained at the Site at all times. The Owner and General Contractor(s) shall make all third-party subcontractors working at the site aware of the requirements of the SGMP, and provide an electronic copy and hard-copy to all subcontractors that are performing activities covered by this SGMP (see Section 1.0), and who may encounter suspect subsurface conditions during execution of their work.

The project Environmental Consultant will be present to assist the Owner and contractors with the implementation of this SGMP when ground-disturbing activities are being conducted in areas where contamination is known or suspected or when unknown conditions are encountered.

3.1 MidPen Construction Team Contact Information

Prior to the initiation of construction activities that are covered under this SGMP, the Owner shall confirm the Owner's project representative and project environmental consultant (Consultant) listed below. Regular and 24-hour emergency contact information for these individuals shall be confirmed and updated as necessary. A project contact sheet shall be provided to the General Contractor and posted in an accessible and suitable location at the subject property.

Project Responsibility	Company Name	Name	Contact Information
Owner Representative	MidPen Housing Corporation	Apolonio Munoz, Project Manager	(650)393-3023 amunoz@midpen-housing.org
General Contractor	J.H. Fitzmaurice	Mohammad Hakimi	(510)774-9699 mh@jhfoak.com
Environmental Consultant	PES Environmental, Inc.	Carl Michelsen, P.G.	Cell: (415)497-2732 Office: (415)899-1600 cmichelsen@pesenv.com

3.2 Worker Health and Safety

In addition to following the SGMP, each contractor and subcontractor is responsible for the health and safety of their own workers, including but not limited to adherence to a health and safety plan, preparation of their own injury and illness prevention plan (IIPP), and use of properly trained personnel.

In the event that contaminated soils are encountered during site redevelopment activities, each contractor engaged in contact and management of the contaminated soil shall use properly-trained personnel (in accordance with the Hazardous Waste Operations and Emergency Response [HAZWOPER] standards[3]) and follow a site-specific health and safety plan (HASP). The purpose of the HASP is to provide: (1) health and safety guidelines for those who may potentially encounter chemicals during site excavation; and (2) contingency procedures to be implemented by contractors to protect worker health and safety should hazardous materials be encountered. A HASP will be prepared for the project in accordance with California Occupational Safety and Health Administration (CAL-OSHA) Construction Safety Orders within Title 8 of the California Code of Regulations (CCR). The General Contractor is responsible for notifying subcontractors and visitors of pertinent environmental conditions to ensure adequate protection for workers and visitors while on Site. Subcontractors may either adopt the General Contractor's HASP or prepare their own HASP. In the event that unanticipated conditions occur at the Site, the HASP will be modified accordingly.

3.3 Community Protection During Site Redevelopment

Land use in the vicinity of the Site is mixed commercial and residential[4]. During the development of the Site, the Owner and contractors will implement measures to control potential risks to the surrounding community from fugitive dust emissions. These activities will be implemented when there is the potential for exposed soil to affect the nearby community. It is anticipated that following placement of hardscapes and building pads, air monitoring will not be required as there will not be exposed soil surfaces

[3] California Code of Regulations, Title 29, Part 1910.120.

[4] A map depicting land use in the vicinity of the site, APN numbers, and property lines will be provided in the Corrective Action Implementation Plan (CAIP) to be prepared.

3.4 Agreement and Acknowledgement Statement

Prior to commencement of any site activities that disturb the ground surface, the General Contractor and subcontractors of the Owner shall read this plan and sign the Agreement and Acknowledgment Statement (Appendix A) to certify that they have read, understood and agreed to abide by its provisions.

4.0 AGENCY NOTIFICATION AND REPORTING REQUIREMENTS

The Owner will notify via phone and in writing (e.g., an email) the ACDEH LOP and other agencies as applicable during site development activities in accordance with the protocols described below.

4.1 ACDEH Notification

The Owner will notify the ACDEH LOP and the ACDEH Certified Unified Program Agency (CUPA) during Site redevelopment activities in accordance with the protocols below.

4.1.1 Twenty-four (24) Hour Notification

The ACDEH LOP will be notified within 24 hours of discovery if any of the following potentially hazardous conditions are encountered:

- Releases spills or releases of hazardous substances or petroleum hydrocarbons to soil or water that are considered, based on best professional judgement and/or physical evidence (including but not limited to olfactory, visual, field instrument, and lab data), to be an immediate threat to human health and the environment; and/or

- Discovery of unknown conditions (underground storage tanks, sumps, vaults, piping, etc.) or newly found contamination.

In the event of the discovery of USTs, vaults, hoists, & pipelines, the ACDEH CUPA must also be notified within 24 hours of the discovery.

4.1.2 Seventy-two (72) Hour Notification

The ACDEH LOP will be notified 72 hours in advance of ground disturbing activities in areas of known contamination or suspected contamination. Additionally, the ACDEH LOP will be notified within 72 hours of a change in the Construction Team Contact Information provided in Section 3.1.

4.1.3 ACDEH LOP and CUPA Contact Information

The primary points of contact for the ACDEH LOP and CUPA are provided below. All agency notifications must be made by phone and email. An ACDEH contact sheet will be provided to the General Contractor and posted in an accessible and suitable location at the Site.

Jonathan Sanders, ACDEH LOP Case Worker	(510) 567-6791; jonathan.sanders@acgov.org
Paresh Khatri, ACDEH LOP Program Manager	(510) 777-2478; paresh.khatri@acgov.org
ACDEH CUPA	(510) 567-6700 dehalamedacers@acgov.org

4.2 Other Agency Notification

In addition to the ACDEH notification requirements discussed above, other agency notifications may be required. Contact information for other agency notifications that may be required is provided below. Prior to the initiation of construction activities that are covered under this SGMP, the Owner will confirm the contact information listed below. An agency contact sheet will be provided to the General Contractor and posted in an accessible and suitable location at the Site.

Conditions Posing an Immediate Threat. For life-threatening or serous hazardous materials incidents, the following number will be contacted immediately upon discovery.	
Local police, fire and rescue services	911
Releases to Water. For spills or releases of hazardous substances or petroleum hydrocarbons to surface water, the following agencies will be contacted immediately upon discovery.	
National Spill Response Center	(800) 424-8802
United States Coast Guard – San Francisco Sector (if spill is going to reach navigable waters)	(415) 399-3547
California Office of Emergency Services	(800) 852-7550; (916) 845-8911
California Regional Water Quality Control Board – San Francisco Bay Region	(510) 622-2300
Local Emergency Response Agency	911
VOC-Impacted Soil. If VOC-impacted soil is discovered during Site grading activities, the following agency may require notification.	
Bay Area Air Quality Management District (BAAQMD)	See Regulation 8, Rule 40 requirements for notification procedures
Dust Complaints. For dust complaints during ground disturbing activities, the following agencies will be notified.	
City of Livermore	Building Division (925) 960-4410
BAAQMD	(415) 749-4900

4.3 Record Keeping & Reporting Requirements

All groundwater removal and soil excavation, disposal and import activities will be documented in daily field reports by the Contractor and/or Environmental Consultant and will kept at the site and made available to ACDEH upon request. Documentation will include at a minimum the following, as applicable:

- **Groundwater** – volume of groundwater that is removed, characterization, treatment, and destination (transported to temporary holding tanks, used as dust suppression, and/or disposed of off-site);

- **Underground Structures** – type, contents, characterization, and destination (abandoned in place or disposed of off-site);

- **Impacted Soil** – origin, volume, characterization, and destination (transported to temporary soil locations within the site, disposed of off-site, and/or re-used on site);

- **Imported Soil** – origin, volume, characterization, and destination (location on-site);

- **Off-site Disposal Records** – date, time, trucking company, driver and vehicles used for the trip, equipment decontamination and tarping, waste/material type, volume, copies of bills-of-lading, and hazardous waste manifests;

- **Dust Complaint Logs** – time, name and contact information, compliant description, earthwork activities associated with complaint, and measures taken to mitigate dust; and

- **Analytical Reports** – copies of waste characterization laboratory analytical results.

Following completion of the work covered by this SGMP, the Environmental Consultant will prepare a report for submittal to ACDEH that documents compliance with this SGMP including soil and/or groundwater sampling, removal and management of unknown structures, chemical analysis and proper disposal of contaminated materials and soil import. The report will include at a minimum the information described in Section 4.3 above.

5.0 ENVIRONMENTAL SITE CONDITIONS

A subsurface investigation was conducted on the subject property (and the adjacent Townhome parcel) [5] by ACC Environmental Consultants (ACC, 2017). The purpose of the subsurface investigations was to summarize prior investigations and to further characterize site subsurface conditions with respect to planned redevelopment. The findings of this and prior investigations are provided in the CAP (PES, 2017). Summary data tables and figures from the CAP showing the locations of samples and other notable features are provided in Appendix B. Notable findings are as follows:

5.1 Soil and Soil Gas

- VOCs were not detected in soil above corresponding San Francisco Bay Regional Water Quality Control Board (RWQCB) Tier 1 (residential exposure scenario) Environmental Screening Levels (ESLs);

[5] The adjacent lot is proposed for a future Townhome construction and is not a part of the Senior/Family Housing project nor this SGMP.

- Petroleum hydrocarbons, i.e., total petroleum hydrocarbons as gasoline (TPHg), TPH as diesel (TPHd), and TPH as motor oil (TPHmo), were not detected in soil above corresponding Tier 1 ESLs;

- The polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene (BaP) was detected in soil at two locations at concentrations that slightly exceed its Tier 1 ESL of 0.016 milligram per kilogram (mg/kg). Another PAH, naphthalene was detected in one sample at a concentration that slightly exceeds its Tier 1 ESL of 0.033 mg/kg. The concentrations of both BaP and naphthalene are below construction worker ESLs;

- Shallow soil in the vicinity of the former hydraulic platform lift and transformer in the southeast portion of the site is impacted with polychlorinated biphenyls (PCBs) at concentrations slightly above its Tier 1 ESL of 0.25 mg/kg. The concentrations of PCBs are below the construction worker ESLs;

- With the exception of one detection of lead in soil at 5 feet below ground surface (bgs) above its Tier 1 ESL, metal concentrations in soil do not appear elevated above background conditions. The concentrations of lead in soil are below the construction worker ESL;

- Benzene, toluene, ethylbenzene, xylenes, and naphthalene were not detected in soil gas at concentrations exceeding their respective Tier 1 ESL; and

- Soil gas samples collected from 5 feet bgs at three locations in the northern portion of the site contains perchloroethene (PCE; aka tetrachloroethene) at concentrations that are slightly above the Tier 1 ESL of 240 micrograms per cubic meter ($\mu g/m^3$). The PCE soil gas concentrations are below the commercial/industrial ESL of 2,100 $\mu g/m^3$.

5.2 Groundwater

The depth to groundwater at the site is typically encountered between 45 feet to 50 feet below the existing ground surface. PCE and TPH-d were the only analytes that exceeded their respective RWQCB Tier 1 ESL in groundwater as follows:

- PCE exceeded the ESL of 3.0 µg/L in groundwater at three locations (C1 at 48 feet bgs, C2 at 49 feet bgs, and C9 at 43 feet bgs) across the site. PCE was detected above the ESL in groundwater at concentrations of 13 µg/L (C1), 14 µg/L (C2), and 15 µg/L (C9); and

- TPH-d exceeded the ESL of 100 µg/L in groundwater at one location, C2 at 49 feet bgs (concentration of 130 µg/L and 82 µg/L in the duplicate sample). The average of these two concentrations is 106 µg/L, which is slightly above the ESL. As TPH-d was not found at significant concentrations in soil, the low levels of TPH-d detected in groundwater at one location are unlikely to be a result of the former gasoline station operations.

The PCE detected in groundwater at concentrations of up to 15 µg/L at the site, is below the RWQCB residential groundwater ESL for vapor intrusion of 100 µg/L (deep groundwater,

fine/coarse soil). Additionally, available data indicates that PCE detected in onsite groundwater has migrated from an upgradient off-site source where PCE in groundwater was detected at concentrations of up to 28 µg/L in 2009.

5.3 Discovery of Unexpected Conditions

Due to historic site use as a gas station, redevelopment activities may reveal unexpected conditions such as previously unidentified areas of contamination or underground structures such as USTs, vaults, hoists, sumps, maintenance pits, pipelines, etc.

6.0 PRE-FIELD ACTIVITIES

The pre-field activities include a description of planning and organizational aspects of soil excavation required for excavation to begin.

6.1 Site Security and Access

During remedial activities, the site will be secured to provide protection and safety to on-site personnel and equipment, and to prevent unauthorized access to areas of remedial activity. A 6-foot high chain link fence will be constructed around the perimeter of the site and will enclose the staging area and the work zones (*i.e.*, any exclusion, decontamination, and support zones). During non-working hours, the fencing will be fully closed and locked. During remedial activities, access will be restricted to authorized personnel only.

6.2 Traffic Control

Caution will be exercised during entrance and exiting of the work area to ensure safe and uninterrupted traffic flow. Entrance into and departure from the site by trucks will be facilitated by a flagman, or comparable contractor personnel, as necessary. Once trucks have left the site, they will follow specific haul routes to disposal facilities as described in Section 8.4.2.

6.3 Excavation Permit

All necessary permits for removal activities, transportation, and/or air quality will be obtained prior to remediation. The permits will be kept on-site and made available for inspection during working hours.

The procedures proposed for remediation activities will comply with federal, State and local rules and regulations, regardless of whether permit documents are required.

6.4 Notifications and Utility Clearance

MidPen will notify the Bay Area Air Quality Management District (BAAQMD) of excavation activities at least five days prior to implementation. In addition, MidPen will also notify ACDEH of the soil excavation activities at least 72 hours prior to commencing work. The proposed excavation areas will be marked in white paint prior to contacting Underground

Service Alert (USA) at least 48 hours prior to excavating, as required by law. A private utility locating service will be contracted prior to conducting the field activities to mark and/or clear proposed excavation locations relative to the presence and/or marked locations of potential subsurface utilities.

7.0 MANAGEMENT OF SOILS

Redevelopment activities include grading of the site. Site grading will include: (1) removing the top 12" of site material (pavement section, building slab, and vegetation); (2) excavating soil in conjunction with construction of two subterranean parking areas (one floor) for each four-story family building and finished pad; (3) grading for parking and landscaped areas; and (4) excavation necessary for installation of utility trenches, elevator shafts, and building foundations. The maximum excavation depth for these activities will be provided in the CAIP. Appendix C provides the preliminary development plan for the redevelopment.

Any excess soils generated during grading may be temporarily stockpiled on site and either re-distributed for re-compaction on-site as part of site grading activities, or transported off-site for disposal. All soil management and handling activities shall be conducted in accordance with applicable federal, state, and local regulations. During implementation of the project other data may be collected to further refine the quantities and classification of potential waste materials that may be generated, and it may become necessary to obtain additional data for profiling purposes. Procedures for sampling soil stockpiles to further characterize soils designated for off-site disposal (if such stockpiles are generated) are presented in Section 8.0.

The general elements of soils management are as follows:

- The soil proposed for excavation during redevelopment activities will either be stockpiled on-site or transported directly to an appropriate off-site facility. Procedures for management, if/as required, of excavated soils are detailed below in Section 8.0;

- Stockpile soil handling and sampling procedures, if/as required, are detailed in Section 8.0;

- Shallow groundwater is not anticipated to be encountered during excavation activities, and construction dewatering is not planned at the site. However, in the event groundwater is encountered and dewatering becomes necessary, groundwater management protocols are discussed in Section 8.5 and 12.0;

- If previously unidentified suspect soils are exposed during site construction, they will be managed using the contingency measures discussed in Section 10.0;

- A HASP for site workers. A model HASP will be prepared and provided under separate cover; and

- In the event contaminated soil or subsurface structures are encountered, the contingency measures discussed below in Section 10.0 will be followed.

8.0 WASTE MANAGEMENT

8.1 Soil Characterization Prior to Off-Site Disposal

Soil that has been pre-characterized by in-situ soil testing and is intended for off-Site disposal can be loaded directly into trucks for transport to the receiving facility once the appropriate off-Site disposal location and permitting has been completed. Some soil may need to be placed in temporary on-site stockpiles because: (1) they require further characterization prior to off-site disposal; (2) short-term storage is necessary until haul trucks are available to transport the soil off-site for disposal; or (3) the need for processing or sorting prior to landfilling. If soil is not adequately characterized to directly load and haul, then it may be necessary to stockpile and sample. Stockpiled soil will be characterized as required by the receiving facility. In the event very elevated data are found in composite samples (if required by the receiving facility), the Environmental Consultant may elect, in consultation with the Owner, to have the four individual subsamples run for that specific compound in an attempt to isolate the soils containing the worst impacts for disposal.

8.2 Soil Stockpile Management

Soil that is placed in temporary stockpiles will be well maintained at all times to prevent runon/runoff and fugitive dust emissions. All stockpiled soil will be placed on impermeable plastic sheeting (minimum 10-mil-thick) with a berm around the perimeter of the stockpile. The plastic sheeting and berm will prevent the runoff of soil and potential contaminants to surrounding areas. The berm will be constructed with hay bales, dimensional lumber, or other equivalent methods. The bottom plastic sheeting will be lapped over the berm materials, and the soil stockpile will be covered with plastic sheeting to prevent erosion or leaching of contaminants to underlying soil and prevent exposure to precipitation and wind. Plastic sheeting that covers the soil stockpile will be secured using sand bags or equivalent. Stockpiled soil will be covered and secured at the end of each day. Following removal, the soil stockpile area will be restored to a pre-stockpile condition. Residual plastic or debris will also be disposed of following stockpile removal.

8.3 Decontamination Procedures

During soil excavation and loading, the work areas will be kept reasonably clean and free of excessive soil or debris. Care will be exercised to minimize the potential for tracking any soil out of the work area.

Personnel and equipment utilized in the areas of hydrocarbon-affected soil (instruments, samples, tools, backhoes, and other construction equipment) will be decontaminated prior to leaving the earthwork areas as outlined in the Contractor's Health and Safety Plan.

All contaminated articles and waste decontamination materials shall be containerized, labeled, and disposed of properly.

In order to prevent residual contamination from leaving the Site by construction equipment and personnel during remedial excavation activities, the following further details of decontamination procedures will be followed:

- Prior to loading excavated materials into trucks, plastic sheeting will be placed on the ground such that any spilled material will be prevented from contacting the ground surface. Upon completion of loading, any debris will be placed in the transportation vessel and the plastic sheeting will be reused, or disposed;

- To minimize the spread of contaminated soil, equipment will be cleaned prior to movement out of active work zones. The equipment wheels/tires will be cleaned over plastic sheeting by means of shovels and stiff-bristled brooms or brushes until they are fully cleaned. Upon completion of cleaning, any debris will be placed in the appropriate transportation vessel and the plastic sheeting will be folded and disposed. Equipment exiting the Site will be inspected and logged for compliance with the Site decontamination requirements; and

- Personal protective equipment, such as disposable coveralls, will be removed and discarded in the contamination reduction zone. In order to decontaminate reusable items such as work boots, a two-stage decontamination process will be used. This process will include washing in a detergent solution with a stiff-bristled brush and rinsing in clean water. The rinsate water will be distributed over contaminated soil (to be exported) for dust control purposes.

8.4 Off-Site Soil Disposal and Transportation Plan

The following activities will be performed as part of the off-site disposal plan: (1) waste characterization analytical testing in accordance with off-site facility waste acceptance criteria; (2) completing waste profiling for disposal purposes; (3) completing the waste manifest forms and documenting truck load volumes and/or weights; and (4) transportation of soil from the site to a permitted disposal facility.

Following acceptance of the excavated soil at an appropriate-licensed disposal facility, the soil will be loaded in licensed haul trucks (end-dumps or transfers) and transported off the Site following appropriate California and Federal waste manifesting procedures. The appropriate waste manifest documentation will be provided to truck drivers hauling the affected soil off-Site. Transportation equipment will be chosen to safely transport the expected volumes of soil, taking into consideration the types of roads to be traveled and their loading capacity. Routine truck maintenance and repairs will be performed at the contractor's premises prior to picking up loads of waste material from the Site.

As each truck is filled, an inspection will be made to verify that the waste soil is securely covered, to the extent practicable, and that the tires of the haul trucks are reasonably free of accumulated soil prior to leaving the site. During loading, dust and odor emissions will be monitored and mitigated as necessary. During transportation, the hauling trucks will be equipped to fully cover all soil and debris, such as with a heavy tarpaulin. A street sweeper will

be made available, as needed, to keep the loading area clean. The soil will be wetted, as necessary, to reduce the potential for dust generation during loading and transportation activities.

A detailed log of the loads hauled from the Site will be maintained. The log will include, at a minimum, the date and the time trucks were loaded and off-loaded, the destination, size (volume and weight) of the load, description of contents, name and signature of the hauler, and name and signature of the contractor's representative. The waste will be off-loaded for treatment or disposal in a manner consistent with current Federal, State, and local regulations. Shipments of hazardous waste will be tracked with the appropriate hazardous waste manifests.

8.4.1 Off-Site Disposal Facilities

If soil is classified as hazardous waste by State and Federal standards, it will be disposed of at the Class I Kettleman Hills Landfill in Kettleman City, California, a licensed and approved facility.

If soil is classified as non-hazardous waste by State and Federal standards, it will likely be disposed of at a Class II licensed landfill facility such as:

- Waste Management's Altamont Landfill in Livermore, California;
- Republic Services' Vasco Road Landfill in Livermore, California; or
- Allied Waste's Forward Landfill in Manteca, California.

8.4.2 Transportation Plan

All transportation activities will be performed in strict compliance with all regulations and ordinances. Hauling contractor(s) used to transport non-hazardous or hazardous waste will be fully licensed and permitted by the State of California. For hazardous waste haulers, the selected transportation company will be certified by the State of California as a hazardous waste hauler, and appropriately permitted to haul contaminated waste material. All Department of Transportation (DOT) and California Highway Patrol (CHP) safety regulations will be strictly followed by both hazardous and non-hazardous waste haulers.

Transportation routes will be developed to minimize transporting the affected soil through residential areas. The affected soil will be transported via surface streets to the closest suitable freeway, which is Interstate 580. The proposed routes for transportation on Interstate 580 are as follows:

- To Interstate 580 East and West: Leaving the site from Chestnut Street, turn left, then left again at South P Street, then right at Railroad Avenue. Travel west on Railroad Avenue (which becomes E. Stanley Blvd.) approximately 1-mile to Isabel Avenue (State Highway 84), turn right and travel north on Isabel Avenue approximately 1-mile and use the appropriate ramp onto I-580.

The remainder of the freeway route(s) will be established upon selection of the appropriate landfill(s).

8.5 Wastewater and Groundwater Management Protocols

Wastewater generated during Site redevelopment, such as decontamination liquids, will be temporarily stored onsite. Decontamination water will be profiled and transported to an appropriate disposal or recycling facility.

If a saturated zone is encountered during earthwork activities that produces accumulated water, it will be temporarily containerized on-Site within portable aboveground industrial holding tanks. Holding tanks will be staged on the existing hardscape (i.e. concrete or asphalt) where feasible.

Collected wastewater and groundwater will be transferred into a vacuum truck or 55-gallon steel drums for off-Site transportation and disposal.

8.6 Spill Response Plan

In the event of a spill, the Contractor will be responsible and prepared to respond in a safe and efficient manner, specific to the particular spill situation. Standards will be set, and consistent procedures will be used for handling of spills, whether they are on-Site spills or spills occurring during transportation. Haulers will have an Emergency Spill Contingency Plan (ESCP) to ensure that all drivers and dispatchers know their responsibilities in the unlikely event that an accidental spill occurs while transporting contaminated material off-Site. The drivers and dispatchers will be required to know the procedures for emergency spill response. The ESCP will meet or exceed all Federal, State, and County regulations currently in effect. The provisions of the ESCP will be strictly adhered to, in order to ensure continued protection of the public safety and the environment. The HASP will address the handling of on-Site spills.

9.0 DUST AND ODOR EMISSIONS

During excavation activities, depending on soil and weather conditions, there is potential to generate airborne dust and fugitive emissions. Standard dust and fugitive emissions control measures will be followed during the ground disturbing activities to comply with OSHA and BAAQMD rules and accomplish the following goals:

- Reduce the potential for health impacts to workers;
- Reduce the potential for health impacts to facility neighbors;
- Prevent violations of ambient air quality standards;
- Minimize nuisance dust complaints from facility neighbors; and
- Minimize the migration of contaminants adhered to fugitive dust particles outside the Site.

9.1 Erosion, Dust, and Odor Control Measures

Once the pre-construction ground surface is stripped from the Site, the exposed soil will become susceptible to erosion by wind and water. Therefore, erosion control measures and dust control measures will in place before construction begins. Emission (dust) control measures will at a minimum comply with those established by OSHA and the BAAQMD for construction-related activities. Dust control measures will be based on "Best Management Practices" and will be used throughout all phases of construction.

Therefore, as required, the excavation contractor will apply a water mist to the excavation, as well as soil handling and haul routes to reduce the potential for dust generation. Soil will be wetted as needed to reduce the occurrence of visible dust. At a minimum, emission (dust) control measures will comply with those established by OSHA and the BAAQMD for construction-related activities.[6]

Dust level monitoring of air will be conducted to evaluate the potential exposure to site personnel and to offsite downwind receptors. The presence of airborne dust will be evaluated through the use of real time personal sampling equipment and perimeter air sampling. If the difference between the upwind and downwind dust monitoring levels exceeds 50 $\mu g/m^3$, additional dust control methods (i.e., applying additional water to disturbed areas) will be implemented.

9.1.2 Air Monitoring

To the extent feasible, the presence of airborne contaminants will be evaluated through the use of portable monitoring equipment. Information gathered will be used to ensure the adequacy of the levels of protection being employed at the site, and may be used as the basis for upgrading or downgrading levels of personal protection, at the discretion of the site safety officer. In addition, this sampling equipment will be utilized to monitor the potential for the migration of contaminants off-site (i.e. fence line monitoring). Such monitoring will incorporate off-site receptor type, wind direction, work tasks being performed, etc.

The following air sampling equipment will be utilized for site monitoring:

- Personal Sampling pumps with appropriate sample collection media; and
- Dust monitors.

The above instruments will serve as the primary instruments for personal exposure monitoring. They will be utilized to fully characterize potential employee exposure and the need for equipment upgrades/downgrades.

Integrated Industrial Hygiene (IH) sampling for airborne contaminants and dust will be conducted during the excavation process and/or loading operation. This IH sampling will be

[6] Because VOCs are present in soil gas, notification will be provided to BAAQMD, as appropriate, in compliance with BAAQMD Regulation 8, Rule 40 requirements

performed to properly characterize potential employee exposures and/or to establish baseline levels. Sampling may include personnel monitoring and fence line sampling. The duration of such monitoring will be determined based upon analytical results, regulatory requirements, etc.

Dust monitoring will also be conducted to characterize the potential for exposure to site personnel during disruption of contaminated soil using a direct-reading dust monitor. Continuous monitoring should be performed during operations that have not previously been characterized. After initial site screening, monitoring shall be conducted periodically or anytime site conditions might be altered (i.e. weather, drilling, excavation, spills, etc.).

The dust standard will be based on the PM10 ambient air quality standards adopted by California Air Resources Board, which specifies a ceiling level of no more than 50 $\mu g/m^3$ difference between upwind and downwind sampling locations. If this level is exceeded, additional dust suppression activities such as water application for dust suppression will be conducted during work activities. The ceiling level of 50 $\mu g/m^3$ represents the Bay Area 24-hour time-weighted average standard for 10-micron diameter particulate matter (the PM10 24-hour standard).

Results of monitoring information shall be recorded, and will include time, date, location operations, and any other conditions that may contribute to potential exposures. Maintenance and calibration information shall be maintained and made available upon request. The monitoring equipment will be calibrated in accordance with the manufacturer's specifications, and the records of such maintained with the project health and safety plan.

9.2 Dust Control Measures

Dust control measures shall be based on "Best Management Practices" and shall be used throughout all phases of construction. Examples of basic construction mitigation measures as recommended for all proposed projects in the BAAQMD California Environmental Quality Act Air Quality Guidelines (BAAQMD, 2017) include:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph);
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne

toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points;

- All construction equipment shall be maintained and properly tuned in accordance with manufacturers specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and

- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air Districts phone number shall also be visible to ensure compliance with applicable regulations.

9.2.1 Odor and Vapor Suppression Measures

By controlling the dust as described above, the emission of odor and vapors will be reduced to levels that likely will not pose a risk to the health of the public and Site workers. The water spray used to control dust will also significantly reduce the emissions of any potential volatiles that may be present in the soil. The selective loading and transportation of impacted soils could minimize the use of soil stockpiling, further reducing potential emissions of volatiles. Any active stockpile of contaminated soil or exposed excavation left overnight at the Site will be properly covered with plastic, so emissions of volatiles will be minimized.

If odor is excessive and vapor emissions are detected, some or all of the following mitigation procedures may be implemented:

- Use of chemical suppressants mixed with water and applied using various applications such as spray or mist;

- Use of plastic sheeting to cover the sidewalls of the trench during non-active remedial activities will minimize the migration of VOCs and odors;

- Alternative work sequencing, such that excavation of soil with potential odor during mid-day or afternoon (during hot weather) is avoided;

- Any highly odorous soil could be segregated and placed inside a roll-off bin equipped with a lid. This will minimize the amount of highly odorous soil during loading; and

- Balancing the excavation with transportation so that the need for large stockpiles is reduced.

Other emissions include exhaust from remediation equipment. The equipment proposed for the Site redevelopment will be maintained properly so that exhaust emissions will be within acceptable standards.

10.0 SOIL CONTINGENCY MEASURES

The following contingency measures shall be implemented in the event that previously unidentified suspected chemically-affected soil is identified during site excavation. All contingency measures will be conducted by HAZWOPER-trained environmental professionals using the HASP discussed in Section 3.2.

If soil encountered during the planned activities exhibits characteristics suggesting potential contamination, any suspect soil shall be placed in temporary on-site stockpiles constructed with polyethylene plastic sheeting (10 mil minimum thickness) beneath and above the soil to prevent runon/runoff and fugitive dust and odor emissions. Suspect stockpiled soil will be covered and secured at the end of each day.

The Contractor shall contact the Owner Representative and Environmental Consultant (see Section 3.1) as soon as the potentially-contaminated soil is identified. Additionally, as a precaution, the Environmental Consultant will be present during excavation and grading activities in areas of historic underground storage tanks (as shown on Plate 2) in case unexpected contamination or subsurface structures are encountered.

10.1 Identification of Contaminated Soil

The Contractor will be instructed to report indicators of contaminated soil, in particular, petroleum hydrocarbons. The three primary physical indicators of petroleum-related contamination in soil include staining, sheen, and petroleum-like odor, as described below:

- **Staining:** Generally, soil that is impacted with petroleum hydrocarbons exhibits gray, black or green staining, although other contaminants and natural conditions may also cause staining.

- **Sheen:** Sheen is another indication of petroleum contamination. Soil exhibiting sheen may appear shiny and reflective. Sheens from heavily impacted soil may appear iridescent with rainbow-like colors.

- **Odor:** Soil impacted with petroleum products, volatile organics, and other types of contamination may release vapors when exposed to the atmosphere. These vapors can be interpreted as an odor. Odor can be subjective, and inhalation of vapors from impacted soil is harmful to human health. Therefore, odor is considered an inadvertent field indicator and should not be used for continuous screening of soil.

If soil exhibiting evidence of contamination is encountered during excavation, the Contractor will cease excavation activities in the area and notify the Environmental Consultant within 24 hours. The Contractor will not conduct any work in the area of concern or replace any known or suspected contaminated soil in the excavation area without prior approval by the ACDEH LOP.

10.2 Preliminary Assessment

Preliminary assessment of the previously unidentified suspect soil will include confirmation that access control measures installed by the General Contractor are adequate to provide necessary protection to on-Site workers and the public during the evaluation phase. Confirmation will consist of visual assessment of the installed barriers as well as monitoring of the air outside the control area.

Air sampling will be conducted around the perimeter of the secured area using a combination photoionization detector (PID) meter to measure volatile organic compounds (VOCs) in the breathing zone and a lower explosive limit (LEL)/oxygen (O_2) meter to measure concentrations of combustible gases and available oxygen. If the air sampling suggests that the control measures are improperly positioned to provide necessary protection to on-Site workers, the barriers will be relocated as necessary.

The Environmental Consultant will conduct a preliminary assessment to determine if the previously unidentified suspect soil is considered a significant risk to human health or the environment. If field observations suggest that the suspect conditions are *de minimis* and: (1) do not present a threat to human health or the environment; or (2) would generally not be subject of an enforcement action if brought to the attention of appropriate governmental agencies; then the Environmental Consultant will terminate the contingency plan process and release the suspect areas to the General Contractor.

10.3 Evaluation of Previously Unidentified Suspect Soil

If conditions in the suspect area are not considered *de minimis*, the Environmental Consultant shall notify ACDEH on behalf of the Owner and evaluate the nature and extent of the potentially chemically-affected soil in accordance with the following procedures.

In-situ and/or stockpiled soil requiring further characterization will be sampled and analyzed as follows:

- A soil sample will be collected from the same location and depth as previously unidentified suspect soil and 1-foot below this depth. Additional samples will also be collected at the same depths at a minimum of four step-out locations to assess soil condition around the suspect sample location. The four step-out location will be located approximately 5 feet to the north, south, east, and west of the suspect sample location. Each sample will be collected using a pre-cleaned hand trowel and transferred into laboratory-supplied glass containers and observed for evidence of odors and staining and screened for VOCs using a PID. If any of the samples show evidence of odors and staining or VOCs are detected above 10 ppmv then environmental sample(s) will be retained for analyses discussed below;

- Soil samples will be collected from the stockpiles using a pre-cleaned hand trowel and transferred into laboratory-supplied glass containers. One 4-point composite sample will be collected for every 200 cubic yards of material generated per disposal/accepting facility requirements;

- Following soil sample collection, the containers will be labeled for identification and immediately placed in a chilled, thermally insulated cooler containing bagged ice or blue ice. The cooler containing the samples will then be delivered under chain-of-custody protocol to a state-certified laboratory; and

- The composite samples collected from the soil stockpiles and the discrete previously unidentified soil samples will be submitted, at a minimum, for laboratory analysis of total petroleum hydrocarbons quantified as gasoline (TPHg) and volatile organic compounds (VOCs) by U.S. EPA Test Method 8260B and total petroleum hydrocarbons quantified as diesel (TPHd) and motor oil (TPHmo) by U.S. EPA Test Method 8015M. All soil samples submitted for analysis by U.S. EPA Method 8260B will be collected in accordance with U.S. EPA Method 5035 using Terracore™ (or equivalent) samplers. Samples may also be analyzed for Title 22 metals using U.S. EPA Test Method 6010B as part of waste characterization testing for off-site disposal. If necessary, extractable metals tests (i.e., leaching test including waste extraction test [WET] and/or toxicity characteristic leaching procedure [TCLP] procedures) will be conducted on the samples with elevated total metals concentrations to establish if the soils are hazardous based on their leaching characteristics.

After the evaluation is complete, the Environmental Consultant shall provide the Owner and General Contractor with conclusions regarding potential risks of the suspect material to human health and the environment as well as recommendations for proper removal and disposal of the affected soil. If soil removal is recommended, then the procedures presented in Section 8.0 will be used to manage the soil. All soil removal work will be approved by ACDEH prior to implementation. If VOC-affected soil is encountered, notification will be provided to Bay Area Air Quality Management District (BAAQMD) as required in the guidelines and notification requirements set by Regulation 8, Rule 40 of the BAAQMD Rules and Regulations for aeration of contaminated soil.

10.4 Reuse of Concrete & Soil Importation

Reuse of crushed concrete or use of imported fill material will be characterized and approved by ACDEH prior to being placed at the Site in accordance with the Department of Toxic Substances Control (DTSC) *Information Advisory – Clean Imported Fill Material (DTSC, 2001) and the New Jersey Department of Environmental Protection Guidance for Characterization of Concrete and Clean Material Certification for Recycling* (updated January 12, 2010). Discrete samples will be collected from the import source for characterization and specific laboratory analyses will be based on the fill source characteristics. The analytical results of the import soil samples will be compared to applicable screening criteria to evaluate whether the material is suitable for import to the site.

11.0 CONTINGENCY MEASURES FOR DISCOVERY OF UNEXPECTED UNDERGROUND STRUCTURES

If any previously unidentified or unknown underground structures including tanks, vaults, sumps, containment structures, separators, or piping that has previously contained or has the potential to contain hazardous materials is encountered during site grading activities, the

ACDEH LOP and CUPA will be notified within 24-hours and consulted on appropriate next steps. USTs may be identified during grading and Site excavation activities by the presence of vent pipes that extend above the ground surface, product distribution piping that leads to the UST, fill pipes, backfill materials, or the underground structure itself. Other buried structures may not have features that extend above ground surface, and could be discovered only after contact with construction equipment.

The removal or burying of any of these structures without prior acknowledgement and approval form ACDEH is prohibited. Discovered structures will be assess as follows:

- The structure will be inspected to assess whether it contains any indication of chemical residuals or free-phase liquids other than water. This assessment will be conducted by the Environmental Consultant, and will be based on visual evidence and the results of vapor monitoring using a PID. Under no circumstances will any personnel enter an unknown subsurface structure at any time. If chemicals are not indicated within the structure by the above-referenced means and with ACDEH approval the structure may be removed or abandoned in place in a safe manner by the contractor;

- If liquids or solids are present within the structure, measures will be taken to contain the liquids to avoid spills to the subsurface. Samples will be collected and submitted to a California-certified laboratory for analysis. Liquids or solids may be temporarily drummed, or liquids may be collected by vacuum truck, while analysis is pending. Based on analytical results, the liquids or solids will be disposed of under the direction of the Environmental Consultant in accordance with all applicable environmental laws and disposal requirements;

- If contaminated liquid or solids are present in the structure, the structure will be inspected for physical integrity following removal of the contaminated media. The Environmental Consultant will document the results of this inspection, including an estimation of the volume and former use of the structure.

- If the physical inspection of the structure suggests that chemicals may have been released to the underlying soils additional environmental investigations of the underlying soils will be conducted to assess whether a release sufficient to warrant removal has occurred.

    - If, based on the opinion of the Environmental Consultant and ACDEH, it is assessed that the structure is intact, that subsurface releases of the chemicals to the underlying soils likely did not occur, and no free-phase liquids or chemical residues remain inside, removal of the structure may not be required for environmental reasons; and

    - Otherwise, with ACDEH approval, the structure will be excavated and disposed of at the direction of the Environmental Professional. Once the structure is removed, soils adjacent to and beneath the structure will be assessed for contamination through visual observation and organic vapor analysis and the results documented. If soils are determined to be “contaminated” with VOCs in the context of BAAQMD Rule 8-40, the appropriate response will be determined in consultation with ACDEH.

ACDEH may require further response actions based on the discovery of hazardous materials that pose an unreasonable risk to human health and safety or the environment.

12.0 GROUNDWATER MANAGEMENT PROTOCOLS

The depth to groundwater at the site is typically encountered between 45 feet to 50 feet bgs. As the excavation is at most approximately 15 feet (for the elevator pits), construction dewatering is not anticipated. If dewatering of the excavation will be necessary during construction activities, a batch wastewater discharge permit would be obtained from City of Livermore for discharging water encountered during construction activities to the sanitary sewer system.

Construction de-watering effluent, if generated, shall be pumped into holding tanks and sampled and analyzed for the parameters required for the selected discharge point, such as the storm drain or sanitary sewer. If dewatering effluent is to be discharged to the storm drain, a National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board. Permits will be obtained from the City of Livermore, Water Resources Division if dewatering effluent is discharged to the City of Livermore sanitary sewer system.

Chemical testing will be performed in accordance with the receiving facility's requirements prior to discharge. If concentrations exceed the limits established for the discharge point, the dewatering effluent will either will be: (1) transported off-Site for disposal at a licensed disposal facility; or (2) treated and discharged following sampling and analysis to confirm the success of treatment.

13.0 CONTINGENCY REPORTING

Following completion of contingency measures listed in Sections 10.0 and 11.0, the Environmental Consultant will prepare a report for submittal to ACDEH that documents soil and/or groundwater sampling, removal and management of unknown structures, chemical analysis and proper disposal of the suspect materials, if encountered, during the site construction.

14.0 STORM WATER MANAGEMENT

Other environmental controls may be required in the event that anticipated conditions at the Site change. In the event that remediation activities occur during the rainy season, then water management procedures will be implemented in addition to probable modifications of other plans, such as the HASP. The following procedures will be implemented at the Site during the rainy season:

- The weather forecast will be monitored. During the days heavy rain is forecasted, remediation activities may be stopped;
- The boundary of the remediation area will be properly bermed to prevent storm water from entering or leaving the remediation area;

- Storm water entering the remediation area from non-impacted areas and storm water originating within the excavated area will be pumped to settlement tanks and treated prior to discharge under permit;

- The excavation will be conducted in small sections, so the exposed excavated area can be covered immediately if heavy rains occur;

- Procedures will be used to prevent wet soil from sticking to the tires of trucks used to haul soil off Site. These procedures may include plastic sheeting at the loading area, a tire wash at Site egress paths, and/or a stabilized gravel construction entrance; and

- Plastic sheeting will be used extensively to cover the area of excavation during non-working hours.

In general, the excavation will be kept as dry as possible in order to minimize the waste generated and the backfilling (as necessary) of the excavation can be conducted promptly. Storm water best management practices (BMPs) will be followed in accordance with the contractors Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the Site. The BMPs for the Site development activities should include: use of fiber rolls; inlet protection; stabilized construction entrance; landscape and paving; street cleaning and catch basin cleaning.

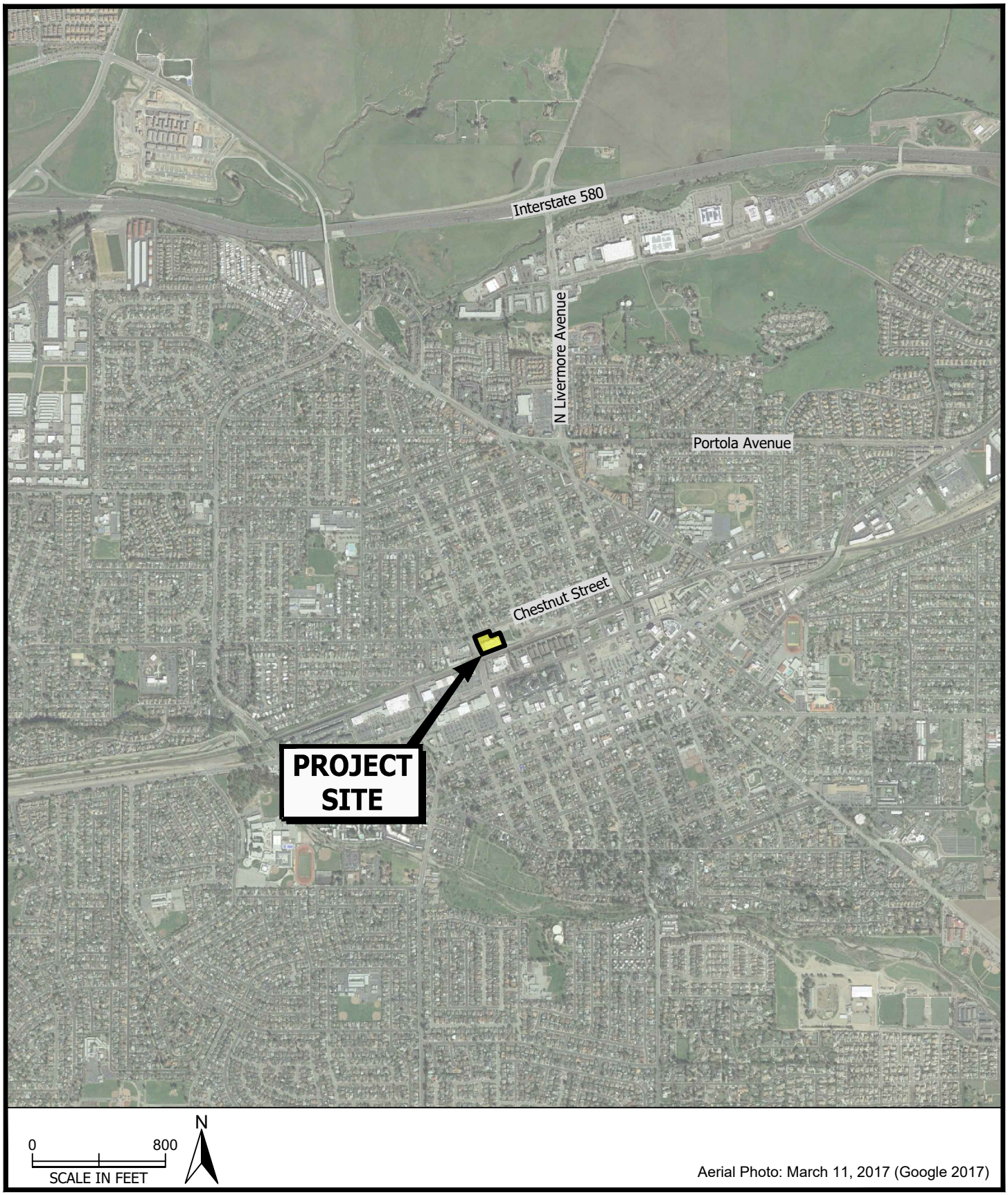
15.0 REFERENCES

ACC Environmental Consultants, Inc., 2017. *Subsurface Investigation Report, 1625 Chestnut Street, Livermore, California, Acc. Project No. 6988-003.04.* August 14.

Bay Area Air Quality Management District (BAAQMD), 2017. *California Environmental Quality Act Air Quality Guidelines.* May.

PES, 2017. *Final Corrective Action Plan, Senior and Family Housing, 1625-1635 Chestnut Street, Livermore, California*. November 22.

ILLUSTRATIONS



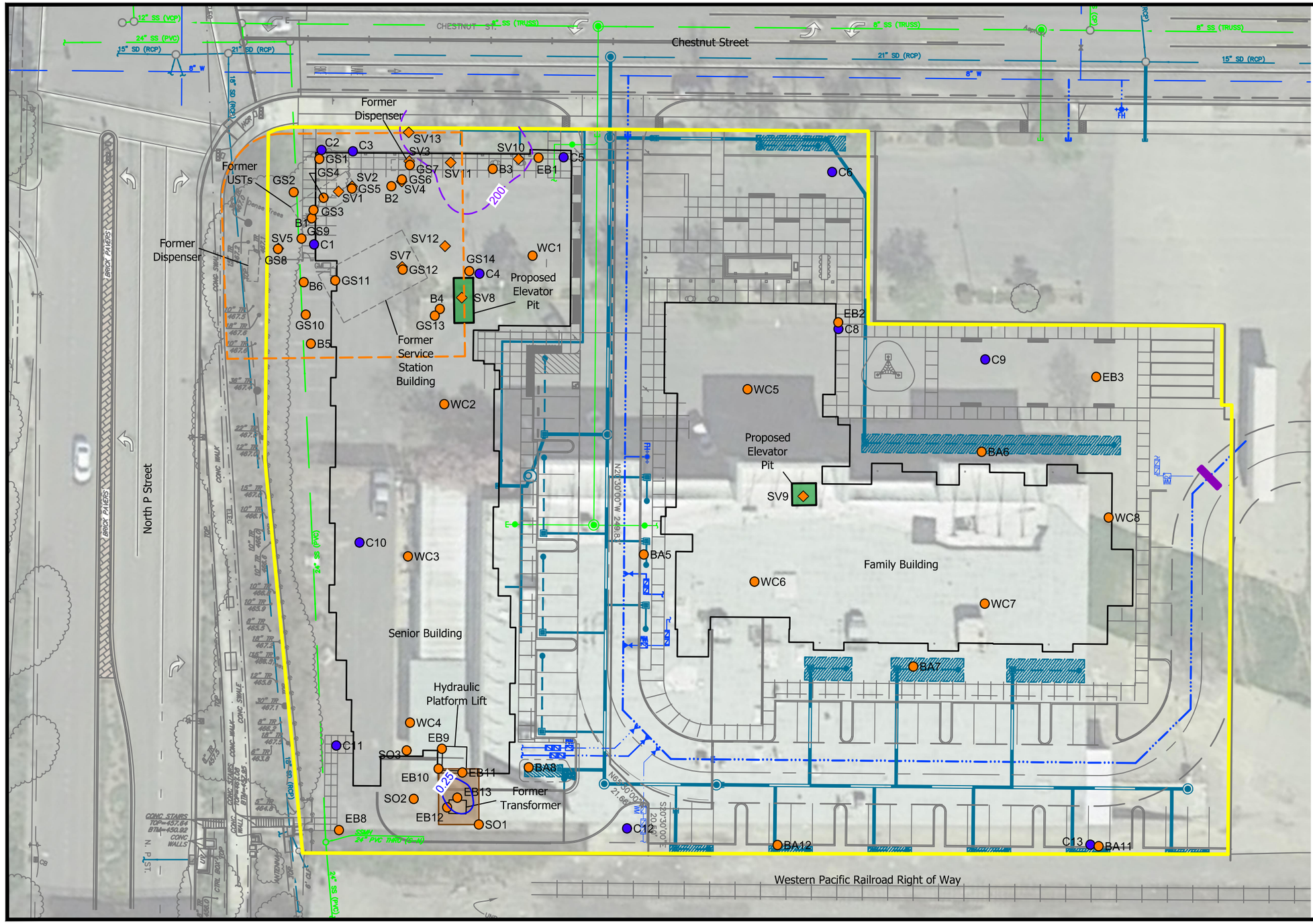
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

Site Location
Final Construction Soil and Groundwater Management Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
1

1569.001.01.003	156900101003_SMPF_1	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- Water Line
- C1 — Sample Location (URS, 2011)
- B1 — Sample Location (ACC, 2013)
- SV1 — Sample Location (ACC, 2017)
- Planned Area of Excavation
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits
- Trench Plug
- 0.25 — Generalized PCB Soil Concentration Contours
- 200 — Generalized Tetrachloroethene (PCE) Soil Gas Concentration Contours

N

0 40

SCALE IN FEET

The original version of this figure contains color-indicated data. Black and white copies may not adequately represent the information presented.

Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan
Final Construction Soil and Groundwater Management Plan
1625-1635 Chestnut Street
Livermore, California

PLATE 2

1569.001.01.003	156900101003_SMPF_2	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

AGREEMENT AND ACKNOWLEDGMENT STATEMENT

APPENDIX A

AGREEMENT AND ACKNOWLEDGMENT STATEMENT

Senior and Family Housing
1625-1635 Chestnut Street
Livermore, California

Construction Soil and Groundwater Management Plan Agreement

All project personnel and subcontractors are required to sign the following agreement prior to conducting work at the site.

1. I have read and fully understand the plan and my individual responsibilities.

2. I agree to abide by the provisions of the plan.

Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date
Name	Signature
Company	Date

(Add additional sheets if necessary)

APPENDIX B

SUMMARY DATA TABLES AND FIGURES

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
Kleinfelder Phase II Subsurface Investigation																
B-1	15502	10.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15503	14.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
B-2	15506-c	2.5	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15507-c	5.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
	15509	15.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
B-3	15512	10.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	**20**	--	--
	15514	15.0	8/3/1989	--	<0.5	<0.5	<0.5	<2	<0.1	<10	--	--	--	<20	--	--
Enercon Services, Inc. Phase II ESA																
B-1	B-1-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-1-49'	49	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
B-2	B-2-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-2-35'	35	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
B-3	B-3-15'	15	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
	B-3-49.25'	49	8/18/2009	--	<5.0	<5.0	<5.0	<10	<10	<10	--	<10	--	--	--	--
URS Targeted Site Investigation																
C1	C1-2	2	2/16/2011	--	<5.1	<5.1	<5.1	<10	<0.26	**7.9**	--	<49	--	--	--	--
	C1-5	5	2/16/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	**100**	--	**570**	--	--	--	--
C2	C2-2	2	2/16/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**27**	--	**150**	--	--	--	--
	C2-5	5	2/16/2011	--	<4.1	<4.1	<4.1	<8.2	<0.20	<0.99	--	<49	--	--	--	--
	C2-60 (dup)	5	2/16/2011	--	<4.1	<4.1	<4.1	<8.2	<0.21	**32**	--	**210**	--	--	--	--
	C2-20	20	2/16/2011	--	<4.9	<4.9	<4.9	<9.7	<0.24	<0.99	--	<50	--	--	--	--
	C2-30	30	2/16/2011	--	<4.5	<4.5	<4.5	<9.0	<0.22	<1.0	--	<50	--	--	--	--
C3	C3-2	2	2/15/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	**39**	--	**140**	--	--	--	--
	C3-5	5	2/15/2011	--	<4.4	<4.4	<4.4	<8.8	<0.22	**110 J**	--	**470 J**	--	--	--	--
	C3-60 (dup)	5	2/15/2011	--	<5.3	<5.3	<5.3	<11	<0.26	<0.99 UJ	--	<50 UJ	--	--	--	--
	C3-20	20	2/15/2011	--	<4.0	<4.0	<4.0	<8.1	<0.20	<1.0	--	<50	--	--	--	--
	C3-30	30	2/15/2011	--	<6.3	<6.3	<6.3	<13	<0.32	<1.0	--	<50	--	--	--	--
C4	C4-2	2	2/16/2011	--	<4.2	<4.2	<4.2	<8.4	<0.21	<1.0	--	<50	--	--	--	--
	C4-60 (dup)	2	2/16/2011	--	<4.6	<4.6	<4.6	<9.1	<0.23	<0.99	--	<49	--	--	--	--
	C4-5	5	2/16/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**140**	--	**670**	--	--	--	--
C5	C5-2	2	2/16/2011	--	<4.3	<4.3	<4.3	<8.5	<0.21	**2.1**	--	<50	--	--	--	--
	C5-5	5	2/16/2011	--	<4.4	<4.4	<4.4	<8.7	<0.22	**10**	--	**130**	--	--	--	--

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
C6	C6-2	2	2/15/2011	--	<4.7	<4.7	<4.7	<9.5	<0.24	**38**	--	**210**	--	--	--	--
C8	C8-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.7	<0.22	**12**	--	**53**	--	--	--	--
C9	C9-2	2	2/15/2011	--	<6.1	<6.1	<6.1	<12	<0.30	<0.99	--	<49	--	--	--	--
	C9-60 (dup)	2	2/15/2011	--	<5.1	<5.1	<5.1	<10	<0.26	<0.99	--	<50	--	--	--	--
C10	C10-2	2	2/15/2011	--	<5.4	<5.4	<5.4	<11	<0.27	<0.99	--	<49	--	--	--	--
C11	C11-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.5	<0.21	<1.0	--	<50	--	--	--	--
C12	C12-2	2	2/15/2011	--	<4.4	<4.4	<4.4	<8.8	<0.22	<0.99	--	<50	--	--	--	--
C13	C13-2	2	2/15/2011	--	<4.3	<4.3	<4.3	<8.6	<0.22	<0.99	--	<49	--	--	--	--
ACC Phase II ESA																
B1	B1-4'	4	10/24/2013	<4.5	<4.5	<4.5	<4.5	<9.1	<0.230	**--**	**4.8**	**--**	<49	**--**	**--**	**--**
	B1-16'	16	10/24/2013	<4.5	<4.5	<4.5	<4.5	<9.0	<0.230	--	<0.99	--	<49	--	--	--
B2	B2-4'	4	10/24/2013	<4.9	<4.9	<4.9	<4.9	<9.7	<0.240	--	<0.99	--	<50	--	--	--
B3	B3-4'	4	10/24/2013	<4.8	<4.8	<4.8	<4.8	<9.7	<0.240	--	<0.99	--	<50	--	--	--
B4	B4-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.4	<0.240	**--**	**4.2**	**--**	<49	**--**	**--**	**--**
B5	B5-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.5	<0.240	--	<1.0	--	<50	--	--	--
B6	B6-4'	4	10/24/2013	<4.7	<4.7	<4.7	<4.7	<9.4	<0.230	--	<1.0	--	<50	--	--	--
ACC Subsurface Investigation																
SV8	SV8-15'	15	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
SV9	SV9-5'	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	**1.2**	--	**60**	--	--	--
	DUP1 (SV9-5')	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	**1.1**	<1.0	**6.4**	**5.7**	**--**	--	--
	SV9-15'	15	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
SV11	SV11-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SV12	SV12-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SV13	SV13-5'	5	7/21/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
GS1	GS1-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS2	GS2-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS2-6'	6	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS3	GS3-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS4	GS4-5'	5	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	**3.0**	--	**38**	--	--	--
GS5	GS5-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS5-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
GS6	GS6-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS6-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
GS7	GS7-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	**7.9**	--	--	--
	DUP2 (GS7-2')	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	<1.0	<1.0	<5.0	<5.0		--	--
GS8	GS8-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS8-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS9	GS9-8'	8	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
GS10	GS10-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS11	GS11-2'	2	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
	GS11-8'	8	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS12	GS12-4'	4	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
	GS12-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	<0.0050
GS13	GS13-10'	10	6/7/2017	ND	ND	ND	ND	ND	<1.0	--	<1.0	--	<5.0	--	--	--
GS14	GS14-10'	10	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA5	BA5-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	**8.4**	--	--	--
	BA5-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA6	BA6-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
	BA6-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA7	BA7-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
	BA7-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA8	BA8-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	BA8-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
BA11	BA11-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	DUP6 (BA11-0.5')	0.5	6/8/2017	--	--	--	--	--	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	BA11-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
BA12	BA12-0.5'	0.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
	BA12-2.5'	2.5	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
EB1	EB1-8'	8	6/8/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	--
EB2	EB2-4'	4	6/8/2017	--	--	--	--	--	<1.0	--	**2.4**	--	**47**	--	--	--
	EB2-8'	8	6/8/2017	--	--	--	--	--	<1.0	--	**4.3**	--	**120**	--	--	--
EB3	EB3-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	<1.0	--	<5.0	--	**180**	--	--	--
	EB3-6'	6	6/8/2017	ND	ND	ND	ND	ND	<1.0	--	**1.1**	--	**30**	--	--	--

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
EB8	EB8-0.5'	0.5	6/7/2017	--	--	--	--	--	<1.0	--	**23**	--	**740**	--	--	<0.050
	EB8-2.5'	2.5	6/7/2017	--	--	--	--	--	<1.0	--	<1.0	--	<5.0	--	--	<0.050
EB9	EB9-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**14**	**0.012 J**
	EB9-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
EB10	EB10-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**5.5**	**0.022 J**
	EB10-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
EB11	EB11-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**22**	<0.050
	EB11-2.5	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**7.4**	<0.050
	DUP10 (EB11-2.5')	2.5	6/8/2017	--	--	--	--	--	<1.0	**2.5**	<1.0	<5.0	<5.0	--	--	--
EB12	EB12-0.5'	0.5	6/7/2017	--	--	--	--	--	--	--	--	--	--	--	**69**	<0.050
	EB12-2.5'	2.5	6/7/2017	--	--	--	--	--	--	--	--	--	--	--	**47**	<0.050
EB13	EB13-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	**18**	**1.1**
	EB13-2.5'	2.5	6/8/2017	--	--	--	--	--	--	--	--	--	--	--	<5.0	<0.050
WC1	WC1-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC1-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC1-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC2	WC2-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP3 (WC2-0.5')	0.5	6/7/2017	--	--	--	--	--	<1.0	**3.7**	**2.7**	**32**	**22**	--	--	--
	WC2-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC2-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC3	WC3-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC3-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP4 (WC3-6')	6	6/7/2017	--	--	--	--	--	<1.0	**2.0**	**1.8**	**50**	**33**	--	--	--
	WC3-10'	10	6/7/2017	ND	ND	ND	ND	**0.011**	--	--	--	--	--	--	--	--
WC4	WC4-0.5'	0.5	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC4-6'	6	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC4-10'	10	6/7/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC5	WC5-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC5-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP8 (WC5-6')	6	6/8/2017	ND	ND	ND	ND	ND	<1.0	**5.6**	**3.4**	**190**	**110**	--	--	--
	WC5-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC6	WC6-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC6-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC6-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--

Table 1
Soil Analytical Results Summary - VOCs, TPH & PCBs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	VOCs					TPH							Total PCBs (mg/kg)
				PCE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	EB (µg/kg)	Total Xylenes (µg/kg)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-d* (mg/kg)	TPH-mo (mg/kg)	TPH-mo* (mg/kg)	TPH-wo (mg/kg)	TPH-ho (mg/kg)	
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**
WC7	WC7-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	DUP9 (WC7-0.5')	0.5	6/8/2017	ND	ND	ND	ND	ND	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	WC7-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC7-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
WC8	WC8-0.5'	0.5	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC8-6'	6	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
	WC8-10'	10	6/8/2017	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--
SO1	SO1 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
SO2	SO2 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
SO3	SO3 [0.5']	0.5	7/21/2017	--	--	--	--	--	--	--	--	--	--	--	--	<0.050
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**420**	**44**	**2,900**	**1,400**	**2,300**	**100**	**230**	**230**	**5,100**	**5,100**	**--**	**--**	**0.25**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

VOCs = Volatile Organic Compounds.

PCE = Tetrachloroethene.

EB = Ethylbenzene.

TPH = Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g); diesel-range (TPH-d); motor oil-range (TPH-mo).

* = Analysis performed with silica gel cleanup.

TPH-wo = TPH as waste oil.

TPH-ho = TPH as hydraulic oil.

PCBs = Polychlorinated biphenyls.

µg/kg = micrograms per kilogram.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

c = Soil samples composited for one analysis.

J = Estimated concentration.

UJ = Estimated reporting limit.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 2
Soil Analytical Results Summary - PAHs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PAHs									
				Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)	Benzo(a) pyrene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Indeno (1,2,3-c,d) pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**
URS Targeted Site Investigation													
C1	C1-2	2	2/16/2011	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099
	C1-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
C2	C2-2	2	2/16/2011	**0.087**	**0.014**	**0.0095**	**0.009**	**0.011**	**0.011**	**0.011**	**0.0061**	<.005	**0.016**
	C2-5	5	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C2-60 (dup)	5	2/16/2011	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
C3	C3-2	2	2/16/2011	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	**0.036**	<.0099
	C3-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
	C3-60 (dup)	5	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C4	C4-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C4-5	5	2/16/2011	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025
C5	C5-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C5-5	5	2/16/2011	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010
C8	C8-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C9	C9-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
	C9-60 (dup)	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
C10	C10-2	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
	C10-2 DUP	2	2/16/2011	**0.016J**	**0.031J**	**0.014**	**0.013**	**0.021J**	**0.022J**	**0.020J**	**0.01**	<.099	**0.031J**
C11	C11-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
C12	C12-2	2	2/16/2011	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049
C13	C13-2	2	2/16/2011	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005
ACC Subsurface Investigation													
GS1	GS1-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
GS3	GS3-8'	8	6/7/2017	<0.010	**0.0016 J**	**--**	<0.010	<0.010	<0.010	<0.010	**--**	**--**	<0.010
GS8	GS8-2'	2	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	GS8-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
GS11	GS11-2'	2	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	GS11-8'	8	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010

Table 2
Soil Analytical Results Summary - PAHs
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PAHs									
				Benzo(a) anthracene (mg/kg)	Benzo(b) fluoranthene (mg/kg)	Benzo(k) fluoranthene (mg/kg)	Benzo(g,h,i) perylene (mg/kg)	Benzo(a) pyrene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Indeno (1,2,3-c,d) pyrene (mg/kg)	Naphthalene (mg/kg)	Pyrene (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**
BA11	BA11-0.5'	0.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	BA11-2.5'	2.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
BA12	BA12-0.5'	0.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
	BA12-2.5'	2.5	6/8/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
EB8	EB8-0.5'	0.5	6/7/2017	<0.050	**0.034 J**	**--**	**0.075**	**0.019 J**	<0.050	<0.050	**--**	**--**	<0.050
	EB8-2.5'	2.5	6/7/2017	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	--	<0.010
SO2	SO2 [0.5']	0.5	7/21/2017	<0.020	**0.013 J**	**--**	**0.0079 J**	**0.010 J**	<0.020	**0.0083 J**	**--**	**--**	**0.012 J**
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.16**	**0.16**	**1.6**	**2.5**	**0.016**	**3.8**	**60**	**0.16**	**0.033**	**85**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

PAHs = Polyaromatic hydrocarbons.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

J = Estimated concentration.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals												
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
URS Targeted Site Investigation																
C1	C1-2	2	2/16/2011	**4.1 J**	**160 J**	<0.41 UJ	ND	**52 J**	**14 J**	**28 J**	**8.5 J**	**0.032 J**	<2.0 UJ	**100 J**	**24 J**	**45 J**
	C1-5	5	2/16/2011	**4.5 J**	**140 J**	<0.41 UJ	ND	**60 J**	**15 J**	**30 J**	**7.2 J**	**0.051 J**	<2.1 UJ	**130 J**	**26 J**	**44 J**
C2	C2-2	2	2/16/2011	**14 J**	**5.6 J**	<0.38 UJ	ND	**41 J**	**11 J**	**32 J**	**18 J**	**0.072 J**	<1.9 UJ	**88 J**	**20 J**	**52 J**
	C2-5	5	2/16/2011	**5.6 J**	**130 J**	<0.38 UJ	ND	**45 J**	**12 J**	**24 J**	**6.7 J**	**0.049 J**	<1.9 UJ	**96 J**	**20 J**	**39 J**
	C2-60 (dup)	5	2/16/2011	<4.1 UJ	**110 J**	<0.41 UJ	ND	**21 J**	**9.6 J**	**20 J**	**10 J**	**0.27 J**	<2.0 UJ	**38 J**	**18 J**	**30 J**
C3	C3-2	2	2/16/2011	<4.1	**110 J**	<0.41	ND	**39**	**9.1**	**23**	**7.7**	**0.031**	<2.0	**67**	**24**	**38**
	C3-5	5	2/16/2011	<4.0	**86**	<0.40	ND	**34**	**8.3**	**20**	**6.0**	**0.027**	<2.0	**65**	**21**	**35**
	C3-60 (dup)	5	2/16/2011	<4.2	**92**	<0.40	ND	**46**	**8.3**	**23**	**5.1**	**0.027**	<2.0	**68**	**24**	**34**
C4	C4-2	2	2/16/2011	**4.5 J**	**200 J**	<0.38 UJ	ND	**64 J**	**16 J**	**35 J**	**7.9 J**	**0.029 J**	<1.9 UJ	**120 J**	**27 J**	**50 J**
	C4-5	5	2/16/2011	<4.0 UJ	**85 J**	<0.40 UJ	ND	**33 J**	**6.6 J**	**15 J**	**4.1 J**	**0.031 J**	<2.0 UJ	**57 J**	**17 J**	**25 J**
C5	C5-2	2	2/16/2011	**5.7 J**	**230 J**	<0.38 UJ	ND	**120 J**	**19 J**	**37 J**	**8.3 J**	**0.067 J**	<1.9 UJ	**170 J**	**30 J**	**49 J**
	C5-5	5	2/16/2011	**5.0 J**	**180 J**	<0.38 UJ	ND	**63 J**	**18 J**	**33 J**	**8.9 J**	**0.075 J**	<1.9 UJ	**150 J**	**26 J**	**50 J**
C8	C8-2	2	2/16/2011	**5.8**	**230 J**	<0.42	ND	**84 J**	**19**	**40**	**9.5**	**0.041**	<2.1	**160**	**37**	**53**
	C8-5	5	2/16/2011	**5.5**	**210 J**	<0.40	ND	**86 J**	**19**	**36**	**8.9**	**0.087**	<2.0	**170**	**34**	**53**
C9	C9-2	2	2/16/2011	**5.5**	**230**	<0.41	ND	**82**	**20**	**37**	**8.4**	**0.035**	<2.1	**160**	**36**	**54**
	C9-60 (dup)	2	2/16/2011	**4.9**	**210**	<0.40	ND	**71**	**17**	**34**	**7.5**	**0.043**	<2.0	**140**	**31**	**48**
	C9-5	5	2/16/2011	**5.2**	**190 J**	<0.41	ND	**210 J**	**15**	**32**	**11**	**0.028**	**30**	**140**	**31**	**44**
C10	C10-2	2	2/16/2011	**5.6**	**220 J**	<0.40	ND	**76 J**	**17**	**33**	**12**	**0.054**	<2.0	**140**	**34**	**58**
	C10-5	5	2/16/2011	**4.6**	**160 J**	<0.40	ND	**71 J**	**14**	**28**	**8.0**	**0.066**	<2.0	**150**	**28**	**47**
C11	C11-2	2	2/16/2011	**5.9**	**200 J**	<0.41	ND	**88 J**	**19**	**41**	**9.7**	**0.079**	<2.1	**170**	**36**	**57**
	C11-5	5	2/16/2011	**4.7**	**120 J**	<0.41	ND	**160 J**	**27**	**20**	**5.4**	**0.034**	<2.0	**360**	**22**	**42**
C12	C12-2	2	2/16/2011	**6.4**	**260 J**	<0.41	ND	**94 J**	**31**	**40**	**9.3**	**0.047**	<2.1	**350**	**35**	**54**
	C12-5	5	2/16/2011	<3.8	**110 J**	<0.38	ND	**49 J**	**12**	**21**	**4.9**	**0.047**	<1.9	**140**	**20**	**35**
C13	C13-2	2	2/16/2011	**6.3**	**240 J**	<0.40	ND	**90 J**	**20**	**38**	**9.5**	**0.048**	<2.0	**200**	**36**	**56**
	C13-5	5	2/16/2011	**4.7**	**170 J**	<0.40	ND	**83 J**	**15**	**28**	**7.0**	**0.058**	<2.0	**170**	**28**	**51**
	C13-5 DUP	5	2/16/2011	**5.9**	**220 J**	**0.79**	ND	**100 J**	**19**	**34**	**10**	**0.052**	<2.1	**180**	**37**	**53**

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals													
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
ACC Phase II ESA																	
B1	B1-4'	4	10/24/2013	--	--	--	--	--	--	--	**7.2**	--	--	--	--	--	--
	B1-16'	16	10/24/2013	--	--	--	--	--	--	--	**8.1**	--	--	--	--	--	--
B2	B2-4'	4	10/24/2013	--	--	--	--	--	--	--	**7.9**	--	--	--	--	--	--
B3	B3-4'	4	10/24/2013	--	--	--	--	--	--	--	**8.0**	--	--	--	--	--	--
B4	B4-4'	4	10/24/2013	--	--	--	--	--	--	--	**8.5**	--	--	--	--	--	--
B5	B5-4'	4	10/24/2013	--	--	--	--	--	--	--	**6.0**	--	--	--	--	--	--
B6	B6-4'	4	10/24/2013	--	--	--	--	--	--	--	**6.8**	--	--	--	--	--	--
ACC Subsurface Investigation																	
GS1	GS1-8'	8	6/7/2017	--	--	--	--	--	--	--	**5.0**	--	--	--	--	--	--
GS2	GS2-2'	2	6/7/2017	--	--	--	--	--	--	--	**8.2**	--	--	--	--	--	--
	GS2-6'	6	6/7/2017	--	--	--	--	--	--	--	**6.8**	--	--	--	--	--	--
GS3	GS3-8'	8	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
GS4	GS4-5'	5	6/7/2017	--	--	--	--	--	--	--	**150**	--	--	--	--	--	--
GS5	GS5-4'	4	6/7/2017	--	--	--	<0.25	**82**	--	--	**9.1**	--	--	**180**	--	**63**	
	GS5-8'	8	6/7/2017	--	--	--	<0.25	**39**	--	--	**4.1**	--	--	**100**	--	**39**	
GS6	GS6-4'	4	6/7/2017	--	--	--	<0.25	**75**	--	--	**8.2**	--	--	**160**	--	**59**	
	GS6-10'	10	6/7/2017	--	--	--	<0.25	**87**	--	--	**5.3**	--	--	**330**	--	**46**	
GS7	GS7-2'	2	6/7/2017	--	--	--	--	--	--	--	**18**	--	--	--	--	--	--
GS8	GS8-2'	2	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
	GS8-8'	8	6/7/2017	--	--	--	--	--	--	--	**5.3**	--	--	--	--	--	--
GS10	GS10-8'	8	6/7/2017	--	--	--	--	--	--	--	**6.1**	--	--	--	--	--	--
GS11	GS11-2'	2	6/7/2017	--	--	--	--	--	--	--	**10**	--	--	--	--	--	--
	GS11-8'	8	6/7/2017	--	--	--	--	--	--	--	**13**	--	--	--	--	--	--
GS12	GS12-4'	4	6/7/2017	--	--	--	--	--	--	--	**8.9**	--	--	--	--	--	--
	GS12-10'	10	6/7/2017	--	--	--	--	--	--	--	**4.1**	--	--	--	--	--	--
GS13	GS13-10'	10	6/7/2017	--	--	--	--	--	--	--	**5.7**	--	--	--	--	--	--
BA11	BA11-0.5'	0.5	6/8/2017	**8.0**	--	--	<0.25	**99**	--	--	**12**	--	--	**200**	--	**67**	
	BA11-2.5'	2.5	6/8/2017	**7.6**	--	--	<0.25	**100**	--	--	**11**	--	--	**230**	--	**69**	
BA12	BA12-0.5'	0.5	6/8/2017	**6.9**	--	--	<0.25	**81**	--	--	**8.5**	--	--	**160**	--	**61**	
	BA12-2.5'	2.5	6/8/2017	**8.7**	--	--	<0.25	**97**	--	--	**12**	--	--	**220**	--	**74**	

Table 3
Soil Analytical Results Summary - Metals
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Metals												
				Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**
EB3	EB3-0.5'	0.5	6/8/2017	--	--	--	--	--	--	--	**7.8**	--	--	--	--	--
	EB3-6'	6	6/8/2017	--	--	--	--	--	--	--	**4.0**	--	--	--	--	--
EB8	EB8-0.5'	0.5	6/7/2017	**7.8**	--	--	<0.25	**49**	--	--	**6.4**	--	--	**94**	--	**53**
	EB8-2.5'	2.5	6/7/2017	**6.6**	--	--	<0.25	**77**	--	--	**8.2**	--	--	**170**	--	**62**
Soil Tier 1 ESLs (Feb. 2016, Rev. 3)				**0.067**	**3,000**	**42**	**39**	**120,000**	**23**	**3,100**	**80**	**13**	**390**	**86**	**390**	**23,000**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

mg/kg = milligrams per kilogram.

feet bgs = feet below ground surface.

J = Estimated concentration.

Soil Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 4
Soil Vapor Analytical Results Summary - Primary VOCs
1625 Chestnut Street, Livermore, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	PCE (µg/m3)	TCE (µg/m3)	Benzene (µg/m3)	Toluene (µg/m3)	EB (µg/m3)	Total Xylenes (µg/m3)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**240**	**240**	**48**	**160,000**	**560**	**52,000**
URS Targeted Site Investigation									
C1	C1-SG	5	2/16/2011	<6.0	<4.8	**8.9**	**18**	**6.4**	**24**
C2	C2-SG	5	2/16/2011	**6.3**	<4.9	**5.4**	**6.1**	<4.0	<4.0
C3	C3-SG	5	2/16/2011	**46**	<4.6	<2.8	<3.3	<3.8	<3.8
	C6-SG (dup)	5	2/16/2011	**46**	<4.6	<2.8	<3.3	<3.8	<3.8
C4	C4-SG	5	2/16/2011	**49**	<5.1	**14**	**16**	**5.6**	**14**
C5	C5-SG	5	2/16/2011	**35**	<4.9	**40**	**78**	**61**	**180**
ACC Subsurface Investigation									
SV1	SV1-5'	5	6/14/2017	**47**	ND<2.8	ND<1.6	**3.1**	**3.9**	**31**
SV2	SV2-15'	15	6/14/2017	**140**	ND<2.8	**3.4**	**11**	**79**	**450**
SV3	SV3-5'	5	6/14/2017	**150**	ND<2.8	ND<1.6	ND<1.9	ND<2.2	ND<6.6
SV4	SV4-15'	15	6/14/2017	**150**	ND<2.8	**2.1**	**8.9**	**48**	**360**
	SVDUP	15	6/14/2017	**96**	ND<7.3	**23**	**330**	**180**	**800**
SV5	SV5-5'	5	6/14/2017	**11**	ND<2.8	ND<1.6	ND<1.9	**2.6**	**18**
SV6	SV6-5'	5	6/14/2017	**15**	ND<2.8	ND<1.6	ND<1.9	ND<2.2	ND<6.6
SV7	SV7-15'	15	6/14/2017	**54**	ND<2.8	**2.6**	**11**	**3.7**	**13**
SV8	SV8-20'	20	6/14/2017	~~**33**~~	~~ND<2.8~~	~~**11**~~	~~**27**~~	~~**4.3**~~	~~**8.6**~~
	SV8-20' (A)	20	7/24/2017	**54**	**0.38**	**2.5**	**0.63**	ND<2.2	**1.5**
SV9	SV9-20'	20	6/14/2017	~~**90**~~	~~ND<2.8~~	~~**2.2**~~	~~**12**~~	~~**2.8**~~	~~**14**~~
	SV9-20' (A)	20	7/24/2017	**190**	**0.31**	**1.1**	**0.59**	ND<2.2	**1.1**
SV10	SV10-5'	5	7/24/2017	**340**	**0.12**	**1.2**	**14**	**5.2**	**32**
SV11	SV11-5'	5	7/24/2017	**430**	ND<28	ND<16	ND<380	ND<440	ND<1300
SV12	SV12'-5	5	7/24/2017	**180**	**0.082**	**1.4**	**4.8**	**1.6**	**8.6**
SV13	SV13-5'	5	7/24/2017	**290**	**0.11**	**0.35**	**1.0**	**0.38**	**2.4**
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**240**	**240**	**48**	**160,000**	**560**	**52,000**

Notes:

Detections are shown in bold.

Results equal to or exceeding Tier 1 ESLs are shaded.

All data provide by ACC Environmental Consultants.

VOCs = Volatile Organic Compounds.

PCE = Tetrachloroethene.

TCE = Tetrachloroethene.

EB = Ethylbenzene.

µg/m3 = micrograms per cubic meter.

feet bgs = feet below ground surface.

Soil Gas Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 5
Soil Vapor Analytical Results Summary - Additional VOCs
1625 Chestnut Street, Livermore, California

Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Acetone (µg/m3)	Acrolein (µg/m3)	Acrylo-nitrile (µg/m3)	Benzyl chloride (µg/m3)	Bromo-dichloro-methane (µg/m3)	Bromo-form (µg/m3)	Bromo-methane (µg/m3)	1,3-Butadiene (µg/m3)	MEK (µg/m3)	Carbon Disulfide (µg/m3)	Carbon Tetra-chloride (µg/m3)	Chloro-benzene (µg/m3)	Chloro-form (µg/m3)	Cyclo-hexane (µg/m3)	1,2-Dibromo-ethane (µg/m3)	1,4-Dichloro-benzene (µg/m3)	Dichloro-difluoro-methane (µg/m3)	1,2-Dichloro-ethane (µg/m3)	DIPE (µg/m3)	1,4-Dioxane (µg/m3)	Ethanol (µg/m3)	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Helium (%)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**15,000,000**	--	--	--	**38**	**1,300**	**2,600**	--	--	--	**33**	**26,000**	**61**	--	**2.3**	**130**	--	**54**	--	**180**	--	--	--	--	--	--
ted Site Investigation																												
C1	C1-SG	5	2/16/2011	**27**	ND	ND	ND	ND	**10**	ND	**9.6**	**6.2**	<2.8	ND	ND	ND	**17**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C2	C2-SG	5	2/16/2011	**13**	ND	ND	ND	ND	**9.8**	ND	<2.0	<2.7	<2.8	ND	ND	ND	**21**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C3	C3-SG	5	2/16/2011	<8.2	ND	ND	ND	ND	<8.9	ND	<1.9	<2.6	<2.7	ND	ND	ND	<3.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
	C6-SG (dup)	5	2/16/2011	<8.2	ND	ND	ND	ND	<8.9	ND	<1.9	<2.6	<2.7	ND	ND	ND	<3.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C4	C4-SG	5	2/16/2011	**20**	ND	ND	ND	ND	**27**	ND	**14**	**3.6**	<2.9	ND	ND	ND	**28**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C5	C5-SG	5	2/16/2011	**39**	ND	ND	ND	ND	**22**	ND	**77**	**9.6**	**5.6**	ND	ND	ND	**25**	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
surface Investigation																												
SV1	SV1-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**7.7**	**2.6**	**0.00014**	**0.15**
SV2	SV2-15'	15	6/14/2017	**290**	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**5.7**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.6**	**7.2**	**0.00023**	ND<0.050
SV3	SV3-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**11**	**6.3**	<0.000060	ND<0.050
SV4	SV4-15'	15	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**3.4**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.8**	**7.2**	<0.000060	**0.17**
	SVDUP	15	6/14/2017	ND<160	ND<16	ND<2.9	ND<7.1	ND<9.3	ND	ND<5.2	ND	ND<200	**13**	ND<8.5	ND<6.3	ND<6.5	**68**	ND<10	ND<8.1	ND<6.7	ND<5.5	ND<5.6	ND<4.9	ND<260	**32**	**5.3**	**0.000066**	**3.7**
SV5	SV5-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	ND<2.5	ND<2.0	ND<2.1	ND<1.8	ND<96	**14**	**5.2**	<0.000060	ND<0.050
SV6	SV6-5'	5	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	ND<1.6	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**2.7**	ND<2.0	**3.3**	ND<1.8	ND<96	**10**	**7.6**	<0.000060	ND<0.050
SV7	SV7-15'	15	6/14/2017	**9,500**	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	**160**	**7.9**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**2.6**	ND<2.0	ND<2.1	ND<1.8	**310**	**9.1**	**7.5**	**0.000067**	**0.10**
SV8	SV8-20'	20	6/14/2017	ND<60	ND<5.8	**12**	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**59**	ND<3.2	ND<2.4	ND<2.4	**69**	ND<3.9	ND<3.0	**3.6**	ND<2.0	ND<2.1	ND<1.8	ND<96	**8.8**	**4.7**	**0.00060**	**6.6**
	SV8-20' (A)	20	7/24/2017	**160**	**9.6**	ND<1.1	ND<2.6	ND<3.5	ND	**3.5**	ND	**160**	**0.84**	**0.20**	ND<2.4	**1.2**	ND<18	ND<3.9	**0.16**	**5.4**	**0.050**	ND<2.1	ND<1.8	**14**	--	--	--	**0.19**
SV9	SV9-20'	20	6/14/2017	ND<60	ND<5.8	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	ND<75	**6.3**	ND<3.2	ND<2.4	ND<2.4	ND<18	ND<3.9	ND<3.0	**7.2**	ND<2.0	ND<2.1	ND<1.8	ND<96	**10**	**2.7**	**0.00012**	**10**
	SV9-20' (A)	20	7/24/2017	**31**	**2.9**	ND<1.1	ND<2.6	ND<3.5	ND	**1.3**	ND	**71**	**2.6**	**0.20**	ND<2.4	**0.82**	ND<18	ND<3.9	**0.18**	**22**	**0.030**	ND<2.1	ND<1.8	**6.3**	--	--	--	ND<0.050
SV10	SV10-5'	5	7/24/2017	**19**	**5.6**	ND<1.1	**0.34**	**0.27**	ND	**1.9**	ND	**10**	**1.0**	**0.28**	ND<2.4	**2.6**	**1.3**	**0.050**	ND<3.0	**12**	**0.053**	ND<2.1	ND<1.8	**7.1**	--	--	--	ND<0.050
SV11	SV11-5'	5	7/24/2017	**29,000**	ND<230	ND<220	ND<530	ND<35	ND	ND<390	ND	ND<300	ND<320	ND<32	ND<470	ND<24	ND<350	ND<39	ND<31	ND<200	ND<21	ND<420	ND<18	**660**	--	--	--	ND<0.050
SV12	SV12'-5	5	7/24/2017	**27**	**2.5**	ND<1.1	ND<2.6	ND<3.5	ND	ND<2.0	ND	**6.6**	**1.1**	ND<3.2	**0.14**	**1.2**	**2.8**	ND<3.9	ND<3.0	**7.3**	**0.053**	ND<2.1	ND<1.8	ND<96	--	--	--	ND<0.050
SV13	SV13-5'	5	7/24/2017	**73**	ND<5.8	**1.2**	ND<2.6	**0.052**	ND	**4.4**	ND	**60**	**0.92**	**0.17**	ND<2.4	**0.61**	**1.0**	ND<3.9	ND<3.0	**5.7**	**0.038**	ND<2.1	**2.4**	**13**	--	--	--	ND<0.050
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				**15,000,000**	--	--	--	**38**	**1,300**	**2,600**	--	--	--	**33**	**26,000**	**61**	--	**2.3**	**130**	--	**54**	--	**180**	--	--	--	--	--	--

Table 5
Soil Vapor Analytical Results Summary - Additional VOCs
1625 Chestnut Street, Livermore, California

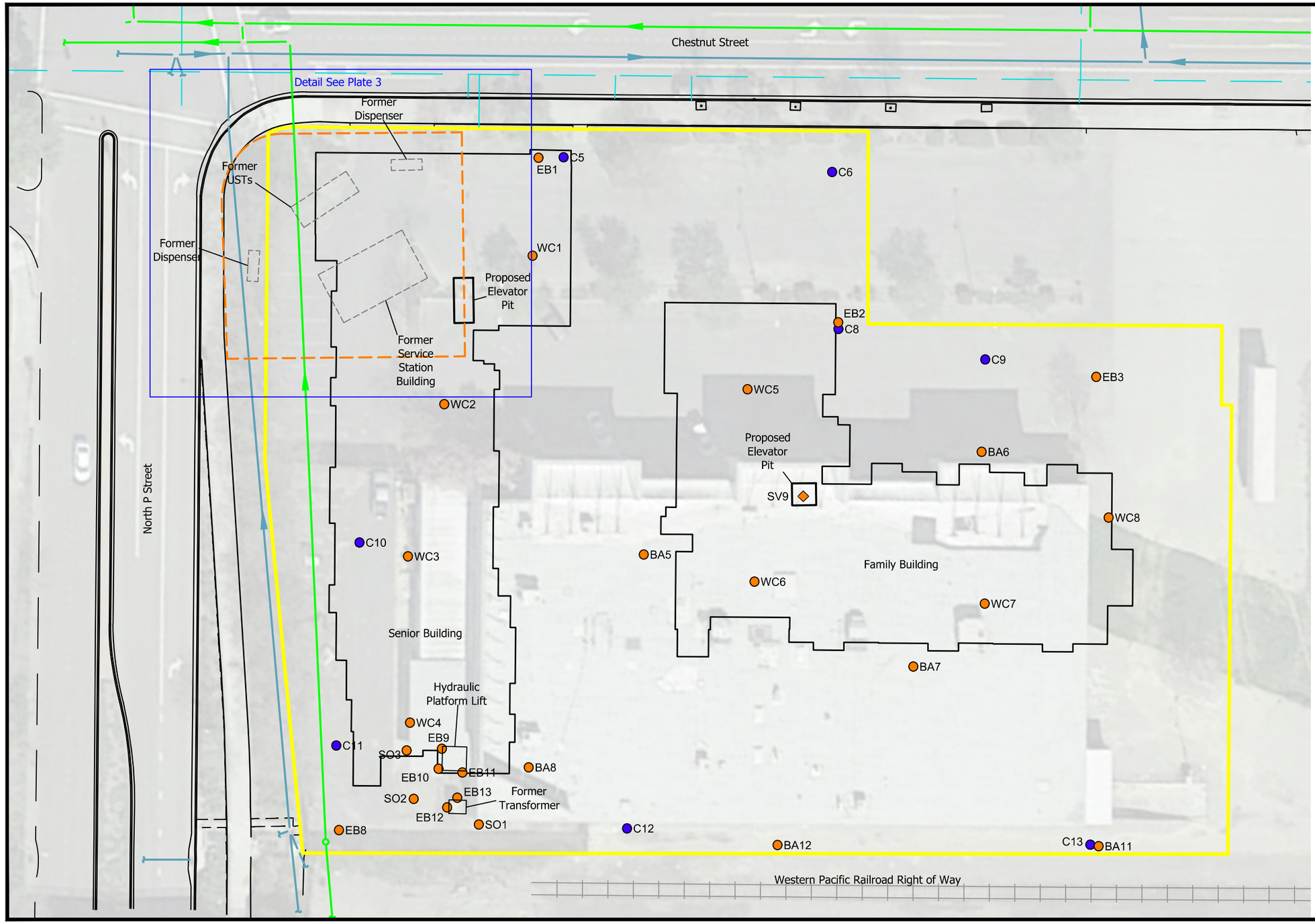
Sample Location	Sample ID	Sample Depth (feet bgs)	Sample Date	Ethyl Acetate (µg/m3)	4-Ethyl-toluene (µg/m3)	Freon 113 (µg/m3)	Heptane (µg/m3)	n-Heptane (µg/m3)	Hexane (µg/m3)	n-Hexane (µg/m3)	2-Hexanone (µg/m3)	MIBK (µg/m3)	Methylene chloride (µg/m3)	Methyl meth-acrylate (µg/m3)	MTBE (µg/m3)	Naph-thalene (µg/m3)	Propylene (µg/m3)	Styrene (µg/m3)	tert-Butyl Alcohol (µg/m3)	1,1,1,2-Tetra-chloro-ethane (µg/m3)	Tetra-hydro-furan (µg/m3)	1,1,1,-Trichloro-ethane (µg/m3)	Trichloro-fluoro-methane (µg/m3)	1,2,4-Trimethyl-benzene (µg/m3)	1,3,5-Trimethyl-benzene (µg/m3)	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Helium (%)
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				--	--	--	--	--	--	--	--	--	510	--	5,400	41	--	470,000	--	190	--	520,000	--	--	--	--	--	--	--
ted Site Investigation																													
C1	C1-SG	5	2/16/2011	ND	ND	ND	ND	**4.1**	ND	**3.7**	ND	ND	ND	ND	ND	ND	**56**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C2	C2-SG	5	2/16/2011	ND	ND	ND	ND	**32**	ND	**110**	ND	ND	ND	ND	ND	ND	**48**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C3	C3-SG	5	2/16/2011	ND	ND	ND	ND	<3.5	ND	<3.0	ND	ND	ND	ND	ND	ND	**5.7**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
	C6-SG (dup)	5	2/16/2011	ND	ND	ND	ND	<3.5	ND	<3.0	ND	ND	ND	ND	ND	ND	<1.5	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C4	C4-SG	5	2/16/2011	ND	ND	ND	ND	**6.2**	ND	**7.1**	ND	ND	ND	ND	ND	ND	**170**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
C5	C5-SG	5	2/16/2011	ND	ND	ND	ND	**15**	ND	**23**	ND	ND	ND	ND	ND	ND	**550**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
surface Investigation																													
SV1	SV1-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<6.0	ND<2.5	ND<2.5	**7.7**	**2.6**	**0.00014**	**0.15**
SV2	SV2-15'	15	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	**6.3**	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	**8.7**	ND<2.8	ND<2.8	**4.2**	ND<2.5	**8.6**	**7.2**	**0.00023**	ND<0.050
SV3	SV3-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**11**	**6.3**	<0.000060	ND<0.050
SV4	SV4-15'	15	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	**8.6**	**15**	ND	ND<2.2	ND<31	ND<3.5	**3.0**	ND<2.8	ND<2.8	**5.8**	ND<2.5	**8.8**	**7.2**	<0.000060	**0.17**
	SVDUP	15	6/14/2017	ND<4.9	**35**	ND<10	**56**	ND	ND<48	ND	ND<5.6	ND<5.6	ND<24	ND<5.6	**35**	ND<14	ND	**9.0**	ND<83	ND<9.3	ND<8.0	ND<7.3	ND<7.6	**83**	**34**	**32**	**5.3**	**0.000066**	**3.7**
SV5	SV5-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**14**	**5.2**	<0.000060	ND<0.050
SV6	SV6-5'	5	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**10**	**7.6**	<0.000060	ND<0.050
SV7	SV7-15'	15	6/14/2017	**15**	**4.3**	ND<3.9	ND<21	ND	**27**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	**35**	ND<3.5	**93**	ND<2.8	ND<2.8	**5.0**	ND<2.5	**9.1**	**7.5**	**0.000067**	**0.10**
SV8	SV8-20'	20	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	**110**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	ND<2.5	ND<2.5	**8.8**	**4.7**	**0.00060**	**6.6**
	SV8-20' (A)	20	7/24/2017	ND<1.8	ND<2.5	**0.94**	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	**4.1**	ND<2.1	ND<1.8	**0.49**	ND	ND<2.2	ND<31	ND<3.5	**16**	ND<2.8	**1.9**	ND<2.5	ND<2.5	--	--	--	**0.19**
SV9	SV9-20'	20	6/14/2017	ND<1.8	ND<2.5	ND<3.9	ND<21	ND	ND<18	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	ND<5.3	ND	ND<2.2	ND<31	ND<3.5	ND<3.0	ND<2.8	ND<2.8	**2.7**	ND<2.5	**10**	**2.7**	**0.00012**	**10**
	SV9-20' (A)	20	7/24/2017	ND<1.8	ND<2.5	**0.87**	ND<21	ND	**2.8**	ND	ND<2.1	ND<2.1	ND<8.8	ND<2.1	ND<1.8	**0.58**	ND	ND<2.2	ND<31	ND<3.5	**7.1**	**0.87**	**1.5**	ND<2.5	ND<2.5	--	--	--	ND<0.050
SV10	SV10-5'	5	7/24/2017	**1.3**	**3.6**	**1.1**	ND<21	ND	**1.2**	ND	**0.79**	**1.8**	**3.0**	ND<2.1	ND<1.8	**1.1**	ND	**0.43**	ND<31	**0.030**	**4.6**	**1.9**	**2.1**	**15**	**5.2**	--	--	--	ND<0.050
SV11	SV11-5'	5	7/24/2017	ND<370	ND<500	ND<780	ND<420	ND	ND<360	ND	ND<420	ND<420	ND<350	ND<420	ND<370	ND<53	ND	ND<430	ND<310	ND<35	ND<300	ND<550	ND<570	ND<500	ND<500	--	--	--	ND<0.050
SV12	SV12'-5	5	7/24/2017	ND<1.8	**1.3**	**1.2**	ND<21	ND	**2.2**	ND	ND<2.1	**0.62**	**7.0**	ND<2.1	ND<1.8	**0.82**	ND	**0.40**	ND<31	ND<3.5	**1.7**	ND<2.8	**2.5**	**3.6**	**1.0**	--	--	--	ND<0.050
SV13	SV13-5'	5	7/24/2017	**31**	**0.48**	**1.0**	ND<21	ND	**0.96**	ND	**5.1**	**69**	**2.7**	**0.75**	ND<1.8	**0.97**	ND	**0.44**	ND<31	ND<3.5	**11**	ND<2.8	**2.0**	**1.2**	ND<2.5	--	--	--	ND<0.050
Soil Gas Tier 1 ESLs (Feb. 2016, Rev. 3)				--	--	--	--	--	--	--	--	--	510	--	5,400	41	--	470,000	--	190	--	520,000	--	--	--	--	--	--	--

Notes:
Detections are shown in bold.
Results equal to or exceeding Tier 1 ESLs are shaded.
All data provide by ACC Environmental Consultants.
VOCs = Volatile Organic Compounds.
MEK = 2-Butanone.
DIPE = Disopropyl ether.
MIBK= 4-Methyl-2-pentanone.
MTBE= Methyl-t-butyl ether.
µg/m3 = micrograms per kilogram.
feet bgs = feet below ground surface.
J = Estimated concentration.
Soil Gas Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).

Table 6
Groundwater Analytical Results Summary (VOCs, TPH & Metals)
1625 Chestnut Street, Livermore, CA

Sample Location	Sample ID	Depth to Water (feet bgs)	Sample Date	VOCs						TPH			Metals									
				PCE (µg/L)	TCE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	EB (µg/L)	Total Xylenes (µg/L)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Barium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Vanadium (µg/L)	Zinc (µg/L)
Groundwater Tier 1 ESLs (Feb. 2016, Rev. 3)				**3.0**	**5.0**	**2.5**	**0.016**	**3.8**	**60**	**100**	**100**	**--**	**1,000**	**50**	**3.0**	**3.1**	**2.5**	**0.051**	**100**	**8.2**	**19**	**81**
URS Targeted Site Investigation																						
C1	C1GW	48	2/17/2011	**13**	**0.71**	<0.50	<0.50	<0.50	<1.0	<50	<55	<110	**0.43**	**0.015**	**0.011**	<0.02	**0.0051**	<0.0002	**0.01**	**0.081**	**0.011**	<0.02
C2	C2GW	49	2/17/2011	**14**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	**130**	**400**	**0.47**	**0.086**	**0.024**	**0.044**	**0.0059**	<0.0002	**0.015**	**0.27**	**0.035**	**0.042**
	C20GS	49	2/17/2011	**12**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	**82**	**200**	**0.57**	**0.1**	**0.042**	**0.043**	**0.0099**	**0.0002**	**0.012**	**0.39**	**0.041**	**0.056**
C9	C9GW	43	2/17/2011	**15**	**0.53**	<0.50	<0.50	<0.50	<1.0	<50	**72**	**190**	**1.2**	**0.029**	**0.031**	**0.039**	**0.0094**	**0.0005**	**0.016**	**0.15**	**0.022**	**0.029**
C12	C12GW	45	2/17/2011	**2.4**	<0.50	<0.50	<0.50	<0.50	<1.0	<50	<62	**120**	**0.35**	<0.01	**0.0023**	<0.02	<0.005	<0.0002	<0.01	**0.016**	<0.01	<0.02
Groundwater Tier 1 ESLs (Feb. 2016, Rev. 3)				**3.0**	**5.0**	**2.5**	**0.016**	**3.8**	**60**	**100**	**100**	**--**	**1,000**	**50**	**3.0**	**3.1**	**2.5**	**0.051**	**100**	**8.2**	**19**	**81**

Notes:
Detections are shown in bold.
Results equal to or exceeding Tier 1 ESLs are shaded.
All data provide by ACC Environmental Consultants.
VOCs = Volatile Organic Compounds.
PCE = Tetrachloroethene.
TCE = Tetrachloroethene.
EB = Ethylbenzene.
TPH = Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g); diesel-range (TPH-d); motor oil-range (TPH-mo).
µg/L = micrograms per liter.
feet bgs = feet below ground surface.
Groundwater Tier 1 ESLs = February 2016 Regional Water Quality Control Board, San Francisco Bay Region Environmental Screening Levels (ESLs).



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- Domestic Water Line
- C1 — Sample Location (URS, 2011)
- B1 — Sample Location (ACC, 2013)
- SV1 — Sample Location (ACC, 2017)

Note: Samples located in the vicinity of former service station are shown on Site Detail plate 3

N

0 40

SCALE IN FEET

The original version of this figure contains color-indicated data. Black and white copies may not adequately represent the information presented.

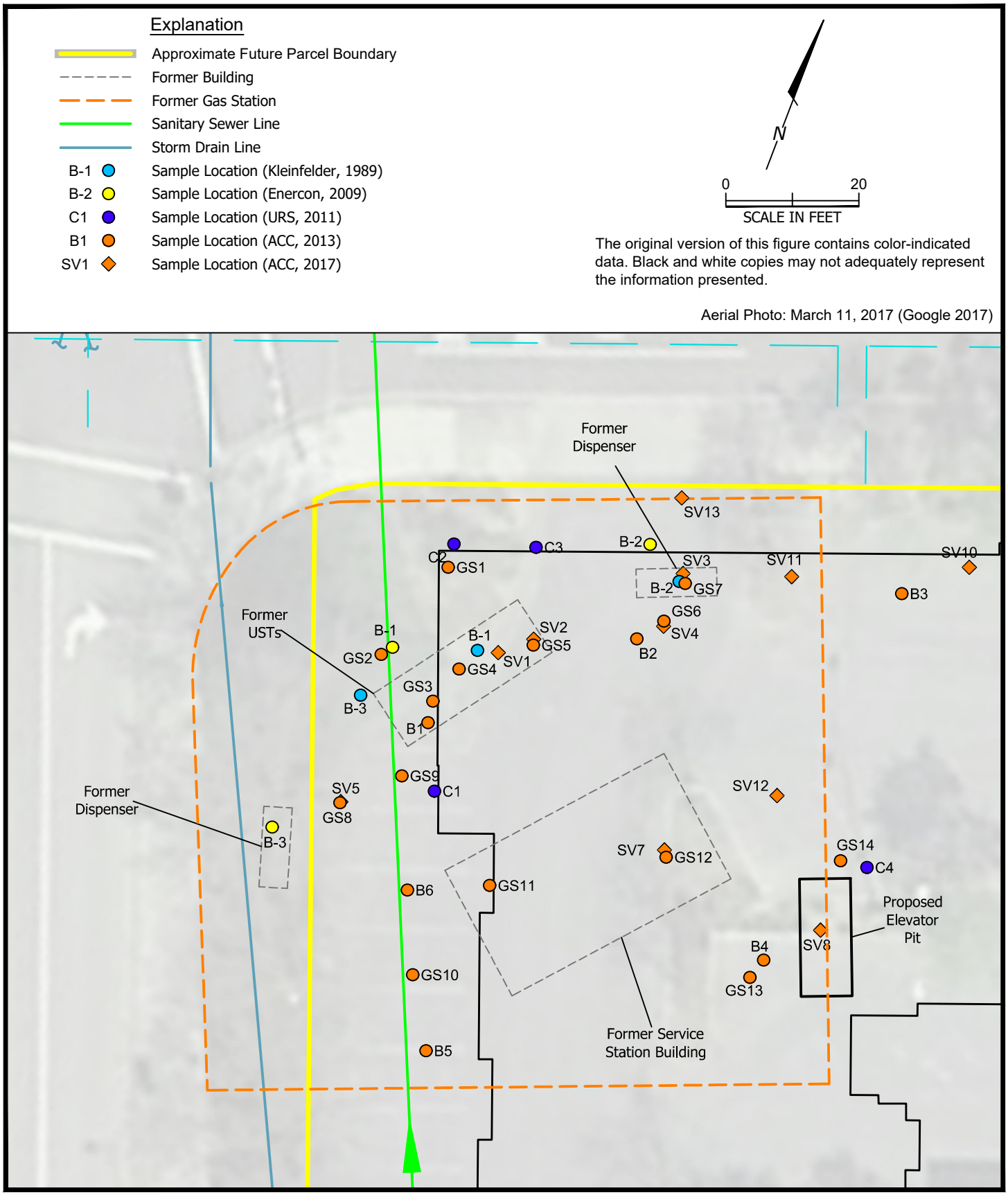
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

Site Plan and Sample Locations
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
2

1569.001.01.003	156900101003_CAPF_1-3	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

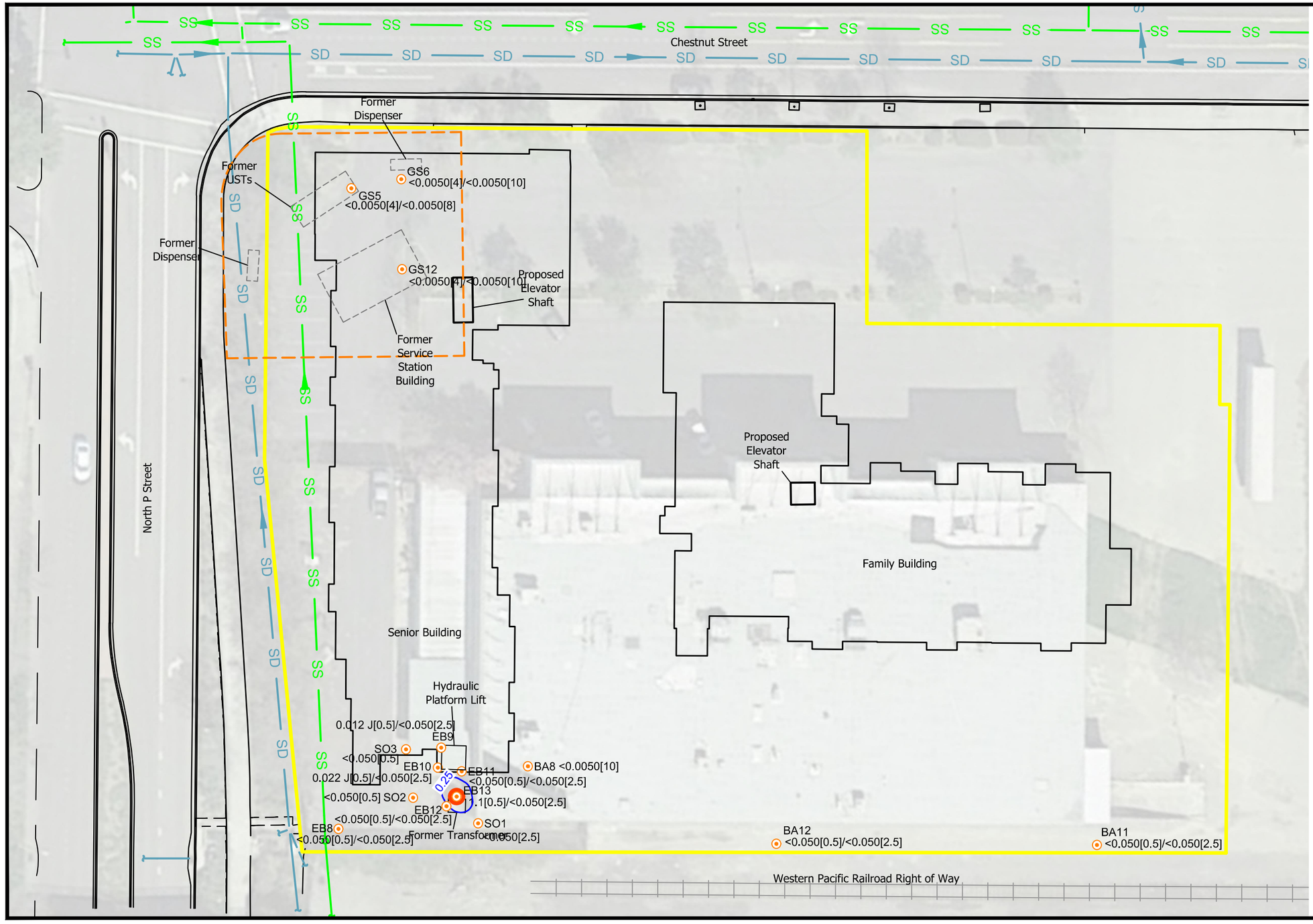


PES Environmental, Inc.
Engineering & Environmental Services

Site Detail
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
3

1569.001.01.003	156900101003_CAPF_1-3	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- EB8 — Soil Sample Location (ACC, 2017)
- 1.1[0.5] — Total PCB Concentration in milligram per kilogram (mg/kg) with depth of sample in feet below ground surface shown in brackets
- <0.050 — Not detected at or above the indicated laboratory detection limit
- 0.25 — Generalized PCB Soil Concentration Contours
- Concentration is greater than 2016 RWQCB Tier 1 ESL for PCBs in Soil (0.25 mg/kg)

N

0 40

SCALE IN FEET

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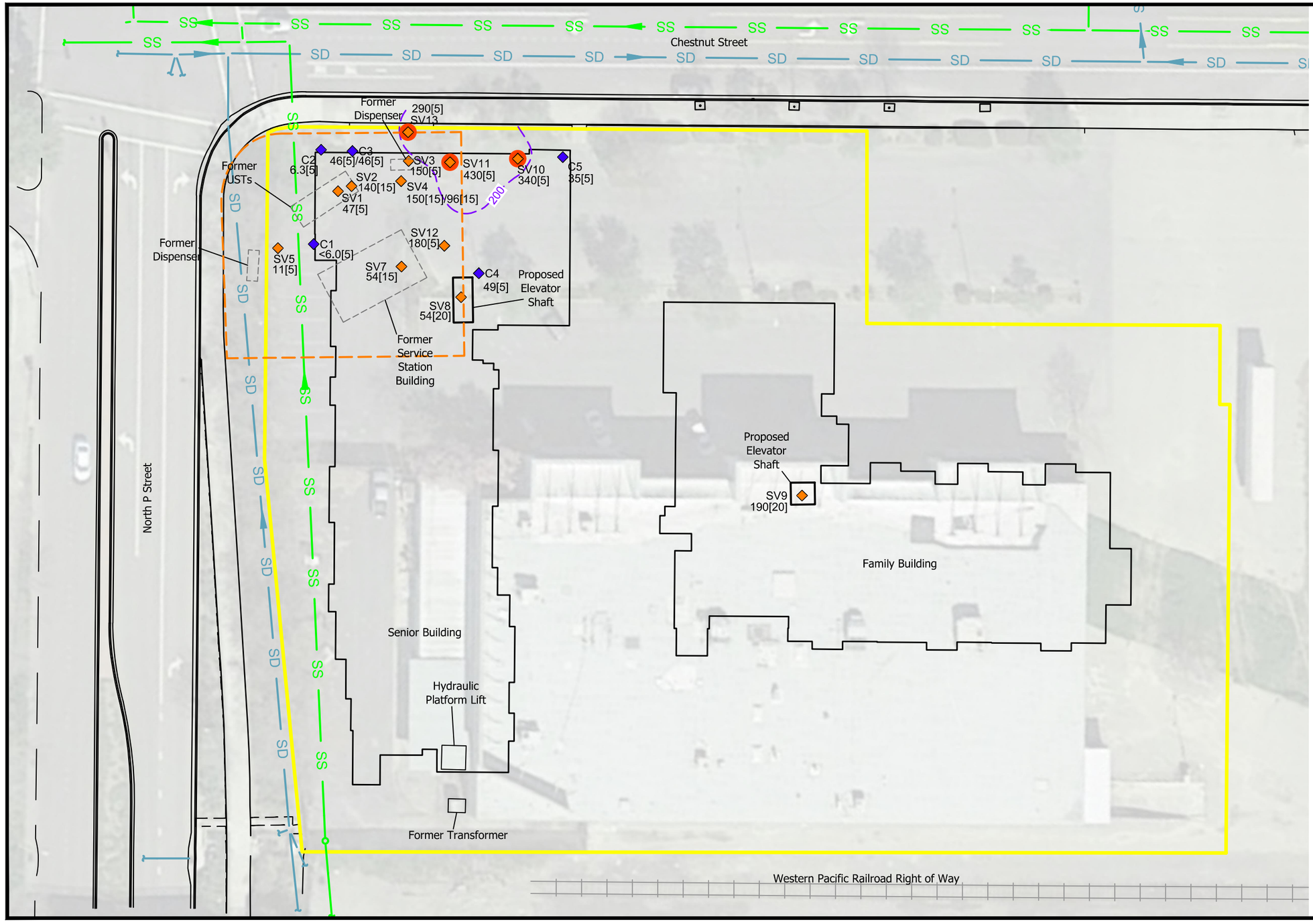
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

PCB Concentrations in Soil
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
4

1569.001.01.003	156900101003_CAPF_4-5	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- C1 — Soil Gas Sample Location (URS, 2011)
- SV1 — Soil Gas Sample Location (ACC, 2017)
- 6.3[5] — PCE Concentration in micrograms per cubic meter with depth of sample in feet below ground surface shown in brackets
- <6.0 — Not detected at or above the indicated laboratory detection limit
- 90/190 — Sample / Duplicate Sample
- 200 — Generalized Tetrachloroethene (PCE) Soil Gas Concentration Contours
- Concentration is greater than 2016 RWQCB Tier 1 ESL for PCE in Soil Gas (240 micrograms per cubic meter)

N

0 40

SCALE IN FEET

The original version of this figure contains color-indicated data. Black and white copies may not adequately represent the information presented.

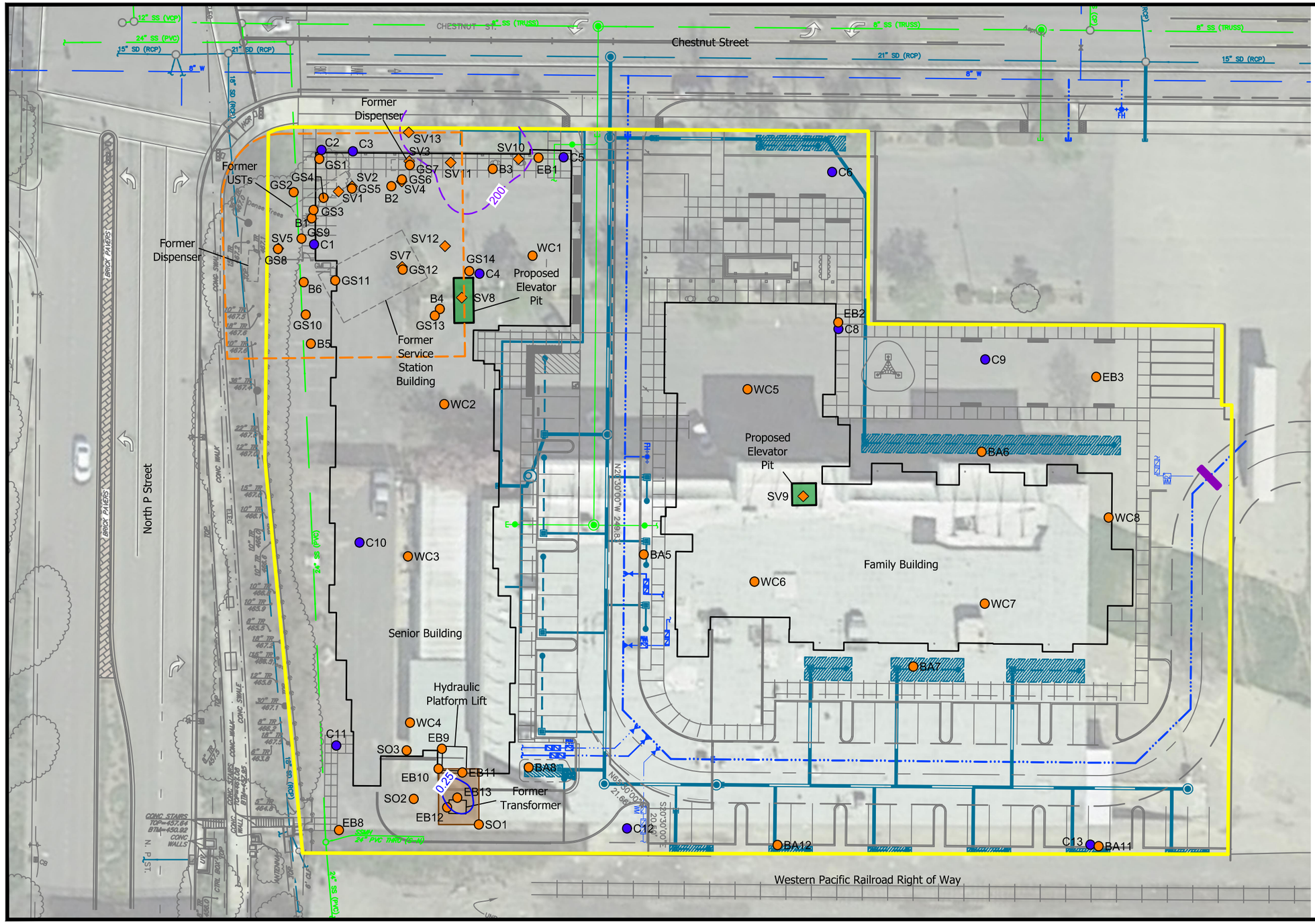
Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

PCE Concentrations in Soil Gas
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
5

1569.001.01.003	156900101003_CAPF_4-5	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE



Explanation

- Approximate Future Parcel Boundary
- Former Building
- Former Gas Station
- Sanitary Sewer Line
- Storm Drain Line
- Water Line
- C1 — Sample Location (URS, 2011)
- B1 — Sample Location (ACC, 2013)
- SV1 — Sample Location (ACC, 2017)
- Planned Area of Excavation
- Vapor Mitigation Areas for Below Grade Parking Elevator Pits
- Trench Plug
- 0.25 — Generalized PCB Soil Concentration Contours
- 200 — Generalized Tetrachloroethene (PCE) Soil Gas Concentration Contours

N

0 40

SCALE IN FEET

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Aerial Photo: March 11, 2017 (Google 2017)

PES Environmental, Inc.
Engineering & Environmental Services

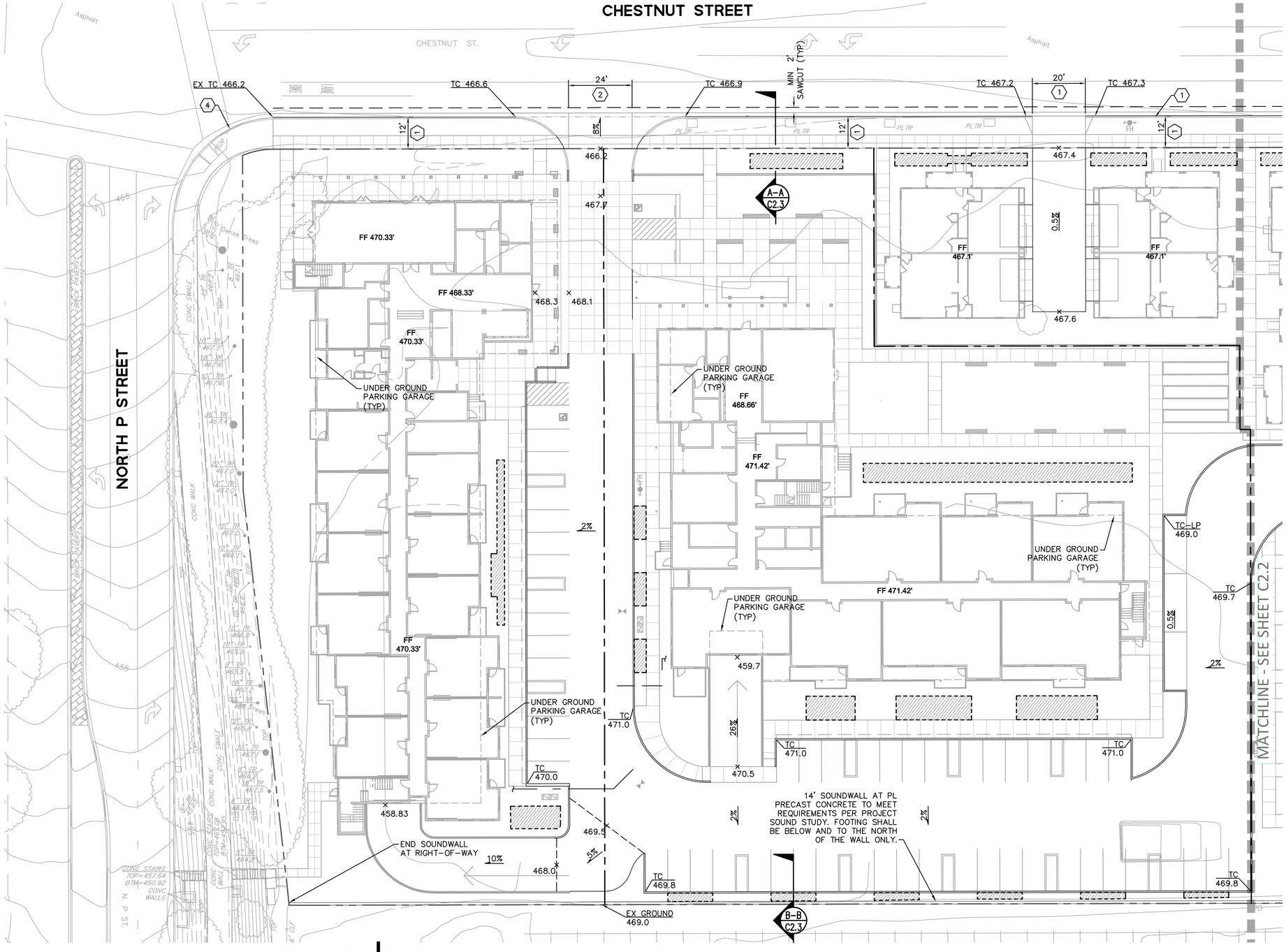
Proposed Soil Removal and Vapor Mitigation Areas
Final Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE 6

1569.001.01.003	156900101003_CAPF_6	SM	11/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX C

PRELIMINARY DEVELOPMENT PLAN AND GRADING PLAN



20 0 20 40

1"=20'

GRADING LEGEND:

- SAWCUT LINE
- GRADE BREAK LINE
- VALLEY GUTTER FLOWLINE
- PROPERTY LINE
- BIORETENTION AREA
- 469.2× SPOT ELEVATION
- GRADE AND SLOPE DIRECTION

GRADING SYMBOLS:

- (1) SEPARATED SIDEWALK & DRIVEWAY CITY OF LIVERMORE STANDARD DETAIL ST-4
- (2) MODIFIED COMMERCIAL DRIVEWAY CITY OF LIVERMORE STANDARD DETAIL ST-6
- (3) CURBRAMP PER CALTRANS STANDARD PLAN RSP A884, CASE A, DETAIL B
- (4) EXISTING CURB, GUTTER AND SIDEWALK TO REMAIN
- (5) UNIT IDENTIFIED AS ADA COMPLIANT

EXAMPLE SOUND WALL

WALL DETAILS TO BE FINALIZED IN DESIGN IN ACCORDANCE WITH SOUND STUDY. FINISHED LOOK OF WALL SHALL BE SIMILAR TO THE BELOW IMAGE AND APPROVED BY THE CITY.

CHESTNUT SQUARE | LIVERMORE, CA

GRADING & DRAINAGE PLAN

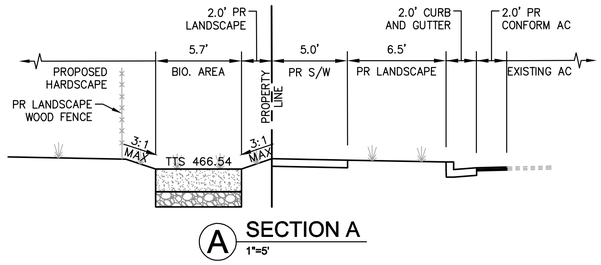
BkF ENGINEERS / SURVEYORS / PLANNERS
4670 WILLOW ROAD,
SUITE 250
PLEASANTON, CA 94588
TEL: (925) 396-7700
FAX: (925) 396-7799

Entitlement Package
Resubmittal #4
14028

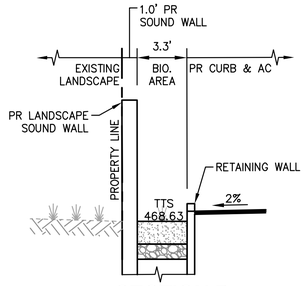
12/01/2016

SCALE: PER PLAN

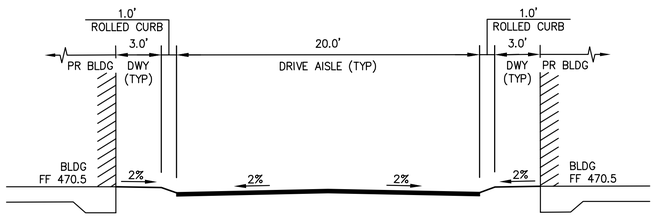
C2.1



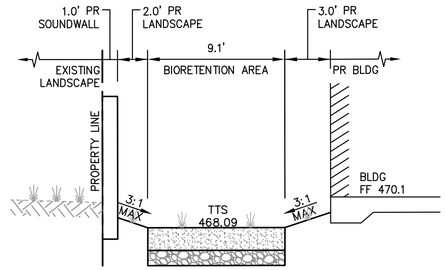
A SECTION A
1"=5'



B SECTION B
1"=5'



C SECTION C
1"=5'



D SECTION D
1"=5'

CHESTNUT SQUARE | LIVERMORE, CA

GRADING CROSS SECTIONS

BkF ENGINEERS / SURVEYORS / PLANNERS
4670 WILLOW ROAD,
SUITE 250
PLEASANTON, CA 94588
TEL: (925) 396-7700
FAX: (925) 396-7799

Entitlement Package
Resubmittal #4
14028

12/01/2016

SCALE: PER PLAN

C2.3

DISTRIBUTION

CONSTRUCTION SOIL AND GROUNDWATER MANAGEMENT PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA
Site Cleanup Case RO0003179

NOVEMBER 22, 2017

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SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA
Site Cleanup Case RO0003179

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