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RE: Draft Corrective Action Plan dated October 3, 2017
Chestnut Square Senior and Family Housing
1625 – 1635 Chestnut Street, Livermore, CA
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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.

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Project Manager, MidPen Housing Corp.
Title

10/5/17
Date

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Engineering & Environmental Services

A Report Prepared For:

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DRAFT CORRECTIVE ACTION PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA

OCTOBER 3, 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 four-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 Soil Management Plan (SMP) 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 SMP 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

[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.

(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.

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 $\mu g/L$ for PCE and 100 $\mu g/L$ for TPH-d). PCE was detected at a maximum concentration of 15 $\mu g/L$ at sample location C9 at 43 feet bgs. TPH-d was detected at a maximum concentration of 130 $\mu g/L$ (82 $\mu g/L$ 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 $\mu g/L$, 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;

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[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 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;
  - 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 Management Plan (SMP) 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 SMP.

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 SMP.

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 SMP (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 SMP.

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 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

[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.

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.

Geo-Seal membrane manufactured by Land Science Technologies (LST) 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. Geo-Seal 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 Geo-Seal 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 Geo-Seal 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 Geo-Seal 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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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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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: PCE (µg/kg)	VOCs: Benzene (µg/kg)	VOCs: Toluene (µg/kg)	VOCs: EB (µg/kg)	VOCs: Total Xylenes (µg/kg)	TPH: TPH-g (mg/kg)	TPH: TPH-d (mg/kg)	TPH: TPH-d* (mg/kg)	TPH: TPH-mo (mg/kg)	TPH: TPH-mo* (mg/kg)	TPH: TPH-wo (mg/kg)	TPH: TPH-ho (mg/kg)	Total PCBs (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
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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**	--	--	--	--	--	--	--

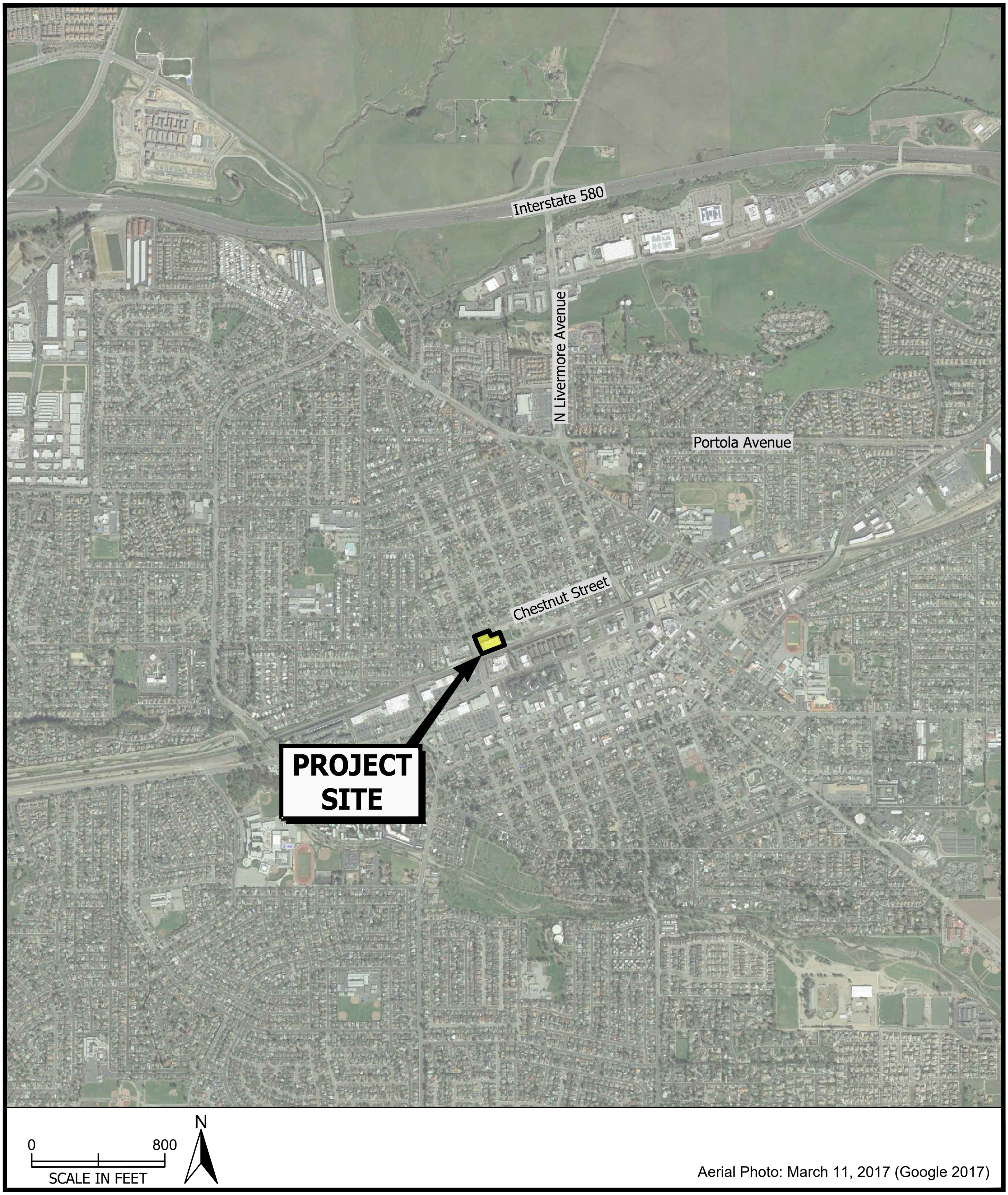
Notes:
Detections are shown in bold.
Results equal to or exceeding Tier 1 ESLs are shaded.
All data provide by ACC Environmental Consultants.
VOCs = Volatile Organic Compounds.
MEK = 2-Butanone.
DIPE = Disopropyl ether.
MIBK= 4-Methyl-2-pentanone.
MTBE= Methyl-t-butyl ether.
µg/m3 = micrograms per kilogram.
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

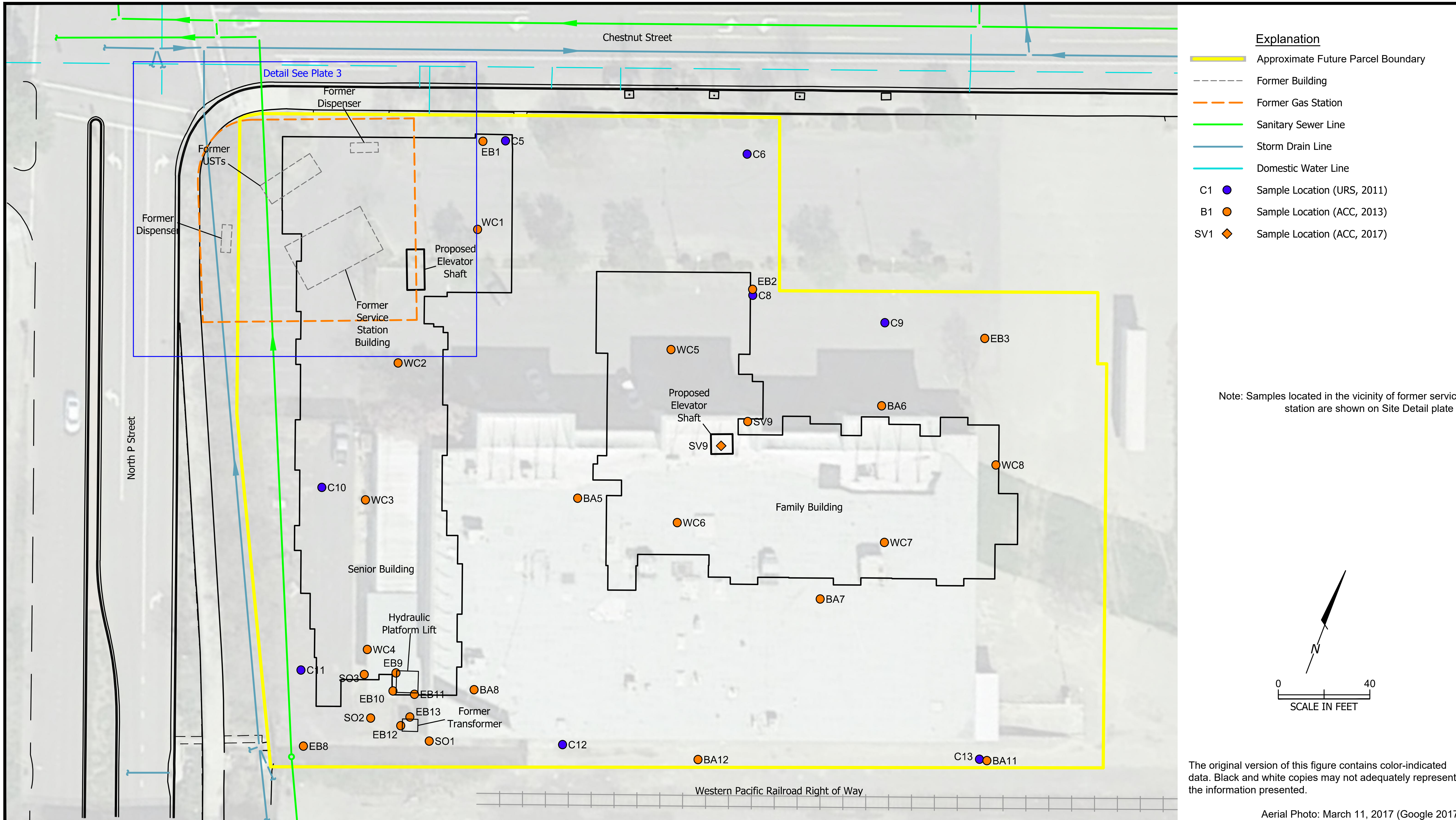


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
1

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1569.001.01.003	156900101003_CAP_1-3	SM	10/17



PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
2

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
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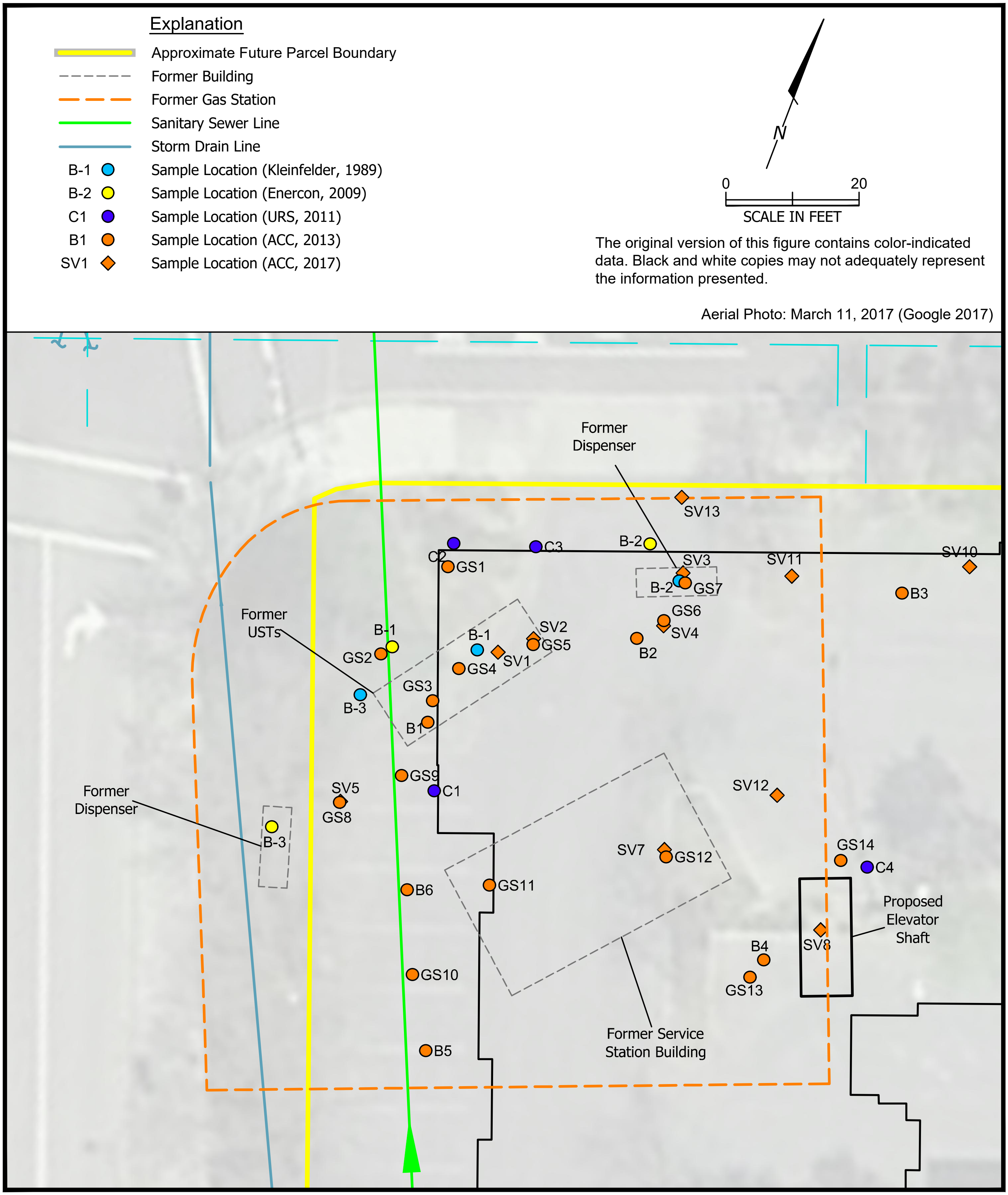
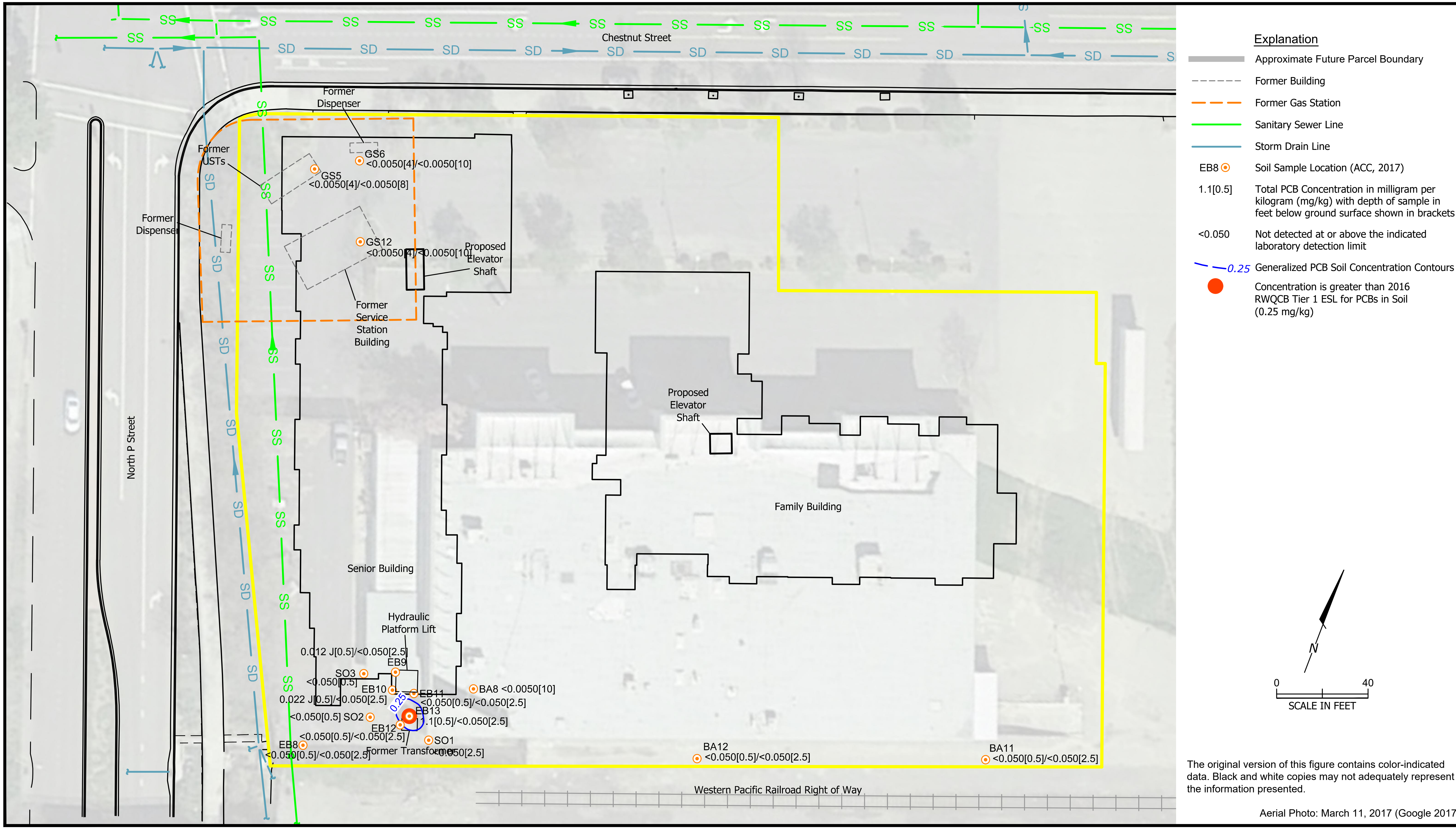


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
3

1569.001.01.003	156900101003_CAP_1-3	SM	10/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

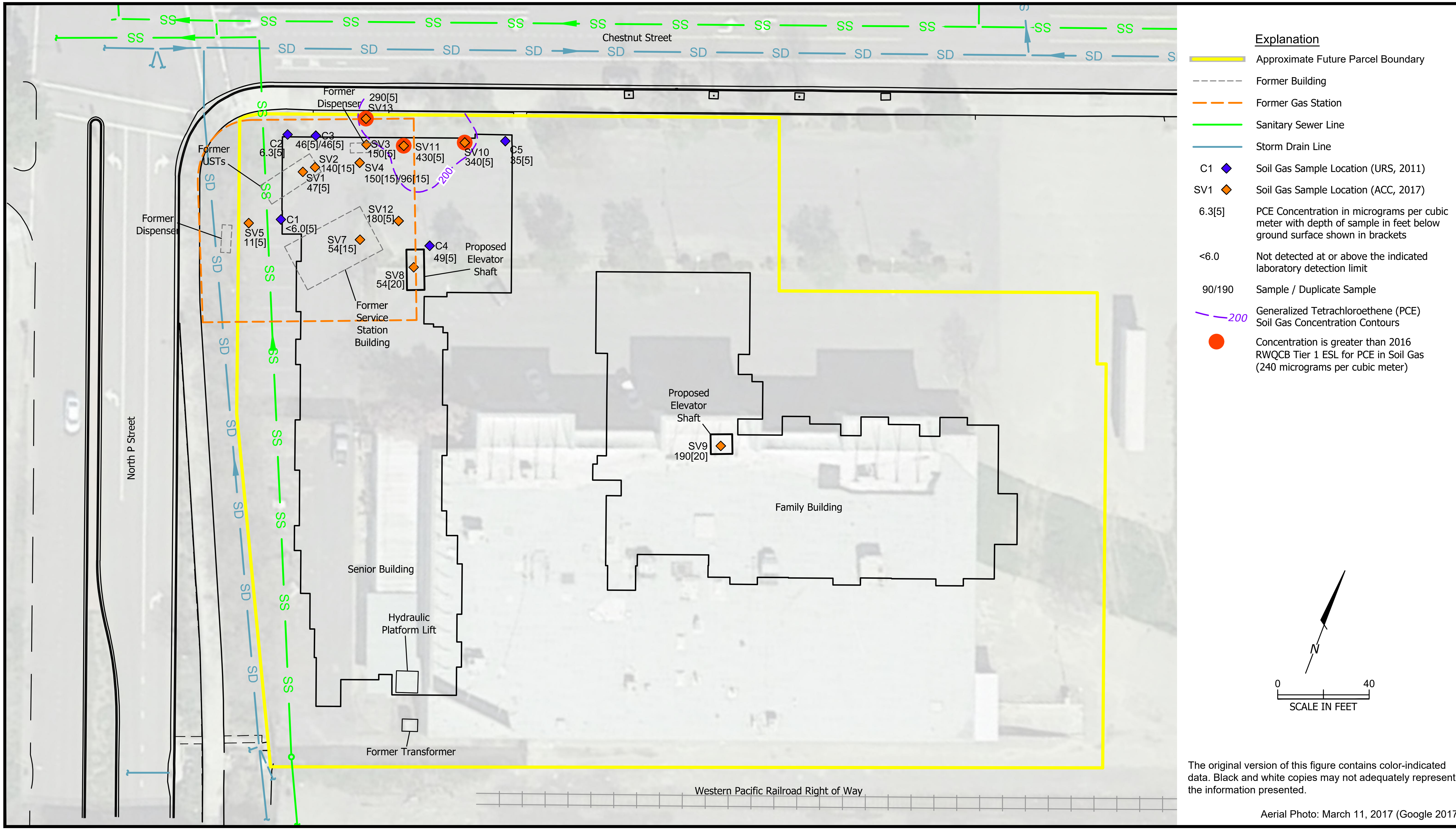


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
4

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1569.001.01.003	156900101003_CAP_4-5	SM	10/17

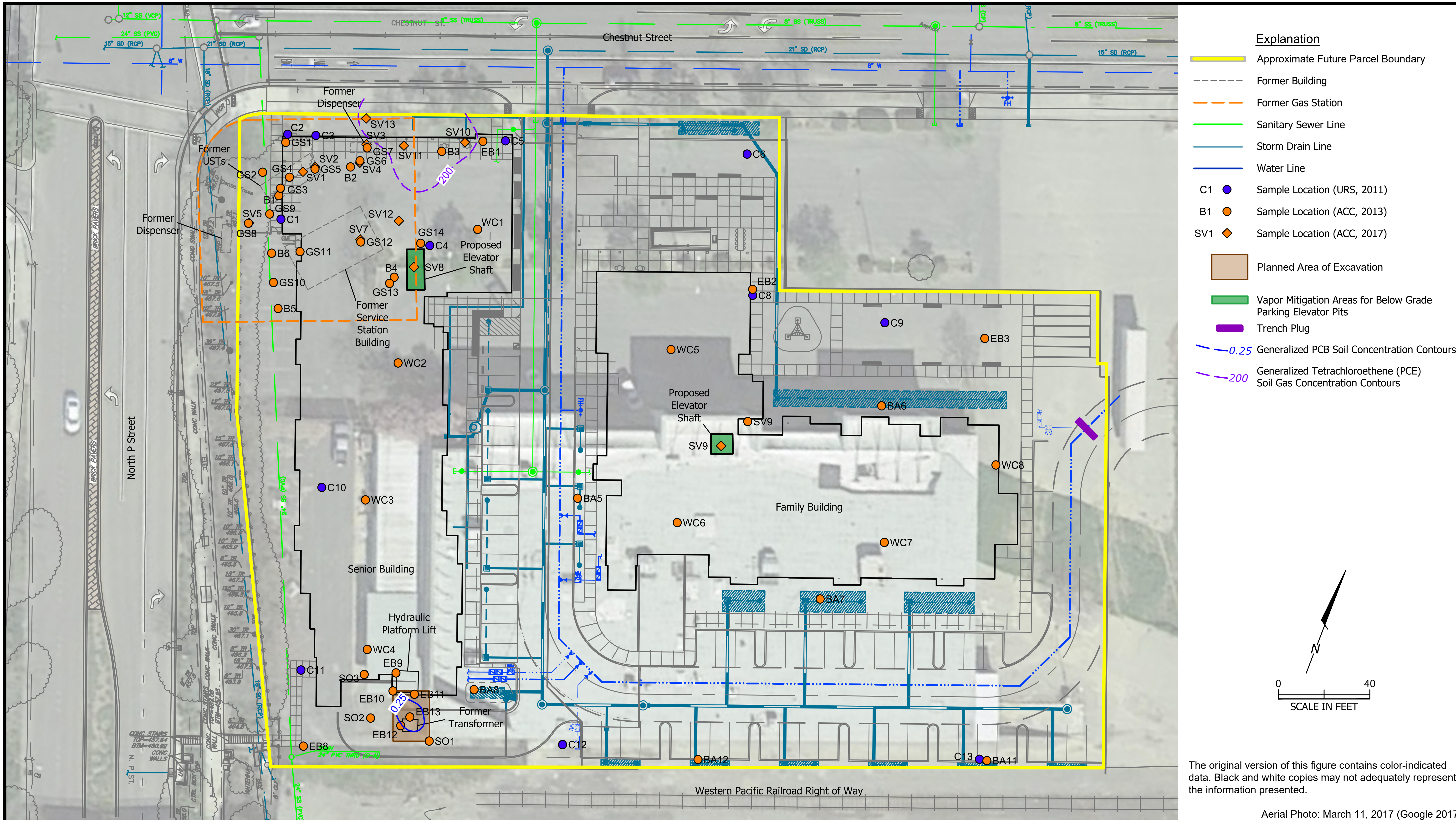


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
5

1569.001.01.003	156900101003_CAP_4-5	SM	10/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

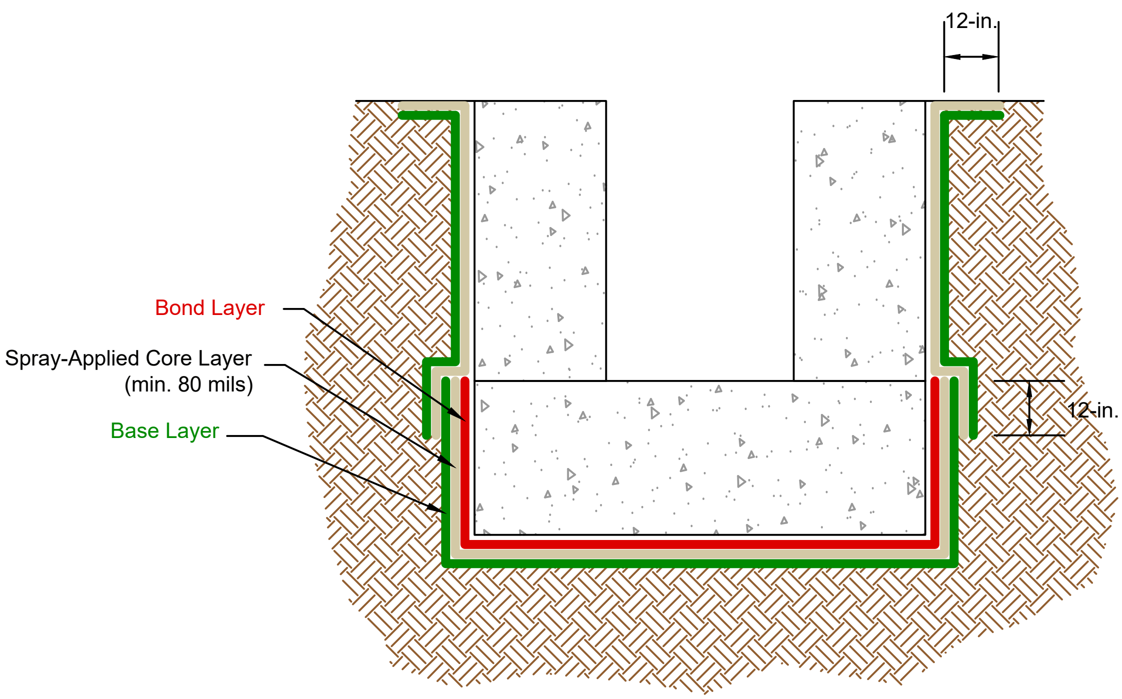


PES Environmental, Inc.
Engineering & Environmental Services

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

PLATE
6

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1569.001.01.003	156900101003_CAP_6	SM	10/17



Explanation

Bond Layer = Geo-Seal BOND

Spray-Applied Core Layer = Geo-Seal CORE

Base Layer = Geo-Seal BASE

PES Environmental, Inc.
Engineering & Environmental Services

Geo-Seal Elevator Pit Detail
Draft Corrective Action Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
7

1569.001.01.003	156900101003_CAP_7	SM	10/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

A Report Prepared For:

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

DRAFT SOIL MANAGEMENT PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA

OCTOBER 3, 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 Soil Management Plan (SMP) has been prepared by PES Environmental, Inc (PES) on behalf of MidPen Housing Corporation (Owner) for planned subgrade construction associated with the planned Senior and Family Housing at 1625 Chestnut Street in Livermore, California (the site or subject property; Plate 1). PES understands that redevelopment plans for the Senior and Family Housing at the site include: (1) grading and soil excavation for utilities, parking features/garages, elevator shafts, and foundations; and (2) construction of two four-story family buildings with one floor of subterranean parking, associated at-grade parking, and landscaped areas.

A Phase I Environmental Site Assessment (ESA) was prepared for the subject property and the adjacent lot[1] in 2015 by ACC Environmental Consultants (ACC, 2015). The ESA noted an absence of any elevated levels of petroleum constituents in soil in the vicinity of former USTs located in the northwest portion of the subject property. However, the ESA did identify minimal petroleum (TPHd and TPHmo) impact to groundwater in the vicinity of the former USTs. Additionally, PCE has been detected in site groundwater. The ESA concluded that PCE impacts to site groundwater appeared to be originating from an offsite up gradient location (Livermore Arcade Shopping Center/Millers Outpost Shopping Center).

A subsurface investigation was conducted on the subject property (and the adjacent Townhome parcel) by ACC Environmental Consultants (ACC, 2017; provided in Appendix A). The purpose of the subsurface investigations was to further characterize site subsurface conditions with respect to planned redevelopment. Notable findings from the investigation for the subject property are as follows:

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

- Petroleum hydrocarbons, TPHg, TPHd, and 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;

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

- 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;

- Soil gas samples collected from 5 feet bgs at three locations in the northern portion of the site contains PCE at concentrations that are slightly above the Tier 1 ESL of 240 micrograms per cubic meter ($\mu g/m^3$); and

- Site groundwater has not been impacted as a result of the former gasoline service station.

Due to the presence of these constituents, a Corrective Action Plan (CAP) has been prepared for the site, as required by the Alameda County Environmental Health Department (ACDEH)[2]. The CAP evaluates the information summarized above and describes the corrective actions necessary to safely prepare the site for the future development. The remedy includes installation of a vapor mitigation barrier at the base of elevator shafts for each of the two buildings, removal on offsite disposal of PCB-contaminated soils in the southwest portion of the site, and 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 sample locations and the CAP remedy, along with the future development, is provided in Plate 2.

Finally, this SMP was prepared to provide site-wide guidelines that will be followed in the event that presently unknown subsurface structures (e.g., sumps, underground storage tanks) or contaminated soil and/or groundwater are encountered during redevelopment activities as well as provide earthwork construction workers with: (1) information regarding the environmental condition of the site; (2) protocols for proper management of waste soils or extracted groundwater generated during site redevelopment activities; and (3) contingency procedures in the event that localized areas of unanticipated chemically-affected soil or other subsurface features of environmental concern are encountered during earthwork or excavation activities.

[2] PES, 2017. *Draft Corrective Action Plan, Senior and Family Housing, 1625 Chestnut Street, Livermore, California*. September 29.

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 (APN 98-290-6-7) in Livermore, California. The subject property is currently developed as 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. See Appendix B for the preliminary development plan.

3.0 RESPONSIBILITIES FOR PLAN IMPLEMENTATION

Representatives for the subject property Owner shall oversee implementation of the SMP at the site. The Owner and General Contractor(s) shall make all third-party subcontractors working at the site aware of the requirements of the SMP, and provide an electronic copy and hard-copy to all subcontractors that are performing activities covered by this Plan (see Section 4.0), and who may encounter suspect subsurface conditions during execution of their work.

3.1 Project Contacts

Prior to the initiation of construction activities that are covered under this Plan, 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	Phone Number
Owner Representative	MidPen Housing Corporation	Apolonio Munoz, Project Manager	650-393-3023
General Contractor	J.H. Fitzmaurice	Mohammad Hakimi	510-774-9699
Environmental Consultant	PES Environmental, Inc.	Carl Michelsen, P.G.	415-497-2732

3.2 Worker Health and Safety

In addition to following the SMP, each contractor will be responsible for the health and safety of their own workers, including but not limited to preparation of their own injury and illness prevention plan (IIPP).

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).

3.3 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

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

Acknowledgment Statement (Appendix C) to certify that they have read, understood and agreed to abide by its provisions.

4.0 ACTIVITIES COVERED BY THE PLAN

The following activities constitute the work covered under this Plan.

- **Subsurface 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).

5.0 MANAGEMENT OF SOILS

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 7.0.

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 5.1;
- Stockpile soil handling and sampling procedures, if/as required, are detailed in Section 5.1;
- 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 6.0;
- If previously unidentified suspect soils are exposed during site construction, they will be managed using the contingency measures discussed in Section 7.0; and

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

5.1 General Excavation and Earthwork

PES understands that redevelopment activities will include grading of the site. Site grading will include removing the top 12” of site material (pavement section, building slab, and vegetation), excavating two subterranean parking areas (one floor) for each four-story family building and finished pad, and grading parking and landscaped areas (Appendix B). 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.

In the event contaminated soil or subsurface structures are encountered, the contingency measures discussed below in Section 7.0 should be followed.

5.2 Soil Stockpiling

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. The stockpiles will be constructed with polyethylene plastic sheeting (10 mil minimum thickness) beneath and above the soil to prevent runon/runoff and fugitive dust emissions. Stockpiled soil will be covered and secured at the end of each day.

5.3 Soil Importation

While not anticipated, potential import fill materials utilized at the site will be selected and tested in accordance with the DTSC *Information Advisory, Clean Imported Fill Material, October 2001* (DTSC Advisory). Specific laboratory analyses will be based on the fill source characteristics, once the borrow source area has been determined.

6.0 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 the East Bay Municipal Utility District (EBMUD) for discharging water encountered during construction activities to the sanitary sewer system.

7.0 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.

7.1 Preliminary Assessment of Previously Unidentified Suspect Soils

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 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.

PES shall 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 PES will terminate the contingency plan process and release the suspect areas to the General Contractor.

7.2 Evaluation of Previously Unidentified Suspect Soil

If conditions in the suspect area are not considered *de minimis*, PES 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, PES 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 7.5 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.

7.3 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.[4]

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.

7.3.1 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 performed to properly characterize potential employee exposures and/or to establish baseline

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

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.

7.3.2 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 manufacturer‘s 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 District‘s phone number shall also be visible to ensure compliance with applicable regulations.

7.4 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.

7.5 Off-Site Disposal 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.

7.6 Transportation Plan

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. 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. 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. Transportation routes should 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 along Railroad Avenue, travel west approximately 1-mile to Isabel Avenue, 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).

7.7 Identification and Management of Unknown Structures

If any previously unidentified or unknown tank, sump, containment structure, separator, or piping that has previously contained or has the potential to contain hazardous materials is encountered, ACDEH will be notified and consulted on appropriate next steps. The removal of any of these structures without prior acknowledgement and approval from ACDEH is prohibited. Discovered structures will be assessed 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 an environmental professional, 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, 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, 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 an environmental professional 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 professional will document the results of this inspection, including an estimation of the volume and former use of the structure. With ACDEH approval, the structure will then be excavated and disposed of at the direction of the environmental professional; and

- 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 County. For example, the measures described above in Section 7.2 would likely apply.

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.

8.0 CONTINGENCY REPORTING

Following completion of contingency measures listed in Section 7.0, PES 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.

9.0 REFERENCES

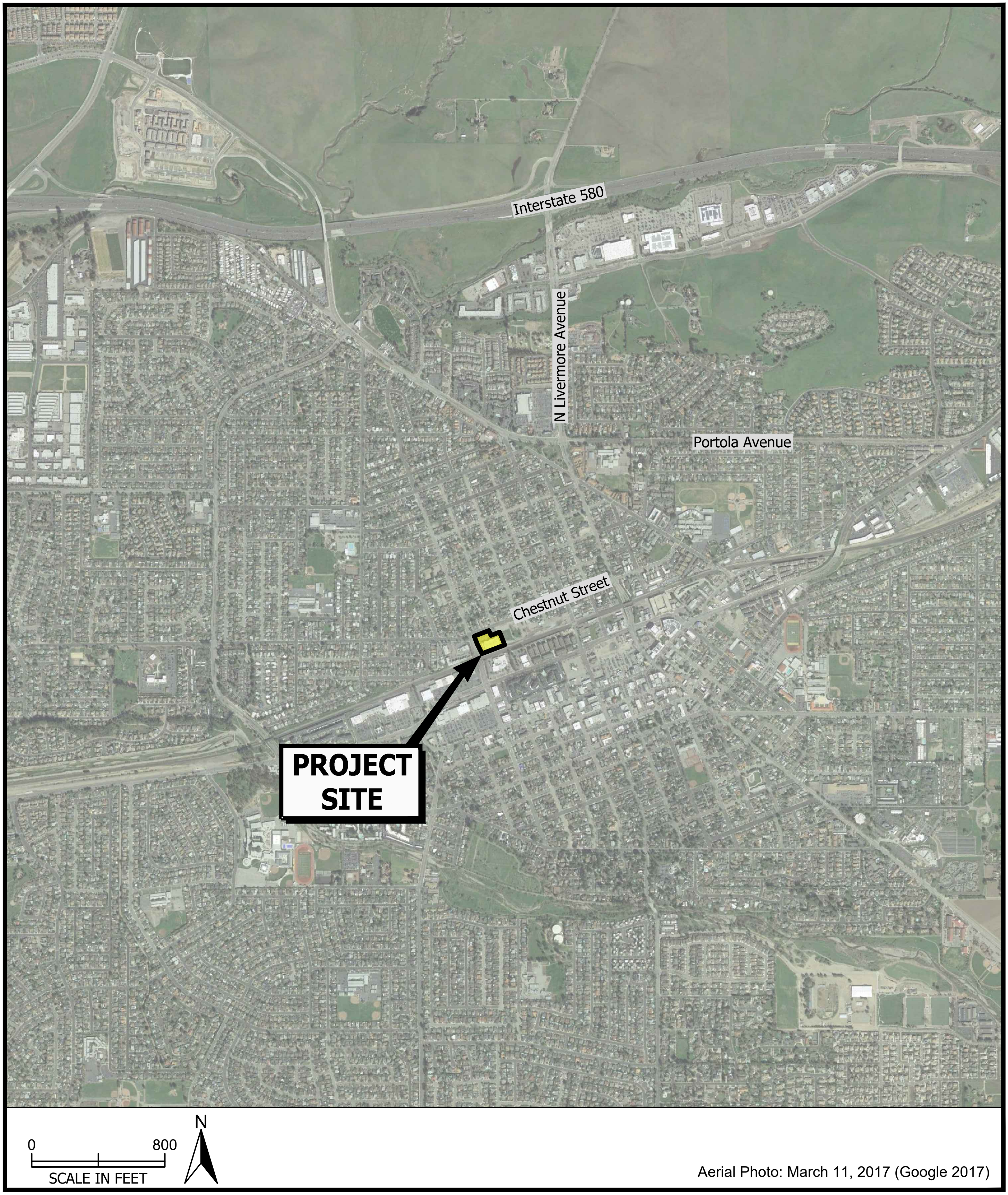
ACC Environmental Consultants, Inc., 2015. *Phase I Environmental Site Assessment (ESA) Report, 1625, 1635, 1763 Chestnut Street & 217 North N Street, Livermore, California, Acc. Project No. 6988-003.01.* April 6.

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. *Draft Corrective Action Plan, Senior and Family Housing, 1625-1635 Chestnut Street, Livermore, California*. October 3.

ILLUSTRATIONS

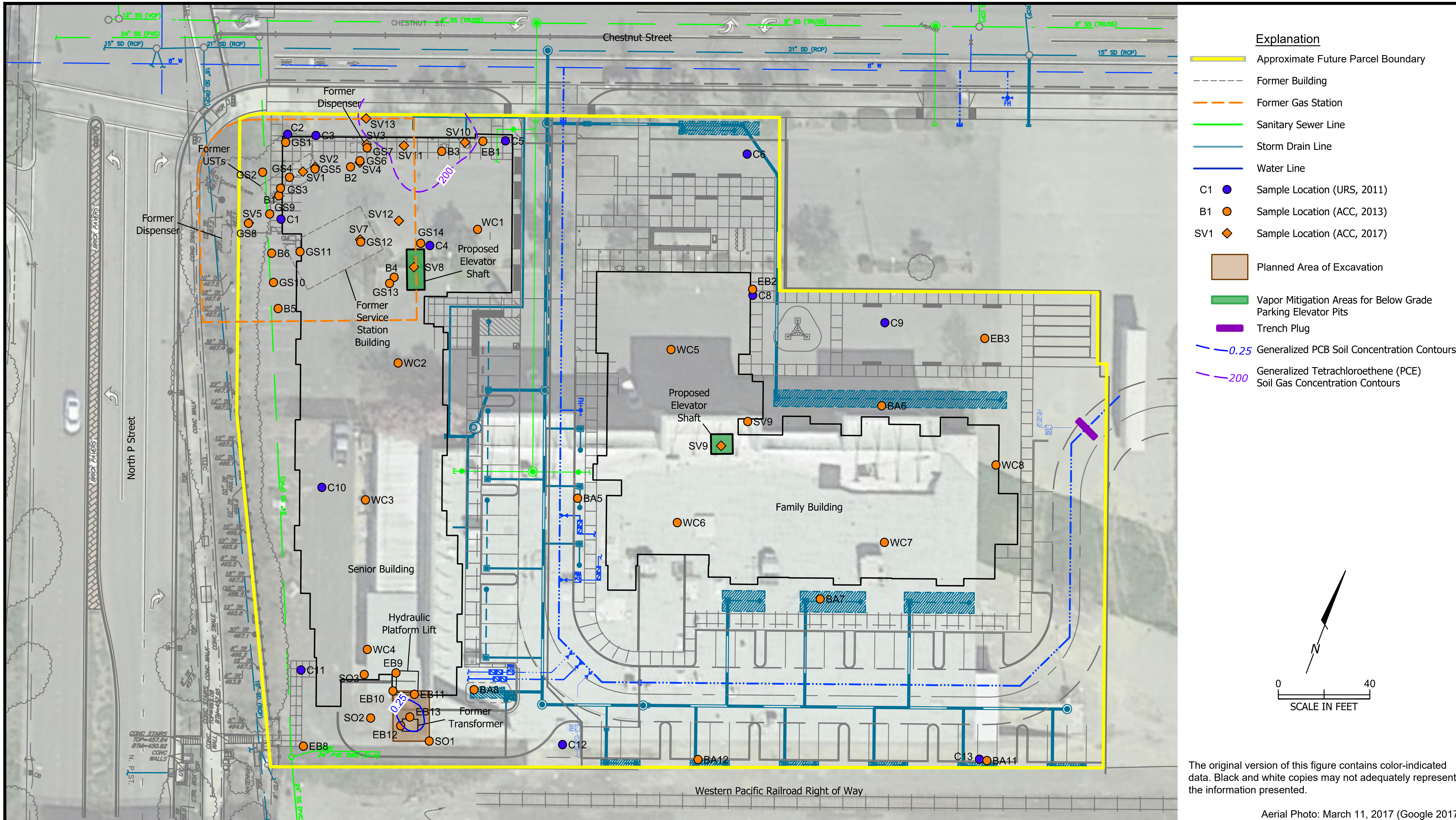


PES Environmental, Inc.
Engineering & Environmental Services

Site Location
Draft Soil Management Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
1

JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE
1569.001.01.003	156900101003_SMP_1	SM	10/17



PES Environmental, Inc.
Engineering & Environmental Services

Site Plan
Draft Soil Management Plan
1625-1635 Chestnut Street
Livermore, California

PLATE
2

1569.001.01.003	156900101003_SMP_2	SM	10/17
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

APPENDIX A

ENVIRONMENTAL DOCUMENTS
(PROVIDED ON CD-ROM)

A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

SUBSURFACE INVESTIGATION REPORT

1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA 94551
GEOTRACKER GLOBAL ID: T10000007202
ACC PROJECT NUMBER 6988-003.04

AUGUST 14, 2017

SUBMITTED TO:

ALAMEDA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH
1131 HARBOR BAY PARKWAY
ALAMEDA, CA 94502

PREPARED ON BEHALF OF:

MIDPEN HOUSING CORPORATION
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PREPARED BY:

ACC ENVIRONMENTAL CONSULTANTS, INC

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IAN SUTHERLAND, PG
PROJECT MANAGER

ACC PROJECT NUMBER 6988-003.04

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APPENDICIES

1.0 INTRODUCTION

On behalf of MidPen Housing Corporation (Client), ACC Environmental Consultants, Inc. (ACC) has prepared this Subsurface Investigation Report for 1625 Chestnut Street, Livermore, California (Site). The Site includes the addresses 1625 Chestnut Street (APN 98-290-11-1), 1635 Chestnut Street (APN 98-290-6-7), 1715 Chestnut Street (APN 98-249-1-3), 1763 Chestnut Street (APN 98-249-1-5), and 217 North Street (APN 98-249-1-4). APN boundaries are shown on the attached Appendix A.

The purpose of this investigation was to further assess subsurface conditions at the Site with regard to proposed residential development. This investigation was prepared in response to Alameda County Department of Environmental Health (ACDEH) correspondence dated October 20, 2016 (Appendix B) and subsequent correspondence with ACDEH.

This report addresses the following:

- Additional soil and soil vapor sampling and presentation of prior soil gas survey to further delineate subsurface conditions at the location of the former gasoline service station at 1625 Chestnut Street;
- Assessment of soil conditions with regard to TPH at proposed bioretention areas (Figure 2);
- Additional assessment of soil conditions at the eastern half of the Site with regard to proposed redevelopment, and at locations where total petroleum hydrocarbons (TPH) and polynuclear aromatic hydrocarbons (PAHs) were previously detected;
- Additional assessment of soil conditions at the southern property boundary near the south-adjacent railroad tracks;
- Assessment of soil conditions adjacent to an existing hydraulic platform lift and transformer;
- Soil waste characterization for soils that will be excavated and hauled off-site during redevelopment; and
- Additional TPH sampling recommended by URS during 2011.

2.0 BACKGROUND

2.1 Site Location

The Site is situated along the southern portion of Chestnut Street between North N Street and North P Street in the City of Livermore (Figure 1) and is currently developed with a vacant commercial building (constructed during 1978) and associated paved areas. The surrounding properties are mixed commercial and residential. Commercial structures formerly existing at the eastern half of the Site were demolished during 2006. Demolition of the currently existing structures is in progress.

2.2 Site Redevelopment

Proposed Site redevelopment includes construction of multi-family and multi-senior residential structures (Appendix C). The two multi-family and multi-senior residential structures (i.e., not single-family detached dwellings) at the western portion of the Site will be constructed above subsurface parking structures extending to approximately 10 feet below ground surface (ft bgs) with two elevator pits extending to approximately 15 ft bgs. The approximate locations of the proposed subsurface parking structures are included on the attached Figure 2. As seen on Figure 4, the first floor of the northern portions of the two residential structures on the western portion of the site will be developed with community rooms and offices. The configuration of the subsurface parking garages coincides with the configuration of the overlying structures such that there are no residential structures constructed slab-on-grade on the western portion of the Site.

Townhouse residential structures at the eastern portion of the Site will be constructed slab-on-grade. Elevators are not proposed at that location.

Based on redevelopment plans (Appendix C) roughly 95% of the Site will be capped with concrete building foundations or hardscape as part of redevelopment, and remaining areas will be developed as landscaped areas that will likely only be accessed periodically for maintenance. The children's play area will be constructed on artificial turf

2.3 Site History

The Site was developed primarily as residential prior to the 1960s. A gasoline service station formerly existed at the northwest portion of the Site from the 1960's to the 1970's. The former gasoline service station layout is shown in the attached Appendix D and Figure 3. At this time there is no available documentation with regard to the removal of the former underground storage tanks (USTs) associated with the former gasoline service station, however subsurface investigations conducted to date (including a subsurface geophysical investigation discussed below) indicate that the gasoline USTs associated with the former gasoline service station have been removed.

The southwestern portion of the Site appears to have been used as a cattle staging area during the 1940's and 1950's.

Summary of Previous Site Investigations

1989: Kleinfelder conducted a Phase II ESA consisting of three exploratory soil borings advanced at the approximate location of a former UST and at each of the two former pump island locations associated with the former gasoline service station (1625 Chestnut Street). Soil borings were advanced to approximately 25 ft bgs and seven soil samples were submitted for analysis of gasoline, diesel and motor oil-range total petroleum hydrocarbons (TPH-g, TPH-d and TPH-mo, respectively), benzene, toluene, ethylbenzene and xylenes (BTEX). TPH-mo was detected in one sample (soil boring B3 at 10 ft bgs) at a concentration of 20 milligrams per kilogram (mg/kg). TPH-mo was not detected in the remaining samples. TPH-g, TPH-d and BTEX were not detected during the investigation. The report noted that groundwater is anticipated at approximately 50 ft 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 are not currently available.

2000: M.J. Kloberdanz & Associates conducted a Phase I ESA for 1625 and 1635 Chestnut Street. The Phase I ESA report recommended no additional investigations based on the results of the 1989 Kleinfelder Phase II ESA, but concluded that groundwater impacts associated with the former gasoline station or off-site sources could not be ruled out at that time.

2004: AEI performed a Phase I ESA Update for 1625 and 1635 Chestnut Street. The Phase I ESA report recommended no further investigation in connection with the former gasoline service station based on the results of the 1989 Kleinfelder Phase II ESA.

2007: Enercon Services, Inc. conducted a Phase I ESA for 1625 and 1635 Chestnut Street. The Enercon Services, Inc. Phase I ESA report identified the former gasoline service station as a recognized environmental condition (REC) and noted data gaps in the Kleinfelder 1989 Phase II ESA report.

2007: Fugro West Inc. conducted a Phase I ESA for 1715 Chestnut Street, 1763 Chestnut Street, 217 North N Street and other off-site parcels adjacent to the east of North N Street. No RECs were identified specifically at 1715 Chestnut Street, 1763 Chestnut Street or 217 North N Street, however the 2007 Fugro West Inc. The Phase I ESA report noted the potential for subsurface contamination associated with the south-adjacent railroad tracks, and additionally noted an off-site, historic oil storage building.

2008: Fugro West, Inc. conducted a Phase II ESA that included the advancement of five 15-foot soil borings at 1715 Chestnut Street, 1763 Chestnut Street and 217 North N Street. No RECs were identified specifically at these properties and ACC's understanding is that the sampling at these properties was conducted to assess general soil conditions with regard to proposed redevelopment. Soil samples from between 0 and 7.5 ft bgs were analyzed for VOCs, arsenic and lead. One soil sample was additionally analyzed for CAM-17 metals. VOCs were not detected in these soil borings and metals concentrations were consistent with naturally occurring background concentrations. Tetrachloroethene (PCE) was detected in groundwater on-site (approximately 50 ft bgs) at concentrations that reportedly do not pose a human health risk. PCE detected in groundwater was attributed to off-site sources.

2009: Enercon Services, Inc. performed a Phase I ESA for 1625 Chestnut Street. Three soil borings were advanced up to approximately 49 ft bgs in the vicinity of the former UST. Soil samples were collected at the base of each soil boring and at approximately 15 ft bgs (the presumed base of the former UST). TPH-g, TPH-d, TPH-mo and BTEX were not detected. Groundwater was not encountered during that investigation. Enercon soil boring B1 (2009) appears to have been advanced adjacent to or very near the UST pit. Soil data from these soil borings do not suggest significant subsurface impacts associated with the former USTs.

2011: URS conducted a subsurface investigation at 1625 and 1635 Chestnut Street. A total of 14 soil borings were advanced, five groundwater samples were collected from between approximately 45 and 50 ft bgs. In addition, five soil vapor samples were collected from approximately 5 ft bgs.

TPH-g, VOCs, and OCPs were not detected in soil. TPH-d and TPH-mo were detected up to respective concentrations of 140 and 670 mg/kg, which does not exceed current Regional Water Quality Control Board (RWQCB) Human Health Risk Screening Levels (HHRSLs) for direct exposure at residential properties (published February 2016, Rev3). Additional sampling for TPH was recommended by URS at the location of soil borings C1, C3, C4, C5, C6, C7, and C8. Based on available data silica gel cleanup was not conducted by the laboratory for TPH-d and TPH-mo analyses during this investigation.

The polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene was detected at 2 ft bgs at soil boring B10 at a concentration of 0.021 mg/kg, which slightly exceeds the current RWQCB HHRSL of 0.016. Metals concentrations were consistent with naturally occurring background concentrations.

PCE was detected in groundwater at concentrations of up to 15 ug/L, which does not exceed the RWQCB Groundwater Vapor Intrusion Human Health Risk Screening Level of 100 ug/L (deep groundwater, fine/coarse soil), and was detected in soil vapor samples at concentrations of up to 49 micrograms per cubic meter (ug/m^3), which does not exceed the California Department of Toxic Substances Control (DTSC) screening level for PCE of 460 ug/m^3 for new construction. Volatile gasoline constituents were additionally detected in soil vapor at concentrations less than corresponding RWQCB HHRSLs for vapor intrusion concerns.

Available data indicates that PCE detected in groundwater has migrated from an off-site source. As stated in the 2011 URS subsurface investigation report:

> 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 ug/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.

A subsurface geophysical investigation was additionally conducted. Results of the geophysical investigation indicate that the gasoline USTs associated with the former gasoline service station were removed.

2013: ACC advanced six soil borings to depths of between 20 and 48 feet bgs at the location of the former gasoline service station at 1625 Chestnut Street. TPH-g, TPH-mo and VOCs were not detected. TPH-d was detected up to concentrations of 4.8 mg/kg. Silica gel cleanup was conducted for TPH-d and TPH-mo analyses. Groundwater was not encountered. ACC recommended no further investigation with regard to the former gasoline service station based on site use at that time.

2015: ACC conducted a Phase I ESA in 2015 for 1625, 1635, 1715 and 1763 Chestnut Street, and 217 North N Street. The Phase I ESA recommended that case closure be requested with regard to the former gasoline service station but recommended additional subsurface sampling if the Site is to be developed as residential.

Response to ACDEH data request

As requested by ACDEH, historical soil boring locations are included in Appendix G and Appendix F presents historical subsurface analytical data. Appendix H contains supplemental data requested by ACDEH during November 2016, including:

- A sensitive receptor survey that identifies water supply wells and surface water bodies within 1000 feet of the defined plume boundary. The well survey was completed for the site using records from Alameda County Public Works and the California Department of Water Resources.
- A site vicinity map with the following: identified sensitive receptors; identified off-site contamination sources; and a rose diagram of groundwater flow direction based on depth to water data from adjacent sites on GeoTracker.
- Figures of the following: the ground floor of the site plan with historic boring locations and historic recognized environmental concerns; the proposed site landscaping with historic boring locations; and development plans with the parcel configurations; the ground floor of the site plan with soil vapor sample locations.
- A formatted table that includes the following: historic borings and samples collected from borings; the rationale for their advancement and collection; the analyses performed and results; and San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) for the direct exposure to soil (residential, commercial, and construction), groundwater vapor intrusion (residential and commercial), and groundwater as drinking water (residential).
- Cross-sections through the bioretention areas and the garage elevator shafts on the ground floor of the development plans with boring locations and sampling depths.

- TPH and PCE groundwater plume boundaries based on available groundwater water analytical data.

3.0 GEOLOGY & HYDROGEOLOGY

The nearest surface water is the Arroyo Mocho Creek located approximately 0.6 miles south of the Site.

First groundwater encountered at the Site by URS during 2011 was 45 to 50 ft bgs. During 2013 ACC advanced a soil boring in the vicinity of the former gasoline service station to approximately 48 ft bgs and groundwater was not encountered at that location. Five additional soil borings were advanced to depths of between 20 and 24 ft bgs at the location of the former gasoline station and groundwater was not encountered.

Soils encountered at the Site consist of silty-clays with varied amounts of sand and gravel. A comprehensive description of the local geology and subsurface at the Site is attached as Appendix E (URS, 2011).

4.0 SUBSURFACE SAMPLING

4.1 Soil Sampling Methodology

On June 7 & 8, 2017, ACC advanced 51 exploratory soil borings to depths between 0.5 and 20 feet below ground surface (ft bgs). Soil borings were advanced via a hydraulic direct-push rig equipped with two-inch-diameter drill rods containing acetate liners designed to retrieve subsurface soils. The approximate soil boring locations are shown on attached Figures 2 through 6. Groundwater was not encountered during this investigation.

A soil boring permit was obtained from the Zone 7 Water Agency prior to drilling. In addition, ACC marked the proposed soil boring locations and subsequently contacted Underground Service Alert (USA) to mark the locations of underground public utilities. Soil boring locations advanced by ACC were additionally cleared by a private utility locator prior to drilling.

Soil samples were collected by isolating the desired soil interval within the acetate liner capped with Teflon sheeting and tight-fitting plastic caps, labeled, logged on a chain-of-custody form and stored immediately on ice in a cooler pending transport to the laboratory following standard chain-of-custody protocol. Soil sample identification numbers include the soil boring ID and approximate depth from which the sample was collected.

Exploratory soil borings were backfilled to surface grade with neat cement slurry per applicable California Department of Water Resources (DWR) and Zone 7 Water Agency regulations.

Soil cuttings were containerized and stored on-site in a labeled 55-gallon drum pending waste characterization per State and Federal hazardous waste criteria, and off-haul by a licensed contractor.

4.2 Soil Vapor Sampling Methodology

Soil vapor samples were collected at the approximately locations of the former USTs, former pump islands, and former building associated with the former gasoline service station (Figure 4). Samples were collected from 5 ft bgs at locations where soil excavation is not proposed as part if Site redevelopment; at 5 ft beneath the base of the proposed parking garage (proposed subsurface parking garage to extend approximately 10 feet bgs); and at 5 ft beneath the base of the elevator shafts (elevator shafts to extend to approximately 15 ft bgs).

Soil vapor sampling was conducted based on the document *Advisory – Active Soil Gas Investigations* prepared by the Department of Toxic Substances Control (April 2012). Soil vapor borings were advanced via a hydraulic direct-push rig. Soil vapor sampling locations are shown on the attached Figures 4 and 5. Table 3 presents soil vapor sampling dates and soil vapor sampling depths (sampling depths are included in the sample ID or in the brackets following the sample IDs as listed in Table 3).

Dedicated sample probes and Teflon tubing were installed to the desired depth using a PVC pipe. Six inches of kiln-dried sand was placed both above and below the probe, followed by one foot of dry bentonite. The soil boring was subsequently backfilled to ground surface with hydrated bentonite.

Soil vapor sampling was conducted a minimum of two hours subsequent to installation of the soil vapor probe in order to allow subsurface conditions within the soil vapor boring to equilibrate. Dedicated one-liter SUMMA canisters and sample trains were used at each soil vapor sampling location. Shut-in tests were conducted at each location prior to sampling in order to assess the integrity of the sample train. Approximately three volumes were purged from the sample tubing and pore space around the soil vapor probe prior to sampling. Sample flow rates were approximately 150 millimeters per minute. Helium was used as a tracer gas via a helium shroud. The helium concentrations within the shroud were maintained at approximately 20% (+/-2%). A helium concentration of 2% or indicated the potential for an insufficient seal in the sample train or soil vapor sampling point.

5.0 PHOTOIONIZATION DETECTOR READINGS

Photoionization detector (PID) readings were collected at a minimum of four-foot intervals during drilling in order to investigate the potential presence of volatile organic compounds (VOCs). The highest PID reading collected during this event was 0.4 ppm.

6.0 SAMPLE LOCATIONS & ANALYTICAL RESULTS

Sampling locations are shown on the attached Figures 2 and 3. ACC made every attempt to advance the borings relative to previous soil borings advanced at the Site based on available data, Site figures, site features, and visible markings at the Site including evidence of backfilled historical soil borings. The attached Table 6 correlates with the attached Figures 2 through 6 and lists the sample depths, analyses and rationale for each sample.

6.1 Soil Analytical Results

Soil samples were delivered to McCampbell Analytical, Inc. in Pittsburg, California following chain-of-custody protocol. Soil analytical results are summarized in the attached Tables 1 & 2. The complete laboratory reports and chain-of-custodies are attached as Appendix I. Soil analytical results were compared to Human Health Risk Screening Levels (HHRSLs) published by the San Francisco Regional Water Quality Control Board (RWQCB) for direct exposure at residential properties and for direct exposure construction worker HHRSLs.

For this sampling event laboratory reporting limits (RLs) were below corresponding residential HHRSLs for analytical methods 8015B, 8260B, 8082, and 6020. For analytical method 8270 SIM, two of the eighteen samples analyzed had increased reporting limits due organic content within the samples. Only the RLs for benzo(a)pyrene and dibenzo(a,h)anthracene exceeded corresponding residential HHRSLs for these samples. The lab used available sample cleanups to achieve the lowest reporting limits feasible for these samples. ACC requested that the method detection levels (MDLs) be reported for these samples, and that analytical results between RLs and MDLs be reported (J-Flagged). MDLs do not exceed residential HHRSLs and are sufficiently low in ACC's opinion to assess whether PAHs are a concern with regard to proposed site redevelopment. In addition RLs for PAHs do not exceed OEHHA residential CHHSLs or commercial RWQCB HHRSLs. Potential exposure to exposed soils subsequent to redevelopment will be limited to landscaped areas that will likely only be accessed periodically by maintenance crews.

For historical data, laboratory RLs were below the respective residential HHRSLs for analytical methods 8015B, 8260B and 8082. For analytical method 8270 SIM, five of the 23 samples analyzed had increased reporting limits. Only the RLs for benzo(a)pyrene and dibenzo(a,h)anthracene exceeded corresponding residential HHRSLs. RLs for PAHs do not exceed OEHHA residential CHHSLs or commercial RWQCB HHRSLs with the exception of sample C6-2'. URS compared results to CHHSLs only. ACC collected a sample in the near vicinity of C6-2' (sample location BA1, Figure 2). PAHs were not detected above HHRSLs with RLs less than HHRSLs. For the remaining samples with raised reporting limits, ACC's opinion is that samples collected in the vicinity of these samples indicate that PAHs are not a concern and/or the samples are at a location that will be excavated at part of redevelopment.

Soil samples were analyzed for the following constituents:

- Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d), motor oil-range (TPH-mo), and hydraulic oil (TPH-ho) by method 8015B;

- Volatile Organic Compounds (VOCs) by method 8260B;
- PCBs by method 8082;
- Polynuclear Aromatic Hydrocarbons (PAHs) by method 8270 SIM; and
- LUFT 5 Metals by method 6020.

VOCs: A total of 55 soil samples were analyzed for VOCs during this sampling event. Total xylenes were detected at concentration of 0.011 mg/kg (soil sample WC3-10'), which is well below the corresponding HHRSL of 560. Total xylenes and additional VOCs were not detected in other samples during this sampling event, including sample locations WC3-0.5' and WC3-6'.

TPH-g, TPH-d, & TPH-mo: A total of 80 samples were analyzed for TPH-g, TPH-d, and TPH-mo. TPH-g was not detected. TPH-d and TPH-mo were detected up to respective concentrations of 23 and 740 mg/kg at the southwest corner of the Site (soil boring EB8-0.5). TPH-d and TPH-mo were not detected at 2.5 ft bgs at that sampling location. The next highest TPH-d and TPH-mo concentrations detected during this event were 5.6 and 190 mg/kg, respectively. TPH-d was not detected in 59 of the 74 soil samples analyzed for TPH-d. TPH-mo was not detected in 54 of the 74 samples analyzed for TPH-mo.

TPH-ho: A total of 10 samples in the vicinity of the hydraulic platform lift and transformer were analyzed for TPH-ho, which was detected up to 69 mg/kg at that location.

PCBs: A total of 36 samples were analyzed for PCBs, which were detected at concentrations ranging from 0.012 to 1.1 mg/kg in the vicinity of the hydraulic platform lift and transformer (Figure 6). Based on ACC observations it does not appear that hydraulic pistons associated with the hydraulic platform lift extend below ground surface. PCB concentrations reported in one soil sample proximate to the north side of the transformer exceeded the corresponding HHRSL of 0.25 mg/kg for direct exposure at residential properties (soil boring EB13-0.5', 1.1 mg/kg). PCBs were not detected at 2.5 ft bgs at that location with a laboratory RL of 0.050 mg/kg.. Step-out sampling indicates that PCB impacts are limited to shallow soils (less than 2.5 ft bgs) in the area of the hydraulic platform lift and transformer. The estimated area were PCB concentrations are expected to exceed the residential HHRSL of 0.25 mg/kg in soils up to 2.5 ft bgs is included in the attached Figure 6.

PAHs: A total of 18 soil samples were analyzed for PAHs. Benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, and pyrene were detected up to respective concentrations of 0.19, 0.018, 0.021, 0.075, 0.017, 0.016, and 0.030 mg/kg. The detected concentrations of PAHs did not exceed corresponding HHRSLs for direct exposure at residential properties with the exception of benzo(a)pyrene which exceeded the HHRSLs of 0.016 mg/kg at residential properties in one sample (BA10-0.5'). PAHs were not detected in 15 of the 23 soil samples analyzed.

LUFT 5 Metals: Sample GS4-5' (Figure 3) was collected approximately 5 ft bgs at the location of the UST pit and contained lead at a concentration of 150 mg/kg, which exceeds the corresponding HHRSL for direct exposure at residential properties of 80 mg/kg. Remaining concentrations do not appear elevated above background concentrations.

Arsenic: concentrations ranged from 3.9 to 18 mg/kg. A study published in 2011 by the Lawrence Berkeley National Laboratory estimates the upper estimate for regional background arsenic concentrations (99th percentile) of 24 mg/kg.[1] Therefore, while arsenic concentrations exceed applicable screening levels, they are consistent with regional naturally occurring concentrations.

6.2 Soil Vapor Analytical Results

Soil vapor samples were delivered to McCampbell Analytical, Inc. in Pittsburg, California following chain-of-custody protocol. Soil vapor analytical results are summarized in the attached Table 3. The complete laboratory reports and chain-of-custody are attached as Appendix I.

Soil vapor results were compared to HHRSLs published by the San Francisco Regional Water Quality Control Board (RWQCB) for soil vapor intrusion risk at residential properties with the exception of PCE. In October 2016 the DTSC published soil vapor screening levels for PCE addressing both existing and new construction (HERO HHRA Note Number 7). DTSC assumes that newer construction will have a higher ventilation rate (and therefore greater attenuation) than existing buildings, whereas the RWQCB HHRSL for PCE is soil vapor at residential properties is a more generic screening level that is applicable to existing buildings (including houses with no concrete slab, etc.). In order to address new construction at the Site, soil vapor analytical results for PCE were compared to the DTSC screening level of 460 micrograms per cubic meter (ug/m^3) as compared to the HHRSL of 240 ug/m^3. ACC additionally took into consideration the California Office of Environmental Health Hazard Assessment (OEHHA) California Human Health Screening Level (CHHSL) for PCE in soil vapor below buildings constructed with engineered fill below sub-slab gravel of 0.47 micrograms per liter, which is equal to 470 ug/m^3.

Soil vapor samples were analyzed for VOCs by method TO-15, oxygen, carbon dioxide, methane, and helium.

Laboratory RLs exceeded corresponding screening levels with the following exceptions:

- RLs for soil vapor sample SV11-5' were raised due to high organic content in the sample matrix. RLs and MDLs exceeded corresponding screening levels for naphthalene, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,1,2,2-tetrachloroethane, and vinyl chloride. These chemical compounds were not detected in remaining samples or were detected in nearby samples at concentrations low enough to rule out these compounds as chemicals of concern.

[1] *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*, Lawrence Berkeley National Laboratory, Revised April 2009

- RLs for 1,2-dibromoethane (EDB) exceed the corresponding HHRSL. MDLs for EDB ranged from 0.012 to 0.52 ug/m3. EDB was detected in only one soil vapor sample (SV10-5', 0.050 J), which is low enough in ACC's opinion to rule out EDB as a chemical of concern.

The data for samples SV8, SV9, and SVDUP were rejected based on QA/QC data. For the remaining samples, VOCs were not detected above corresponding screening levels. The volatile gasoline constituents benzene, toluene, ethylbenzene, xylenes, and naphthalene were detected up to respective concentrations of 3.4, 14, 79, 450, and 15 ug/m^3, which does not exceed the corresponding screening levels of 48, 160000, 560, 52000, and 41 ug/m3.

PCE was detected up to a concentration of 430 ug/m^3, which does not exceed the DTSC PCE screening level of 460 ug/m^3 for new construction. Figure 4 shows soil vapor sampling locations at 5 ft bgs and corresponding analytical results with iso-contours for PCE. Figure 5 shows the soil vapor sampling locations at 15 and 20 ft bgs as well as corresponding analytical results for PCE.

Oxygen was detected at concentrations ranging from 7.7% to 14%. Carbon dioxide was detected at concentrations ranging from 2.6% to 7.6%. Methane was detected at concentrations ranging from 0.0000067 J% to 0.0023% as compared to the lower explosive level of 5%.

6.3 Additional Soil Analyses for Waste Characterization During Site Redevelopment

Soil analytical results to be used for soil waste characterization during Site redevelopment are summarized in the attached Tables 4 & 5. The complete laboratory reports and chain-of-custody are attached as Appendix H. Soil analytical results were compared to RWQCB HHRSLs for direct exposure at residential properties and for direct exposure by construction worker.

RLs for some SVOCs and PAHs exceeded corresponding residential HHRSLs, however MDLs did not exceed residential HHRSLs and RLs did not exceed commercial or construction worker HHRSLs. These soils will be classified for disposal prior to hauling off-site as part of redevelopment, and will be disposed of at an appropriately permitted landfill.

Additional analyses conducted for soil waste characterization include:

- Organochlorine Pesticides (OCPs) by method 8081;
- Semi-Volatile Organic Compounds (SVOCs) by method 8270;
- CAM 17 (Title 22) Metals by method 6020; and
- Asbestos by method CARB

<u>OCPs</u>: a-Chlordane, g-Chlordane, DDD, DDE, DDT, Dieldrin, and Toxaphene were detected up to respective concentrations of 0.0053, 0.0015, 0.0013, 0.013, 0.0032, 0.0020, and 0.11 mg/kg. The detected concentrations of OCPs were well below corresponding HHRSLs for direct exposure at residential properties and construction worker exposure. In addition, the detected

concentrations do not exceed the DTSC hazardous waste criteria for these chemical compounds.

CAM 17 (Title 22) Metals: Metals concentrations do not appear elevated above background concentrations.

SVOCs and asbestos were not detected in soils during this sampling event.

7.0 QUALITY ASSURANCE/QUALITY CONTROL

7.1 Field

QA/QC procedures followed in the field are as follows:

- Field duplicates were collected and analyzed for TPH analyses (with Silica Gel cleanup). Approximately 10% of the total soil samples submitted for TPH analysis (not including samples to be put on hold) were analyzed. Sample IDs did not identify which samples correlate with the duplicate samples;
- Sampling equipment was decontaminated prior to advancement at each soil boring location using an Alconox solution and double rinsed with potable water;
- Nitrile gloves were worn and changed frequently (at a minimum of in between each sampling location) when handling samples in order to prevent cross-contamination of samples;
- Samples were labeled in the field and stored on ice during transport to the laboratory. Every effort was made to cool the samples to 4.0 degrees Celsius and chain-of-custody protocol was followed during the sample collection and analysis;
- Pre-cleaned sample containers and preservatives were provided by the laboratory.

7.2 Laboratory

McCampbell Analytical, Inc. (CDPH ELAP 1644, NELAP 12283CA) was subcontracted for the laboratory analyses. Laboratory QA/QC measures include the reporting of analytical results for matrix spikes, surrogate recoveries and laboratory control samples. The most stringent of control procedures are used by the laboratory in cases where multiple controls are offered. Written procedures to monitor routine quality controls including acceptance criteria are located in the test method SOPs, and include such procedures as:

- Observing all holding times for sample preparation, extraction and analyses;
- Use of laboratory control samples and blanks to serve as positive and negative controls for chemistry methods;
- Use of laboratory control samples to monitor test variability of laboratory results;

- Use of calibrations, continuing calibrations, certified reference materials and/or PT samples to monitor accuracy of the test method;
- Measurements to monitor test method capability, such as limit of detection, limit of quantitation, and/or range of test applicability, such as linearity;
- Use of regression analysis, internal/external standards, or statistical analysis;
- Use of reagents and standards of appropriate quality;
- Procedures to ensure the selectivity of the test method;
- Measures to assure constant and consistent test conditions, such as temperature, humidity, rotation speed, etc., when required by test method; and
- Use of surrogate standards in organic methods, method specific requirements or lab generated.

For QA/QC measures, ACC reviewed the laboratory reports with regard to dilution factors, reporting limits, sample holding times, data qualifiers, matrix spikes, surrogate recoveries, laboratory control samples, and duplicate sample results. Data were not rejected if matrix spikes, surrogate recoveries, or laboratory control spikes were detected at concentrations above the acceptable percent recoveries. Sample BA8-0.5' was analyzed for PCBs out of holding time to estimate the lateral extent of PCB impacts at the hydraulic platform lift and transformer.

No data were rejected based on the intended use with the exception of soil vapor samples SV8, SV9, and, SVDUP. The helium concentrations in these samples indicate an unacceptable volume of ambient air leakage during soil vapor sampling.

Raised dilution factors (DFs) where not considered significant unless corresponding laboratory reporting limits (RLs) exceeded corresponding screening levels.

8.0 CONCLUSIONS

VOCs were not detected in 54 of the 55 soil samples analyzed for VOCs during this sampling event with laboratory reporting limits (RLs) less than corresponding San Francisco Regional Water Quality Control Board (RWQCB) Human Health Risk Screening Levels (HHRSLs) for direct exposure at residential properties. Total xylenes were detected at concentration of 0.011 mg/kg in one soil sample (soil sample WC3-10'), which is well below the corresponding HHRSL of 560 for direct exposure at residential properties.

During historic sampling events a total of 25 soil samples were analyzed for VOCs and 41 soil samples were analyzed for the volatile gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX), all of which were not detected with RLs less than corresponding HHRSLs.

TPH: A total of 80 samples were analyzed for TPH-g, TPH-d, and TPH-mo during this sampling event. TPH-g was not detected with RLs less than corresponding HHRSLs. TPH-d and TPH-mo were detected up to respective concentrations of 23 and 740 mg/kg, which does not exceed the corresponding HHRSLs for direct exposure at residential properties.

During historic sampling events a total of 48 soil samples were analyzed for TPH-g, TPH-d, and TPH-mo. TPH-g was not detected with RLs less than corresponding HHRSLs. TPH-d and TPH-mo were detected up to respective concentrations of 140 and 670 mg/kg, which does not exceed the corresponding HHRSLs for direct exposure at residential properties.

Polynuclear Aromatic Hydrocarbons (PAHs): Benzo(a)pyrene was detected at concentrations of 0.018 mg/kg (sample BA10-0.5') and 0.019 J (sample EB8-0.5'), which slightly exceeds the HHRSL of 0.016 mg/kg for direct exposure at residential properties. PAHs including benzo(a)pyrene were not detected at 2.5 ft bgs at these locations (soil sample BA10-2.5' and soil sample EB8-2.5') with laboratory RLs less than corresponding HHRSLs. Soil sample BA10-0.5 is located in a bio retention area and soil sample EB8-0.5' is located in a proposed landscaped area. The OEHHA residential CHHSL for benzo(a)pyrene is 0.038 mg/kg and the commercial HHRSL for benzo(a)pyrene is 0.29 mg/kg. Based on proposed site development it is ACC's opinion is that exposure to existing soils subsequent to development will be minimal and that the commercial HHRSL is appropriate with regard to maintenance of landscaped areas and bio retention areas. The RWQCB screening levels for soil leaching to groundwater for benzo(a)pyrene is 130 mg/kg.

One historical soil sample contained benze(a)pyrene at a concentration in exceedance of the corresponding residential HHRSL (C10-DUP, 0.021 J mg/kg). This concentration does not exceed the corresponding residential CHHSL and is an area that will be excavated as part of redevelopment.

PCBs: A total of 36 samples were analyzed for PCBs, which were detected at concentrations ranging from 0.012 J to 1.1 mg/kg in the vicinity of the hydraulic platform lift and transformer (Figure 6). PCB concentrations reported in one soil sample collected at this location exceeded the corresponding HHRSL of 0.25 mg/kg for direct exposure at residential properties. Deeper samples and step-out sampling indicates that PCB impacts are limited to shallow soils (less than 2.5 ft bgs) at the immediate area of the hydraulic platform lift and transformer.

Metals: Sample GS4-5' (Figure 3) was collected approximately 5 ft bgs at the location of the UST pit and contained lead at a concentration of 150 mg/kg, which exceeds the corresponding HHRSL for direct exposure at residential properties of 80 mg/kg. The exposure pathway to this concentration is not open due to its depth and because, post-site development, this sampling location will be capped in hardscape subsequent. In total (this investigation and previous investigations) 90 soil samples have been analyzed for lead. Lead was not detected above the corresponding HHRSL for direct exposure at residential properties (80 mg/kg) in 89 of the 90 soil samples analyzed for lead and does not present a human health risk in ACC's opinion.

Remaining metals concentrations do not appear elevated above background concentrations.

Soil Vapor: The volatile gasoline constituents benzene, toluene, ethylbenzene, xylenes, and naphthalene were detected up to respective concentrations of 3.4, 14, 79, 450, and 15 ug/m3, which does not exceed the corresponding screening levels of 48, 160000, 560, 52000, and 41 micrograms per cubic meter (ug/m^3).

PCE was detected up to a concentration of 430 ug/m^3, which does not exceed the DTSC PCE screening level of 460 ug/m^3 for new construction. However, the concentration exceeds the HHRRSL of 240 ug/m^3, which is applicable to existing rather than new construction. Figure 4 shows current and historical soil vapor sampling locations at 5 ft bgs and corresponding analytical results with iso-contours for PCE in the context of the site development plan. Figure 5 shows the soil vapor sampling locations at 15 and 20 ft bgs as well as corresponding analytical results for PCE in the context of the site development plan.

Based on available data PCE concentrations at 10 and 15 ft bgs range from 54 to 190 ug/m^3 and are likely attributed to PCE-impacted groundwater as a result of up-gradient sources. PCE concentrations at 5 ft bgs were detected as low as 11 ug/m^3 during this event. Based on historical and current data PCE concentrations at 5 ft bgs appear to typically be present at concentrations ranging from approximately <6.0 to 49 ug/m^3 as a result of PCE-impacted groundwater as a result of up-gradient sources.

PCE concentrations greater than approximately 49 ug/m^3 at 5 ft bgs are likely attributed to what appears to be a residual, localized shallow PCE impact to soil vapor at the northwest boundary of the Site (Figure 4). A geophysics investigation conducted by URS during 2011 indicated a potential subsurface metallic anomaly in the vicinity of soil vapor sampling point SV3 and SV11, but concluded that the anomaly was potentially associated with concrete rebar and was not likely indicative of an underground fuel tank. A soil boring was advanced by ACC in the approximate center of the anomaly identified during the 2011 URS geophysics survey. No indications of USTs or soil contamination were observed. Samples collected at 4 and 8 ft bgs were analyzed for VOCs, TPH-g, TPH-d, and TPH-mo, which were not detected with laboratory reporting levels less than corresponding HHRSLs for direct exposure at residential properties.

The area between soil borings SV-11 and C5 (Figure 4) was scanned to the extent practical via a metal detector and ground penetrating radar (GPR) during soil boring clearance procedures and no indications of metallic anomalies were identified.

It is ACC's opinion that there is no PCE in the soil matrix and that there is no tank or other primary source PCE at the Site. Residual concentrations detected in soil gas may be indicative of a minor historical shallow release. This conclusion is based on the absence of any detected PCE in soil and lower concentrations of soil gas at depth

ACC's opinion is that PCE detected in shallow soil does not pose an unacceptable vapor intrusion risk based on the following:

- PCE concentrations have not been detected in exceedance of the DTSC PCE soil vapor screening level for new residential construction of 460 ug/m^3.

- The localized, residual shallow PCE impact exists primarily north of the proposed structure (as opposed to below) and is likely shallower than the base of the proposed subsurface parking structure based on available data. Although not anticipated, any residual PCE contamination present in shallow soils at the location of the proposed structure (adjacent to PCE impacts to soil vapor) will likely be removed during construction excavation of the subsurface parking garage;

- As stated in the DTSC Vapor Intrusion Mitigation Advisory (Final, Revision 1, October 2011) with regard to future construction, "building designs may also be adjusted, to include intrinsically safe designs (such as podium construction) in which the ground level of a building is maintained as a well ventilated space not intended for human occupation". ASTM standard E2600-10 (Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions) additionally notes that new buildings may also be constructed in a manner that addresses vapor intrusion concerns, such as first floor parking below residential space.

- Interior areas of the building above the subsurface parking garage (adjacent to shallow PCE impacts in soil vapor) will be utilized as a community room, offices, lobby, and other areas that will not be occupied continuously by residents or employees. Residential screening levels typically assume that the same person is present in the building 24 hours per day, 350 days per year, for 30 years. Occupancy of these areas is expected to be limited to less than 8 hours per day (significantly less for the subsurface parking garage). ACC's opinion is that residential screening levels are too conservative for these specific areas and has taken into account the DTSC soil vapor screening level for future commercial properties of 4000 ug/m^3.

- A chemical vapor barrier is recommend at the base of the elevator shaft as a precautionary measure.

- Air within the subsurface parking garage will be circulated with outdoor ambient air per current California building codes. It is generally accepted that this process will mitigate vapor intrusion concerns. Based on available studies reviewed by ACC[2] a conservative inter-floor transfer rate of air is 20%, indicating that if residual PCE concentrations were to migrate into the subsurface parking garage only a portion of the vapors would actually circulate to other areas of the building (not taking into account that the mechanical ventilation in the subsurface parking garage would provide further mitigation).

Former Gasoline Service Station: Subsurface sampling events conducted during 1989 (Kleinfelder), 2009 (Enercon Services, Inc.), 2011 (URS Corporation), 2013 (ACC), and 2017 (ACC) targeted the locations of the former USTs. The 2017 ACC investigation additionally targeted the former gasoline service station building.

In total (this investigation and previous investigations) 30 soil samples were collected in the area of the former gas station and analyzed for VOCs, and 29 soil samples collected in the area of the

[2] *Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments*, Center for Energy and Environment, November 2004

former gas station were analyzed for BTEX. Analytical results for these chemical compounds were non-detect with RLs less than corresponding ESLs.

In total (this investigation and previous investigations) 52 soil samples were collected in the area of the former gas station and analyzed for TPH-g, TPH-d, and TPH-mo. Analytical results for TPH-g were non-detect with RLs less than corresponding ESLs. TPH-d and TPH-mo were detected up to respective concentrations of 100 and 570 mg/kg in the area of the former gasoline service station, which does not exceed corresponding HHRSLs for direct exposure at residential properties.

Naphthalene has not been detected in soil via analytical method 8260 or 8270 SIM with RLs less than corresponding HHRSLs for direct exposure at residential properties.

Based on the documented depth to groundwater and soil analytical results up-to-date for this Site, ACC's opinion is that groundwater has not been impacted as a result of the former gasoline service station and that a secondary source of contamination associated with the former gasoline underground storage tanks is not present.

Bioretention Areas: Concentrations of TPH-d, TPH-mo, and benzo(a)pyrene detected in bio-retention areas do not exceed corresponding RWQCB screening levels for soil leaching to groundwater (Table S-2).

9.0 RECOMMENDATIONS

No additional subsurface sampling is recommended by ACC at this time. As a precautionary measure ACC recommends the installation of chemical vapor barriers at the base of the proposed elevator shafts to mitigate potential conduits for PCE vapors in soil at those locations.

ACC recommends preparation of a Soil Management Plan (SMP) to be implemented during earthwork associated with proposed Site redevelopment. The SMP should address contaminants-of-concern at the Site with regard to construction workers; how soils will be managed and disposed if hauled off-site (based on the soil waste characterization results attached as Tables 4 and 5, as applicable); how PCB-impacted soils at the Site will be addressed during construction; and protocols in the event that previously unidentified subsurface contamination is encountered during earthwork.

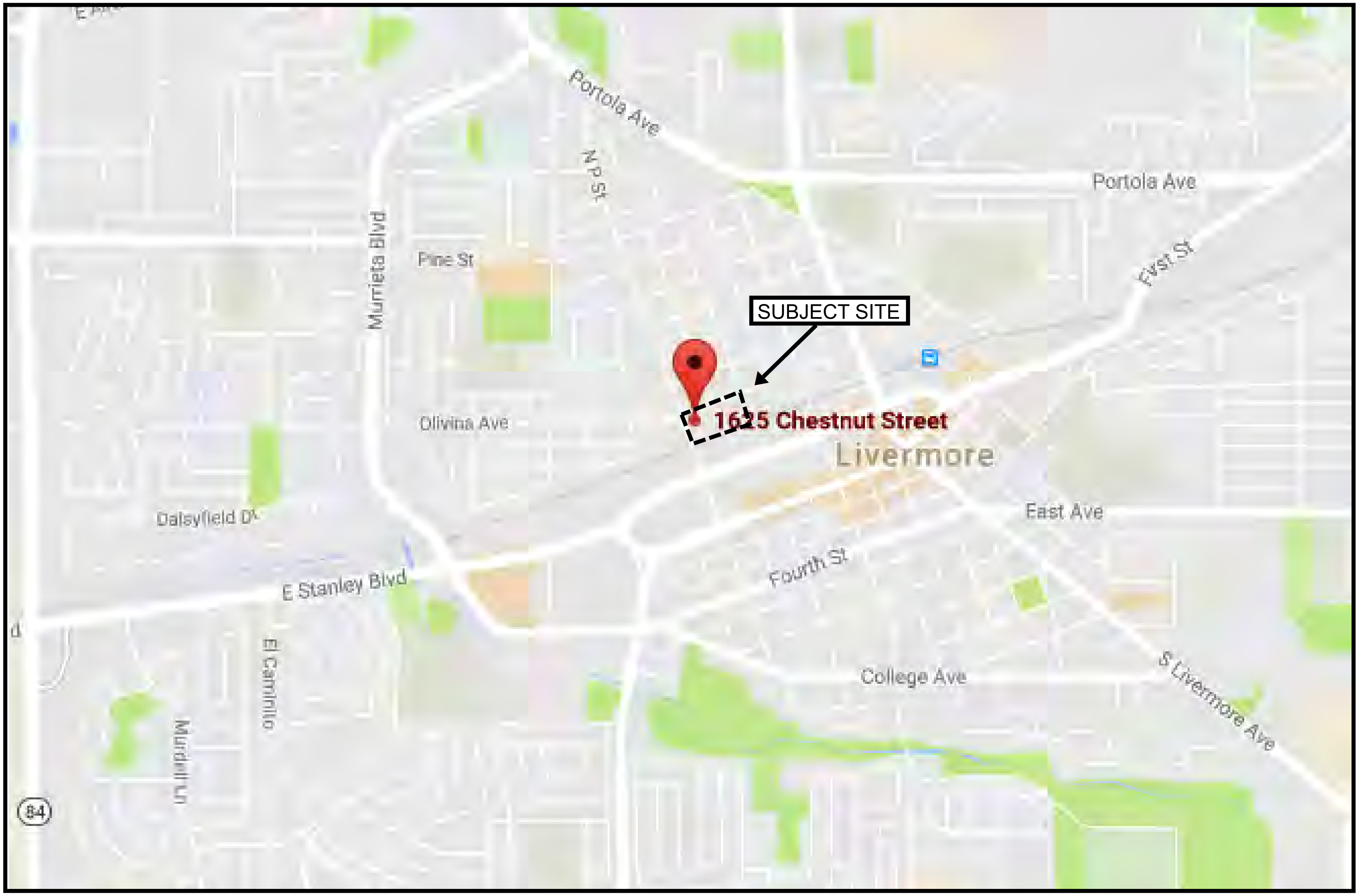
10.0 LIMITATIONS

The service performed by ACC has been conducted in a manner consistent with the levels of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

The conclusions presented in this report are professional opinions based on the indicated data described in this report and applicable regulations and guidelines currently in place. They are intended only for the purpose, site, and project indicated. All volume calculations are estimates based on data available at this time and cannot be guaranteed by ACC. Opinions and recommendations presented herein apply to site conditions existing at the time of our study. Site conditions could change over time due to unforeseen circumstances.

ACC has included analytical results from a state-certified laboratory, which performs analyses according to procedures suggested by the U.S. Environmental Protection Agency and/or the State of California. ACC shall not be responsible for laboratory errors.

FIGURES 1 - 6



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

SITE VICINITY MAP
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N
W E
S

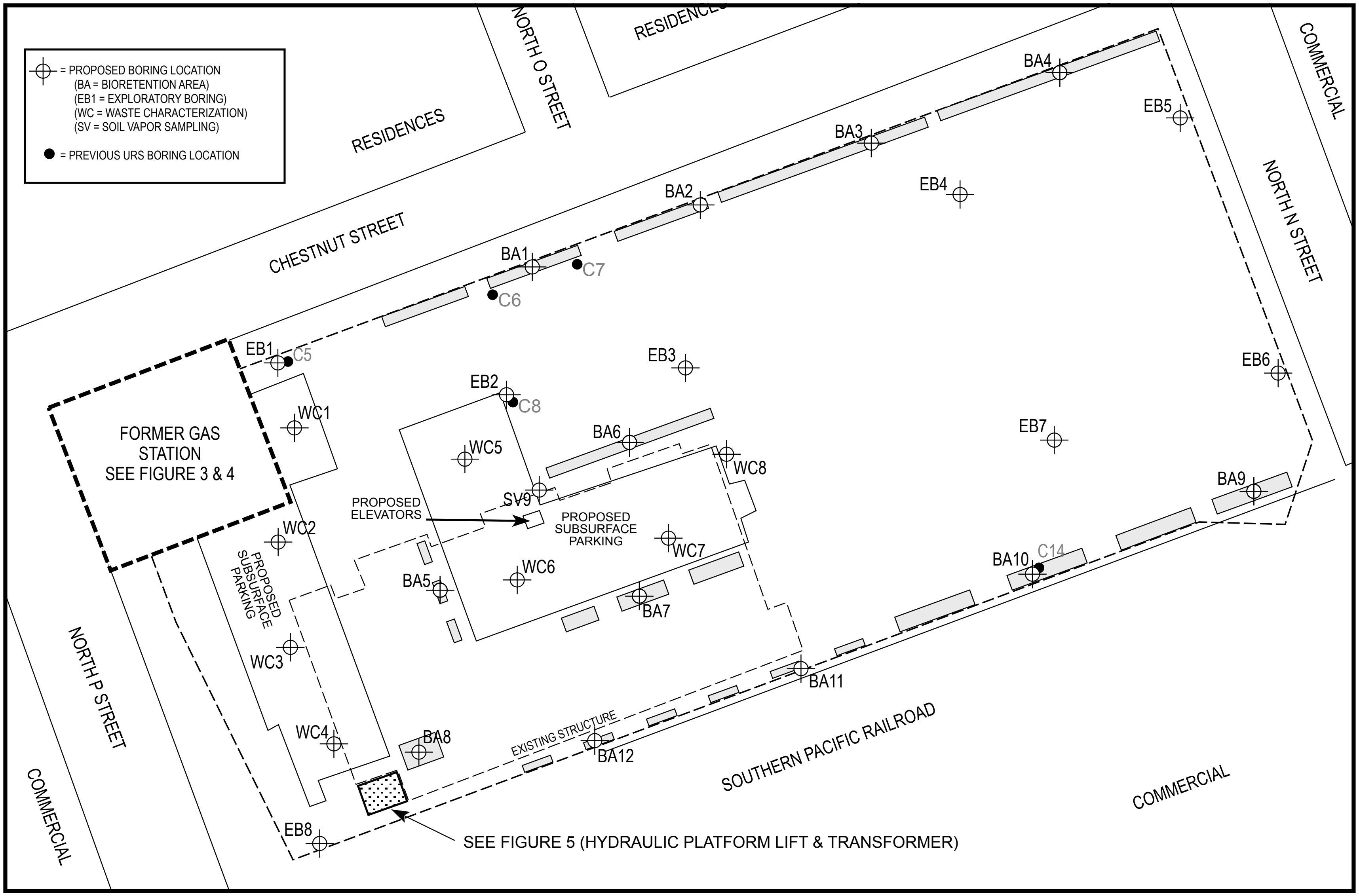
APPROXIMATE SCALE (FEET)
0 2000 4000

PROJECT: 6988-008.03

SUBJECT PROPERTY

FIGURE 1

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
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PROPOSED SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

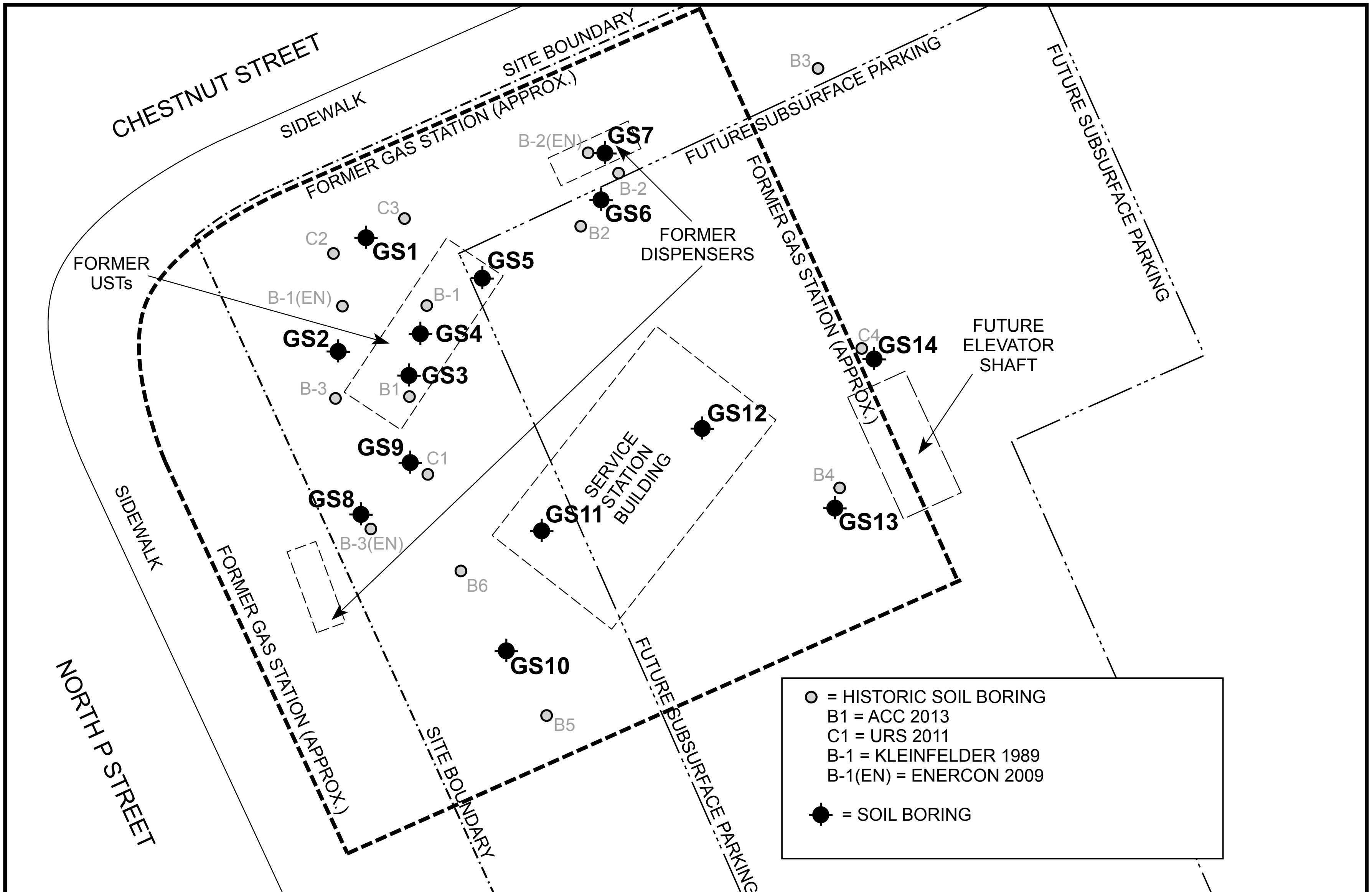
APPROXIMATE SCALE (FEET)
0 80 160

PROJECT: 6988-003.02

8.2.17

FIGURE 2

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
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SOIL SAMPLING LOCATIONS
(FORMER GASOLINE SERVICE STATION)
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

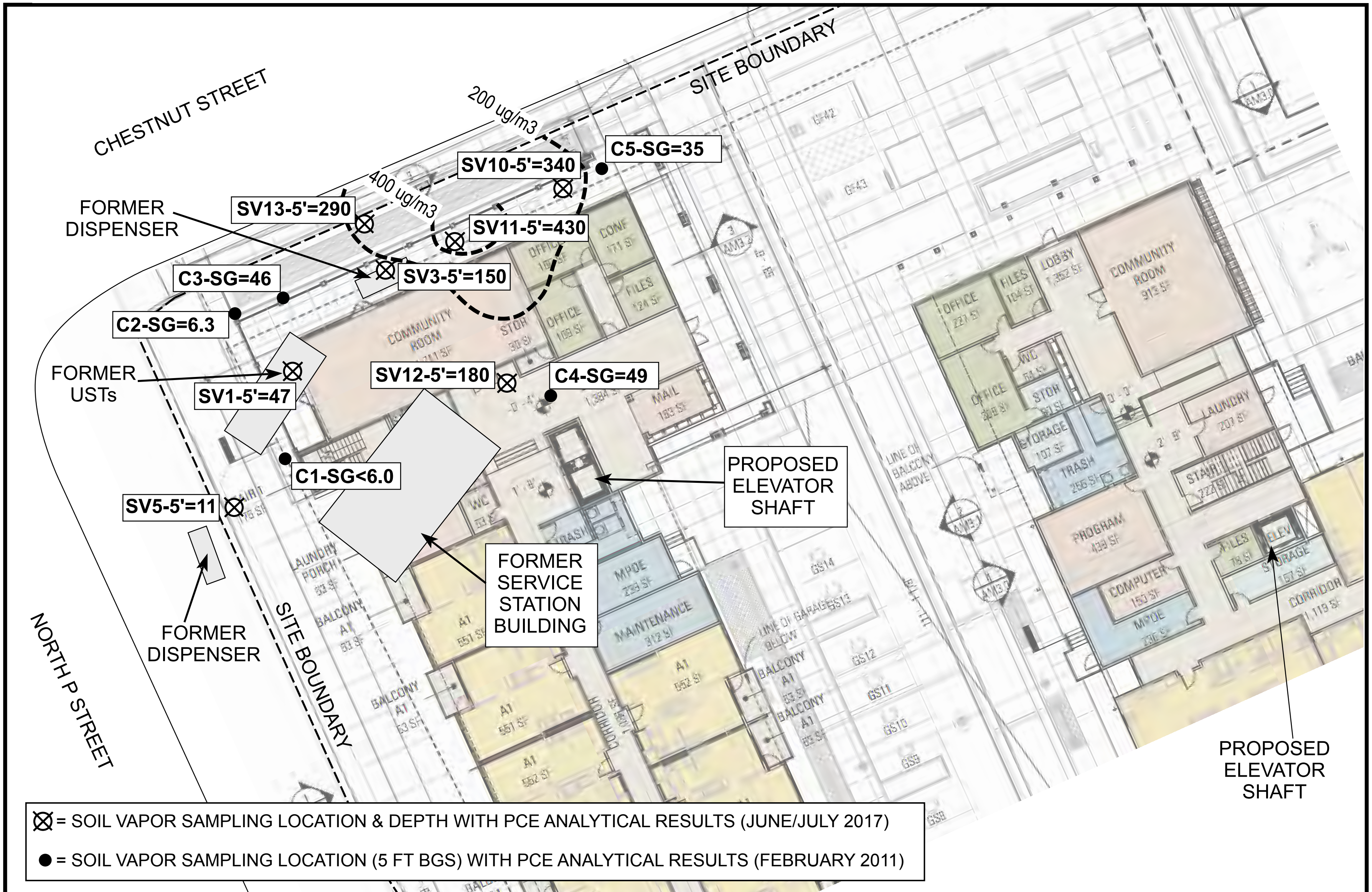
APPROXIMATE SCALE (FEET)
0 20 40

PROJECT: 6988-003.02

8.2.17

FIGURE 3

ALL DIMENSIONS & LOCATIONS APPROXIMATED



⨂ = SOIL VAPOR SAMPLING LOCATION & DEPTH WITH PCE ANALYTICAL RESULTS (JUNE/JULY 2017)

● = SOIL VAPOR SAMPLING LOCATION (5 FT BGS) WITH PCE ANALYTICAL RESULTS (FEBRUARY 2011)

ACC ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

SOIL VAPOR SAMPLING LOCATIONS (5 FT BGS) WITH PCE RESULTS JUNE/JULY 2017 & FEB. 2011 (ug/m3)
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

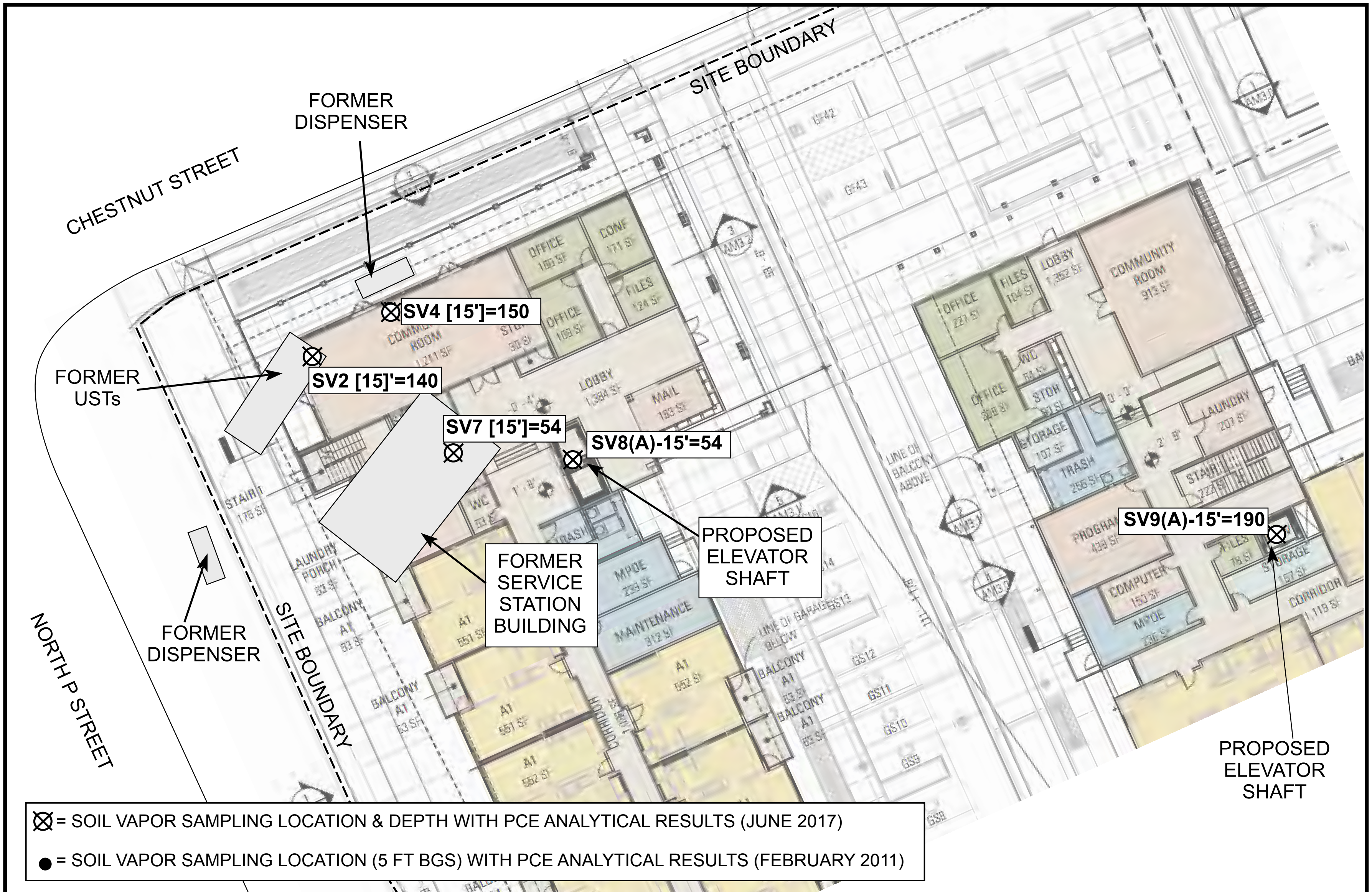
APPROXIMATE SCALE (FEET)
0 20 40

PROJECT: 6988-003.04

8.9.17

FIGURE 4

ALL DIMENSIONS & LOCATIONS APPROXIMATED



⊗ = SOIL VAPOR SAMPLING LOCATION & DEPTH WITH PCE ANALYTICAL RESULTS (JUNE 2017)

● = SOIL VAPOR SAMPLING LOCATION (5 FT BGS) WITH PCE ANALYTICAL RESULTS (FEBRUARY 2011)

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SOIL VAPOR SAMPLING LOCATIONS (10 & 15 FT BGS) WITH PCE RESULTS JUNE 2017, ug/m3
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

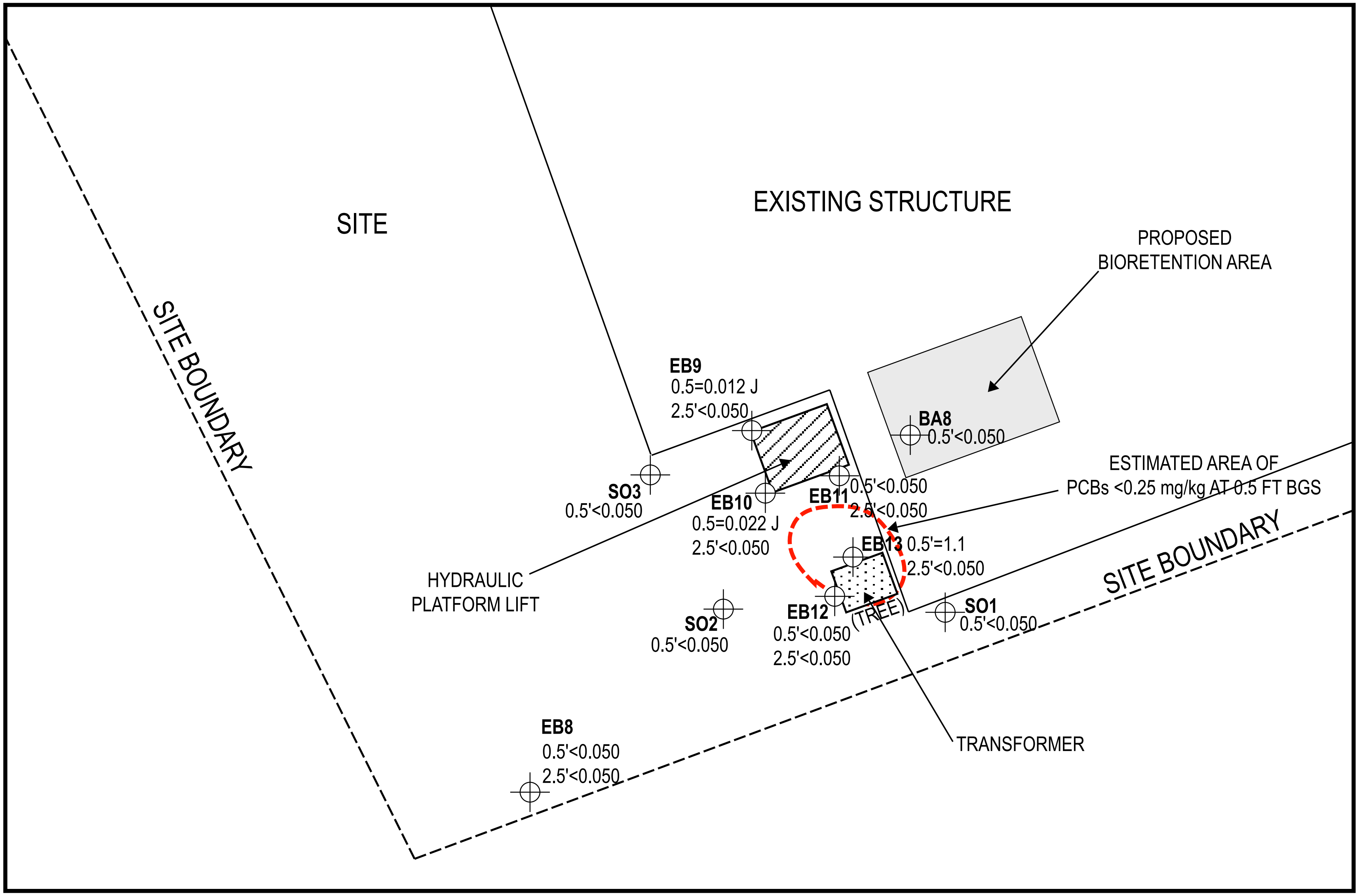
APPROXIMATE SCALE (FEET) 0 20 40

PROJECT: 6988-003.02

8.2.17

FIGURE 5

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

SOIL SAMPLING LOCATIONS (HYDRAULIC LIFT & TRANSFORMER) WITH PCB RESULTS 1625 CHESTNUT STREET LIVERMORE, CALIFORNIA

N
W E
S

APPROXIMATE SCALE (FEET)
0 20 40

PROJECT: 6988-003.02

8.9.17

FIGURE 6

ALL DIMENSIONS & LOCATIONS APPROXIMATED

TABLES 1 - 5

TABLE 1
Soil Analytical Results Summary (TPH, VOCs, & PCBs)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.04

Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)							
		TPH-g	TPH-d w/ SG Clean-Up	TPH-d w/o SG Clean -Up	TPH-mo w/ SG Clean-Up	TPH-mo w/o SG Clean-up	TPH-ho	VOCs	Total PCBs
6/7/17	**SV8-15'**	<1.0	<1.0	--	<5.0	--	--	--	--
	SV9-5'	<1.0	**1.2**	--	**60**	--	--	ND	--
	SV9-15'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS1-8'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS2-2'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS2-6'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS3-8'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS4-5'	<1.0	**3.0**	--	**38**	--	--	ND	--
	GS5-4'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS5-8'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS6-4'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS6-10'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS7-2'	<1.0	<1.0	--	**7.9**	--	--	ND	--
	GS8-2'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS8-8'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS9-8'	<1.0	<1.0	--	<5.0	--	--	--	--
	GS10-8'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS11-2'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS11-8'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS12-4'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS12-10'	<1.0	<1.0	--	<5.0	--	--	ND	<0.0050
	GS13-10'	<1.0	<1.0	--	<5.0	--	--	ND	--
	GS14-10'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA1-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA1-8'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA2-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA2-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA3-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA3-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA4-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA4-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA5-0.5'	<1.0	<1.0	--	**8.4**	--	--	--	--

Sample Date	Sample ID	TPH-g	TPH-d w/ SG Clean-Up	TPH-d w/o SG Clean -Up	TPH-mo w/ SG Clean-Up	TPH-mo w/o SG Clean-up	TPH-ho	VOCs	Total PCBs
		Chemical Compound & Concentrations (mg/kg)							
6/8/17	**BA5-2.5'**	<1.0	<1.0	--	<5.0	--	--	--	--
	BA6-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA6-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA7-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA7-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA8-0.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA8-2.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	BA9-0.5'	<1.0	<1.0	--	**6.6**	--	--	--	<0.050
	BA9-2.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA10-0.5'	<1.0	**1.3**	--	**18**	--	--	--	<0.050
	BA10-2.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA11-0.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA11-2.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA12-0.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	BA12-2.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
	EB1-8'	<1.0	<1.0	--	<5.0	--	--	--	--
	EB2-4'	<1.0	**2.4**	--	**47**	--	--	--	--
	EB2-8'	<1.0	**4.3**	--	**120**	--	--	--	--
	EB3-0.5'	<1.0	<5.0	--	**180**	--	--	ND	--
	EB3-6'	<1.0	**1.1**	--	**30**	--	--	ND	--
	EB4-0.5'	<1.0	**1.7**	--	**41**	--	--	--	--
	EB4-6'	<1.0	<1.0	--	<5.0	--	--	--	--
	EB5-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	EB5-6'	<1.0	**1.0**	--	**8.8**	--	--	--	--
	EB6-0.5'	<1.0	<1.0	--	<5.0	--	--	--	--
	EB6-6'	<1.0	<1.0	--	<5.0	--	--	--	--
	EB7-0.5'	<1.0	**5.3**	--	**67**	--	--	--	--
	EB7-6'	<1.0	<1.0	--	<5.0	--	--	--	--
6/7/17	**EB8-0.5'**	<1.0	**23**	--	**740**	--	--	--	<0.050
	EB8-2.5'	<1.0	<1.0	--	<5.0	--	--	--	<0.050
6/8/17	**EB9-0.5'**	--	--	--	--	--	**14**	--	**0.012 J**
	EB9-2.5'	--	--	--	--	--	<5.0	--	<0.050
	EB10-0.5'	--	--	--	--	--	**5.5**	--	**0.022 J**
	EB10-2.5'	--	--	--	--	--	<5.0	--	<0.050
	EB11-0.5'	--	--	--	--	--	**22**	--	<0.050
	EB11-2.5	--	--	--	--	--	**7.4**	--	<0.050

Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)							
		TPH-g	TPH-d w/ SG Clean-Up	TPH-d w/o SG Clean -Up	TPH-mo w/ SG Clean-Up	TPH-mo w/o SG Clean-up	TPH-ho	VOCs	Total PCBs
6/7/17	**EB12-0.5'**	--	--	--	--	--	**69**	--	<0.050
	EB12-2.5'	--	--	--	--	--	**47**	--	<0.050
6/8/17	**EB13-0.5'**	--	--	--	--	--	**18**	--	**1.1**
	EB13-2.5'	--	--	--	--	--	<5.0	--	<0.050
6/7/17	**DUP1 (SV9-5')**	<1.0	<1.0	**1.1**	**5.7**	**6.4**	--	ND	--
	DUP2 (GS7-2')	<1.0	<1.0	<1.0	<5.0	<5.0	--	ND	--
	DUP3 (WC2-0.5')	<1.0	**2.7**	**3.7**	**22**	**32**	--	--	--
	DUP4 (WC3-6')	<1.0	**1.8**	**2.0**	**33**	**50**	--	--	--
6/8/17	**DUP5 (EB5-0.5')**	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	DUP6 (BA11-0.5')	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	DUP7 (BA2-5')	<1.0	<1.0	<1.0	<5.0	<5.0	--	--	--
	DUP8 (WC5-6')	<1.0	**3.4**	**5.6**	**110**	**190**	--	ND	--
	DUP9 (WC7-0.5')	<1.0	<1.0	<1.0	<5.0	<5.0	--	ND	--
	DUP10 (EB11-2.5')	<1.0	<1.0	**2.5**	<5.0	<5.0	--	--	--
7/21/17	**SO1 [0.5']**	--	--	--	--	--	--	--	<0.050
	SO2 [0.5']	--	--	--	--	--	--	--	<0.050
	SO3 [0.5']	--	--	--	--	--	--	--	<0.050
	SV11-5'	--	--	--	--	--	--	ND	--
	SV12-5'	--	--	--	--	--	--	ND	--
	SV13-5'	--	--	--	--	--	--	ND	--
	AN4'	<1.0	<1.0	--	<5.0	--	--	ND	--
	AN8'	<1.0	<1.0	--	<5.0	--	--	ND	--
Direct Expoxure HHRSLs (Residential, Table S-1)		740	230	230	1.10E+04	1.10E+04	--	--	0.25

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); VOCs = Volatile Organic Compounds; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); SG = Silica gel.

TABLE 2
Soil Analytical Results Summary (PAHs & LUFT 5 Metals)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.04

Sample Date	Sample ID	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[g,h,i]perylene	Chrysene	Fluoranthene	Pyrene	Other PAHs	Arsenic	Cadmium	Chromium	Lead	Nickel	Zinc
		Chemical Compound & Concentrations (mg/kg)													
6/7/17	**GS1-8'**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**5.0**	--	--
	GS2-2'	--	--	--	--	--	--	--	--	--	--	--	**8.2**	--	--
	GS2-6'	--	--	--	--	--	--	--	--	--	--	--	**6.8**	--	--
	GS3-8'	<0.010	<0.010	**0.0016 J**	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**8.9**	--	--
	GS4-5'	--	--	--	--	--	--	--	--	--	--	--	**150**	--	--
	GS5-4'	--	--	--	--	--	--	--	--	--	<0.25	**82**	**9.1**	**180**	**63**
	GS5-8'	--	--	--	--	--	--	--	--	--	<0.25	**39**	**4.1**	**100**	**39**
	GS6-4'	--	--	--	--	--	--	--	--	--	<0.25	**75**	**8.2**	**160**	**59**
	GS6-10'	--	--	--	--	--	--	--	--	--	<0.25	**87**	**5.3**	**330**	**46**
	GS7-2'	--	--	--	--	--	--	--	--	--	--	--	**18**	--	--
	GS8-2'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**8.9**	--	--
	GS8-8'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**5.3**	--	--
	GS10-8'	--	--	--	--	--	--	--	--	--	--	--	**6.1**	--	--
	GS11-2'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**10**	--	--
	GS11-8'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	--	--	--	**13**	--	--
	GS12-4'	--	--	--	--	--	--	--	--	--	--	--	**8.9**	--	--
	GS12-10'	--	--	--	--	--	--	--	--	--	--	--	**4.1**	--	--
	GS13-10'	--	--	--	--	--	--	--	--	--	--	--	**5.7**	--	--
6/8/17	**BA9-0.5'**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**18**	<0.25	**59**	**12**	**130**	**54**
	BA9-2.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**5.8**	<0.25	**73**	**7.8**	**160**	**60**
	BA10-0.5'	**0.019**	**0.018**	**0.021**	**0.014**	**0.017**	**0.016**	**0.030**	ND	**5.8**	<0.25	**55**	**20**	**110**	**57**
	BA10-2.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**3.9**	<0.25	**64**	**5.0**	**120**	**39**
	BA11-0.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**8.0**	<0.25	**99**	**12**	**200**	**67**
	BA11-2.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**7.6**	<0.25	**100**	**11**	**230**	**69**
	BA12-0.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**6.9**	<0.25	**81**	**8.5**	**160**	**61**
	BA12-2.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**8.7**	<0.25	**97**	**12**	**220**	**74**
	EB3-0.5'	--	--	--	--	--	--	--	--	--	--	--	**7.8**	--	--
	EB3-6'	--	--	--	--	--	--	--	--	--	--	--	**4.0**	--	--
6/7/17	**EB8-0.5'**	<0.050	**0.019 J**	**0.034 J**	**0.075**	<0.050	<0.050	<0.050	ND	**7.8**	<0.25	**49**	**6.4**	**94**	**53**
	EB8-2.5'	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	ND	**6.6**	<0.25	**77**	**8.2**	**170**	**62**
7/24/17	**BA1(A) [1.5']**	<0.010	**0.0029 J**	<0.010	**0.0038 J**	<0.010	<0.010	<0.010	ND	--	--	--	--	--	--
7/21/17	**SO2 [0.5']**	<0.020	**0.010 J**	**0.013 J**	**0.0079 J**	<0.020	**0.0083 J**	**0.012 J**	ND	--	--	--	--	--	--
Direct Exposure HHR SLs (Residential, Table S-1)		0.16	0.016	0.16	--	15	2400	1800	--	0.067	39	120000	80	820	23000

PAHs = Polyaromatic Hydrocarbons; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016).

TABLE 3
Soil Vapor Analytical Results Summary
1625 Chestnut Avenue, Livermore, CA
ACC Project Number: 6988-003.04

Sample Date	06.14.17										07.24.17						
Sample ID	**SV1 [5']**	**SV2 [15']**	**SV3 [5']**	**SV4 [15']**	**SV5 [5']**	**SV6 [5']**	**SV7 [15']**	**SV8 [20']**	**SV9 [20']**	**SVDUP [SV4]**	**SV8-20'(A)**	**SV9-20'(A)**	**SV10-5'**	**SV11-5'**	**SV12'-5**	**SV13-5'**	**HHRSLs**
Acetone	<60	**290**	<60	<60	<60	<60	**9500**	<60	<60	<160	**160**	**31**	**19**	**29000**	**27**	**73**	16000000
Acrolein	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<5.8	<16	**9.6**	**2.9 J**	**5.6 J**	<230	**2.5 J**	<5.8	--
Acrylonitrile	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	**12**	<1.1	<2.9	<1.1	<1.1	<1.1	<220	<1.1	**1.2**	--
Benzene	<1.6	**3.4**	<1.6	**2.1**	<1.6	<1.6	**2.6**	**11**	**2.2**	**23**	**2.5**	**1.1 J**	**1.2 J**	<16	**1.4 J**	**0.35 J**	48
Benzyl chloride	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<7.1	<2.6	<2.6	**0.34 J**	<530	<2.6	<2.6	--
Bromodichloromethane	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<9.3	<3.5	<3.5	**0.27 J**	<35	<3.5	**0.052 J**	38
Bromomethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**1.4 J**	<2.0	<2.0	<5.2	**3.5**	**1.3 J**	**1.9 J**	<390	<2.0	**4.4**	2600
MEK	<75	<75	<75	<75	<75	<75	**160**	<75	<75	<200	**160**	**71 J**	**10 J**	<300	**6.6 J**	**60**	--
TBA	<31	<31	<31	<31	<31	<31	**35**	<31	<31	<83	<31	<31	<31	<310	<31	<31	--
Carbon Disulfide	<1.6	**5.7**	<1.6	**3.4**	<1.6	<1.6	**7.9**	**59**	**6.3**	**13**	**0.84 J**	**2.6**	**1.0 J**	<320	**1.1 J**	**0.92 J**	--
Carbon Tetrachloride	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<8.5	**0.20 J**	**0.20 J**	**0.28 J**	<32	<3.2	**0.17 J**	33
Clorobenzene	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	<6.3	<2.4	<2.4	<2.4	<470	**0.14 J**	<2.4	26000
Chloroform	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	**0.71 J**	<2.4	<2.4	<6.5	**1.2 J**	**0.82 J**	**2.6**	<24	**1.2 J**	**0.61 J**	61
Cyclohexane	<18	<18	<18	<18	<18	<18	<18	**69**	<18	**68**	<18	<18	**1.3 J**	<350	**2.8 J**	**1.0 J**	--
1,2-Dibromoethane	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<10	<3.9	<3.9	**0.050 J**	<39	<3.9	<3.9	2.3
1,4-Dichlorobenzene	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<8.1	**0.16 J**	**0.18 J**	<3.0	<31	<3.0	<3.0	--
Dichlorodifluoromethane	<2.5	<2.5	<2.5	<2.5	<2.5	**2.7**	**2.6**	**3.6**	**7.2**	<6.7	**5.4**	**22**	**12**	<200	**7.3**	**5.7**	--
1,2-Dichloroethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	**0.23 J**	<2.0	<2.0	<5.5	**0.050 J**	**0.030 J**	**0.053 J**	<21	**0.053 J**	**0.038 J**	54
DIPE	<2.1	<2.1	<2.1	<2.1	<2.1	**3.3**	<2.1	<2.1	<2.1	<5.6	<2.1	<2.1	<2.1	<420	<2.1	<2.1	--
1,4-Dioxane	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<4.9	<1.8	<1.8	<1.8	<18	<1.8	**2.4**	180
Ethanol	<96	<96	<96	<96	<96	<96	**310**	<96	<96	<260	**14 J**	**6.3 J**	**7.1 J**	**660**	<96	**13 J**	--
Ethyl Acetate	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**15**	<1.8	<1.8	<4.9	<1.8	<1.8	**1.3 J**	<370	<1.8	**31**	--
Ethylbenzene	**3.9**	**79**	<2.2	**48**	**2.6**	<2.2	**3.7**	**4.3**	**2.8**	**180**	<2.2	<2.2	**5.2**	<440	**1.6**	**0.38**	560
4-Ethyltoluene	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	**4.3**	<2.5	<2.5	**35**	<2.5	<2.5	**3.6**	<500	**1.3 J**	**0.48 J**	--
Freon 113	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<10	**0.94 J**	**0.87 J**	**1.1 J**	<780	**1.2 J**	**1.0 J**	--
Heptane	<21	<21	<21	<21	<21	<21	<21	<21	<21	**56**	<21	<21	<21	<420	<21	<21	--
Hexane	<18	<18	<18	<18	<18	<18	**27**	**110**	<18	<48	<18	**2.8 J**	**1.2 J**	<360	**2.2 J**	**0.96 J**	--
2-Hexanone	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<5.6	<2.1	<2.1	**0.79 J**	<420	<2.1	**5.1**	--
MIBK	<2.1	**6.3**	<2.1	<2.1	<2.1	<2.1	**1.6 J**	<2.1	<2.1	<5.6	<2.1	<2.1	**1.8 J**	<420	**0.62 J**	**69**	--
MTBE	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	**35**	<1.8	<1.8	<1.8	<370	<1.8	<1.8	5400
Methylene chloride	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<8.8	<24	**4.1 J**	<8.8	**3.0 J**	<350	**7.0 J**	**2.7 J**	510
Methyl methacrylate	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<5.6	<2.1	<2.1	<2.1	<420	<2.1	**0.75 J**	--
Naphthalene	<5.3	<5.3	<5.3	**15**	<5.3	<5.3	<5.3	<5.3	<5.3	<14	**0.49 J**	**0.58 J**	**1.1 J**	<53	**0.82 J**	**0.97 J**	41
Styrene	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	**9.0**	<2.2	<2.2	**0.43 J**	<430	**0.40 J**	**0.44 J**	470000
1,1,1,2-Tetrachloroethane	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<9.3	<3.5	<3.5	**0.030 J**	<35	<3.5	<3.5	190
Tetrachloroethene	**47**	**140**	**150**	**150**	**11**	**15**	**54**	**33**	**90**	**96**	**54**	**190**	**340**	**430**	**180**	**290**	460*
Tetrahydrofuran	<3.0	**8.7**	<3.0	**3.0**	<3.0	<3.0	**93**	<3.0	<3.0	<8.0	**16**	**7.1**	**4.6**	<300	**1.7 J**	**11**	--
Toluene	**3.1**	**11**	<1.9	**8.9**	<1.9	<1.9	**11**	**27**	**12**	**330**	**0.63 J**	**0.59 J**	**14**	<380	**4.8**	**1.0 J**	160000
1,1,1,-Trichloroethane	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<7.3	<2.8	**0.87 J**	**1.9 J**	<550	<2.8	<2.8	520000
Trichloroethene	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<7.3	**0.38 J**	**0.31 J**	**0.12 J**	<28	**0.082 J**	**0.11 J**	240
Trichlorofluoromethane	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<7.6	**1.9 J**	**1.5 J**	**2.1 J**	<570	**2.5 J**	**2.0 J**	--
1,2,4-Trimethylbenzene	<2.5	**4.2**	<2.5	**5.8**	<2.5	<2.5	**5.0**	<2.5	**2.7**	**83**	<2.5	<2.5	**15**	<500	**3.6**	**1.2 J**	--
1,3,5-Trimethylbenzene	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	**34**	<2.5	<2.5	**5.2**	<500	**1.0 J**	<2.5	--
Total Xylenes	**31**	**450**	<6.6	**360**	**18**	<6.6	**13**	**8.6**	**14**	**800**	**1.5 J**	**1.1 J**	**32**	<1300	**8.6**	**2.4 J**	52000
Other VOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Oxygen (%)	**7.7**	**8.6**	**11**	**8.8**	**14**	**10**	**9.1**	**8.8**	**10**	**32**	--	--	--	--	--	--	--
Carbon Dioxide (%)	**2.6**	**7.2**	**6.3**	**7.2**	**5.2**	**7.6**	**7.5**	**4.7**	**2.7**	**5.3**	--	--	--	--	--	--	--
Methane (%)	**0.00014**	**0.00023**	<0.0002	<0.0002	<0.0002	<0.0002	**0.000067 J**	**0.0006**	**0.00012 J**	**0.000066 J**	--	--	--	--	--	--	--
Helium (%)	**0.15**	<0.050	<0.050	**0.17**	<0.050	<0.050	**0.10**	**6.6**	**10**	**3.7**	**0.19**	**ND<0.05**	**ND<0.05**	**ND<0.05**	**ND<0.05**	**ND<0.05**	--

*VOCs = Volatile Organic Compounds; ug/m3 = micrograms per cubic meter; MEK = 2-Butanone; TBA= t-Butyl alcohol; DIPE = Disopropyl ether; MIBK= 4-Methyl-2-pentanone; MTBE= Methyl-t-butyl ether; HHRSLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (Soil Gas Vapor Intrusion, Table SG1, February 2016). *Based on DTSC HERO HHRA NOTE NUMBER: 7 (Soil Vapor for new construction)*

TABLE 4

Results for Waste Characterization During Soil Excavation (TPH, VOCs, PCBs, & OCPs)

1625 Chestnut Street, Livermore, CA

ACC Project Number: 6988-003.04

Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)													
		TPH-g	TPH-d	TPH-mo	Xylenes	VOCs	PCBs	a-Chlordane	g-Chlordane	DDD	DDE	DDT	Dieldrin	Toxaphene	Other OCPs
6/7/17	WC1,WC2,WC3,WC4-0.5'	<1.0	**11**	**120**	--	--	<0.10	<0.00094	**0.00062 J**	**0.0013 J**	**0.010 J**	**0.0010 J**	<0.0020	<0.10	ND
	WC1,WC2,WC3,WC4-6'	<1.0	**1.6**	**27**	--	--	<0.050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.050	ND
	WC1,WC2,WC3,WC4-10'	<1.0	**9.7**	**130**	--	--	<0.050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.050	ND
	WC1-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC1-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC1-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC2-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC2-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC2-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC3-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC3-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC3-10'	--	--	--	**0.011**	ND	--	--	--	--	--	--	--	--	--
	WC4-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC4-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC4-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
6/8/17	WC5, 6, 7, 8-0.5'	<1.0	**7.8**	**220**	--	--	<0.10	**0.0053 P**	**0.0015 J**	**0.0011 J**	**0.013**	**0.0032 P**	**0.0020 J**	**0.11**	ND
	WC5, 6, 7, 8-6'	<1.0	<1.0	**8.1**	--	--	<0.050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.050	ND
	WC5, 6, 7, 8-10'	<1.0	**2.9**	**110**	--	--	<0.10	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.10	ND
	WC5-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC5-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC5-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC6-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC6-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC6-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC7-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC7-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC7-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC8-0.5'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC8-6'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
	WC8-10'	--	--	--	<0.0050	ND	--	--	--	--	--	--	--	--	--
Direct Exposure HHRSLs (Residential, Table S-1)		740	230	1.10E+04	5.60E+02	--	0.25	--	--	2.7	1.9	1.9	0.038	0.51	--
Direct Exposure HHRSLs (Construction, Table S-1)		2800	880	3.20E+04	2.40E+03	--	5.6	--	--	81	57	57	1.1	14	--
Hazardous Waste TTLC		--	--	--	--	--	50	2.5	2.5	1.0	1.0	1.0	8.0	5.0	--

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); VOCs = Volatile Organic Compounds; OCPs = Organochlorine Pesticides; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); -- = Not analyzed, not published, or varies by analyte.

TABLE 5
Soil Analytical Results Summary (PAHs, SVOCs, Asbestos, & Metals)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.04

Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)																	
		PAHs	SVOCs	Asbestos	Antimony	Arsenic	Barium	Chromium	Chromium STLC (mg/L)	Cobalt	Copper	Lead	Mercury	Molyb denum	Nickel	Nickel STLC (mg/L)	Vanadium	Zinc	Other Metals
6/7/17	WC1,WC2,WC3,WC4-0.5'	ND	ND	<0.25%	0.66	7.3	190	47	--	11	29	13	<0.050	2.2	76	--	30	61	ND
	WC1,WC2,WC3,WC4-6'	ND	ND	<0.25%	<0.50	4.1	140	60	0.21	12	24	5.3	<0.050	1.5	150	--	22	41	ND
	WC1,WC2,WC3,WC4-10'	--	ND	<0.25%	<0.50	4.4	190	71	0.26	18	29	4.6	0.050	2.0	290	1.5	23	46	ND
6/8/17	WC5, 6, 7, 8-0.5'	ND	ND	<0.25%	1.3	12	230	63	0.22	18	48	31	<0.050	0.88	140	--	35	66	ND
	WC5, 6, 7, 8-6'	ND	ND	<0.25%	<0.50	5.3	180	94	0.13	17	32	6.8	0.051	<0.50	210	2.1	27	53	ND
	WC5, 6, 7, 8-10'	ND	ND	<0.25%	<0.50	4.8	450	68	0.26	20	30	6.5	0.056	0.71	320	2.7	25	48	ND
6/7/17	GS5-4'	--	--	--	--	--	--	82	0.12	--	--	9.1	--	--	180	--	--	63	ND
	GS5-8'	--	--	--	--	--	--	39	--	--	--	4.1	--	--	100	--	--	39	ND
	GS6-4'	--	--	--	--	--	--	75	0.12	--	--	8.2	--	--	160	--	--	59	ND
	GS6'10'	--	--	--	--	--	--	87	0.22	--	--	5.3	--	--	330	2.0	--	46	ND
	GS12-4'	--	--	--	--	--	--	--	--	--	--	8.9	--	--	--	--	--	--	ND
	GS12-10'	--	--	--	--	--	--	--	--	--	--	4.1	--	--	--	--	--	--	ND
	GS13-10'	--	--	--	--	--	--	--	--	--	--	5.7	--	--	--	--	--	--	ND
Direct Exposure HHRSLs (Residential, Table S-1)		--	--	--	31	0.067	15000	120000	--	23	3100	80	13	390	820	--	390	23000	--
Direct Exposure HHRSLs (Construction, Table S-1)		--	--	--	140	0.98	3000	530000	--	28	14000	160	44	1800	86	--	470	110000	--
Hazardous Waste TTLC		--	--	1%	500	500	10000	2500	--	8000	2500	1000	20	3500	2000	--	2400	5000	--
Hazardous Waste STLC (mg/L)		--	--	--	--	--	--	--	5.0	--	--	--	--	--	--	20	--	--	--

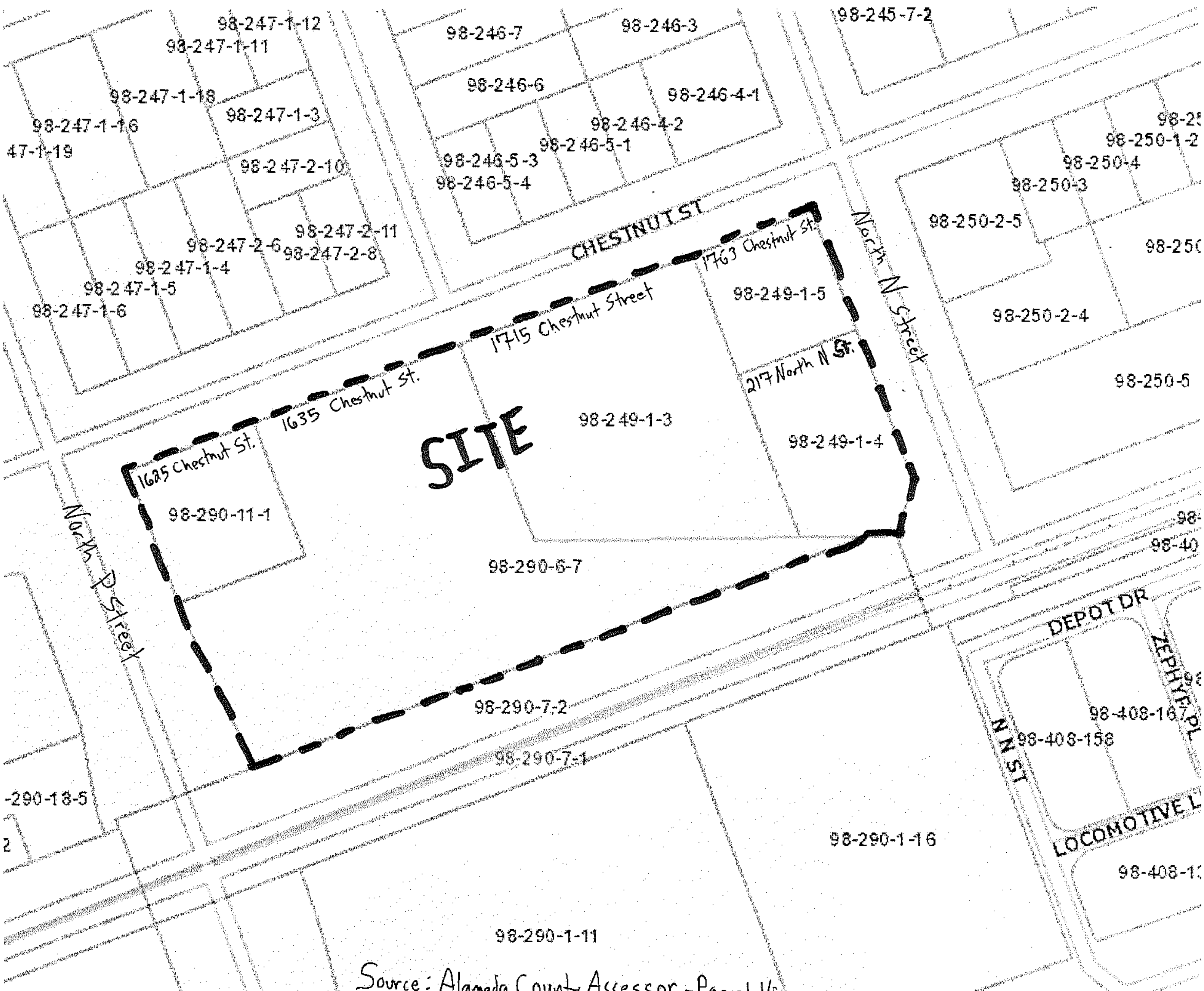
TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); VOCs = Volatile Organic Compounds; OCPs = Organochlorine Pesticides; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); -- = not published, not analyzed, or varies by compound.

TABLE 6 - ADDITIONAL SAMPLING LOCATIONS & ANALYSES

SOIL BORING ID	RATIONALE	EXCAVATION DEPTH	SOIL SAMPLING DEPTHS (FT BGS)	SOIL VAPOR (FT BGS)	ANALYSES	WASTE CHARACTERIZATION
GS1	ASSESS 8 FT BGS NEAR 2' and 5' TPH DETECTION AT C2(URS) & C3(URS)	0	**8'**	--	TPH-g, -d, -mo (8015); VOCs (8260); PNAs (8270 SIM); LEAD (6020)	--
GS2	ASSESS 2 & 6 FT BGS IN THE VICINITY OF B-1(EN) AND B-3 (ONLY DEEPER DATA EXISTS)	0	**2', 6'**	--	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6020)	--
GS3	ASSESS UST PIT NEAR B1 (HAVE 4' & 16' SAMPLE)	0	**8'**	--	TPH-g, -d, -mo (8015); VOCs (8260); PNAs (8270 SIM); LEAD (6010)	--
GS4/SV1-5	ASSESS 5 FT BGS IN UST PIT & INSTALL SV PROBE	0	**5'**	**5'**	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6010); TO-15	--
GS5/SV2-15	ASSESS 4 & 10 FT BGS IN UST PIT & INSTALL SV PROBE	10	**4', 8'**	**15'**	TPH-g, -d, -mo (8015); VOCs (8260); LUFT 5 (6010); PCBs (8081); TO-15	YES
GS6/SV4-15	ASSESS 4 & 10 FT BGS IN EXCAVATION & INSTALL SV PROBE NEAR FORMER EAST DISPENSER	10	**4', 10'**	**15'**	TPH-g, -d, -mo (8015); VOCs (8260); LUFT 5 (6010); PCBs (8081); TO-15	YES
GS7/SV3-5	ASSESS 2 FT BGS NEAR FORMER EAST DISPENSER	0	**2'**	**5'**	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6010); TO-15	--
GS8	ASSESS 2 & 8 FT BGS NEAR FORMER WEST DISPENSER	0	**2', 8'**	--	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6010); PNAs (8270 SIM)	--
GS9	ASSESS 8 FT BGS NEAR TPH DETECTION AT C1(URS)	0	**8'**	--	TPH-g, -d, -mo (8015)	--
GS10	ASSESS 8 FT BGS NEAR B5 AND B6 (HAVE 4' SAMPLE FOR B5 & B6)	0	**8'**	--	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6020)	--
GS11	ASSESS 2 & 8 FT BGS BENEATH FORMER SERVICE STATION BUILDING	0	**2', 8'**	--	TPH-g, -d, -mo (8015); VOCs (8260); PNAs (8270SIM); LEAD 6010)	--
GS12/SV7-15	ASSESS 4 &10 FT BGS BENEATH FORMER SERVICE STATION BUILDING	10	**4', 10'**	**15'**	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6010); PCBs (8081)	YES
GS13	ASSESS BASE OF EXCAVATION NEAR B4	10	**10'**	--	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6010)	YES
GS14	ASSESS AT 10 FT BGS NEAR TPH DETECTION AT C4(URS) & AT BASE OF EXCAVATION	10	**10'**	--	TPH-g, -d, -mo (8015)	YES
SV1-5	SEE SAMPLE ID GS4/SV1-5 ABOVE	0	--	**5'**	TO-15	--
SV2-15	SEE SAMPLE ID GS5/SV2-15 ABOVE	10	--	**15'**	TO-15	--
SV3-5	SEE SAMPLE ID GS7/SV3-5 ABOVE	0	--	**5'**	TO-15	--
SV4-15	SOIL VAPOR NEAR EAST FORMER DISPENSER & AT BASE OF EXCAVATION	10	--	**15'**	TO-15	--
SV5-5	SOIL VAPOR SAMPLE NEAR FORMER WEST DISPENSER	0	--	**5'**	TO-15	--
SV6-5	SOIL VAPOR SAMPLE AT FORMER SERVICE STATION BUILDING	0	--	**5'**	TO-15	--
SV7-15	SEE SAMPLE ID GS12/SV7-15 ABOVE	10	--	**15'**	TO-15	--
SV8-20	BASE OF WEST ELEVATOR SHAFT	15	**15'**	**20'**	TPH-g, -d, -mo (8015)	YES
SV9-20	BASE OF EAST ELEVATOR SHAFT	15	**5', 15'**	**20'**	TPH-g, -d, -mo (8015); VOCs (8260)	YES
BA1	ASSESS BIORETENTION AREA FOR TPH & 8 FT BGS IN THE VICINITY OF C6(URS) & C7 (URS) & PNAs	0	**0.5', 8'**	--	TPH-g, -d, -mo (8015); PNAs (8270 SIM)	--
BA2 through BA8	ASSESS BIORETENTION AREAS FOR TPH	0	**0.5'**	--	TPH-g, -d, -mo (8015)	--
BA9 through BA12	ASSESS AREAS ADJACENT TO RAILROAD TRACKS & BIORETENTION AREAS	0	**0.5', 2.5'**	--	TPH-g, -d, -mo (8015); PNAs (8270SIM); ARSENIC/LUFT 5 METALS (6010); PCBs (8082)	--
EB1	ASSESS 8 FT BGS NEAR TPH DETECTION AT C5(URS)	0	**8'**	--	TPH-g, -d, -mo (8015)	--
EB2	ASSESS 4 & 8 FT BGS NEAR 2' TPH DETECTION AT C8(URS)	0	**4', 8'**	--	TPH-g, -d, -mo (8015)	--
EB3	ASSESS SOIL FOR TPH AT PROPOSED LAWN AREA (CURRENTLY PARKING LOT)	0	**0.5', 6'**	--	TPH-g, -d, -mo (8015); VOCs (8260); LEAD (6020)	--
EB4 through E7	ASSESS SOIL AT EASTERN SITE FOR TPH (EXISTING DATA FOR VOCs, OCPs, LEAD, & ARSENIC)	0	**0.5', 6'**	--	TPH-g, -d, -mo (8015)	--
EB8	ASSESS SOIL ADJACENT TO RAILROAD TRACKS	0	**0.5', 2.5'**	--	TPH-g, -d, -mo (8015); PNAs (8270SIM); ARSENIC/LUFT 5 METALS (6010); PCBs (8082)	--
EB9 through EB11	ASSESS EXISTING HYDRAULIC PLATFORM LIFT AT EXISTING LOADING DOCK	0	**0.5', 2.5', 8'**	--	TPH-hydraulic oil (8015); PCBs (8082)	--
EB12 & EB13	ASSESS EXISTING TRANSFORMER	0	**0.5', 2.5'**	--	TPH-hydraulic oil (8015); PCBs (8082)	--
SO1 THROUGH SO3	STEP-OUT BORINGS TO ASSESS PCB IMPACTS IN SHALLOW SOIL AT HYDRAULIC PLATFORM LIFT & TRANSFORMER	0	**0.5'**	--	PCBs (8082)	NO
WC1 through WC4	COMPOSITE FOR WASTE CHARACTERIZATION	10	**0.5', 6', 10'**	**--**	TPH-g, -d, -mo (8015); VOCs (8260); CAM 17 METALS (6016); SVOCs (8270); PCBs (8082); OCPs (8081); ASBESTOS (CARB/PLM)	YES
WC5 through WC8	COMPOSITE FOR WASTE CHARACTERIZATION	10	**0.5', 6', 10'**	**--**		YES
SV11-5' through SV13-5'	ADDITIONAL SOIL VAPOR SAMPLING	0	**5'**	**--**	TO15, VOCs(8260)	NO
AN	SOIL BORING TO ASSESS ANOMOLY DETECTED DURING 2011 URS GEOPHYSICS SURVEY	0	**4', 8'**	**--**	VOCs(8260); TPH (8015)	NO

APPENDIX A

APN BOUNDARIES



Source: Alameda County Assessor - Parcel Viewer

APPENDIX B

AGENCY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Interim Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
LOCAL OVERSIGHT PROGRAM (LOP)
For Hazardous Materials Releases
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502
(510) 567-6700
FAX (510) 337-9335

October 24, 2016

Mr. Eric Uranga
City of Livermore Economic Development
1052 S. Livermore Avenue
Livermore, CA 94550
(Sent via email to: ejuranga@ci.livermore.ca.us)

Subject: Request for draft work plan for Case No. RO0003179 and GeoTracker Global ID T10000007202, Chestnut Square, 1625 Chestnut Street, Livermore, CA 94551

Dear Mr. Uranga:

Alameda County Department of Environmental Health (ACDEH) is sending this correspondence as a follow-up to the meeting that took place on October 3, 2016, between ACDEH, Polo Munoz and Allyson Ujimori from MidPen Housing Corporation, and Ian Sutherland and Kim Bunting from ACC Environmental Consultants, during which we discussed the above referenced case, including the site development plans in relation to historic borings and sampling locations.

Based on our review of the case and discussion at the meeting, ACDEH requests a draft work plan. Summarized below are ACDEH staff recommendations for the scope of work to be included in the draft work plan, which were also discussed during the meeting:

- ACDEH noted that in an investigation performed in the area of the historic gas station by URS and discussed in a report entitled, "Targeted Site Investigation Report," dated April 26,2011, benzene, ethylbenzene, toluene, and total xylenes (BTEX), although found to be below detection limits in both soil and groundwater, were detected in soil vapor samples. In addition, as noted by ACC Environmental Consultants, the soil vapor samples were collected on the date of a rainfall event, rather than collected at least five days without a significant rain event, as recommended by the Department of Toxic Substances Control's "*Advisory- Active Soil Gas Investigations*," dated April 2012. Therefore, we request that a soil gas sample be collected at the base of the planned elevator shaft nearest to the historic C-4 boring location. In addition, soil gas sampling should be collected in areas where BTEX was detected in soil and groundwater. In addition to BTEX, samples should be analyzed for methane.

- ACDEH noted that although soil samples were collected at 0 to 5 feet below ground surface (bgs) at the former gas station area, they were not collected at 5 to 10 feet bgs. In addition, the samples at 0 to 5 feet were analyzed for Total Petroleum Hydrocarbons and BTEX, but not for naphthalene. In order to characterize the soil at former gas station area for potential impacts to human health through direct contact and outdoor air exposure, sampling needs to be collected at both intervals of 0 to 5 feet bgs and 5 to 10 feet bgs and analyzed for the following: Total Petroleum Hydrocarbons as gasoline (TPH-g), diesel (TPH-d), and motor oil (TPH-mo) with and without silica gel cleanup; BTEX; and naphthalene. In addition, because motor oil has been detected in soil, the samples should be analyzed for polycyclic aromatic hydrocarbons (PAHs).

- ACDEH requests that shallow soil samples be collected in the proposed bioretention areas and analyzed for TPH-g, TPH-d, and TPH-mo with and without silica gel cleanup.

- According to figures and tables of historic sampling locations compiled and submitted to us by ACC Environmental Consultants, soil sampling was performed in the eastern portion of the site in 2007 or 2008 by Fugro, and the samples analyzed for volatile organic compounds (VOCs) including BTEX, methyl *tert*-butyl ether (MTBE), tetrachloroethene (PCE), and naphthalene. Please propose in the draft work plan further shallow soil sampling at 0 to 5 feet bgs and 5 to 10 feet bgs in the eastern area and analyze for TPH-g TPH-d, and TPH-mo with and without silica gel cleanup.

- We request that shallow soil sampling at 2 feet bgs be performed at the southern portion of the site near the railroad tracks and spurs and at the location of the transformer and hydraulic lift in the western part of the site and the samples be analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA 8270C/D with Selective Ion Monitoring SIM as the analytical method, as well as analyze for polychlorinated biphenyls (PCBs)

Submit the draft work plan via email to me (anne.jurek@acgov.org) and copy to Dilan Roe (dilan.roe@acgov.org) by **November 30, 2016.**

GeoTracker Compliance

A review of the State Water Resources Control Board's (State Water Board) GeoTracker website indicates that several reports, including Phase I and Phase II Environmental Site Assessments, that have been uploaded onto ACDEH's ftp site have not been uploaded onto GeoTracker as required. Please upload to GeoTracker all historic reports that you have pertaining to site.

In addition, ACC Environmental Consultants on behalf of the Responsible Party (RP) submitted to ACDEH in September 2016 figures of historic locations of samples. Some of the sampling referenced a 2008 investigation performed by Fugro. However, this 2008 investigation report has not been uploaded to either ACDEH's ftp site or GeoTracker. Please upload this report to both sites.

Other required files, including electronic data files for laboratory analytical data, boring logs, and site maps for all investigative work performed for this site have not been uploaded onto GeoTracker. Because this is a state requirement, ACDEH requests that all the above requested reports and data be uploaded to GeoTracker by **November 4, 2016.**

Pursuant to California Code of Regulations, Title 23, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1, beginning September 1, 2001, all analytical data, including monitoring well samples, submitted in a report to a regulatory agency as part of the UST or LUST program, must be transmitted electronically to the State Water Board GeoTracker system via the internet. Also, beginning January 1, 2002, all permanent monitoring points utilized to collect groundwater samples (i.e. monitoring wells) and submitted in a report to a regulatory agency, must be surveyed (top of casing) to mean sea level and latitude and longitude to sub-meter accuracy using NAD 83. A California licensed surveyor may be required to perform this work. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs, including SCP programs. Additionally, pursuant to California Code of Regulations, Title 23, Division 3, Chapter 30, Articles 1 and 2, Sections 3893, 3894, and 3895, beginning July 1, 2005, the successful submittal of electronic information (i.e. report in PDF format) shall replace the requirement for the submittal of a paper copy. Please upload all required submittals to GeoTracker. Electronic reporting is described below on the attachments.

If you have any questions, please call me at (510) 567-6721 or send me an electronic mail message at anne.jurek@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm. As your email address does not appear on the cover page of this notification ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Sincerely,

Digitally signed by Anne Jurek
DN: cn=Anne Jurek, o, ou, email=anne.jurek@acgov.org, c=US
Date: 2016.10.24 14:59:55 -07'00'

Anne Jurek, M.S.
Professional Technical Specialist II (Geology)

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

cc: Apolonio Munoz, MidPen Housing Corporation, 1970 Broadway Suite 440, Oakland, CA 94612 (Sent via email to: amunoz@midpen-housing.org)

Colleen Lopez, (Sent via email to: colleen.dblassociates@gmail.com)

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

Allyson Ujimori, MidPen Housing Corporation, 1970 Broadway Suite 440, Oakland, CA 94612 (Sent via email to: aujimori@midpen-housing.org)

Ian Sutherland, ACC Environmental Consultants, 7977 Capwell Drive, Suite 100, Oakland, California 94621 (Sent via email to: isutherland@accenv.com)

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, 2005. Please visit the SWRCB website for more information on these requirements. (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	**REVISION DATE:** July 25, 2012 **ISSUE DATE:** July 5, 2005 **PREVIOUS REVISIONS:** October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

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

REQUIREMENTS

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

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

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX C

REDEVELOPMENT PLANS

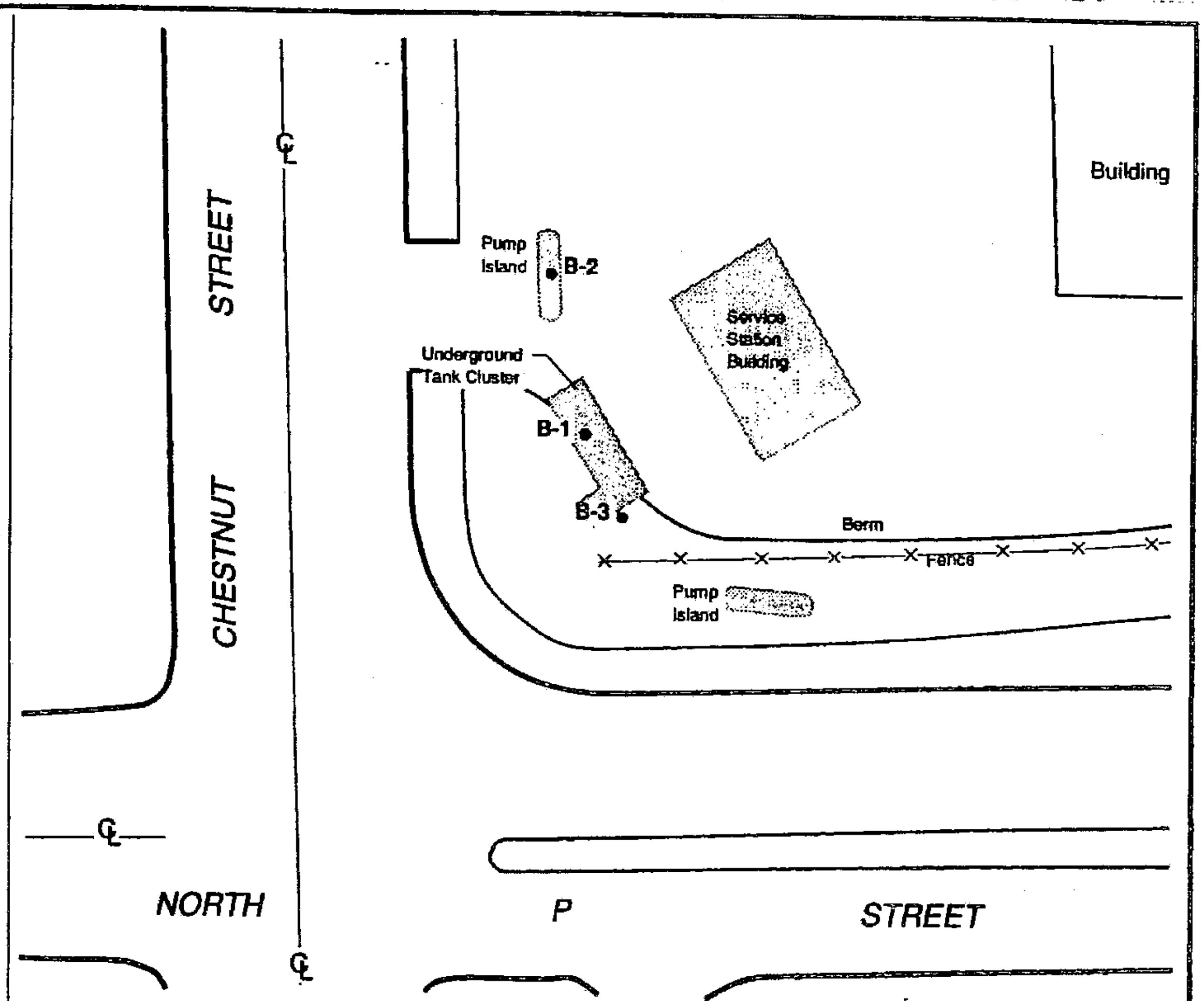
APPENDIX D

FORMER GASOLINE SERVICE STATION LAYOUT

LEGEND

● B-1 SOIL BORING

PREVIOUS GAS STATION FEATURES



40 0 40

APPROXIMATE SCALE (FEET)

KLEINFELDER

DRAFTED BY: L. Sue DATE: 8-21-89

CHECKED BY: L. Larsen/M. Klaver DATE: 8-21-89

BORING LOCATIONS

CHESTNUT MALL
1625–1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT NO. 10-2007-01

PLATE 2

APPENDIX E

GEOLOGIC SETTING

2.0 SITE GEOLOGY/HYDROLOGY

The Site lies within the Livermore Valley, which is comprised of continental deposits derived from alluvial fans, outwash plains, and lakes. Valley fill materials range in thickness from a few tens of feet to nearly 400 feet. Lithologies at the Site consist of Quaternary Alluvium overlying Franciscan bedrock (CDMG, 1980).

The aquifer system for the area is a multi-layered system with an unconfined upper aquifer overlying a sequence of semi-confined aquifers. Faults located to the north, east, and west, and variations in lateral continuity, thickness, and permeability of water-bearing formations cause local restrictions in the movement of groundwater within the groundwater basin.

The following geology and hydrogeology information was obtained from the Treadwell and Rollo Groundwater Investigation Report for the Livermore Arcade Shopping Center/Millers Outpost Shopping Center (LASC/MOSC) 2008 Trust Site, which is under the oversight of the San Francisco RWQCB (Treadwell and Rollo, 2009). This Site is within one-quarter mile of the Chestnut Site.

The Livermore Valley is bounded by the Calaveras Fault on the west, by the Greenville Fault on the east, and by the Mount Diablo Complex on the north. The Calaveras and Greenville faults are active strike-slip faults related to the San Andreas Fault system. The Livermore Valley includes down-dropped blocks and subsidiary northwest-trending faults. These blocks form sub-basins, and the Site lies in the Mocho Sub-basin, which is bounded on the southwest by the Mocho and Livermore faults, and on the northeast by the Tesla Fault. The Site lies in the southwestern portion of the sub-basin.

Previous investigations conducted in 1989 indicated the soils beneath the shopping center site are a heterogeneous mix of clayey silt, sandy gravel, and coarse gravels belonging to the Livermore Formation. These soils have moderate infiltration rates, high hydraulic conductivity, and low water-holding capacity. Soils encountered during previous investigations were primarily clays with varying percentages of silt, sand, and gravel.

The Livermore Formation is generally composed of unconsolidated to semi-consolidated beds of gravel, sand, silt, and clay (DWR, 2007). A lower member in the eastern portion of the valley is composed of gray silt and clay, with lenses of sand and gravel. The Livermore Formation is estimated to be at least 500 feet thick in the vicinity of the Site, and ranges up to 4,000 feet thick in the Livermore Valley. The Quaternary alluvial fan deposits make up the valley floor and are composed of semi-consolidated sand and gravel in a matrix of clayey sand. These deposits are on the order of 100 feet thick in the vicinity of the Site, and lie on an erosional unconformity on top of the Livermore Formation. The axis of the erosional surface is northeast of the Site, where the Quaternary deposits may range in thickness up to between 300 and 400 feet.

The Mocho Sub-basin is one of the groundwater sub-basins in Livermore Valley, where faulting and variations in the thickness of permeable sediments restrict horizontal and vertical groundwater flow. Groundwater in the Mocho Sub-basin occurs in Shallow and Deep Zones. In the vicinity of the Site, the Shallow Zone is unconfined and ranges from about 30 to as much as 85 feet bgs (or an elevation of 440 to 385 feet above mean sea level) (Alameda County Zone 7, 2007). The groundwater surface in the Livermore Valley slopes generally westward, but in the Mocho Sub-basin it is predominantly to the northwest. The Deep Zone ranges from about 100 to at least 500 feet bgs, and flows generally towards the northwest.

The Site and its immediate vicinity to the north and northwest are underlain by the following hydrostratigraphic units, listed in order of increasing depth bgs (Treadwell and Rollo, 2009):

- Vadose Zone – The vadose zone comprises the unsaturated strata above the water table. Its thickness varies as the water table elevation fluctuates from approximately 25 to 40 feet depth bgs. The lithology of the vadose zone generally resembles that of the Shallow Groundwater Zone.

- Shallow Groundwater Zone – The Shallow Groundwater Zone (Shallow Zone) is the uppermost, unconfined saturated zone, and consists of variably interbedded gravel, sand, silt, and clay layers. Groundwater is typically encountered between 25 and 75 feet bgs. Coarser-grained units are generally more transmissive, except those with more poorly sorted layers whose matrices are comprised of silt and clay materials (fine-grained units). Vertical and horizontal transmissivity in silty and clayey layers is low.

- Clay Aquitard – Underlying the Shallow Zone is an aquitard unit dominated by silty clay lithology. This includes well-sorted plastic clay layers, occasionally interbedded with discontinuous sandy lenses, and poorly sorted strata containing cobbles and gravel in a fine-grained matrix. Taken together, the unit is termed the “clay aquitard” in recognition of its function as a barrier to significant vertical hydrologic communication.

- Deep Groundwater Zone – The Deep Groundwater Zone (Deep Zone) consists of interbedded gravel, sand, and fine-grained strata. The main difference between this unit and the Shallow Zone, which exhibits similar lithologies, is that the gravel and sand layers in the Deep Zone are better sorted, thicker, and more continuous.

APPENDIX F

HISTORIC ANALYTICAL DATA

TABLE F1
Historical Soil Analytical Results Summary (TPH, VOCs & OCPs)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.02

Company	Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)												
			TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Acetone	Naphthalene	Tetrachloroethene	Other VOCs	OCPs
Kleinfelder	1989	**B-1 (10.5')**	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-1 (14.5')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-2 (2.5')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-2 (5.0')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-2 (15.0')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-3 (10.0')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
		B-3 (15.0')	<0.1	<10	<20	--	<0.0005	<0.0005	<0.0005	<0.002	--	--	--	--	--
Fugro West, Inc.	12.4.07	**DP1-1 @ 0'**	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-1 @ 2'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.010	<0.0050	ND	--
		DP1-1 @ 7.5'	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.048	<0.0097	<0.0048	ND	--
		DP1-2 @ 0'	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.048	<0.0097	<0.0048	ND	--
		DP1-2 @ 2'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.010	<0.0050	ND	--
		DP1-2 @ 7.5'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-3 @ 0'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.010	<0.0050	ND	--
		DP1-3 @ 2'	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.048	<0.0097	<0.0048	ND	--
		DP1-3 @ 7.5'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-4 @ 0'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.010	<0.0050	ND	--
		DP1-4 @ 2'	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.048	<0.0097	<0.0048	ND	--
		DP1-4 @ 7.5'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-5 @ 0'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-5 @ 2'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-5 @ 7.5'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.50	<0.010	<0.0050	ND	--
		DP1-6 @ 0'	--	--	--	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.049	<0.0098	<0.0049	ND	--
		DP1-6 @ 2'	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<0.048	<0.0097	<0.0048	ND	--
		DP1-6 @ 7.5'	--	--	--	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.050	<0.010	<0.0050	ND	--
Enercon Services, Inc.	8.18.09	**B-1-15'**	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
		B-1-49'	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
		B-2-15'	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
		B-2-35'	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
		B-3-15'	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
		B-3-49.25'	<10	<10	<10	--	<0.0050	<0.0050	<0.0050	<0.010	--	--	--	--	--
RS Corporation	2.17.11	**C1-2**	<0.26	**7.9**	<49	--	<0.0051	<0.0051	<0.0051	<0.010	--	--	--	--	--
		C1-5	<0.23	**100**	**570**	--	<0.0046	<0.0046	<0.0046	<0.0091	--	--	--	--	--
		C2-2	<0.22	**27**	**150**	--	<0.0043	<0.0043	<0.0043	<0.0087	--	--	--	--	--
		C2-5	<0.20	<0.99	<49	--	<0.0041	<0.0041	<0.0041	<0.0082	--	--	--	--	--
		C2-5 DUP	<0.21	**32**	**210**	--	<0.0041	<0.0041	<0.0041	<0.0082	--	--	--	--	--
		C2-20	<0.24	<0.99	<50	--	<0.0049	<0.0049	<0.0049	<0.0097	--	--	--	--	--
		C2-30	<0.22	<1.0	<50	--	<0.0045	<0.0045	<0.0045	<0.0090	--	--	--	--	--
		C3-2	<0.23	**39**	**140**	--	<0.0046	<0.0046	<0.0046	<0.0091	--	--	--	--	--
		C3-5	<0.22	**110J**	**470 J**	--	<0.0044	<0.0044	<0.0044	<0.0088	--	--	--	--	--
		C3-5 DUP	<0.26	<0.99 UJ	<50 UJ	--	<0.0053	<0.0053	<0.0053	<0.011	--	--	--	--	--
		C3-20	<0.20	<1.0	<50	--	<0.0040	<0.0040	<0.0040	<0.0081	--	--	--	--	--
		C3-30	<0.32	<1.0	<50	--	<0.0063	<0.0063	<0.0063	<0.013	--	--	--	--	--
		C3-60	<0.26	<0.99 UJ	<50 UJ	--	<0.0053	<0.0053	<0.0053	<0.011	--	--	--	--	--
		C4-2	<0.21	<1.0	<50	--	<0.0042	<0.0042	<0.0042	<0.0084	--	--	--	--	--
		C4-2 DUP	<0.23	<0.99	<49	--	<0.0046	<0.0046	<0.0046	<0.0091	--	--	--	--	--
		C4-5	<0.22	**140**	**670**	--	<0.0043	<0.0043	<0.0043	<0.0087	--	--	--	--	--

Company	Sample Date	Sample ID	Chemical Compound & Concentrations (mg/kg)												
			TPH-g	TPH-d	TPH-mo	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Acetone	Naphthalene	Tetrachloroethene	Other VOCs	OCPs
UF		**C5-2**	<0.21	**2.1**	<50	--	<0.0043	<0.0043	<0.0043	<0.0085	--	--	--	--	--
		C5-5	<0.22	**10**	**130**	--	<0.0044	<0.0044	<0.0044	<0.0087	--	--	--	--	--
		C6-2	<0.24	**38**	**210**	--	<0.0047	<0.0047	<0.0047	<0.0095	--	--	--	--	<0.002
		C7-2	<0.25	**45J**	**280 J**	--	<0.0051	<0.0051	<0.0051	<0.010	--	--	--	--	<0.002
		C7-60	--	--	--	--	--	--	--	--	--	--	--	--	<0.002
		C8-2	<0.22	**12**	**53**	--	<0.0043	<0.0043	<0.0043	<0.0087	--	--	--	--	<0.002
		C9-2	<0.30	<0.99	<49	--	<0.0061	<0.0061	<0.0061	<0.012	--	--	--	--	<0.002
		C9-2 DUP	<0.26	<0.99	<50	--	<0.0051	<0.0051	<0.0051	<0.010	--	--	--	--	<0.002
		C10-2	<0.27	<0.99	<49	--	<0.0054	<0.0054	<0.0054	<0.011	--	--	--	--	<0.002
		C11-2	<0.21	<1.0	<50	--	<0.0043	<0.0043	<0.0043	<0.0085	--	--	--	--	<0.002
		C12-2	<0.22	<0.99	<50	--	<0.0044	<0.0044	<0.0044	<0.0088	--	--	--	--	<0.002
		C13-2	<0.22	<0.99	<49	--	<0.0043	<0.0043	<0.0043	<0.0086	--	--	--	--	<0.002
		C14-2	<0.22	**1.7**	<50	--	<0.0044	<0.0044	<0.0044	<0.0087	--	--	--	--	<0.002
ACC Environmental Consultants, Inc.	10.24.13	**B1-4'**	<0.230	**4.8**	<49	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<45	<0.0091	<0.0045	ND	--
		B1-16'	<0.230	<0.99	<49	<0.0045	<0.0045	<0.0045	<0.0045	<0.0090	<45	<0.0090	<0.0045	ND	--
		B2-4'	<0.240	<0.99	<50	<0.0049	<0.0049	<0.0049	<0.0049	<0.0097	<45	<0.0097	<0.0049	ND	--
		B3-4'	<0.240	<0.99	<50	<0.0048	<0.0048	<0.0048	<0.0048	<0.0097	<45	<0.0097	<0.0048	ND	--
		B4-4'	<0.240	**4.2**	<49	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094	<45	<0.0094	<0.0047	ND	--
		B5-4'	<0.240	<1.0	<50	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	<45	<0.0095	<0.0047	ND	--
		B6-4'	<0.230	<1.0	<50	<0.0047	<0.0047	<0.0047	<0.0047	<0.0094	<45	<0.0094	<0.0047	ND	--
Direct Expoxure HHR SLs (Residential, Table S-1)			740	230	1.10E+04	42	0.23	970	5.1	560	5.90E+04	3.3	0.60	--	--

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); VOCs = Volatile Organic Compounds; OCPs = Organochlorine Pesticides; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); C2-5 DUP identified as C2-60 in lab report; C3-5 DUP identified as C3-60 in lab report; C4-2 DUP identified as C4-60 in lab report; C9-2 DUP identified as C9-60 in lab report.

TABLE F2
Historical Soil Analytical Results Summary (PAHs & Metals)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.02

Company	Sample Date	Sample ID	Chemical Compound & Concentrations (mg/Kg)																							
			Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]f luoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	Chrysene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Naphthalene	Pyrene	Other PAHs	Arsenic	Barium	Beryllium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Vanadium	Zinc	Mercury	Other Metals
Fugro West, Inc.	12.4.07	DP1-1 @ 0	--	--	--	--	--	--	--	--	--	--	--	3.5	--	--	--	--	--	4.8	--	--	--	--	--	--
		DP1-1 @ 2'	--	--	--	--	--	--	--	--	--	--	--	3.6	--	--	--	--	--	4.2	--	--	--	--	--	--
		DP1-1 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	2.6	--	--	--	--	--	2.9	--	--	--	--	--	--
		DP1-2 @ 0'	--	--	--	--	--	--	--	--	--	--	--	3.8	--	--	--	--	--	5.3	--	--	--	--	--	--
		DP1-2 @ 2'	--	--	--	--	--	--	--	--	--	--	--	4.0	--	--	--	--	--	5.3	--	--	--	--	--	--
		DP1-2 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	3.5	--	--	--	--	--	4.5	--	--	--	--	--	--
		DP1-3 @ 0'	--	--	--	--	--	--	--	--	--	--	--	3.9	--	--	--	--	--	5.2	--	--	--	--	--	--
		DP1-3 @ 2'	--	--	--	--	--	--	--	--	--	--	--	4.6	--	--	--	--	--	5.4	--	--	--	--	--	--
		DP1-3 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	3.4	--	--	--	--	--	2.9	--	--	--	--	--	--
		DP1-4 @ 0'	--	--	--	--	--	--	--	--	--	--	--	2.7	--	--	--	--	--	8.9	--	--	--	--	--	--
		DP1-4 @ 2'	--	--	--	--	--	--	--	--	--	--	--	3.6	--	--	--	--	--	4.9	--	--	--	--	--	--
		DP1-4 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	5.0	--	--	--	--	--	4.1	--	--	--	--	--	--
		DP1-5 @ 0'	--	--	--	--	--	--	--	--	--	--	--	5.4	--	--	--	--	--	44	--	--	--	--	--	--
		DP1-5 @ 2'	--	--	--	--	--	--	--	--	--	--	--	3.5	--	--	--	--	--	4.8	--	--	--	--	--	--
		DP1-5 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	3.2	--	--	--	--	--	3.3	--	--	--	--	--	--
		DP1-6 @ 0'	--	--	--	--	--	--	--	--	--	--	--	4.5	210	0.54	63	16	33	6.2	<1.0	120	29	42	<0.051	ND
		DP1-6 @ 2'	--	--	--	--	--	--	--	--	--	--	--	4.2	--	--	--	--	--	5.6	--	--	--	--	--	--
		DP1-6 @ 7.5'	--	--	--	--	--	--	--	--	--	--	--	4.4	--	--	--	--	--	5.5	--	--	--	--	--	--
URS Corporation	2.16.11	C1-2	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	ND	4.1 J	160 J	<0.41 UJ	52 J	14 J	28 J	8.5 J	<2.0 UJ	100 J	24 J	45 J	0.032 J	ND
		C1-5	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	ND	4.5 J	140 J	<0.41 UJ	60 J	15 J	30 J	7.2 J	<2.1 UJ	130 J	26 J	44 J	0.051 J	ND
		C2-2	0.087	0.011	0.014	0.009	0.0095	0.011	0.011	0.0061	<.005	0.016	ND	14 J	5.6 J	<0.38 UJ	41 J	11 J	32 J	18 J	<1.9 UJ	88 J	20 J	52 J	0.072 J	ND
		C2-5 DUP	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	ND	<4.1 UJ	110 J	<0.41 UJ	21 J	9.6 J	20 J	10 J	<2.0 UJ	38 J	18 J	30 J	0.27 J	ND
		C2-5	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	5.6 J	130 J	<0.38 UJ	45 J	12 J	24 J	6.7 J	<1.9 UJ	96 J	20 J	39 J	0.049 J	ND
		C3-2	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	<.0099	0.036	<.0099	ND	<4.1	110 J	<0.41	39	9.1	23	7.7	<2.0	67	24	38	0.031	ND
		C3-5	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	ND	<4.0	86	<0.40	34	8.3	20	6.0	<2.0	65	21	35	0.027	ND
		C3-5 DUP	--	--	--	--	--	--	--	--	--	--	--	<4.2	92	<0.40	46	8.3	23	5.1	<2.0	68	24	34	0.027	ND
		C3-60	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
		C4-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	4.5 J	200 J	<0.38 UJ	64 J	16 J	35 J	7.9 J	<1.9 UJ	120 J	27 J	50 J	0.029 J	ND
		C4-5	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	ND	<4.0 UJ	85 J	<0.40 UJ	33 J	6.6 J	15 J	4.1 J	<2.0 UJ	57 J	17 J	25 J	0.031 J	ND
		C5-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	5.7 J	230 J	<0.38 UJ	120 J	19 J	37 J	8.3 J	<1.9 UJ	170 J	30 J	49 J	0.067 J	ND
		C5-5	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	<.010	ND	5.0 J	180 J	<0.38 UJ	63 J	18 J	33 J	8.9 J	<1.9 UJ	150 J	26 J	50 J	0.075 J	ND
		C6-2	<.050	<.050	<.050	<.050	<.050	<.050	<.050	<.050	<.050	<.050	ND	<4.1	120	<0.41	43	11	22	6.9	<2.0	110	21	37	0.04	ND
		C6-5	--	--	--	--	--	--	--	--	--	--	--	<4.2	140 J	<0.42	66	15	25	6.2	<2.1	160	26	44	0.061	ND
		C6-5 DUP	--	--	--	--	--	--	--	--	--	--	--	5.4	180 J	<0.41	69 J	11	30	6.1	<2.0	130	23	39	0.048	ND
		C7-2	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	<.025	ND	4.5	200 J	<0.39	61 J	15	30	12	<1.9	130	27	48	0.32	ND
		C7-5	--	--	--	--	--	--	--	--	--	--	--	5.1	190 J	<0.40	83	22	33	8.3	<2.0	250	30	48	0.056	ND
		C8-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	5.8	230 J	<0.42	84 J	19	40	9.5	<2.1	160	37	53	0.041	ND
		C8-5	--	--	--	--	--	--	--	--	--	--	--	5.5	210 J	<0.40	86 J	19	36	8.9	<2.0	170	34	53	0.087	ND
		C9-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	5.5	230	<0.41	82	20	37	8.4	<2.1	160	36	54	0.035	ND
		C9-2 DUP	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	ND	4.9	210	<0.40	71	17	34	7.5	<2.0	140	31	48	0.043	ND
		C9-5	--	--	--	--	--	--	--	--	--	--	--	5.2	190 J	<0.41	210 J	15	32	11	30	140	31	44	0.028	ND
		C10-2	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	ND	5.6	220 J	<0.40	76 J	17	33	12	<2.0	140	34	58	0.054	ND
		C10-2 DUP	0.016J	0.021J	0.031J	0.013	0.014	0.022J	0.020J	0.01	<.099	0.031J	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
		C10-5	--	--	--	--	--	--	--	--	--	--	--	4.6	160 J	<0.40	71 J	14	28	8.0	<2.0	150	28	47	0.066	ND
		C11-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	5.9	200 J	<0.41	88 J	19	41	9.7	<2.1	170	36	57	0.079	ND
		C11-5	--	--	--	--	--	--	--	--	--	--	--	4.7	120 J	<0.41	160 J	27	20	5.4	<2.0	360	22	42	0.034	ND
		C12-2	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	<.0049	ND	6.4	260 J	<0.41	94 J	31	40	9.3	<2.1	350	35	54	0.047	ND
		C12-5	--	--	--	--	--	--	--	--	--	--	--	<3.8	110 J	<0.38	49 J	12	21	4.9	<1.9	140	20	35	0.047	ND
		C13-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	6.3	240 J	<0.40	90 J	20	38	9.5	<2.0	200	36	56	0.048	ND
		C13-5	--	--	--	--	--	--	--	--	--	--	--	4.7	170 J	<0.40	83 J	15	28	7.0	<2.0	170	28	51	0.058	ND
		C13-5 DUP	--	--	--	--	--	--	--	--	--	--	--	5.9	220 J	0.79	100 J	19	34	10	<2.1	180	37	53	0.052	ND
		C14-2	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	<.005	ND	6.4	240 J	1.0	100 J	18	35	10	<2.0	190	33	53	0.056	ND
		C14-5	--	--	--	--	--	--	--	--	--	--	--	<4.0	110 J	<0.40	52 J	17	20	5.0	2.5 UJ	160	19	34	0.098 J	ND
		C14-5 DUP	--	--	--	--	--	--	--	--	--	--	--	4.4	170 J	<0.41	64 J	14	30	10	2.0 UJ	120	27	47	0.037 J	ND
ACC Environmental Consultants, Inc.	10.24.13	B1-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.2	--	--	--	--	--	--
		B1-16'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.1	--	--	--	--	--	--
		B2-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.9	--	--	--	--	--	--
		B3-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.0	--	--	--	--	--	--
		B4-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.5	--	--	--	--	--	--
		B5-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.0	--	--	--	--	--	--
		B6-4'	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	6.8	--	--	--	--	--	--
Direct Expoxure HHR SLs (Residential, Table S-1)			0.16	0.016	0.16	--	1.6	15	2400	0.16	3.3	1800	--	0.067	15000	150	120000	23	3100	80	390	820	390	23000	13	--

PAHs = Polyaromatic Hydrocarbons; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); C6-5 DUP identified as C6-60 in lab report; C9-2 DUP identified as C9-60 in lab report; C13-5 DUP identified as C13-60 in lab report; C14-5 DUP identified as C14-60 in lab report; C2-2 DUP identified as C2-60 in lab repor; C3-5 DUP ientified as C3-60 in lab report (metals only?); C10-2 DUP idenitified C10-60 in lab report (PAHs only?).

TABLE F3
Soil Vapor Analytical Results Summary (URS 2011)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.02

Company	Sample Date	Sample ID	Chemical & Concentration (ug/m3)																
			Benzene	Ethylbenzene	Toluene	Total Xylenes	Tetrachloroethene	Trichloroethene	Vinyl Chloride	Propylene	1,3-Butadiene	Acetone	Carbon Disulfide	n-Hexane	2-Butanone	Cyclohexane	n-Heptane	Bromoform	Other VOCs
URS Corporation	2.16.11	**C1-SG**	**8.9**	**6.4**	**18**	**24**	<6.0	<4.8	<2.3	**56**	**9.6**	**27**	<2.8	**3.7**	**6.2**	**17**	**4.1**	**10**	ND
		C2-SG	**5.4**	<4.0	**6.1**	<4.0	**6.3**	<4.9	<2.3	**48**	<2.0	**13**	<2.8	**110**	<2.7	**21**	**32**	**9.8**	ND
		C3-SG	<2.8	<3.8	<3.3	<3.8	**46**	<4.6	<2.2	**5.7**	<1.9	<8.2	<2.7	<3.0	<2.6	<3.0	<3.5	<8.9	ND
		C4-SG	**14**	**5.6**	**16**	**14**	**49**	<5.1	<2.4	**170**	**14**	**20**	<2.9	**7.1**	**3.6**	**28**	**6.2**	**27**	ND
		C5-SG	**40**	**61**	**78**	**180**	**35**	<4.9	<2.3	**550**	**77**	**39**	**5.6**	**23**	**9.6**	**25**	**15**	**22**	ND
		C6-SG (C3DUP)	<2.8	<3.8	<3.3	<3.8	**46**	<4.6	<2.2	<1.5	<1.9	<8.2	<2.7	<3.0	<2.6	<3.0	<3.5	<8.9	ND
Soil Gas Vapor Intrusion HHR SLs (Table SG-1, residential)			48	560	1.60E+05	5.20E+04	240	240	4.7	--	--	1.60E+07	--	--	--	--	--	--	--

ug/m3 = micrograms per cubic meter; VOCs = Volatile Organic Compounds; HHRSLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); C3-SG DUP identified as C6-SG in URS report.

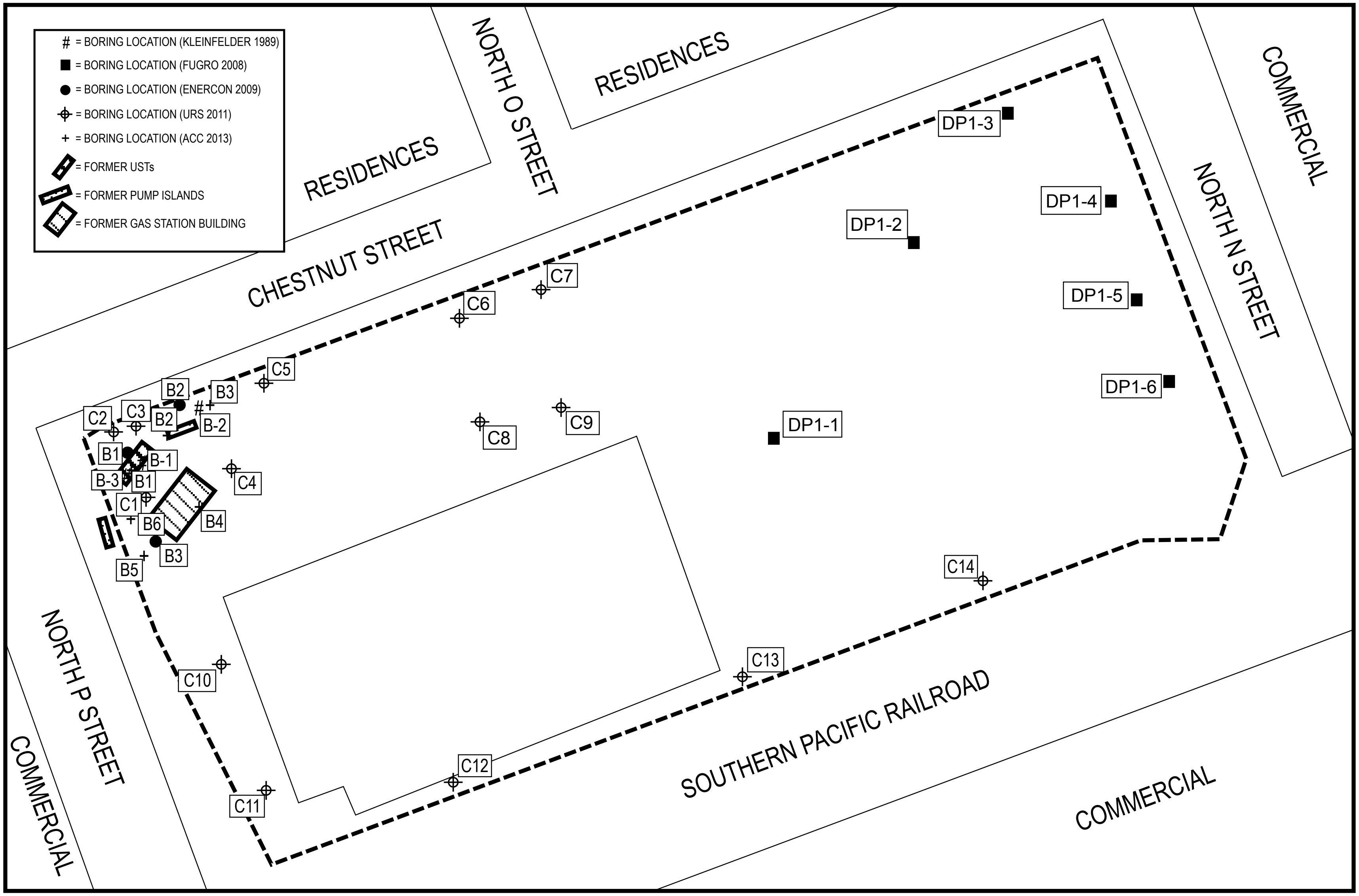
TABLE F4
Groundwater Analytical Results Summary (TPHs, VOCs & Metals)
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.02

Company	Sample Date	Sample ID	Chemical Compound & Concentrations (ug/L)																								
			TPH-g	TPH-d	TPH-mo	Benzene	Ethylbenzene	Toluene	Total Xylenes	MTBE	Naphthalene	tert-Butylbenzene	Tetrachloroethene	Trichloroethene	Vinyl Chloride	Other VOCs	Barium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Vanadium	Zinc	Mercury	Other Metals
Fugro West, Inc.	2007	**A1-1**	--	--	--	<1.0	<1.0	<1.0	<2.0	<0.5	<2.0	<2.0	**16**	<1.0	<1.0	ND	--	--	--	--	--	--	--	--	--	--	--
URS Corporation	2.17.11	**C1GW**	<50	<55	<110	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<1.0	**13**	**0.71**	<0.5	ND	**0.43**	**0.015**	**0.011**	**<0.02**	**0.0051**	**0.01**	**0.081**	**0.011**	<0.02	<0.0002	ND
		C2GW	<50	**130**	**400**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<1.0	**14**	<0.50	<0.5	ND	**0.47**	**0.086**	**0.024**	**0.044**	**0.0059**	**0.015**	**0.27**	**0.035**	**0.042**	<0.0002	ND
		C9GW	<50	**72**	**190**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<1.0	**15**	**0.53**	<0.5	ND	**1.2**	**0.029**	**0.031**	**0.039**	**0.0094**	**0.016**	**0.15**	**0.022**	**0.029**	**0.0005**	ND
		C12GW	<50	<62	**120**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<1.0	**2.4**	<0.50	<0.5	ND	**0.35**	<0.01	**0.0023**	<0.02	<0.005	<0.01	**0.016**	<0.01	<0.02	<0.0002	ND
		C14GW	<50	**69**	**82**	<0.5	<0.5	<0.5	<1.0	<0.5	<1.0	<1.0	**13**	**0.98**	<0.5	ND	**0.30**	<0.01	**0.0087**	<0.02	<0.005	**0.034**	**0.055**	<0.01	<0.02	<0.0002	ND
MCL Priority (Table GW-1)			220	150	--	1.0	30	40	20	5.0	0.17	--	5.0	5.0	0.5	--	1000	50	6.0	1000	15	100	100	50	5000	2.0	--
Vapor Intrusion HHR SLs (GW-3, fine-coarse mix, residential)			--	--	--	30	370	1.00E+05	3.80E+04	100	180	--	100	170	2.0	--	--	--	--	--	--	--	--	--	--	--	--

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); VOCs = Volatile Organic Compounds; ug/L = micrograms per liter; MCL = US EPA Maximum Contaminant Levels; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016).

APPENDIX G

HISTORIC SAMPLING LOCATIONS



A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

HISTORIC SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

APPROXIMATE SCALE (FEET)

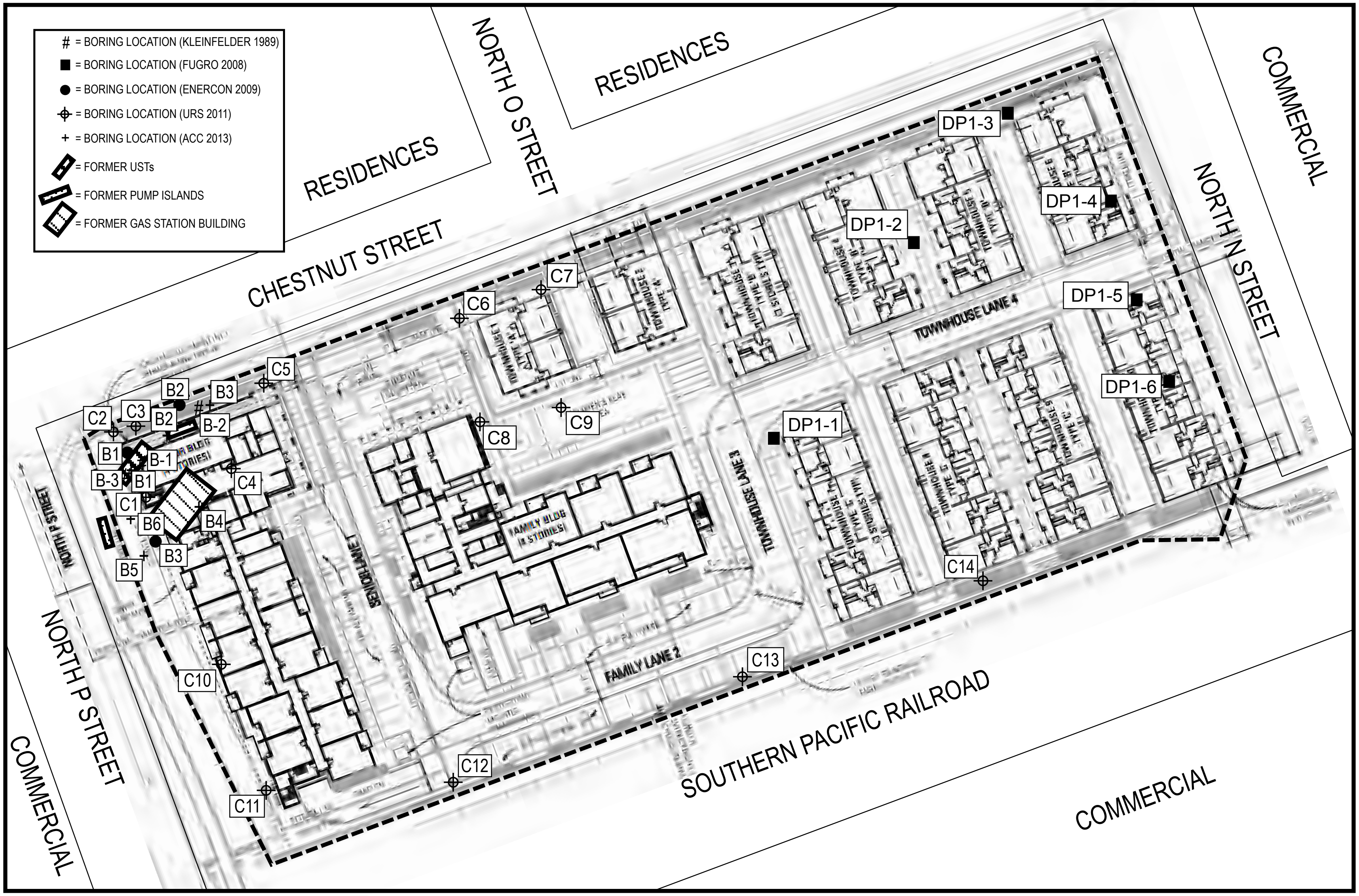
0 80 160

PROJECT: 6988-003.02

9.30.16

FIGURE 1

ALL DIMENSIONS & LOCATIONS APPROXIMATED



GROUND FLOOR SITE PLAN, RECs
HISTORIC SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

N W E S

APPROXIMATE SCALE (FEET)
0 80 160

PROJECT: 6988-003.02

9.30.16

FIGURE 2

ALL DIMENSIONS & LOCATIONS APPROXIMATED

A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

LANDSCAPING & HISTORIC SOIL BORING LOCATIONS 1625 CHESTNUT STREET LIVERMORE, CALIFORNIA

N W E S

APPROXIMATE SCALE (FEET)
0 80 160

PROJECT: 6988-003.02

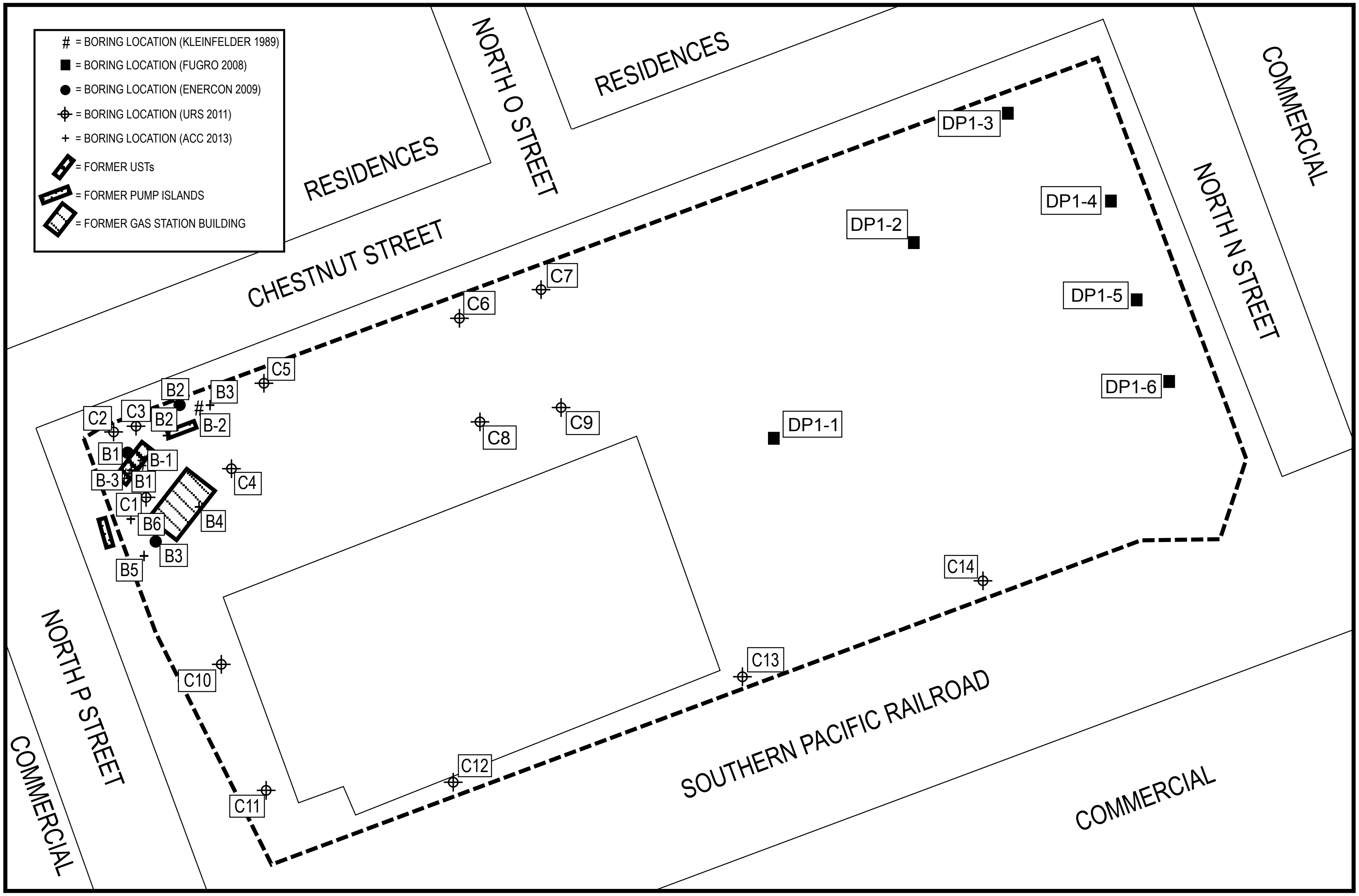
9.30.16

FIGURE 4

ALL DIMENSIONS & LOCATIONS APPROXIMATED

APPENDIX H

SUPPLEMENTAL DATA REQUESTED BY ACDEH



A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

HISTORIC SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

APPROXIMATE SCALE (FEET)

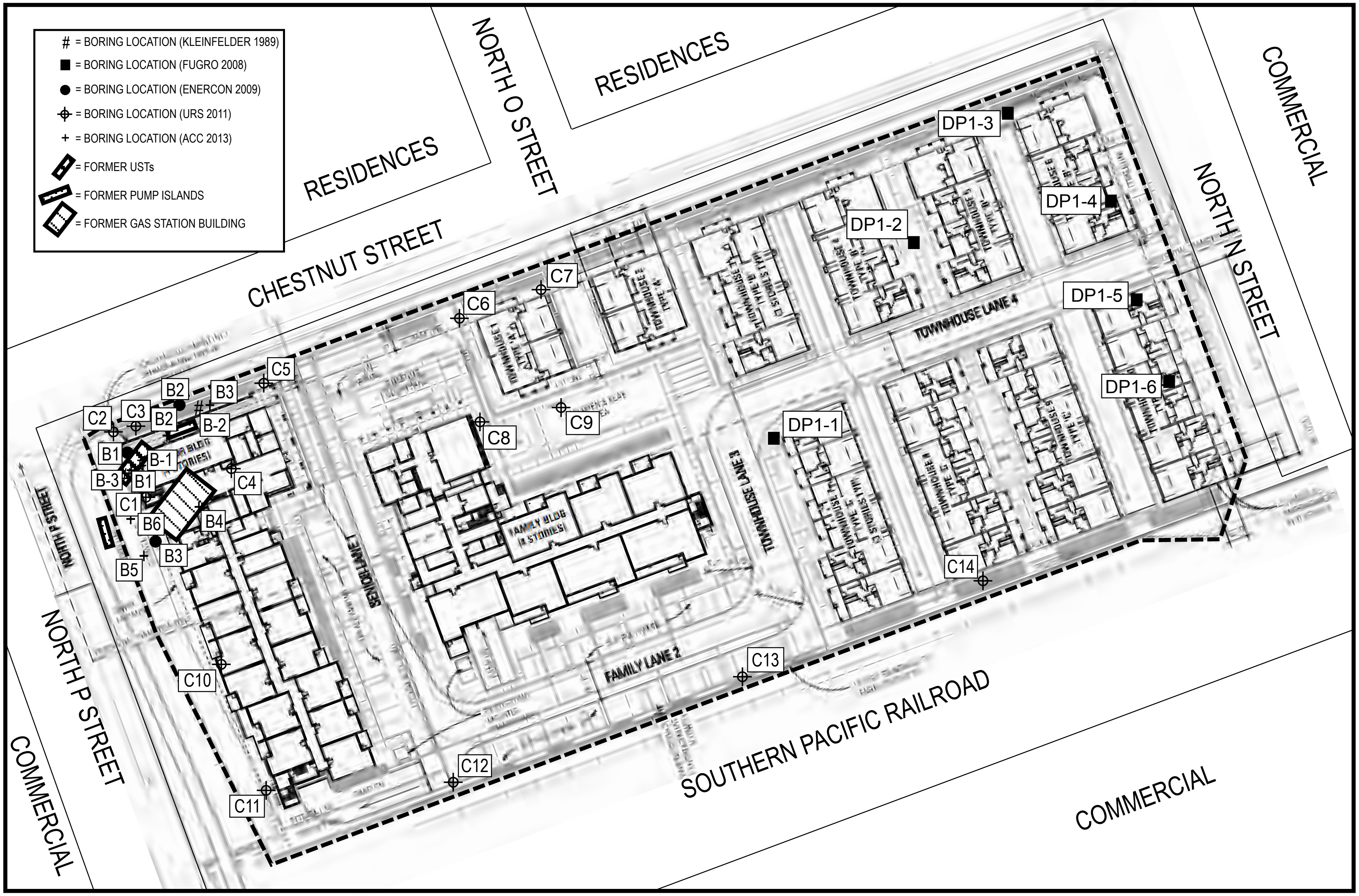
0 80 160

PROJECT: 6988-003.02

9.30.16

FIGURE 1

ALL DIMENSIONS & LOCATIONS APPROXIMATED



ACC ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

GROUND FLOOR SITE PLAN, RECs
HISTORIC SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N
W E
S

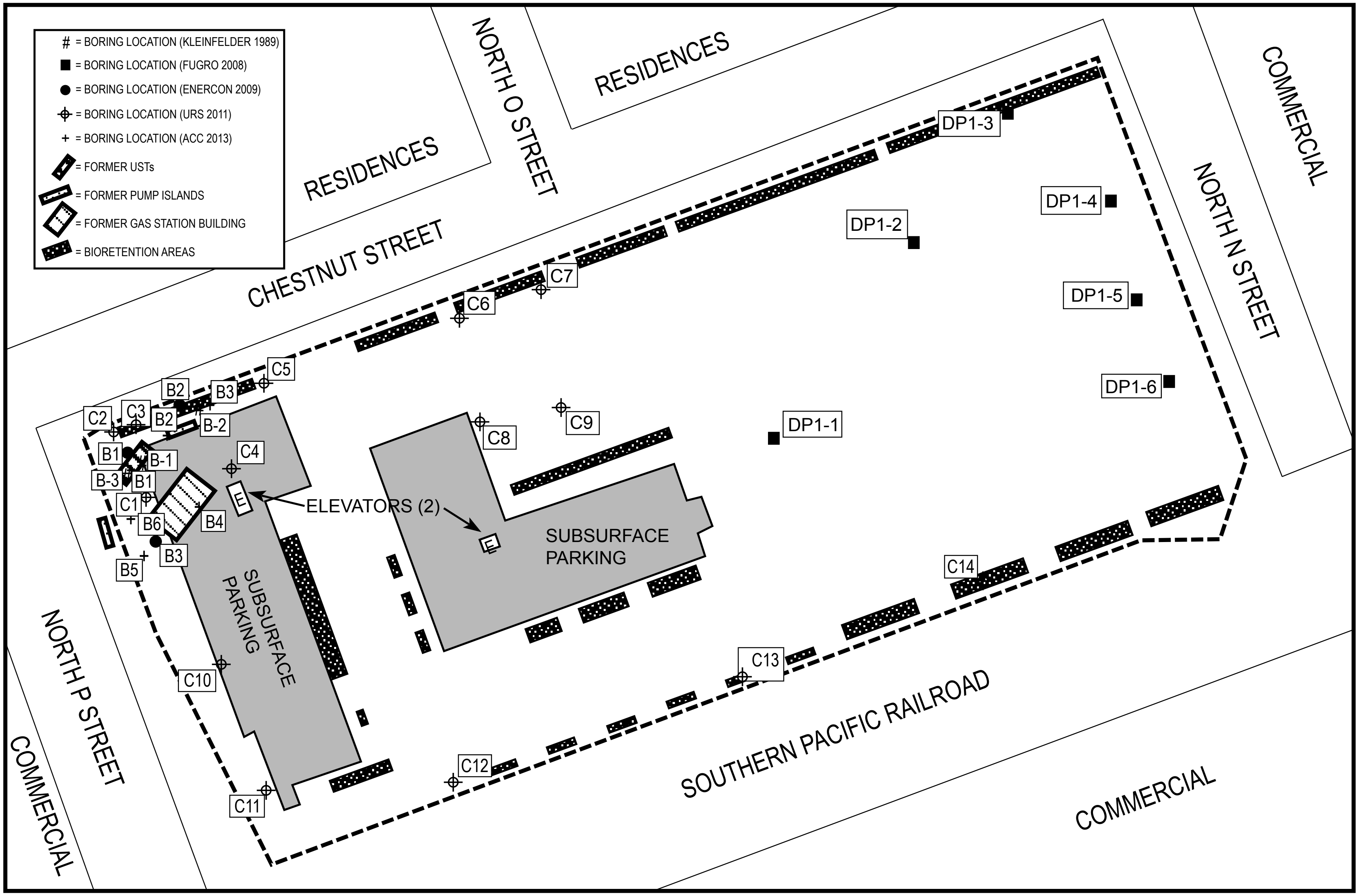
APPROXIMATE SCALE (FEET)
0 80 160

PROJECT: 6988-003.02

9.30.16

FIGURE 2

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

SUBSURFACE PARKING, ELEVATORS BIORETENTION AREAS, & HISTORIC SOIL BORING LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT: 6988-003.02

9.30.16

FIGURE 3

ALL DIMENSIONS & LOCATIONS APPROXIMATED

A·C·C ENVIRONMENTAL CONSULTANTS An Employee Owned Company	**LANDSCAPING & HISTORIC SOIL BORING LOCATIONS 1625 CHESTNUT STREET LIVERMORE, CALIFORNIA**	N W E S	APPROXIMATE SCALE (FEET) 0 80 160	**FIGURE 4**
			PROJECT: 6988-003.02	
			9.30.16	ALL DIMENSIONS & LOCATIONS APPROXIMATED

BASEMAP SOURCE: GOOGLE MAPS (9.16.16)

ALL DIMENSIONS & LOCATIONS APPROXIMATE

= WATER SUPPLY WELL

= POSSIBLE OFF SITE CONTAMINATION SOURCES

	DATE	BEARING	GRADIENT
1	10/16/06	N63°W	0.012
2	04/17/07	S68°W	0.022
3	12/19/07	N78°W	0.04
4	04/07/08	NORTHWEST	VARIABLE
5	10/25/11	N53°W	0.025
6	05/30/12	S89°W	0.020
7	11/19/12	N36°W	0.015
8	08/24/13	N73°W	0.014
9	12/03/13	N32°W	0.013
10	06/17/14	N74°W	0.078
11	12/02/14	DRY	
12	03/09/15	N60°W	0.032

ROSE DIAGRAM

A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

FIGURE 5

APPROXIMATE SCALE (FEET)
0 500 1000

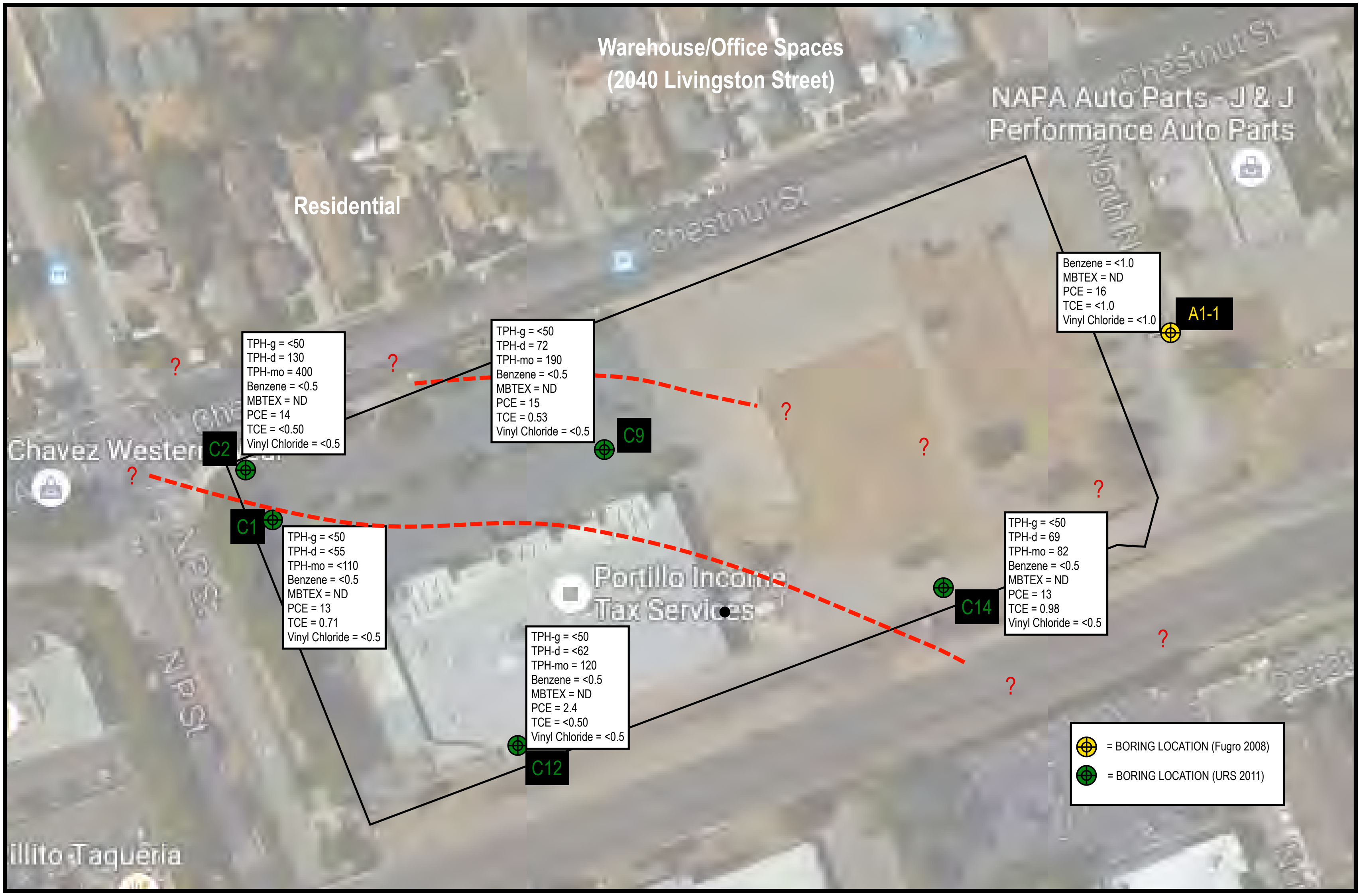
SENSITIVE RECEPTORS (1,000 ft) & POTENTIAL UP-GRADIENT SOURCES

ACC NO: 6988-003.02

DATE: 9.16.16

DRAWN BY: KB

1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

GROUNDWATER RESULTS (ug/L)
WITH TPH-d BOUNDARIES
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

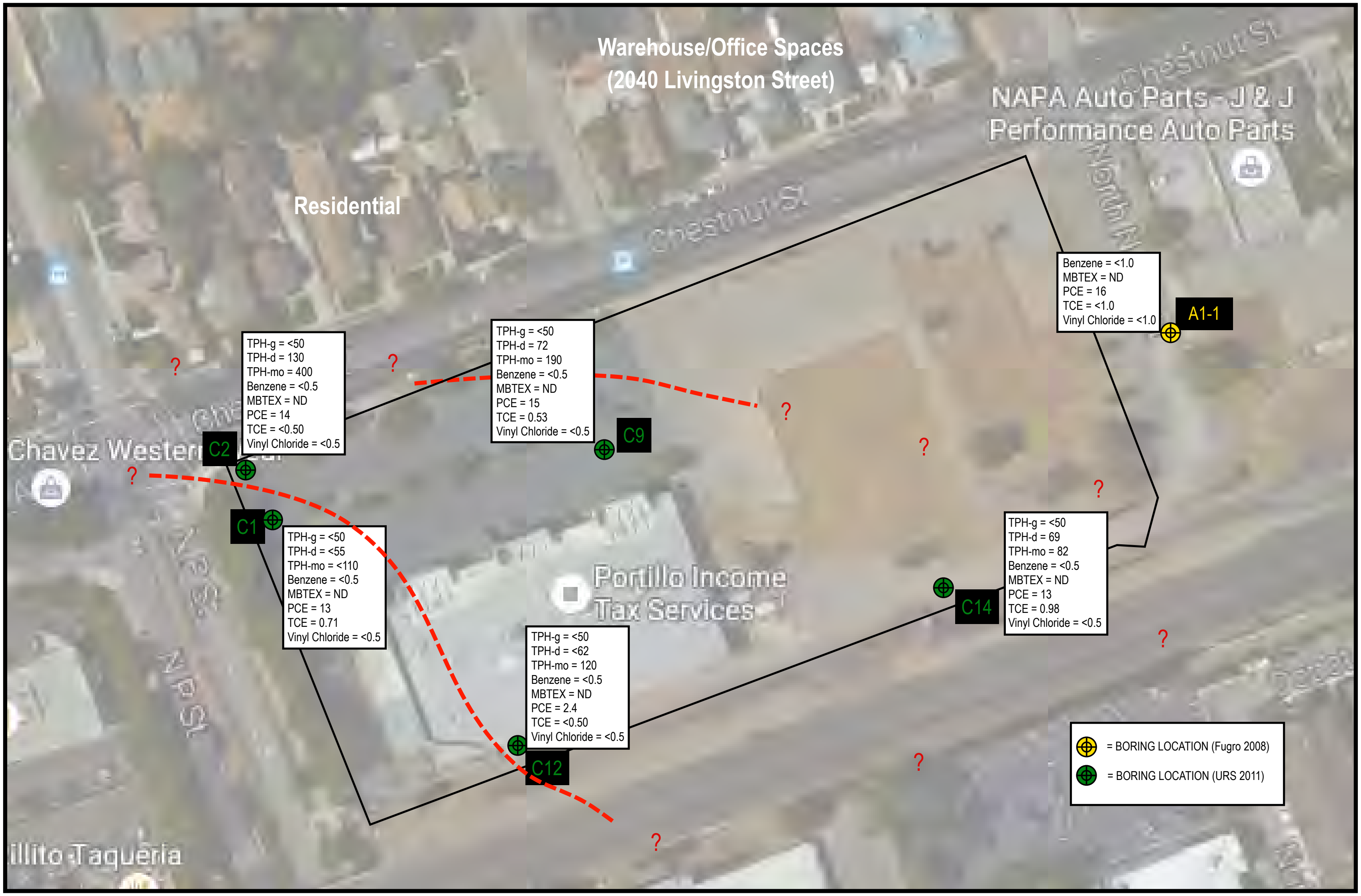
APPROXIMATE SCALE (FEET)
0 100 200

PROJECT: 6988-003.02

9.30.16

FIGURE 6

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

GROUNDWATER RESULTS (ug/L)
WITH TPH-mo BOUNDARIES
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N
W E
S

APPROXIMATE SCALE (FEET)

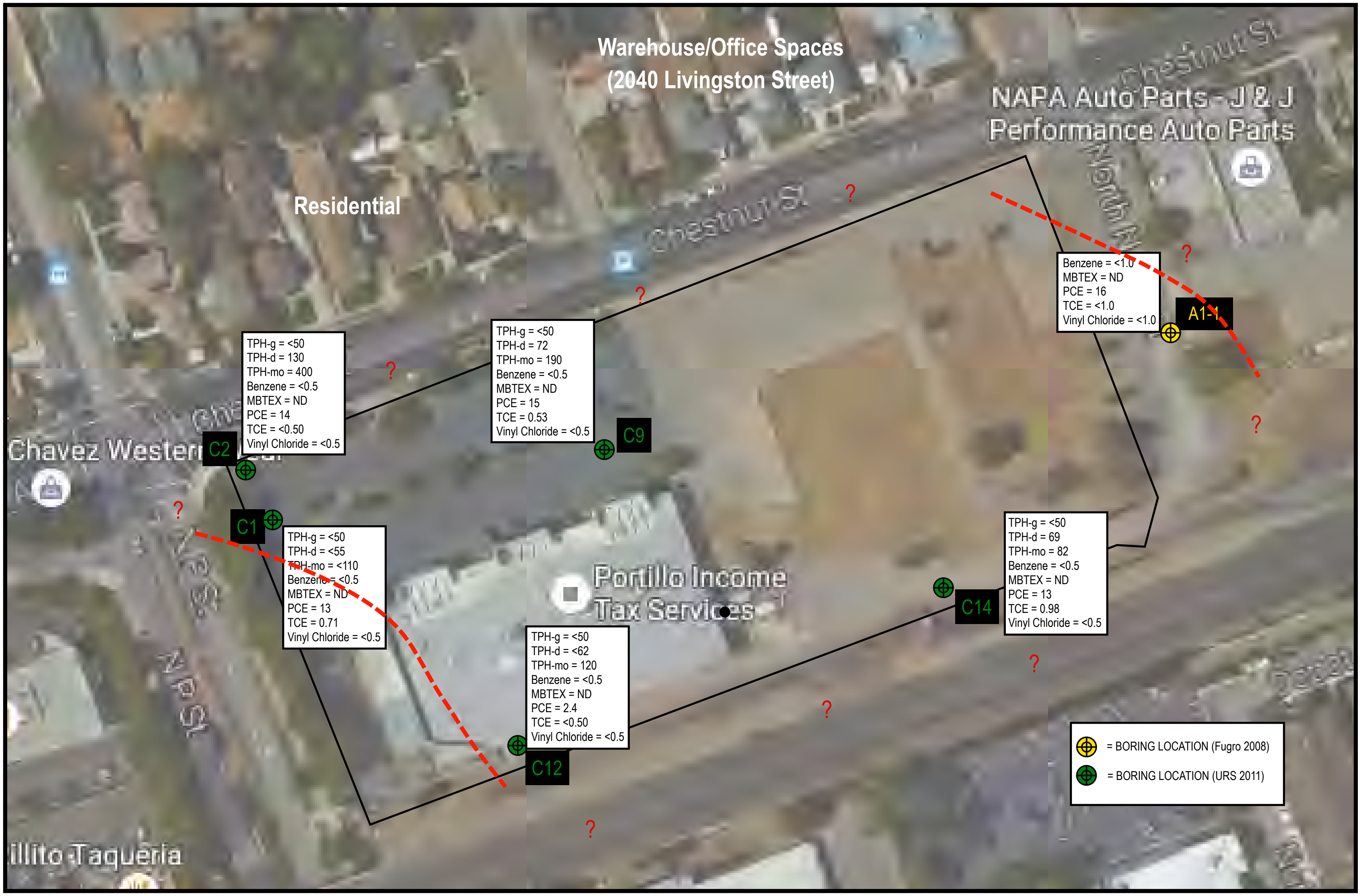
0 100 200

PROJECT: 6988-003.02

9.30.16

FIGURE 7

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

HISTORIC GROUNDWATER RESULTS (ug/L)
WITH PCE BOUNDARIES
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

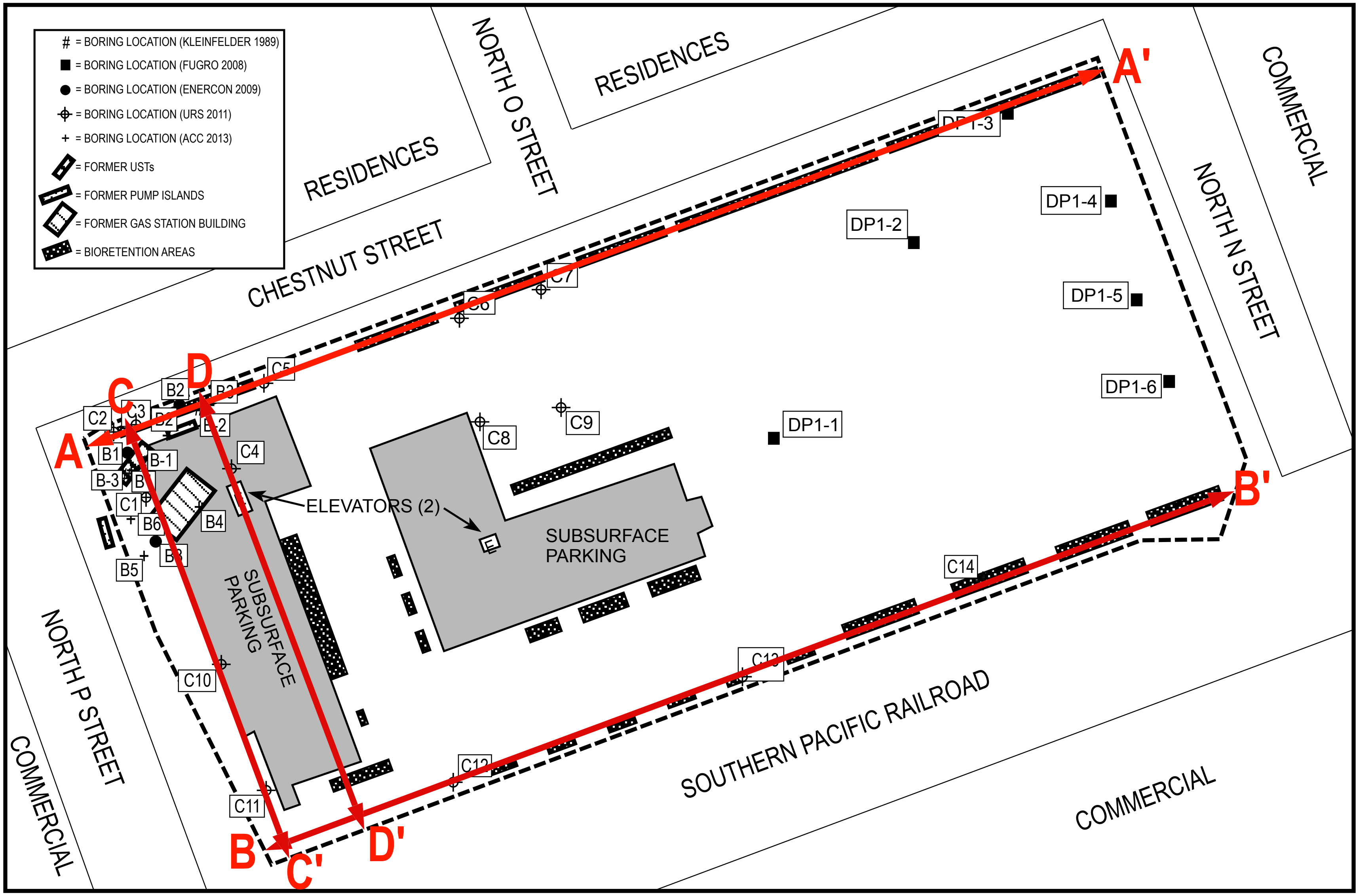
APPROXIMATE SCALE (FEET)
0 100 200

PROJECT: 6988-003.02

9.30.16

FIGURE 8

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS

An Employee Owned Company

CROSS SECTION LOCATIONS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

N W E S

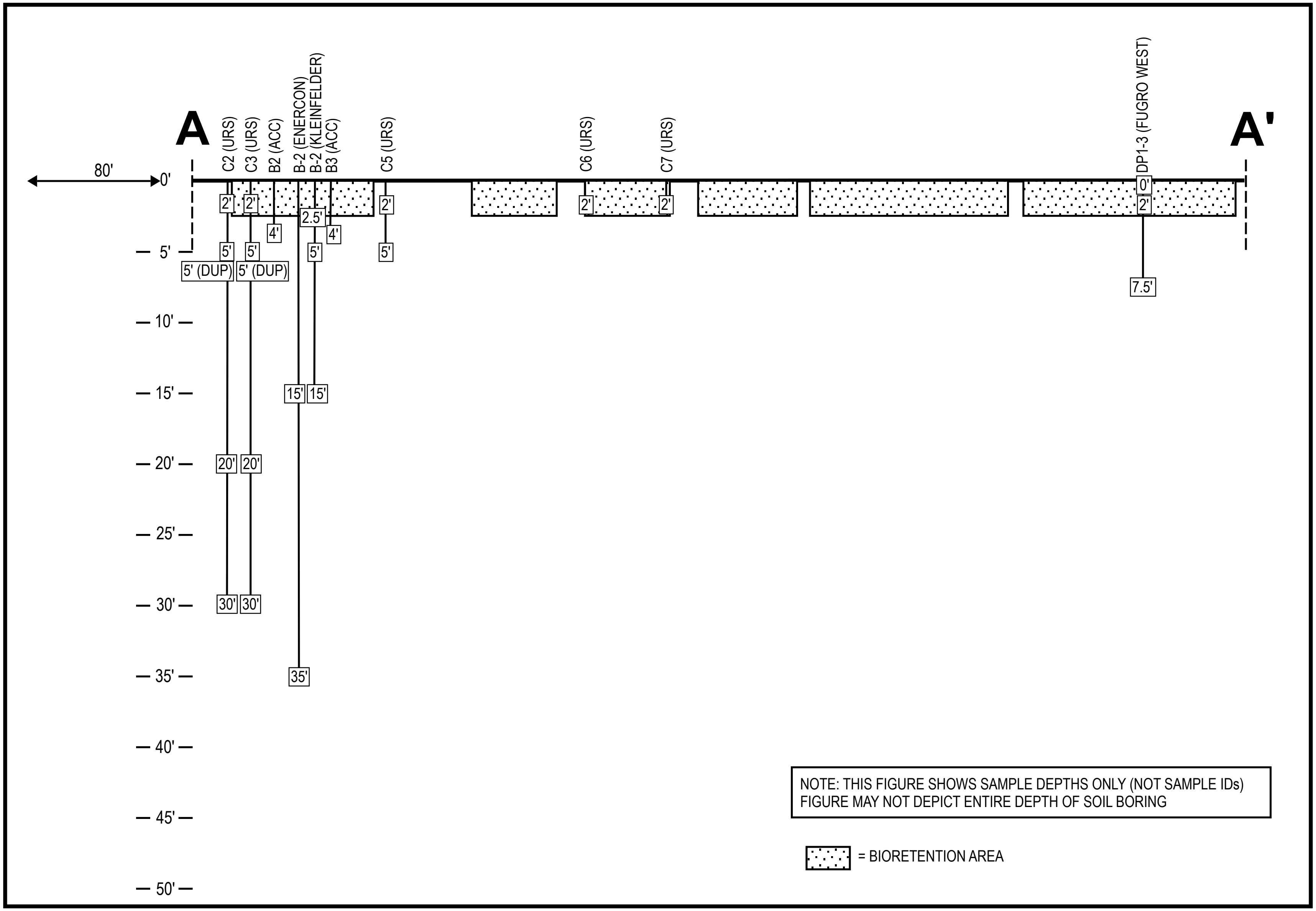
APPROXIMATE SCALE (FEET)
0 80 160

PROJECT: 6988-003.02

9.30.16

FIGURE 9

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

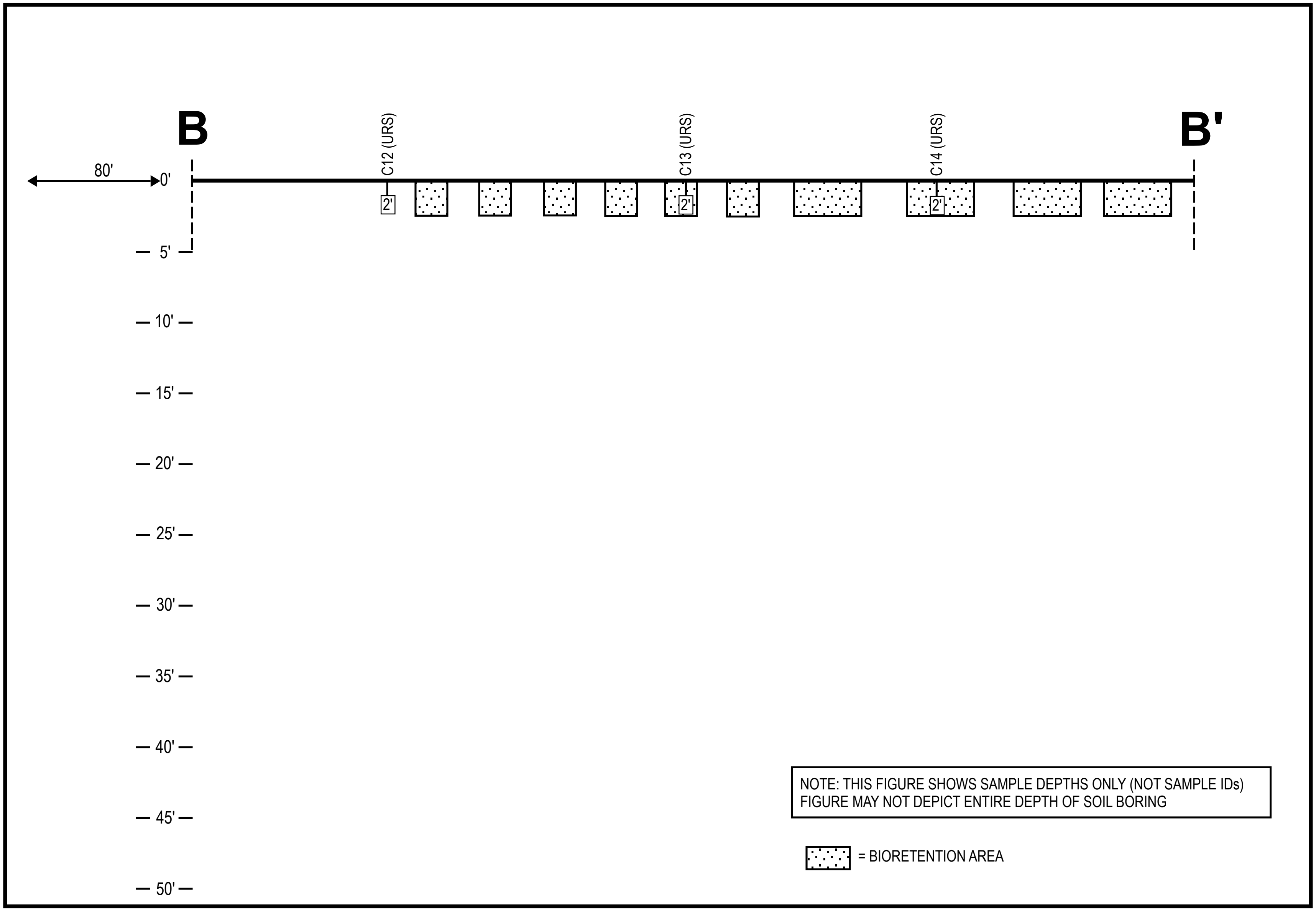
CROSS SECTION (A-A')
SOIL BORING LOCATIONS & SAMPLE DEPTHS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT: 6988-003.02

10.3.16

FIGURE 10

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

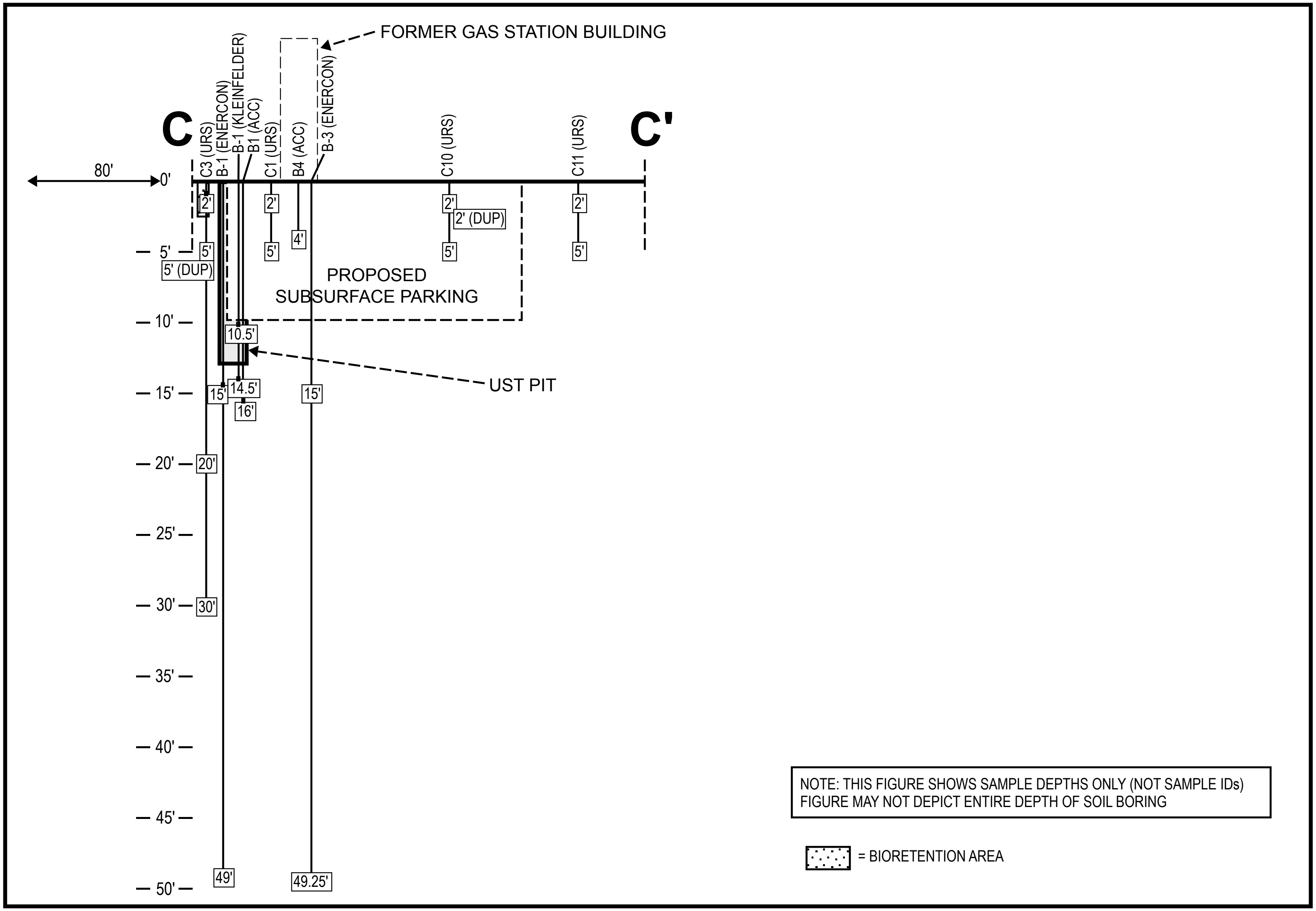
CROSS SECTION (B-B')
SOIL BORING LOCATIONS & SAMPLE DEPTHS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT: 6988-003.02

10.3.16

FIGURE 11

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

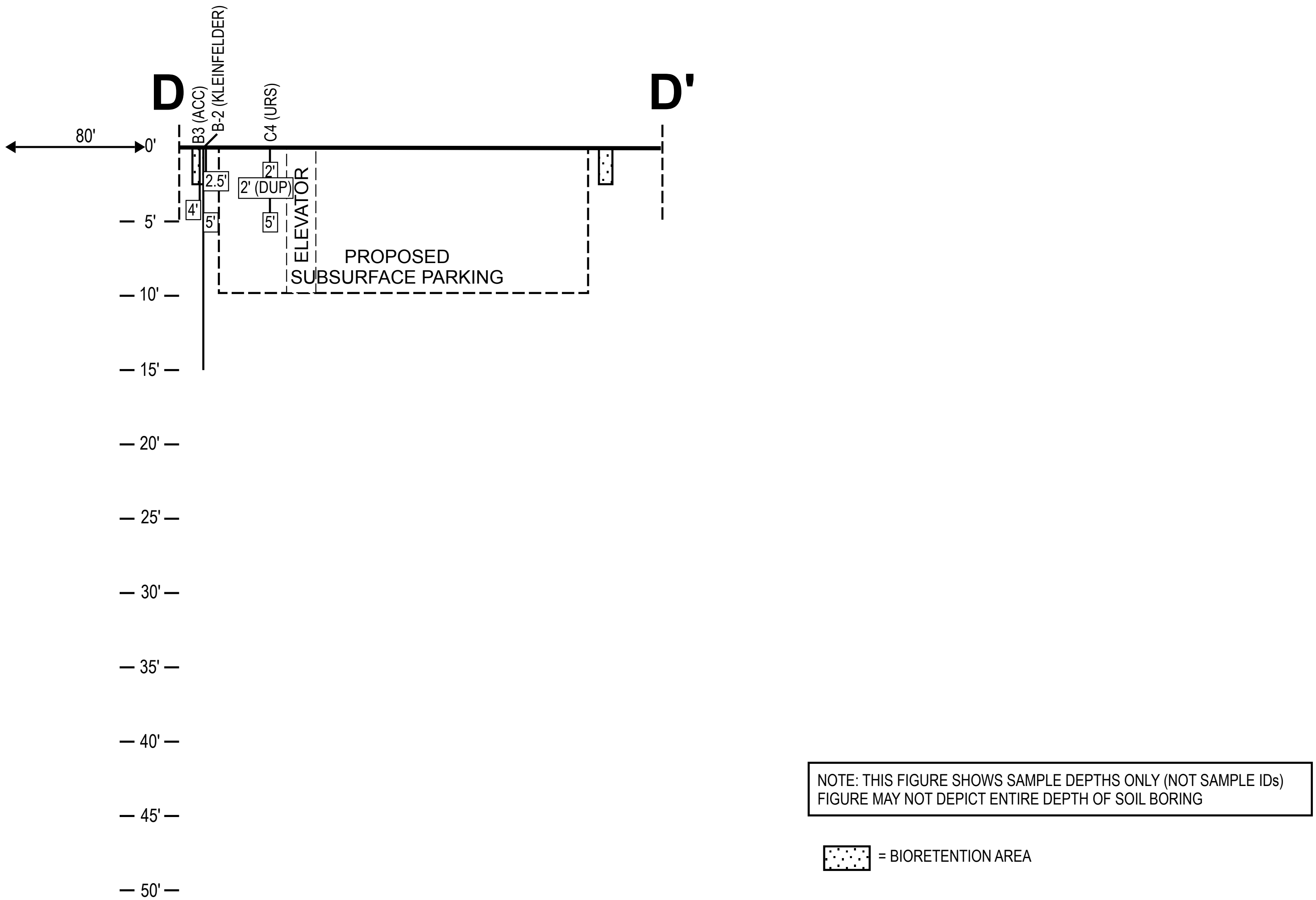
CROSS SECTION (C-C')
SOIL BORING LOCATIONS & SAMPLE DEPTHS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT: 6988-003.02

10.3.16

FIGURE 12

ALL DIMENSIONS & LOCATIONS APPROXIMATED



A·C·C ENVIRONMENTAL CONSULTANTS
An Employee Owned Company

CROSS SECTION (D-D')
SOIL BORING LOCATIONS & SAMPLE DEPTHS
1625 CHESTNUT STREET
LIVERMORE, CALIFORNIA

PROJECT: 6988-003.02

10.3.16

FIGURE 13

ALL DIMENSIONS & LOCATIONS APPROXIMATED

REPORT
GROUNDWATER INVESTIGATION
LASC/MOSC
Livermore, California

LASC/MOSC 2008 TRUST

29 October 2009
Project No. 1642.03

Treadwell&Rollo
Environmental & Geotechnical Consultants

The PCE appears to be localized along relatively thin lithologic units. PCE detected in CPT-2 of 39 µg/L compared to that in Well DMW-06 of 0.6 µg/L shows that the PCE may be present along <10-feet-thick sections of the aquifers.

The currently estimated width and direction of PCE migration as inferred from the LASC/MOSC sources are generally consistent with the most recent and historic groundwater flow gradients.

5.1.2 Other Potential Contributors to PCE in Groundwater

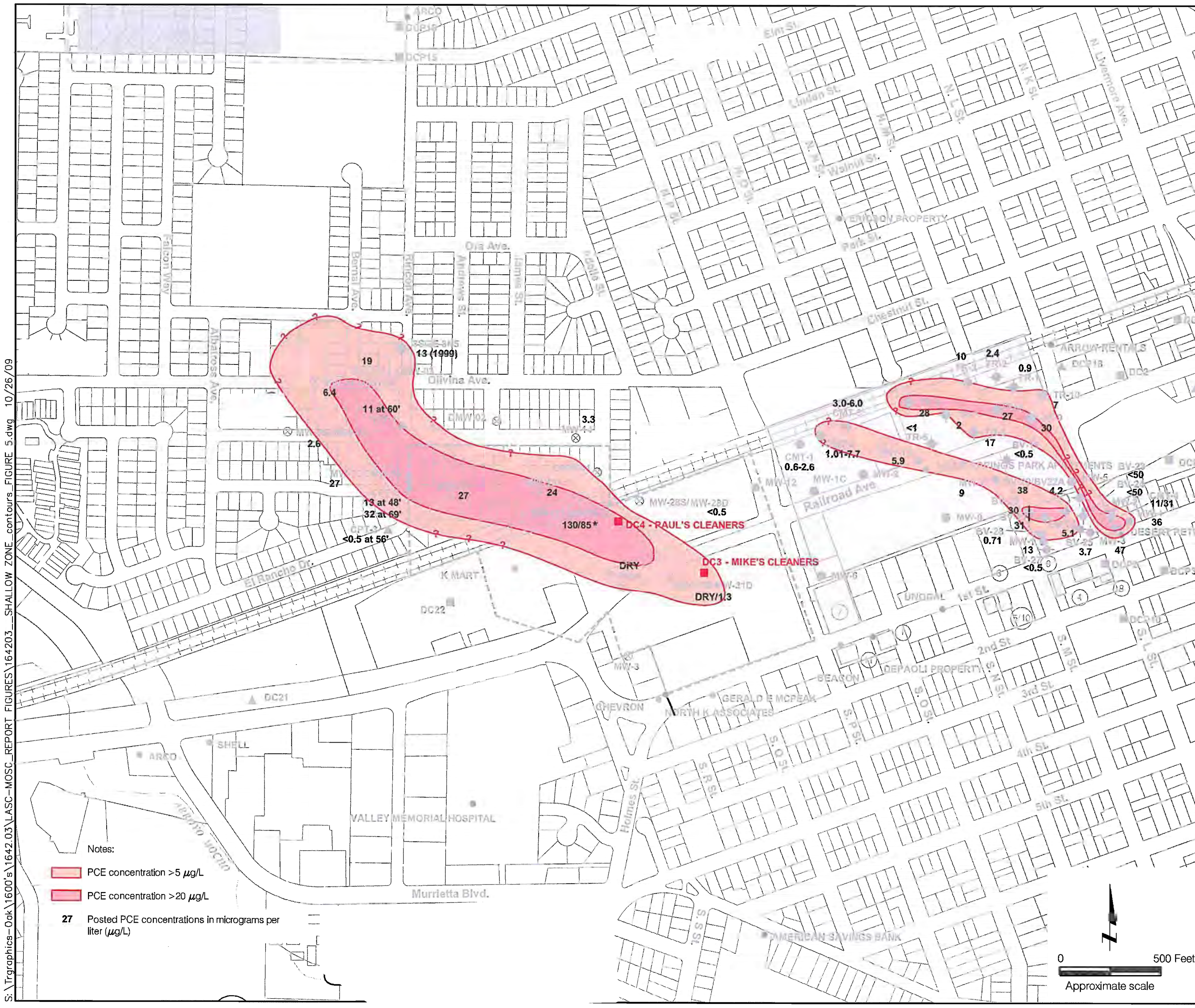
Aside from the LASC/MOSC plume, a number of other PCE sources have been identified as potentially contributing to PCE in Shallow and Deep Zones (Appendix G). The potential sources range from dry cleaners and industrial facilities to sewer lines. The impacts have been documented across the Mocho Sub-basin (LLNL, 2002), and in some Cal Water wells such as CWS-19 (PCE 5 to 35 µg/L, Appendix G) have been in excess of the MCL. For the most part, many of the likely sources for this wide-spread contamination have not been located, and relevant data have been relatively limited.

However, the available data show elevated PCE concentrations in groundwater up-gradient of the LASC/MOSC plume (Figures 5 and 6). The PCE extent is not fully defined for the Shallow and Deep Zones but shows a potentially downward migration pattern generally up-gradient of Well CWS-08 (Figure 5).

Based on ACEH files and the typical releases from dry cleaners, other potential sources in the vicinity of the LASC/MOSC plume include the following:

- DC-21 – Special Cleaners, which is located to the south of the LASC/MOSC plume and within the estimated capture areas of Well CWS-14; and
- DCP-18 and -19 – Done Rite and J Cleaners, which are located to the east/northeast and up-gradient of the PCE plumes near Railroad Avenue and L Street.

The general area of potential PCE sources upgradient of the LASC/MOSC is presented in Figure J-1.



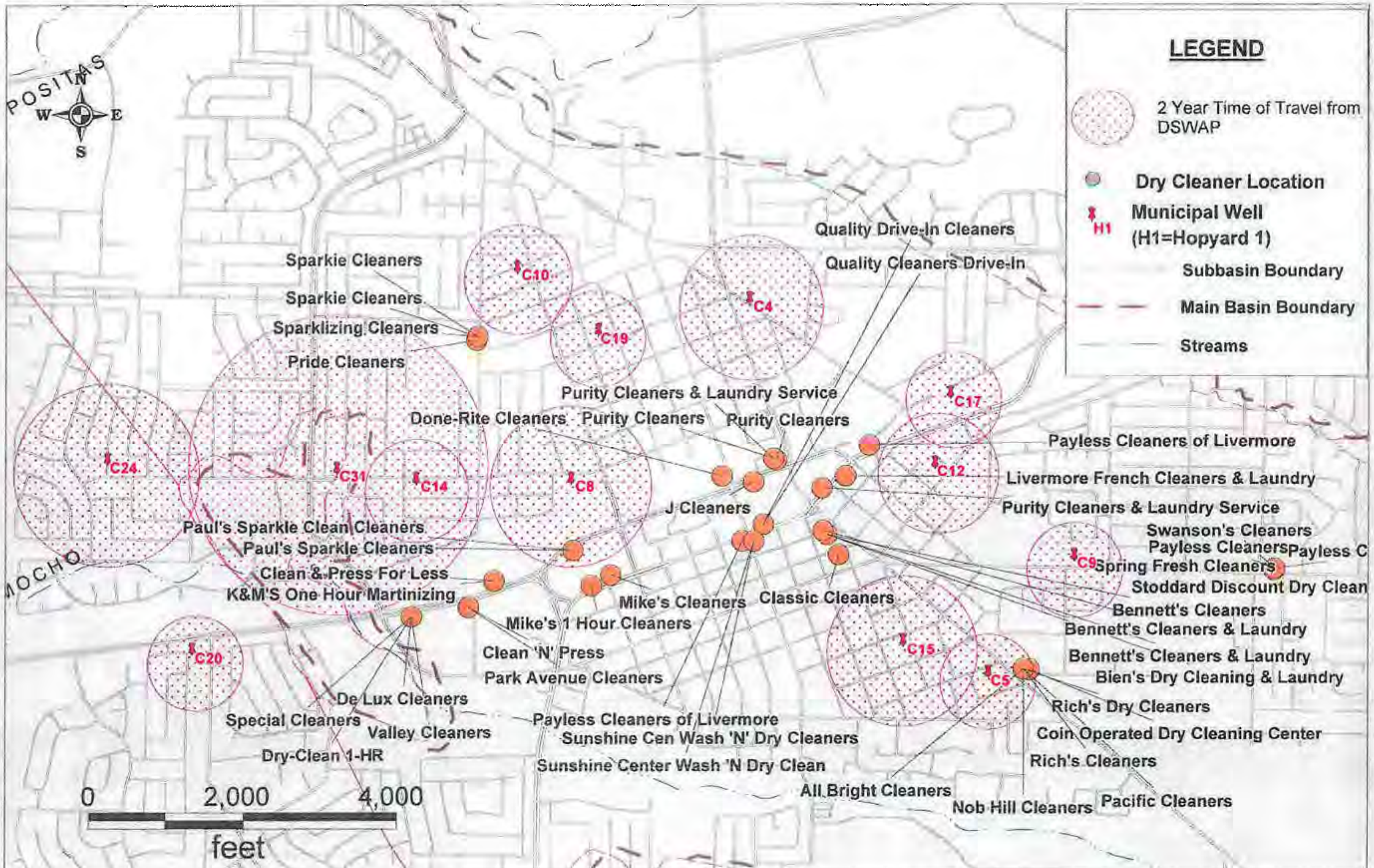
LASC/MOSC
Livermore, California

SHALLOW ZONE (25'-75') PCE CONCENTRATIONS IN GROUNDWATER - APRIL 2009

Date 07/20/09	Project No. 1642.03	Figure 5

Treadwell&Rollo

S:\Trgraphics-Oak\1600's\1642.03\LASC-MOSC_REPORT FIGURES\164203___SHALLOW ZONE_contours_FIGURE 5.dwg 10/26/09



ZONE 7 WATER AGENCY
5997 PARKSIDE DRIVE
PLEASANTON, CA 94588

FIGURE 1
DRY CLEANER LOCATIONS
LIVERMORE AREA

Drawn By: CWiney
Revised By: CWiney
Date Updated: 12/8/04
File: \zone7-file\mapinfo\Toxic\ToxReport2003.wor

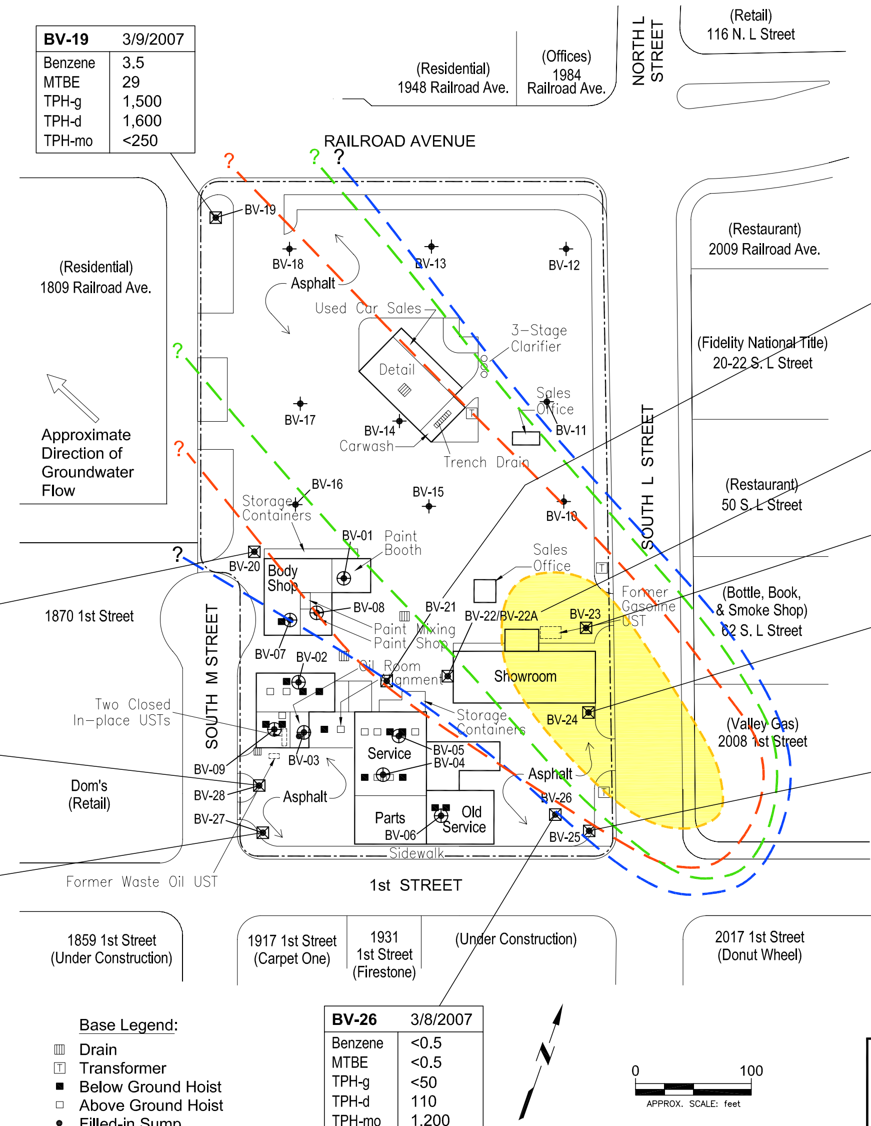
Subsurface Investigation Report

Groth Brothers Chevrolet Dealership
57/59 South L Street
Livermore, California

April 19, 2007
Project No. 33107-007514.03
Prepared for
BARRY SWENSON BUILDER
San Jose, California

For the benefit of business and people

Bureau Veritas North America, Inc.
6920 Koll Center Parkway
Pleasanton, California 94566
925.426.2600
www.us.bureauveritas.com



Legend:
- Soil Boring (completed to 8' bgs)
- Soil Boring (completed to 12' bgs)
- Soil/Groundwater Sample Location
- Approximate Extent of TPH-g
- Approximate Extent of MTBE
- Approximate Extent of Benzene
- Approximate Limit of Source Zone

MTBE = methyl tert butyl ether
TPH = Total Petroleum Hydrocarbons
TPH-g = TPH as gasoline
TPH-d = TPH as diesel
TPH-mo = TPH as motor oil

Notes:
1. Concentrations in micrograms per liter or parts per billion.
2. Samples collected on 3/8/2007 and 3/9/2007.
3. BV-22A collected from 43-45' below ground surface.
4. Approximate limit of source zone was obtained from Field investigation for Source Zone Remediation Report by Golder Associates Inc, June 6, 2006.

BV-19	3/9/2007
Benzene	3.5
MTBE	29
TPH-g	1,500
TPH-d	1,600
TPH-mo	<250

BV-21	3/9/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	<50
TPH-mo	<250

BV-22	3/9/2007	**BV-22A**	3/9/2007
Benzene	<0.5	Benzene	<2.5
MTBE	<0.5	MTBE	<2.5
TPH-g	62 i	TPH-g	9,300
TPH-d	<50	TPH-d	64,000
TPH-mo	350	TPH-mo	<12,000

BV-23	3/9/2007
Benzene	1,100
MTBE	90
TPH-g	50,000
TPH-d	43,000
TPH-mo	720

BV-24	3/8/2007
Benzene	3,100
MTBE	1,200
TPH-g	61,000
TPH-d	79,000
TPH-mo	<12,000

BV-25	3/8/2007
Benzene	1.0
MTBE	<0.5
TPH-g	700
TPH-d	290
TPH-mo	<250

BV-20	3/9/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	64
TPH-d	<50
TPH-mo	<250

BV-28	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	<50
TPH-mo	<250

BV-27	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	290
TPH-mo	1,600

BV-26	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	110
TPH-mo	1,200

Base Legend:
- Drain
- Transformer
- Below Ground Hoist
- Above Ground Hoist
- Filled-in Sump

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

57 / 59 SOUTH L STREET
LIVERMORE, CALIFORNIA

Project No. 33107-007514.03

Figure 3

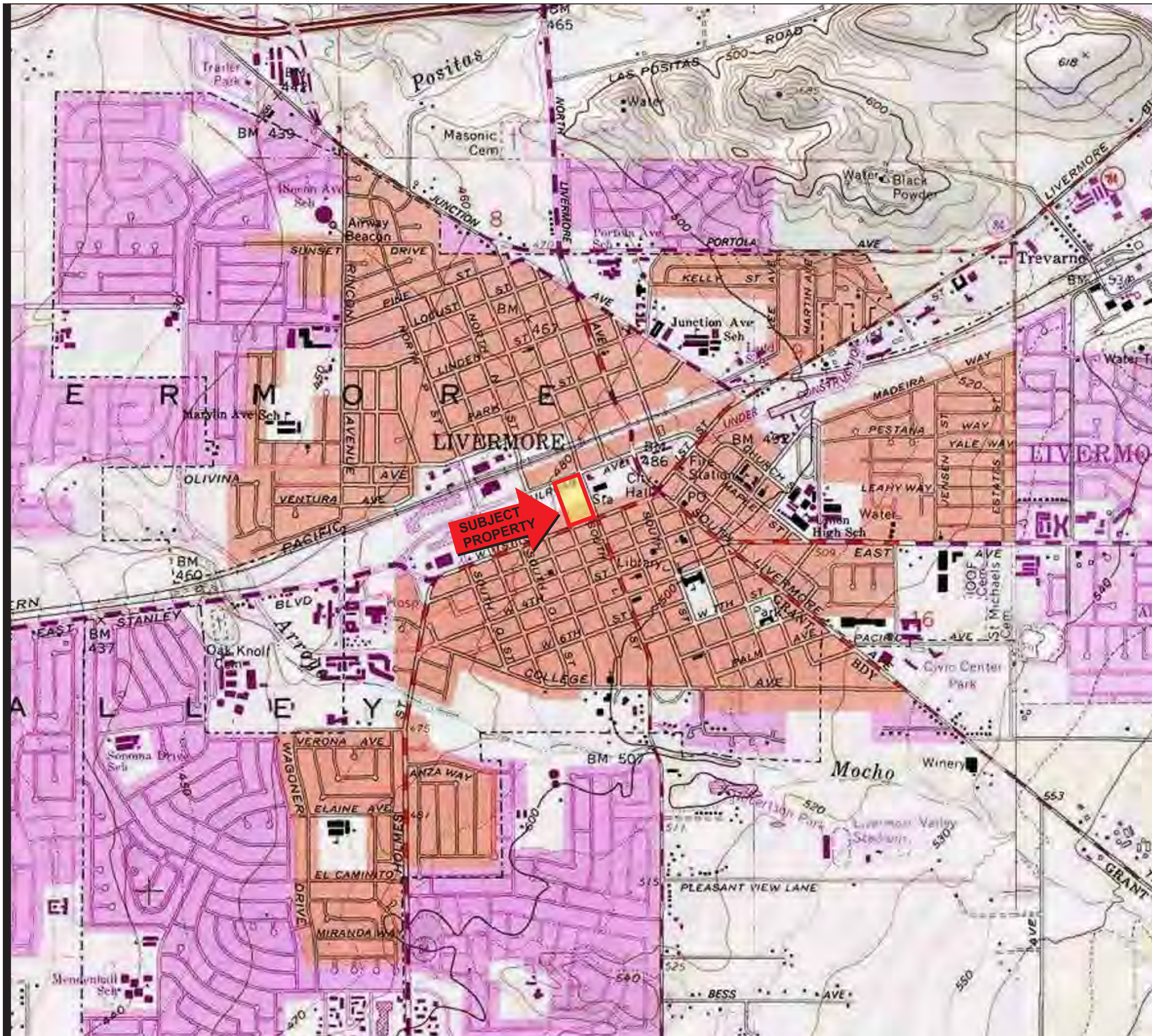
03/15/07
SITE0307.DWG

BUREAU VERITAS

TABLE 4
Grab-Groundwater Analytical Results - VOCs
57/59 South L Street
Livermore, California

Sample ID	Sample Date	Benzene (µg/L)	n-Butyl benzene (µg/L)	sec-Butyl benzene (µg/L)	tert-Butyl benzene (µg/L)	n-propyl benzene (µg/L)	Ethyl-benzene (µg/L)	Isopropyl-benzene (µg/L)	MTBE (µg/L)	Napthalene (µg/L)	Toluene (µg/L)	1,2,4-TMB (µg/L)	1,3,5 TMB (µg/L)	Total Xylenes (µg/L)	cis-1,2 DCE (µg/L)	TCE (µg/L)	PCE (µg/L)	Vinyl Chloride (µg/L)
BV-19	3/9/2007	**3.5**	**2.3**	**1.1**	**2.9**	**0.95**	**0.86**	<0.5	**29**	<0.5	<0.5	**0.77**	<0.5	**1.6**	**2.4**	**1.1**	<0.5	<0.5
BV-20	3/9/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.74**	**0.63**	**30**	<0.5
BV-21	3/9/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**31**	<0.5
BV-22	3/9/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.65**	**1.0**	**38**	<0.5
BV-22A	3/9/2007	<2.5	**56**	**24**	<2.5	**66**	**25**	**42**	<2.5	<2.5	<2.5	<2.5	**3.5**	**2.5**	**12**	<2.5	**4.2**	**7.8**
BV-23	3/9/2007	**1,100**	**160**	<50	<50	**510**	**3,400**	**180**	**90**	**490**	**220**	**1,500**	**540**	**4,200**	<50	<50	<50	<50
BV-24	3/8/2007	**3,100**	**140**	**72**	<50	**460**	**3,500**	**100**	**1,200**	**660**	**340**	**2,100**	**660**	**9,700**	**65**	<50	<50	<50
BV-25	3/8/2007	**1.0**	**1.3**	**1.8**	**1.5**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**22**	**2.7**	**3.7**	<0.5
BV-26	3/8/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**4.2**	**0.67**	**5.1**	<0.5
BV-27	3/8/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BV-28	3/8/2007	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.71**	<0.5
RWQCB ESL		**1.0**	--	--	--	--	**30**	--	**5.0**	**17**	**40**	--	--	**20**	**6.0**	**5.0**	**5.0**	**0.5**
DHS MCL		**1.0**	--	--	--	--	**300**	--	**13**	--	**150**	**5.0**	--	**1,750**	**6.0**	**5.0**	**5.0**	**0.5**

Notes:
VOCs = Volatile organic compounds
DCE = Dichloroethene
PCE = Tetrachlorethene
TCE = Trichloroethene
TMB = Trimethylbenzene
MTBE = Methyl tert butyl ether
Analytical results are reported in micrograms per liter (µg/L) or parts per billion (ppb).
<0.005 = Not detected at specified detection limit.
ND = Not detected at the laboratory method detection limit.
VOCs analyzed by USEPA Method 8260B.
RWQCB ESL = Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Level,
Groundwater (Table A, 2005) where groundwater is a potential source of drinking water.
DHS MCL = California Department of Health Services Maximum Contaminant Level - A Compilation of Water Quality Goals, August 2003.
-- = No regulatory limit established for this analyte.
Bolded and shaded indicates where RWQCB ESL and/or DHS MCL was exceeded for this analyte.



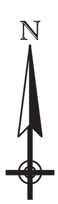
Source: TOPO! © 2000 National Geographic Holdings

Note: Location Information is Approximate

1 ½ 0 1 MILE

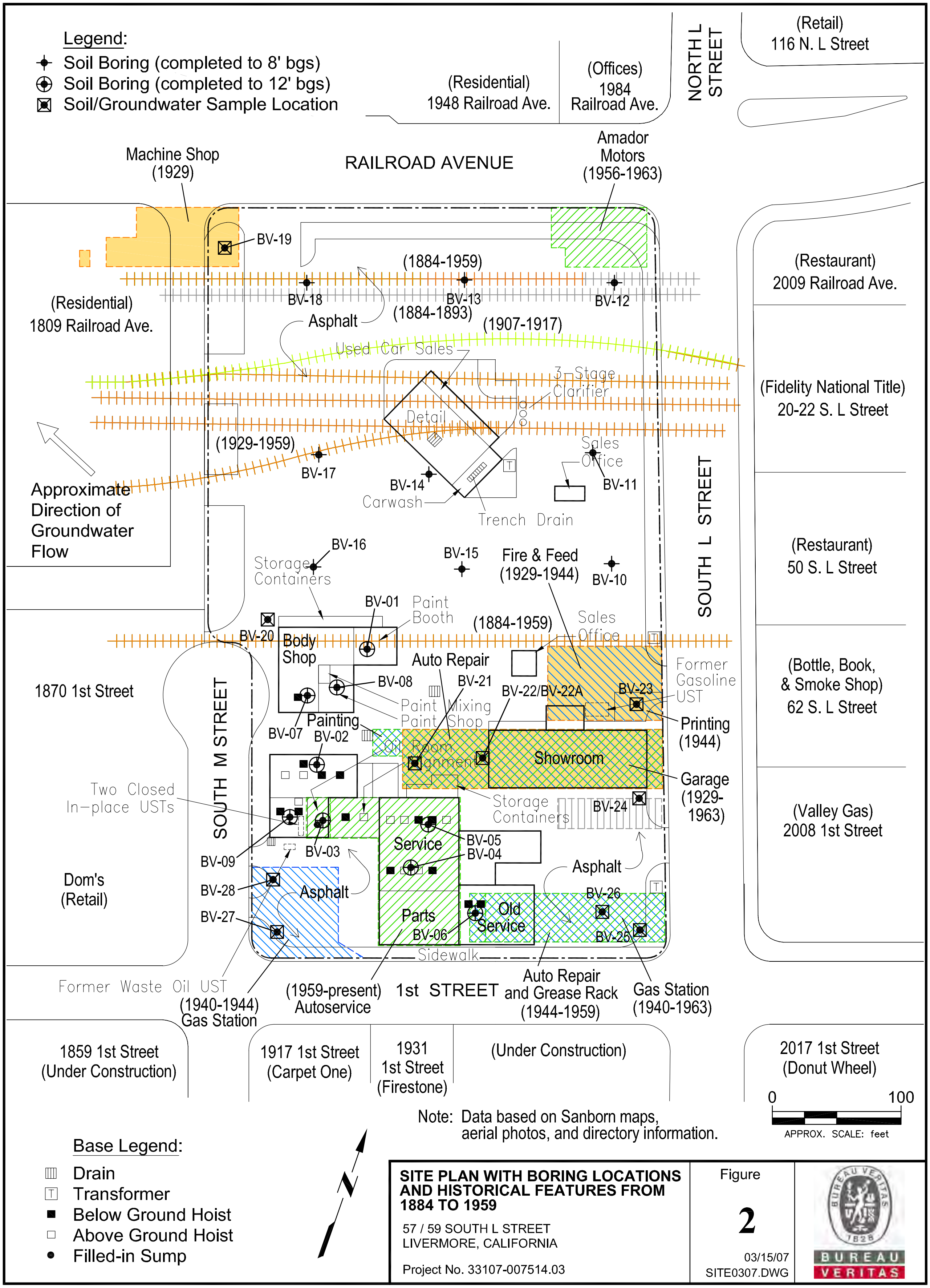
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

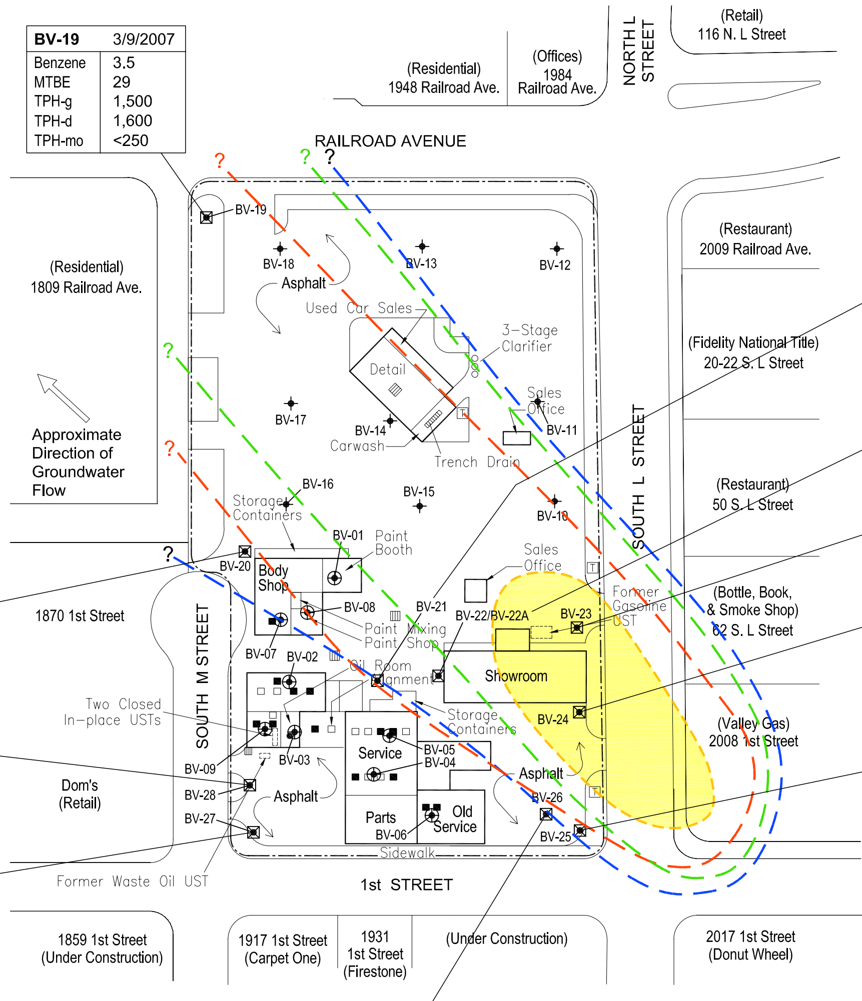
Portion of the 7.5-Minute Series Livermore, California
Quadrangle Topographic Map (Datum: NAD 27)
United States Department of the Interior
Geological Survey
1980 Photorevised from 1978



SUBJECT PROPERTY LOCATION	FIGURE
57/59 South L Street Livermore, California Project No. 33107-007514.03	1

BUREAU VERITAS


Legend:
Soil Boring (completed to 8' bgs)
Soil Boring (completed to 12' bgs)
Soil/Groundwater Sample Location
(Residential)
1948 Railroad Ave.
(Offices)
1984
Railroad Ave.
NORTH L STREET
(Retail)
116 N. L Street
Machine Shop
(1929)
RAILROAD AVENUE
Amador
Motors
(1956-1963)
BV-19
(1884-1959)
(Restaurant)
2009 Railroad Ave.
(Residential)
1809 Railroad Ave.
BV-18
BV-13
BV-12
Asphalt
(1884-1893)
(1907-1917)
Used Car Sales
3-Stage
Clarifier
Detail
(Fidelity National Title)
20-22 S. L Street
(1929-1959)
BV-17
Sales
Office
BV-14
BV-11
Carwash
Trench Drain
Approximate
Direction of
Groundwater
Flow
SOUTH L STREET
BV-16
Storage
Containers
BV-15
Fire & Feed
(1929-1944)
BV-10
(Restaurant)
50 S. L Street
BV-01
Paint
Booth
(1884-1959)
Sales
Office
BV-20
Body
Shop
Auto Repair
Former
Gasoline
UST
(Bottle, Book,
& Smoke Shop)
62 S. L Street
1870 1st Street
BV-08
BV-21
BV-22/BV-22A
BV-23
Paint Mixing
Paint Shop
Printing
(1944)
BV-07
Painting
BV-02
Oil Room
Alignment
Showroom
Garage
(1929-
1963)
SOUTH M STREET
Two Closed
In-place USTs
Storage
Containers
BV-24
(Valley Gas)
2008 1st Street
BV-09
BV-03
Service
BV-05
BV-04
Dom's
(Retail)
Asphalt
BV-28
Asphalt
BV-26
BV-27
Parts
Old
Service
BV-06
BV-25
Sidewalk
Former Waste Oil UST
(1940-1944)
Gas Station
(1959-present)
Autoservice
1st STREET
Auto Repair
and Grease Rack
(1944-1959)
Gas Station
(1940-1963)
1859 1st Street
(Under Construction)
1917 1st Street
(Carpet One)
1931
1st Street
(Firestone)
(Under Construction)
2017 1st Street
(Donut Wheel)
0
100
APPROX. SCALE: feet
Note: Data based on Sanborn maps,
aerial photos, and directory information.
Base Legend:
Drain
Transformer
Below Ground Hoist
Above Ground Hoist
Filled-in Sump
N
SITE PLAN WITH BORING LOCATIONS
AND HISTORICAL FEATURES FROM
1884 TO 1959
57 / 59 SOUTH L STREET
LIVERMORE, CALIFORNIA
Project No. 33107-007514.03
Figure
2
03/15/07
SITE0307.DWG
BUREAU VERITAS 1828
BUREAU
VERITAS



Legend:

- Soil Boring (completed to 8' bgs)
- Soil Boring (completed to 12' bgs)
- Soil/Groundwater Sample Location
- Approximate Extent of TPH-g
- Approximate Extent of MTBE
- Approximate Extent of Benzene
- Approximate Limit of Source Zone

MTBE = methyl tert butyl ether
TPH = Total Petroleum Hydrocarbons
TPH-g = TPH as gasoline
TPH-d = TPH as diesel
TPH-mo = TPH as motor oil

Notes:

1. Concentrations in micrograms per liter or parts per billion.
2. Samples collected on 3/8/2007 and 3/9/2007.
3. BV-22A collected from 43-45' below ground surface.
4. Approximate limit of source zone was obtained from Field investigation for Source Zone Remediation Report by Golder Associates Inc, June 6, 2006.

BV-19	3/9/2007
Benzene	3.5
MTBE	29
TPH-g	1,500
TPH-d	1,600
TPH-mo	<250

BV-20	3/9/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	64
TPH-d	<50
TPH-mo	<250

BV-28	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	<50
TPH-mo	<250

BV-27	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	290
TPH-mo	1,600

BV-26	3/8/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	110
TPH-mo	1,200

BV-21	3/9/2007
Benzene	<0.5
MTBE	<0.5
TPH-g	<50
TPH-d	<50
TPH-mo	<250

BV-22	3/9/2007	BV-22A	3/9/2007
Benzene	<0.5	Benzene	<2.5
MTBE	<0.5	MTBE	<2.5
TPH-g	62 i	TPH-g	9,300
TPH-d	<50	TPH-d	64,000
TPH-mo	350	TPH-mo	<12,000

BV-23	3/9/2007
Benzene	1,100
MTBE	90
TPH-g	50,000
TPH-d	43,000
TPH-mo	720

BV-24	3/8/2007
Benzene	3,100
MTBE	1,200
TPH-g	61,000
TPH-d	79,000
TPH-mo	<12,000

BV-25	3/8/2007
Benzene	1.0
MTBE	<0.5
TPH-g	700
TPH-d	290
TPH-mo	<250

Base Legend:

- Drain
- Transformer
- Below Ground Hoist
- Above Ground Hoist
- Filled-in Sump

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

57 / 59 SOUTH L STREET
LIVERMORE, CALIFORNIA

Project No. 33107-007514.03

Figure 3

03/15/07
SITE0307.DWG

BUREAU VERITAS

R0278

Golder Associates

Field Investigation for Source Zone Remediation
B & C Mini Mart (Valley Gas)
2008 1st Street
Livermore, California
(APN 097-24-01)

06/06/06

Prepared for:

Ms. Donna Dragos
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Prepared for:

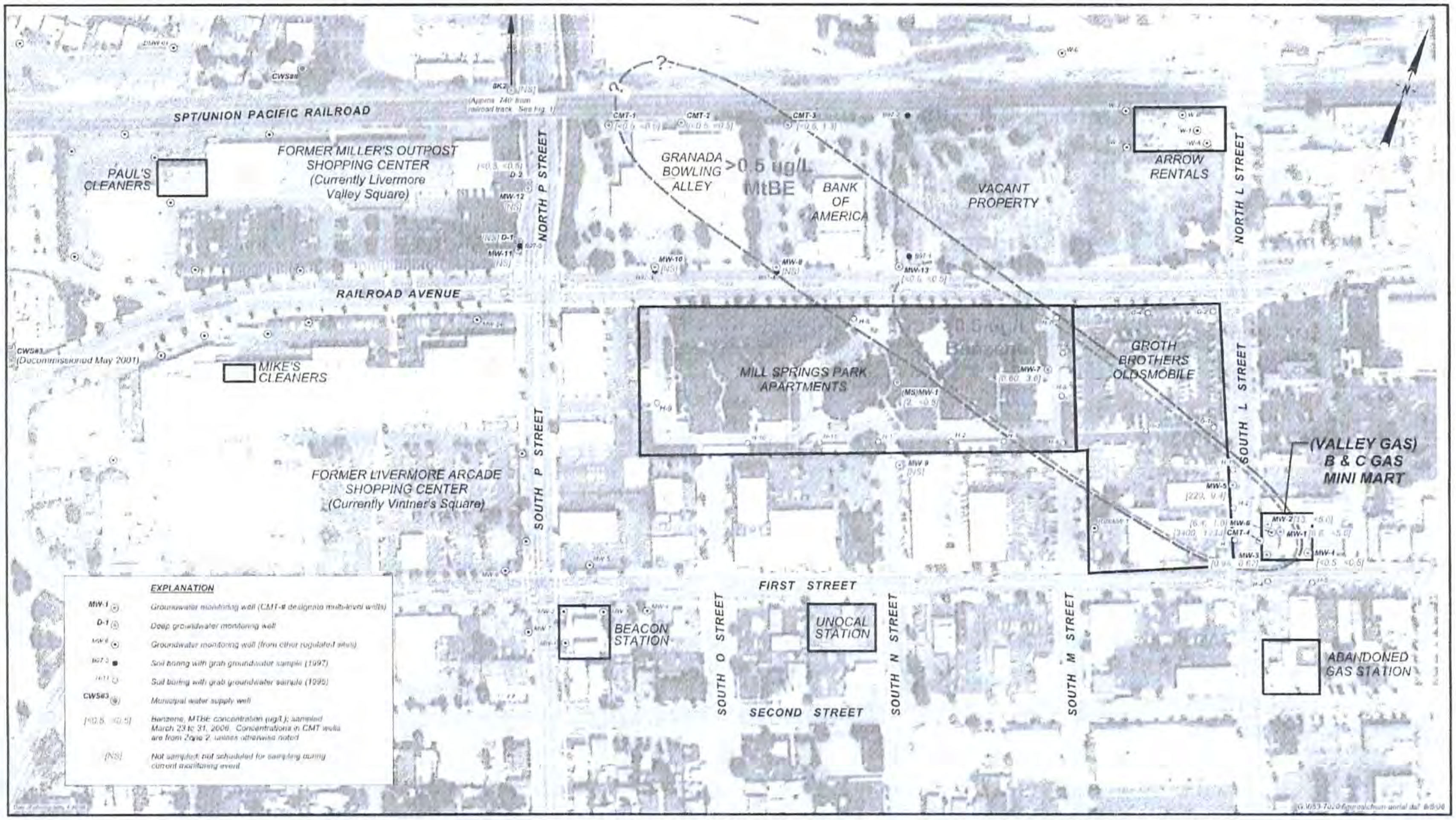
Ms .Chris Davidson
City of Livermore
1052 S. Livermore Avenue
Livermore, CA 94550-4899

Prepared by:

Golder Associates Inc.
2580 Wyandotte Street, Suite G
Mountain View, California 94043

June 6, 2006

053-7020



Golder Associates	SCALE: 0 200 400 FEET (APPROXIMATE)	CORRECTIVE ACTION INVESTIGATION B & C GAS MINI MART/VALLEY GAS LIVERMORE, CALIFORNIA GROUNDWATER CHEMISTRY (MARCH 2006)	FIGURE 3 PROJECT NO. 053-7020

LM

Woodward-Clyde Consultants

8810101-RP CON

July 10, 1989

PHASE III ENVIRONMENTAL EXPLORATION
187 NORTH L STREET
LIVERMORE, CALIFORNIA

Prepared for

City of Livermore
Redevelopment Agency
1052 South Livermore Avenue
Livermore, California 94550

July, 1989

Prepared by

Woodward-Clyde Consultants
500 12th Street, Suite 100
Oakland, CA 94607-4014

Table 1. ELEVATIONS OF MEASURING POINTS AND ELEVATION OF GROUNDWATER, 187 NORTH L STREET, LIVERMORE, CALIFORNIA

Well Number	Measuring Point Elevation (Project Datum, feet)	Depth to Groundwater (feet)	Elevation (feet) June 2, 1989
W-1	99.22	43.16	56.06
W-2	99.07	44.24	54.83
W-3	98.03	44.50	53.53

Note: Assumed temporary benchmark elevation 100 feet.

Should be determined
[illegible] to determine new location
new well
depth at 3 existing wells before exact
location

all new wells to located depth [illegible]
location

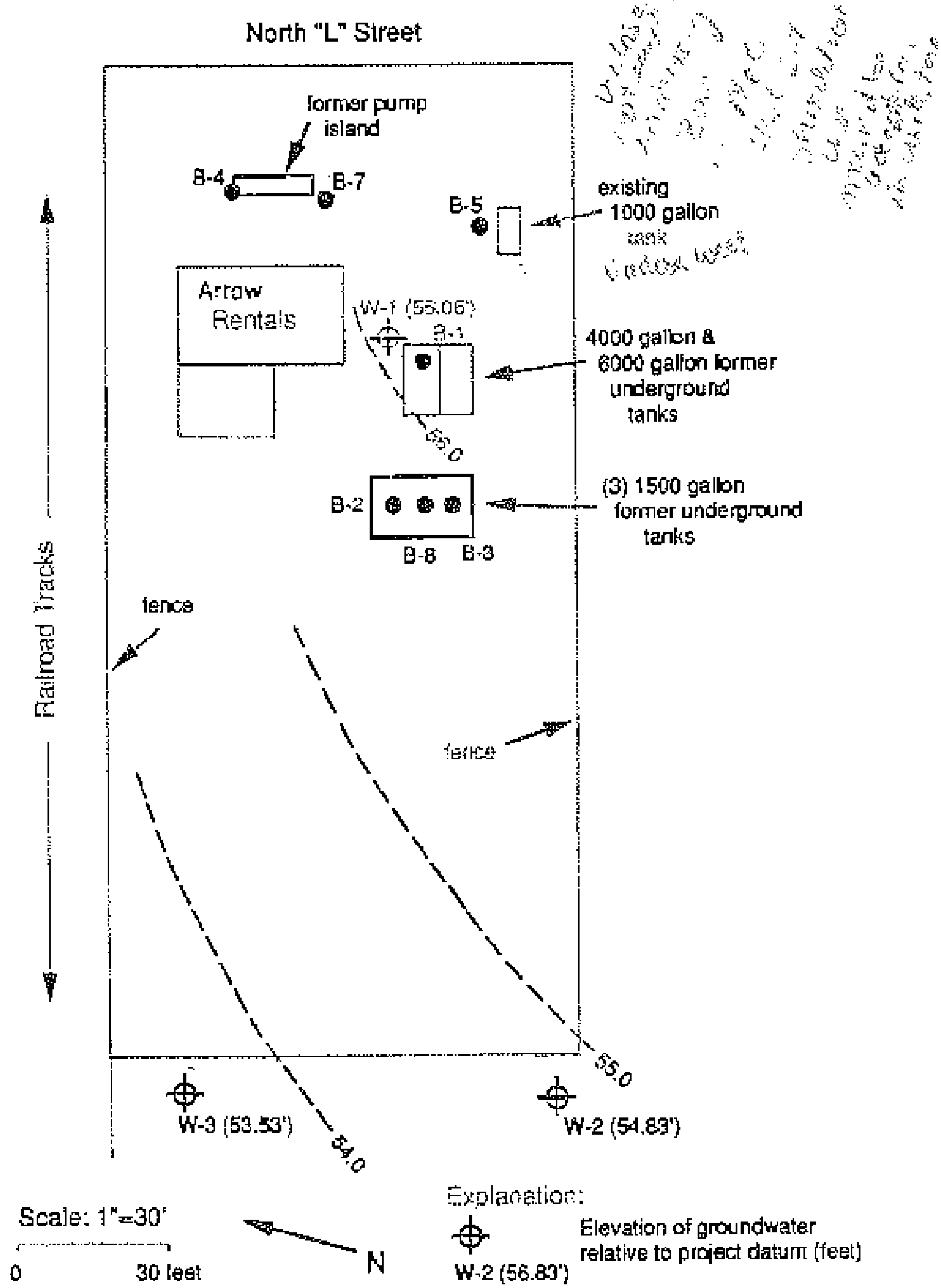
to determine
[illegible]
location

slug test for [illegible]

Table 3. SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS, NOVEMBER 1988, 187 NORTH L STREET, LIVERMORE, CALIFORNIA

Well Number	Micrograms per Liter (µg/L)					
	High Boiling Point Hydrocarbon (Diesel)	Low Boiling Point Hydrocarbon (Gasoline)	Benzene	Toluene	Ethyl Benzene	Xylenes
W-1	300,000	210,000	29,000	30,000	5,400	24,000
W-2	ND	360	6.7	2.1	0.47	1.3
W-3	2,200	11,000	290	120	150	140
Detection Limits:	50.0	30.0	0.3	0.3	0.3	0.3
State or Federal Drinking Water Limits (MCLS)	--	--	1.0	2,000	680	1750
State Drinking Water Action Levels	--	--	0.7	100	680	620

ND = Not Detected



Project No. 8810220A	Railroad Ave. Property	Site Groundwater Gradient Map, 187 North L Street, Livermore, California	Figure 2
Woodward-Clyde Consultants			

		TPH-g	TPHd	TPH-mo	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Chrysene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Naphthalene	Pyrene	Acetone	Benzene	Ethylbenzne	Toulene	Total Xylenes
ESLs - Direct Exposure Soil (Residential) (mg/kg)	Residential	740	230	11000	0.16	0.016	0.16	1.6	15	2400	0.16	3.3	1.8	59000	0.23	5.1	970	560
	Commercial	3900	1100	140000	2.9	0.29	2.9	29	260	30000	2.9	14	23000	630000	1	22	4600	2400
	Construction Workers	2800	880	32000	16	1.6	16	150	1500	16	--	350	5000	260000	24	480	4100	2400
ESLs- Vapor Intrusion (ug/L)	Residential	300000	68000	--	--	--	4.6	4.6	46	--	--	41	--	16000000	48	560	160000	52000
	Commercial	250000	570000	--	--	--	1.1	1.1	1100	--	--	360	--	140000000	420	4900	1300000	440000
ESLs - Drinking Water (ug/l)	Residential	220	150	--	0.0	0.0034	0.012	0.017	0.17	290	0.034	0.17	120	14000	0.15	1.5	150	190

		Bromoform	PCE	TCE	Arsenic	Barium	Berryllium	Chromium	Cobalt	Copper	Lead	Molybdenum	Mercury	Nickel	Vanadium	Zinc		
ESLs - Direct Exposure Soil (Residential) (mg/kg)	Residential	63	0.6	1.2	0.067	15000	150	120000	23	3100	80	390	13	820	390	23000		
	Commercial	300	2.7	8	0.31	220000	2200	1800000	350	47000	320	5800	190	11000	5800	350000		
	Construction Workers	2200	33	23	0.98	3000	42	530000	28	14000	160	1800	44	86	470	110000		
ESLs- Vapor Intrusion (ug/L)	Residential	1300	240	240	--	--	--	--	--	--	--	--	--	--	--	--		
	Commercial	11000	2100	3000	--	--	--	--	--	--	--	--	--	--	--	-		
ESLs - Drinking Water (ug/l)	Residential	2.9	0.06	0.49	0.002	2000	1.0	0.02	6	300	0.2	100	1.2	12	50	6000		

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); PAHs = Polyaromatic Hydrocarbons; VOCs = Volatile Organic Compounds; OCPs = Organochlorine Pesticides; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); C2-5 DUP identified as C2-60 in lab report; C3-5 DUP identified as C3-60 in lab report; C4-2 DUP identified as C4-60 in lab report; C9-2 DUP identified as C9-60 in lab report.

TABLE 1
Summary By Soil Boring
1625 Chestnut Street, Livermore, CA
ACC Project Number: 6988-003.02

Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
Kleinfelder	08.03.89	B-1	10.5	Soil	Former Gasoline Station	TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes by EPA Analytical Method 8015	ND
			14.5	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
		B-2	2.5	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			5	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			15	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
		B-3	10	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	TPH-mo = 20; TPH-g, TPH-d, BTEX= ND
			15	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
Fugro West, Inc.	12.4.07	DP1-1	0	Soil	Off-Site Machine Shop, Assess Site Conditions for Redevelopment, Arsenic to Address Pesticides (?)	VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.5; Lead = 4.8; VOCs = 'ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.6; Lead = 4.2; VOCs = 'ND
			7.5	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 2.6; Lead = 2.9; VOCs = 'ND
		DP1-2	0	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.8; Lead = 5.3; VOCs = 'ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 4.0; Lead = 5.3; VOCs = 'ND
			7.5	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.5; Lead = 4.5; VOCs = 'ND
		DP1-3	0	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.9; Lead = 5.2; VOCs = 'ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Aresenic= 4.6; Lead = 5.4; VOCs = 'ND
			7.5	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Aresenic = 3.4; Lead = 2.9; VOCs = 'ND
		DP1-4	0	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Acetone = 84; Arsenic = 2.7; Lead = 8.9; Other VOCs = ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.6; Lead = 4.9; VOCs = 'ND
			7.5	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 5.0; Lead = 4.1; VOCs = 'ND
		DP1-5	0	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 5.4; Lead = 44; VOCs = 'ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Aresenic = 3.5; Lead = 4.8; VOCs = 'ND
			7.5	Soil	ACC Environr	VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 3.2; Lead = 3.3; VOCs = 'ND

Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
		DP1-6	0	Soil		VOCs by EPA Analytical Method 8260, CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 4.5; Barium = 210; Beryllium = 0.54; Chromium = 63; Cobalt = 16; Copper = 33; Lead = 6.2; Nickel = 120; Vanadium = 29; Zinc = 42; Molybdenum, Mercury, Other Metals, VOCs = 'ND
			2	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 4.2; Lead = 5.6; VOCs = 'ND
			7.5	Soil		VOCs by EPA Analytical Method 8260, Arsenic & Lead by EPA Analytical Method 6020	Arsenic = 4.4; Lead = 5.5; VOCs = 'ND
		A1-1	--	Groundwater		VOCs by EPA Analytical Method 8260	Tetrachloroethene = 16; Other VOCs = ND
Enercon Services, Inc.	8.18.09	B-1	15'	Soil	Former Gasoline Station	TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
			49'	Soil		TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
		B-2	15'	Soil		TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
			35'	Soil		TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
		B-3	15'	Soil		TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
			49.25'	Soil		TPH by EPA Analytical Method 8015, BTEX by Analytical Method 8021	ND
		C1	2	Soil	Former Gasoline Station	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 4.1; Barium = 160; Chromium = 52; Cobalt = 14; Copper = 28; Lead = 8.5; Nickel = 100; Vanadium = 24; Zinc = 45 Mercury = 0.032; TPH-d = 7.9; PAHs, Other Metals, TPH-g, TPH-mo, BTEX = ND
			5	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 4.5; Barium = 140; Chromium = 60; Cobalt = 15; Copper = 30; Lead = 7.2; Nickel = 130; Vanadium = 26; Zinc = 44; Mercury = 0.051; TPH-d = 100; TPH-mo = 570; PAHS, Other Metals, TPH-g & BTEX = ND
			--	Groundwater		TPH-g by EPA Analytical Method 8260,TPH-d & TPH-mo by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & CAM-17 Metals by EPA Analytical Method 6010	Tetrachloroethene = 13; Trichloroethene = 0.71; Barium = 0.43; Chromium = 0.015; Cobalt = 0.011; Lead = 0.0051; Molybdenum = 0.01; Nickel = 0.081; Vanadium = 0.011; TPH, Other VOCs, Other Metals = ND
			--	Soil Vapor		VOCs by EPA Analytical Method TO-15	Benzene = 2.8; Ethylbenzene = 1.5; Toulene = 4.8; Total Xylenes = 5.6; Propylene = 33; 1,3-Butadiene = 4.4; Acetone = 11; 2-Butanone = 1.1; Cyclohexane = 5.0; n-Heptane = 1.0; Bromoform = 0.96; Other VOCs = ND
		C2	2	Soil	Former Gasoline Station ACC Environr	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Benzo[a]anthracene = 0.087; Benzo[a]pyrene = 0.011; Benzo[b]fluoranthene = 0.014; Benzo[g,h,i]perylene = 0.009; Benzo[k]fluoranthene = 0.0095; Chrysene = 0.011; Fluoranthene = 0.011; Indeno[1,2,3-cd]pyrene = 0.0061; Pyrene = 0.016; Arsenic = 14; Barium = 5.6; Chromium = 41; Cobalt = 11; Copper = 32; Lead = 18; Nickel = 88; Vanadium = 20; Zinc = 52; Mercury = 0.072; TPH-d = 27; TPH-mo = 150; Other PAHs, Other Metals, TPH-g & BTEX = ND
			5	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 5.6; Barium = 130; Chromium = 45; Cobalt = 12; Copper = 24; Lead = 6.7; Nickel = 96; Vanadium = 20; Zinc = 39; Mercury = 0.049; TPH-d = 100; TPH-mo = 570; PAHS, Other Metals, TPH & BTEX = ND
			5 - DUP	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Barium = 110; Chromium = 21; Cobalt = 9.6; Copper = 20; Lead = 10; Nickel = 38; Vanadium = 18; Zinc = 30; Mercury = 0.27; TPH-d = 100; TPH-mo = 570; TPH-d = 32; TPH-mo = 210; PAHs, Other Metals, TPH-g & BTEX = ND
			20	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND

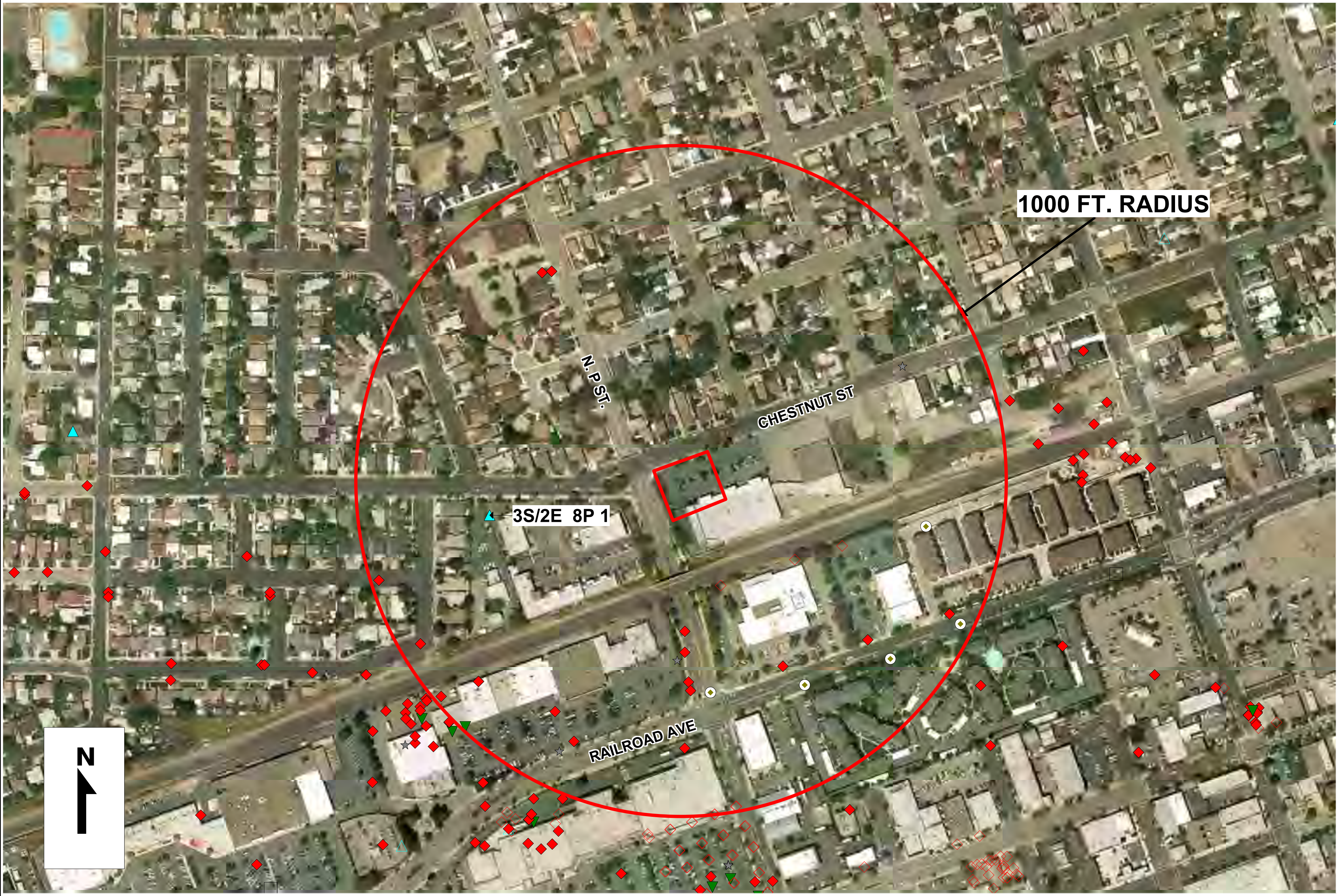
Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
			30	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			--	Groundwater		TPH-g by EPA Analytical Method 8260,TPH-d & TPH-mo by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & CAM-17 Metals by EPA Analytical Method 6010	TPH-d = 130; TPH-mo = 400; Tetrachloroethene = 14; Barium = 0.47; Chromium = 0.086; Cobalt = 0.024; Copper = 0.044; Lead = 0.0059; Molybdenum = 0.015; Nickel = 0.27; Vanadium = 0.035; Zinc = 0.042; TPH-g, Other VOCs, Other Metals = ND
			--	Soil Vapor		VOCs by EPA Analytical Method TO-15	Benzene = 1.7; Toulene = 1.6; Tetrachloroethene = 0.94; Propylene = 48; Acetone = 5.6; n-Hexane = 31; Cyclohexane = 6.1; n-Heptane = 7.8; Bromoform = 0.95; Other VOCs = ND
		C3	**2**	Soil	Former Gasoline Station	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Naphthalene = 0.036; Barium = 110; Chromium = 39; Cobalt = 9.1; Copper = 23; Lead = 7.7; Nickel = 67; Vanadium = 24; Zinc = 38; Mercury = 0.031; TPH-d = 39; TPH-mo = 140; Other PAHs, Other Metals, TPH-g & BTEX = ND
			5	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Barium = 86; Chromium = 34; Cobalt = 8.3; Copper = 20; Lead = 6.0; Nickel = 65; Vanadium = 21; Zinc = 35; Mercury = 0.027; PAHs, Other Metals, TPH, & BTEX = ND
			5 - DUP	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Barium = 92; Chromium = 46; Cobalt = 8.3; Copper = 23; Lead = 5.1; Nickel = 68; Vanadium = 24; Zinc = 34; Mercury = 0.027; PAHs, Other Metals, TPH & BTEX = ND
			20	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			30	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			--	Soil Vapor		VOCs by EPA Analytical Method TO-15	Tetracholorethene = 6.8; Propylene = 3.3; Other VOCs = ND
				Soil Vapor Duplicate		VOCs by EPA Analytical Method TO-15	Tetracholorethene = 6.8; Other VOCs = ND
		C4	**2**	Soil	Former Gasoline Station	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 4.5; Barium = 200; Chromium = 64; Cobalt = 16; Copper = 35; Lead = 7.9; Nickel = 120; Vanadium = 27; Zinc = 50; Mercury = 0.029; PAHs, Other Metals, TPH & BTEX = ND
			2 - DUP	Soil		TPH, Benzene, Ethylbenzene, Toulene, & Total Xylenes	ND
			5	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Barium = 85; Chromium = 33; Cobalt = 6.6; Copper = 15; Lead = 4.1; Nickel = 57; Vanadium = 17; Zinc = 25; Mercury = 0.031; TPH-d = 140; TPH-mo = 670; PAHs, Other Metals, TPH-g & BTEX = ND
			--	Soil Vapor		VOCs by EPA Analytical Method TO-15	Benzene = 4.4; Ethylbenzene = 1.3; Toulene = 4.2; Total Xylenes = 3.3; Tetrachloroethene = 7.3; Propylene = 96; 1,3-Butadiene = 6.5; Acetone = 8.3; n-Hexane = 2.0; 2-Butanone = 1.2; Cyclohexane = 8.2; n-Heptane = 1.5; Bromoform = 2.6; Pther VOCs = ND
			2	Soil	**ACC Environr**	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 5.7; Barium = 230; Chromium = 120; Cobalt = 19; Copper = 37; Lead = 8.3; Nickel = 170; Vanadium = 30; Zinc = 49; Mercury = 0.067; TPH-d = 2.1; PAHs, Other Metals, TPH-g, TPH-mo & BTEX = ND

Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
URS Corporation	2.17.11	C5	**5**	Soil	Former Gasoline Station	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015	Arsenic = 5.0; Barium = 180; Chromium = 63; Cobalt = 18; Copper = 33; Lead = 8.9; Nickel = 150; Vanadium = 26; Zinc = 50; Mercury = 0.075; TPH-d = 10; TPH-mo = 130; PAHs, Other Metals, TPH-g & BTEX = ND
			--	Soil Vapor		VOCs by EPA Analytical Method TO-15	Benzene = 12; Ethylbenzene = 14; Toulene = 21; Total Xylenes = 43; Tetrachloroethene = 5.1; Propylene = 320; 1,3-Butadiene = 35; Acetone = 16; Carbon Disulfide = 1.8; n-Hexane = 6.7; 2-Butanone = 3.3; Cycohexane = 7.4; n-Heptane = 3.7; Bromoform = 2.1; Other VOCs = ND
		C6	**2**	Soil	Assess Site Conditions for Redevelopment	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Barium = 120; Chromium = 43; Cobalt = 11; Copper = 22; Lead = 6.9; Nickel = 110; Vandium = 21; Zinc = 37; Merucry = 0.034; TPH-d = 38; TPH-mo = 210; PAHs, Other Metals, TPH-g, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Barium = 140; Chromium = 66; Cobalt = 15; Copper = 25; Lead = 6.2; Nickel = 160; Vanadium = 26; Zinc = 44; Mercury = 0.061
			5 - DUP	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 5.4; Barium = 180; Chromium = 69; Cobalt = 11; Copper = 30; Lead = 6.1; Nickel = 130; Vanadium = 23; Zinc = 39; Mercury = 0.048; Other Metals = ND
		C7	**2**	Soil	Assess Site Conditions for Redevelopment, Potential Former Agriculture?	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081s	Arsenic = 4.5; Barium = 200; Chromium = 61; Cobalt - 15; Copper = 30; Lead = 12; Nickel = 130; Vanadium = 27; Zinc = 48; Mercury = 0.32; PAHs, Other Metals, TPH, BTEX, & Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 5.1; Barium = 190; Chromium = 83; Cobalt = 22; Copper = 33; Lead = 8.3; Nickel = 250; Vanadium = 30; Zinc = 48; Mercury = 0.056; Other Metals = ND
			60	Soil		Organochlorine Pesticides	ND
		C8	**2**	Soil	Assess Site Conditions for Redevelopment, Potential Former Agriculture?	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 5.8; Barium = 230; Chromium = 84; Cobalt = 19; Copper = 40; Lead = 9.5; Nickel = 160; Vanadium = 37; Zinc = 53; Mercury = 0.041; TPH-d = 12; TPH-mo = 53; PAHs, Other Metals, TPH-g, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 5.5; Barium = 210; Chromium = 86; Cobalt = 19; Copper = 36; Lead = 8.9; Nickel = 170; Vanadium = 34; Zinc = 53; Mercury = 0.087; Other Metals = ND
		C9	**2**	Soil	Assess Site Conditions for Redevelopment, Potential Former Agriculture?	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 5.5; Barium = 230; Chromium = 82; Cobalt = 20; Copper = 37: Lead = 8.4; Nickel = 160; Vanadium = 36; Zinc = 54; Mercury = 0.035; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			2 - DUP	Soil		PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 4.9; Barium = 210; Chromium = 71; Cobalt = 17; Copper = 34; Lead = 7.5; Nickel = 140; Vanadium = 31; Zinc = 48; Mercury = 0.043; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 5.2; Barium = 190; Chromium = 210; Cobalt = 15; Copper = 32; Lead = 11; Molybdenum = 30; Nickel = 140; Vanadium = 31; Zinc = 44; Mercury = 0.028; Other Metals = ND

Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
			--	Groundwater		TPH-g by EPA Analytical Method 8260,TPH-d & TPH-mo by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & CAM-17 Metals by EPA Analytical Method 6010	TPH-d = 72; TPH-mo; 190; Tetracholorethene = 15; Trichloroethene = 0.53; Barium = 1.2; Chromium = 0.029; Cobalt = 0.031; Copper = 0.039; Lead = 0.0094; Molybdenum = 0.016; Nickel = 0.15; Vanadium = 0.022; Zinc = 0.029; Mercury = 0.0005; TPH-g, Other VOCs, Other Metals = ND
		C10	2	Soil	Assess Site Conditions for Redevelopment, Potential Former Agriculture?	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 5.6; Barium = 220; Chromium = 76; Cobalt = 17; Copper = 33; Lead = 12; Nickel = 140; Vanadium = 34; Zinc = 58; Mercury = 0.054; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			2 - DUP	Soil		PAHs by EPA Analytical Method 8270	Benzo[a]anthracene = 0.016; Benzo[a]pyrene = 0.021; Benzo[b]fluoranthene = 0.031; Benzo[g,h,i]perylene = 0.013; Benzo[k]fluoranthene = 0.014; Chrysene = 0.022; Fluoranthene = 0.020; Indeno[1,2,3-cd]pyrene = 0.01; Pyrene = 0.031; Other PAHs = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 4.6; Barium = 160; Chromium = 71; Cobalt = 14; Copper = 28; Lead = 8.0; Nickel = 150; Vanadium = 28; Zinc = 47; Mercury = 0.066; Other Metals = ND
		C11	2	Soil	Assess Site Conditions for Redevelopment, Potential Former Agriculture?	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 5.9; Barium = 200; Chromium = 88; Cobalt = 19; Copper = 41; Lead = 9.7; Nickel = 170; Vanadium = 36; Zinc = 57; Mercury = 0.079; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 4.7; Barium = 120; Chromium = 160; Cobalt = 27; Copper = 20; Lead = 5.4; Nickel = 360; Vanadium = 22; Zinc = 42; Mercury = 0.034; Other Metals = ND
		C12	2	Soil	Railroad Tracks,Assess Site Conditions for Redevelopment	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 6.4; Barium = 260; Chromium = 94; Cobalt = 31; Copper = 40; Lead = 9.3; Nickel = 350; Vanadium = 35; Zinc = 54; Mercury = 0.047; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Barium = 110; Chromium = 49; Cobalt = 12; Copper = 21; Lead = 4.9; Nickel = 140; Vanadium = 20; Zinc = 35; Mercury = 0.047; Other Metals = ND
			--	Groundwater		TPH-g by EPA Analytical Method 8260,TPH-d & TPH-mo by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & CAM-17 Metals by EPA Analytical Method 6010	TPH-mo = 120; Tetrachloroethene = 2.4; Barium = 0.35; Cobalt = 0.0023; Nickel = 0.016; TPH-g, TPH-d, Other VOCs, Other Metals = ND
		C13	2	Soil	Railroad Tracks,Assess Site Conditions for Redevelopment	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 6.3; Barium = 240; Chromium = 90; Cobalt = 20; Copper = 38; Lead = 9.5; Nickel = 200; Vanadium = 36; Zinc = 56; Mercury = 0.048; PAHs, Other Metals, TPH, BTEX, Pesticides = ND
			5	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 4.7; Barium = 170; Chromium = 83; Cobalt = 15; Copper = 28; Lead = 7.0; Nickel = 170; Vanadium = 28; Zinc = 51; Mercury = 0.058; Other Metals = ND
			5 - DUP	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 5.9; Barium = 220; Beryllium = 0.79; Chromium = 100; Cobalt = 19; Copper = 34; Lead = 10; Nickel = 180; Vanadium = 37; Zinc = 53; Mercury = 0.052; Other Metals = ND
			2	Soil	**ACC Environr**	PAHs by EPA Analytical Method 8270, CAM-17 Metals by EPA Analytical Method 6010, TPH & BTEX by EPA Analytical Method 8015, Organochlorine Pesticides by EPA Analytical Method 8081	Arsenic = 6.4; Barium = 240; Beryllium = 1.0; Chromium = 100; Cobalt = 18; Copper = 35; Lead = 10; Nickel = 190; Vanadium = 33; Zinc = 53; Mercury = 0.056; TPH-d = 1.7; PAHs, Other Metals; TPH- g, TPH-mo, BTEX, Pesticides = ND

Company	Sample Date	Boring Number	Sample Depth (Feet Below Ground Surface)	Matrix	Rationale	Chemical Compounds	Concentrations (mg/Kg) and (ug/L)
		C14	**5**	Soil	Railroad Tracks,Assess Site Conditions for Redevelopment	CAM-17 Metals by EPA Analytical Method 6020	Barium = 110; Chromium = 52; Cobalt = 17; Copper = 17; Lead = 5.0; Nickel = 160; Vanadium = 19; Zinc = 34; Mercury = 0.098; Other Metals = ND
			5 - DUP	Soil		CAM-17 Metals by EPA Analytical Method 6020	Arsenic = 4.4; Barium = 170; Chromium = 64; Cobalt = 14; Copper = 30; Lead = 10; Nickel = 120; Vanadium = 27; Zinc = 47; Mercury = 0.037; Other Metals = ND
			--	Groundwater		TPH-g by EPA Analytical Method 8260,TPH-d & TPH-mo by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & CAM-17 Metals by EPA Analytical Method 6010	TPH-d = 69; TPH-mo = 82; Tetrachloroethene = 13; Trichloroethene = 0.98; Barium = 0.030; Cobalt = 0.0087; Molybdenum = 0.034; Nickel - 0.055; TPH-g, Other VOCs, Other Metals = ND
ACC Environmental Consultants, Inc.	10.24.13	B1	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	TPH-d = 4.8; Lead = 7.2; TPH-g, TPH-mo; VOCs = ND
			16	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	Lead = 8.1; TPH & VOCs = ND
		B2	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	Lead = 7.9; TPH & VOCs = ND
		B3	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	Lead = 8.0; TPH & VOCs = ND
		B4	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	TPH-d = 4.2; Lead = 8.5; TPH-g, TPH-mo, VOCs = ND
		B5	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	Lead = 6.0; TPH & VOCs = ND
		B6	**4**	Soil	Former Gasoline Station	Total Petroleum Hydrocarbons (Gas, Diesel, Motor Oil) by EPA Analytical Method 8015, VOCs by EPA Analytical Method 8260, & Total Lead by EPA Analytical Method 6020	Lead = 6.8; TPH & VOCs = ND

TPH=Total Petroleum Hydrocarbons specified as gasoline-range (TPH-g), diesel-range (TPH-d) and motor oil-range (TPH-mo); PAHs = Polyaromatic Hydrocarbons; VOCs = Volatile Organic Compounds; OCPs = Organochlorine Pesticides; mg/kg = milligrams per kilogram; HHR SLs = Human Health Risk Screening Levels published by the San Francisco Bay Regional Water Quality Control Board (February 2016); C2-5 DUP identified as C2-60 in lab report; C3-5 DUP identified as C3-60 in lab report; C4-2 DUP identified as C4-60 in lab report; C9-2 DUP identified as C9-60 in lab report.



ZONE 7 WATER AGENCY
100 NORTH CANYONS PARKWAY
LIVERMORE, CA 94536

WELL LOCATION MAP

SCALE: 1"= 400 ft

DATE: 9/20/16

1625 Chestnut St

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Report prepared using Zone 7
file information for this well.
TNW 26 Nov 90

Do not fill in

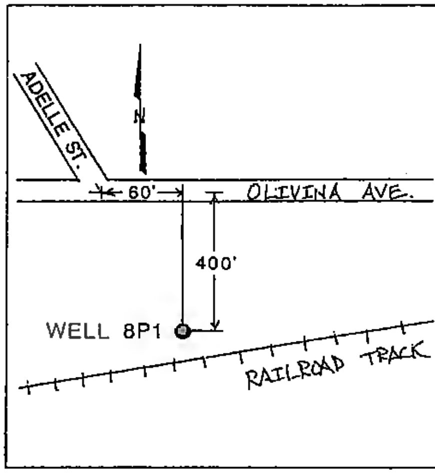
No.

State Well No. 3S/2E 8P1
Other Well No. CWS #8

Notice of Intent No. ______
Local Permit No. or Date ______

(1) OWNER: Name California Water Service Co.
Address 195 South N Street
City Livermore ZIP 94550

(2) LOCATION OF WELL (See instructions):
County Alameda Owner's Well Number ______
Well address if different from above 1493 Olivina Avenue, Liv.
Township 3S Range 2E Section 8
Distance from cities, roads, railroads, fences, etc. South and east of Olivina Avenue and Adelle Street intersection in Livermore.



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Municipal ☐
Other ☐ (Describe)

(5) EQUIPMENT:
Rotary ☐ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☐ Size ______
Diameter of bore ______
Packed from ______ to ______ ft.

(7) CASING INSTALLED:
Steel ☐ Plastic ☐ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen ______

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
		10		122	141	
				150	158	
				See log		

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☐ No ☐ If yes, to depth ______ ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval ______ ft.
Method of sealing ______

(10) WATER LEVELS:
Depth of first water, if known See log ft.
Standing level after well completion ______ ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☐ If yes, by whom? ______
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test ______ ft. At end of test ______ ft.
Discharge ______ gal/min after ______ hours Water temperature ______
Chemical analysis made? Yes ☐ No ☐ If yes, by whom? ______
Was electric log made Yes ☐ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 273 ft. Completed depth ______ ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	11	Gravel.
11	26	Gravel and clay.
26	41	Yellow clay.
41	45	Gravel.
45	57	Yellow clay.
57	61	Gravel and clay (first water).
61	63	Gravel.
63	77	Cement gravel.
77	87	Tough yellow clay.
87	103	Gravelly clay.
103	105	Sandy yellow clay.
105	106	Gravel.
106	122	Yellow clay.
122	141	Gravel (water).
141	150	Yellow clay.
150	158	Gravel (water).
158	163	Gravel and yellow clay.
163	167	Gravel and yellow clay (poor bearing).
167	177	Sandy yellow clay.
177	194	Gravel and clay (water bearing).
194	195	Yellow clay.
195	203	Gravel (water bearing).
203	218	Tough yellow clay.
218	231	Gravel (water bearing).
231	238	Tough yellow clay.
238	240	Gravelly clay.
240	262	Tough yellow clay.
262	263	Cement gravel.
263	273	Tough yellow clay.

Perforations continued:

from (ft.)	to (ft.)
163	167
177	194
195	203
218	231
262	263

Work started ______ 19___ Completed Fall 19 48

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed ______ (Well Driller)
NAME ______ (Person, firm, or corporation) (Typed or printed)
Address ______
City ______ ZIP ______
License No. ______ Date of this report ______

DWR 188 (REV. 12-86)

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

96355

DEPARTMENT OF WATER RESOURCES

NORTHERN REGION
2440 Main Street
Red Bluff, CA 96080
(530)-529-7300
(530) 529-7322 (Fax)
April.Scholzen@water.ca.gov

NORTH CENTRAL REGION
3500 Industrial Blvd.
West Sacramento, CA 95691
(916) 376-9612
(916) 376-9676 (Fax)
NCRO_WCR@water.ca.gov

SOUTH CENTRAL REGION
3374 E. Shields Ave Ste A7
Fresno, CA 93726
(559) 230-3300
(559) 230-3301 (Fax)
Chris.Guevara@water.ca.gov

SOUTHERN REGION
770 Fairmont Avenue
Glendale, CA 91203
(818) 549-2307
(818) 543-4604 (Fax)
waterdata@water.ca.gov

WELL COMPLETION REPORT REQUEST FORM

California Water Code Section 13752 allows for the release of copies of well completion reports to governmental agencies and to the public. The department may charge a fee for the provision of a report to cover the cost of researching and preparing the well completion reports for distribution. Please contact the appropriate DWR regional office for more details.

Type of Request: ☐ Government Agency ☐ Public Request (Owner of well: ☐ Yes ☐ No)
(Note: Consultant requests are Public Requests.)

Project Name: ____ County: __________________________

Well/ Project Location: ____

For A Single Well:
Owner at time of drilling: ______________________________ Driller: __________________________

APN: ____________________ Year Drilled: _______ Depth of Well: ________ Casing Diameter: _______

For a Radius Search:
Search Radius: _________ ☐ft ☐mi List of Township, Range, and Sections: __________________

____

Additional Information related to your search request (Maps, Coordinates, etc.):

____

____

____

Requestor's Contact Information:
Name (Please print):_____________________________ Company: ____________________________

Address: _______________________________________ Phone: _______________________________

City, State, and Zip Code: _________________________ Fax: _________________________________

Email: ____ Date: _______________________________

FOR DWR USE ONLY
TRS: ____ Cost of Search: ________________________

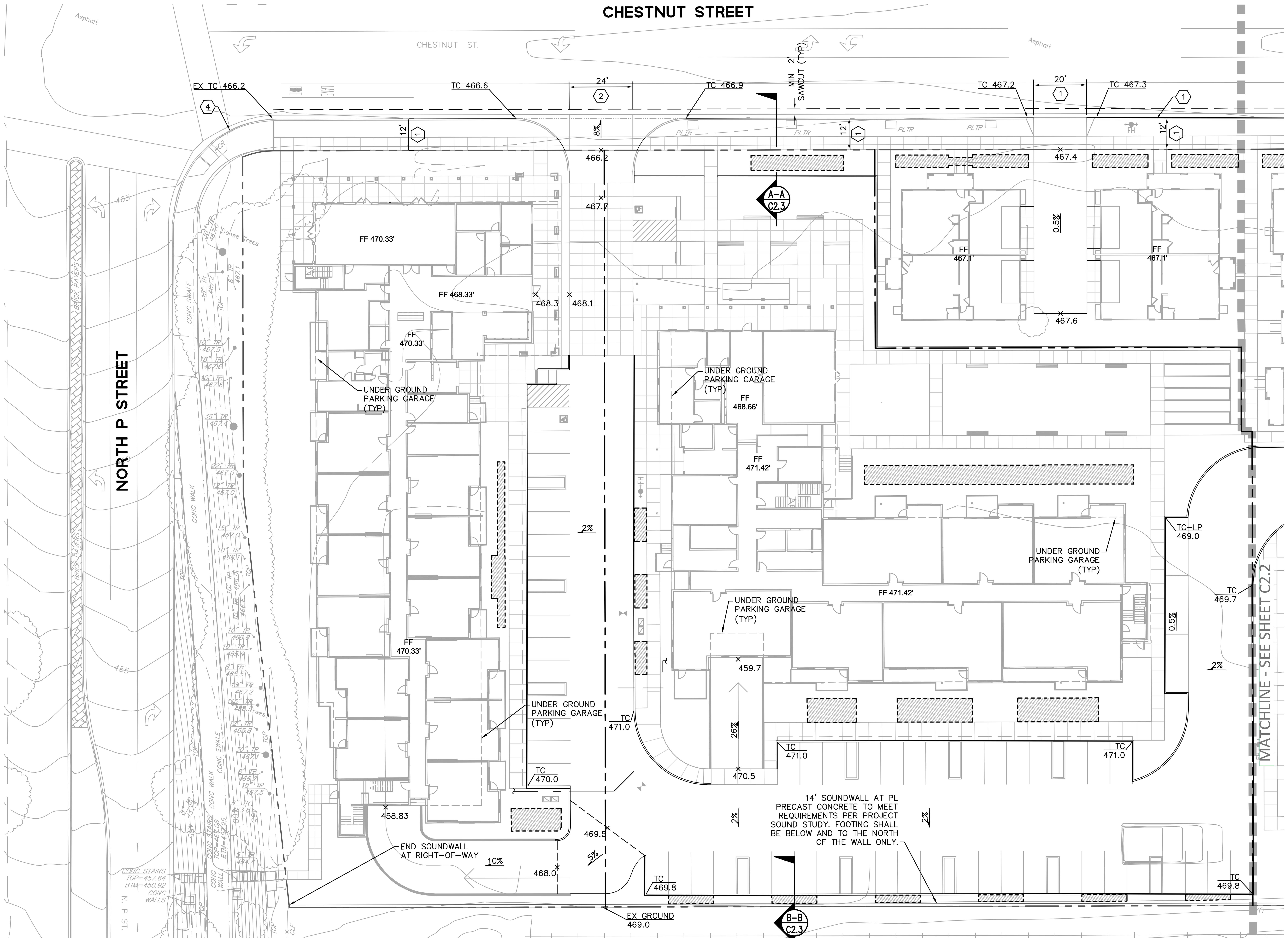
PQ Check: ___________ Initials: _________ Date: ________ Time: _______ PMT Received: _______

APPENDIX I

LABORATORY REPORTS

APPENDIX B

PRELIMINARY DEVELOPMENT PLAN AND GRADING PLAN



GRADING LEGEND:

— — —	SAWCUT LINE
- - - - -	GRADE BREAK LINE
-·-·-·-	VALLEY GUTTER FLOWLINE
— — —	PROPERTY LINE
(hatched)	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

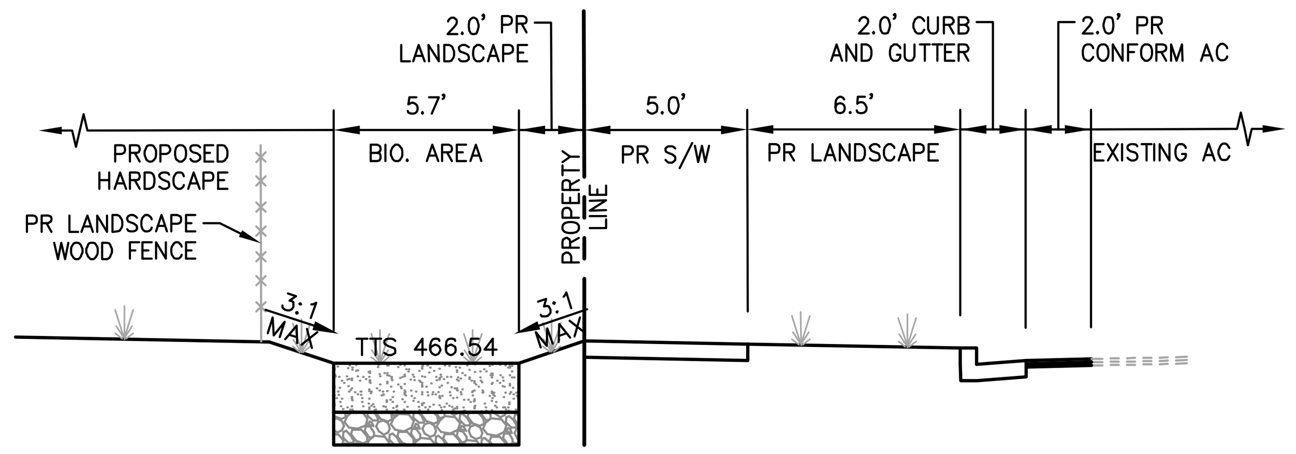
Entitlement Package
Resubmittal #4
14028

12/01/2016

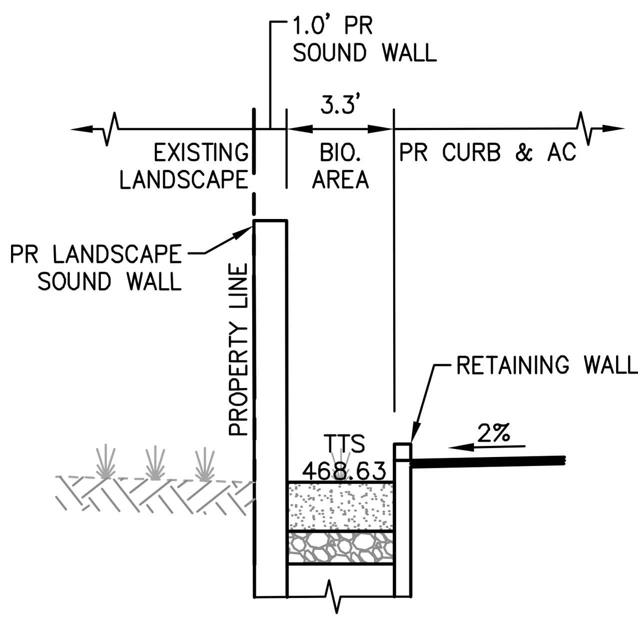
SCALE: PER PLAN

C2.1

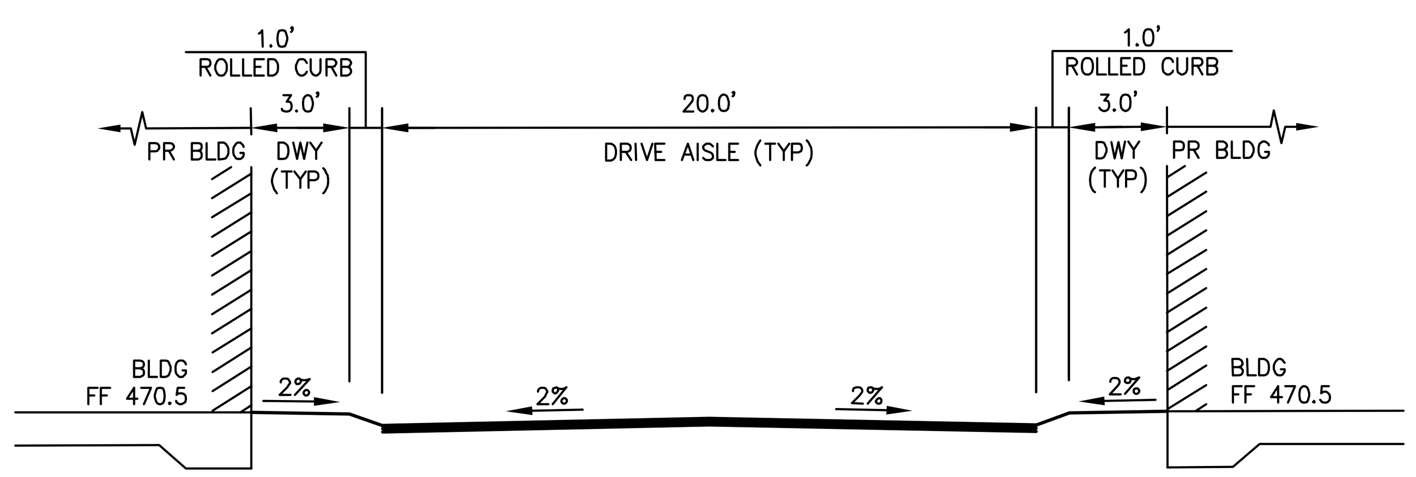
9/16/2015 6:26:09 PM C:\0 REVIT\14028_Chestnut Square_MBirmani.rvt



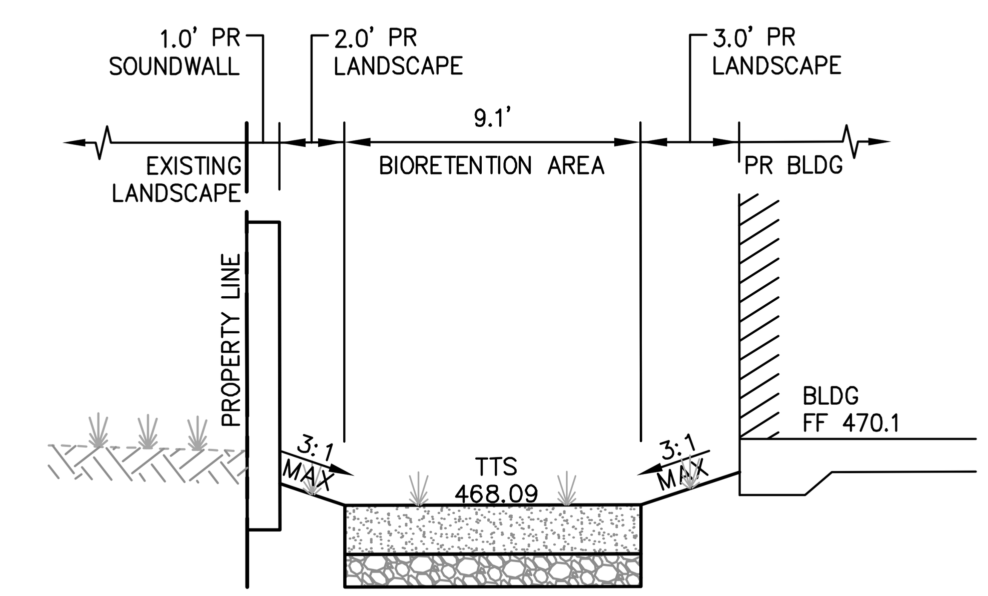
A SECTION A
1"=5'



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

APPENDIX C

AGREEMENT AND ACKNOWLEDGMENT STATEMENT

APPENDIX C

AGREEMENT AND ACKNOWLEDGMENT STATEMENT
Senior and Family Housing
1625-1635 Chestnut Street
Livermore, California

Soil 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)

DISTRIBUTION

DRAFT SOIL MANAGEMENT PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA

OCTOBER 3, 2017

COPY NO. _____

		Copy No.
4 Copies	MidPen Housing 303 Vintage Park Drive, Suite 250 Foster City, California 94404 Attention: Apolonio Munoz	1 – 4
	Alameda County Environmental Health 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502 Attention: Ms. Dilan Roe, PE	Electronic only
2 Copies	PES Job Files	5 – 6
1 Copy	Unbound Original	7

DISTRIBUTION

DRAFT CORRECTIVE ACTION PLAN
SENIOR AND FAMILY HOUSING
1625-1635 CHESTNUT STREET
LIVERMORE, CALIFORNIA

OCTOBER 3, 2017

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