Sept 14, 2017

Alameda County Environmental Health

1131 Harbor Bay Pkwy

Alameda, CA 94502

Re: Phase II Submittal to ACEH Website (Case# RO3226)

To Whom It May Concern:

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.

Sincerely,

_____ Date: ____Sept 14, 2017____

Steven Ho
914 West Grand Avenue Oakland LLC.

CORNERSTONE EARTH GROUP

Type of Services	**Corrective Action Plan**
Location	**914 W. Grand Avenue** **Oakland, California**
Client	**914 West Grand Avenue Oakland, LLC** **211 10th Street, Suite 222** **Oakland, California 94607**
Project Number	**991-1-1**
Date	**September 12, 2017**

Prepared by **Peter Langtry, P.G., C.E.G.**
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CORNERSTONE EARTH GROUP

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Location	**914 W. Grand Avenue** **Oakland, California**

SECTION 1: INTRODUCTION

This Corrective Action Plan (CAP) summarizes proposed corrective actions in support of residential redevelopment of 914 West Grand Avenue, 2220, 226 and 2236 Myrtle Street, and 2277 and 2281 Market Street in Oakland, California (Site) as shown on Figures 1 and 2. This CAP was prepared for Turner Development Resource Group / CEF Realty Advisors, Inc. (TCD/CEF) in accordance with our Agreement dated November 8, 2016 (Agreement).

TCD/CEF entered into a Voluntary Cleanup Agreement (VCA) with Alameda County Department of Environmental Health (County Health) for oversight associated with investigation and soil management activities.

Cornerstone Earth Group submitted a Soil, Ground Water, and Soil Vapor Quality Evaluation report dated December 28, 2016 to County Health. County Health issued a letter dated February 23, 2017 requesting the submittal of a CAP that includes proposed remedial actions and mitigation measures. Prior to implementation of the CAP, a Corrective Action Implementation Plan (CAIP) is required that presents details of the remedial and mitigation measures, based in part on the results of additional investigation to further evaluate data gaps. A data gap investigation work plan will be submitted to County Health for approval prior to additional investigation.

1.1 ELEMENTS OF THE CAP

To prepare the Site for residential development and to satisfy regulatory requirements, this CAP includes the following elements:

- A description of the planned residential development of the Site (Section 1.2).
- A description of the nature and extent of the chemicals of concern (COC) at the Site (Section 4).
- Measures to manage surface soil excavated for construction of the development, and removal/replacement of undocumented fill in the former on-Site underground storage tank (UST) pit area (Section 5).
- Measures to reduce potential exposure to volatile COC that may remain in ground water after completion of soil removal activities. These measures will consist of vapor intrusion mitigation systems, subsurface utility trench backfill plugs/dams, a land-use covenant (LUC) and operation and operation/maintenance procedures (Section 7).

1.2 PLANNED DEVELOPMENT

1.2.1 Description of Development

TCD/CEF is preparing the Site for residential development. Current plans consist of a 142-unit, six-level apartment building constructed with a concrete podium. The ground level will consist of at-grade parking, with a retail/commercial area at the southwest corner of the project and three retail/commercial flex space units on the east side of the project. The ground floor of the planned development is shown on Figure 2. The development plans (Lowney Architecture, October 19, 2016) are included in Appendix A.

The proposed ground floor features include two stairs wells, one elevator pit, approximately 2,800 ft^2 of commercial space, a 500 ft^2 bike room, an approximately 2,100 ft^2 residential lobby for the apartment building and three retail/commercial flex units ranging in size from 735 ft^2 to 875 ft^2. Planned residential units will varying in size from approximately 380 ft^2 studios, 800 ft^2 1-bedrooms, to 1,400 ft^2 2-bedroom units. An approximately 6,500 ft^2 communal courtyard and 700 ft^2 communal space are planned for the second floor.

1.2.2 Stormwater Management

Stormwater control measures will include infiltration planters on the second-floor podium, an approximately 11-foot wide strip of self-treating pervious pavers on ground level along the north property boundary, two small infiltration planters at the southwest corner of the site, and infiltration planters at the northeast and southeast property corners. The stormwater treatment plan is included with the development plans in Appendix A.

1.2.3 Development Approvals and Schedule

The current assessor parcel numbers (APNs) are 5-431-8-3, 5-431-9-2, 5-431-21-4, 5-431-23, 5-431-17-1 and 5-431-15-4. The parcel will be combined into one APN prior to development. TCD/CEF currently is in the process of purchasing the property for development of an apartment building. The City of Oakland zoning currently allows the planned development on the Site and is expected to approve the current development plans. Submittal of the permit applications for the development is planned no later than June 30, 2017.

The development plans have been submitted and reviewed by the City planning department. The project entitlement approval is currently pending receipt of an approved remediation plan by County Health. Per a meeting with County Health, the expected date for the approved remediation plan is May 8, 2017. It is estimated that the City will require 30 days to review and approve remediation plan and issue full project entitlements.

1.2.4 Management

The apartment building will be managed by a professional management company that will be responsible for on-going operation and maintenance of any vapor intrusion mitigation measures. There is the potential for converting the apartment building into condominiums in the future. If conversion to condominiums occurs, management of the building would be performed by a professional management company hired by the homeowner's association. Prior notification to ACDEH of any change to condominiums will be required.

1.3 ADDITIONAL REMEDIAL DESIGN INVESTIGATION

In accordance with the February 23, 2017 letter from ACDEH, additional soil, soil vapor and ground water quality investigation will be performed to further evaluate the extent of contamination at the site and potential for off-Site sources to impact the Site. A work plan will be submitted to ACDEH to perform additional investigation to evaluate: 1) down-gradient extent of ground water contamination to the west of the Site; 2) collection of ground water grab samples from near the east property boundary to evaluate potential impacts to the Site from up-gradient sources; 3) evaluation of the source of halogenated volatile organic compounds (HVOCs) detected in ground water and soil vapor beneath the Site; 4) presence of potential sources of petroleum-impacted soil in the former on-Site service station area, and; 5) sample existing ground water monitoring wells to further evaluate contaminant concentration trends.

Results of the additional investigation will be used to refine the corrective actions presented in this CAP and will be incorporated into a Corrective Action Implementation Plan (CAIP).

SECTION 2: SITE BACKGROUND

2.1 SITE HISTORY

The consists of six parcels with a history of residential and commercial uses. The historic uses by parcel are summarized in Table 1.

Table 1. Summary of Historic and Current Uses by Parcel

Address/APN	Acres	Historic Uses	Current Use
914 West Grand Avenue 5-431-8-3	0.15	Automotive filling and repair businesses since approximately 1963 including: Lean's Mohawk Service Gasoline Station, LJ Auto Service, 3A Tire Service, and Courtesy Auto Clinic.	Enrique's Complete Auto Repair and West Oakland Tires & Repairs
2220 Myrtle Street 5-431-9-2	0.28	Various commercial businesses since at least 1925 including the Imperial Electric Sign Company, Gridd Stone Company; Bay Cities Venetian Blind Company; Lorentzen Company Linoleum and Carpet; Loralite Company; Bell Sheet Metal Company; The Oakland Terrazzo Company; and A&C Truck Repair	Truck Repair Shop and Warehouse
2226 Myrtle Street 5-431-21-4	0.14	Historically occupied by single-family dwellings from the early 1900s until the 1960s when they were then demolished.	Truck Repair/Storage
2236 Myrtle Street 5-431-23	0.07		Truck Repair
2277 Market Street 5-431-17-1	0.07		Parking Lot
2281 Market Street 5-431-15-4	0.14		Parking Lot

2.2 2.2 SUMMARY OF PRIOR INVESTIGATIONS

Previous investigations included the evaluation of soil, soil vapor and ground water quality beneath the Site. Investigation activities performed on each parcel are summarized in Table 2, and analytical results and sample dates for each parcel are summarized in Tables 1 to 6 in the data summary tables section of the report. The nature and extent of contaminants of concern (COC) are described in Section 4.

Table 2. Summary of Investigation Performed by Parcel

Address/APN	Soil Sampling	Soil Vapor	Ground Water
914 W. Grand Ave 5-431-18-3	BH-A, BH-B to 11.5' Analysis: TPHd, TPHo, TPHg, Arsenic, Lead, PCBS, VOCs B-1, B-2, B-3, B-4, B-5 to 1.0' Analysis: Arsenic, Lead EB-6, EB-7, EB-8, EB-9, EB-10, EB-12, EB-13, EB-14, EB-15, EB-16, EB-17 to 10'-20' Analysis: CAM 17 Metals, TPHd, TPHo, TPHg, VOCs, PAHs, OCPs, PCBS,	B-1, B-2, B-3, B-4 to 5' and 10' Analysis: VOCs SV-1, SV-3, SV-4 to 7' Analysis: TPG/VOCs	BH-A, BH-B Analysis: TPHd, TPHo, TPHg, VOCs Dissolved Lead, PCBS MW-1, MW-3 Analysis: TPHd, TPHo, TPHg, VOCs EB-7, EB-8, EB-9, EB-10, GW-3 Analysis: TPHd, TPHo, TPHg, VOCs
2226 Myrtle Street 5-431-21-4	BH-C to 2' Analysis: TPHd, TPHo, TPHg, Lead, PCBs, VOCs EB-1 to 5' Analysis: CAM 17 Metals, TPHd, TPHo, PAHs, OCPs, PCBs	---	GW-1 Analysis: TPHd, TPHo, TPHg, VOCs
2236 Myrtle Street	EB-2 to 5' Analysis: CAM 17 Metals, TPHd, TPHo, PAHs, OCPs, PCBs	---	---
2220 Myrtle Street 5-431-19-2	BH-D, BH-E, BH-F, BH-G, BH-H to 2' Analysis: TPHg, TPHo, TPHg, Lead, PCBs, VOCs EB-11, EB-5 to 5'-10' Analysis: Cam 17 Metals, TPhd, TPHo, TPHg, VOCs, PAHs, OCps, PCBs	B-5, B-6, B-7 to 5' and 10' Analysis: VOCs	MW-2 Analysis: TPHd, TPHo, TPHg, VOCs GW-2 Analysis: TPHd, TPHo, TPHg, VOCs
2281 Market Street 5-431-15-4	BH-I to 2' Analysis: TPHd, TPHo, TPHg, Lead, PCBs, VOCs EB-4 to 5' Analysis: CAM 17 Metals, TPHd, TPHo, PAHs, OCPs, PCBs	---	---
2277 Market Street 5-431-17-4	EB-3 to 5' Analysis: CAM 17 Metals, TPHd, TPHo, PAHs, OCPs, PCBs	---	---

SECTION 3: PHYSICAL SETTING

3.1 GEOLOGY

The subsurface materials generally consist of clays grading to sandy clay or clayey sands up to depths of approximately 10 feet. Lenses of sands and gravels with clay interbeds were encountered between depths of approximately 8 feet and 20 feet. Coarse gravel was observed in several of the borings at depths between approximately 12 and 15 feet. In boring EB-6, we observed potential tank backfill material consisting of poorly graded sands within in the upper approximately 5 feet. Soil with a blue-green discoloration and petroleum odor was also observed in this boring between approximately 12 and 13 feet.

3.2 HYDROGEOLOGY

Shallow ground water has been measured at depths of approximately 15 feet beneath the Site. Based on ground water elevations, the ground water flow is generally to the northwest.

SECTION 4: NATURE AND EXTENT OF COC

Cornerstone compared detected contaminants of potential concern to Tier 1 Environmental Screening Levels (ESLs)[1]. For compounds where ESLs have not been established, detections were compared to RSLs[2] using a Hazard Quotient of 0.1 for non-carcinogenic compounds. Metal concentrations also were compared to natural background/ambient concentrations (Scott, 1991 and Duverge, 2011)[3]. The results are summarized below.

4.1 SUMMARY OF SOIL ANALYTICAL DATA

4.1.1 Metals

- Lead was detected at concentrations exceeding the Tier 1 ESL of 80 milligrams per kilogram (mg/kg) in seven samples analyzed at concentrations ranging from 92.4 mg/kg to 1,100 mg/kg. The detected concentration in EB-17 (0-1) exceeded the Total Threshold Limit Concentration (TTLC) of 1,000 mg/kg established by Title 22 of the California Code of Regulations (CCR) for determining a non-RCRA (California) Hazardous Waste. In our experience, concentrations exceeding 50 mg/kg may exceed

[1] Environmental Screening Level (ESL), San Francisco Bay, Regional Water Quality Control Board, February, 2016, revision 3.

[2] Regional Screening Levels are used to screen sites for potential human health concerns where releases of chemicals to soil have occurred. They are risk-based concentrations derived from standardized equations combining exposure information assumptions with EPA toxicity data. RSLs are considered by the EPA to be protective for humans (including sensitive groups) over a lifetime; however, RSLs are not always applicable to a particular site and do not address non-human health endpoints, such as ecological impacts. The RSLs referenced in this report are generic; they are calculated without site-specific information. For non-carcinogenic compounds, the Hazard Quotient is the ratio of potential exposure to a substance and the level at which no adverse effects are expected. If the Hazard Quotient is calculated to be less than 1, then no adverse health effects are expected as a result of exposure. As a conservative comparison, the RSLs presented in this report for non-carcinogenic compounds are based on a Hazard Quotient of 0.1. Thus, for a single compound, raising the Hazard Quotient from 0.1 to 1 raises its respective RLS by an order of magnitude.

[3] Naturally occurring background concentrations of metals, such as arsenic, nickel and chromium, amongst others, in soil may exceed their respective screening levels. Cal/EPA generally does not require cleanup of soil to below background concentrations. Thus, for the metals detected, these data also were compared to regional published background concentrations.

the Soluble Threshold Limit Concentration (STLC) designation for a California Hazardous Waste. Lead results are summarized on Figure 3.

- Nickel was detected in one sample EB-9 (13-13.5) at a concentration of 97.9 mg/kg, which exceeded its Tier 1 ESL of 83 mg/kg.

- The remaining metal concentrations were not detected above their respective Tier 1 ESLs and/or natural background/ambient concentrations.

4.1.2 Diesel and Oil Range Petroleum Hydrocarbons

- Total petroleum hydrocarbons in the diesel range (TPHd) was detected in two samples (290 mg/kg in EB-9 [13-13.5] and 240 mg/kg in EB-16 1[2-12.5]) exceeding the Tier 1 ESL of 230 mg/kg. These samples were additionally analyzed using a silica gel cleanup to remove naturally occurring organics, and the detected concentrations were 270 mg/kg (EB-9) and 190 mg/kg (EB-16). TPH results for soil are summarized on Figure 4.

- Total petroleum hydrocarbons in the motor oil range (TPho) was detected at concentration up to 1,200 mg/kg, which is below its Tier 1 ESL of 5,100 mg/kg

4.1.3 Volatile Organic Compounds (VOCs)

- Total petroleum hydrocarbons in the gasoline range (TPHg) was detected at concentrations in two samples (670 mg/kg in EB-16 [12-12.5 feet] and 490 mg/kg in GW-3 [13-13.5 feet]) exceeding its Tier 1 ESL of 100 mg/kg.

- Naphthalene was detected at concentrations up to 30 mg/kg and exceeded its Tier 1 ESL of 0.023 mg/kg in four samples (EB-9 at 13-13.5 feet; EB-13 at 11-12 feet; EB-14 at 12-13 feet; GW-3 at 13-13.5 feet).

- The VOCs ethylbenzene, 2-butanone (MEK), 2-hexanone, acetone, isopropylbenzene, n-butylbenzene, n-propylbenzene and sec-butylbenzene were detected at concentrations less than their respective Tier 1 ESLs or RSLs.

4.1.4 Organochlorine Pesticides (OCPs)

- The OCP concentrations detected did not exceed their respective residential screening criteria or hazardous waste thresholds.

4.1.5 Polychlorinated Biphenyls (PCBs)

- The PCB compounds detected were below the Tier 1 ESL of 0.25 mg/kg.

4.1.6 PAHs

- Benzo[a]pyrene (0.24 mg/kg), benzo[b]fluoranthene (0.25 mg/kg), and dibenz(a,h)anthracene (0.022 mg/kg) were detected in the sample collected from EB-3 (0-1 foot). Detected concentrations of these compounds exceeded their Tier 1 ESLs of 0.016 mg/kg, 0.16 mg/kg, and 0.016 mg/kg, respectively. All other PAH compounds detected were below their respective residential screening criteria.

4.2 SUMMARY OF GROUND WATER ANALYTICAL DATA

- TPHd was detected at concentrations up to 1,080 micrograms per liter (µg/L) and exceeded its Tier 1 ESL of 100 µg/L in five samples. These five samples were then analyzed using a silica gel cleanup; TPHd was detected at concentrations up to 850 µg/L and exceeded the Tier 1 ESL in two samples (EB-9 and EB-10).

- Laboratory analysis of sample GW-1 detected TPHo at a concentration of 370 µg/L, which exceeded the ground water Tier 1 ESL of 100 µg/L. GW-1 was reanalyzed for TPHo with silica gel cleanup, and was not detected above the laboratory reporting limit.

- TPHg was detected in 3 of 7 samples at concentrations ranging from 61 µg/L to 1,300 µg/L. The detected concentrations in samples EB-9 (240 µg/L) and EB-10 (1,300 µg/L) exceeded the ground water Tier 1 ESL of 100 µg/L.

- Benzene (1.4 µg/L) and ethylbenzene (60 µg/L) were detected in EB-10 at concentrations exceeding the ground water Tier 1 ESL of 1 µg/L and 13 µg/L, respectively.

- Naphthalene was detected as a VOC in samples EB-9 (4.6 µg/L) and EB-10 (40 µg/L) exceeding the ground water Tier 1 ESL of 0.12 µg/L. Remaining samples were not detected above the laboratory reporting limit, however the laboratory reporting limits exceeded the Tier 1 ESL.

- The chlorinated solvents cis-1,2-dichloroethene (cDCE) (190 ug/L maximum), trans-1,2-dichloroethene (tDCE) (19 ug/L maximum), 1,1-DCE (16 ug/L maximum), tetrachloroethene (PCE) (11 ug/L maximum) and trichloroethene (TCE) (53 ug/L maximum) were detected in ground water samples collected from monitoring well MW-3, located at the up-gradient property boundary. These VOCs were not detected in other ground water samples collected from the Site and appear to be from an up-gradient, off-Site source. Selected VOC concentrations are summarized on Figure 5.

Compared to analytical results from ground water samples collected in 2005 and 2012, the concentrations of petroleum hydrocarbons and VOCs generally appear to have significantly decreased over time. In addition, the detections of TPH and VOCs at the up-gradient property boundary suggests an off-Site source. It is noted that in 2012, free product was reported in an off-site monitoring well located up-gradient of the site on Myrtle Street that was associated with the Burke Property.

Ground water grab sample GW-1 was collected from 2226 Myrtle Street to evaluate the area where a UST was depicted on a report for the adjacent City Ventures property. Based on records reviewed by Cornerstone, we did not identify any records indicating the presence of a UST at this location. Laboratory analyses of the ground water grab sample detected TPHd and TPHo in the analysis performed without silica gel cleanup, but no TPHd or TPHo were detected after silica gel cleanup. The TPHd and TPHo detected in GW-1, therefore, may not be associated with petroleum hydrocarbons but rather naturally occurring organic compounds in the ground water.

4.3 SOIL VAPOR ANALYTICAL DATA

- TPHg was detected in 2 of 4 soil vapor samples at concentrations exceeding the Tier 1 ESL of 50,000 micrograms per cubic meter (µg/m^3) in samples SV-1 (30,000,000 µg/m^3) and SV-4 (5,300,000 µg/m^3).

- The concentrations of all other VOCs detected were below their respective Tier 1 ESL. Note, however, that sample dilution in soil vapor sample SV-1 raised the benzene reporting limit above ethylbenzene and benzene laboratory reporting limits above their respective Tier 1 ESLs.

4.3.1 Oxygen, Methane and Carbon Dioxide

Laboratory analyses of soil vapor SV-1 through SV-4 revealed: oxygen at concentrations ranging between 1.9 and 15%, methane from 0.16% to 4.7% (the lower explosive limit for methane is 5%), and carbon dioxide from 3.2% to 13%.

SECTION 5: CORRECTIVE ACTION PLAN

5.1 CHEMICALS OF CONCERN AND CLEANUP GOALS

Based on a comparison of the reported analytical data to residential screening levels and published background levels (for metals), the COC in soil consist of primarily of lead, and to a lesser extent nickel, naphthalene, TPHd and TPHg. Benzo[a]pyrene, benzo[b]fluoranthene, and dibenz(a.h)anthracene (polynuclear aromatic hydrocarbons [PAHs]), were also detected in soil exceeding residential screening levels. Because of the presence of a former on-Site fuel station, benzene and ethylbenzene were also selected as soil COC.

COC in ground water include TPHd, TPHg, benzene, ethylbenzene, naphthalene, PCE, TCE, cis-DCE and vinyl chloride.

COC in soil vapor are TPHg, benzene, benzene, ethylbenzene, naphthalene, PCE, TCE, cis-DCE and vinyl chloride; although these VOCs were not detected in soil vapor exceeding residential screening levels, they were selected as soil vapor COC because of their detection in ground water.

Clean up goals are based on Tier 1 Environmental Screening Levels (ESLs) developed by the California Regional Water Quality Control Board – San Francisco Bay Region (RWQCB, February 2016, Revision 3). If COC exceeding cleanup goals are left in-place, the presence of the COCs will be noted in the LUC. In addition, the LUC will reference a Site Management Plan (SMP) for long-term management of the COC.

Table 3. Clean Up Goals

Contaminant	Cleanup Goal Soil (ppm)	Cleanup Goal Ground Water (µg/L)	Cleanup Goal Soil Vapor (µg/m^3)
Lead	80	--	--
Naphthalene	0.023	0.12	41
TPHd	230	--	--
TPHg	100	100	50,000
Benzo[a]pyrene	0.016	--	--
Benzo[b]fluorathene	0.16	--	--
Dibenz(a,h)anthracene	0.016	--	--
Benzene	0.044	1.0	48
Ethylbenzene	1.4	13	560
PCE	--	3	240
TCE	--	5	88
Cis-DCE	--	6	4,200
Vinyl chloride	--	0.061	4.7

5.2 DESTRUCTION OF EXISTING MONITORING WELLS

Prior to site development, the three on-Site monitoring wells will be destroyed under approval from the Alameda County Public Works (ACPW).

5.2.1 Pre-Field Activities

Prior to well destruction a well destruction permit applications will be submitted to the ACPW. Underground Service Alert (USA) will be notified of the approximate drilling locations.

5.2.2 Monitoring Well Destruction

Upon approval of the permit from the ACPW the field work will be scheduled with a ACPW inspector. A C-57 licensed driller will mobilize to the site to destroy the wells in accordance with ACPW guidelines. This work will be performed under observation of Cornerstone Earth Group's field staff. It is anticipated that ACPW will allow pressure grouting of the wells.

5.2.3 Disposal of Well Destruction Materials

Cleaning rinsate and displaced ground water will be temporarily stored on-Site in 55-gallon drums. To help evaluate disposal alternatives, one sample will be collected from the cleaning rinsate and displaced ground water and will be analyzed for TPHg and VOCs (EPA Test Method 8260B), TPHd and TPHmo (EPA Test Method 8015M). Based on the analytical results, these materials will be removed for appropriate off-Site disposal.

5.3 EXCAVATION AND DISPOSAL OF SURFACE SOIL DURING CONSTRUCTION

5.3.1 Summary of Approach

The planned construction of the concrete floor and foundation system will require the excavation of the upper approximately two to three feet of soil from the Site. It is anticipated that this excavation will remove surface soil that exceeds residential screening criteria detected during on-Site investigations. In addition, for geotechnical purposes, undocumented tank-pit backfill beneath 914 West Grand Avenue will require over-excavation and replacement with engineered fill. Soil that exceeds residential cleanup goals in the former on-Site tank pit area will be removed during the over-excavation of the tank pit backfill. To enhance natural biodegradation of petroleum fuel hydrocarbons in shallow ground water, an amendment such as Oxygen Release Compound (ORC) may be applied to the base of the former tank pit prior to backfilling. The preliminary excavation areas and depths are shown on Figure 3; the excavation extent may change depending on results of the Data Gaps investigation and/or conditions encountered in the field during construction.

Earthwork activities will be performed by licensed hazardous materials contractors and personnel trained in hazardous waste operations (40-hour HAZWOPER training) using the soil management procedures described in this document. Soil suspected of being contaminated that is excavated during construction will be stockpiled separately from “clean” soil.

Additional details of the soil removal will be presented in the CAIP.

5.3.2 Excavation and Removal of Surface Soil

The upper two to three feet of soil from across the site will be excavated and disposed of off-Site. Soil in the elevator pit area will be excavated to a depth of approximately seven feet. TCD/CEF’s contractor will be responsible for obtaining approval for disposal of soil prior to beginning excavation. It is anticipated that soil will be direct loaded for off-Site disposal or stockpiled prior to offhaul, as determined by TCD/CEF’s contractor.

Excavated soil will be stockpiled on-site on top of and covered by an “impermeable” liner (6 mil) to reduce infiltration by rainwater and contamination of underlying soil. If the stockpile is located on pavement, then a liner is not required beneath the pile. If a stockpile will remain on-site greater than 48 hours, sandbags will be placed around the stockpile to secure the plastic sheeting. While remaining on-site, stockpiles will be checked daily to verify that they are adequately covered.

5.3.3 Over-Excavation of Former UST Pit Backfill During Construction

Based on the documents reviewed during our Phase I Environmental Site Assessment, Salem Engineering Group, Inc performed a geophysical survey identified three subsurface anomalies and several areas of disturbed soil on the western side of 914 West Grand Avenue. A pothole investigation was conducted in the areas of disturbed fill. The fill materials encountered at these locations reportedly had a petroleum odor. Salem concluded that these areas formerly contained USTs associated with the historic filling station.

Undocumented fill placed during the UST removal in the former fuel station located at 914 West Grand will require over-excavation and replacement with engineered fill. The undocumented fill will be over-excavated until native material is encountered which is anticipated to occur at a

depth of approximately 12 to 15 feet. Fill materials will be stockpiled on-Site and representative samples will be collected for analysis to determine potential on-Site reuse or off-Site disposal alternatives.

5.3.4 Disposal of soil

The soil analytical data will be supplied to the disposal facility. Excavated soil that does not exceed the Federal or State hazardous waste limits can be disposed of at a Class II disposal facility. Excavated soil that exceeds either the Federal or State hazardous waste limits will be disposed of at a Class I (hazardous) disposal facility. The contractor shall ensure that all hazardous waste manifests are completed in accordance with Federal and State requirements if soil will be transported to a Class I disposal facility.

5.4 GROUND WATER MANAGEMENT DURING CONSTRUCTION

If ground water ponds in the former UST pit excavation, the water will be sampled and analyzed prior to pumping to evaluate discharge alternatives. Cornerstone will collect a sample of the ponded water for laboratory analyses for COC; other analyses may be required, based on the intended use of the water. Pursuant to Water Board resolution 88-160, the preferred use of the ponded water is recycling or on-site re-use. If recycling or re-use is not appropriate, based on analytical data or Property circumstances (i.e. more ponded water than is necessary for dust control), the next alternative is discharge to publicly owned treatment works. If recycling/on-site reuse or discharged to publicly owned treatment works is not appropriate, then treatment and discharge to the local receiving waters (i.e. storm drain) will be evaluated.

If the pumped water is to be used for on-site dust control, concentrations of COC will be compared to the Water Board's ESLs for fresh or estuarine surface water. If the concentrations detected exceed the ESLs, then County Health's staff will be consulted prior to using pumped water for on-site dust control. Discharge to the sanitary sewer or storm sewer, if any, will be performed under an approved permit from the City of Oakland or Water Board, respectively. If required, water will be treated prior to discharge.

SECTION 6: SOIL MANAGEMENT PLAN

The Soil Management Plan (SMP) presented herein is purposefully broad in scope. This SMP presents protocols for the following construction activities that may or will encounter residual COPC:

- Site grading and excavation of elevator pit;
- Over-excavation of UST backfill area
- Dewatering, and;
- Building foundation construction

6.1 RISK MANAGEMENT DURING CONSTRUCTION

This section presents the risk management procedures to be followed during construction of the on-site development, including worker training, construction impact mitigation measures, excavation de-watering, and soil management protocol.

6.1.1 Brief Description of Subsurface Construction Activities

The existing building, foundations and pavements will be demolished and removed for appropriate recycling/disposal with regulatory agency requirements. The upper approximately 3 to 5 feet of soil will be removed from the Site for general site grading. The area of the former UST backfill at 914 West Grand will be removed to approximately 15 feet. A temporary retaining wall will be installed around the perimeter of the former UST area.

Ground water will be pumped during excavation and discharged in accordance with a permit, as described in Section 5.4. The retaining wall expected to significantly limit the amount of shallow ground water infiltration into the excavation during dewatering.

6.1.2 Pre-Construction Planning and Notification

Prior to the start of any construction activity that involves below ground work, information regarding site risk management procedures (e.g. a copy of this SMP) will be provided to the contractors for their review and each contractor shall provide such information to its subcontractors.

6.1.3 Site-Specific Health and Safety Worker Requirements

Cornerstone will prepare a Health and Safety Plan (HSP) that provides general health and safety guidance such that field activities can be conducted in a safe manner. The HSP will be included in the CAIP. On-Site contractors performing subsurface activities that may encounter COC will be required to develop their own Property specific HSP. The HSP prepared by the contractor will, at a minimum, include the components of the ACDEH approved HSP. 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). The purpose of the HSP and IIPP is to provide general guidance regarding the work hazards that may be encountered during each phase of Property construction activities.

Contractors are also required to determine the requirements for worker training, based on the level of expected contact to soil and ground water associated with the contractor's activities and locations. The HSP will contain provisions for limiting and monitoring chemical exposure to construction workers, chemical and non-chemical hazards, emergency procedures, and standard safety protocols. Depending upon known conditions of a property, employees conducting earthwork activities at the Property may be required to complete a 40-hour HAZWOPER training course (29 CFR 1910.120 (e)), including respirator and personal protective equipment training.

6.1.4 Construction Impact Mitigation Measures

During construction, measures will be taken by contractors to minimize dust generation, storm water runoff and tracking of soil off-site. The construction impact mitigation measures are described below.

6.1.4.1 Property Control

Property control procedures will be implemented by the Contractor to control the flow of personnel, vehicles and materials in and out of the Site while working in contaminated materials. In addition, Site control measures will help control the spread of COC from the Property.

The Property perimeter will be fenced by the Contractor. Access and egress will be controlled at selected locations. Signs will be posted by the Contractor instructing visitors to sign in at the project support areas located at all controlled Property entrances.

6.1.4.2 Equipment Decontamination

Soil will be removed from equipment and vehicles before leaving the site. Cleaning methods used may include dry methods, such as brushing, scraping, or vacuuming. If dry methods are not effective, wet methods, such as steam cleaning or pressure-washing, should be used. The contractor, however, will be required to contain, manage, and collect samples of the rinse water for analytical testing by a state certified laboratory prior to appropriate disposal.

Decontamination procedures will be developed and implemented by the construction contractor to minimize the possibility that equipment releases contaminated soil onto public roadways or to on-site areas containing “clean” cover materials or new paving.

6.1.4.3 Personal Protective Equipment

Personal Protective Equipment (PPE) and clothing are used to isolate workers from COC and physical hazardous. The minimum level of protection for workers coming into direct contact with contaminated materials is Level D:

1) Coveralls or similar clothing.
2) Reflective safety vests
3) Work gloves, as necessary
4) Steel-toed boots
5) Safety glasses, as necessary
6) Hard hat
7) Hearing protection, as necessary

6.1.4.4 Dust Control and Monitoring

Construction operations will be conducted to minimize the creation and dispersion of dust in accordance with City of Oakland Ordinance 15.36.100, including the following measures:

- Limit on-Site vehicle speed to approximately 15 miles per hour or less as needed to minimize visible dust generation;
- Apply water to the areas to be excavated and/or graded, and continue watering throughout the grading and/or excavation activities to minimize visible dust generation;
- Perimeter fencing will be installed with windscreens;
- Suspend excavation/grading activities when wind speeds are high enough to result in visible dust emissions (e.g. two gusts of greater than 25 miles per hour within 30 minutes);
- Keep soil stockpiles adequately wetted or covered when not in use and at the end of each work day;
- Minimizing the amount of excavated material or waste materials stored at the Site;

- If track-out occurs, clean track-out on paved public roads using a high efficiency particulate air filter (HEPA filter) equipped vacuum device at the end of each work day and upgrade decontamination procedure to help prevent future track-out, see Section 7.1.4.5 for additional details;
- When loading trucks for removal of excavated material, the material shall not extend above the walls or back of the truck bed. The load must be tightly covered with a tarp or other effective cover for all trucks hauling soil, sand, and other loose materials before the trucks leave the loading area. If needed, the materials will be wetted prior to covering;
- A telephone hotline number will be posted at the construction site entrance for community members to call and report visible dust.

Additional dust control measures may be identified and implemented by contractors, as necessary, especially if dry and windy conditions persist during periods of earthwork.

During grading activities, Cornerstone or other qualified Environmental Professional (EP) will set up a minimum of three dust monitors to document airborne concentrations at upwind and downwind Site boundaries. The monitoring will be performed using DataRAM PDR-1000 particulate monitors or their equivalent. The locations of the meters will be determined by the field geologist or engineer in the field. The wind direction and time of observation will be recorded in the field and the sampling location will be modified during the day if significant changes in wind direction are readily observed. The particulate meters will be monitored by the field geologist or engineer to evaluate if excessive dust is migrating off-Site. Each time the meters are checked, the differences between the average upwind dust concentration and the average downwind concentrations will be compared to ambient air quality standard of 150 micrograms per cubic meter over an averaging time of 8-hours for respirable dust. If this standard is exceeded, increased dust control measures will be implemented. Results of the air monitoring will be summarized in a completion report.

6.1.4.5 Track-out Prevention

Any track-out on a paved public road at any location where vehicles exit the work Site will be cleaned by using wet sweeping or a HEPA filter equipped vacuum device by the end of each work day. Dry sweeping of paved roadways will be prohibited.

The following track-out prevention measure will be utilized at the Site entrance/exit by on-Site contractors:

- A gravel pad near the Site exit for vehicle decontamination.

The following additional track-out measures may be implemented at the Site by the on-Site contractors:

- A tire shaker; and
- A wheel wash system.

6.1.4.6 Storm Water Pollution Controls

A storm water pollution prevention plan (SWPPP) will be prepared by the Civil Engineer of Record. Storm water pollution controls will be based on best management practices (BMPs), such as those described in “Information on Erosion and Sediment Control for Construction

Projects: A Guidebook" (Water Board 1998) and "Erosion and Sediment Control Field Manual", Third Edition (Water Board 1999). Sediment and erosion control procedures may include, but are not limited to the following:

- Constructing temporary berms or erecting silt fences around exposed soil;
- Placing straw bale barriers or sediment traps around catch basins or other entrances to storm drains;
- Covering soil stockpiles with plastic sheeting or tarps during rainfall events; and
- Implementing other appropriate BMPs.

6.1.4.7 Observation of Excavation Activities

The EP will observe the on-Site excavation activities on a part to full time basis. In the event that unexpected suspect soil conditions are identified through visual or olfactory observations or if field screening using an organic vapor meter (OVM) identifies potentially contaminated soils that are not anticipated, work will be halted in the area of suspect materials. Note that petroleum fuel impacted soils are expected in the area of the former USTs (Figure 2). If an unexpected area of suspected impact is observed, the area will be cordoned off using delineators and caution tape, or similar materials. If additional soil management protocols are recommended to be implemented by the EP and/or required by the ACDEH, these measures will be conducted in accordance with the procedures identified in Section 7.2.

6.1.4.8 Odor Controls

If nuisance odors are present during excavation activities that are associated with the soil, measures will be implemented to reduce the odors. These include limiting the amount of soil disturbance, to the amount practical, and applying water or non-toxic odor/vapor suppressant to the soil during excavation activities. In addition, soil that is causing a nuisance odor will be covered with a layer of clean soil or plastic sheeting at the end of the work day.

6.2 SOIL MANAGEMENT PROTOCOLS

6.2.1 Management of Excavated Soils

During excavation activities, unexpected areas of apparent soil contamination may be encountered. If unexpected contaminated soil is encountered during excavation activities, the area will be designated as an Area of Concern, and any excavated soils will be stockpiled and segregated for additional analyses. The quality of soil suspected to be contaminated will be evaluated through analytical testing so that the Area of Concern can be delineated and appropriate disposal alternatives can be determined. The soils from the Area of Concern will be analyzed in accordance with Section 6.2.2.

6.2.2 Analysis of Suspect Soils during Excavation

Any area of unexpected apparent contamination (Area of Concern [AOC]) will be evaluated to help evaluate disposal alternative and to segregate the materials from surrounding soil. Samples will either be collected from the in-place soils or from soils stockpiled on site. The

discrete soil samples will be submitted to a state certified laboratory and analyzed for arsenic, lead, nickel, and chromium (EPA Test Method 6000), TPHd and TPHmo (EPA Test Method 8015M with silica gel cleanup), VOCs (EPA Test Method 8260), semi-VOCs (EPA Test Method 8270 SIM), and PCBs (EPA Test Method 8082). If total arsenic, lead, chromium, and/or nickel are detected at concentrations exceeding 10 times the soluble threshold limit concentration (STLC), then those samples will be analyzed for soluble arsenic, lead, chromium, and/or nickel using STLC extraction techniques to determine if the soil is a hazardous waste with respect to California regulations (California Code of Regulations (CCR) Title 22 Section 66261.24). Soil sampling protocol is described in Section 3.2.4.

The soil analytical data will be supplied to the disposal facility. Excavated soil that does not exceed the Federal or State hazardous waste limits can be disposed of at a Class II disposal facility. Excavated soil that exceeds either the Federal or State hazardous waste limits will be disposed of at a Class I (hazardous) disposal facility. The contractor shall ensure that all hazardous waste manifests are completed in accordance with Federal and State requirements if soil will be transported to a Class I disposal facility.

6.2.3 Verification Soil Sampling and Laboratory Analyses

As noted in Section 5.3, surface soil will be removed during grading for the planned development. Except for the former UST pit (described below) and any AOC encountered (Section 6.2.2), verification soil samples will not be collected following the excavation for construction; the potential presence of COC will be described in the LUC.

One verification soil sample will be collected from the UST excavation with one sample collected for approximately 20 lineal feet of sidewall; verification soil samples will not be collected from sidewalls along property boundaries. The soil samples will be collected using hand sampling equipment in accordance with the protocol presented in Section 6.2.4.

The verification soil samples will be submitted to a state certified laboratory and analyzed for soil COC identified for the Property: lead (EPA Test Method 6000), TPHd and TPHmo (EPA Test Method 8015M with and without silica gel cleanup), TPHg and VOCs (EPA Test Method 8260) and polyaromatic hydrocarbons (PAHs) (EPA Test Method 8270 SIM).

Laboratory analytical results will be compared to residential ESLs. If residential screening levels are exceeded, the results will be discussed with County Health staff to evaluate whether additional excavation is required.

6.2.4 Soil Sampling Protocols

Soil samples will be collected in pre-cleaned new stainless steel liners. The ends of liners will be covered with Teflon film, fitted with plastic end caps, taped, and labeled with a unique identification number. Samples selected for VOC analysis will be collected in 5-gram Core-N-1 capsules (in triplicate). The samples then will be placed in an ice- chilled cooler, and transported to a state-certified analytical laboratory with chain of custody documentation. Sampling equipment will be cleaned with laboratory grade detergent and rinsed or steam cleaned between sample points.

6.2.5 Field Documentation

The EP's field geologist or engineer will be present part to full time during excavation activities. For each day that the EP's field geologist or engineer is observing Site activities, a field report will be prepared summarizing activities, results of dust monitoring and our observations.

Chain-of-custody records are used to document sample collection and shipment to the laboratory for analysis. All sample shipments for analyses will be accompanied by a chain-of-custody record. Form(s) will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, chain-of-custody form(s) will be completed and sent with the samples for each cooler. The chain-of-custody record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until receipt by the laboratory, the custody of the samples will be the responsibility of the sample collector.

Photographs will be periodically taken by the EP's field geologist or engineer to help document information entered in the daily field report, and to document the soil verification sampling locations. When a photograph is taken, the following information will be written in the daily field report:

- Time, date, location, and, if appropriate, weather conditions
- Description of the subject photographed
- Name of person taking the photograph

6.2.6 Import Fill

All import sources will be required to provide documentation on the source and quality of the soil prior to transporting the soil to the Site. If requested, the information will be provided to County Health for review and approval prior to import. At a minimum, the import sources will be evaluated in accordance with the Department of Toxic Substances Control (DTSC) October 2001 Clean Fill Advisory.

SECTION 7: RISK MANAGEMENT ENGINEERING CONTROLS

7.1 VAPOR INTRUSION MITIGATION MEASURES

Because volatile COC may persist in shallow ground water as a result of on-Site and off-Site sources, risk management measures for vapor intrusion associated with VOCs present in shallow ground water are summarized below.

7.1.1 Vapor Membranes and Sub-Slab Passive Ventilation

Sub-slab vapor barriers and passive ventilation will be installed beneath the entire footprint of the building. The vapor intrusion (VI) mitigation design consists of a sub-slab vapor membrane and passive ventilation conduits. An example of the sub-slab venting layout is shown on Figure 9. Design details will be included with the CAIP.

The vapor membranes will consist of 60 mils dry vapor barrier (Ecoline-S® or approved equal), covered by a top protection course and on top of a base course (Ecoline-S or approved equal).

7.1.2 Quality Assurance/Quality Control

The contractor will be required to be trained by the manufacturer of the membrane system and shall provide TCD/CEF with a letter from the manufacturer stating that the contractor is certified to install its product and that the manufacturer will warrant its product to be free of defects when their product is installed by the contractor.

The installation contractor shall verify the thickness of the membrane. The contractor shall implement quality control testing (smoke/pressure test) for certification that the membrane has been installed with the requirements of the design. Quality control testing shall be performed at the following phases: (1) after installation of the vapor membrane and (2) after the installation of the concrete slab. The contractor/applicator will be required to repair any leaks which are identified. Placement of the top protection course and construction of the floor slab shall not proceed without written certification of the successful installation of the vapor barrier system by the contractor.

7.1.3 Inspection/Observation Activities

The property developer's representative will perform periodic inspection and observation of the membrane and vapor control measures. At a minimum, the inspection/observation shall take place at the following states of the installation:

1) Sub-grad preparation prior to placement of the vapor membrane system;
2) Gas permeable aggregate layer over geotextile following subgrade preparation;
3) Installation of sub-slab low profile collection pipe network, reducers, couplings and riser "stub-outs" prior to aggregate cover placement;
4) After backfilling of final aggregate layer cover;
5) During coupon sampling and smoke/pressure testing activities described above;
6) Immediately prior to placement of foundation concrete; and
7) During, and at the completion of, the vertical vent riser installation and exhaust stack and pressure testing activities.

7.2 MEASURES TO RESTRICT GROUND WATER AND SOIL VAPOR MIGRATION IN UTILITY BACKFILL

To limit migration of soil vapor through pipe bedding backfill in utilities located above shallow ground water, and migration of ground water through pipe bedding in utilities that extend into ground water, low-permeability cutoff plugs will be installed on all subsurface utilities at the property boundaries. General details of the cutoff plugs are shown on Figure 10. The plugs will consist of a minimum 3-foot long segment of controlled density fill (e.g. cement/sand slurry) that extends a minimum 1 foot above the pipe bedding/shading material.

7.3 OPERATION AND MAINTENANCE AND LAND USE COVENANT

An operation and maintenance plan (OMP) will be prepared for use by the apartment building management that describes protocol for: 1) cutting, drilling or otherwise penetrating the concrete floor slabs and associated repair of the vapor membrane, and; 2) modifications, repair or replacement of any of the vent risers or wind-driven turbine ventilators. We understand that County Health may require a land use covenant (LUC) that references the OMP.

SECTION 8: GROUND WATER MONITORING

The need for ground water monitoring will be evaluated after completion of the data gap investigation described in Section 1.3. If required, three MWs would be installed after development is completed, with one year of quarterly ground water monitoring performed to document concentration trends. Proposed locations and monitoring plan would be included with the CAIP.

SECTION 9: LIMITATIONS

Cornerstone performed this investigation to support TCD/CEF in evaluation of soil, soil vapor, and ground water quality beneath the Site. TCD/CEF understands that the extent of soil, soil vapor, and ground water data obtained is based on the reasonable limits of time and budgetary constraints. In addition, the chemical information presented in this report can change over time and is only valid at the time of this investigation and for the locations sampled.

This report, an instrument of professional service, was prepared for the sole use TCD/CEF and may not be reproduced or distributed without written authorization from Cornerstone.

Cornerstone makes no warranty, expressed or implied, except that our services have been performed in accordance with the environmental principles generally accepted at this time and location.

SECTION 10: REFERENCES

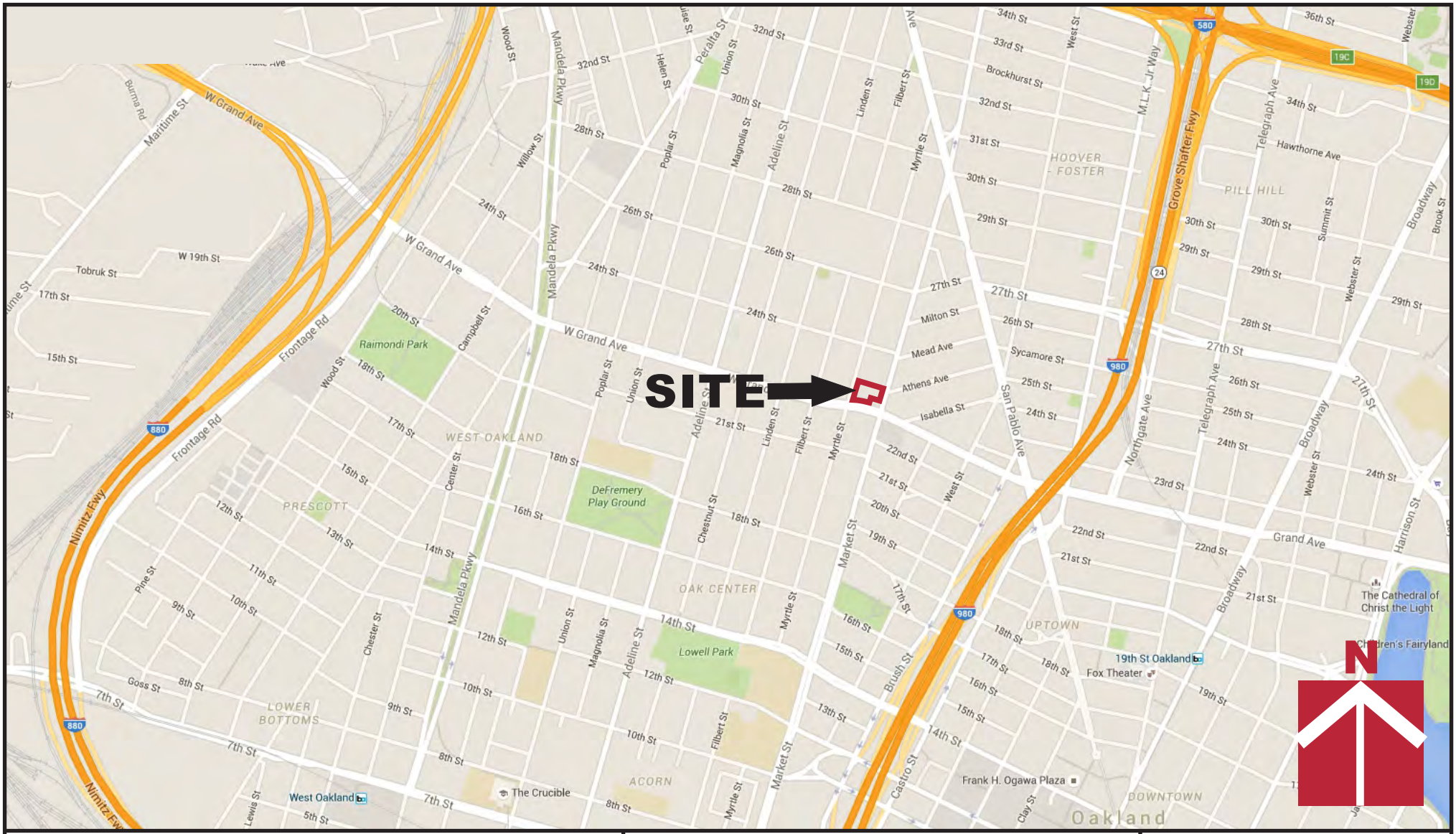
Cornerstone Earth Group. August 19, 2016. *Phase I Environmental Site Assessment, 914 West Grand Avenue, 2220, 2226, and 2236 Myrtle Street, and 2277 and 2281 Market Street, Oakland, California.*

Cornerstone Earth Group. October 4, 2016. Conceptual Site Model and Data Gap Investigation Work Plan, 914 W. Grand Avenue, *Oakland, California.*

Department of Toxic Substances Control, October 2011. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*.

EPA, 2012. *Regional Screening Level (RSL) Summary Table, Updated May 2016.* http://www.epa.gov/region9/superfund/prg/

Regional Water Quality Control Board, 2008. *Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater* (November 2007), San Francisco Bay Regional Water Quality Control Board, California EPA, http://www.waterboards.ca.gov/sanfranciscobay/esl.htm, updated February, 2016, Revision 3.

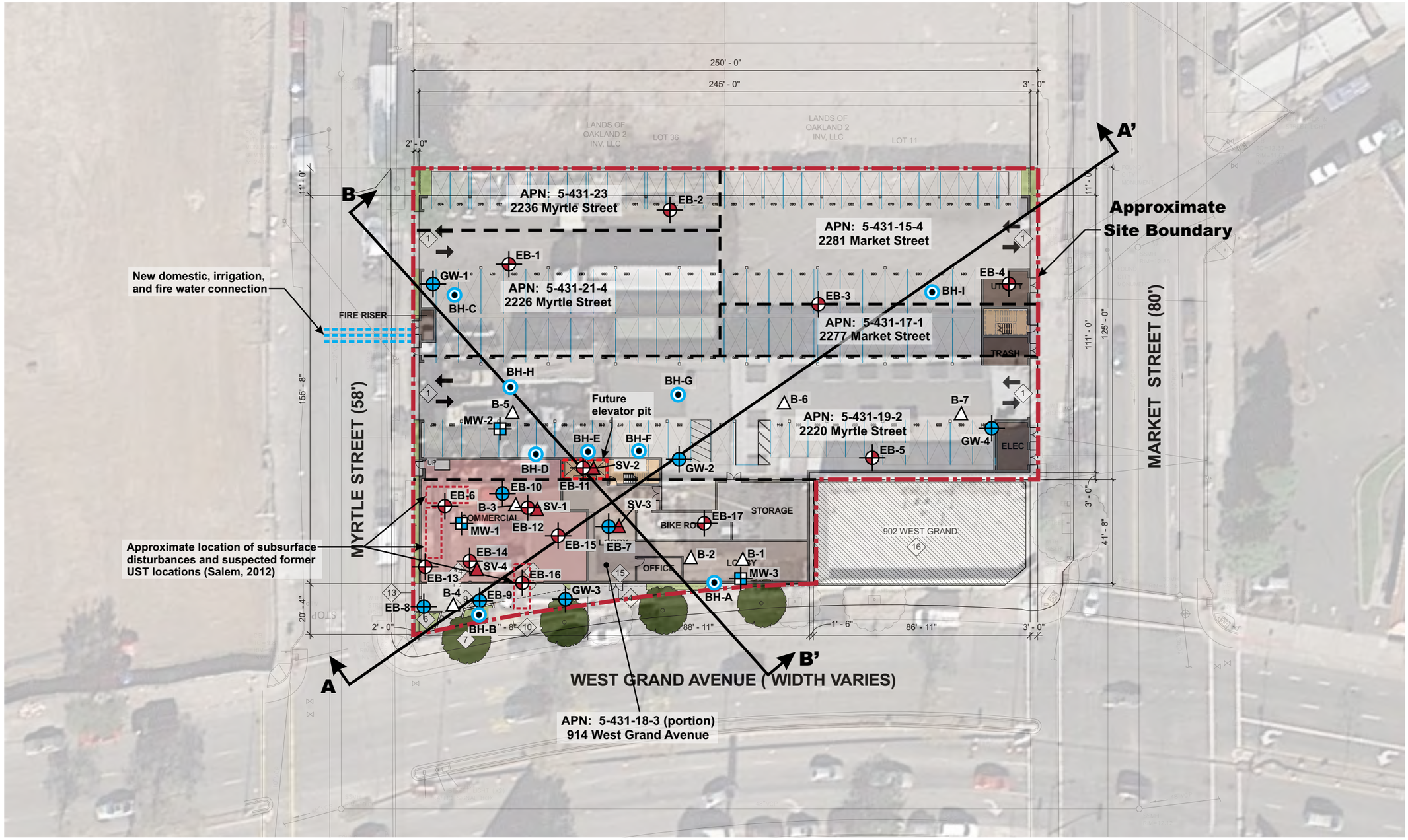


CORNERSTONE EARTH GROUP

Vicinity Map

914 West Grand Avenue Residential Development Oakland, CA

Project Number	914-1-3
Figure Number	Figure 1
Date	October 2016
Drawn By	RRN



Legend

- Approximate location of ground water grab sample (sampled November 10, 2016)
- Approximate location of ground water monitoring well (Salem, June 2012) (sampled August 24, 2016)
- Approximate location of soil boring and ground water grab sample (ASE, April 2005)
- Approximate location of soil boring and soil vapor probe (Salem, February 2012)
- Approximate location of exploratory boring for soil sample collection
- Approximate location of temporary soil vapor probe
- A A' Approximate location of cross section

N

0 40 80

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/30/2015
Overlay by Lowney Architecture, Site Plan - A1.1, dated 8/29/2016

Project Number 914-1-3

Figure Number Figure 2

Drawn By RRN

Date December 2016

Site Plan

914 West Grand Avenue Residential Development Oakland, CA

CORNERSTONE EARTH GROUP

Environmental Screening Levels

	ESL [1] - Tier 1
Lead	80

Concentrations measured in mg/kg

[1] Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016

< Not detected at or above laboratory reporting limit

--- Not Analyzed

BOLD Concentration exceeds ESL

BH-C 3/23/2005	
Depth (ft)	Lead
2	28

EB-1 11/9/2016	
Depth (ft)	Lead
0 to 1	**92.4**
2 to 3	4.84

BH-H 3/23/2005	
Depth (ft)	Lead
2	7.8

EB-2 11/9/2016	
Depth (ft)	Lead
0 to 1	3.91
2 to 3	3.47

BH-G 3/23/2005	
Depth (ft)	Lead
2	28

EB-3 11/9/2016	
Depth (ft)	Lead
0 to 1	**139**
2 to 3	77.5

B-5 2/15/2012	
Depth (ft)	Lead
1	8.0

BH-F 3/23/2005	
Depth (ft)	Lead
2	8.1

BH-E 3/23/2005	
Depth (ft)	Lead
2	37

BH-D 3/23/2005	
Depth (ft)	Lead
2	8.1

EB-11 11/10/2016	
Depth (ft)	Lead
0 to 1	**222**
2 to 3	5.69
4½ to 5	<10
9½ to 10	<10

EB-10 11/10/2016	
Depth (ft)	Lead
0 to 1	11.5

B-3 2/15/2012	
Depth (ft)	Lead
1	8.5

EB-14 11/9/2016	
Depth (ft)	Lead
6 to 7	31.1

B-4 2/15/2012	
Depth (ft)	Lead
1	5.4

EB-9 11/9/2016	
Depth (ft)	Lead
4½ to 5	---
13 to 13½	10.8

EB-7 11/9/2016	
Depth (ft)	Lead
0 to 1	**404**

EB-16 11/10/2016	
Depth (ft)	Lead
0 to 1	13.3
12 to 12½	7.59

B-2 2/15/2012	
Depth (ft)	Lead
1	9.9

B-1 2/15/2012	
Depth (ft)	Lead
1	11

EB-17 11/9/2016	
Depth (ft)	Lead
0 to 1	**1,100**
2 to 3	<10
4 to 5	<9.2

EB-5 11/9/2016	
Depth (ft)	Lead
0 to 1	3.91
2 to 3	3.47

EB-4 11/9/2016	
Depth (ft)	Lead
0 to 1	**529**
2 to 3	**345**
4½ to 5	<9.7

BH-I 3/23/2005	
Depth (ft)	Lead
2	24

New domestic, irrigation, and fire water connection

Approximate location of subsurface disturbances and suspected former UST locations (Salem, 2012)

APN: 5-431-23
2236 Myrtle Street

APN: 5-431-21-4
2226 Myrtle Street

APN: 5-431-15-4
2281 Market Street

APN: 5-431-17-1
2277 Market Street

APN: 5-431-19-2
2220 Myrtle Street

APN: 5-431-18-3 (portion)
914 West Grand Avenue

Approximate Site Boundary

Future elevator pit

FIRE RISER

MYRTLE STREET (58')

MARKET STREET (80')

WEST GRAND AVENUE (WIDTH VARIES)

LANDS OF OAKLAND 2 INV, LLC

LOT 36

LOT 11

245' - 0"

3' - 0"

2' - 0"

11' - 0"

111' - 0"

125' - 0"

55' - 8"

20' - 4"

88' - 11"

86' - 11"

41' - 8"

1' - 6"

STORAGE

BIKE ROOM

OFFICE

COMMERCIAL

LOBBY

TRASH

ELEC

STOP

EB-1, EB-2, EB-3, EB-4, EB-5, EB-6, EB-7, EB-8, EB-9, EB-10, EB-11, EB-12, EB-13, EB-14, EB-15, EB-16, EB-17, BH-A, BH-B, BH-C, BH-D, BH-E, BH-F, BH-G, BH-H, BH-I, B-1, B-2, B-3, B-4, B-5, B-6, B-7, MW-1, MW-2, MW-3, GW-1, GW-2, GW-3, GW-4, SV-1, SV-2, SV-3, SV-4

A A' B B'

Excavation Depths

- 2 feet
- 3 feet
- 7 feet
- 12 feet

Legend

- Approximate location of ground water grab sample (sampled November 10, 2016)
- Approximate location of ground water monitoring well (Salem, June 2012) (sampled August 24, 2016)
- Approximate location of soil boring and ground water grab sample (ASE, April 2005)
- Approximate location of soil boring and soil vapor probe (Salem, February 2012)
- Approximate location of exploratory boring for soil sample collection
- Approximate location of temporary soil vapor probe
- Approximate location of cross section

N

0 40 80

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/30/2015
Overlay by Lowney Architecture, Site Plan - A1.1, dated 8/29/2016

Project Number 914-1-3

Figure Number Figure 3

Drawn By RRN

Date March 2017

On-Site Lead Results with Excavation Depths

914 West Grand Avenue
Residential Development
Oakland, CA

CORNERSTONE EARTH GROUP

Screening Levels

	ESL [1] - Tier 1
TPHd (diesel)	230
TPHo (oil)	5,100
TPHg (gasoline)	100

Concentrations measured in mg/kg

[1] Environmental Screening Level (ESL), RWQCB, SF Bay Region - February 2016

< Not detected at or above laboratory reporting limit

--- Not Analyzed

BOLD Concentration exceeds ESL

EB-10			11/10/2016
Depth (ft)	TPHd	TPHo	TPHg
0 to 1	8.4	130	---
2 to 3	2.2	<5.0	<1.1
4½ to 5	<1.0	<5.0	<1.1
9½ to 10	1.6	<5.0	<1.1

B-3			2/15/2012
Depth (ft)	TPHd	TPHo	TPHg
1.0	---	---	---

EB-12			11/10/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	1.2	<5.0	<1.1
4½ to 5	<1.0	<5.0	<0.95
9½ to 10	<1.0	<5.0	<0.93

EB-15			11/10/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	<1.0	<5.0	<0.98
4½ to 5	<1.0	<5.0	<1.0
9½ to 10	<0.98	<5.0	<1.1

EB-7			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
0 to 1	180	1,200	---
2 to 3	<1.0	<5.0	<0.98
4 to 5	<1.0	<5.0	<0.93
9 to 10	<1.0	<5.0	<0.95

EB-6			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	1.3	5.0	<0.96
4 to 5	37	120	<1.1
9 to 10	57	110	7.2
14 to 15	<1.0	<5.0	<1.1

EB-14			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	<5.0	84	<1.0
4 to 5	1.0	5.0	<1.1
6 to 7	13	41	<0.93
9 to 10	<1.0	<5.0	<1.1
12 to 13	90	<5.0	7.2
14 to 15	2.6	<5.0	<1.0

EB-13			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	2.7	19	<0.95
4 to 5	<1.0	<5.0	<1.1
9 to 10	<1.0	<5.0	<1.1
11 to 12	18	<5.0	28
14 to 15	<1.0	<5.0	<1.1

EB-8			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	1.3	18	<0.98
4 to 5	<0.99	<5.0	<1.1
9 to 10	<1.0	<5.0	<0.93

B-4			2/15/2012
Depth (ft)	TPHd	TPHo	TPHg
1.0	---	---	---

BH-B			3/23/2005
Depth (ft)	TPHd	TPHo	TPHg
11½	**370**	<50	**2,100**

EB-9			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
2 to 3	1.4	6.1	<0.98
4 to 5	<1.0	5.6	<1.1
9 to 10	<1.0	<5.0	<0.96
13 to 13½	**290**	<5.0	10

EB-16			11/10/2016
Depth (ft)	TPHd	TPHo	TPHg
0 to 1	51	540	---
2 to 3	2.0	5.5	<1.0
4½ to 5	<1.0	<5.0	<1.0
12 to 12½	**240**	<5.0	**670**
14½ to 15	<1.0	<5.0	<0.95

GW-3			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
13 to 13½	110	<5.0	**490**

B-2			2/15/2012
Depth (ft)	TPHd	TPHo	TPHg
1.0	---	---	---

BH-A			3/23/2005
Depth (ft)	TPHd	TPHo	TPHg
11½	<1.0	<1.0	<1.0

EB-17			11/9/2016
Depth (ft)	TPHd	TPHo	TPHg
0 to 1	10	45	<0.92
2 to 3	<0.99	<5.0	<1.0
4 to 5	<1.0	<5.0	<1.0
9 to 10	<1.0	<5.0	<1.1

B-1			2/15/2012
Depth (ft)	TPHd	TPHo	TPHg
1.0	---	---	---

MYRTLE STREET

WEST GRAND AVENUE (WIDTH VARIES)

COMMERCIAL

LOBBY

BIKE ROOM

STORAGE

OFFICE

LOBBY

902 WES

APN: 5-431-18-3 (portion)
914 West Grand Avenue

Approximate location of subsurface disturbances and suspected former UST locations (Salem, 2012)

Approximate Site Boundary

2' - 0"

67' - 8"

88' - 11"

1' - 6"

86' -

Legend

- Approximate location of ground water grab sample (sampled November 10, 2016)
- Approximate location of ground water monitoring well (Salem, June 2012) (sampled August 24, 2016)
- Approximate location of soil boring and ground water grab sample (ASE, April 2005)
- Approximate location of soil boring and soil vapor probe (Salem, February 2012)
- Approximate location of exploratory boring for soil sample collection
- Approximate location of temporary soil vapor probe
- Approximate location of cross section

N

0 20 40

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/30/2015
Overlay by Lowney Architecture, Site Plan - A1.1, dated 8/29/2016

Project Number 914-1-3

Figure Number Figure 4

Drawn By RRN

Date December 2016

On-Site TPH Results

914 West Grand Avenue Residential Development Oakland, CA

CORNERSTONE EARTH GROUP

Screening Levels

	Residential ESL [1]
TPHd (diesel)	100
TPHo (oil)	100
TPHg (gasoline)	100
Ethyl Benzene	13
Xylenes	20
Napthalene	0.12
TCE	5.0
cDCE	6.0
Vinyl Chloride	0.061

Concentrations measured in µg/L

[1] Environmental Screening Level (ESL), Regional Water Control Board - February 2016, GW Tier 1 ESL

< Not detected at or above laboratory reporting limit

--- Not Analyzed

BOLD Concentration exceeds selected environmental screening criteria or is outside of the published background range

GW-1	11/10/2016
TPHd	**750**
TPHo	**370**
TPHg	<50
Benzene	<0.5
Ethyl Benzene	<0.5
Napthalene	<2.0

MW-2	6/4/2012
TPHd	<0.05
TPHo	---
TPHg	<50
Ethyl Benzene	<1.0
Xylenes	<1.0
Napthalene	<1.0
TCE	<1.0
cDCE	<1.0
Vinyl Chloride	<1.0
	8/24/2016
TPHd	<52
TPHo	<100
TPHg	<50
Ethyl Benzene	<0.50
Xylenes	<1.0
Napthalene	<1.0
TCE	<0.50
cDCE	<0.50
Vinyl Chloride	<0.50

MW-1	6/4/2012
TPHd	<0.05
TPHo	---
TPHg	**3,300**
Ethyl Benzene	**79**
Xylenes	**188**
Napthalene	**37**
TCE	<1.0
cDCE	<1.0
Vinyl Chloride	<1.0
	8/24/2016
TPHd	<50
TPHo	<100
TPHg	<50
Ethyl Benzene	<0.50
Xylenes	<1.0
Napthalene	<1.0
TCE	<0.50
cDCE	<0.50
Vinyl Chloride	<0.50

EB-8	11/10/2016
TPHd	**180**
TPHo	<300
TPHg	<50
Benzene	<0.5
Ethyl Benzene	<0.5
Napthalene	<2.0

BH-B	3/23/2005
TPHd	**150,000**
TPHo	<5,000
TPHg	**40,000**
Ethyl Benzene	**4,500**
Xylenes	**1,800**
Napthalene	**820**
TCE	<100
cDCE	<100
Vinyl Chloride	<100

EB-9	11/10/2016
TPHd	**1,000**
TPHo	<300
TPHg	**240**
Benzene	<0.5
Ethyl Benzene	**2.3**
Napthalene	**4.6**

GW-3	11/10/2016
TPHd	**790**
TPHo	<300
TPHg	61
Benzene	<0.5
Ethyl Benzene	0.6
Napthalene	<2.0

BH-A	3/23/2005
TPHd	<50
TPHo	**550**
TPHg	**3,300**
Ethyl Benzene	1.0
Xylenes	3.4
Napthalene	**1.1**
TCE	<0.5
cDCE	<0.5
Vinyl Chloride	<0.5

MW-3	6/4/2012
TPHd	<0.05
TPHo	---
TPHg	<50
Ethyl Benzene	<1.0
Xylenes	<1.0
Napthalene	<1.0
TCE	<1.0
cDCE	**110**
Vinyl Chloride	<1.0
	8/24/2016
TPHd	<50
TPHo	<100
TPHg	**150**
Ethyl Benzene	<0.50
Xylenes	<1.0
Napthalene	<1.0
TCE	**53**
cDCE	**190**
Vinyl Chloride	**1.8**

GW-2	11/10/2016
TPHd	98
TPHo	<300
TPHg	<50
Benzene	<1.7
Ethyl Benzene	<1.7
Napthalene	<6.7

EB-10	11/10/2016
TPHd	**1,800**
TPHo	<300
TPHg	**1,300**
Benzene	<0.5
Ethyl Benzene	**60**
Napthalene	**40**

EB-7	11/10/2016
TPHd	---
TPHo	---
TPHg	<50
Benzene	<0.5
Ethyl Benzene	<0.5
Napthalene	<2.0

Approximate Site Boundary

APN: 5-431-23
2236 Myrtle Street

APN: 5-431-15-4
2281 Market Street

APN: 5-431-21-4
2226 Myrtle Street

APN: 5-431-17-1
2277 Market Street

APN: 5-431-19-2
2220 Myrtle Street

APN: 5-431-18-3 (portion)
914 West Grand Avenue

2014 Flow Gradient 0.001 Ft/Ft

8/24/2016 Flow Gradient 0.002 Ft/Ft

2.3'

2.4

2.5'

MW-1 2.24 (8/24/16)

MW-2 2.35 (8/24/16)

MW-3 2.50 (8/24/16)

Approximate location of subsurface disturbances and suspected former UST locations (Salem, 2012)

LANDS OF OAKLAND 2 INV, LLC

LANDS OF HAHN (TR) DEED DOC. 2005479053 39,133± SQ.FT. 0.90± ACRES

LANDS OF CHEN (TR)

ATHENS ST (45.30')

(80')

(58')

Legend

- Approximate location of ground water grab sample (sampled November 10, 2016)
- Approximate location of attempted ground water grab sample - insufficient ground water for sample collection
- Approximate location of ground water monitoring well (Salem, June 2012)
- Approximate location of soil boring and soil vapor probe (Salem, February 2012)
- Approximate location of soil boring and ground water grab sample (ASE, April 2005)
- 2.5' Ground water elevation (feet above mean sea level [ft msl])

N

0 40 80

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/30/2015
Overlay by Lea & Braze Engineering, Inc., Boundary and Topographic Survey - C-1, dated 8/26/2016

Project Number 914-1-3

Figure Number Figure 5

Drawn By RRN

Date December 2016

On-Site Ground Water Results

914 West Grand Avenue
Residential Development
Oakland, CA

CORNERSTONE EARTH GROUP

Screening Levels

	Residential ESL [1]
TPHg (gasoline)	50,000
Benzene	48
Toluene	160,000
Ethyl Benzene	560
Xylenes	52,000

Concentrations measured in µg/m³

1 Environmental Screening Level (ESL), Regional Water Control Board - February 2016, GW Tier 1 ESL

< Not detected at or above laboratory reporting limit

BOLD Concentration exceeds selected environmental screening criteria

SV-2	11/10/2016
Depth (ft)	10
TPHg	5,700
Benzene	23
Toluene	20
Ethyl Benzene	<0.76
Xylenes	<0.98

B-5	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<40	<36
Toluene	<55	<50
Ethyl Benzene	<55	<50
Xylenes	<165	<150

B-3				2/15/2012
Depth (ft)	5 @ 1 Vol.	5 @ 3 Vol.	5 @ 7 Vol.	10
TPHg	---	---	---	---
Benzene	<36	<36	<36	**520**
Toluene	98	190	160	220
Ethyl Benzene	<50	<50	<50	110
Xylenes	<150	170	293	<150

B-6	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<36	<72
Toluene	63	110
Ethyl Benzene	<50	<100
Xylenes	<150	<300

B-7	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<36	<72
Toluene	150	150
Ethyl Benzene	<50	<100
Xylenes	120	<300

Approximate location of subsurface disturbances and suspected former UST locations (Salem, 2012)

SV-1	11/10/2016
Depth (ft)	7
TPHg	**30,000,000**
Benzene	<490
Toluene	<690
Ethyl Benzene	<980
Xylenes	<1,300

SV-4	11/10/2016
Depth (ft)	7
TPHg	**5,300,000**
Benzene	<190
Toluene	2,600
Ethyl Benzene	<380
Xylenes	<0.98

B-4	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<72	<72
Toluene	<100	<100
Ethyl Benzene	<100	<100
Xylenes	<300	<300

SV-3	11/10/2016
Depth (ft)	7
TPHg	610
Benzene	<0.38
Toluene	<0.76
Ethyl Benzene	<0.53
Xylenes	<0.98

B-2	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<36	<36
Toluene	<50	<50
Ethyl Benzene	<50	<50
Xylenes	<150	<150

B-1	2/15/2012	
Depth (ft)	5	10
TPHg	---	---
Benzene	<36	<36
Toluene	51	<50
Ethyl Benzene	<50	<50
Xylenes	<150	<150

Legend

- Approximate location of temporary soil vapor probe
- Approximate location of ground water monitoring well (Salem, June 2012)
- Approximate location of soil boring and soil vapor probe (Salem, February 2012)
- Approximate location of soil boring and ground water grab sample (ASE, April 2005)

0 40 80

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/30/2015
Overlay by Lea & Braze Engineering, Inc., Boundary and Topographic Survey - C-1, dated 8/26/2016

Project Number 914-1-3
Figure Number Figure 6
Drawn By RRN
Date December 2016

On-Site Soil Vapor Results

914 West Grand Avenue Residential Development Oakland, CA

CORNERSTONE EARTH GROUP

EB-9	11/9/2016	
Sample depth (ft)	5	13½
Arsenic	<9.4	<9.4
Lead	<9.4	<9.4
Benzo[a]pyrene	<0.001	<0.001
Benzo[b]fluoranthene	<0.001	<0.001
Dibenz(a,h)anthracene	<0.001	<0.001

EB-7	11/9/2016		
Sample depth (ft)	1	3	5
Arsenic	9.3	---	---
Lead	**404**	<9.5	<10
Benzo[a]pyrene	<0.005	---	---
Benzo[b]fluoranthene	<0.005	---	---
Dibenz(a,h)anthracene	<0.005	---	---

BH-F	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005

EB-3	11/9/2016	
Sample depth (ft)	1	3
Arsenic	4.75	3.09
Lead	**139**	77.5
Benzo[a]pyrene	**0.24**	---
Benzo[b]fluoranthene	**0.25**	---
Dibenz(a,h)anthracene	**0.022**	---

EB-4	11/9/2016		
Sample depth (ft)	1	3	5
Arsenic	4.43	3.7	---
Lead	**529**	**345**	<9.7
Benzo[a]pyrene	0.0068	---	---
Benzo[b]fluoranthene	0.0086	---	---
Dibenz(a,h)anthracene	0.0011	---	---

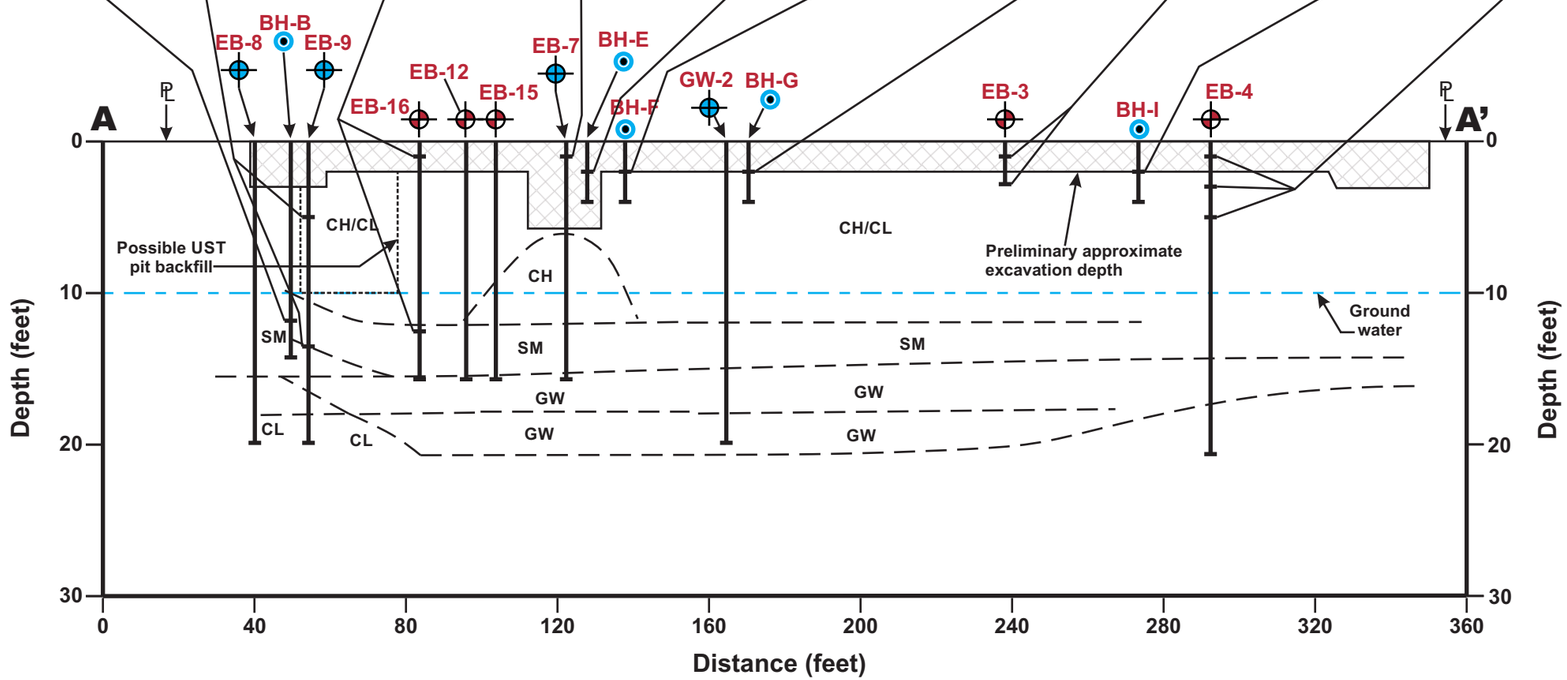
BH-B	3/23/2005
Sample depth (ft)	11.5
TPHd	**370**
TPHg	**2,100**
Ethyl Benzene	**27**
Xylenes	**6.1**

EB-16	11/10/2016	
Sample depth (ft)	1	12½
Arsenic	3.35	6.7
Lead	13.3	7.59
Benzo[a]pyrene	<0.001	0.0027
Benzo[b]fluoranthene	<0.001	0.0024
Dibenz(a,h)anthracene	<0.001	<0.001

BH-E	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005

BH-G	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005

BH-I	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005



Section A-A'

(View Looking Northwest)
1"=40' Horizontal
1"=10' Vertical

Symbols

CL	Lean Clay or sandy clay
CH	Fat Clay
SM	Silty Sand
GW	Well Graded Gravel
⊙	Approximate location of soil boring and ground water grab sample (ASE, April 2005)
⊕	Approximate location of ground water grab sample (sampled November 10, 2016)
⊕	Approximate location of exploratory boring for soil sample collection
PL	Property line

Environmental Screening Levels

TPHd	230 mg/kg
TPHg	100 mg/kg
Ethyl Benzene	14 mg/kg
Total Xylenes	6.1 mg/kg

Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016

Notes:
1) Surficial fills associated with existing pavements, landscaping or utilities are not shown.
2) The subsurface profile is conceptual and is based on limited subsurface data obtained from widely spaced borings. Actual subsurface conditions may vary significantly between borings.
3) See Figure 2 for location of cross section.

Project Number 914-1-3

Figure Number Figure 7

Drawn By RRN

Date December 2016

Geologic Cross Section A-A' with Soil Results

914 West Grand Avenue Residential Development Oakland, CA

CORNERSTONE EARTH GROUP

BH-C	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	0.018

EB-1	11/9/2016	
Sample depth (ft)	1	3
Arsenic	6.64	1.53
Lead	**92.5**	4.84
Benzo[a]pyrene	<0.00099	---
Benzo[b]fluoranthene	<0.00099	---
Dibenz(a,h)anthracene	<0.001	---

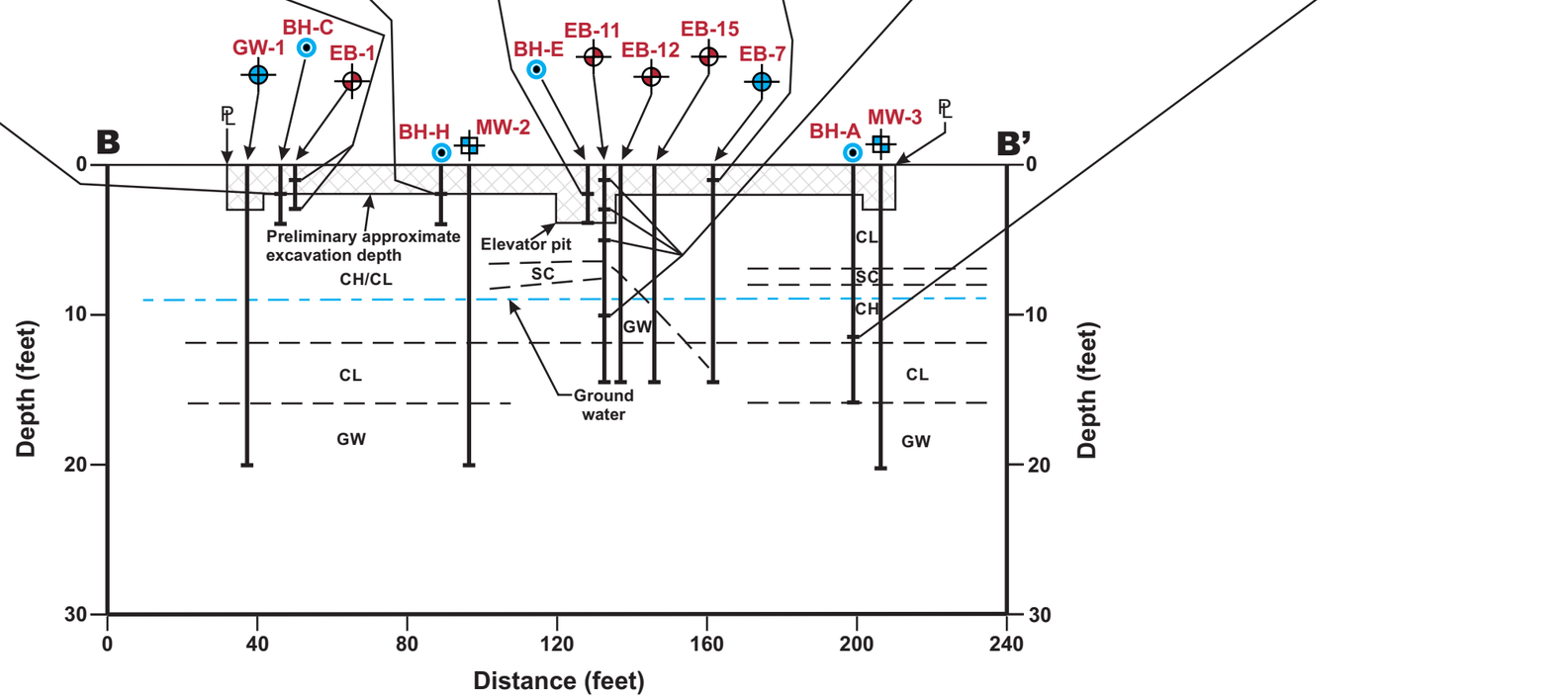
BH-H	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005

BH-E	3/23/2005
Sample depth (ft)	2.0
TPHd	<1.0
TPHg	<5.0
Ethyl Benzene	<0.005
Xylenes	<0.005

EB-7	11/9/2016
Sample depth (ft)	1
Arsenic	9.3
Lead	**404**
Benzo[a]pyrene	<0.005
Benzo[b]fluoranthene	<0.005
Dibenz(a,h)anthracene	<0.005

EB-11	11/10/2016			
Sample depth (ft)	1	3	5	10
Arsenic	6.72	2.04	<10	13
Lead	**222**	5.89	<10	<10
Benzo[a]pyrene	<0.001	<0.00099	<0.00099	<0.001
Benzo[b]fluoranthene	<0.001	<0.00099	<0.00099	<0.001
Dibenz(a,h)anthracene	<0.001	<0.00099	<0.00099	<0.001

BH-A	3/23/2005
Sample depth (ft)	11.5
TPHd	<1.0
TPHg	<1.0
Ethyl Benzene	<0.005
Xylenes	<0.0054



Section B-B'

(View Looking East)
1"=40' Horizontal
1"=10' Vertical

Symbols

CL	Lean Clay or sandy clay
CH	Fat Clay
SC	Clayey Sand
SM	Silt
GW	Well Graded Gravel
	Approximate location of ground water monitoring well (Salem, June 2012)
	Approximate location of soil boring and ground water grab sample (ASE, April 2005)
	Approximate location of ground water grab sample (sampled November 10, 2016)
	Approximate location of exploratory boring for soil sample collection
PL	Property line

Environmental Screening Levels

TPHd	230 mg/kg
TPHg	100 mg/kg
Ethyl Benzene	14 mg/kg
Total Xylenes	6.1 mg/kg

Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016

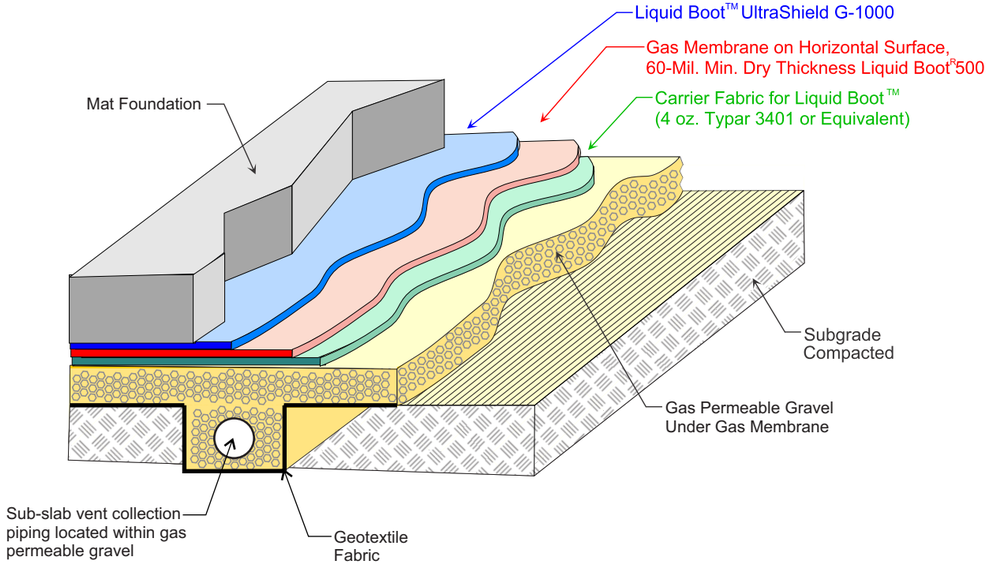
Notes:
1) Surficial fills associated with existing pavements, landscaping or utilities are not shown.
2) The subsurface profile is conceptual and is based on limited subsurface data obtained from widely spaced borings. Actual subsurface conditions may vary significantly between borings.
3) See Figure 2 for location of cross section.

Project Number 914-1-3
Figure Number Figure 8
Drawn By RRN
Date November 2016

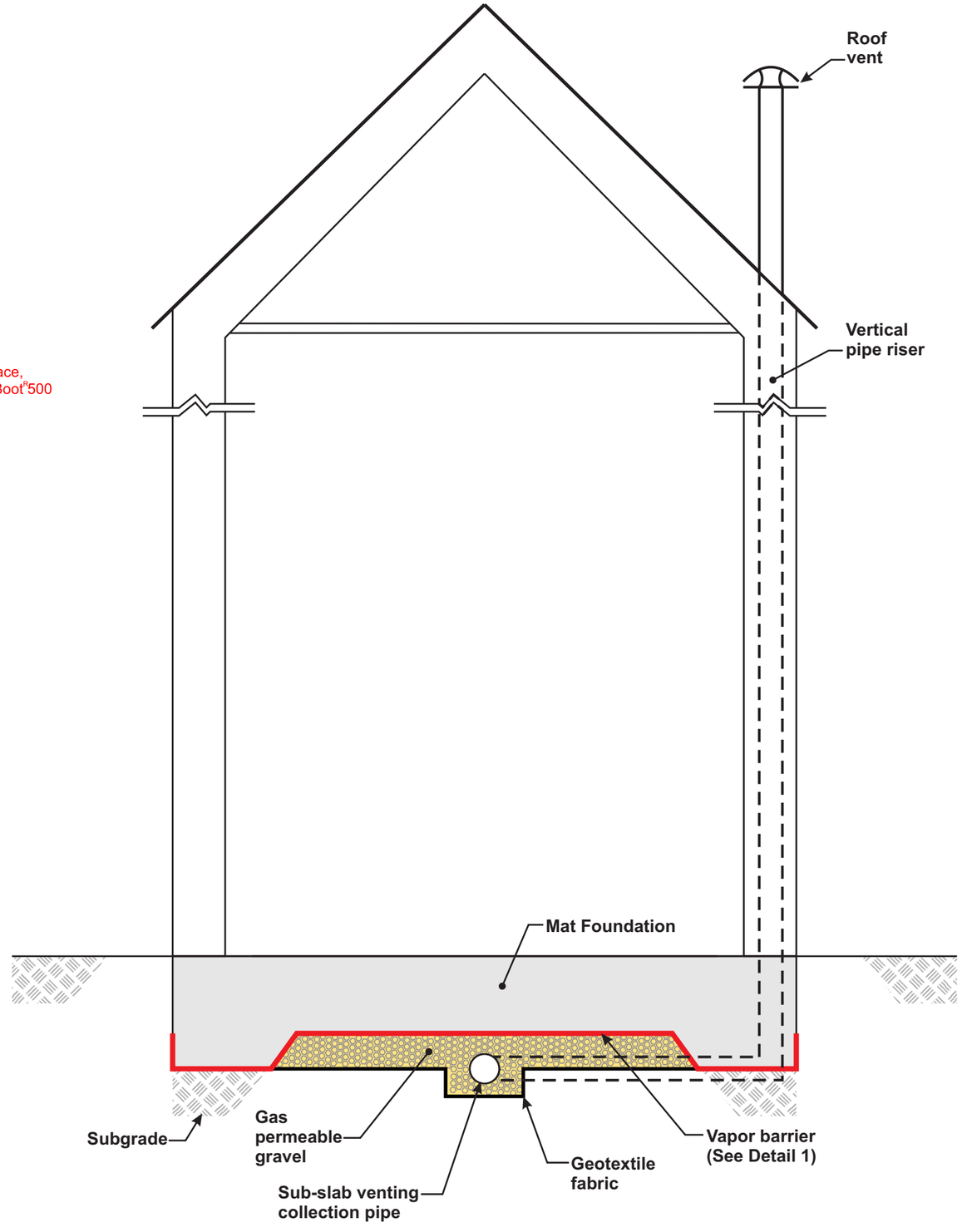
Geologic Cross Section B-B' with Soil Results

914 West Grand Avenue Residential Development Oakland, CA

CORNERSTONE EARTH GROUP



1 Typical Vapor Barrier - Isometric View



Notes:
1) Preliminary vapor intrusion system is subject to change base on final development design and final design document approval by the Water Board.
2) Cross section drawing is for schematic purposes only and not drawn to scale (Not for Bid/Construction).
3) Typical vapor barrier product selection may differ based on final vapor intrusion system design.

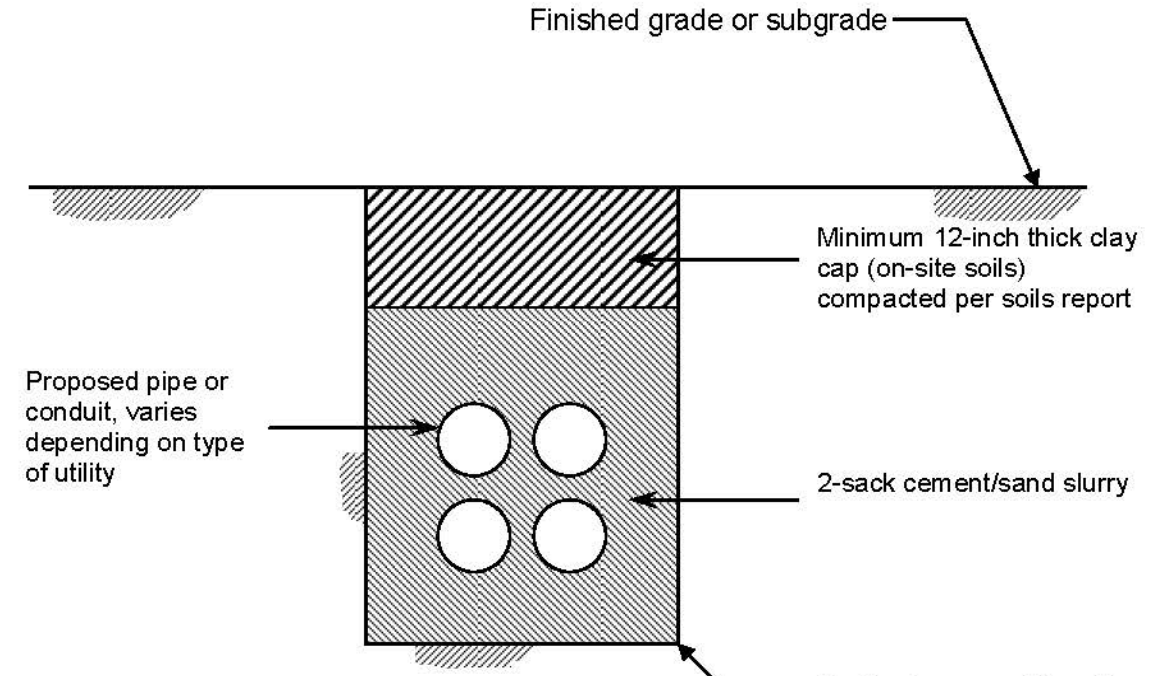
Project Number	914-1-3
Figure Number	Figure 9
Drawn By	RRN
Date	March 2017

Typical Vapor Litigation System Cross Section

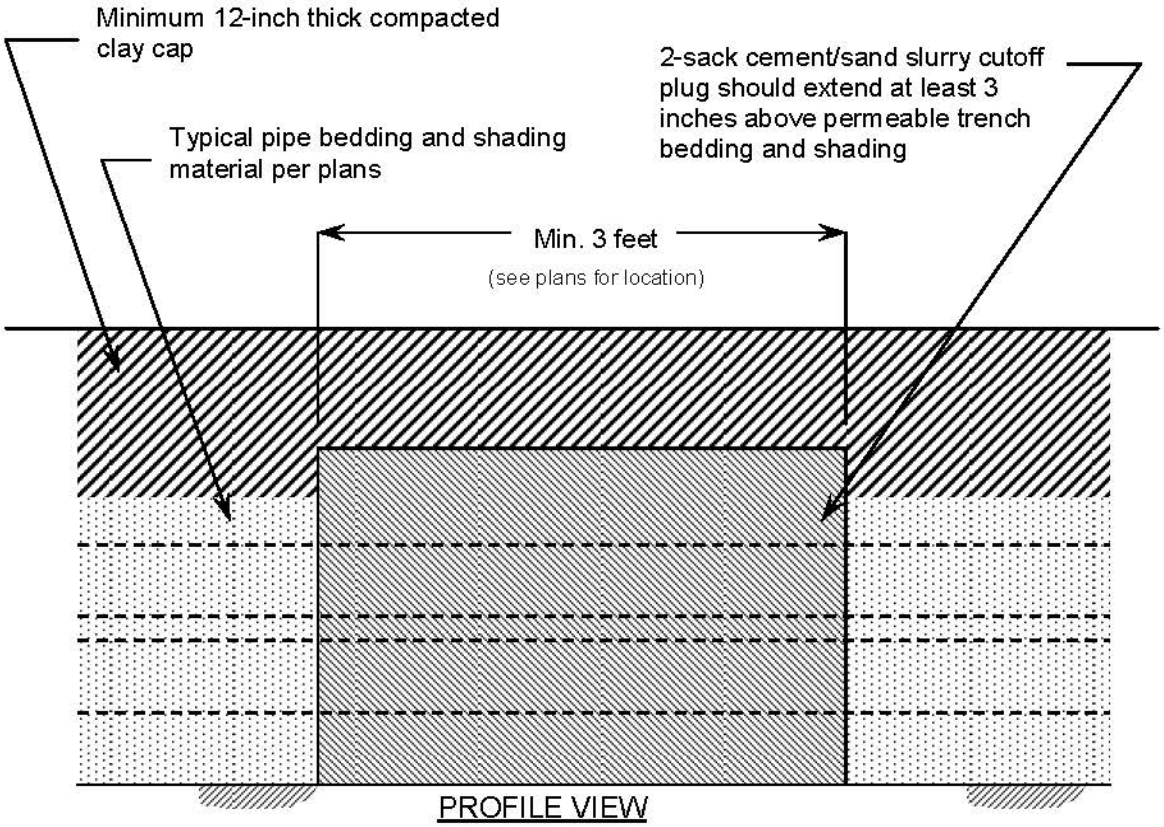
914 West Grand Avenue
Residential Development
Oakland, CA

CORNERSTONE EARTH GROUP

NOT TO SCALE



SECTION VIEW



PROFILE VIEW

CORNERSTONE EARTH GROUP

Utility Trench Vapor Cutoff Detail

914 West Grand Avenue Residential Development Oakland, CA

Project Number: 914-1-3

Figure Number: Figure 10

Date: March 2017

Drawn By: RRN

CORNERSTONE EARTH GROUP

DATA SUMMARY TABLES

CORNERSTONE EARTH GROUP

Table 1. Analytical Results of Selected Soil Samples - Metals
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Vanadium	Zinc
2226 Myrtle Street APN: 5-431-21-4	BH-C	3/23/2005	2.0	---	---	---	---	---	---	28	---	---	---	---	---
	EB-1 (0-1)	11/9/2016	0-1	6.64	127	<0.5	19.8	8.28	17	**92.4**	0.32	<1	18.8	24	87.8
	EB-1 (2-3)	11/9/2016	2-3	1.53	68.8	<0.5	41.3	5.77	13.3	4.84	<0.14	<1	27.3	21.5	24.9
2236 Myrtle Street APN: 5-431-23	EB-2 (0-1)	11/9/2016	0-1	3.99	99.6	0.62	19.7	15.9	36.8	3.91	0.6	<1	25.3	62.2	57.6
	EB-2 (2-3)	11/9/2016	2-3	3.21	95.8	<0.5	37.4	5.83	11.6	3.47	<0.14	<1	20.5	27	25.6
2277 Market Street APN: 5-431-17-1	EB-3 (0-1)	11/9/2016	0-1	4.75	118	0.9	7.06	8.98	31.6	**139**	<0.14	<1	6.82	20.9	160
	EB-3 (2-3)	11/9/2016	2-3	3.09	121	<0.5	26.5	5.23	27	77.5	0.44	<1	17.3	21.1	131
2281 Market Street APN: 5-4311-5-4	BH-I	3/23/2005	2.0	---	---	---	---	---	---	24	---	---	---	---	---
	EB-4 (0-1)	11/9/2016	0-1	4.43	109	1.25	28.6	6.73	37.2	**529**	<0.14	1.5	57	37.5	144
	EB-4 (2-3)	11/9/2016	2-3	3.7	147	<0.5	31.4	4.82	16.3	**345**	0.31	<1	18.6	24	104
	EB-4 (4.5-5)	11/9/2016	4½-5	---	---	---	---	---	---	<9.7	---	---	---	---	---
2220 Myrtle Street APN: 5-431-19-2	BH-D	3/23/2005	2.0	---	---	---	---	---	---	8.1	---	---	---	---	---
	BH-E	3/23/2005	2.0	---	---	---	---	---	---	37	---	---	---	---	---
	BH-F	3/23/2005	2.0	---	---	---	---	---	---	8.1	---	---	---	---	---
	BH-G	3/23/2005	2.0	---	---	---	---	---	---	28	---	---	---	---	---
	BH-H	3/23/2005	2.0	---	---	---	---	---	---	7.8	---	---	---	---	---
	EB-5 (0-1)	11/9/2016	0-1	3.97	92.8	<0.5	32	6.89	10.4	5.06	<0.14	<1	19.3	25.3	19.9
	EB-5 (2-3)	11/9/2016	2-3	2.63	100	<0.5	36.9	3.96	10.8	4.13	<0.14	<1	19.8	27.7	19.5
	EB-11 (0-1)	11/10/2016	0-1	6.72	318	0.5	19.8	5.84	26.6	**222**	0.81	<1	21.3	26.4	93.5
	EB-11 (2-3)	11/10/2016	2-3	2.04	118	<0.5	43.8	10	13.6	5.69	<0.14	<1	31.5	25.5	23.3
	EB-11 (4.5-5)	11/10/2016	4½-5	<10	230	<3	41	<50	<50	<10	<0.4	<50	42	27	<50
	EB-11 (9.5-10)	11/10/2016	9½-10	13	92	<3	24	<50	<50	<10	<0.4	<50	32	45	<50

CORNERSTONE EARTH GROUP

Table 1. Analytical Results of Selected Soil Samples - Metals
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Vanadium	Zinc
914 W. Grand Ave APN: 5-431-18-3	B-1	2/15/2012	1.0	2.8	---	---	---	---	---	11	---	---	---	---	---
	B-2	2/15/2012	1.0	<3.5	---	---	---	---	---	9.9	---	---	---	---	---
	B-3	2/15/2012	1.0	<3.5	---	---	---	---	---	8.5	---	---	---	---	---
	B-4	2/16/2012	1.0	<3.5	---	---	---	---	---	5.4	---	---	---	---	---
	B-5	2/16/2012	1.0	<3.5	---	---	---	---	---	8	---	---	---	---	---
	EB-7 (0-1)	11/9/2016	0-1	9.3	218	0.76	41.8	7.64	365	**404**	0.14	<1	41.2	33.6	167
	EB-9 (4.5-5)	11/9/2016	4½-5	<9.4	1,200	<2.8	42	<47	<47	<9.4	<0.45	<47	42	47	<47
	EB-9 (13-13.5)	11/9/2016	13-13½	7.97	208	0.81	39.6	21	19.3	10.8	<0.14	<1	**97.9**	42.8	43.2
	EB-10 (0-1)	11/10/2016	0-1	2.96	125	<0.5	45.9	6.25	12.9	11.5	0.14	<1	24.4	31.2	28.2
	EB-14 (6-7)	11/9/2016	6-7	3.47	144	<0.5	38.9	10.4	14.2	31.1	<0.14	<1	40.3	30.4	38.2
	EB-16 (0-1)	11/10/2016	0-1	3.35	58.7	<0.5	42.4	7.5	14.9	13.3	<0.14	<1	42.1	24.8	39.5
	EB-16 (12-12.5)	11/10/2016	12-12½	6.7	153	0.54	53.7	13.9	18.1	7.59	<0.14	<1	69.3	39.9	37.3
	EB-17 (0-1)	11/9/2016	0-1	6.65	373	0.95	44.2	7.64	278	**1,100**	1.08	<1	25.1	35.4	421
	EB-17 (2-3)	11/9/2016	2-3	---	---	---	---	---	---	<10	---	---	---	---	---
	EB-17 (4-5)	11/9/2016	4-5	---	---	---	---	---	---	<9.2	---	---	---	---	---
ESL[1] - Tier 1				0.067	2,900	39	NE	23	3,100	80	13	390	83	600	23,000
Scott, 1991 [2]	Background Range			0.2 to 5.5	---	0.05 to 1.7	30.5 to 72	---	23.8 to 47.5	6.8 to 16.1	---	---	46.4 to 101	---	47.7 to 82.8
	Maximum Background Detection			20	---	14	170	---	67	54	1.3	---	145	---	120
Bradford, 1996 [3]	Background Range			0.6 to 11	133 to 1,400	0.05 to 1.7	23 to 1,579	2.7 to 46.9	9.1 to 96.4	12.4 to 97.1	0.05 to 0.90	0.1 to 9.6	9 to 509	39 to 288	88 to 236
	Upper Quartile			4.7	625	0.44	115	18.3	36.6	26.7	0.34	1.4	56	134	170
LBNL, 2009 [4]	99th Percentile			28	410	5.6	120	25	63	43	0.42	4.8	272	90	140
	Mean			4.6	---	---	---	---	---	---	---	---	---	---	---
	99th Percentile			11	---	---	---	---	---	---	---	---	---	---	---
TTLC [6]				500	10000	100	2500	8000	2500	1000	20	3500	2000	2400	5000
STLC [7] (mg/L)				5	100	1	5	80	25	5	0.2	350	20	24	250

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016.
2 Scott, Christina. December 1991. Background Metal Concentrations in Soils in Northern Santa Clara County.
3 Bradford, et. al. March 1996. Background Concentrations of Trace and Major Elements in California Soils.
4 LBNL, 2009. Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory.
5 Duverge, 2011. Establishing Backround Arsenic in Soil of the Urbanized San Francisco Bay Region.
6 Total Threshold Limit Concentration - California Code of Regulations, Title 22.
7 Soluble Threshold Limit Concentration - California Code of Regulations, Title 22.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds selected environmental screening criteria
Note: Red font indicates the laboratory reporting limit exceeds one or more of the selected screening levels.

CORNERSTONE EARTH GROUP

Table 2. Analytical Results of Selected Soil Samples - Petroleum Hydrocarbons and Volitile Organic Compounds
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	TPHd without Silica Gel Cleanup	TPHd with Silica Gel Cleanup	TPHo without Silica Gel Cleanup	TPHo with Silica Gel Cleanup	TPHg	n-Butylbenzene	Isopropylbenzene	Ethylbenzene	Xylenes	2-Butanone (MEK)	2-Hexanone	Acetone	Naphthalene	n-Propylbenzene	sec-Butylbenzene
2226 Myrtle Street APN: 5-431-21-4	BH-C	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	0.018	ND	ND	ND	<0.005	ND	ND
	EB-1 (0-1)	11/9/2016	0-1	1.7	---	5.9	---	---	---	---	---	---	---	---	---	---	---	---
	EB-1 (2-3)	11/9/2016	2-3	1.5	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
2236 Myrtle Street APN: 5-431-23	EB-2 (0-1)	11/9/2016	0-1	45	---	430	---	---	---	---	---	---	---	---	---	---	---	---
	EB-2 (2-3)	11/9/2016	2-3	2.4	---	5.8	---	---	---	---	---	---	---	---	---	---	---	---
2277 Market Street APN: 5-431-17-1	EB-3 (0-1)	11/9/2016	0-1	50	---	650	---	---	---	---	---	---	---	---	---	---	---	---
	EB-3 (2-3)	11/9/2016	2-3	1.6	---	10	---	---	---	---	---	---	---	---	---	---	---	---
2281 Market Street APN: 5-4311-5-4	BH-I	3/23/2005	2.0						<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	EB-4 (0-1)	11/9/2016	0-1	3.9	---	19	---	---	---	---	---	---	---	---	---	---	---	---
	EB-4 (2-3)	11/9/2016	2-3	1.0	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-4 (14.5-15)	11/9/2016	14½-15	1.0	<5.0	---	---	<0.98	<0.0049	<0.0049	<0.0049	<0.0049	<0.0092	<0.0092	<0.018	<0.0049	<0.0049	<0.0049
2220 Myrtle Street APN: 5-431-19-2	BH-D	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	BH-E	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	BH-F	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	BH-G	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	BH-H	3/23/2005	2.0	---	<1.0	---	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	ND	ND	ND	<0.005	ND	ND
	EB-5 (0-1)	11/9/2016	0-1	4.8	---	8.1	---	---	---	---	---	---	---	---	---	---	---	---
	EB-5 (2-3)	11/9/2016	2-3	1.7	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-11 (0-1)	11/10/2016	0-1	<1	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-11 (2-3)	11/10/2016	2-3	<1	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-11 (4.5-5)	11/10/2016	4½-5	1.5	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-11 (9.5-10)	11/10/2016	9½-10	1.2	---	<5	---	---	---	---	---	---	---	---	---	---	---	---
	EB-11 (14.5-15)	11/10/2016	14½-15	<1	---	<5	---	<0.98	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	0.17	<0.005	<0.005	<0.005
914 W. Grand Ave APN: 5-431-18-3	BH-A	3/23/2005	11.5	---	<1.0	---	<1.0	<1.0	<0.005	<0.005	<0.005	<0.0054	ND	ND	ND	<0.005	<0.005	ND
	BH-B	3/23/2005	11.5	---	**370**	---	<50	**2,100**	14	5.7	**27**	**6.1**	ND	ND	ND	**20**	24	ND
	EB-6 (2-3)	11/9/2016	2-3	1.3	---	5	---	<0.96	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.011	<0.021	<0.0053	<0.0053	<0.0053
	EB-6 (4-5)	11/9/2016	4-5	37	---	120	---	<1.1	<0.005	<0.005	<0.005	<0.005	<0.0099	<0.0099	<0.02	<0.005	<0.005	<0.005
	EB-6 (9-10)	11/9/2016	9-10	57	---	110	---	7.2	<0.0041	<0.0041	<0.0041	<0.0041	<0.0083	0.0087	<0.015	<0.0041	<0.0041	0.0067
	EB-6 (14-15)	11/9/2016	14-15	<1	---	<5	---	<1.1	<0.0044	<0.0044	<0.0044	<0.0042	<0.0084	<0.0084	<0.017	<0.0042	<0.0047	<0.0044
	EB-7 (0-1)	11/9/2016	0-1	180	---	1,200	---	---	---	---	---	---	---	---	---	<0.005	---	---
	EB-7 (2-3)	11/9/2016	2-3	<1	---	<5	---	<0.98	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	<0.0095	0.032	<0.0047	<0.0047	<0.0047
	EB-7 (4-5)	11/9/2016	4-5	<1	---	<5	---	<0.93	<0.0044	<0.0044	<0.0044	<0.0044	<0.0089	<0.0089	<0.018	<0.0044	<0.0044	<0.0044
	EB-7 (9-10)	11/9/2016	9-10	<1	---	<5	---	<0.95	<0.0045	<0.0045	<0.0045	<0.0045	<0.0089	<0.0089	<0.018	<0.0045	<0.0045	<0.0045
	EB-8 (2-3)	11/9/2016	2-3	1.3	---	18	---	<0.98	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	<0.0096	0.023	<0.0048	<0.0048	<0.0048
	EB-8 (4-5)	11/9/2016	4-5	<0.99	---	<5	---	<1.1	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	<0.0095	<0.019	<0.0047	<0.0047	<0.0047
	EB-8 (9-10)	11/9/2016	9-10	<1	---	<5	---	<0.93	<0.0048	<0.0048	<0.0048	<0.0048	<0.0095	<0.0095	<0.019	<0.0048	<0.0048	<0.0048
	EB-9 (2-3)	11/9/2016	2-3	1.4	---	6.1	---	<0.98	<0.0044	<0.0044	<0.0044	<0.0044	<0.0089	<0.0089	<0.018	<0.0044	<0.0044	<0.0044
	EB-9 (4.5-5)	11/9/2016	4½-5	<1	---	5.6	---	<1.1	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<0.0091	<0.018	<0.0045	<0.0045	<0.0045
	EB-9 (9.5-10)	11/9/2016	9½-10	<1	---	<5	---	<0.96	<0.004	<0.004	<0.004	<0.004	<0.008	<0.008	<0.016	<0.004	<0.004	<0.004
	EB-9 (13-13.5)	11/9/2016	13-13½	**290**	**270**	<5	6.0	10	28	8.9	<5	<5	<10	<10	<20	**13**	50	7
	EB-10 (0-1)	11/10/2016	0-1	8.4	---	130	---	---	---	---	---	---	---	---	---	---	---	---
	EB-10 (2-3)	11/10/2016	2-3	2.2	---	<5	---	<1.1	<0.0044	<0.0044	<0.0044	<0.0044	<0.0088	<0.0088	<0.018	<0.0044	<0.0044	<0.0044
	EB-10 (4.5-5)	11/10/2016	4½-5	<1	---	<5	---	<1.1	<0.0056	<0.0056	<0.0056	<0.0056	<0.011	<0.011	<0.022	<0.0056	<0.0056	<0.0056
	EB-10 (9.5-10)	11/10/2016	9½-10	1.6	---	<5	---	<1.1	<0.0055	<0.0055	<0.0055	<0.0055	<0.011	<0.011	<0.022	<0.0055	<0.0055	<0.0055
	EB-12 (2-3)	11/10/2016	2-3	1.2	---	<5	---	<1.1	<0.0049	<0.0049	<0.0049	<0.0049	0.013	<0.0098	0.073	<0.0049	<0.0049	<0.0049
	EB-12 (4.5-5)	11/10/2016	4½-5	<1	---	<5	---	<0.95	<0.0046	<0.0046	<0.0046	<0.0046	<0.0091	<0.0091	0.023	<0.0046	<0.0046	<0.0046
	EB-12 (9.5-10)	11/10/2016	9½-10	<1	---	<5	---	<0.93	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	0.022	<0.005	<0.005	<0.005
	EB-13 (2-3)	11/9/2016	2-3	2.7	---	19	---	<0.99	<0.005	<0.005	<0.005	<0.005	<0.0099	<0.0099	<0.02	<0.005	<0.005	<0.005
	EB-13 (4-5)	11/9/2016	4-5	<1	---	<5	---	<1.1	<0.0046	<0.0046	<0.0046	<0.0046	<0.0091	<0.0091	<0.018	<0.0046	<0.0046	<0.0046
	EB-13 (9-10)	11/9/2016	9-10	<1	---	<5	---	<1.1	<0.0052	<0.0052	<0.0052	<0.0052	<0.01	<0.01	<0.021	<0.0052	<0.0052	<0.0052
	EB-13 (11-12)	11/9/2016	11-12	18	---	<5	---	28	1.1	0.13	0.028	<0.0076	<0.0076	<0.0076	0.033	**0.47**	0.99	0.12
	EB-13 (14-15)	11/9/2016	14-15	<1	---	<5	---	<1.1	<0.0041	<0.0041	<0.0041	<0.0041	<0.0081	<0.0081	0.034	<0.0041	<0.0041	<0.0041
	EB-14 (2-3)	11/9/2016	2-3	<5	---	84	---	<1	<0.0052	<0.0052	<0.0052	<0.0052	<0.01	<0.01	<0.02	<0.0052	<0.0052	<0.0052
	EB-14 (4-5)	11/9/2016	4-5	1	---	5	---	<1.1	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	<0.0095	<0.017	<0.0047	<0.0047	<0.0047
	EB-14 (6-7)	11/9/2016	6-7	13	---	41	---	<0.93	<0.0043	<0.0043	<0.0043	<0.0043	<0.0086	<0.0086	<0.016	<0.0043	<0.0043	<0.0043
	EB-14 (9-10)	11/9/2016	9-10	<1	---	<5	---	<1.1	<0.0041	<0.0041	<0.0041	<0.0041	<0.0082	<0.0082	<0.016	<0.0041	<0.0041	<0.0041
	EB-14 (12-13)	11/9/2016	12-13	90	---	<5	---	7.2	22	8.8	<5	<5	<10	<10	<20	**30**	42	5.7
	EB-14 (14-15)	11/9/2016	14-15	2.6	---	<5	---	<1	<0.0043	<0.0043	<0.0043	<0.0043	<0.0087	<0.0087	0.048	<0.0043	<0.0043	<0.0043
	EB-15 (2-3)	11/10/2016	2-3	<1	---	<5	---	<0.98	<0.0041	<0.0041	<0.0041	<0.0041	<0.0082	<0.0082	<0.016	<0.0041	<0.0041	<0.0041
	EB-15 (4.5-5)	11/10/2016	4½-5	<1	---	<5	---	<1	<0.0043	<0.0043	<0.0043	<0.0043	<0.0087	<0.0087	<0.017	<0.0043	<0.0043	<0.0043
	EB-15 (9.5-10)	11/10/2016	9½-10	<0.99	---	<5	---	<1.1	<0.0046	<0.0046	<0.0046	<0.0046	<0.0092	<0.0092	<0.018	<0.0046	<0.0046	<0.0046
	EB-16 (0-1)	11/10/2016	0-1	51	---	540	---	---	---	---	---	---	---	---	---	---	---	---
	EB-16 (2-3)	11/10/2016	2-3	2	---	5.5	---	<1	<0.0049	<0.0049	<0.0049	<0.0049	<0.0098	<0.0098	0.043	<0.0049	<0.0049	<0.0049
	EB-16 (4.5-5)	11/10/2016	4½-5	<1	---	<5	---	<1	<0.0049	<0.0049	<0.0049	<0.0049	<0.0097	<0.0097	0.038	<0.0049	<0.0049	<0.0049
	EB-16 (12-12.5)	11/10/2016	12-12½	**240**	190	<5	<5.0	**670**	1.9	0.26	<0.25	<0.25	<0.5	<0.5	<1	<0.25	1.5	0.52
	EB-16 (14.5-15)	11/10/2016	14½-15	<1	---	<5	---	<0.95	<0.0046	<0.0046	<0.0046	<0.0046	<0.0092	<0.0092	0.18	<0.0046	<0.0046	<0.0046
	EB-17 (0-1)	11/9/2016	0-1	10	---	45	---	<0.92	<0.0061	<0.0061	<0.0061	<0.0061	<0.012	<0.012	<0.018	<0.0061	<0.0061	<0.0061
	EB-17 (2-3)	11/9/2016	2-3	<0.99	---	<5	---	<1	<0.0057	<0.0057	<0.0057	<0.0057	<0.011	<0.011	<0.021	<0.0057	<0.0057	<0.0057
	EB-17 (4-5)	11/9/2016	4-5	<1	---	<5	---	<1	<0.0043	<0.0043	<0.0043	<0.0043	<0.0087	<0.0087	<0.02	<0.0043	<0.0043	<0.0043
	EB-17 (9-10)	11/9/2016	9-10	<1	---	<5	---	<1.1	<0.0044	<0.0044	<0.0044	<0.0044	<0.0089	<0.0089	<0.018	<0.0044	<0.0044	<0.0044
	GW-3 (13-13.5)	11/9/2016	13-13½	110	---	<5	---	**490**	11	3.8	<2.5	<2.5	<5	<5	<10	**7.2**	20	2.7
ESL[1] - Tier 1				230	230	5,100	5,100	100	390 [2]	190 [2]	1.4	2.3	5.1	20 [2]	0.5	0.023	380 [2]	780 [2]

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016.
2 Regional Screening Level (RSL) HQ=0.1, USEPA Region 9 - May, 2016.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds selected environmental screening criteria
Note: Red font indicates the laboratory reporting limit exceeds one or more of the selected screening levels.

CORNERSTONE EARTH GROUP

Table 3. Analytical Results of Selected Soil Samples - Pesticides and PCBs
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	4,4´-DDE	Aldrin	beta-BHC	Endosulfan I	gamma-Chlordane	Aroclor 1254	Aroclor 1260
2226 Myrtle Street APN: 5-431-21-4	BH-C	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	EB-1 (0-1)	11/9/2016	0-1	<0.00022	<0.00021	<0.0002	<0.00016	<0.00018	---	---
2236 Myrtle Street APN: 5-431-23	EB-2 (0-1)	11/9/2016	0-1	<0.011	<0.01	<0.01	<0.008	<0.009	---	---
2277 Market Street APN: 5-431-17-1	EB-3 (0-1)	11/9/2016	0-1	<0.0044	<0.0042	<0.004	<0.0032	<0.0036	---	---
2281 Market Street APN: 5-4311-5-4	EB-4 (0-1)	11/9/2016	0-1	<0.00044	<0.00042	<0.0004	<0.00032	<0.00036	---	---
2220 Myrtle Street APN: 5-431-19-2	BH-D	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	BH-E	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	BH-F	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	BH-G	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	BH-H	3/23/2005	2.0	---	---	---	---	---	<0.0025	<0.0025
	EB-5 (0-1)	11/9/2016	0-1	<0.00022	<0.00021	<0.0002	<0.00016	0.00025 J	---	---
	EB-11 (0-1)	11/10/2016	0-1	0.0011 J	<0.00025	<0.00022	<0.00022	<0.00027	---	---
	EB-11 (2-3)	11/10/2016	2-3	<0.00036	<0.00025	<0.00022	<0.00022	<0.00026	---	---
	EB-11 (4.5-5)	11/10/2016	4½-5	<0.0005	0.00018 J	0.00044 J	<0.00028	<0.000074	---	---
	EB-11 (9.5-10)	11/10/2016	9½-10	<0.00029	<0.0001	<0.00021	<0.000088	<0.00012	---	---
914 W. Grand Ave APN: 5-431-18-3	BH-A	3/23/2005	11.5	---	---	---	---	---	<0.0025	<0.0025
	BH-B	3/23/2005	11.5	---	---	---	---	---	<0.0025	<0.0025
	EB-7 (0-1)	11/9/2016	0-1	<0.011	<0.01	<0.0099	<0.0079	<0.0089	0.15	0.017
	EB-9 (4.5-5)	11/9/2016	4½-5	<0.001	<0.00018	0.00042 J	<0.00057	<0.00015	<0.0048	<0.0048
	EB-9 (13-13.5)	11/9/2016	13-13½	<0.00022	<0.00021	<0.0002	<0.00016	<0.00018	<0.0048	<0.0048
	EB-10 (0-1)	11/10/2016	0-1	<0.0018	<0.0012	<0.0011	<0.0011	<0.0013	---	---
	EB-14 (6-7)	11/9/2016	6-7	<0.00022	<0.00021	<0.0002	<0.00016	<0.00018	0.012	<0.0048
	EB-16 (12-12.5)	11/10/2016	12-12½	<0.00037	<0.00025	<0.00022	0.0011	<0.00027	<0.0048	<0.0048
	EB-17 (0-1)	11/9/2016	0-1	<0.00022	<0.00021	<0.0002	<0.00016	<0.00018	0.027	0.016
ESL[1] - Tier 1				1.9	0.036	NE	NE	NE	0.25	0.25

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
J Estimated concentration between Method Detection Limit (MDL) and Reporting Limit (RL)

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Table 4. Analytical Results of Selected Soil Samples - Polyaromatic Hydrocarbons (PAHs)
(Concentrations in mg/kg)

Sample Location	Sample ID	Date	Depth (feet)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(g,h,i)perylene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
2226 Myrtle Street APN: 5-431-21-4	EB-1 (0-1)	11/9/2016	0-1	<0.00099	<0.00099	<0.00099	<0.00099	<0.0012	<0.00099	<0.00099	<0.00099	<0.00099	<0.001	<0.00099	<0.00099	<0.001	<0.00099	<0.00099	<0.00099
2236 Myrtle Street APN: 5-431-23	EB-2 (0-1)	11/9/2016	0-1	<0.02	<0.02	<0.02	<0.02	<0.025	<0.02	<0.02	<0.02	0.037 J	<0.02	<0.02	<0.02	<0.021	<0.02	0.054 J	<0.02
2277 Market Street APN: 5-431-17-1	EB-3 (0-1)	11/9/2016	0-1	<0.003	0.023	0.027	0.16	0.13	**0.24**	**0.25**	0.069	0.18	**0.022**	0.45	0.0048 J	0.12	0.018	0.2	0.53
	EB-3 (2-3)	11/6/2016	2-3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2281 Market Street APN: 5-4311-5-4	EB-4 (0-1)	11/9/2016	0-1	<0.001	0.001 J	0.0012 J	0.0059	0.0032 J	0.0068	0.0086	0.0022 J	0.0061	0.0011 J	0.008	<0.001	0.003 J	<0.001	0.0039 J	0.0089
2220 Myrtle Street APN: 5-431-19-2	EB-5 (0-1)	11/9/2016	0-1	<0.001	<0.001	<0.001	<0.001	<0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	EB-11 (0-1)	11/10/2016	0-1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0026 J	<0.001	<0.001
	EB-11 (2-3)	11/10/2016	2-3	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099
	EB-11 (4.5-5)	11/10/2016	4½-5	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099	<0.00099
	EB-11 (9.5-10)	11/10/2016	9½-10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
914 W. Grand Ave APN: 5-431-18-3	EB-7 (0-1)	11/9/2016	0-1	<0.005	<0.005	<0.005	<0.005	0.015 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055 J
	EB-9 (4.5-5)	11/9/2016	4½-5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	EB-9 (13-13.5)	11/9/2016	13-13½	<0.00099	<0.00099	<0.00099	<0.00099	<0.0012	<0.00099	<0.00099	<0.00099	<0.00099	<0.001	<0.00099	0.0018 J	<0.001	0.016	0.0067	0.0015 J
	EB-10 (0-1)	11/10/2016	0-1	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034	<0.034
	EB-14 (6-7)	11/9/2016	6-7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	EB-16 (0-1)	11/10/2016	0-1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0011 J	<0.001	<0.001
	EB-16 (12-12.5)	11/10/2016	12-12½	0.03	0.021	0.013	0.0063	0.0031 J	0.0027 J	0.0024 J	<0.001	0.0069	<0.001	0.018	0.037	<0.001	0.0012	0.071	0.025
	EB-17 (0-1)	11/9/2016	0-1	<0.00098	<0.00098	<0.00098	<0.00098	<0.0012	<0.00098	0.0012 J	<0.00098	<0.00098	<0.00099	<0.00098	<0.00098	<0.001	<0.00098	<0.00098	0.001 J
ESL[1] - Tier 1				16	13	2.8	0.16	2.5	0.016	0.16	1.6	3.8	0.016	60	8.9	0.16	0.023	11	85

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February
< Not detected at or above laboratory reporting limit
--- Not Analyzed
BOLD Concentration exceeds selected environmental screening criteria
J Estimated concentration between Method Detection Limit (MDL) and Reporting Limit
Note: Red font indicates the laboratory reporting limit exceeds one or more of the selected

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Table 5. Analytical Results of Selected Ground Water Samples
(Concentrations in µg/L)

Sample Location	Sample ID	Date	TPHd without Silica Gel Cleanup	TPHd with Silica Gel Cleanup	TPHo without Silica Gel Cleanup	TPHo with Silica Gel Cleanup	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	1,1-Dichloroethane	cis-1,2,-Dichlorothene	trans-1,2-Dichloroethene	1,1-Dichloroethene	PCE (Tetracholroethane)	TCE (Trichloroethane)	Vinyl Chloride	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	sec-Butylbenzene	n-Butylbenzene	n-Propylbenzene	4-Isopropyltoluene	Acetone
2226 Myrtle Street APN: 5-431-21-4	GW-1	11/10/2016	**750**	<50	**370**	<300	<50	<0.5	<0.5	<0.5	0.70	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10
2220 Myrtle Street APN: 5-431-19-2	MW-2	6/4/2012	<0.05	---	---	---	<50	<1.0	ND	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND	<1.0	<1.0	ND	ND
	MW-2	8/24/2016	<52	---	<100	---	<50	<0.50	ND	<0.50	<1.0	<0.50	<1.0	<0.50	<0.50	ND	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	ND	ND
	MW-2 (Duplicate)	8/24/2016	<51	---	<100	---	<50	<0.50	ND	<0.50	<1.0	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<1.0	<1.0	<1.0	ND	ND
	GW-2	11/10/2016	**98**	<50	<300	<300	<50	<1.7	<1.7	<1.7	<1.7	<0.5	<6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<33
914 W. Grand Ave APN: 5-431-18-3	BH-A	3/23/2005	<50	---	**550**	---	**3,300**	<0.5	<0.5	1.0	3.4	<0.5	**1.1**	<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
	BH-B	3/23/2005	**150,000**	---	<5,000	---	**40,000**	<100	<100	**4,500**	**1,800**	<100	**820**	<100	<100	<100	<100	<100	<100	<100	1,800	300	190	<100	180	850	<100	<100
	MW-1	6/4/2012	<0.05	---	---	---	**3,300**	1.2	1.5	**79**	**188**	<1.0	**37**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	110	59	10	<0.5	3.7	29	<0.5	<0.5
	MW-1	8/24/2016	<50	---	<100	---	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50
	MW-3	6/4/2012	<0.05	---	---	---	<50	<1.0	<1.0	<1.0	<1.0	3.6	<1.0	3.8	**110**	<1.0	**14**	**11**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	MW-3 (Duplicate)	6/4/2012	<0.05	---	---	---	<50	<1.0	<1.0	<1.0	<1.0	3.4	<1.0	<1.0	**120**	<1.0	**16**	**11**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	MW-3	8/24/2016	<50	---	<100	---	**150**	<0.50	<0.50	<0.50	<1.0	1.3	<1.0	<0.50	**190**	**19**	0.58	<0.50	**53**	**1.8**	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<0.50	<0.50
	EB-7	11/10/2016	---	---	---	---	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<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	11
	EB-8	11/10/2016	**180**	<50	<300	<300	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<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	<10
	EB-9	11/10/2016	**1,000**	**490**	<300	<300	**240**	<0.5	<0.5	2.3	<0.5	<0.5	**4.6**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.6	1.2	<0.5	21	<0.5	15
	EB-10	11/10/2016	**1,800**	**850**	<300	<300	**1,300**	**1.4**	0.5	**60**	<0.5	<0.5	**40**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	28	6.9	34	12	20	98	1.2	<10
	GW-3	11/10/2016	**790**	<50	<300	<300	61	<0.5	<0.5	0.6	<0.5	<0.5	<2.0	<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	1.5	<0.5	<10
ESL[1] - GW Tier 1			100	100	100	100	100	1.0	40	13	20	5	0.12	5	6	10	3.2	3	5	0.061	NE	NE	NE	NE	NE	NE	NE	1,500

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016.
2 Regional Screening Level (RSL), USEPA Region 9 - May 2016.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds selected environmental screening criteria
J Estimated concentration between Method Detection Limit (MDL) and Reporting Limit (RL)
Note: Red font indicates the laboratory reporting limit exceeds one or more of the selected screening levels.

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Table 6. Analytical Results of Selected Soil Vapor Samples
(Concentrations in µg/m³)

Sample Location	Sample ID	Date	Depth (feet)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	1,3-Butadiene	2,2,4-Trimethylpentane	4-Methyl-2-Pentanone (MIBK)	Acetone	Cyclohexane	Heptane	Hexane	PCE	Ethanol	Carbon Dioxide (%)	Methane (%)	Oxygen (%)
APN: 5-431-19-2 2220 Myrtle Street	B-5	2/15/2012	5	---	<40	<55	<55	<165	ND	ND	ND	ND	ND	ND	ND	<55	ND	---	---	---
			10	---	<36	<50	<50	<150	ND	ND	ND	ND	ND	ND	ND	84	ND	---	---	---
	B-6	2/15/2012	5	---	<36	63	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
			10	---	<72	110	<100	<300	ND	ND	ND	ND	ND	ND	ND	<100	ND	---	---	---
	B-7	2/15/2012	5	---	<36	150	<50	120	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
			10	---	<72	150	<100	<300	ND	ND	ND	ND	ND	ND	ND	<100	ND	---	---	---
	SV-3	11/10/2016	7	**610**	<0.38	<0.53	<0.76	<0.98	<1.0	23	<0.98	<1.6	<0.63	<0.85	<0.94	<0.94	<2.1	11	0.16	2.5
APN: 5-431-18-3 914 West Grand Ave	B-1	2/15/2012	5	---	<36	51	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
			10	---	<36	<50	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-2	2/15/2012	5	---	<36	<50	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
			10	---	<36	<50	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-3 @ 1 Volume	2/15/2012	5	---	<36	98	<50	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-3 @ 3 Volumes			---	<36	190	<50	170	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-3 @ 7 Volumes			---	<36	160	<50	293	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-3		10	---	**520**	220	110	<150	ND	ND	ND	ND	ND	ND	ND	<50	ND	---	---	---
	B-4	2/15/2012	5	---	<72	<100	<100	<300	ND	ND	ND	ND	ND	ND	ND	<100	ND	---	---	---
			5 (Duplicate)	---	<72	<100	<100	<300	ND	ND	ND	ND	ND	ND	ND	<100	ND	---	---	---
			10	---	<72	<100	<100	<300	ND	ND	ND	ND	ND	ND	ND	<100	ND	---	---	---
	SV-1	11/10/2016	7	**30,000,000**	<490	<690	<980	<1300	<1300	6,600,000	<1300	<2000	<820	<1100	14,000	<1200	<2800	13	4.7	1.9
	SV-2	11/10/2016	10	5,700	23	20	<0.76	<0.98	38	<1.0	<0.98	38	9	7.1	14	38	<2.1	9.7	<0.00024	7
	SV-4	11/10/2016	7	**5,300,00**	<190	2,600	<380	<0.98	<510	810,000	5,100	<780	<320	10,000	11,000	<470	5,400	3.2	0.36	15
ESL[1] - Tier 1				50,000	48	160,000	560	52,000	NE	NE	210,000	15,000,000	NE	NE	NE	240	NE	NE	NE	NE

1 Environmental Screening Level (ESL), RWQCB, San Francisco Bay Region - February 2016.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not analyzed for this parameter
Note: Red font indicates the laboratory reporting limit exceeds one or more of the selected screening levels.

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APPENDIX A – DEVELOPMENT PLAN (SEE CAP ADDENDUM)