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RECEIVED
By Alameda County Environmental Health 10:00 am, Aug 24, 2017

August 23, 2017

Mr. Mark Detterman, P.G., C.H.G.
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: *Site Management Plan*, 5th and Magnolia Streets, Oakland, California (Case No.: RO0003194).

Dear Mr. Detterman:

Please find attached the *Site Management Plan* prepared by West Environmental Services & Technology, Inc. (WEST) for the 5th and Magnolia Streets property in Oakland, California (the "Site"). I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

Please call me at 510/588-5152 if you have any questions or wish to discuss this further.

Sincerely,

Kevin Brown
Holliday Development

cc:

SITE MANAGEMENT PLAN
5th Street and Magnolia Street
West Oakland, California

August 2017

Prepared for

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Prepared by

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SIGNATURE PAGE

All information, conclusions and recommendations contained in this report have been prepared under the supervision of the undersigned professional(s).

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1.0 INTRODUCTION

This *Site Management Plan* ("*SMP*") has been prepared by West Environmental Services & Technology, Inc., (WEST) on behalf of Holliday Development for the property located at 5th Street and Magnolia Street in West Oakland, California ("the Site;" Figure 1-1). The Site is to be developed for affordable multi-family housing. The purpose of the *SMP* is to provide procedures and protocols for: managing soil; and unknown conditions, if they are encountered, during Site development activities. This *SMP* includes: a description of the Site; a summary of investigations; data evaluation; soil management plan during and following construction; procedures for managing unknown conditions; and construction worker health and safety procedures.

1.1 BACKGROUND

The approximately 0.5-acre Site is an undeveloped asphalt paved lot bounded by: 5th Street to the south; Union Street to the west; commercial businesses to the north; and Magnolia Street to the east; and is located within a commercial zone. The Site was formerly part of the California Department of Transportation's (Caltrans) Interstate 880 (Cypress Freeway) right-of-way that was demolished following the 1989 Loma Prieta earthquake. As part of the demolition, the freeway support columns were demolished to approximately three-feet below ground surface. In August 2015, Caltrans auctioned the Site for redevelopment.

The Site will be developed with a single story commercial/retail building and a multi-story mixed multi-family residential building along with landscaping and hardscape. The multi-family residential units will be constructed above an open-air at-grade parking garage.

Neighboring commercial businesses include automobile repair and service operations. Releases to soil and groundwater occurred on the adjacent commercial properties (1225 7th Street and 1211 7th Street) from underground storage tanks (USTs) containing petroleum products. In June 1997, the releases from the USTs at 1225 7th Street were closed by the Alameda County Health

Care Services Agency (ACHCSA, 1997). Investigations of the UST releases at 1211 7th Street are currently ongoing.

In September 2015, an investigation was conducted to characterize the Site environmental conditions and potential impacts from off-Site UST releases. Eight borings (W-1 to W-8) were advanced to six-feet below ground surface for the collection of soil, soil gas and groundwater samples. Laboratory analysis of the soil samples revealed the presence of polycyclic aromatic hydrocarbons (PAHs) including benzo(a)pyrene up to 119 micrograms per kilogram (µg/kg) and metals including lead up to 2,180 milligrams per kilogram (mg/kg).

Volatile organic compounds (VOCs) were detected in the soil gas samples collected from borings W-1, W-2, W-4 and W-7 including: tetrachloroethene (PCE) up to 352 micrograms per cubic meter (µg/m^3) and benzene up to 9.14 µg/m^3. Laboratory analysis of the groundwater samples did not reveal total petroleum hydrocarbons (TPH) as gasoline (TPHg) or VOCs above the laboratory-reporting limits, except for PCE up to 0.850 micrograms per liter (µg/l).

Based on the findings of the September 2015 investigations, Holliday Development entered into a voluntary cleanup agreement (VCA) with ACDEH. Pursuant to the VCA, ACDEH requested additional sampling to further characterize the Site conditions prior to development. In March 2016, WEST submitted a *Site Investigation Work Plan* to ACDEH further characterize the presence of chemicals in soil and soil gas. In May 2017, 16 borings were advanced at the Site for the collection of soil samples (B-1 to B-9) and soil gas samples (W-2, W-4, SG-1 to SG-5)(WEST, 2017). Soil samples collected from the borings did not reveal TPHg or VOCs above the laboratory-reporting limits. Total petroleum hydrocarbons as diesel (TPHd) was detected in soil up to 423 mg/kg (B-6), above its California Regional Water Quality Control Board – San Francisco Bay Region (Regional Water Board) Environmental Screening Level (ESL) of 230 mg/kg for unrestricted use, but below its commercial ESL of 1,100 mg/kg. TPH as motor oil (TPHmo) was detected in soil, up to 2,000 mg/kg (B-6), which is below its unrestricted use ESL of 5,100 mg/kg. PAHs were detected in soil including benzo(a)pyrene up to 399 µg/kg (B-9), above its unrestricted use ESL of 16 mg/kg.

Lead was detected in soil up to 1,080 mg/kg (B-4), which is above its unrestricted use ESL of 80 mg/kg. PCE was detected in soil gas up to 182 µg/m^3 (W-4), below its unrestricted use ESL of 240 µg/m^3. Based on the investigation findings, lead and PAHs were detected in soil above their respective unrestricted use ESLs. In addition, PCE was previously detected in soil gas in one sample (W-4 at 352 µg/m^3) above its unrestricted use ESL of 240 µg/m^3 near the proposed elevator and open air parking garage. However, subsequent sampling conducted near boring W-4 in May 2017 revealed PCE at a lower concentration of 182 µg/m^3, below its unrestricted use ESL of 240 µg/m^3 and commercial ESL of 2,100 µg/m^3.

The proposed Site development is comprised of: at grade commercial; at-grade parking garage; hardscapes; and landscaping. The landscape areas will be over-excavated and backfilled with clean imported soil. During construction, soil will be excavated during grading, foundation excavations, utility trenching and over-excavation of landscape areas. A geotextile marker fabric will be placed above the native soil prior to backfilling the landscape areas. The soil generated during the construction activities will be managed on-Site as engineered fill or for off-Site disposal.

Based on the proposed development plan and the incomplete exposure pathway for future Site occupants to soil, this *SMP* was developed which details the procedures and protocols for: managing soil during and following construction; management of unknown conditions if encountered; and construction worker and community protection health and safety measures. Following completion of Site construction, a land use covenant (LUC) will be prepared and recorded with the Alameda County Recorders Office.

1.2 SMP ORGANIZATION

This *SMP* is organized as follows:

- Site Description (Section 2.0);

- Data Evaluation (Section 3.0);
- Soil Management (Section 4.0);
- Management of Unknown Conditions (Section 5.0); and
- Health and Safety (Section 6.0).

2.0 SITE DESCRIPTION

The approximately 0.5-acre Site is an undeveloped asphalt paved lot bounded by: 5th Street to the south; Union Street to the west; commercial businesses to the north; and Magnolia Street to the east; and is located within a commercial zone. The Site was formerly part of the Caltrans' Interstate 880 (Cypress Freeway) right-of-way that was demolished following the 1989 Loma Prieta earthquake. As part of the demolition, the freeway support columns were demolished to approximately three-feet below ground surface. In August 2015, Caltrans auctioned the Site for redevelopment.

2.1 GEOLOGIC AND HYDROGEOLOGIC SETTING

The geology encountered in borings at the Site is comprised of fill and unconsolidated sands, silty sands and clay sands of the Merritt Formation. The fill material is approximately three-feet thick and comprised of sands and gravels with brick and concrete debris. Unconsolidated sands, silty sands and clayey sands of the Merritt Formation were encountered beneath the fill material to approximately 16-feet below ground surface (WEST, 2015).

Groundwater was encountered in the borings advanced at the Site between approximately 10-feet and 12-feet below ground surface. The groundwater flow direction measured at nearby sites is to the west-southwest (AEC, 1995).

2.2 CURRENT USES OF ADJOINING PROPERTIES

Two adjoining properties to the north (1211 and 1225 7th Street) have been used for automobile repair and service operations. Releases of petroleum products from USTs have occurred at 1211 and 1225 7th Street. The UST release at 1225 7th Street (Zentrum Motors) impacted soil and occurred from a 10,000-gallon gasoline UST that was removed in 1992. In 1997, the ACHCSA closed the UST release at 1225 7th Street (ACHCSA, 1997).

The release at 1211 7th Street (Former Everidge Service Co.) impacted soil and groundwater and occurred from three 4,000-gallon gasoline USTs and one 250-gallon waste oil UST. The four USTs were installed in the 1960s (AEC, 1995). In 1992, the four USTs were removed. Between 1992 and 1995, investigations were conducted at 1211 7th Street to characterize the UST releases. In September 2015, the Regional Water Board approved a work plan to address data gaps at 1211 7th Street including: membrane interface probe (MIP); soil and groundwater sampling; preferential pathway study; monitoring well installation; and soil gas sampling (Regional Water Board, 2015).

2.3 SUMMARY OF INVESTIGATIONS

Investigations have been conducted at the Site since 2015. The investigations included collection of soil, soil gas and groundwater samples. Summaries of the Site investigations are presented below. Summaries of the analytical results are summarized in Tables 2-1 to 2-6 and presented on Figures 2-2 to 2-4.

2.3.1 Site Investigation – 2015

In September 2015, WEST conducted Site investigations to characterize the environmental conditions at the Site and potential impacts from the UST releases on the adjacent properties. The field activities included drilling of eight borings (W-1 to W-8) to 16-feet below ground surface for collection of soil, soil gas and groundwater samples.

2.3.1.1 SOIL SAMPLING

Soil samples were collected from the Site between one- and six-feet below ground surface. Laboratory analysis of the soil samples revealed the presence of: PAHs including benzo(a)pyrene up to 119 µg/kg; pesticides including chlordane up to 18.4 µg/kg and 4,4-DDE up to 7.54 µg/kg; and metals including arsenic up to 7.21 mg/kg and lead up to 2,180 mg/kg (Tables 2-2 to 2-4).

2.3.1.2 SOIL GAS SAMPLING

Soil gas samples have been collected from four temporary vapor wells (W-1, W-2, W-4 and W-7) installed to five-feet below ground surface at the Site on September 17, 2015. Laboratory analysis of the soil gas samples revealed the presence of VOCs including: PCE up to 352 $\mu g/m^3$ (W-4); benzene up to 9.14 $\mu g/m^3$ (W-1); toluene up to 15.8 $\mu g/m^3$ (W-1); ethyl benzene up to 4.60 $\mu g/m^3$ (W-1); xylenes up to 19.11 $\mu g/m^3$ (W-1); and trichlorofluoromethane (TCFM) up to 16.7 $\mu g/m^3$ (W-1)(Table 2-5 and Figure 2-4). The helium leak tracer gas was not detected in the soil gas samples above the laboratory-reporting limit of 0.100-percent.

2.3.1.3 GROUNDWATER SAMPLING

Three groundwater samples were collected from borings W-1, W-2 and W-4 on September 17, 2015. Laboratory analysis of the groundwater samples did not reveal the presence of TPHg above its laboratory-reporting limit of 0.050 milligrams per liter (mg/l)(Table 2-6). VOCs were not detected in the groundwater samples above their laboratory-reporting limits, except for PCE at 0.850 µg/l (W-2)(Table 2-6).

2.3.2 Soil and Soil Gas Investigation – 2017

In May 2017, WEST conducted a soil and soil gas investigation at the Site. Nine soil borings (B-1 to B-9) were advanced for collection of soil samples between one- and 2.5-feet; and five borings (SG-1 to SG-5) were advanced for installation of temporary vapor probes at five-feet below ground surface. In addition, pursuant to a request by the ACDEH, two soil gas samples were collected from temporary vapor probes installed in the vicinity of previous sample locations W-2 and W-4. Summaries of the analytical data are presented in Tables 2-1 to 2-5 and depicted on Figures 2-3 and 2-4.

2.3.2.1 SOIL SAMPLING

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Soil samples collected from the borings advanced at the Site on May 8, 2017 were reported to contain TPHd up to 423 mg/kg (B-6; collected from one-foot below ground surface) and TPHmo up to 2,000 mg/kg (B-6; collected from one-foot below ground surface)(Table 2-1). Laboratory analysis of the soil samples did not reveal TPHg, benzene, toluene, ethyl benzene, xylenes and methyl tert-butyl ether (MTBE) above their respective laboratory-reporting limits (Table 2-1).

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Laboratory analysis of the soil samples collected between 1.5-feet and 2.5-feet below ground surface from borings B-1, B-2, B-4, B-6, B-7, B-8 and B-9 revealed PAHs above the laboratory-reporting-limits, including: benzo(a)anthracene up to 311 µg/kg (B-9); benzo(b)fluoranthene up to 404 µg/kg (B-9); benzo(a)pyrene up to 399 µg/kg (B-9); dibenzo(a,h)anthracene up to 216 µg/kg (B-9); and indeno(1,2,3-c,d)pyrene up to 453 µg/kg (B-9)(Table 2-2).

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Metals were reported present in the soil samples collected from the nine borings advanced at the Site with: arsenic up to 4.57 mg/kg (B-9); barium up to 214 mg/kg (B-2); chromium up to 43.2 mg/kg (B-9); cobalt up to 11.5 mg/kg (B-9); copper up to 30.8 mg/kg (B-2); lead up to 1,080 mg/kg (B-4); mercury up to 0.306 mg/kg (B-2); nickel up to 38.8 mg/kg (B-9); vanadium up to 36.6 mg/kg (B-9); and zinc up to 265 mg/kg (B-2)(Table 2-4). Other metals were not reported present in the soil samples above the laboratory-reporting limit of 2.50 mg/kg (Table 2-4).

2.3.2.2 SOIL VAPOR INVESTIGATION

Soil gas samples were collected at five-feet below ground surface from the temporary vapor monitoring wells, SG-1 to SG-5, W-2 and W-4, on May 8 and 9, 2017. Pursuant to the California Environmental Protection Agency (CalEPA) Department of Toxic Substances Control

(DTSC) *Advisory – Active Soil Gas Investigation* (CalEPA, 2015), the soil gas samples were collected at least two-hours following vapor well installation using direct push technology.

Laboratory analysis of the soil gas samples revealed VOCs including: PCE up to 182 µg/m^3 (W-4); benzene up to 18.6 µg/m^3 (SG-2); toluene up to 38.4 µg/m^3 (SG-2); methylene chloride up to 24.2 µg/m^3 (SG-3); and TCFM up to 14.2 µg/m^3 (SG-4) (Table 2-5 and Figure 2-4).

2.4 PROPOSED DEVELOPMENT

The Site will be developed with a single story commercial/retail building and a multi-story mixed multi-family residential building along with landscaping and hardscape. The multi-family residential units will be constructed above an open-air at-grade parking garage. Residential studio, one bedroom and two bedroom apartments will be constructed above the parking garage (WEST, 2017). As part of the construction, foundation footings will be excavated between approximately two-feet and four-feet below ground surface. Copies of the plans for the proposed development are included in Appendix A.

3.0 DATA EVALUATION

Consistent with Regional Water Board guidance, a screening level assessment was performed to assist in assessing the adequacy of the existing data (Regional Water Board, 2007). The screening level assessment consisted of three components: (1) identification of potential exposure pathways; (2) identification of appropriate screening levels for each media; and (3) a comparative analysis. The screening level assessment has been used to evaluate conditions of potential concern and identify areas for additional investigations, i.e., data gaps.

3.1 SCREENING LEVEL ASSESSMENT

3.1.1 Exposure Pathways Evaluation

Exposure pathways for: PAHs, pesticides and metals in soil; VOCs in soil gas; and VOCs in groundwater, at the Site have been evaluated to assess the potential impacts to human health and the environment. Direct contact and ingestion of soil is identified as complete exposure pathway for future construction and maintenance workers. Direct contact and ingestion of soil is not identified as complete exposure pathway for future occupants due to the proposed hardscapes and buildings to be constructed on the Site. Inhalation of VOCs is identified as a potentially complete exposure pathway for future Site occupants. Direct exposure to VOCs in groundwater is not identified as a potentially complete exposure pathway as the Site is served by municipal water supply (Figure 3-1).

3.1.1.1 EXPOSURE CONCENTRATIONS

The maximum-detected concentrations of the chemicals detected at the Site were used to compare with the screening levels. The United States Environmental Protection Agency (USEPA) recommends that maximum beneficial uses of a property be the basis for evaluation. Based on the development plans for ground floor commercial offices, above grade residential, parking garage, landscaping and hardscape, the Site soil conditions have been screened using the

methods described below based on a commercial/construction worker exposure scenario. The Site soil gas conditions wee screened based on a residential and commercial exposure scenario.

3.1.1.2 COMMERCIAL/INDUSTRIAL WORKER

The commercial/industrial scenario uses the conservative assumption that on-Site workers spend all or most their workday outdoors. The exposure for commercial/industrial workers is presumed to include: (1) a full time employee of a company operating on-site who spends most of the work day conducting maintenance or manual labor activities outdoors or (2) a worker who is assumed to regularly perform grounds-keeping activities as part of his/her daily responsibilities (Regional Water Board, 2007). Exposure to surface and shallow subsurface soils (i.e., at depths of zero- to two-feet below ground surface) is expected to occur during excavation of foundations and subsurface utilities during Site construction and moderate digging associated with routine maintenance and grounds-keeping. The commercial/industrial worker scenario is based on a worker that is exposed to chemicals at the Site for 24-hours per day during 250-days per year for 25-years.

3.1.2 Identification of Screening Levels

Based on the identified exposure pathways, screening levels were identified for chemicals in soil, soil gas and groundwater as non-drinking water source. Chemical-specific screening levels were developed from concentrations based on published environmental screening criteria. The screening levels that were considered include the Regional Water Board Environmental Screening Levels (ESLs) and the California Department of Public Health (CDPH) maximum contaminant levels (MCLs). Exceeding a screening level "does not necessarily indicate that adverse impact to human health or the environment are occurring, [it] simply indicates that potential for adverse impacts may exist and that additional evaluation is warranted" (Regional Water Board, 2007).

3.1.2.1 REGIONAL WATER BOARD ESLS

The Regional Water Board has identified ESLs for PAHs, pesticides and metals in soil, VOCs in soil gas and VOCs in groundwater (Regional Water Board, 2016). The Regional Water Board ESLs "are intended to be conservative" and "the presence of a chemical at […] concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health and the environment." While a chemical may be measured at concentrations above the Regional Water Board ESL, it "does not necessarily indicate adverse effects on human health or the environment are occurring, rather that additional evaluation is warranted." In developing the ESLs, the Regional Water Board has considered exposure pathways to humans, including inhalation of VOCs in indoor air from migration of contaminated soil gas.

3.1.2.2 CALIFORNIA DEPARTMENT OF PUBLIC HEALTH – MAXIMUM CONTAMINANT LEVELS

The CDPH MCL is the maximum concentration of a chemical that is allowed in public drinking water systems. The MCL is established by either the USEPA or the CDPH. Currently, there are fewer than 100 chemicals for which MCLs have been established; however, these represent chemicals that are thought to pose the most serious risk.

The USEPA guidance for establishing an MCL states that "MCLs are enforceable standards and are to be set as close to the maximum contaminant level goals (MCLGs) as is feasible and are based upon treatment technologies, costs (affordability) and other feasibility factors, such as availability of analytical methods, treatment technology and costs for achieving various levels of removal." The process of determining an MCL starts with an evaluation of the adverse effects caused by the chemical in question and the doses needed to cause such effects.

The result of this process is a safe dose (the dose thought to provide protection against adverse effects including a margin of safety), now called a Reference Dose (RfD) by the EPA. This evaluation is based on the results of animal experiments, and the research results are extrapolated to humans using standard EPA methods.

3.2 COMPARATIVE ANALYSIS

An evaluation between the identified screening levels and the soil laboratory analytical results was performed to characterize the Site conditions.

3.2.1 Soil Conditions

3.2.1.1 TPH AND VOCS

TPHg was not detected in soil above its laboratory-reporting limit of 1.00 mg/kg. TPHd was detected up to 423 mg/kg (boring B-6 at 1-foot below ground surface), above its unrestricted use ESL of 230 mg/kg but below its commercial ESL of 1,100 mg/kg. TPHd was not detected in the soil sample collected from boring B-6 at 2.5-feet below ground surface above its laboratory-reporting limit of 10 mg/kg.

TPHmo was detected up to 2,000 mg/kg (boring B-6 at one-foot below ground surface) and co-present with TPHd at 423 mg/kg, below its unrestricted use ESL of 5,100 mg/kg. TPHmo was detected in the soil sample collected from boring B-6 at 2.5-feet below ground surface at a lower concentration of 10.8 mg/kg, below its unrestricted use ESL of 5,100 mg/kg (Table 2-1).

VOCs including benzene, toluene, ethyl benzene, xylenes and MTBE were not detected in the soil samples collected at the Site above their respective laboratory-reporting limits (Table 2-1).

3.2.1.2 PAHS

Benzo(a)anthracene was reported present in the soil samples up to 311 µg/kg (boring B-9 at one-foot below ground surface), above its unrestricted use ESL of 160 µg/kg but below its commercial ESL of 2,900 µg/kg. Benzo(b)fluoranthene was detected in soil up to 404 µg/kg (boring B-9 at one-foot below ground surface), above its unrestricted use ESL of 160 µg/kg but below its commercial ESL of 2,900 µg/kg. Benzo(a)pyrene was detected in the soil samples

collected at the Site up to 399 µg/kg (boring B-9 at one-foot below ground surface), above its unrestricted use and commercial ESLs of 16 µg/kg and 290 µg/kg (Table 2-2 and Figure 2-3).

Dibenzo(a,h)anthracene was detected up to 430 µg/kg (boring W-6 at one-foot below ground surface), above its unrestricted use and commercial ESLs of 16 µg/kg and 290 µg/kg. Indeno(1,2,3-c,d)pyrene was detected up to 453 µg/kg (boring B-9 at one-foot below ground surface), which is above its unrestricted use ESL of 160 µg/kg but below its commercial ESL of 2,900 µg/kg. Other PAHs were detected in the soil samples collected at the Site but at concentrations below their respective unrestricted use ESLs (Table 2-2).

3.2.1.3 ORGANOCHLORINE PESTICIDES

The organochlorine pesticides chlordane and 4,4-DDE were detected in the soil samples above the laboratory-reporting limits. Chlordane was detected up to 18.4 µg/kg (boring W-8 at one-foot below ground surface), which is below its unrestricted use ESL of 480 µg/kg. 4,4-DDE was detected up to 7.54 µg/kg (boring W-5 at one-foot below ground surface), which is below its unrestricted use ESL of 1,900 µg/kg (Table 2-3).

3.2.1.4 METALS

Metals were detected in the soil samples including arsenic and lead. Arsenic was detected up to 7.21 mg/kg (boring W-2 at one-foot below ground surface), which is consistent with the range of background arsenic concentrates up to 11 mg/kg for the San Francisco Bay Area (Duverge, 2011). Lead was detected in soil up to 2,180 mg/kg (boring W-4 at three-feet below ground surface), which is above its unrestricted use and commercial ESLs of 80 mg/kg and 320 mg/kg (Table 2-4 and Figure 2-3). Other metals were detected in the soil samples but at concentrations below their respective unrestricted use ESLs.

3.2.2 Soil Gas Conditions

VOCs were detected in the soil gas samples collected at the Site. PCE was detected up to 352 µg/m^3 (boring W-4; September 2015), which is above its unrestricted use ESL of 240 µg/m^3, but below its commercial ESL of 2,100 µg/m^3. However, during the May 2017 investigation, PCE was detected in the soil gas sample collected from the boring W-4 location at a lower concentration of 182 µg/m^3, which is below its unrestricted use ESL of 240 µg/m^3 (Table 2-5 and Figure 2-4).

Benzene was detected up to 18.6 µg/m^3 (boring SG-2), which is below its unrestricted use ESL of 48 µg/m^3 (Table 2-5; Figure 2-4). Toluene was detected up to 38.4 µg/m^3 (boring SG-2), which is below its unrestricted use ESL of 160,000 µg/m^3. Methylene chloride was detected up to 24.2 µg/m^3 (boring SG-3), below its unrestricted use ESL of 510 µg/m^3. Other VOCs were either not detected in soil gas above their respective laboratory-reporting limits or unrestricted use ESLs (Table 2-5).

3.2.3 Groundwater Conditions

Groundwater samples were collected from borings W-1, W-2 and W-4. Laboratory analysis of the groundwater samples did not reveal the presence of TPHg above its laboratory-reporting limit of 0.050 mg/l. The VOC PCE was detected up to 0.850 µg/l, which is below its MCL of 5 µg/l. Other VOCs were not detected in the groundwater samples above their respective laboratory-reporting limits (Table 2-6).

3.3 SUMMARY

Based on the findings, lead and PAHs were detected in soil, above their respective unrestricted use ESLs. However, the proposed Site development is comprised of: at grade commercial; at-grade parking garage; hardscapes; and landscaping. The landscape areas will be over-excavated and backfilled with clean imported soil. During construction, soil will be excavated during

grading, foundation excavations, utility trenching and over-excavation of landscape areas. The soil generated during the construction activities will be managed on-Site as engineered fill or for off-Site disposal.

In addition, PCE was previously detected in soil gas in one sample (W-4 at 352 μg/m^3) above its unrestricted use ESL of 240 μg/m^3 near the proposed elevator and open air parking garage. However, subsequent sampling conducted in the vicinity of boring W-4 in May 2017 revealed PCE at a lower concentration of 182 μg/m^3, below its unrestricted use ESL of 240 μg/m^3 and commercial use ESL of 2,100 μg/m^3.

Following construction, there will be no complete soil exposure pathway for future Site occupants and maintenance workers as the Site will be covered with buildings and hardscape and the landscape areas will be over-excavated and backfilled with clean imported soil. In addition, due to the soil gas results and the proposed of the open-air parking garage, there does not appear to be a complete exposure pathway for VOCs in soil gas for future residents.

3.3.1 Site Management Plan

Based on the proposed development plan and the incomplete exposure pathway for future Site occupants to soil, procedures and protocols for managing soil during construction were developed. The soil management procedures and protocols include: soil handling; construction worker health and safety protection; proper management of wastes generated from construction activities; and measures to be used in the event that unexpected contamination is encountered.

3.3.2 Land Use Covenant

Following completion of Site development, a land use covenant (LUC) will be prepared and recorded with the Alameda County Recorders Office. The LUC identifies restrictions that are reasonably necessary to protect human health and safety or the environment due to the presence of hazardous materials beneath the Site, including but not limited to:

- Site use shall be for industrial, commercial, office space, retail, restaurant, and/or multi-family residential, in conformance with local zoning code;

- All uses and development of the Site shall be consistent with the *SMP*, which shall be incorporated into the LUC by reference;

- Alameda County Department of Environmental Health (ACDEH) shall have reasonable access to the Site for the purposes of inspection, surveillance, maintenance, or monitoring, as provided for in Division 7 of the Water Code; and

- No owner or occupant of the Site shall act in any manner that will aggravate or contribute to the existing environmental conditions of the Site.

4.0 SOIL MANAGEMENT

The soil management procedures and protocols include: excavation management; off-Site soil disposal characterization; soil stockpile management; and import material characterization. Details of the soil management procedures are presented below.

4.1 SITE CONTROL

Access to the Site should be controlled by the contractor to prevent unauthorized entry. Fencing and other barricades should be maintained by the contractor, and the construction entrance should be closed and locked during non-working hours to prevent entrance to the Site by unauthorized personnel.

4.2 PRE-PROFILE DISPOSAL CHARACTERIZATION

Prior to soil excavation, in-place soil within the proposed garage excavation area should be sampled for off-Site disposal characterization. The frequency of sampling and chemical analysis should be conducted in general following the DTSC's *Information Advisory – Clean Imported Fill Material* (DTSC, 2001) and in accordance with the waste management facility requirements for soil requiring off-Site disposal. The final destination of excavated soil should be selected based on the waste analytical results and acceptance criteria provided by the waste management facilities. Details of the sample collection and suite of analyses are presented below.

4.2.1 Soil Sample Collection Methodology

Discrete soil samples should be collected from borings advanced within the proposed excavation area. The frequency of samples and suite of analytes for the discrete soil samples are summarized in Table 4-1. The laboratory-reporting limits for the chemical analyses should be less than the Regional Water Board Tier 1 ESLs and/or the waste disposal facility chemical acceptance criteria.

4.2.1.1 SAMPLE COLLECTION

Borings should be advanced using direct push or hollow-stem auger drilling equipment operated by a California C-57 licensed well drilling contractor. Soil core samples should be collected continuously using a stainless-steel core barrel outfitted with an acetate liner. Soil samples for laboratory analysis should be cut from the acetate liner at six-inch lengths from the target sample depths (Table 4-1). The ends of the soil samples should then be covered with Teflon sheets and plastic end caps, labeled and placed in a cooler with ice for transportation to a CDPH Environmental Laboratory Accreditation Program (ELAP) certified laboratory for chemical analysis following ASTM D4840 chain-of-custody protocols.

4.2.1.2 STATISTICAL ANALYSIS

The soil samples results should then be evaluated using the procedures outlined in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846; USEPA, 2007). USEPA's SW-846 identifies that the statistically representative concentration will be used when characterizing solid wastes with potentially variable concentrations, i.e., the 90 percent upper confidence level (UCL) concentration. The 90 percent UCL concentration represents the concentration that it is expected that 90 out of 100 samples should have concentrations equal to or less than. The number of samples and suite of analytes should be determined based on the nature and source of the contamination and waste facility requirements.

A statistical analysis using a Student's "t-test" will be performed using the sample results to determine the 90 percent UCL concentration of the regulated constituents in the samples. The results of the sampling should also be evaluated to determine whether an appropriate number of samples have been collected to characterize the waste using methodologies as outlined in USEPA's SW-846. The results of the soil sampling and statistical analysis should be forwarded to landfills or other appropriate facilities for profiling and acceptance.

4.3 SOIL HANDLING

Based on the pre-profile characterization, it is anticipated that the excavated soil will be directly loaded into trucks to off-Site disposal. The soil should be handled in a manner to minimize the potential for airborne dust to be generated. During soil handling, air monitoring should be conducted and used to confirm the efficacy of soil management procedures. As appropriate, procedures should be modified to control emissions of dust. Disturbed areas that are inactive for seven days or more should also be wetted to minimize potential airborne entrainment and generation of dust. In addition, trucks transporting soil off-Site should not be loaded above the side or rear of the truck bed. The truckload should be covered with a tarp prior to leaving the Site to prevent particulate emissions to the atmosphere.

4.4 EXCAVATION PROCEDURES

Ground cover including pavement and concrete should be removed and recycled in accordance with California Assembly Bill AB 939.

Excavations exceeding five-feet in depth should be shored and braced to furnish safe and acceptable working conditions and maintain existing slopes, fills and open excavations pursuant to CalOSHA requirements. The bracing should be arranged so as not to place any stress on portions of the completed work until the general construction thereof has proceeded far enough to provide ample strength.

In advance of all excavations deeper than five-feet or more, a detailed plan showing the design of sheeting, shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground and protection of structures during the excavation should be prepared. The shoring plans should be designed to comply with the requirements of Occupational Safety and Health Administration (OSHA), CalOSHA and the California Business and Professions Code and should provide adequate ingress and egress from the excavations.

4.5 SOIL STOCKPILE MANAGEMENT

If necessary, the following procedures should be used for management of soil stockpiles. The soil stockpiles should be covered with plastic sheeting to control dust. Stockpiled areas should also be bermed to prevent storm water erosion and/or runoff. Uncovered stockpiles should be watered pursuant to dust control requirements to minimize airborne particulate emissions. The berms surrounding the stockpiled area should be inspected and maintained when the stockpiles are uncovered and water is applied for dust control.

Any portions of the stockpile not being actively worked on during a given day should remain covered with plastic sheeting. Plastic sheeting should be held in place by tires, concrete or other appropriate weighted material. Excavations, stockpiles and inactive work areas should be inspected regularly to assess the potential for dust generation.

4.5.1 Stockpile Sample Collection Methodology

If soil is stockpiled prior to being removed from the Site, discrete samples should be collected from the stockpiled soil for characterization. The frequency of sampling will be conducted in general following the DTSC's *Information Advisory – Clean Imported Fill Material* (DTSC, 2001) and in accordance with the waste management facility for soil requiring off-Site disposal. The discrete soil samples should be collected from at least three to six-inches below the surface of the stockpile by hand pushing brass-lined tubes into each portion of the stockpile. The ends of the brass-lined tubes should be covered with Teflon sheets and plastic end caps, labeled, sealed in a plastic bag and placed in a chilled ice chest. Following appropriate sample collection protocols, the soil samples should be transported to a CDPH ELAP certified laboratory for chemical analysis, following ASTM D 4840 chain-of-custody protocols. The stockpiled samples should be analyzed for the constituents required by the waste management facility for soil requiring off-Site disposal.

4.6 OFF-SITE WASTE TRANSPORT

Following acceptance by the disposal facility, the soil should be loaded into trucks operated by licensed transporters for off-Site disposal. Non-hazardous soils should be transported off-Site using appropriate bills of lading. Hazardous wastes, if present, should be manifested off-Site on Uniform Hazardous Waste Manifests in accordance with regulatory requirements. Appropriately, designated and licensed trucks should be used to convey the soil from the Site to the disposal facilities.

4.7 IMPORT SOIL CHARACTERIZATION

If material is imported onto the Site for backfilling, the import material should be characterized prior to placed on the Site. Discrete samples should be collected from the import source for characterization. The frequency of sampling and suite of analytes should be conducted in general following the DTSC's *Information Advisory – Clean Imported Fill Material* (DTSC, 2001). The analytical results of the import soil samples should be compared to applicable screening criteria to evaluate whether the material is suitable for import to the Site.

4.8 STORM WATER BEST MANAGEMENT PRACTICES

During Site development activities, storm water best management practices (BMPs) should be followed in accordance with the contractors Stormwater Pollution Prevention Plan (SWPPP) to be prepared for the Site. The BMPs for the Site development activities should include: use of fiber rolls; inlet protection; stabilized construction entrance; landscape and paving; street cleaning and catch basin cleaning.

4.9 EQUIPMENT DECONTAMINATION

Equipment that is exposed to Site soil during development activities should be dry brushed before leaving the Site. Equipment exiting the Site should be inspected and logged for

compliance with the Site decontamination requirements. To minimize the spread of soil, equipment should be cleaned prior to movement out of active work zones. The equipment should be dry-brushed for removal of material from the truck body and tires prior to exiting work zones.

4.10 RECORDKEEPING

A log sheet should be maintained that documents the date, time, estimated volume, waste/material, trucking company, driver and vehicles used for the trip. The log should also document the decontamination procedures of the trucks. Log sheets should be kept at the Site. In addition, copies of bills-of-lading, analytical results representing the load, hazardous waste manifests (as appropriate), route maps and directions, emergency instructions and contacts will be carried with each load leaving the Site.

4.11 POST-DEVELOPMENT SOIL MANAGEMENT

This section presents the procedures for the management of soil containing chemical concentrations above health based screening levels following Site construction activities. Soil beneath the marker fabric within the landscape areas and soil beneath buildings and hardscapes contains chemicals above applicable screening levels. A geotextile marker fabric will placed at the base of the landscape area excavations separating the native soil from the imported backfill material. The procedures presented below are designed to control the potential exposure to future maintenance and construction workers due to residual chemicals in soil.

4.11.1 Landscape Area Maintenance

If soil is removed from below the geotextile marker fabric within the landscape areas, the soil should be stockpiled and characterized for off-Site disposal or, if feasible, replacement in the excavated area. Following soil removal and/or replacement, the geotextile marker fabric should be replaced and the area above the marker fabric backfilled with clean, imported soil.

4.11.2 Building and Hardscape Area Maintenance

If soil is removed from below buildings and/or hardscapes, the soil should be stockpiled and characterized for off-Site disposal or, if feasible, reused beneath the hardscape. Following completion of soil removal and/or replacement, the excavation areas should be backfilled as necessary with clean, imported soil and the hardscape replaced.

Site control, disposal characterization, soil handling, excavation procedures, stockpile management, off-Site disposal transportation, import soil characterization, equipment decontamination and recordkeeping should be conducted in accordance with procedures and protocols detailed in Sections 4.1 to 4.10 above.

5.0 MANAGEMENT OF UNKNOWN CONDITIONS

During construction, previously unknown conditions might be encountered. The affected media may include soil as well as materials associated with historical building structures including underground utilities.

5.1 NOTIFICATION REQUIREMENTS

The ACDEH should be notified if newly found contamination is encountered at the Site. Initial identification of hazardous substances should be based on visual or olfactory observations by the contractor. However, to protect worker health and safety and to ensure accurate results, after proper notification, the Project Engineer should be contacted to conduct observations and sampling of the soil.

5.1.1 Discovery of Newly Found Contaminants

Regarding the discovery of newly found contamination during Site development, the following actions should be taken.

5.1.1.1 INITIAL DISCOVERY

Upon the discovery of newly found contamination during Site development activities, operations should cease and the area should be enclosed by the Contractor using suitable barriers, i.e., chain link fence, fabric fence, etc. The Project Engineer should make an initial determination within the field using observations and field equipment.

5.1.1.2 EVALUATION

If the field tests and visual observations do indicate contamination, the Project Manager should notify the Owner of the initial discovery of newly found contamination. Samples should be collected for laboratory analysis and earthwork operations should stop in the area of suspected

contamination pending review of the laboratory analytical results and approval from the ACDEH that operations in the area may continue. Following consultation and coordination with ACDEH work will resume following appropriate protocols.

5.1.2 Hazardous Substance Release Discovery Notification

In addition, to the notification procedures outlined above, additional notifications may be applicable as described below.

5.1.2.1 CONDITIONS POSING AN IMMEDIATE THREAT

For life-threatening or serious hazardous materials incidents, local police, fire and rescue services shall also be contacted by calling 9-1-1.

5.1.2.2 RELEASES TO WATER

For any spill or release of hazardous substances or petroleum hydrocarbons to surface water, the following numbers shall be contacted immediately upon discovery:

- National Spill Response Center: (800) 424-8802;
- United States Coast Guard – San Francisco Sector: (415) 399-3547 (if spill is going to reach navigable waters);
- California Office of Emergency Services: (800) 852-7550/(916) 845-8911;
- California Regional Water Quality Control Board – San Francisco Bay Region: (510) 622-2300;
- Local Emergency Response Agency: 9-1-1; and
- ACDEH: (510) 567-6876.

5.1.2.3 RELEASES TO SOIL

For spills or releases of hazardous substances or petroleum hydrocarbons to soil that are considered, based on best professional judgment and/or physical evidence (including but not limited to olfactory, visual, field instrument, and lab data), to be an immediate threat to human health and the environment, the Project Engineer should be contacted immediately upon discovery. The Project Manager should notify the Owner of the spill or release.

5.1.2.4 NON-EMERGENCY HAZARDOUS SUBSTANCE RELEASE REPORT

The procedures for reporting non-emergency hazardous substance releases are:

- A property owner or a person who releases or causes a reportable hazardous substance release shall contact ACDEH by phone and email within 24 hours of discovery of the release;

- A Nonemergency Hazardous Substances Release Report" should be completed; and

- The "Nonemergency Hazardous Substance Release Report" shall be mailed to the ACDEH office at 1131 Harbor Bay Parkway, Alameda, California 94502.

6.0 HEALTH AND SAFETY

Health and safety procedures have been developed for: workers and the community during Site development. A description of the health and safety measures is presented below.

6.1 WORKER HEALTH AND SAFETY

Due to the potential exposure to residual chemicals in soil during Site development activities, a *Health and Safety Plan* (*HASP*) should be prepared and followed by on-Site personnel. The *HASP* addresses the requirements of the OSHA 29 CFR 1910.120 guidelines and Title 8 CCR Section 5192. The *HASP* should be read by Site workers and visitors to apprise them of the Site conditions and provide instructions for implementing proper safety training and procedures during development activities.

If unknown contamination is discovered, construction workers that have the potential for exposure to soil containing chemicals above applicable health protection worker exposure levels should be at a minimum 40 hour Hazardous Waste Operations and Emergency Response Standard ("Hazwoper") trained, with foreman also having additional eight-hour supervisory training.

As phases of work proceed, the *HASP* should be updated to reflect: Site organizational structure; names of key personnel; personnel training requirements; medical surveillance program; summary of risk assessment; a task-specific hazard analysis; Site control program; personal protective equipment use; air monitoring plan; decontamination procedures; emergency response plan; spill containment; Site sanitation facilities; and standard operating procedures. The contractor conducting the development activities should also use their Injury and Illness Prevention Program (IIPP) in conjunction with the *HASP*.

6.2 COMMUNITY PROTECTION DURING CONSTRUCTION

During the development of the Site, measures should be taken to control potential risks to the surrounding community from fugitive dust emissions. These activities should be implemented when there is the potential for exposed soil to affect the nearby community. It is anticipated that following placement of hardscapes and building pads, monitoring should not be required as there will not be exposed soil surfaces. Details of the measures to be implemented during Site development are presented below.

6.2.1 Dust Mitigation Measures

To address the potential for dust above applicable human health protection thresholds, mitigation measures will be implemented during construction. Dust control should be performed by applying water with a low-pressure spray system. Low volumes of potable water should be routinely spread in areas where dust may be generated because of development activities. If monitoring indicates that the dust control measures are not adequate, then additional engineering control measures should be implemented. These additional measures should include, but are not limited to: 1) change of work procedures; 2) wetting during of surfaces; and 3) covering of exposed soil with plastic sheeting; and 4) use of dust palliatives.

6.2.2 Community Protection Action Levels

Based on the potential for dust generation, the California Air Resources Control Board (CARB) 24-hour 10 micron or small dust particulate matter (PM10) California Ambient Air Quality Standard (CAAQS) concentration of 50 $\mu g/m^3$ was identified as the community protection action level at the property fence line. To account for the possible influence of ambient air, wind direction should be monitored at each perimeter air monitoring stations while conducting the excavation work on-Site. If there is an exceedance of the action level, the wind direction should be noted and mitigation measures described above should be implemented if it is determined that

excavation activities at the Site are resulting in exceedances of the action level at the Site perimeter.

6.2.3 Air Monitoring

Real-time air monitoring for respirable dust should be performed during the first three days of excavation activities when there is the potential to disturb soil. The objective of the perimeter air-monitoring program is to protect the health and safety of the nearby community and to document the effectiveness of the dust control measures.

The Site Health and Safety Officer (HSO) will determine the air monitoring locations based on Site operations and the location of areas that could be adversely impacted by air emissions. In general, real-time monitoring should be conducted downwind and around the perimeter of relevant activities. Monitoring locations should be documented on a monitoring log, along with any concentrations detected.

6.2.3.1 DUST MONITORING

Real-time dust monitors should be used to measure mass concentrations of airborne dust and provide respirable dust, expressed as concentration of particulates smaller than 10 microns (PM_{10}) correlated measurements. A handheld respirable air monitor (mini-RAM) should be used to provide real-time data on total dust levels as PM_{10}. Real-time worker dust monitoring should be performed continuously during work activities where soil disturbance is anticipated, downwind of active excavations. Measurements of real-time and time-weighted averages (TWA) of airborne particulate concentrations should be recorded using a Monitoring Instruments for the Environment, Inc. (MIE) RAM, model PDR-1000 or equivalent equipment. The miniRAM measures the concentration of airborne particulate matter using a high sensitivity nephelometer (photometer) using a light scatter sensor. The sensitivity of the miniRAM is reported to range from 0.001 milligrams per cubic meter ($\mu g/m^3$) to 400 mg/m^3. The miniRAM should be calibrated daily in the supplied calibration pouch.

6.2.3.2 REAL-TIME MONITORING

Real-time monitoring should consist of the following activities:

- Determine the predominant wind direction;
- Place one instrument upwind of Site operations for ambient sampling;
- Place one or more instrument(s) downwind of Site operations, at the Site perimeter;
- Position the instrument probe near the normal breathing zone and monitor for approximately five minutes after instrument readings have stabilized; and
- Record the following observations and readings in real-time:
    - Location;
    - Time;
    - Site activity;
    - Readings;
    - Visual observations of dust;
    - Site conditions, including current weather conditions; and
    - Odors and/or other miscellaneous observations.

The perimeter of the work area should be monitored while relevant activities are being conducted. If any readings exceed action levels, work should be stopped, engineering controls should be implemented and the work and monitoring schedule should be adjusted until background levels are reached.

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8.0 DISTRIBUTION LIST

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TABLES

TABLE 2-1
SUMMARY OF SOIL ANALYTICAL RESULTS - TPHS & PVOCS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	Petroleum Hydrocarbons			Petroleum Related VOCs				
			TPHg	TPHd	TPHmo	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE
			(mg/kg)	(mg/kg)	(mg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
B-1	5/8/17	1.5	<1.00	58.3	334	<1.65	<1.65	<1.65	<1.65	<1.65
B-2	5/8/17	1	<1.00	10.8	43.8	<1.71	<1.71	<1.71	<1.71	<1.71
		2.5	<1.00	<10.0	<10.0	<1.68	<1.68	<1.68	<1.68	<1.68
B-3	5/8/17	1.5	<1.00	59.6	498	<1.72	<1.72	<1.72	<1.72	<1.72
		3	<1.00	<10.0	<10.0	<1.77	<1.77	<1.77	<1.77	<1.77
B-4	5/8/17	1.5	<1.00	36.3	45.9	<1.57	<1.57	<1.57	<1.57	<1.57
B-5	5/8/17	1.5	<1.00	22.6	77.6	<1.68	<1.68	<1.68	<1.68	<1.68
B-6	5/8/17	1	<1.00	423	2,000	<1.85	<1.85	<1.85	<1.85	<1.85
		2.5	<1.00	<10.0	10.8	<1.72	<1.72	<1.72	<1.72	<1.72
B-7	5/8/17	1.5	<1.00	<10.0	29.3	<1.80	<1.80	<1.80	<1.80	<1.80
		2.5	<1.00	<10.0	21.0	<1.81	<1.81	<1.81	<1.81	<1.81
B-8	5/8/17	1.5	<1.00	12.1	64.4	<1.70	<1.70	<1.70	<1.70	<1.70
B-9	5/8/17	1	<1.00	63.1	455	<1.79	<1.79	<1.79	<1.79	<1.79
		2	<1.00	<10.0	<10.0	<1.65	<1.65	<1.65	<1.65	<1.65
ESLs-Commercial			3,900	1,100	140,000	24,000	4,600,000	22,000	2,400,000	180,000
ESLs-Construction Worker			2,800	880	32,000	1,000	4,100,000	480,000	2,400,000	3,700,000
ESLs-Unrestricted Use			740	230	5,100	230	970,000	5,100	560,000	42,000

Notes:

VOCs: Volatile organic compounds

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

TPHmo: Total petroleum hydrocarbons as motor oil

MTBE: Methyl tert-butyl ether

mg/kg: milligrams per kilogram

µg/kg: micrograms per kilogram

<1.00: Less than the laboratory-reporting limit of 1.00

ESLs: California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Levels, Rev. 3

TABLE 2-2
SUMMARY OF SOIL ANALYTICAL RESULTS - PAHS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	Acenaphthene (µg/kg)	Acenaphthylene (µg/kg)	Anthracene (µg/kg)	Benzo(a) anthracene (µg/kg)	Benzo(b) fluoranthene (µg/kg)	Benzo(k) fluoranthene (µg/kg)	Benzo(a)pyrene (µg/kg)	Benzo(g,h,i) perylene (µg/kg)	Chrysene (µg/kg)	Dibenz(a,h) anthracene (µg/kg)	Fluoranthene (µg/kg)	Fluorene (µg/kg)	Indeno (1,2,3-c,d) pyrene (µg/kg)	Naphthalene (µg/kg)	Phenanthrene (µg/kg)	Pyrene (µg/kg)
W-1	9/17/15	1	<2.50	9.42	5.46	14.8	80	15.6	47.1	209	53.4	36.5	8.07	<2.50	41.8	14	19.3	29.5
W-2	9/17/15	1	<2.50	14.8	10.1	55.1	132	35.8	99.8	255	79.6	59.3	31.5	<2.50	103	26.2	36	97.1
W-3	9/17/15	1	<2.50	11.3	6.73	26	176	27	87.4	240	130	98.1	14.4	23	87.3	12.3	49.2	101
W-4	9/17/15	1	<2.50	32	25.9	105	178	60.7	119	287	91.9	70.6	87	28.2	107	13.9	129	184
W-5	9/17/15	1	<2.50	20.3	18.3	67.5	130	47.2	81.5	159	75.9	26	74	<2.50	99.6	11.4	49.7	127
W-6	9/17/15	1	<2.50	17.7	9.44	36.9	74.5	28.3	44.4	226	40.5	430	28.2	19.5	59.2	11.7	38.3	72.6
W-7	9/17/15	1	<2.50	18.8	15.7	61.2	187	45.2	111	264	97.2	77.3	50.7	9.02	120	13.5	84.2	144
W-8	9/17/15	1	<2.50	13.9	6.45	41.7	134	38.5	78.2	234	80.1	73.1	17.1	13	99.7	23.6	30.9	48.4
B-1	5/8/17	1.5	<2.50	14.2	16.5	42.1	70.5	39.8	24.7	114	46.4	28.4	55.5	<2.50	59.4	5.44	36.1	134
B-2	5/8/17	2.5	<2.50	43.8	98.9	70.9	185	115	74.2	231	165	48.0	321	<2.50	169	103	125	309
B-4	5/8/17	1.5	<2.50	15.4	26.4	41.1	70.1	42.7	33.9	86.3	64.6	28.7	112	<2.50	61.0	7.32	36.2	94.9
B-6	5/8/17	2.5	<2.50	19.6	40.4	22.2	65.8	43.6	21.0	66.5	51.1	14.3	98.2	<2.50	45.1	40.2	33.7	71.1
B-7	5/8/17	2.5	<2.50	14.6	40.3	27.1	36.0	24.9	15.7	47.9	50.2	<10.0	77.4	<2.50	31.4	184	53.5	70.2
B-8	5/8/17	1.5	<2.50	6.46	17.1	21.7	36.2	25.9	17.0	47.5	34.9	22.6	35.0	<2.50	27.7	6.60	19.6	56.6
B-9	5/8/17	1	4.77	97.3	122	311	404	151	399	662	241	216	559	9.07	453	13.0	249	1,720
ESLs-Commercial			5.E+04	--	2.3E+08	2,900	2,900	29,000	290	--	3.E+05	290	3.0E+07	3.0E+07	2,900	14,000	--	2.3E+07
ESLs-Residential			4.E+06	--	1.8E+07	160	160	1,600	16	--	2.E+04	16	2.4E+06	2.4E+06	160	3,300	--	1.8E+06

Notes:

PAHs: Polycyclic aromatic hydrocarbons

µg/kg: micrograms per kilogram

--: Not promulgated

ESLs: California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Levels, Rev. 3

<2.50: Less than the laboratory-reporting limit of 2.50

TABLE 2-3
SUMMARY OF SOIL ANALYTICAL RESULTS - PESTICIDES
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	Pesticides																		
			Alpha-BHC	Beta-BHC	Gamma-BHC (Lindane)	Heptachlor	Delta-BHC	Aldrin	Heptachlor epoxide	Endosulfan I	4,4-DDE	Dieldrin	Endrin	4,4-DDD	Endosulfan II	4,4-DDT	Endrin aldehyde	Endosulfan Sulfate	Methoxychlor	Chlordane	Toxaphene
			(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
W-1	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	<12.5	<62.5
W-2	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	17.6	<62.5
W-3	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	<12.5	<62.5
W-4	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	15.2	<62.5
W-5	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	7.54	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	<12.5	<62.5
W-6	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	15.8	<62.5
W-7	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	15.3	<62.5
W-8	9/17/15	1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<12.5	18.4	<62.5
ESLs-Commercial			--	--	2,500	--	--	160	300	5.8E+06	8,500	170	290,000	12,000	5.8E+06	8,500	--	5.8E+06	4.8E+06	2,200	2,200
ESLs-Construction worker			--	--	16,000	--	--	1,000	1,900	1.5E+06	57,000	1,100	74,000	81,000	1.5E+06	57,000	--	1.5E+06	1.2E+06	14,000	14,000
ESLs-Residential			--	--	550	--	--	36	67	4.2E+05	1,900	38	21,000	2,700	4.2E+05	1,900	--	4.2E+05	3.5E+05	480	510

Notes:
µg/kg: micrograms per kilogram
--: not promulgated
ESLs: California Regional Water Quality Control Board - San Francisco Bay Region Environmental Screening Levels
<2.50: Less than the laboratory-reporting limit of 2.50

TABLE 2-4
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	Metals																
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
W-1	9/17/15	1	--	3.58	--	--	--	--	--	--	25.9	--	--	--	--	--	--	--	--
		3	--	<2.50	--	--	--	--	--	--	119	--	--	--	--	--	--	--	--
		6	--	<2.50	--	--	--	--	--	--	3.45	--	--	--	--	--	--	--	--
W-2	9/17/15	1	--	7.21	--	--	--	--	--	--	36.4	--	--	--	--	--	--	--	--
		3	<2.50	6.91	1,790	<2.50	<2.50	25.6	3.92	37.7	661	0.38	<2.50	20	<2.50	<2.50	<2.50	28.5	688
		6	--	<2.50	--	--	--	--	--	--	<2.50	--	--	--	--	--	--	--	--
W-3	9/17/15	1	<2.50	2.61	99.1	<2.50	<2.50	23.1	8.18	40.1	19.6	0.127	<2.50	27.8	<2.50	<2.50	<2.50	43.2	87.1
		3	--	<2.50	--	--	--	--	--	--	169	--	--	--	--	--	--	--	--
		6	--	<2.50	--	--	--	--	--	--	1,360	--	--	--	--	--	--	--	--
W-4	9/17/15	1	--	3.54	--	--	--	--	--	--	24.7	--	--	--	--	--	--	--	--
		3	<2.50	7.17	990	<2.50	<2.50	29.9	6.35	43.4	2,180	0.344	<2.50	34.5	<2.50	<2.50	<2.50	26.7	701
		6	--	<2.50	--	--	--	--	--	--	<2.50	--	--	--	--	--	--	--	--
W-5	9/17/15	1	--	5.60	--	--	--	--	--	--	510	--	--	--	--	--	--	--	--
		3	--	<2.50	--	--	--	--	--	--	50.2	--	--	--	--	--	--	--	--
		6	--	<2.50	--	--	--	--	--	--	<2.50	--	--	--	--	--	--	--	--
W-6	9/17/15	1	--	4.34	--	--	--	--	--	--	25.5	--	--	--	--	--	--	--	--
		3	--	4.36	--	--	--	--	--	--	316	--	--	--	--	--	--	--	--
		6	<2.50	<2.50	36.1	<2.50	<2.50	22.3	<2.50	4.04	7.87	<0.100	<2.50	11.9	<2.50	<2.50	<2.50	15.6	12.8
W-7	9/17/15	1	--	4.90	--	--	--	--	--	--	18.9	--	--	--	--	--	--	--	--
		3	--	2.50	--	--	--	--	--	--	199	--	--	--	--	--	--	--	--
		6	--	2.64	--	--	--	--	--	--	2.87	--	--	--	--	--	--	--	--
W-8	9/17/15	1	--	3.28	--	--	--	--	--	--	20.1	--	--	--	--	--	--	--	--
		3	--	2.76	--	--	--	--	--	--	174	--	--	--	--	--	--	--	--
		6	--	2.93	--	--	--	--	--	--	3.58	--	--	--	--	--	--	--	--
B-1	5/8/17	1.5	--	--	--	--	--	--	--	--	102	--	--	--	--	--	--	--	--
B-2	5/8/17	1	--	--	--	--	--	--	--	--	107	--	--	--	--	--	--	--	--
		2.5	<2.50	4.5	214	<2.50	<2.50	31.4	4.05	30.8	314	0.306	<2.50	18.1	<2.50	<2.50	<2.50	20.8	265
B-3	5/8/17	1.5	--	--	--	--	--	--	--	--	36.5	--	--	--	--	--	--	--	--
		3	<2.50	4.02	141	<2.50	<2.50	17.2	7.07	20.2	98.0	0.110	<2.50	15.4	<2.50	<2.50	<2.50	36.1	72.8
B-4	5/8/17	1.5	--	--	--	--	--	--	--	--	1,080	--	--	--	--	--	--	--	--
B-5	5/8/17	1.5	--	--	--	--	--	--	--	--	191	--	--	--	--	--	--	--	--

TABLE 2-4
SUMMARY OF SOIL ANALYTICAL RESULTS - METALS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	Metals																
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
B-6	5/8/17	1	--	--	--	--	--	--	--	--	43.9	--	--	--	--	--	--	--	--
		2.5	<2.50	3.40	104	<2.50	<2.50	30.0	4.39	15.4	206	0.200	<2.50	20.5	<2.50	<2.50	<2.50	22.2	110
B-7	5/8/17	1.5	--	--	--	--	--	--	--	--	76.9	--	--	--	--	--	--	--	--
		2.5	--	--	--	--	--	--	--	--	228	--	--	--	--	--	--	--	--
B-8	5/8/17	1.5	<2.50	3.34	106	<2.50	<2.50	32.8	6.22	18.7	113	0.186	<2.50	20.8	<2.50	<2.50	<2.50	30.2	119
B-9	5/8/17	1	--	--	--	--	--	--	--	--	96.0	--	--	--	--	--	--	--	--
		2	<2.50	4.57	122	<2.50	<2.50	43.2	11.5	26.1	13.6	<0.100	<2.50	38.8	<2.50	<2.50	<2.50	36.6	43.9
ESLs-Commercial			470	bg	220,000	2,200	580	1,800,000	350	47,000	320	190	5,800	11,000	5,800	5,800	12	5,800	350,000
ESLs-Residential			31	bg	15,000	150	39	120,000	23	3,100	80	13	390	820	390	390	0.78	390	23,000

Notes:
mg/kg: milligrams per kilogram
--: Not analyzed
<2.50: Less than the laboratory-reporting limit of 2.50
ESLs: California Regional Water Quality Control Board - San Franicsco Bay Region Environmental Screening Levels, Rev. 3

TABLE 2-5
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Depth (feet)	Date	Dichlorodifluoromethmane	Chloromethane	Dichlorotetrafluoroethane	Vinyl Chloride	Bromomethane	Chloroethane	Trichlorofluoromethane	1,1-Dchloroethene	Trichlorotrifluoroethane	Methylene chloride	1,1-Dichloroethane	cis-1,2-Dichloroethene	Chloroform	1,1,1-Trichloroethane	1,2-Dichloroethane	Benzene	Carbon Tetrachloride	1,2-Dichloropropane	Trichloroethene	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Toluene	1,1,2-Trichloroethane	1,2-Dibromomethane	Tetrachloroethene
			($\mu g/m^3$)																								
W-1	5	9/17/15	<4.95	<2.07	<6.99	<2.56	<3.88	<2.64	16.7	<3.97	<7.66	<3.47	<4.05	<3.97	<4.88	<5.46	<4.05	9.14	<6.29	<4.62	<5.37	<4.54	<4.54	15.8	<5.46	<7.68	29.4
W-2	5	9/17/15	<24.7	<10.3	<35	<12.8	<19.4	<13.2	<28.1	<19.8	<38.3	<17.4	<20.2	<19.8	<24.4	<27.3	<20.2	<16.0	<31.5	<23.1	<26.9	<22.7	<22.7	<18.8	<27.3	<38.4	224
		5/8/17	<4.95	<2.07	<6.99	<2.56	<3.88	<2.64	6.52	<3.97	<7.66	5.07	<4.05	<3.97	<4.88	<5.46	<4.05	<3.19	<6.29	<4.62	<5.37	<4.54	<4.54	<3.77	<5.46	<7.68	45
W-4	5	9/17/15	<24.7	<10.3	<35	<12.8	<19.4	<13.2	<28.1	<19.8	<38.3	<17.4	<20.2	<19.8	<24.4	<27.3	<20.2	<16.0	<31.5	<23.1	<26.9	<22.7	<22.7	<18.8	<27.3	<38.4	**352**
		5/9/17	<9.89	<4.13	<14.0	<5.11	<7.77	<5.28	<11.2	<7.93	<15.3	<6.95	<8.10	<7.93	<9.77	<10.9	<8.09	<6.39	<12.6	<9.24	<10.7	<9.08	<9.08	<7.54	<10.9	<15.4	182
W-7	5	9/17/15	<24.7	<10.3	<35	<12.8	<19.4	<13.2	<28.1	<19.8	<38.3	<17.4	<20.2	<19.8	<24.4	<27.3	<20.2	<16.0	<31.5	<23.1	<26.9	<22.7	<22.7	<18.8	<27.3	<38.4	64
SG-1	5	5/8/17	<4.95	<2.07	<6.99	<2.56	<3.88	<2.64	6.24	<3.97	<7.66	<3.47	<4.05	<3.97	<4.88	<5.46	<4.05	<3.19	<6.29	<4.62	<5.37	<9.08	<9.08	4.86	<5.46	<7.68	109
SG-2	5	5/8/17	<9.89	<4.13	<14.0	<5.11	<7.77	<5.28	<11.2	<7.93	<15.3	<6.95	<8.10	<7.93	<9.77	<10.9	<8.09	18.6	<12.6	<9.24	<10.7	<9.08	<9.08	38.4	<10.9	<15.4	14
SG-3	5	5/9/17	<9.89	<4.13	<14.0	<5.11	<7.77	<5.28	<11.2	<7.93	<15.3	24.2	<8.10	<7.93	<9.77	<10.9	<8.09	<6.39	<12.6	<9.24	<10.7	<9.08	<9.08	<7.54	<10.9	<15.4	<13.6
SG-4	5	5/9/17	<4.95	<2.07	<6.99	<2.56	<3.88	<2.64	14.2	<3.97	<7.66	<3.47	<4.05	<3.97	<4.88	<5.46	<4.05	<3.19	<6.29	<4.62	<5.37	<9.08	<9.08	<3.77	<5.46	<7.68	13.5
SG-5	5	5/9/17	<9.89	<4.13	<14.0	<5.11	<7.77	<5.28	<11.2	<7.93	<15.3	<6.95	<8.10	<7.93	<9.77	<10.9	<8.09	<6.39	<12.6	<9.24	<10.7	<9.08	<9.08	<7.54	<10.9	<15.4	21.3
ESLs-Commercial			--	3.9E+05	--	160	22,000	4.4E+07	--	3.1E+05	--	12,000	7,700	35,000	530	4.4E+06	470	420	290	1,200	3,000	770	3.5E+05	1.3E+06	--	20	2,100
ESLs-Residential			--	47,000	--	4.7	2,600	5.2E+06	--	37,000	--	510	880	4,200	61	5.2E+05	54	48	33	140	240	88	420	1.6E+05	--	2.3	240

Notes:

$\mu g/m^3$: micrograms per meter cubed

<21.8: Less than the laboratory-reporting limit of 21.8 $\mu g/m^3$

--: not available

ESLs: California Regional Water Quality Control Board - San Franicsco Bay Region Environmental Screening Levels (Rev. 3)

TABLE 2-5
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Depth (feet)	Date	Chlorobenzene	Ethyl Benzene	Xylenes	Styrene	1,1,2,2-Tetrachloroethane	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	1,2,4-Trichlorobenzene	Hexachlorobutadiene	Helium
			($\mu g/m^3$)												(%)
W-1	5	9/17/15	<4.60	4.60	19.11	<4.26	<6.87	<4.92	<4.92	<6.01	<6.01	<6.01	<14.8	<10.7	<0.100
W-2	5	9/17/15	<23	<21.7	<21.7	<21.3	<34.3	<24.6	<24.6	<30.1	<30.1	<30.1	<74.2	<53.3	<0.100
		5/8/17	<4.60	<4.34	<4.34	<4.26	<6.87	<4.92	<4.92	<6.01	<6.01	<6.01	<7.42	<10.7	<0.100
W-4	5	9/17/15	<23	<21.7	<21.7	<21.3	<34.3	<24.6	<24.6	<30.1	<30.1	<30.1	<74.2	<53.3	<0.100
		5/9/17	<9.21	<8.68	<8.68	<8.52	<13.7	<9.83	<9.83	<12.0	<12.0	<12.0	<14.8	<21.3	<0.100
W-7	5	9/17/15	<23	<21.7	<21.7	<21.3	<34.3	<24.6	<24.6	<30.1	<30.1	<30.1	<74.2	<53.3	<0.100
SG-1	5	5/8/17	<4.60	<4.34	<4.34	<4.26	<6.87	<4.92	<4.92	<6.01	<6.01	<6.01	<7.42	<10.7	<0.100
SG-2	5	5/8/17	<9.21	<8.68	<8.68	<8.52	<13.7	<9.83	<9.83	<12.0	<12.0	<12.0	<14.8	<21.3	<0.100
SG-3	5	5/9/17	<9.21	<8.68	<8.68	<8.52	<13.7	<9.83	<9.83	<12.0	<12.0	<12.0	<14.8	<21.3	<0.100
SG-4	5	5/9/17	<9.21	<8.68	<8.68	<8.52	<13.7	<9.83	<9.83	<12.0	<12.0	<12.0	<14.8	<21.3	<0.100
SG-5	5	5/9/17	<9.21	<8.68	<8.68	<8.52	<13.7	<9.83	<9.83	<12.0	<12.0	<12.0	<14.8	<21.3	<0.100
ESLs-Commercial			2.2E+05	4,900	4.4E+05	3.9E+06	210	--	--	--	1,100	8.8E+05	8,800	--	--
ESLs-Residential			26,000	560	5.2E+04	4.7E+05	24	--	--	--	130	1.0E+05	1,000	--	--

Notes:
$\mu g/m^3$: micrograms per m
<21.8: Less than the labor
--: not available
ESLs: California Regiona

TABLE 2-6
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	TPHg	Dichlorodifluoromethmane	Chloromethane	Chloroethene	Bromomethane	Chloroethane	Trichlorofluoromethane	1,1-Dchloroethene	Trichlorotrifluoroethane	Methylene chloride	trans-1,2-Dichloroethene	1,1-Dichloroethane	cis-1,2-Dichloroethene	2-2Dichloropropane	Bromochloromethane	Chloroform	1,1,1-Trichloroethane	Carbon Tetrachloride	1,1-Dichlorpropene	Benzene	1,2-Dichloroethane	Trichloroethene	1,2-Dichloropropane	Dibromomethane	Bromodichloromethane	trans-1,3-Dichloroprpene	Toluene	cis-1,3-Dichloroprpene	1,1,2-Tetrachloroethane	Tetrachloroethene	1,3-Dichloropropene	Dibromochloromethane	1,2-Dibromomethane
		(mg/l)	(µg/l)																															
W-1	9/17/15	<0.050	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
W-2	9/17/15	<0.050	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.850	<0.500	<0.500	<0.500
W-4	9/17/15	<0.050	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MCLs			220	190	0.5	7.5	21,000	--	6	--	5	10	5	6	--	--	80	200	--	--	1	0.5	5	5	--	80	--	40	--	5	5	0.5	80	0.05

Notes:
µg/l: micrograms per liter
mg/l: milligrams per liter
<0.500: Less than the laboratory-reporting limit of 0.500
MCLs: Maximum Contaminant Levels

TABLE 2-6
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Chlorobenzene	1,1,1,2-Tetrachloroethane	Ethyl Benzene	Xylenes	Styrene	Bromoform	Isoprpylbenzene	1,1,2,2-Tetrachloroethane	Bromomethane	1,2,3-Trichloropropane	n-Propylbenzene	2-Chlorotoluene	1,3,5-Trimethylbenzene	4-Chlorotoluene	Tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	1,3-Dichlorobenzene	4-Isopropyltoluene	1,4-Dichlorobenzene	n-Butylbenzene	1,2-Dichlorbenzene	1,2-Dibromo-3-chloropropane	1,2,4-Trichlorobenzene	Hexachlorobutadiene	Naphthalene	1,2,3-Trichlorobenzene
		(µg/l)																										
W-1	9/17/15	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
W-2	9/17/15	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
W-4	9/17/15	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
MCLs		--	0.57	30	20	--	80	--	1	--	--	--	--	--	--	--	--	--	60	--	5	--	100	--	5	0.14	0.17	--

Notes:
µg/l: microgra
mg/l: milligran
<0.500: Less than
MCLs: Maximur

TABLE 4-1
PROPOSED PRE-DISPOSAL SOIL LABORATORY ANALYSES
5th Street and Magnolia Street
West Oakland, California

Media	Sample Frequency	Proposed Laboratory Analyses[1]							
		VOCs	TPHg	TPHd/ TPHmo	SVOCs	Pesticides[2]	PCBs	Title 22 Metals[3,4]	Asbestos
		USEPA 8260B	USEPA 8015M	USEPA 8015M w/ SGC)	USEPA 8270C	USEPA 8081A	USEPA 8082A	USEPA 6000/ 7000	CARB 435
Soil	Minimum of 4 samples	X	X	X	X	X	X	X	X

Notes:

VOCs: Volatile organic compounds
TPHg: Total petroleum hydrocarbons as gasoline
TPHd: Total petroleum hydrocarbons as diesel
TPHmo: Total petroleum hydrocarbons as motor oil
SVOCs: Semi-volatile organic compounds
PCBs: Polychlorinated biphenyls
SGC: Silica gel cleanup for TPHd and TPHmo
USEPA: United States Environmental Protection Agency
CARB 435: California Air Resources Board Test Method 435

1: Laboratory reporting limits for the chemical analyses should be less than the disposal facility acceptance criteria and/or California Regional Water Quality Control Board-San Francisco Bay Region Tier 1 Environmental Screening
2: Reporting limits for pesticides should be 2 micrograms per kilkogram or less
3: Solubility Threshold Limit Concentration (STLC) analysis should be performed if Title 22 Metals analysis detects: Lead and chromium equal to or greater than 50 mg/kg; Nickel equal to or greater than 250 mg/kg
4: Toxicity Characteristic Leaching Procedure (TCLP) analysis should also be performed if Title 22 Metals analysis detects:

FIGURES

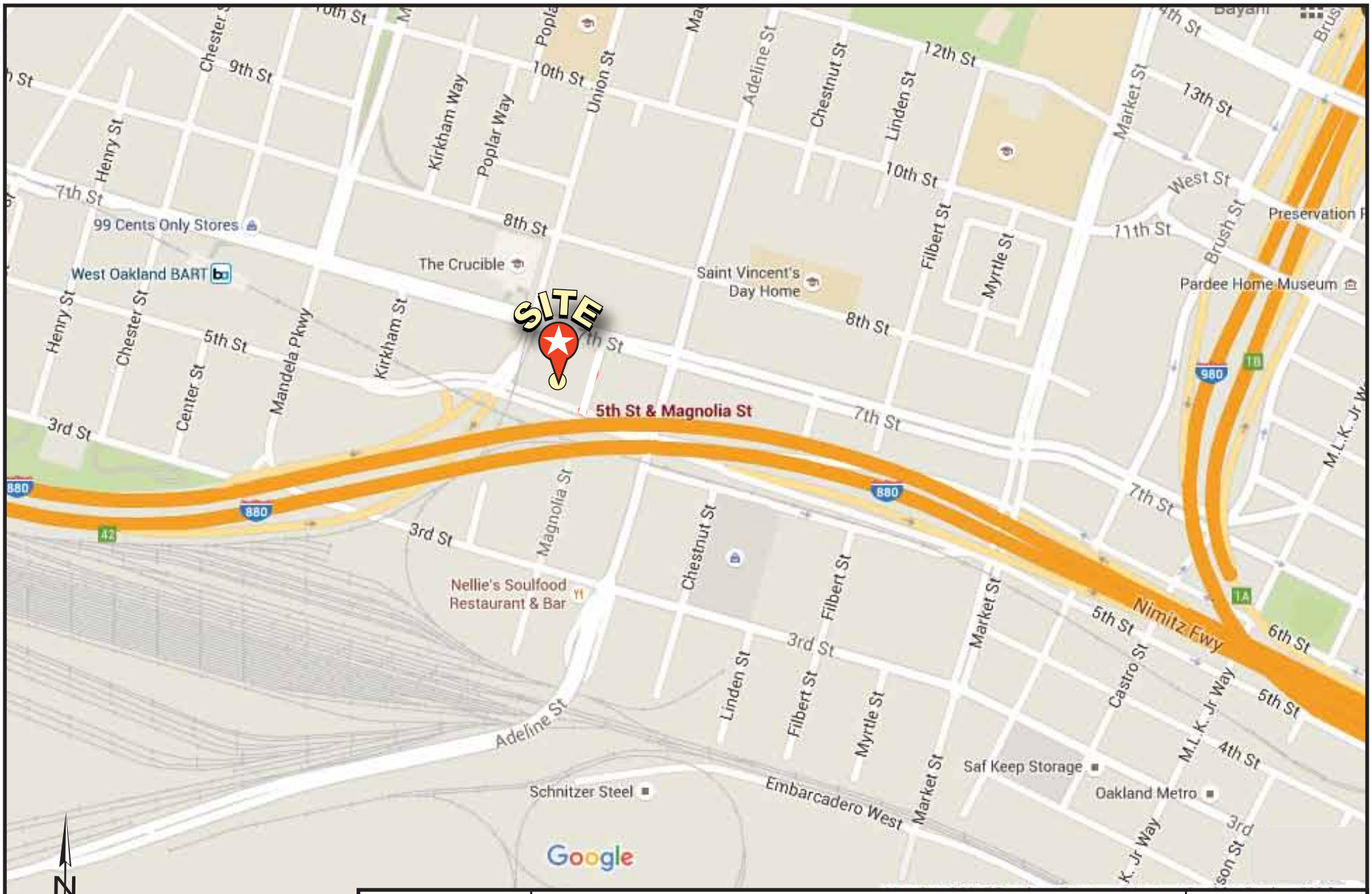
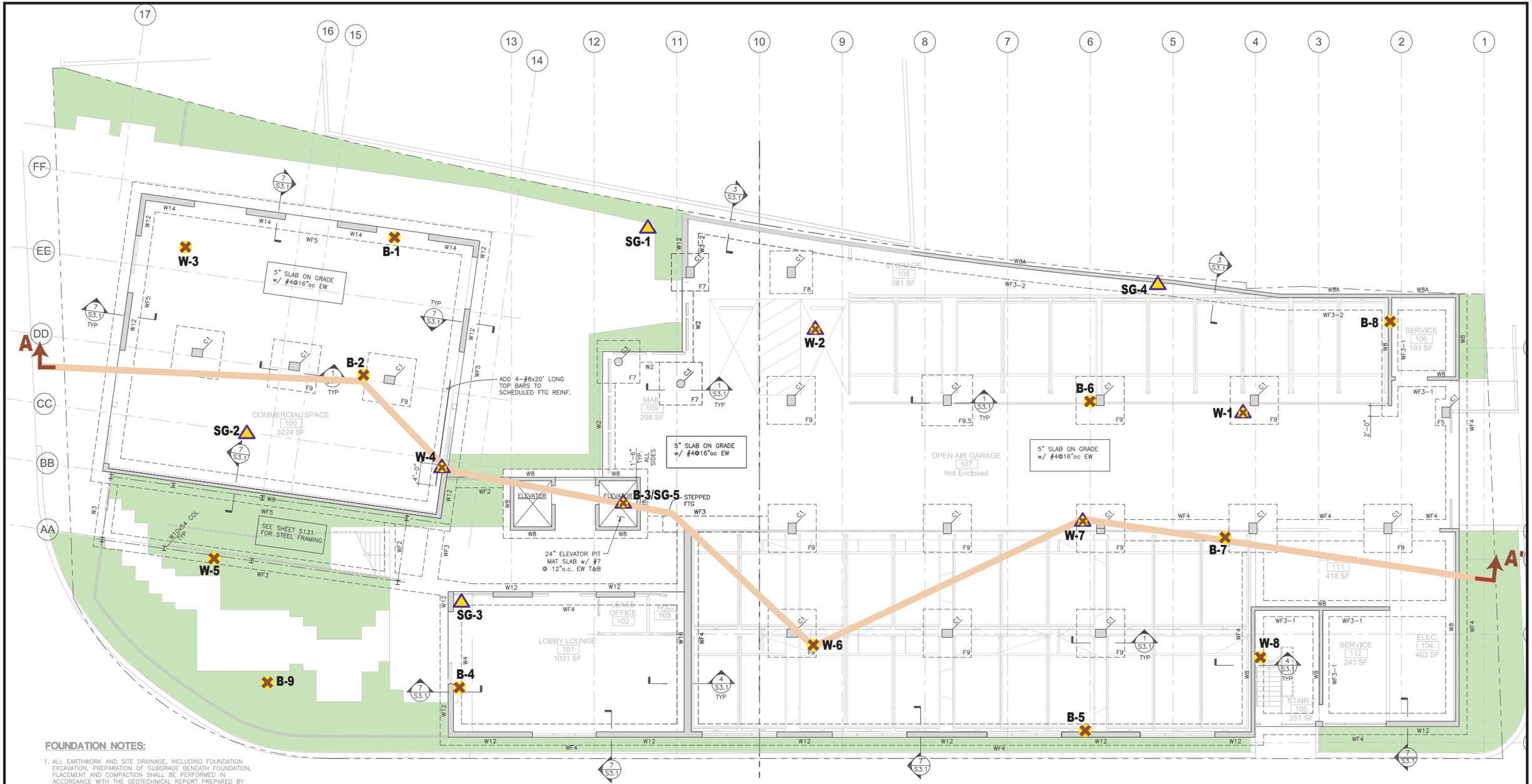


Figure 1-1	**SITE LOCATION MAP**	WEST Environmental Services & Technology
□u□u□□□□17	5th Street and Magnolia Street, West Oakland, California	



FOUNDATION NOTES:

1. ALL EARTHWORK AND SITE DRAINAGE, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE BENEATH FOUNDATION, PLACEMENT AND COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY EARTH SYSTEMS PACIFIC.
2. NOTIFY THE GEOTECHNICAL ENGINEER AT LEAST 48 HOURS PRIOR TO START OF ALL GRADING EARTHWORK AND FOUNDATION EXCAVATION.
3. THE GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE ON-SITE OBSERVATION AND TESTING DURING SITE PREPARATION, GRADING, PLACEMENT, AND COMPACTION OF FILL, AND FOUNDATION INSTALLATION.
4. ALL FOOTINGS TO BEAR ON IMPROVED SUBGRADE. REFER TO SOILS REPORT FOR ACCEPTED PROCEDURES.
5. SPREAD FOOTINGS TO BE SUNK TO ELEVATION AT B.O. PIT WHERE CONFLICTS WITH ELEVATOR PITS OCCUR.
6. FOUNDATION DESIGN IS BASED ON THE SOILS REPORT :
   A. ALLOWABLE SOIL PRESSURE FOR:
      DEAD PLUS LIVE LOADS: 6,000 PSF
      DEAD PLUS LIVE PLUS SEISMIC: 8,000 PSF

LEGEND

- C1 — INDICATES TYPE OF CONCRETE COLUMN, SEE S3.1
- W12 — INDICATES TYPE OF CONCRETE WALL, SEE S3.1
- INDICATES DEPRESSED SLAB AREA OR SLAB ELEVATION CHANGED
- F1 — INDICATES TYPE OF CONCRETE COLUMN FOOTING, SEE S3.1
- WF1 — INDICATES TYPE OF WALL FOOTING OR GRADE BEAM, SEE S3.1

EXPLANATION

- SOIL SAMPLE LOCATION
- SOIL/SOIL GAS SAMPLE LOCATION
- SOIL GAS SAMPLE LOCATION
- LANDSCAPING/PLANTER AREAS

A A' CROSS-SECTION LOCATION

1 / S111 LEVEL 1 - FOUNDATION PLAN SOUTH 1/8" = 1'-0"

0 FEET 16

SITE PLAN AND GEOLOGIC CROSS-SECTION LOCATION

5th and Magnolia Street
Oakland, California

WEST Environmental Services & Technology

Figure 2-1

□u□u□□2017

A

A'

PROPOSED RAISED PLANTER

PROPOSED FOUNDATION/SLABS

SIDEWALK

B-2 | W-4 | B-3/SG-5 | W-6 | W-7 | B-7

DEPTH (FEET)

0 1 2 3 4 5 6

Fill

Sand / Silty Sand

107 | 314

24.7 | 2,180

36.5 | 98

25.5 | 316

18.9 | 316

76.9 | 228

<2.50

2.87

1
Approximate Scale in Feet
0
0 20

EXPLANATION

B-2 — Boring ID

Boring

7.87 Lead (mg/kg)

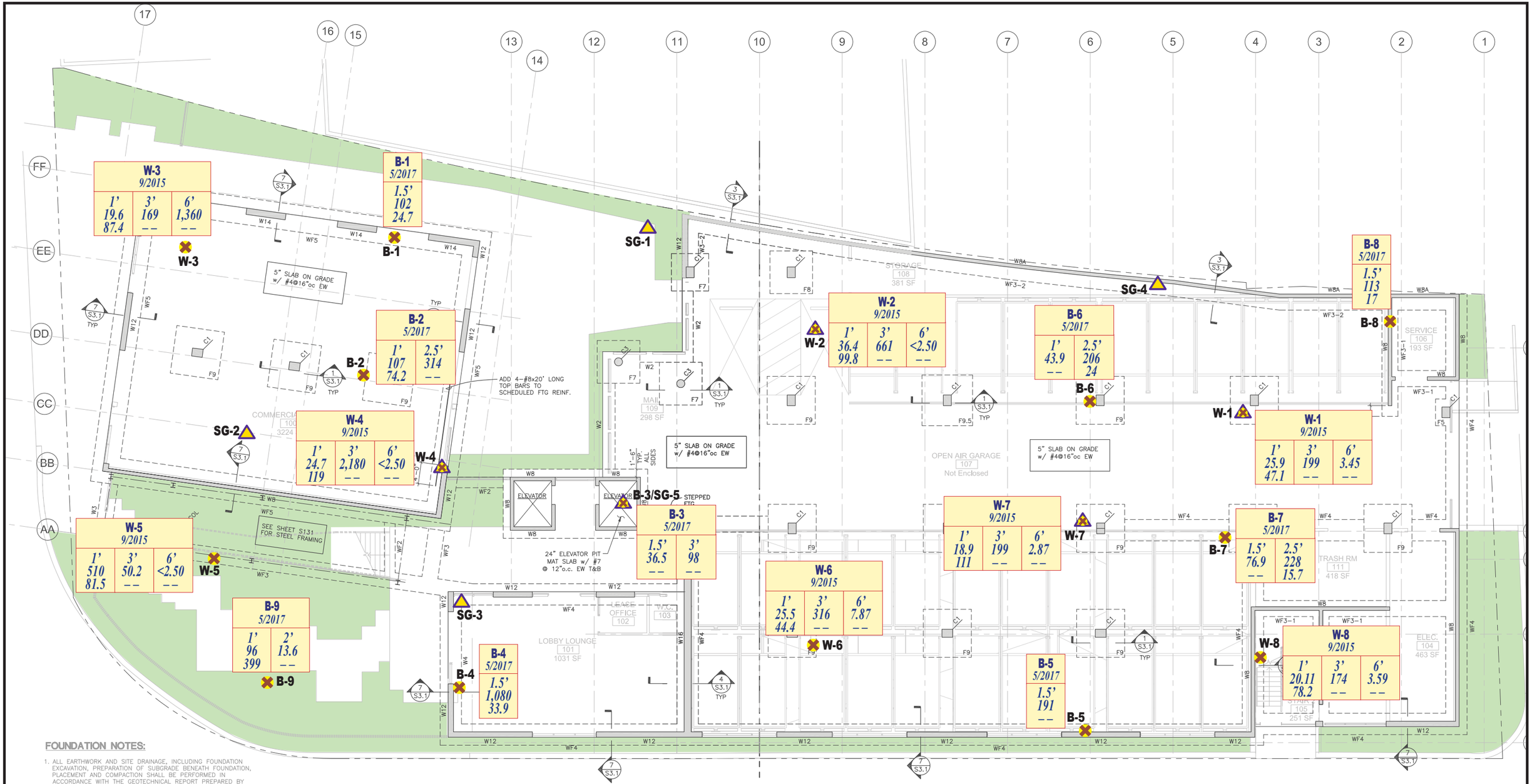
GEOLOGIC CROSS-SECTION A-A'

5th and Magnolia Street
Oakland, California

WEST Environmental Services & Technology

Figure 2-2

□u□u□□2017



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      DEAD PLUS LIVE PLUS SEISMIC: 8,000 PSF

LEGEND

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- W12 — INDICATES TYPE OF CONCRETE WALL, SEE S3.1
- INDICATES DEPRESSED SLAB AREA OR SLAB ELEVATION CHANGED
- F1 — INDICATES TYPE OF CONCRETE COLUMN FOOTING, SEE S3.1
- WF1 — INDICATES TYPE OF WALL FOOTING OR GRADE BEAM, SEE S3.1

EXPLANATION

- SOIL SAMPLE LOCATION
- SOIL/SOIL GAS SAMPLE LOCATION
- SOIL GAS SAMPLE LOCATION
- LANDSCAPING/PLANTER AREAS

B-5 / 5/2017 / 1.5' / 191 / --
SAMPLE ID
DATE
DEPTH (FT)
LEAD (mg/kg)
BAP (µg/kg)

1 S111 LEVEL 1 - FOUNDATION PLAN SOUTH
1/8" = 1'-0"

0 FEET 16

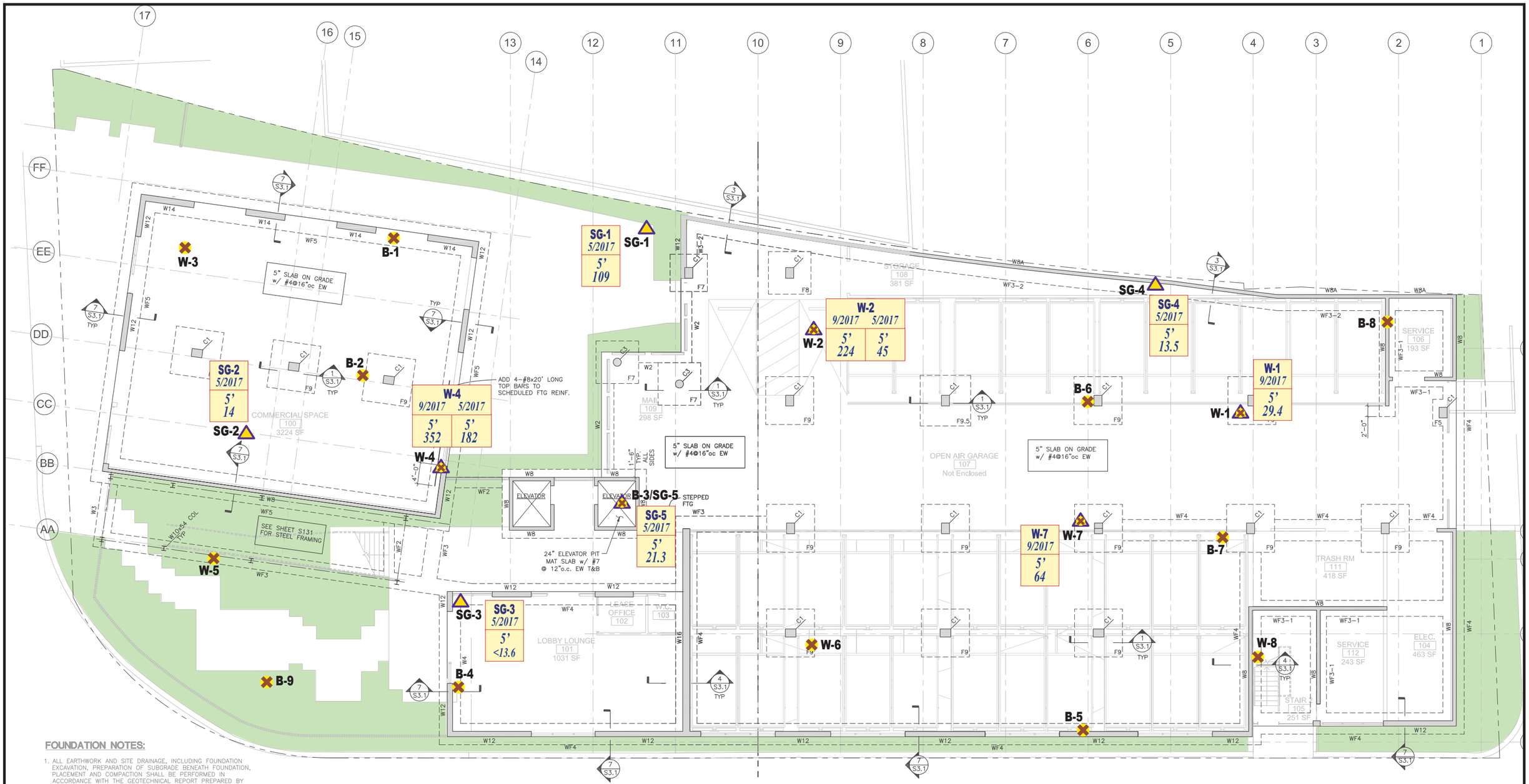
PAHs & LEAD IN SOIL

5th and Magnolia Street
Oakland, California

WEST Environmental Services & Technology

Figure □□□

□u□u□□2017



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LEGEND

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EXPLANATION

- SOIL SAMPLE LOCATION
- SOIL/SOIL GAS SAMPLE LOCATION
- SOIL GAS SAMPLE LOCATION
- LANDSCAPING/PLANTER AREAS

SG-3 5/2017 5' <13.6 — SAMPLE ID; DATE; DEPTH (FT); PCE (µg/kg)

1 S111 LEVEL 1 - FOUNDATION PLAN SOUTH 1/8" = 1'-0"

0 FEET 16

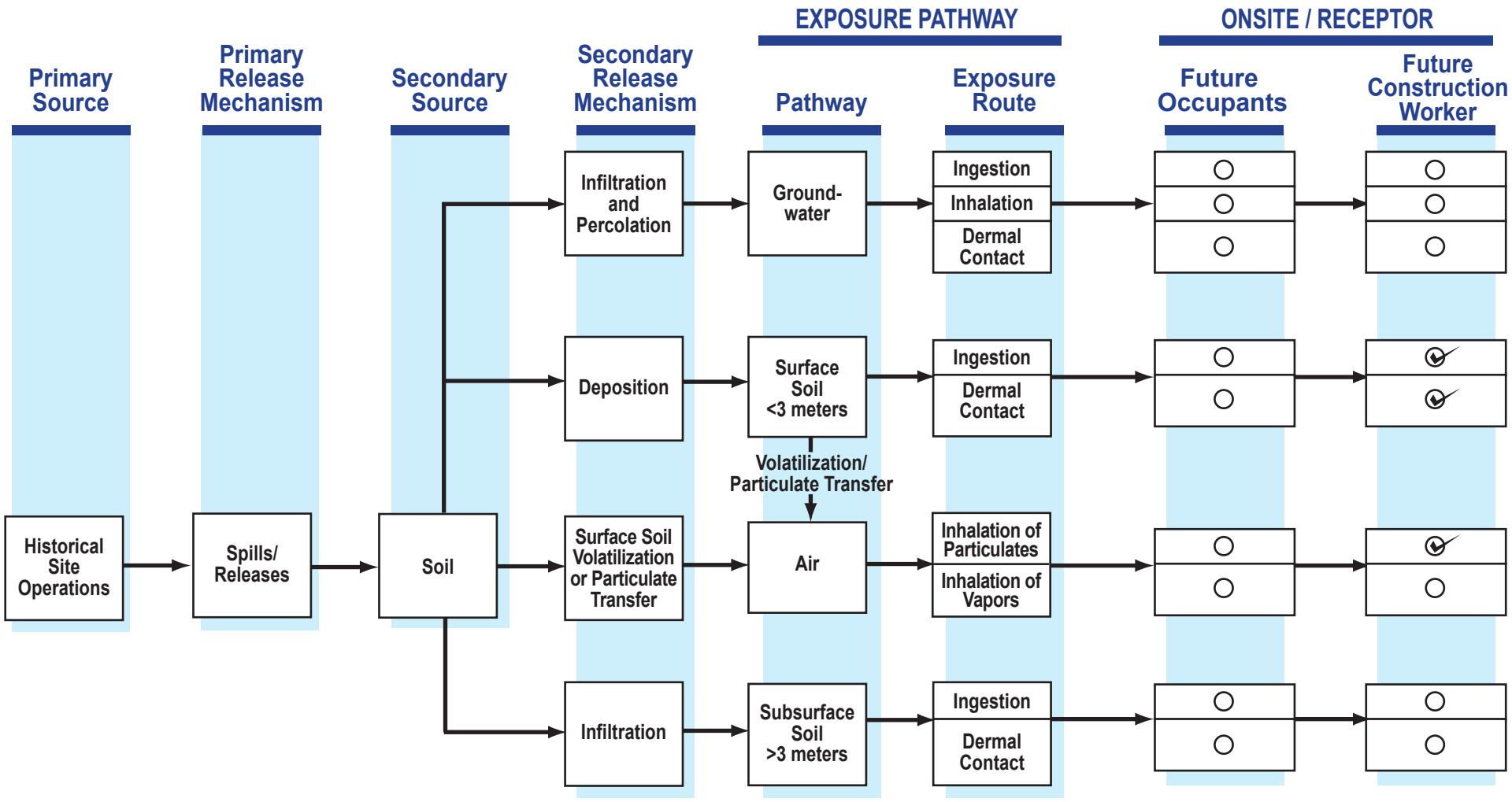
PCE IN SOIL GAS

5th and Magnolia Street
Oakland, California

WEST Environmental Services & Technology

Figure □□□

□u□u□□2017



○ Incomplete exposure pathway

✓ Complete exposure pathway

Figure □-1	**EXPOSURE PATHWAY CHART**	WEST Environmental Services & Technology
□u□u□□2017	5th Street and Magnolia Street, West Oakland, California	

APPENDIX A

DEVELOPMENT PLANS

SCHEDULE OF MATERIALS AND FURNISHINGS - STREET LEVEL

SYMBOL	TYPE	MANUFACTURER	MODEL	MATERIAL	COLOR	FINISH	NOTES
PAVING							
	PEDESTRIAN CONCRETE		CAST-IN-PLACE CONCRETE	PORTLAND CEMENT	NATURAL	MEDIUM BROOM	BROOM STRIKE PERPENDICULAR TO DIRECTION OF TRAVEL
	SCORED CONCRETE			HARDROCK CONCRETE, TYPE III CEMENT	COBBLE-STONE 860	LIGHT BROOM	
	POURED IN PLACE CONCRETE			HARDROCK CONCRETE, TYPE III CEMENT	COBBLE-STONE 860	LIGHT BROOM	
	PLANTED AREA	MARKER GEOTEXTILE FABRIC	MIRAFI	ORANGE DELINEATION NON-WOVEN TEXTILE OR EQUAL			INSTALL MARKER GEOTEXTILE FABRIC IN ALL LANDSCAPE AREAS FOLLOWING OVER-EXCAVATION. SEE BELOW ND PRIOR TO BACK FILL
	GRAVEL	LYNGSO 650.364.1730	TBD	PEBBLES	TBD		
	DECOMPOSED GRANITE	LYNGSO 650.364.1730	GOLD PATH FINES	DECOMPOSED GRANITE	GOLD		
WALLS							
	RETAINING WALL @ WALKWAY			CONCRETE	COBBLE-STONE 860	BOARD FORMED	USE 4" BOARDS
	RETAINING WALL @ PROPERTY LINE			CONCRETE	COBBLE-STONE 860	SMOOTH	
	SEAT WALL			CONCRETE	COBBLE-STONE 860	BOARD FORMED	USE 4" BOARDS
SITE FURNISHING							
	ENTRY ELEMENT WITH OVERHEAD LIGHTING	CUSTOM		CORTEN POSTS WITH CORTEN I-BEAMS	TBD	TBD	SEE 6/L5.02
	OVERHEAD LIGHT POST	CUSTOM		RECLAIMED REDWOOD WITH GALVANIZED STEEL	TBD	TBD	SEE 1/L5.01
	BENCH	HAGS TRACEY LYDON 800-879-7730 *ALT*: FORMS AND SURFACES	ZETA BENCH, #8037075 *ALT*: BALANCE BENCH (SBBAL-72B)	PINE, STEEL	SILVER-GREY/GALV		
	FIRE TABLE	ROBATA 888.823.8883	ROBATA 72 CONCRETE P-FIR-ROB72-E	CONCRETE, STAINLESS STEEL			
	6' PRE-FAB PLANTER	TOURNESOL SITEWORKS 800.542.2282	WILSHIRE WCR-723042	LIGHTWEIGHT GFRC	TBD	TBD	INSTALL PER MANUFACTURER'S INSTRUCTIONS
	DOG WASH TABLE	PETLIFT http://petlift.com/	AQ58K AQUAQUEST WALK IN BATH	STAINLESS STEEL			57"H x 24.5"W x 60"L x 15"D
	BIKE RACK	COLUMBIA CASCADE 800.547.1940	CYCLOOP ARCH 2178-84	1-1/2" I.D. STEEL PIPE	NATURAL	GALVANIZED	IN-GROUND MOUNTED
LIGHTING							
	UPLIGHT	VISTA	5273	5.5 W LED	BLACK		BEAM SPREAD ANGLE TBD
	PATH LIGHT	VISTA	5270	4.5W LED	BLACK		SEE 2/L5.01
	LED LIGHT STRIP	MODA LIGHTING	SUPER NEON X FLAT	2700K			SEE 2/L5.02
	STRING LIGHTS	LITESPHERE LED / LSL-B-12-WW-C-12		SHATTERPROOF POLYCARBONATE	CORD: BLACK GLOBE: WARM WHITE		12" SPACING
DRAINAGE, PLUMBING & OTHER							
	HOSE BIB (SEE MEP DRAWINGS)						

SCHEDULE OF MATERIALS AND FURNISHINGS - 2ND FLOOR BALCONIES

SYMBOL	TYPE	MANUFACTURER	MODEL	MATERIAL	COLOR	FINISH	NOTES
PAVING AND SURFACING							
	PEDESTAL PAVERS	BRAVE JHOVANNY GOMEZ 415.684.1355	PEARL 24" X 24"	PORCELAIN		OUTDOOR PAVING	INSTALL PER MANUFACTURER'S INSTRUCTIONS
PLANTERS							
	4' PRE-FAB PLANTER WITH GREEN SCREEN VINE SUPPORT	TOURNESOL SITEWORKS 800.542.2282	WILSHIRE WCR-483630	LIGHTWEIGHT GFRC WITH STEEL SCREEN	TBD	TBD	INSTALL PER MANUFACTURER'S INSTRUCTIONS
	8' PRE-FAB PLANTER WITH GREEN SCREEN VINE SUPPORT	TOURNESOL SITEWORKS 800.542.2282	WILSHIRE WCR-963630	LIGHTWEIGHT GFRC WITH STEEL SCREEN	TBD	TBD	INSTALL PER MANUFACTURER'S INSTRUCTIONS
ACCESSORIES							
	VINE TRELLIS	TOURNESOL SITEWORKS 800.542.2282	VERTIGREEN 3D TRELLIS VTG3-4848	STEEL WIRE			INSTALL PER MANUFACTURER'S INSTRUCTIONS
DRAINAGE & PLUMBING							
	HOSE BIB (SEE MEP DRAWINGS)						

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH ALL APPLICABLE LOCAL CODES AND ORDINANCES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADES AND CONDITIONS PRIOR TO COMMENCING WORK AND SHALL NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
3. SEE CIVIL DRAWINGS FOR ALL GRADING AND DRAINAGE INFORMATION.
4. CONTRACTOR SHALL VERIFY LOCATIONS OF UTILITIES, BELOW GRADE STRUCTURES, APPURTENANCES, AND ALL OTHER EXISTING CONDITIONS PRIOR TO COMMENCING WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ITEMS TO REMAIN THROUGHOUT THE DURATION OF THE CONTRACT. ANY DISRUPTION OR DAMAGE TO UTILITIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL PERFORM ALL PROTECTION, DEMOLITION, REMOVAL AND SITE PREPARATION NECESSARY FOR THE PROPER EXECUTION OF ALL WORK SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS.
6. CONTRACTOR SHALL REMOVE FROM THE SITE IN A TIMELY MANNER ALL DEBRIS AND UNSUITABLE MATERIAL GENERATED BY THE CONTRACTOR'S OPERATIONS.
7. ALL WORK SHALL COMPLY WITH LOCAL, STATE AND FEDERAL ADA REQUIREMENTS.
8. CONTACT LANDSCAPE ARCHITECT FOR FINAL INSPECTION OF LANDSCAPE AND IRRIGATION INSTALLATIONS.
9. REFER TO ELECTRICAL DRAWINGS FOR SITE LIGHTING.
10. DIMENSIONS ARE TAKEN OFF FACE OF EXISTING CURB, EXISTING STRUCTURE, OR AS SHOWN ON PLANS.
11. CONTRACTOR TO PLACE A MARKER GEOTEXTILE FABRIC BENEATH THE LANDSCAPE AREAS FOLLOWING OVER-EXCAVATION AND PRIOR TO IMPORT BACKFILL PLACEMENT. THIS WILL PROVIDE A BARRIER FOR FUTURE MAINTENANCE WORKERS TO INDICATE THAT SOIL BELOW THE FABRIC, IF REMOVED, SHOULD BE MANAGED PER THE SITE MANAGEMENT PLAN.

LEGEND

AL	ALIGN	S.A.D.	SEE ARCHITECTURAL DRAWINGS
CL	CENTER LINE	S.C.D.	SEE CIVIL DRAWINGS
EJ	EXPANSION JOINT	S.E.D.	SEE ELECTRICAL DRAWINGS
EQ	EQUAL	SJ	SCORE JOINT
PA	PLANTING AREA	TBD	TO BE DETERMINED
		TYP.	TYPICAL

SHEET INDEX

L0.00 TITLE SHEET & MATERIALS SCHEDULE
L1.00 STREET LEVEL MATERIALS PLAN WEST
L1.01 STREET LEVEL MATERIALS PLAN EAST
L1.02 STREET LEVEL LAYOUT PLAN WEST
L1.03 STREET LEVEL LAYOUT PLAN EAST
L1.04 STREET LEVEL PLANTING PLAN WEST
L1.05 STREET LEVEL PLANTING PLAN EAST
L2.00 2ND LEVEL MATERIALS PLAN EAST
L2.01 2ND LEVEL LAYOUT PLAN EAST
L2.02 2ND LEVEL PLANTING PLAN EAST
L3.00 PLANTING SCHEDULE
L5.00 LANDSCAPE DETAILS
L5.01 LANDSCAPE DETAILS
L5.02 LANDSCAPE DETAILS
L6.00 PLANTING DETAILS

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HOLLIDAY DEVELOPMENT

MILLER COMPANY
landscape architects
1585 FOLSOM ST.
SAN FRANCISCO, CA 94103
415.252.7288
www.millercomp.com

REGISTERED LANDSCAPE ARCHITECT
JEFFREY EZRA MILLER
NO. 2031
8/24/2016
STATE OF CALIFORNIA
Renewal Date

LICENSE STAMP

THE UNION

532 Union Street
Oakland CA 94607

DRAWING RELEASE STATUS	DATE
BUILDING PERMIT	08.24.2016
OFF-SITE DRAWING	12.01.2016
PRICING SET	02.21.2017

ADDENDA

No.	Description	Date

SHEET TITLE

LANDSCAPE COVER PAGE & MATERIALS SCHEDULE

SCALE

APN NUMBER	RELEASE DATE
004-0049-004-00	AUGUST 24, 2016
DRAWN BY: GEL	CHECKED BY: JM

L0.00

OF SHEETS

STREET LEVEL PLANTING SCHEDULE

SYMBOL	ABBREV.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER	NOTES
TREES							
	ACE PAL	ACER PALMATUM	JAPANESE MAPLE	36" BOX		MEDIUM	
	ACE 'SAN'	ACER PALMATUM 'SANGO KAKU'	JAPANESE MAPLE	24" BOX		MEDIUM	
	ACE RUB	ACER RUBRUM 'ARMSTRONG'	UPRIGHT RED MAPLE	36" BOX		MEDIUM	
	BRU CAN	BRUGMANSIA X CANDIDA	ANGEL'S TRUMPET			MEDIUM	
	COR AUS	CORDYLINE AUSTRALIS 'RED STAR'	RED STAR CORDYLINE			LOW	
	MAY BOR	MAYTENUS BOARIA	MAYTEN			MEDIUM	
	MUS BAS	MUSA BASJOO	JAPANESE FIBER BANANA			HIGH	
	WAS ROB	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM			LOW	
SHRUBS, PERENNIALS AND VINES							
	ACE 'ORE'	ACER PALMATUM 'ORANGEOLA'	JAPANESE MAPLE			MEDIUM	
	ANE HYB	ANEMONE X HYBRIDA	JAPANESE ANEMONE			MEDIUM	
	ANI FLA	ANIGOZANTHUS FLAVIDUS	KANGAROO PAW			LOW	
	BAM MUL	BAMBUSA MULTIPLEX 'ALPHONSE KARR'	ALPHONSE KARR BAMBOO			LOW	
	DOD VIS	DODONAEA VISCOSA 'PURPUREA'	PURPLE HOPSEED BUSH			LOW	
	FIC PUM	FICUS PUMILA	CREEPING FIG			MEDIUM	
	HEU SAN	HEUCHERA SANGUINEA 'SPLENDENS'	CORAL BELLS			MEDIUM	
	HEU PAL	HEUCHERA 'PALACE PURPLE'	PALACE PURPLE CORAL BELLS			MEDIUM	

STREET LEVEL PLANTING SCHEDULE, CONTINUED

SYMBOL	ABBREV.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER	NOTES
SHRUBS, PERENNIALS AND VINES, CONT.							
	LIR MUS	LIRIOPE MUSCARI	CREEPING LILY TURF			MEDIUM	
	MUH CAP	MUHLENBERGIA CAPILLARIS	PINK MUHLY			LOW	
	NEP COR	NEPHROLEPIS CORDIFOLIA	SOUTHERN SWORDFERN			MEDIUM	
	LOT BER	LOTUS BERTHELOTII	TRAILING LOTUS			LOW	
	OLE 'MON'	OLEA EUROPEA 'MONTRA'	LITTLE OLLIE DWARF OLIVE			VERY LOW	
	POL MUN	POLYSTICHUM MUNITUM	WESTERN SWORDFERN			MEDIUM	
	SAL MIC	SALVIA MICROPHYLLA 'HOT LIPS'	HOT LIPS SAGE			LOW	
	SED MOR	SEDUM MORGANIANUM	BURRO TAIL			LOW	
	THY 'ARG'	THYMUS VULGARIS 'ARGENTIUM'	VARIEGATED SILVER THYME			LOW	
	TRA JAS	TRACHELOSPERMUM JASMINOIDES	STAR JASMINE			MEDIUM	
	WOO FIM	WOODWARDIA FIMBRIATA	GIANT CHAIN FERN			MEDIUM	

2ND LEVEL PLANTING SCHEDULE

SYMBOL	ABBREV.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	WATER	NOTES
SHRUBS, PERENNIALS AND VINES							
	COR GLA	CORREA GLABRA 'COLIBAN RIVER'	COLIBAN RIVER ROCK FUCHSIA			LOW	
	SED SAR	SEDUM SARMENTOSUM	CREEPING STONE CROP			LOW	
	TRA JAS	TRACHELOSPERMUM JASMINOIDES	STAR JASMINE			MODERATE	

PLANTING NOTES

1. All trees shall be of uniform height and form for the species and container size.
2. Final placement of plants shall be reviewed at the site by the Landscape Architect.
3. Install all planting after irrigation system is completed, fully operational, and has been reviewed by the Landscape Architect.
4. Mulch all newly planted areas with 3" of specified mulch.
5. Remove nursery stakes and tags from trees and shrubs at time of planting.
6. The contractor is responsible for taking soil samples of the topsoil to be used as planting medium for the project. This includes site soil and imported topsoils. Lab test results and recommendations to be approved by Landscape Architect prior to soil delivery to site. The Landscape Architect may request re-testing of delivered import topsoil to verify its conformance to the approved sample. Refer to specifications for soil testing methodology.
7. Plant schedule is subject to change based on plant availability and existing soil conditions.
8. Listed water requirements are based on water use classification of landscape species as per WUCOLS III, August 2000, and EBMUD - Plants and Landscapes for summer-dry climates of the San Francisco Bay Region, 2004)
11. CONTRACTOR TO PLACE A MARKER GEOTEXTILE FABRIC BENEATH THE LANDSCAPE AREAS FOLLOWING OVER-EXCAVATION AND PRIOR TO IMPORT BACKFILL PLACEMENT. THIS WILL PROVIDE A BARRIER FOR FUTURE MAINTENANCE WORKERS TO INDICATE THAT SOIL BELOW THE FABRIC, IF REMOVED, SHOULD BE MANAGED PER THE SITE MANAGEMENT PLAN.

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HOLLIDAY DEVELOPMENT

MILLER COMPANY
landscape architects
1585 FOLSOM ST.
SAN FRANCISCO, CA 94103
415.252.7288
www.millercomp.com

REGISTERED LANDSCAPE ARCHITECT — JEFFREY EZRA MILLER — NO. 2031 — 8/24/2016 — STATE OF CALIFORNIA — Renewal Date: June 30th 2017

LICENSE STAMP

THE UNION
532 Union Street
Oakland CA 94607

DRAWING RELEASE STATUS	DATE
BUILDING PERMIT	08.24.2016
OFF-SITE DRAWING	12.01.2016
PRICING SET	02.21.2017

ADDENDA

No.	Description	Date

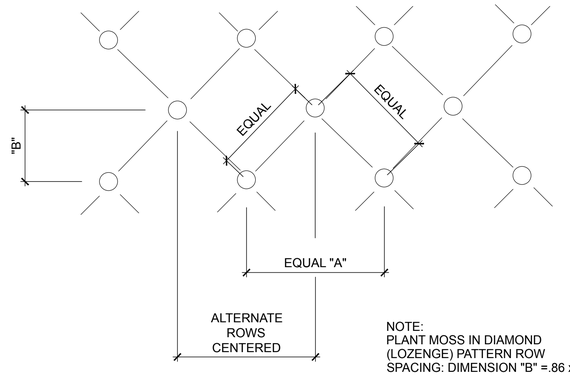
SHEET TITLE
PLANTING SCHEDULE

SCALE

APN NUMBER	RELEASE DATE
004-0049-004-00	AUGUST 24, 2016
DRAWN BY: GEL	CHECKED BY: JM

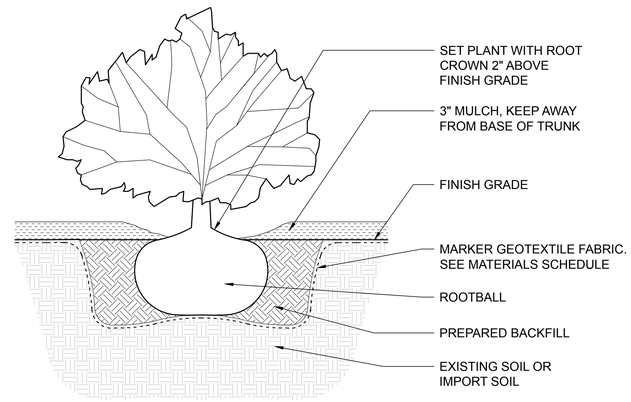
L3.00

OF SHEETS



NOTE:
PLANT MOSS IN DIAMOND
(LOZENGE) PATTERN ROW
SPACING: DIMENSION "B" =.86 x "A"

7 GROUND COVER PLANTING
SCALE: N.T.S.



4 SHRUB / PERENNIAL PLANTING
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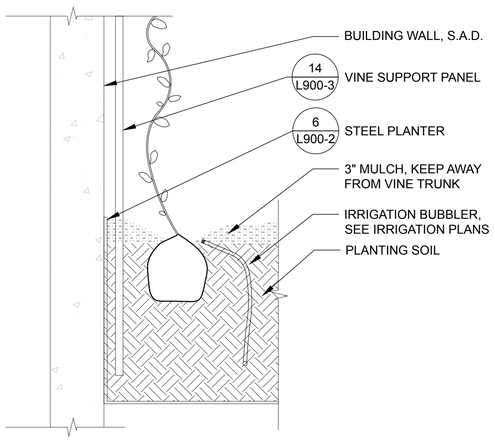
1 NOT USED
SCALE: N.T.S.



8 VINE PLANTING
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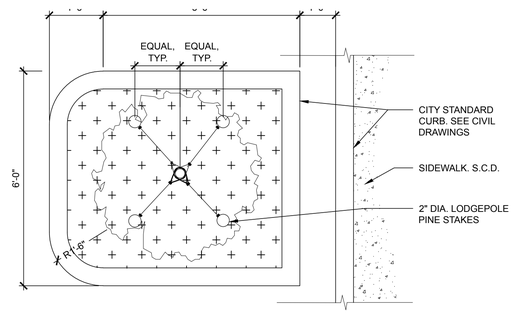
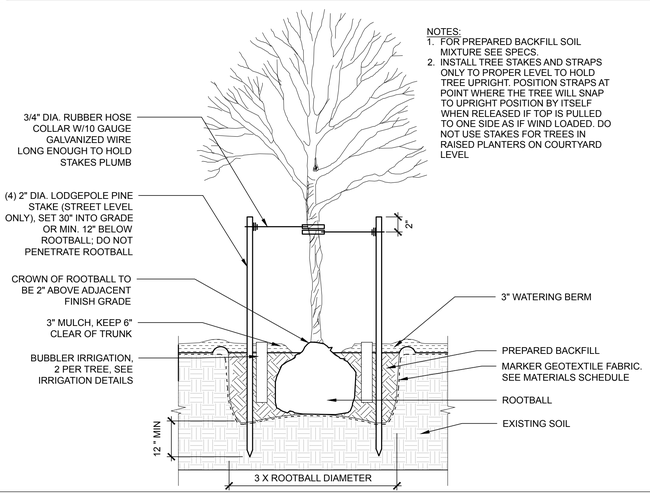
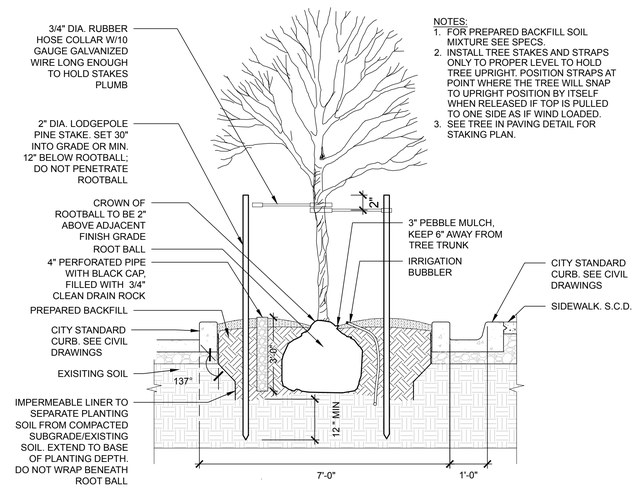


PLAN



9 TREE PLANTING
SCALE: N.T.S.



SECTION

6 RAISED TREE WELL WITH CONCRETE CURB
SCALE: 1/2" = 1'-0"

3 NOT USED
SCALE: 1/2" = 1'-0"

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HOLLIDAY DEVELOPMENT

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SAN FRANCISCO, CA 94103
415.252.7288
www.millercomp.com

REGISTERED LANDSCAPE ARCHITECT
JEFFREY EZRA MILLER
NO. 2031
8/24/2016
STATE OF CALIFORNIA
June 30th 2017
Renewal Date

LICENSE STAMP

THE UNION
532 Union Street
Oakland CA 94607

DRAWING RELEASE STATUS	DATE
BUILDING PERMIT	08.24.2016
OFF-SITE DRAWING	12.01.2016
PRICING SET	02.21.2017

ADDENDA

No.	Description	Date

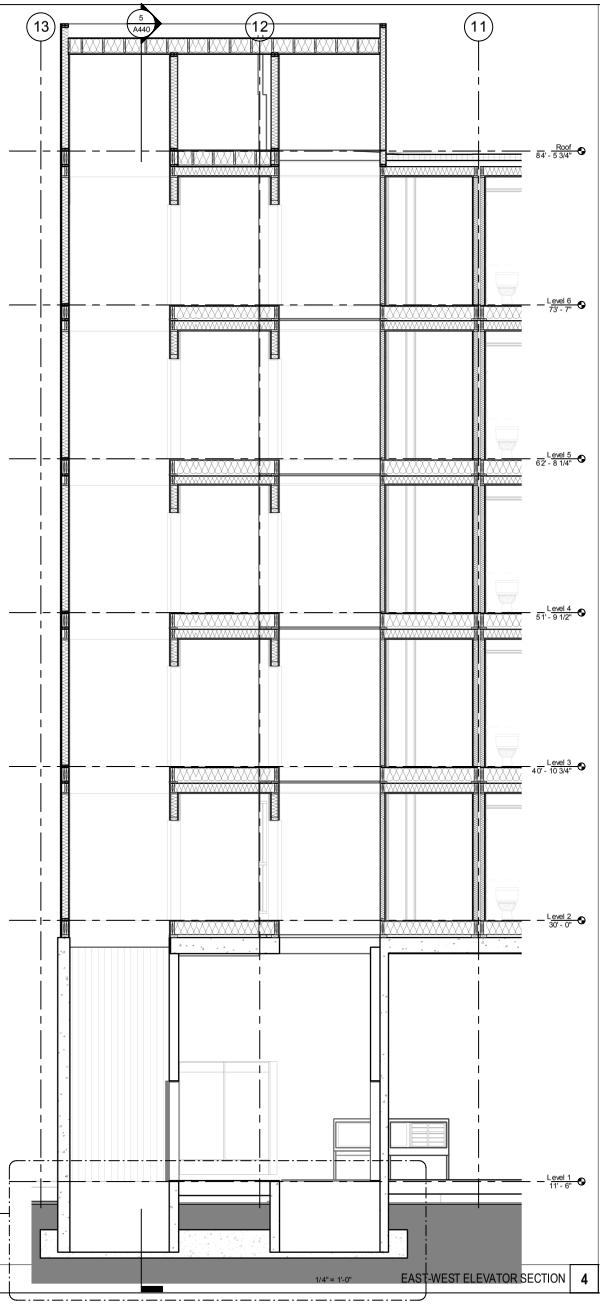
SHEET TITLE
PLANTING DETAILS

SCALE
AS SHOWN

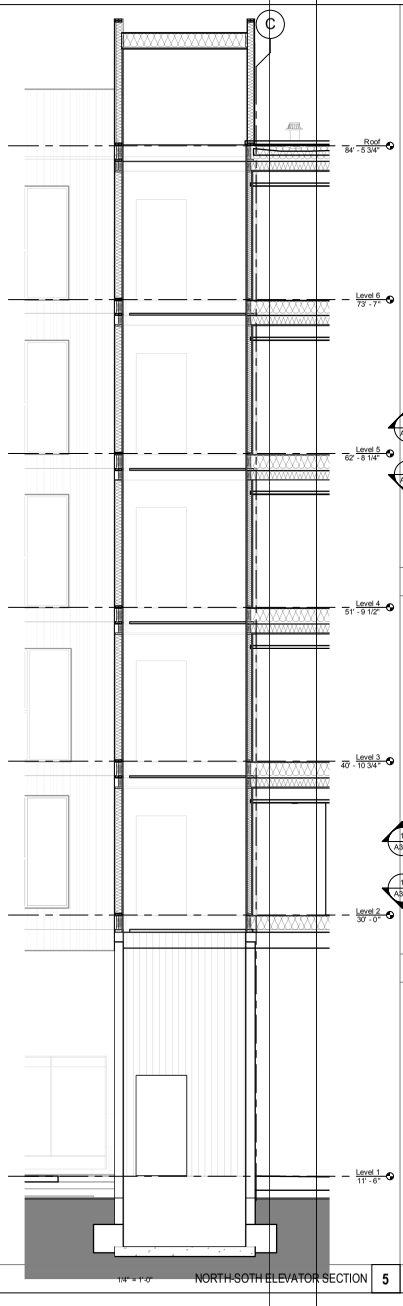
APN NUMBER	RELEASE DATE
004-0049-004-00	AUGUST 22, 2016
DRAWN BY	CHECKED BY
GEL	JM

L6.00

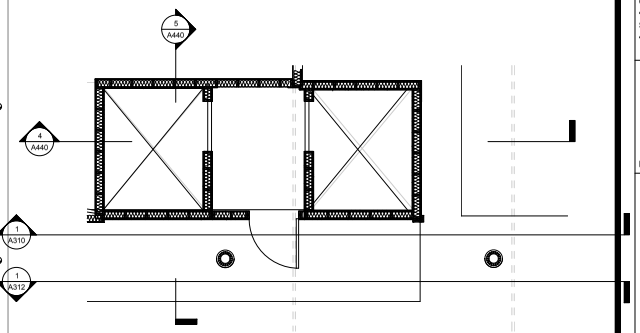
OF SHEETS



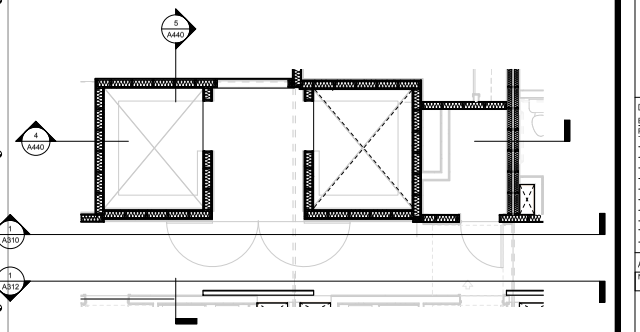
EAST-WEST ELEVATOR SECTION 4



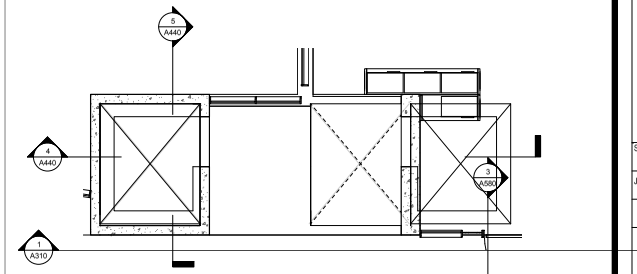
NORTH-SOTH ELEVATOR SECTION 5



1/4" = 1'-0" ENLARGED ELEVATOR - ROOF LEVEL 3



1/4" = 1'-0" ELEVATOR ENLARGED - LEVEL 2-6 2



1/4" = 1'-0" ELEVATOR ENLARGED - LEVEL 1 1

2/21/2017 11:01:23 AM

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THE UNION
Permit Set
532 Union Street Oakland, CA
Holliday Development

DRAWING RELEASE STATUS	DATE
BUILDING PERMIT	08.24.2016
PRICING PROGRESS SET	02.17.2017

ADDENDA

No	Description	Date

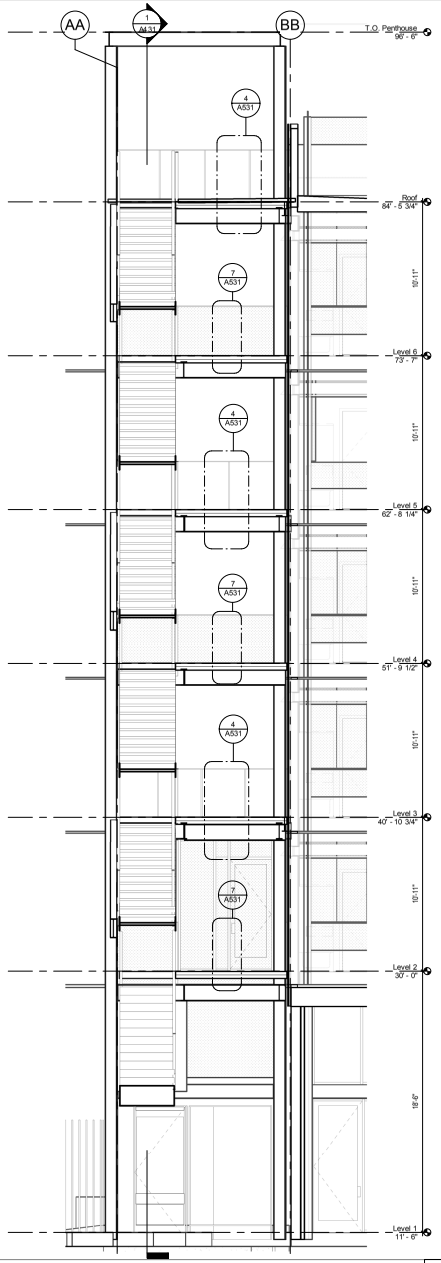
SHEET TITLE

ELEVATORS - ENLARGED PLANS AND SECTIONS

SCALE
1/4" = 1'-0"

JOB NUMBER	RELEASE DATE
21525	08/23/2016

A440



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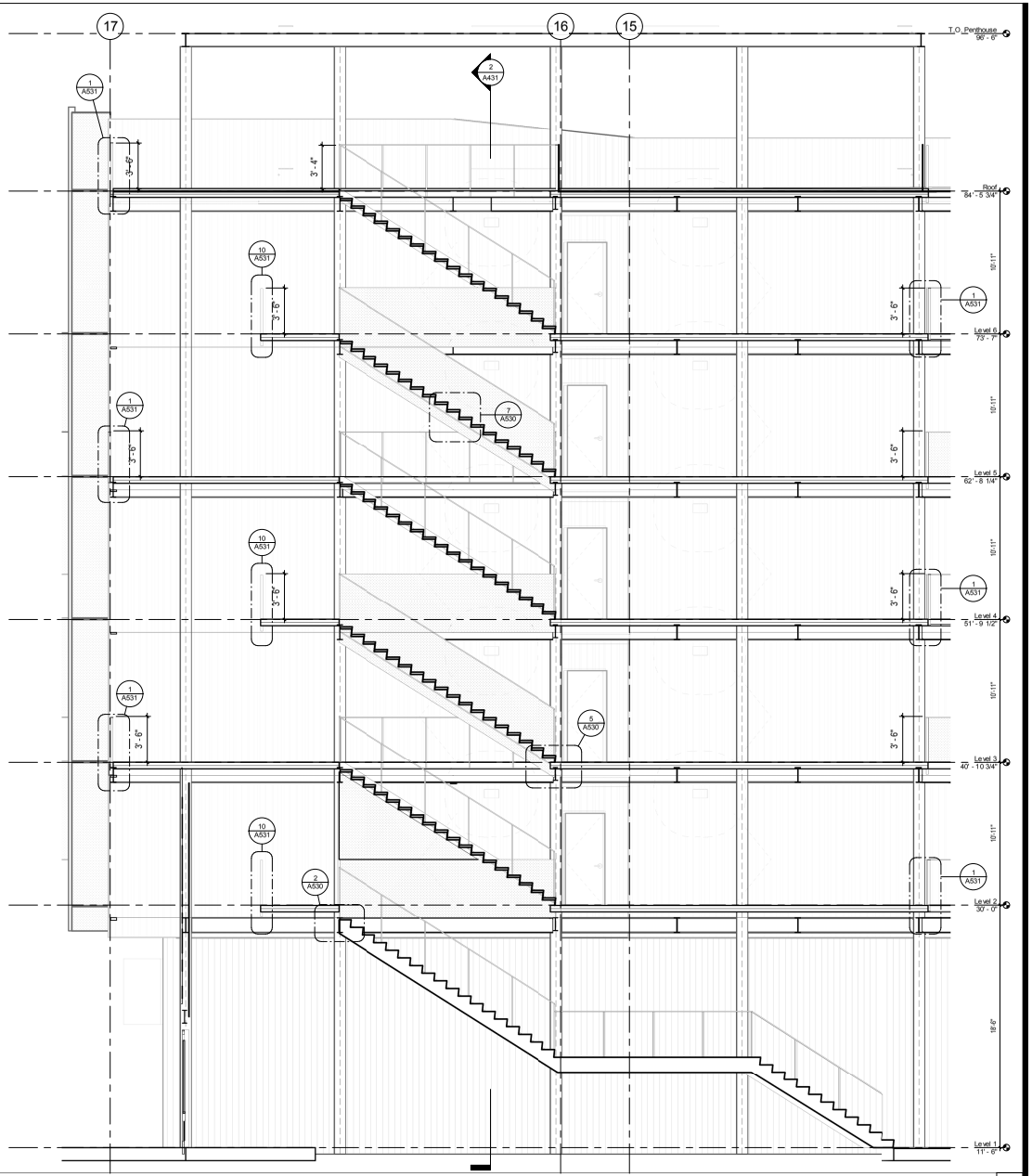

1/4" = 1'-0" STAIR 1 - EAST-WEST SECTION 1

2/1/2017 11:00:50 AM

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Holliday Development

DRAWING RELEASE STATUS	DATE
BUILDING PERMIT	08.24.2016
PRICING PROGRESS SET	02.17.2017

ADDENDA

No	Description	Date

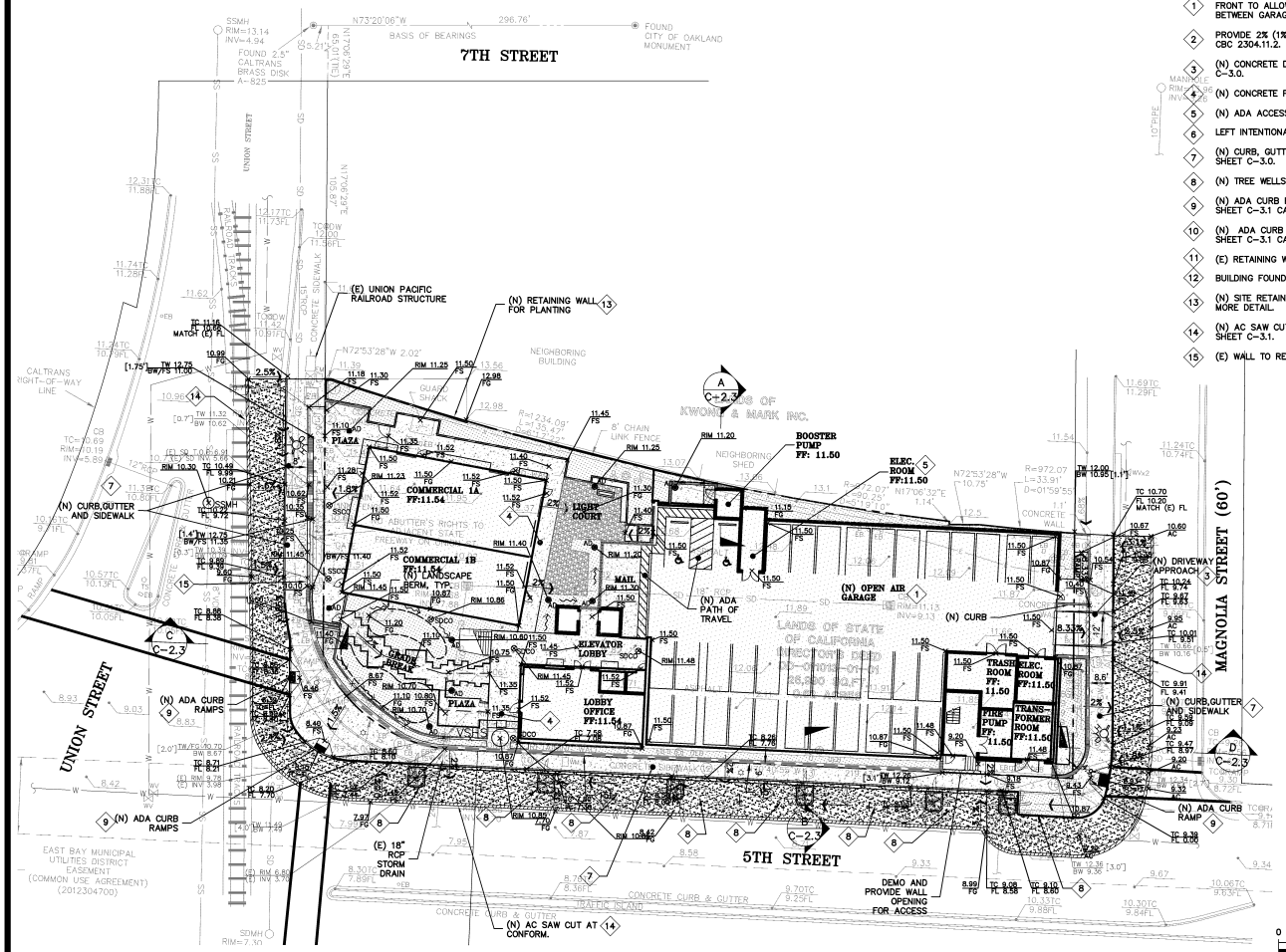
SHEET TITLE

STAIR 1 - ENLARGED SECTIONS

SCALE
1/4" = 1'-0"

JOB NUMBER	RELEASE DATE
21525	08/23/2016

A431



GRADING KEYNOTES 1 TO 16

1. SLOPE GARAGE SLAB 1% MINIMUM (1/8" PER FOOT) FROM BACK TO FRONT TO ALLOW FOR ADEQUATE DRAINAGE. MAINTAIN 1/2" TO 1" LIP BETWEEN GARAGE SLAB AND DRIVEWAY. SEE PLANS FOR SPECIFIC DROP
2. PROVIDE 2% (1% MIN.) SLOPE ACROSS FLAT WORK AND/OR PAVING PER CBC 2304.11.2. SLOPE TOWARDS POSITIVE DRAINAGE AS SHOWN ON PLAN.
3. (N) CONCRETE DRIVEWAY PER CITY STANDARD. SEE DETAIL ON SHEET C-3.0.
4. (N) CONCRETE PATIOS/WALKWAYS. SEE DETAIL 1 SHEET C-3.0.
5. (N) ADA ACCESSIBLE WALKWAY. CROSS SLOPE NOT TO EXCEED 2%.
6. LEFT INTENTIONALLY BLANK
7. (N) CURB, GUTTER, AND SIDEWALK PER CITY STANDARDS. SEE DETAIL ON SHEET C-3.0.
8. (N) TREE WELLS. SEE LANDSCAPE PLANS AND DETAIL 6 ON SHEET C-3.0.
9. (N) ADA CURB RAMPS PER 2015 CALTRANS STANDARDS. SEE DETAIL ON SHEET C-3.1 CASE B DETAIL B.
10. (N) ADA CURB RAMPS PER 2015 CALTRANS STANDARDS. SEE DETAIL ON SHEET C-3.1 CASE B DETAIL A.
11. (E) RETAINING WALL TO REMAIN
12. BUILDING FOUNDATION WALL SEE STRUCTURAL PLANS FOR MORE DETAIL.
13. (N) SITE RETAINING WALL. SEE STRUCTURAL AND LANDSCAPE PLANS FOR MORE DETAIL.
14. (N) AC SAW CUT AND PAVEMENT TIE IN AT CONFORM. SEE DETAIL 6 ON SHEET C-3.1.
15. (E) WALL TO REMAIN.

RETAINING WALL SPOTGRADES

	TW	BW
1	12.08	11.38
2	11.98	11.38
3	11.88	11.18
4	11.32	10.62
5	10.39	10.09
6	10.41	9.31
7	10.37	8.67
8	11.37	7.97
9	11.49	7.49
10	11.78	7.68
11	11.91	8.01
12	12.07	8.37
13	12.31	8.81
14	12.26	9.06
15	12.27	9.27
16	12.36	9.36
17	12.34	9.64
18	9.92	9.92
19	10.66	10.16
20	12.04	10.54

CALL BEFORE YOU DIG 1-800-227-2600 USA UNDERGROUND SERVICE ALERT

NOTE:
FOR CONSTRUCTION STAKING SCHEDULING OR QUOTATIONS PLEASE CONTACT ALEX ABAYA AT LEA & BRAZE ENGINEERING (510)887-4086 EXT 116. aabaya@leabraze.com

* BUILDING PAD NOTE: ADJUST PAD LEVEL AS REQUIRED. REFER TO STRUCTURAL PLANS FOR SLAB SECTION OR CRAWL SPACE DEPTH TO ESTABLISH PAD LEVEL.

REGISTERED PROFESSIONAL ENGINEER RAYMOND L. BRAZO No. 66283 CIVIL STATE OF CALIFORNIA

LEA & BRAZE ENGINEERING, INC.
CIVIL ENGINEERS - LAND SURVEYORS
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2495 INDUSTRIAL PKWY WEST
HAYWARD, CA 94545
(P) (510) 887-4086
(F) (510) 887-3019
SACRAMENTO REGION
3017 DOUGLAS BLVD, # 300
ROSEVILLE, CA 95661
(P) (916)961-3960
(F) (916)797-7363
WWW.LEABRAZE.COM

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san francisco california 94107
415 896 6700 fax 415 896 6103

LICENSE STAMP

THE UNION
Holliday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS DATE

ADDENDA DATE
1
2
3
4
5

SHEET TITLE
GRADING AND DRAINAGE PLAN

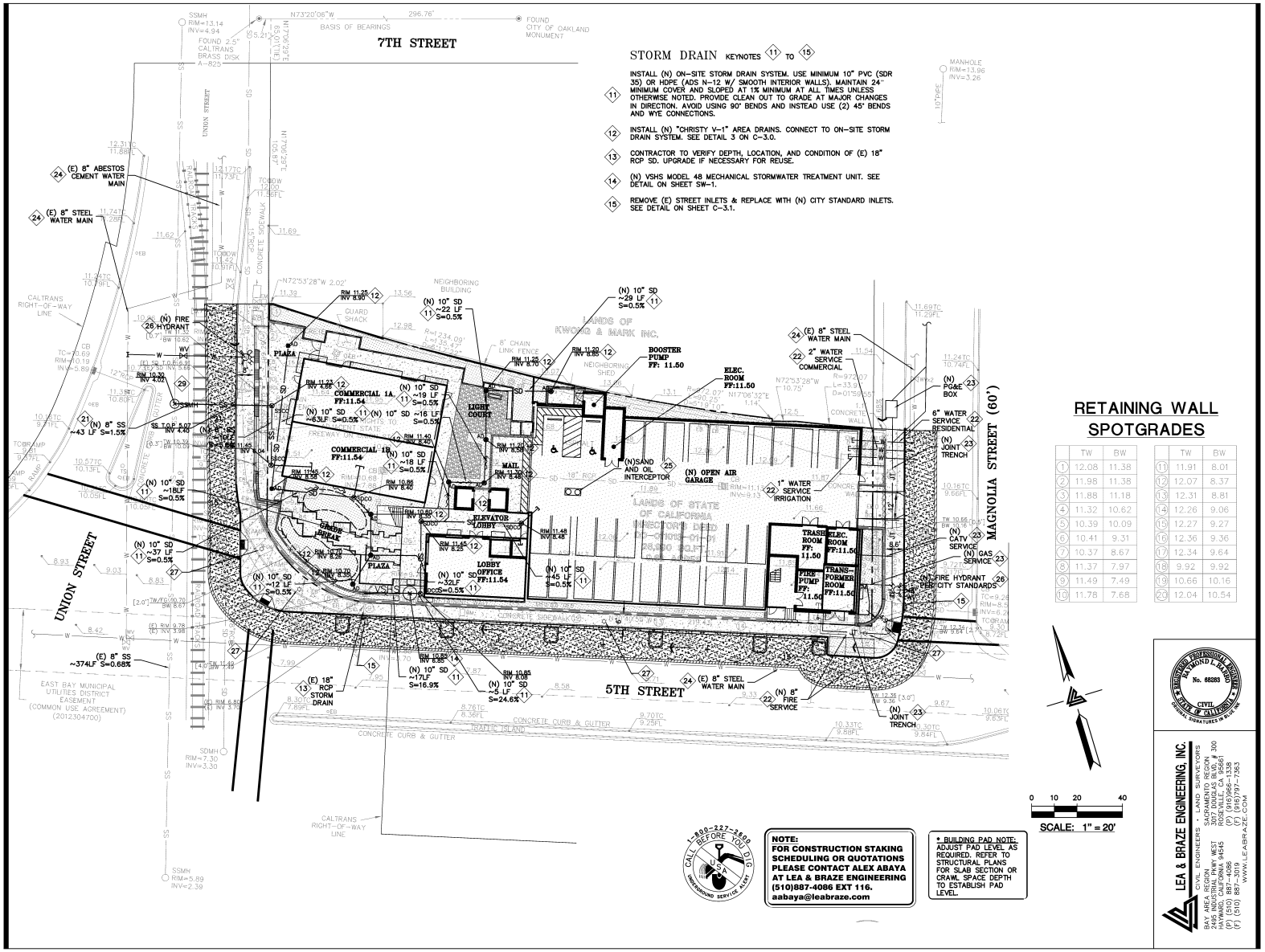
SCALE: AS NOTED

JOB NUMBER: 21525
RELEASE DATE: 08/24/2016

C-2.1

3 OF 13 SHEETS

PLOT DATE 02-21-17



RETAINING WALL SPOTGRADES

	TW	BW
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CALL 1-800-227-2600 BEFORE YOU DIG USA UNDERGROUND SERVICE ALERT

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* BUILDING PAD NOTE: ADJUST PAD LEVEL AS REQUIRED. REFER TO STRUCTURAL PLANS FOR SLAB SECTION OR CRAWL SPACE DEPTH TO ESTABLISH PAD LEVEL.

REGISTERED PROFESSIONAL ENGINEER RAYMOND L. DA SILVA No. 68283 CIVIL STATE OF CALIFORNIA

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CIVIL ENGINEERS - LAND SURVEYORS
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SACRAMENTO REGION 3017 DOUGLAS BLVD, # 300 ROSEVILLE, CA 95661 (p) (916)961-3960 (f) (916)797-7363
WWW.LEABRAZE.COM

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san francisco california 94107
415 896 6700 fax 415 896 6103

LICENSE STAMP

THE UNION
Holiday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS DATE

ADDENDA DATE
1
2
3
4
5

SHEET TITLE
UTILITY PLAN

SCALE AS NOTED

JOB NUMBER 21525 | RELEASE DATE 08/24/2016

C-2.2

4 OF 13 SHEETS

PLOT DATE 02-21-17

STRUCTURAL NOTES

1. GENERAL

A. THESE NOTES APPLY TO ALL DRAWINGS AND GOVERN UNLESS OTHERWISE NOTED OR SPECIFIED.

B. THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY AND COPYRIGHT OF MURPHY BURR CURRY INC. AND SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY WRITTEN AGREEMENT WITH MURPHY BURR CURRY INC.

C. VERIFY ALL EXISTING CONDITIONS AND PROPOSED DIMENSIONS AT JOB SITE. COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS BEFORE COMMENCING WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES AND DO NOT PROCEED WITH AFFECTED WORK UNTIL THEY ARE RESOLVED. DO NOT SCALE DRAWINGS.

D. UNLESS OTHERWISE SHOWN OR NOTED, ALL DETAILS SHALL BE CONSIDERED TYPICAL AT SIMILAR CONDITIONS.

E. SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED BY THE ARCHITECT BEFORE FABRICATION, FOR THE FOLLOWING ITEMS:

1. STRUCTURAL STEEL
2. REINFORCING BARS
3. CONCRETE MIX DESIGNS
4. SHOTCRETE DOCUMENTATION (IF USED – SEE SECTION 6)
5. POST–TENSIONING TENDONS

F. SAFETY MEASURES: AT ALL TIMES THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF THE PERSONS AND PROPERTY, AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS. THE ARCHITECT'S OR ENGINEER'S JOB SITE REVIEW IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.

G. THESE DRAWINGS ARE TO SHOW STRUCTURAL INFORMATION ONLY. FOR ALL NON–STRUCTURAL INFORMATION AND DETAILS INCLUDING BUT NOT LIMITED TO WATERPROOFING, DRAINAGE, FINISHES, ACCESSIBILITY, FIRE PROTECTION, ETC. REFER TO ARCHITECT'S DRAWINGS.

H. THE INFORMATION IN THESE DRAWINGS SHALL GOVERN IF THERE ARE DISCREPANCIES IN THE PROJECT SPECIFICATIONS.

2. SPECIAL INSPECTIONS

A. CONTRACTOR TO COORDINATE WITH TESTING AGENCY, TESTS AND INSPECTIONS FOR ALL ITEMS AS REQUIRED BY THE CALIFORNIA BUILDING CODE 2010 EDITION, SECTION 1704 AND THE SAN FRANCISCO BUILDING CODE 2010 EDITION, SECTION 1701 WHERE APPLICABLE.

B. THE OWNER SHALL BE RESPONSIBLE FOR RETAINING AN INDEPENDENT TESTING LAB TO PERFORM ALL REQUIRED TESTING AND INSPECTIONS.

C. THE FOLLOWING SPECIFIC ITEMS SHALL BE INSPECTED AND/OR TESTED BY THE TESTING LAB:

1. ALL STRUCTURAL WELDING.

a. CONTINUOUS INSPECTION OR 100% ULTRASONIC OR RADIOGRAPHIC TESTING FOR ALL BUTT WELDS, FULL AND PARTIAL PENETRATION WELDS, GROOVE WELDS AND PLUG WELDS.

b. CONTINUOUS INSPECTION AND 100% ULTRASONIC OR RADIOGRAPHIC TESTING FOR ALL FULL PENETRATION WELDS BETWEEN THE PRIMARY MEMBERS OF MOMENT–RESISTING FRAMES, EXCEPT WHEN THE THICKNESS OF THE MATERIALS TO BE WELDED IS LESS THAN 5/16".

c. CONTINUOUS INSPECTION OF ALL FILLET WELDS EXCEEDING 5/16".

d. PERIODIC VISUAL INSPECTION OF ALL OTHER WELDS. PERIODIC INSPECTION IS PERMITTED ONLY UNDER EITHER OF THE FOLLOWING:

i. WELDING IS DONE IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH SECTION 1701.7, OR

ii. MATERIALS, QUALIFICATIONS OF WELDING PROCEDURES AND WELDERS ARE VERIFIED PRIOR TO THE START OF WORK AND A VISUAL INSPECTION OF ALL WELDS IS MADE PRIOR TO COMPLETION OR TO SHIPMENT OF THE SHOP–WELDED PRODUCT.

2. HIGH STRENGTH BOLTING

3. ADHESIVE ANCHORS INSTALLED IN CONCRETE: PROVIDE CONTINUOUS SPECIAL INSPECTION AS DESCRIBED IN RELEVANT PRODUCT ICBO REPORT.

4. CONCRETE STRENGTH AND PLACEMENT

5. REINFORCING STEEL AND PLACEMENT

6. THE GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE ON–SITE OBSERVATION AND TESTING DURING SITE PREPARATION, GRADING, PLACEMENT AND COMPACTION OF FILL, AND FOUNDATION INSTALLATION.

D. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND TESTING AGENCY A MINIMUM OF 24 HOURS PRIOR TO TIME OF INSPECTION

E. CONTINUOUS SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION.

F. PERIODIC SPECIAL INSPECTION: SOME INSPECTIONS MAY BE MADE ON A PERIODIC BASIS AS DEFINED IN THE CBC. IN GENERAL THIS MEANS THAT THE SPECIAL INSPECTOR MUST VERIFY THE MATERIALS, SET UP AND QUALIFICATIONS OF THE CONTRACTOR PRIOR TO THE START OF WORK, MAKE PERIODIC INSPECTIONS DURING THE WORK AND A FINAL INSPECTION AFTER COMPLETION OF THE WORK.

3. DESIGN BASIS

A. CONSTRUCT IN CONFORMANCE WITH THE EDITION, 2013 CALIFORNIA BUILDING CODE, ASCE7–10 AND ALL APPLICABLE LOCAL ORDINANCES.

B. LOADS

RESIDENTIAL FLOOR LIVE LOAD:	40 PSF	(REDUCIBLE)
LOBBY AND CORRIDOR LIVE LOAD:	100 PSF	(NON–REDUCIBLE)
COURTYARD LIVE LOAD:	100 PSF	(NON–REDUCIBLE)
STAIRS LIVE LOAD:	100 PSF	(NON–REDUCIBLE)
PARKING GARAGE LIVE LOAD:	50 PSF	(REDUCIBLE)
ROOF LIVE LOAD:	20 PSF	(REDUCIBLE)

WIND DESIGN DATA :
BASIC WIND SPEED (3–SECOND GUST) V=110 mph
WIND RISK CATEGORY : II
WIND EXPOSURE : C

SEISMIC DESIGN DATA :
SEISMIC IMPORTANCE FACTOR : I=1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS :
Ss=1.54g
S1=0.61g
SITE CLASS : C
SPECTRAL RESPONSE COEFFICIENTS
Sds=1.02g
Sd1=0.53g
SEISMIC DESIGN CATEGORY : D

BASIC SEISMIC FORCE RESISTING SYSTEMS :
WOOD FRAMED BUILDING : PLYWOOD SHEAR WALL R=6.5 (BY OTHERS)
CONCRETE PODIUM STRUCTURE : SPECIAL REINFORCED CONCRETE SHEAR WALL R=5
ANALYSIS PROCEDURE USED : EQUIVALENT LATERAL FORCE PROCEDURE.
TWO–STAGE ANALYSIS PROCEDURE PER ASCE 7–10 SECTION 12.2.3.2

C. FOUNDATION DESIGN

1. FOUNDATION DESIGN IS BASED ON THE SOIL'S REPORT BY ROCKRIDGE GEOTECHNICAL, DATED OCT. 16, 2015, 270 GRAND AVE., OAKLAND, CA 94610, (510) 420–5738

2. ALLOWABLE SOIL BEARING PRESSURE FOR DEAD LOAD PLUS LIVE LOAD : FOOTING ON RESUDUAL SOIL OR BEDROCK : 6,000 PSF
VALUE CAN BE INCREASED TO 8000 PSF TO INCLUDE SEISMIC OR WIND LOADS.

4. CONCRETE

A. REINFORCE ALL CONCRETE. INSTALL ALL INSERTS, BOLTS, ANCHORS, AND REINFORCING AND SECURELY TIE PRIOR TO PLACING CONCRETE.

B. IN LIEU OF PERFORMING CHEMICAL TESTING TO ASSESS CORROSION POTENTIAL, CONCRETE FOUNDATIONS AND FLOOR SLAB SHOULD INCLUDE PORTLAND TYPE V CEMENT.

C. CONCRETE SHALL BE HARDROCK CONCRETE AND SHALL ATTAIN THE FOLLOWING ULTIMATE COMPRESSIVE STRENGTHS AT 28 DAYS. (MINIMUM CEMENT CONTENT: FIVE SACKS/CU. YD., AND MAXIMUM WATER/CEMENT RATIO 0.45)

LOCATION	MIN. STRENGTH AT 28 DAYS – f'c	AGGREGATE SIZE		MAX. SLUMP
		MIN.	MAX.	
FOUNDATION & SOG	4000 PSI	3/4"	1½"	4"
WALLS	4000 PSI	3/4"	1"	4"
WALLS (SHOTCRETE)	4000 PSI	3/8"	1"	2"
COLUMNS	5000 PSI	3/4"	1"	4"
COLUMNS (SHOTCRETE)	5000 PSI	3/8"	1"	2"
ELEVATED SLAB	5000 PSI	3/4"	1"	4"
POST–TENSIONED SLABS	3000 PSI (AT 7 DAYS) 5000 PSI (AT 28 DAYS)	3/4"	1"	4"

D. CONCRETE SHALL BE CONTINUOUSLY CURED FOR 10 DAYS AFTER PLACING IN ANY APPROVED MANNER, INCLUDING CURING COMPOUND, CURING PAPER, ETC. NOTE: FOOTINGS ARE EXCEPTED FROM THIS REQUIREMENT.

E. WHEN PLACING NEW CONCRETE OR SHOTCRETE AGAINST EXISTING CONCRETE OR MASONRY, ROUGHEN SURFACE OF EXISTING MATERIAL BY EITHER SANDBLASTING OR SCARIFYING TO 1/4" AMPLITUDE AND APPLY BONDING AGENT. BONDING AGENT SHALL BE LARSEN PRODUCTS CORPORATION'S WELD–CRETE OR APPROVED EQUIVALENT. AT EXISTING BRICK, ROUGHENING NOT REQUIRED IF EXISTING BRICK HAS A NATURAL ROUGH SURFACE. BONDING AGENT IS NOT REQUIRED AT EXISTING BRICK SURFACE UNLESS OTHERWISE NOTED ON PLANS AND/OR DETAILS.

5. REINFORCING STEEL

A. ALL REINFORCING STEEL BARS EXCEPT AS NOTED BELOW SHALL CONFORM WITH THE STANDARD SPECIFICATIONS FOR DEFORMED BILLET–STEEL FOR CONCRETE REINFORCEMENT, ASTM DESIGNATION A615 LATEST EDITION, GRADE 60.

B. REINFORCING IN FRAME MEMBERS AND WALL BOUNDARY ELEMENTS RESISTING SEISMIC FORCES SHALL COMPLY WITH LOW ALLOY A706. GRADE A615 MAY BE USED PROVIDING THE REQUIREMENTS OF ACI 318–08 SECTION 21.2.5 ARE SATISFIED. THE WALL BOUNDARY ELEMENTS ARE NOTED ON WALL ELEVATIONS AS CONFINED WITH ADDITIONAL TIES/HOOPS.

C. WELDING OF REINFORCEMENT BARS SHALL COMPLY WITH ACI 318–08 SECTION 3.5.2. USE GRADE A706 UNLESS SHOWN OTHERWISE.

D. WIRE MESH SHALL CONFORM WITH ASTM A185 LATEST EDITION.

E. SUITABLE DEVICES OF STANDARD MANUFACTURE SHALL BE USED TO HOLD REINFORCEMENTS IN ITS TRUE HORIZONTAL AND VERTICAL POSITIONS. THESE DEVICES SHALL BE SUFFICIENTLY RIGID AND NUMEROUS TO PREVENT DISPLACEMENT OF THE REINFORCING DURING PLACING OF CONCRETE.

F. LAP SPLICE ALL BARS A MINIMUM OF 40 BAR DIAMETERS, UNLESS OTHERWISE NOTED. STAGGER ALL LAPS A MINIMUM OF 24 INCHES.

G. LAP SPLICES FOR SHOTCRETE WALLS SHALL BE BY THE NON–CONTACT SPLICE METHOD OUTLINED IN SECTION 1913.4.3 OF THE CBC 2010.

H. UNLESS OTHERWISE NOTED, MAINTAIN COVERAGE TO FACE OF BARS AS FOLLOWS (PER ACI 381–08 SECTION 7.7):

1. 3" FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH

2. 2" FOR #6 AND LARGER, 1–1/2" FOR #5 AND SMALLER, FOR CONCRETE EXPOSED TO EARTH OR WEATHER

3. 3/4" FOR #11 AND SMALLER, FOR SLABS (U.N.O.), WALLS & JOISTS: FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND

4. 1–1/2" FOR BEAMS & COLUMNS: PRIMARY REBAR, TIES, STIRRUPS & SPIRALS

6. PNEUMATICALLY APPLIED CONCRETE (SHOTCRETE)

A. USE AND APPLICATION OF SHOTCRETE SHALL CONFORM TO ALL THE REQUIREMENTS OF THE CALIFORNIA BUILDING CODE 2013 ADITION, SECTION 1924.

B. WATER CURE ALL SHOTCRETE FOR A MINIMUM OF 24 HOURS AFTER PLACEMENT. NOTE: CURING COMPOUND IS NOT ACCEPTABLE DURING THE FIRST 24 HOURS OF CURING.

C. SPLICES: LAP SPLICES OF REINFORCING BARS SHALL UTILIZE THE NONCONTACT LAP SPLICE METHOD WITH A MINIMUM CLEARANCE OF 2 INCHES BETWEEN BARS. THE USE OF CONTACT LAP SPLICES NECESSARY FOR SUPPORT OF THE REINFORCING IS PERMITTED WHEN IN COMPLIANCE WITH 2013 CBC SECTION 1913.4.3.

D. PRECONSTRUCTION TESTS: A TEST PANEL PREPARED IN ACCORDANCE WITH 2010 SFBC IS REQUIRED. TEST PANEL SHOULD REPRESENT THE MOST CONGESTED SECTION OF APPLICABLE SCOPE OF WORK. ALL NOZZLEMEN WHO WILL BE PERFORMING WORK ON THE PROJECT SHALL PARTICIPATE IN PRECONSTRUCTION TESTING. SUBMIT PROPOSED TEST PANEL TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

E. POSTCONSTRUCTION TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 2013 CBC SECTION 1913.10. PANEL SHALL CONSIST OF MOST CONGESTED SECTION OF APPLICABLE SCOPE OF WORK.

F. NOZZLEMAN CERTIFICATION SHALL BE PROVIDED TO ENGINEER PER 2013 CBC PRIOR TO CONSTRUCTION. NOZZLEMAN SHOULD BE SAME PERSON WHO PERFORMS PRECONSTRUCTION TESTS.

G. NOTIFY CITY INSPECTOR AT LEAST 1 WEEK PRIOR TO APPLICATION OF SHOTCRETE.

7. STRUCTURAL STEEL

A. W–SHAPES SHALL CONFORM WITH ASTM A992, OR A572 GRADE 50, (Fy=50KSI). ALL OTHER STRUCTURAL SHAPES, PLATES AND BARS SHALL CONFORM WITH ASTM A36, UNLESS OTHERWISE NOTED.

B. STEEL PIPE SHALL CONFORM WITH ASTM A501, OR ASTM A53.

C. STRUCTURAL TUBING (TS AND HSS SECTIONS) SHALL CONFORM WITH ASTM A500 GRADE B (Fy=46KSI).

D. ALL HIGH–STRENGTH BOLTS SHALL CONFORM WITH ASTM A325 UNLESS OTHERWISE NOTED. TIMBER CONNECTION AND COMMON BOLTS SHALL CONFORM WITH ASTM A307.

E. ANCHOR BOLTS FOR FRAMES RESISTING SEISMIC LOADS AND OTHER HIGH–STRENGTH GROUTED OR EMBEDDED ALL–THREADED RODS SHALL CONFORM WITH ASTM A449 OR ASTM A193 GRADE B7.

F. ANCHOR BOLTS FOR NON–SEISMIC FRAMES SHALL CONFORM WITH ASTM F1554, GRADE 36. GROUTED OR EMBEDDED ALL–THREADED RODS SHALL CONFORM WITH ASTM A36.

G. PAINT STEEL (EXCEPT PORTIONS TO BE ENCASED IN CONCRETE) WITH ONE COAT OF TNEMEC FD–88 PRIMER TO A DRY FILM THICKNESS OF 3.0 TO 5.0 MILS, OR APPROVED EQUAL.

H. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE AISC 'SPECIFICATIONS' FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.

I. WELDING SHALL CONFORM WITH THE LATEST EDITION OF THE AWS SPECIFICATIONS. USE E70 ELECTRODES.

K. THE CONTRACTOR IS TO FIELD LOCATE BOLT POSITIONS FOR BASE PLATES, ANCHOR PLATES ETC. TO BE ATTACHED TO EXISTING CONCRETE, AND INCLUDE ON THE SHOP DRAWING DETAILS.

8. INSTALLING EPOXY–SET DOWELS AND ANCHOR BOLTS

A. EPOXY OR RESIN ADHESIVE SHALL BE USED IN ALL LOCATIONS WHERE EITHER ALL–THREAD ROD OR REBAR ARE BEING EMBEDDED INTO EXISTING CONCRETE OR MASONRY.

B. CONTRACTOR SHALL MIX AND INSTALL RESIN, HARDENER AND ANCHORS PER MANUFACTURER'S SPECIFICATION.

C. HOLES SHALL BE DRILLED WITH ROTARY DRILL. FOR HOLES IN BRICK MASONRY, A HAMMER ACTION DRILL SHALL NOT BE USED. SIZE SHALL BE PER MANUFACTURER'S RECOMMENDATION.

D. HOLES IN CONCRETE SHALL NOT BE CORE–DRILLED UNLESS SPECIFICALLY NOTED IN THE DETAILS.

E. EXISTING REINFORCEMENT SHALL NOT BE CUT OR DAMAGED UNLESS PERMITTED IN WRITING BY THE ENGINEER.

F. IMMEDIATELY BEFORE APPLYING ADHESIVE, HOLES SHALL BE REAMED WITH A CIRCULAR WIRE BRUSH ATTACHED TO A DRILL MOTOR AND THEN BLOWN OUT WITH OIL–FREE COMPRESSED AIR.

G. ADHESIVE SHALL BE AS FOLLOWS:

FOR UNCRACKED AND FULLY GROUTED CMU: HILTI'S HIT HY 150 MAX (ICC ESR NO. 1967, DATED 01/09)
FOR CONCRETE: SIMPSON'S SET–XP (ICC ESR NO. 2508, DATED 04/11) OR HILTI'S RE–500–SD (ICC ESR NO. 2322, DATED 4/10).

9. EXPANSION ANCHORS

A. ALL EXPANSION ANCHORS SHALL BE HILTI KB–TZ CONFORMING TO ICC ESR–1917 OR SIMPSON STRONG–BOLT CONFORMING TO ICC ESR–1771 UNLESS OTHERWISE NOTED. INSTALLATION SHALL CONFORM WITH THE ESR AND THE MANUFACTURER'S RECOMMENDATIONS. USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING BARS. HOLES FOR ANCHORS SHALL NOT BE CORED. WHERE EXISTING REINFORCING IS ENCOUNTERED, RELOCATE THE ANCHOR HOLE UNLESS NOTED OTHERWISE ON THE DRAWINGS. ABANDONED HOLES SHALL BE FILLED WITH NON–SHRINK CEMENTITIOUS GROUT.

10. PATCHING OF CONCRETE

A. ALL INSERT HOLES, THREADED INSERTS, ETC., AND OTHER IMPERFECTIONS ON THE SURFACES OF THE CONCRETE SHALL BE FILLED WITH GROUT, BRUSHED AND SACKED TO A UNIFORM FINISH. ALL HOLES THROUGH TO THE OUTSIDE OF THE BUILDING MUST BE MADE WATERTIGHT.

11. METAL DECKING

A. ALL METAL DECKING SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO ASTM A446. THE STEEL SHALL HAVE A METAL PROTECTIVE COATING OF ZINC CONFORMING TO ASTM A525 AND TO FEDERAL SPECIFICATION QQ–2–775D, TYPE 1, CLASS E. PROVIDE SLOTS FOR DROP THROUGH HANGERS AS REQUIRED.

B. ALL METAL DECKING SHALL BE VERCO W2 FORMLOCK 18 GA., OR EQUIVALENT, WITH 3" INCH CONCRETE TOPPING, AND #3 @ 18" O.C EACH WAY OR 6 X 6–W2.9 X W2.9 W.W.M. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO MANUFACTURER'S STANDARD SPECIFICATIONS. SEE DETAILS FOR WELDING.

C. ALL WELDING SHALL BE DONE BY CERTIFIED, EXPERIENCED WELDERS.

D. SHORING OF DECKING REQUIRED DURING PLACING OF CONCRETE UNLESS SHOWN OTHERWISE.

E. SHEAR STUDS TO BE NELSON WELD–THRO DECK STUDS TYPE S3L, SIZE 3/4" DIAMETER BY 4 3/16" LONG (BEFORE WELD LENGTH). WELDING OF STUDS TO BE PERFORMED PER MANUFACTURER'S SPECIFICATIONS.

STRUCTURAL DRAWING INDEX

PERMIT SET		
●	S1.00	STRUCTURAL NOTES
●	S1.01	STRUCTURAL NOTES
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●	S112	LEVEL 1 FOUNDATION PLAN
●	S121	LEVEL 2 PODIUM SLAB PT PLAN
●	S121A	LEVEL 2 PODIUM SLAB REINFORCING PLAN
●	S122	LEVEL 2 PODIUM SLAB PT PLAN
●	S122A	LEVEL 2 PODIUM SLAB REINFORCING PLAN
●	S131	EXTERIOR STAIR/PORCH FRAMING PLANS
●	S3.1	CONCRETE SECTIONS AND DETAILS
●	S3.2	CONCRETE SECTIONS AND DETAILS
●	S3.3	CONCRETE SECTIONS AND DETAILS
●	S3.4	CONCRETE SECTIONS AND DETAILS
●	S3.5	CONCRETE AND STEEL SECTIONS AND DETAILS
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●	S5.2	MOMENT FRAME NOTES
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●	S5.4	MOMENT FRAME DETAILS

ABBREVIATIONS

&	And
@	At
#	Pound or Number
ø	Diameter
A.B.	Anchor Bolt
ADJ.	Adjacent
ARCH	Architect
BLDG.	Building
BM.	Beam
BLK	Blocking
BLT.	Bolt
B.O.	Bottom of
B.S.	Both Sides
CLR.	Clear
C/L	Center Line
C.J.	Control Joint
CONC.	Concrete
CONT.	Continuous
COL.	Column
CTR.	Center
DBL.	Double
DET.	Detail
DIA.	Diameter
DIM.	Dimension
DN.	Down
DRP	Dropped
DWG.	Drawing
EA.	Each
E.	East
E.F.	Each Face
E.W.	Each Way
E.J.	Expansion Joint
EL.	Elevation
EMB.	Embedded Length
EQ.	Equal
FDN.	Foundation
F.F.	Flush Frame
FIN.	Finish
FLR.	Floor
F.O.C.	Face of Concrete
F.O.S.	Face of Stud
FT.	Feet
FTG.	Footing
GA.	Gage
GALV.	Galvanized
GL.	Glulam
GLB	Glulam Beam
GYP.	Gypsum
HDR.	Header
HORIZ.	Horizontal
HT.	Height
I.D.	Inside Diameter
IN.	Inch
JT.	Joint
LB.	Pound
MAX.	Maximum
M.B.	Machine Bolt
MECH.	Mechanical
MIN.	Minimum
ML	MicroLam
MISC.	Miscellaneous
N.	North
N.I.C.	Not in Contract
NO. or #	Number
NOM.	Nominal
N.T.S	Not to Scale
O.C.	On Center
O.D.	Outside Diameter
O.H.	Opposite Hand
OPNG.	Opening
OPP.	Opposite
P.T.	Pressure Treated
PARAL.	Parallel
PLYWD.	Plywood
REF.	Reference
REINF.	Reinforcing
REQ.	Required
REV.	Revision
R.O.	Rough Opening
S.	South
SCH.	Schedule
S.C.D.	See Civil Drawings
S.A.D.	See Architectural Drawings
S.M.D	See Mechanical Drawings
S.F.	Square Feet
SIM.	Similar
SIMP.	Simpson
SPEC.	Specifications
SQ.	Square
STD.	Standard
STL.	Steel
SYM.	Symmetrical
T.&B.	Top and Bottom.
T.&G	Tongue and Groove
T.O.C	Top of Concrete
T.O.S.	Top of Steel
T.O.W.	Top of Wall
TS	Tube Steel
TYP.	Typical
U.B.C.	Uniform Building Code
U.N.O	Unless Otherwise Noted
VAR.	Varies
VERT.	Vertical
V.I.F.	Verify in Field
W.	West
W/	With
WF.	Wide Flange
W/O	Without
W.P.	Waterproofing
WT.	Weight

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DRAWING RELEASE STATUS — DATE
Permit Set — 08.23.2016

ADDENDA

No.	Description	Date

SHEET TITLE
Structural Notes

SCALE
AS NOTED

JOB NUMBER
MBC #215-298

RELEASE DATE
23 August, 2016

DRAWN BY
MBC STAFF

CHECKED BY
S.C.

S1.00

OF SHEETS

POST–TENSIONING GENERAL NOTES

A. STEEL QUALITY

SEE SPECIFICATIONS FOR TENDON TESTING REQUIREMENTS, POST–TENSIONING TENDORS SHALL BE LOW RELAXATION, AND SHALL CONFORM TO THE FOLLOWING:

SEVEN WIRE STRAND ASTM DESIGNATION	A416
1/2" DIA. TENDON AREA	0.153 SQ. IN.
ULTIMATE STRENGTH	270 KSI
JACKING STRENGTH	216 KSI (33 KIPS)
ANCHORING STRESS	189 KSI
EFFECTIVE DESIGN STRESS: LOW RELAXATION	175 KSI (26.7 KIPS)

B. SHOP DRAWINGS

SUPPLIER WILL SUBMIT SHOP DRAWINGS PER SPECIFICATIONS.

C. CONTRACTOR SUBMITTALS

CONTRACTOR SHALL PREPARE AND SUBMIT FRICTION CALCULATIONS AND SHOP DRAWINGS OF TENDON LAYOUT, DEAD–END AND STRESSING–END ANCHORAGE DETAILS FOR THE ENGINEER'S APPROVAL. A RECORD OF ALL JACKING FORCES AND FIELD MEASURED ELONGATIONS SHALL BE SUBMITTED TO THE ENGINEER.

D. TWISTING

INTERTWINING OF INDIVIDUAL WIRES OR STRANDS WITHIN A BUNDLE SHALL NOT BE PERMITTED.

E. ELONGATION TOLERANCE

FIELD READINGS OF ELONGATIONS AND/OR STRESSING FORCES SHALL NOT VARY BY MORE THAN MINUS 5% OF 70% OF THE ULTIMATE STRENGTH OR PLUS 5% OF 74% OF THE ULTIMATE STRENGTH.

F. TENDON ENDS

DO NOT BURN OFF TENDON ENDS UNTIL THE ENTIRE SLAB HAS BEEN SATISFACTORILY STRESSED. SPRAY ANCHORS WITH AN APPROVED PAINT AND INSTALL GREASE CAPS WITHIN THE FOLLOWING 24–HOUR PERIOD.

G. PROFILES

SHALL CONFORM TO CONTROLLING POINTS SHOWN ON THE DRAWINGS AND SHALL BE IN AN APPROXIMATE PARABOLIC DRAPE BETWEEN SUPPORTS, UNLESS NOTED OTHERWISE. LOW POINTS ARE AT MID–SPAN UNLESS NOTED.

H. TENDON ADJUSTMENTS

SLIGHT DEVIATIONS IN THE SPACING OF THE SLAB TENDONS MAY BE PERMITTED WHEN REQUIRED TO AVOID OPENINGS, INSERTS AND DOWELS WHICH ARE SPECIFICALLY LOCATED. WHERE LOCATIONS OF TENDONS SEEM TO INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THE INTERFERENCE.

I. CHLORIDES

GROUT OR CONCRETE CONTAINING CHLORIDES SHALL NOT BE USED.

J. PUMPED CONCRETE

IF CONCRETE IS PLACED BY THE PUMPED METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE. THE HOSE SHALL NOT BE ALLOWED TO REST OR RIDE ON THE TENDONS. THIS IS MANDATORY.

K. CONCRETE PLACEMENT

WHEN CONCRETE IS PLACED IN POST–TENSIONING SLABS, SPECIAL CARE SHALL BE TAKEN AT ALL TENDON ANCHORS.

1. INSERT PUMP HOSE BELOW REINFORCEMENT AND FILL UNTIL CONCRETE BUBBLES THROUGH THE REINFORCEMENT AT THE TOP OF THE PANEL.
2. VIRBRATE ADEQUATELY IN AND AROUND ALL TENDON ANCHORS.

L. CONCRETE CONSOLIDATION

CONTRACTOR SHALL TAKE PRECAUTIONS TO ASSURE COMPLETE CONSOLIDATION AND DENSIFICATION OF CONCRETE BEHIND ALL POST–TENSIONING ANCHORS.

M. BLOCKOUTS

ALL POCKET OR BLOCKOUTS REQUIRED FOR ANCHORAGE SHALL BE ADEQUATELY REINFORCED SO AS NOT TO DECREASE THE STRENGTH OF THE STRUCTURE. ALL POCKETS SHOULD BE WATERPROOFED SO AS TO ELIMINATE WATER LEAKAGE THROUGH OR INTO THE POCKET.

N. DESHORING

SLABS MAY BE DESHORED WHEN ALL TENDONS HAVE BEEN STRESSED UNLESS SHORING IS REQUIRED UNTIL SUPPORTING CONCRETE OR MASONRY HAS CURED.

O. POST–TENSION HARDWARE

QUALITY OF ALL ANCHORAGES, COUPLERS, AND MISCELLANEOUS HARDWARE SHALL BE STANDARD AND APPROVED BY GOVERNING AGENCIES AND THE ENGINEER.

P. ANCHOR BARS

PROVIDE 2 – #5 A615 BARS BEHIND ALL ANCHORS. THEY SHALL BE CONTINOUS U.O.N. SPLICING OF SUCH BARS SHALL BE 36" MINIMUM IN A STAGGERED FASHION.

Q. MINIMUM CHAIRS

TENDONS SHALL BE SECURED TO A SUFFICIENT QUANTITY OF POSITIONING DEVICES TO ENSURE CORRECT LOCATION DURING AND AFTER THE POURING OF CONCRETE. THEY SHALL BE SUPPORTED AT A MAXIMUM OF 3'–6" ON CENTER SPACING.

R. SUPPORT BARS

THE MINIMUM SIZE OF SUPPORT BARS SHALL BE #5.

S. INSERTS

ALL INSERTS AND SLEEVES SHALL BE CAST–IN–PLACE WHEN EVER POSSIBLE. DRILLED AND POWER DRIVEN FASTENERS WILL BE PERMITTED ONLY WHEN IT CAN BE SHOWN THAT THE INSERTS WILL NOT SPALL THE CONCRETE AND ARE LOCATED SO AS TO AVOID THE TENDONS AND ANCHORAGES.

T. ANCHOR PAINTING

THE STRESSING END ANCHORS AND WEDGES SHALL BE SPRAY PAINTED WITH AN APPROVED PAINT BEFORE THE RECESS IS GROUTED. USE NON–SHRINK GROUT TO FILL THE RECESS.

U. CONCRETE STRENGTH AT STRESSING

AT TRANSFER OF PRESTRESS, CONCRETE STRENGTH SHALL BE 0.75f'c P.S.I., MINIMUM.

V. CALIBRATION

THE RAM AND ATTENDANT GAUGE TO BE USED SHALL HAVE BEEN CALIBRATED WITHIN (30) DAYS OF ITS USE.

W. ALL TENDONS SHALL BE FULLY ENCAPSULATED.

X. PIPES

PLASTIC OR SHEET METAL ELECTRICAL CONDUITS MAY BE EMBEDDED IN SLAB PROVIDED THAT THE FOLLOWING CRITERIA ARE MET:

1. DIAMETER DOES NOT EXCEED ONE FIFTH OF THE SLAB THICKNESS.
2. CENTER–TO–CENTER SPACING OF THE CONDUITS IS NOT LESS THAN 6 TIMES THE DIAMETER OF THE LARGEST CONDUIT.
3. CONDUITS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE POST–TENSIONED SLAB.

Y. STRESSING SEQUENCE FOR TWO WAY SLAB

1. STRESS CONTINUOUS DISTRIBUTED TENDONS.
2. STRESS CONTINUOUS BANDED TENDONS.
3. STRESS ADDED DISTRIBUTED TENDONS.
4. STRESS ADDED BANDED TENDONS.

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ADDENDA

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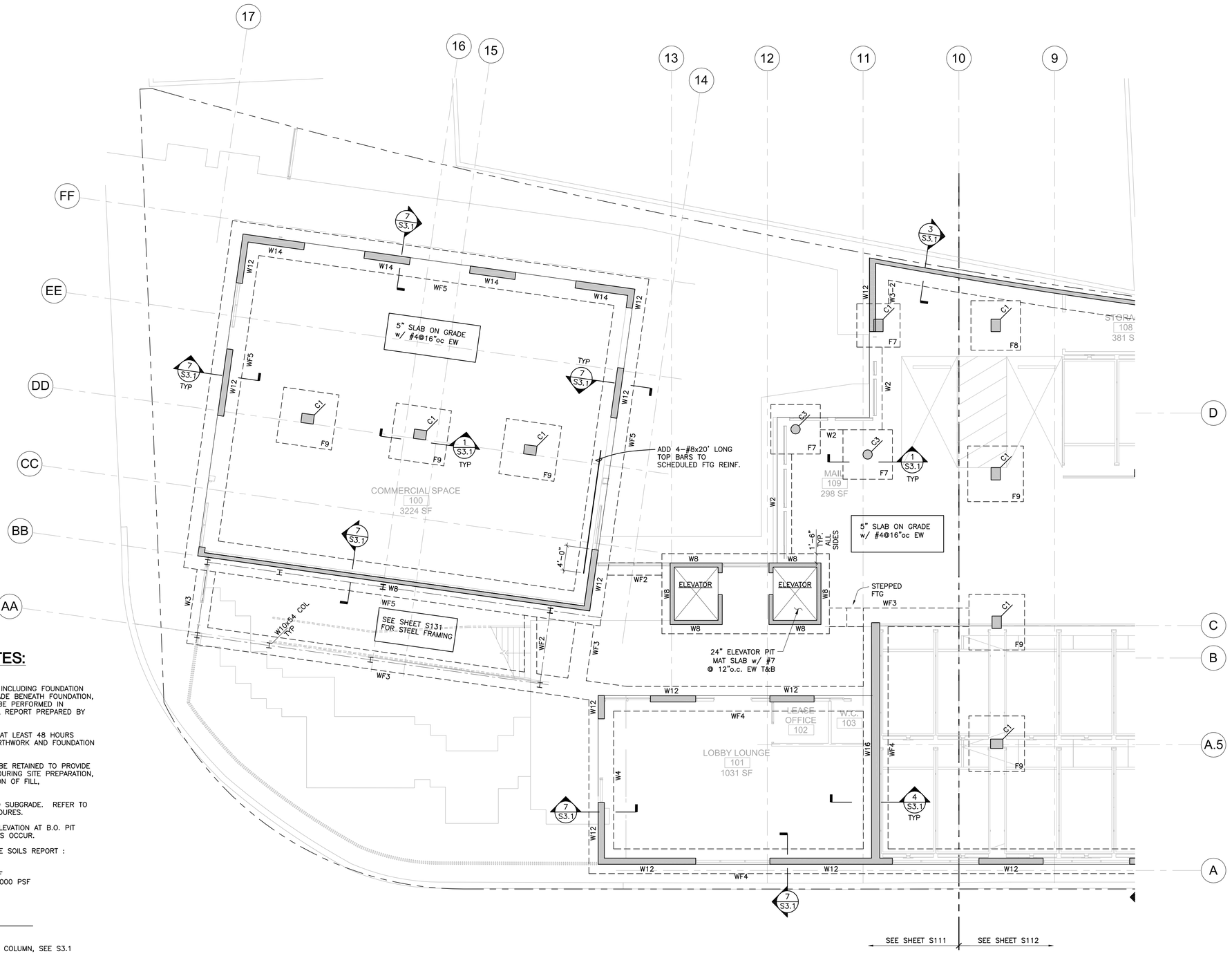
SHEET TITLE
Structural Notes

SCALE
3/4" = 1'-0"

JOB NUMBER	RELEASE DATE
MBC #215-298	23 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

S1.01

OF SHEETS



FOUNDATION NOTES:

1. ALL EARTHWORK AND SITE DRAINAGE, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE BENEATH FOUNDATION, PLACEMENT AND COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY EARTH SYSTEMS PACIFIC.
2. NOTIFY THE GEOTECHNICAL ENGINEER AT LEAST 48 HOURS PRIOR TO START OF ALL GRADING EARTHWORK AND FOUNDATION EXCAVATION.
3. THE GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE ON-SITE OBSERVATION AND TESTING DURING SITE PREPARATION, GRADING, PLACEMENT, AND COMPACTION OF FILL, AND FOUNDATION INSTALLATION.
4. ALL FOOTINGS TO BEAR ON IMPROVED SUBGRADE. REFER TO SOILS REPORT FOR ACCEPTED PROCEDURES.
5. SPREAD FOOTINGS TO BE SUNK TO ELEVATION AT B.O. PIT WHERE CONFLICTS WITH ELEVATOR PITS OCCUR.
6. FOUNDATION DESIGN IS BASED ON THE SOILS REPORT :

   A. ALLOWABLE SOIL PRESSURE FOR:
   DEAD PLUS LIVE LOADS: 6,000 PSF
   DEAD PLUS LIVE PLUS SEISMIC: 8,000 PSF

LEGEND

- C1 — INDICATES TYPE OF CONCRETE COLUMN, SEE S3.1
- W12 — INDICATES TYPE OF CONCRETE WALL, SEE S3.1
- INDICATES DEPRESSED SLAB AREA OR SLAB ELEVATION CHANGED
- F1 — INDICATES TYPE OF CONCRETE COLUMN FOOTING, SEE S3.1
- WF1 — INDICATES TYPE OF WALL FOOTING OR GRADE BEAM, SEE S3.1

1 / S111 — LEVEL 1 - FOUNDATION PLAN SOUTH — 1/8" = 1'-0"

N

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STRUCTURAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER STEPHEN C. CURRY No. S-6364 Exp. 3-31-17 STRUCTURAL STATE OF CALIFORNIA

THE UNION
Holliday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS	DATE
Permit Set	08.24.2016

ADDENDA

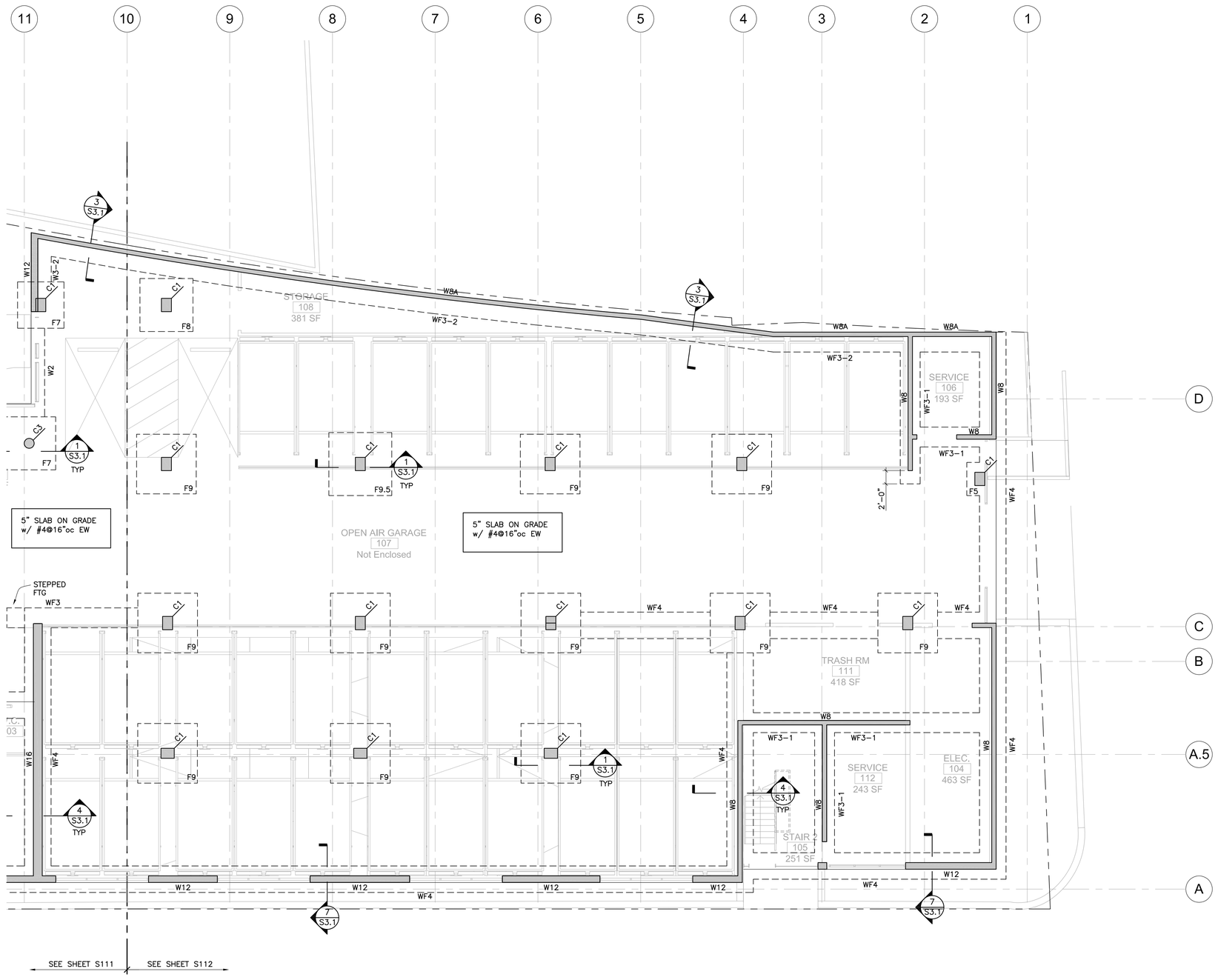
No.	Description	Date

SHEET TITLE
Level 1
Foundation Plan

SCALE
1/8" = 1'-0"

JOB NUMBER	RELEASE DATE
MBC #215-298	24 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

S111
OF SHEETS



FOUNDATION NOTES:

1. ALL EARTHWORK AND SITE DRAINAGE, INCLUDING FOUNDATION EXCAVATION, PREPARATION OF SUBGRADE BENEATH FOUNDATION, PLACEMENT AND COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY EARTH SYSTEMS PACIFIC.
2. NOTIFY THE GEOTECHNICAL ENGINEER AT LEAST 48 HOURS PRIOR TO START OF ALL GRADING EARTHWORK AND FOUNDATION EXCAVATION.
3. THE GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE ON-SITE OBSERVATION AND TESTING DURING SITE PREPARATION, GRADING, PLACEMENT, AND COMPACTION OF FILL, AND FOUNDATION INSTALLATION.
4. ALL FOOTINGS TO BEAR ON IMPROVED SUBGRADE. REFER TO SOILS REPORT FOR ACCEPTED PROCEDURES.
5. SPREAD FOOTINGS TO BE SUNK TO ELEVATION AT B.O. PIT WHERE CONFLICTS WITH ELEVATOR PITS OCCUR.
6. FOUNDATION DESIGN IS BASED ON THE SOILS REPORT :
   A. ALLOWABLE SOIL PRESSURE FOR:
      DEAD PLUS LIVE LOADS: 6,000 PSF
      DEAD PLUS LIVE PLUS SEISMIC: 8,000 PSF

LEGEND

- C1 — INDICATES TYPE OF CONCRETE COLUMN, SEE S3.1
- W12 — INDICATES TYPE OF CONCRETE WALL, SEE S3.1
- INDICATES DEPRESSED SLAB AREA OR SLAB ELEVATION CHANGED
- F1 — INDICATES TYPE OF CONCRETE COLUMN FOOTING, SEE S3.1
- WF1 — INDICATES TYPE OF WALL FOOTING OR GRADE BEAM, SEE S3.1

1 / S112 — LEVEL 1 - FOUNDATION PLAN — 1/8" = 1'-0"

NORTH

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REGISTERED PROFESSIONAL ENGINEER — STEPHEN T. CURRY — No. S-6364 — Exp. 3-31-17 — STRUCTURAL — STATE OF CALIFORNIA

THE UNION

Holliday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS	DATE
Permit Set	08.24.2016

ADDENDA

No.	Description	Date

SHEET TITLE

Level 1
Foundation Plan

SCALE
1/8" = 1'-0"

JOB NUMBER	RELEASE DATE
MBC #215-298	24 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

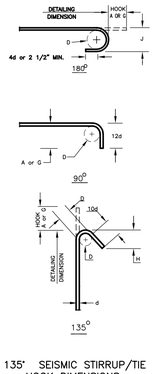
S112

OF SHEETS

RECOMMENDED END HOOKS

D = Bend diameter

BAR SIZE #	180° HOOKS			90° HOOKS
	D	A or G	J	A or G
3	2 1/4"	5"	3"	6"
4	3"	6"	4"	8"
5	3 3/4"	7"	5"	10"
6	4 1/2"	8"	6"	12"
7	5 1/4"	10"	7"	1'-2"
8	6"	11"	8"	1'-4""
9	9 1/2"	1'-3"	11 3/4"	1'-7"
10	10 3/4"	1'-5"	1'-1 1/4"	1'-10"
11	12"	1'-7"	1'-2 3/4"	2'-0"
14	18 1/4"	2'-3"	1'-9 3/4"	2'-7"
18	24"	3'-0"	2'-4 1/2"	3'-5"



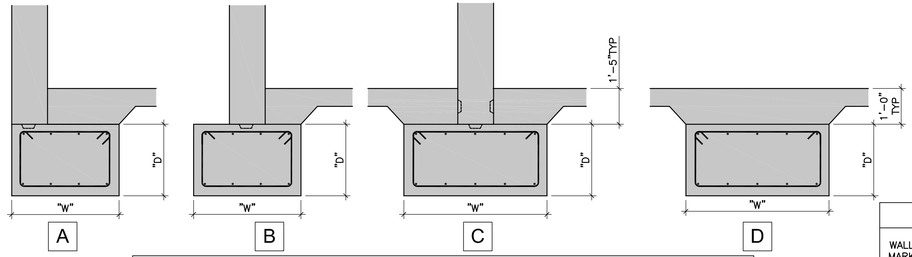
STIRRUP AND TIE HOOK DIMENSIONS
(Grades 40–60 ksi)

BAR SIZE #	D (IN.)	90° HOOK	135° HOOK	
		HOOK A or G	HOOK A or G	H Approx.
3	1 1/2"	4"	4"	2 1/2"
4	2"	4 1/2"	4 1/2"	3"
5	2 1/2"	6"	5 1/2"	3 3/4"
6	4 1/2"	1'-0"	7 3/4"	4 1/2"
7	5 1/4"	1'-2"	9"	5 1/4"
8	6"	1'-4"	10 1/4"	6"

135° SEISMIC STIRRUP/TIE HOOK DIMENSIONS
(Grades 40–60 ksi)

BAR SIZE #	D (IN.)	135° HOOK	
		HOOK A or G	H Approx.
3	1 1/2"	5"	3 1/2"
4	2"	6 1/2"	4 1/2"
5	2 1/2"	8"	5 1/2"
6	4 1/2"	10 3/4"	6 1/2"
7	5 1/4"	1'-0 1/2"	7 3/4"
8	6"	1'-2 1/4"	9"

13 S3.1 **TYPICAL STIRRUP HOOKS** NO SCALE



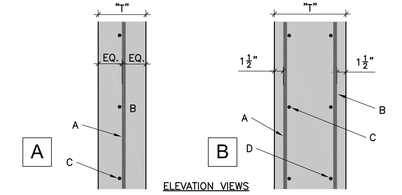
CONCRETE WALL FOOTING & TIE BEAM SCHEDULE

FTG. MARK	FTG. TYPE	SIZE		REINFORCING			
		WIDTH "W"	DEPTH "D"	LONGITUDINAL BOTTOM	LONGITUDINAL TOP	TRANSVERSE CLOSED TIE	NOTES
WF2	C	2'-0"	2'-0"	3-#5	3-#5	#4 @ 10"o.c.	
WF3-1	C	3'-0"	2'-6"	6-#8	6-#8	#4 @ 10"o.c.	
WF3-2	A	3'-0"	2'-6"	6-#8	6-#8	#4 @ 10"o.c.	
WF4	C	4'-0"	3'-6"	8-#8	8-#8	#4 @ 10"o.c.	
WF5-1	C	5'-0"	3'-6"	8-#8	8-#8	#4 @ 10"o.c.	

SEE: 4 S5.1, 5 S5.1, 9 S5.1, 10 S5.1, 13 S5.1, 17 S5.1

NOTE: ALL WF'S DEFAULT TO COND. D IN PORTIONS WHERE NO WALL IS PRESENT

12 S3.1 **WALL FOOTING AND GRADE BEAM SCHEDULE** NO SCALE



CONCRETE WALL SCHEDULE

WALL MARK	WALL TYPE	WALL THICKNESS "T"	VERTICAL REINFORCING		HORIZONTAL REINFORCING		NOTES
			OUTSIDE FACE REINFORCING A	INSIDE FACE REINFORCING B	OUTSIDE FACE REINFORCING C	INSIDE FACE REINFORCING D	
W8	A	8"	#5 @ 12"o.c.		#5 @ 12"o.c.		
W8A	A	8"	#6 @ 12"o.c.		#6 @ 12"o.c.		
W12	B	12"	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	
W14	B	14"	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	
W16	B	16"	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	#5 @ 12"o.c.	

NOTE: SEE 5&6/S3.4 FOR TYPICAL JAMB/END CONDITION DETAIL TO BE USED AT ALL WALLS

SEE: 3 S3.1, 4 S3.1, 7 S3.1, 9 S3.1, 13 S3.1, 1 S3.4, 2 S3.4, 4 S3.4, 5 S3.4, 6 S3.4, 8 S3.4, 9 S3.4, 12 S3.4, 16 S3.4

11 S3.1 **CONCRETE WALL SCHEDULE** 1"=1'-0"

LAP SPLICE SCHEDULE

BAR SIZE	LAP CLASS	f'c=3000		f'c=4000		f'c=5000	
		TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	A	23	17	20	15	18	13
	B	29	22	25	20	23	17
#4	A	30	23	26	20	23	18
	B	39	30	34	26	30	23
#5	A	37	28	32	24	29	22
	B	48	36	42	31	38	29
#6	A	45	34	39	29	35	26
	B	58	44	50	38	45	34
#7	A	63	49	54	42	48	37
	B	82	64	70	55	62	48
#8	A	72	56	62	48	55	43
	B	94	73	81	62	72	56
#9	A	81	62	69	53	62	48
	B	105	81	90	69	81	62
#10	A	90	69	77	59	69	53
	B	117	90	100	77	90	69
#11	A	99	76	85	65	76	58
	B	129	99	111	85	99	75

STANDARD HOOK DEVELOPMENT

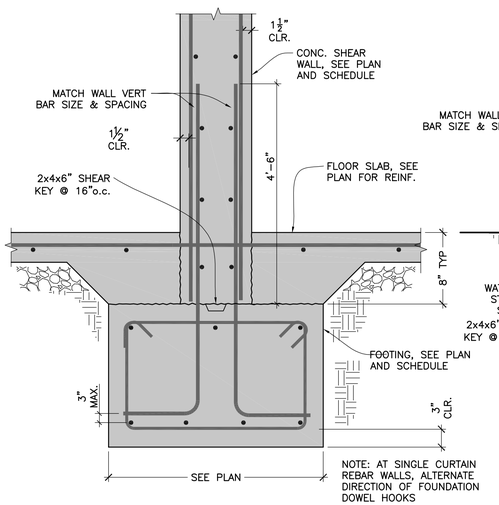
fy=60 ksi NORMAL-WEIGHT CONCRETE			
BAR SIZE	f'c=3000	f'c=4000	f'c=5000
#3	9	8	7
#4	11	10	9
#5	14	12	11
#6	17	15	13
#7	20	17	15
#8	22	19	17
#9	25	22	20
#10	28	24	22
#11	31	27	24

STRAIGHT BARS DEVELOPMENT

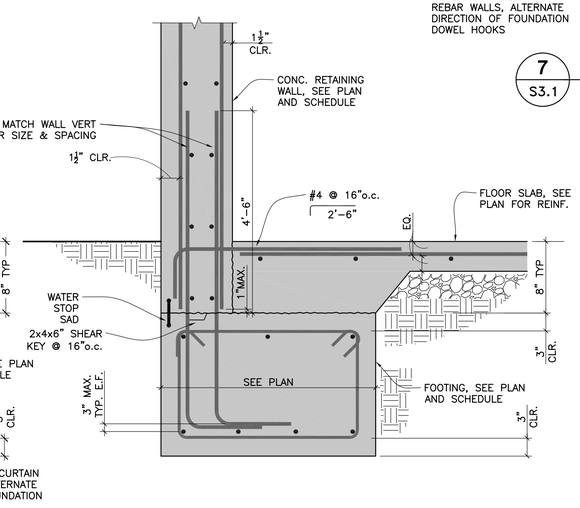
fy=60 ksi NORMAL-WEIGHT CONCRETE						
BAR SIZE	f'c=3000		f'c=4000		f'c=5000	
	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	22	17	19	15	17	13
#4	29	22	25	19	23	17
#5	36	28	31	24	28	22
#6	43	33	37	29	34	26
#7	63	48	54	42	49	38
#8	72	55	62	48	56	43
#9	81	62	70	54	63	48
#10	91	70	79	61	70	54
#11	105	78	87	67	78	60

NOTES:
1. CONCRETE STRENGTH IS IN PSI, DEVELOPMENT LENGTH IS IN INCHES.
2. USE "TOP" LAP, CLASS "B" FOR ALL APPLICATIONS, UNLESS NOTED OTHERWISE ON PLAN AND/OR DETAILS.
3. SPLICES IN HORIZONTAL REINFOREMCENT IN WALLS SHALL BE STAGGERED. SEE STRUCT. NOTES.
4. SPLICES IN WALLS CONTAINING TWO CURTAINS OF REINFORCEMENT SHALL NOT OCCUR IN THE SAME LOCAITON. SEE STRUCT. NOTES.

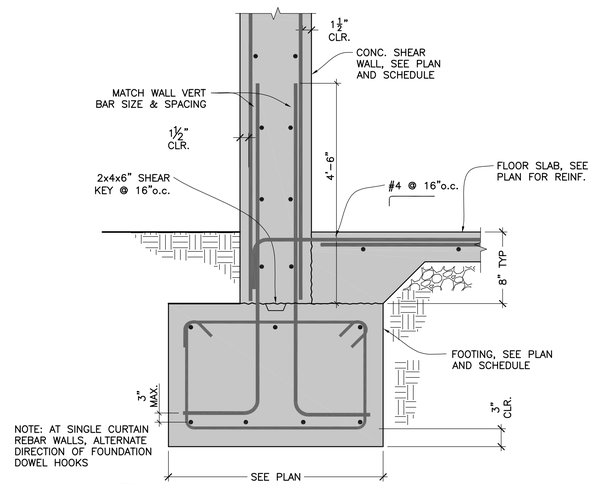
9 S3.1 **LAP SPLICES AND STANDARD HOOK SCHEDULE** NO SCALE



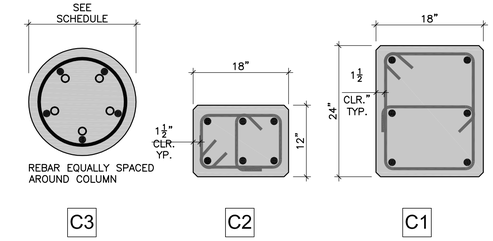
4 S3.1 **FOOTING DETAIL AT INTERIOR WALL** 1" = 1'-0"



3 S3.1 **FOOTING DETAIL AT EXTERIOR WALL** 1" = 1'-0"



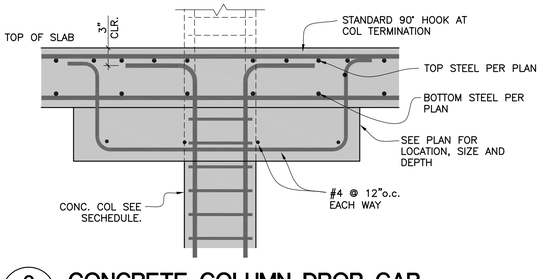
7 S3.1 **CENTERED FOOTING DETAIL AT EXTERIOR WALL** 1" = 1'-0"



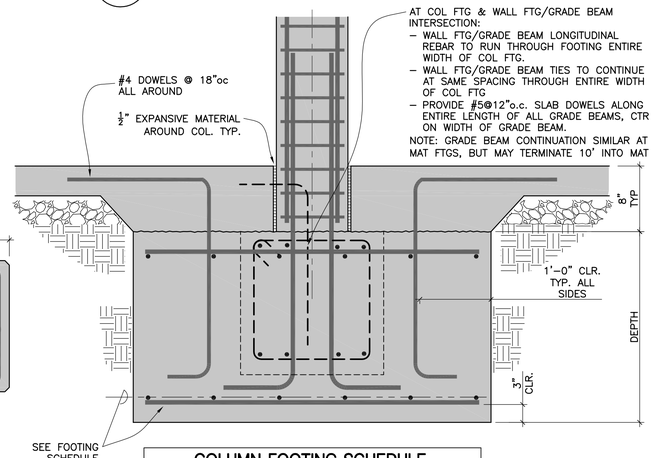
MARK	SIZE	VERTICAL REINF.	DOWELS	COLUMN TIES
C1	18"x24"	6-#11	6-#6	#4 @ 4"o.c.
C2	12"x18"	6-#10	6-#6	#4 @ 4"o.c.
C3	18" DIA	5-#10	5-#10	#4 @ 4"o.c.

SEE: 9 S5.1, 13 S5.1

2 S3.1 **CONC. COL. SCHEDULE** 1" = 1'-0"



6 S3.1 **CONCRETE COLUMN DROP CAP** 1"=1'-0"



COLUMN FOOTING SCHEDULE

MARK	SIZE	DEPTH	BOTTOM REINFORCING	TOP REINFORCING
F5	5'-0"x5'-0"	30"	6-#8 E.W.	6-#8 E.W.
F7	7'-0"x7'-0"	30"	8-#8 E.W.	8-#8 E.W.
F8	8'-0"x8'-0"	30"	9-#8 E.W.	9-#8 E.W.
F9	9'-0"x9'-0"	36"	10-#8 E.W.	10-#8 E.W.
F9.5	9'-6"x9'-6"	36"	10-#8 E.W.	10-#8 E.W.

SEE: 2 S5.1, 9 S5.1, 12 S5.1, 13 S5.1

1 S3.1 **CONCRETE COLUMN FOOTING SCHEDULE** 1"=1'-0"

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THE UNION
Holliday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS	DATE
Permit Set	08.24.2016

ADDENDA

No.	Description	Date

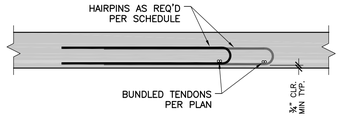
SHEET TITLE: Structural Details

SCALE: 3/4" = 1'-0"

JOB NUMBER	RELEASE DATE
MBC #215-298	24 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

S3.1

OF SHEETS

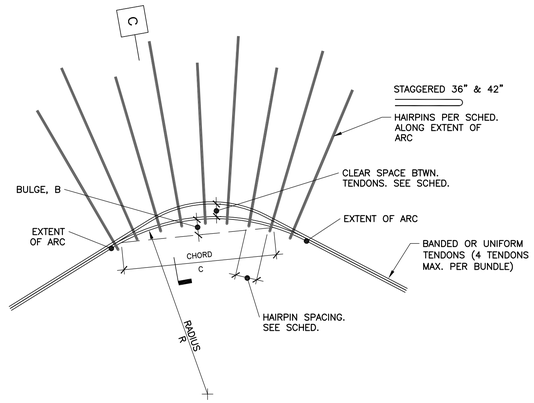


C SLAB SECTION AT HAIRPIN

CHORD, C		RADIUS, R: R < 5'–0"	5'–0"< R <10'–0"	10'–0"< R <20'–0"	20'–0" < R
	2'–0"	B > 1¼"	½" < B < 1¼"	¼" < B < ½"	B < ¼"
	3'–0"	B > 2¾"	1¼" < B < 2¾"	¾" < B < 1¼"	B < ¾"
	4'–0"	B > 5"	2½" < B < 5"	1¼" < B < 2½"	B < 1¼"
	6'–0"	B > 12"	5½" < B < 12"	2¾" < B < 5½"	B < 2¾"
HAIRPINS		NOT ALLOWED	#4 @ 3" O.C.	#4 @ 6" O.C.	NO HAIRPINS REQUIRED
CLEAR SPACE		N/A	2"	1¼"	0"

NOTE:
RADIUS OF CURVE MAY BE MEASURED DIRECTLY OR MAY BE FOUND IN THE SCHEDULE BY MEASURING ANY CHORD AND CORRESPONDING BULGE ALONG THE CURVE.

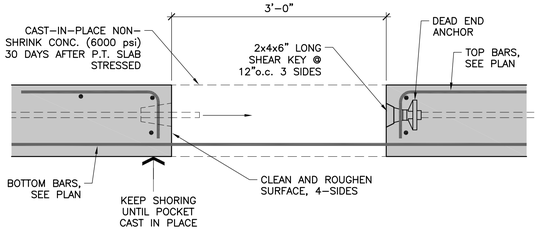
B HAIRPIN SCHEDULE



A PLAN VIEW HORIZONTAL CURVE

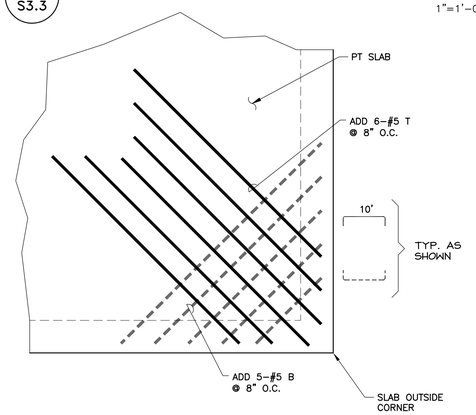
13 S3.3 HORIZONTAL TENDON CURVE DETAIL

3/4"=1'–0"



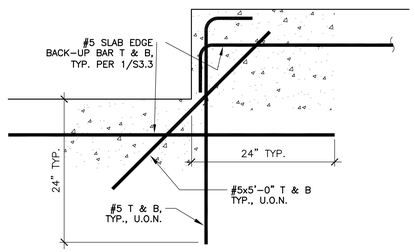
9 S3.3 STRESSED POCKET DETAIL

1"=1'–0"



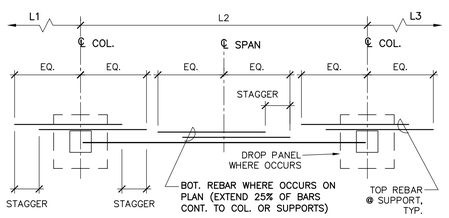
8 S3.3 TYPICAL PT SLAB OUTSIDE CORNER REINFORCEMENT

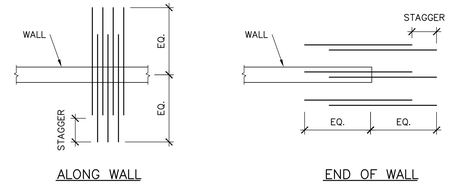
1"=1'–0"



4 S3.3 SLAB RE-ENTRANT CORNER PLAN-VIEW

1"=1'–0"

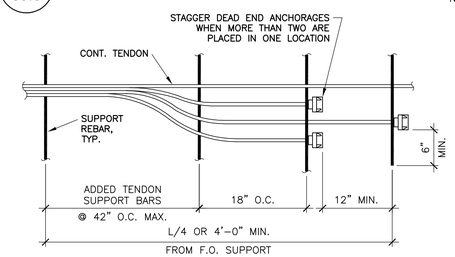




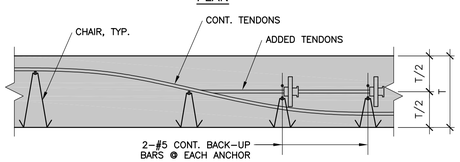
NOTE:
STAGGER ALL BARS (ALL CONDITIONS) 18" UNLESS SPACING IS INSUFFICIENT IN WHICH CASE FIELD ADJUST TO LESS STAGGER, U.O.N.

7 S3.3 STANDARD STAGGER

N.T.S.



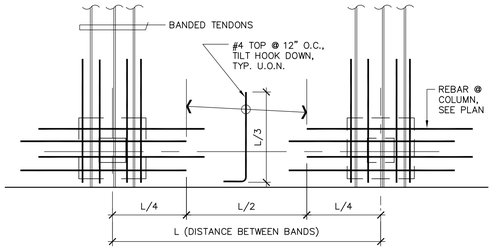
PLAN



ELEVATION

3 S3.3 ADDED TENDON ANCHORAGES

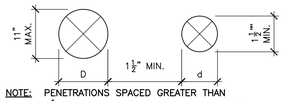
1"=1'–0"



NOTE:
THIS DETAIL IS NOT REQ'D WHEN "L" = 15'–0" OR LESS.

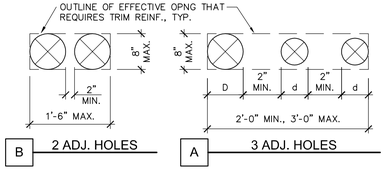
11 S3.3 ADDED REBAR BETWEEN BANDED TENDONS

3/4"=1'–0"



NOTE: PENETRATIONS SPACED GREATER THAN 1½D APART DO NOT REQUIRE TRIM REINF.

C 2 REMOTE HOLES



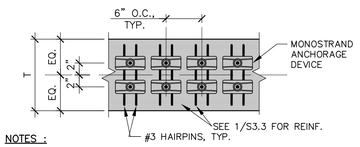
B 2 ADJ. HOLES A 3 ADJ. HOLES

NOTES:
1. CONDITIONS A & B REQUIRE 1–#5 T&B TRIM BARS ALL AROUND EFFECTIVE OPNG W/ 2'–0" EMBEDMENT PAST THE EDGE OF EFFECTIVE OPNG. DIAG. BARS ARE NOT NECESSARY @ THESE CONDITIONS.

2. IF THE LENGTH OF AN EFFECTIVE OPNG IS GREATER THAN 3'–0", FOLLOW THE TRIM REQUIREMENTS OF 5/S3.3

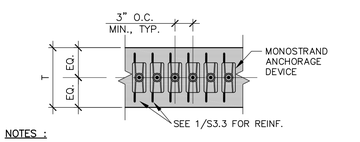
6 S3.3 CLOSELY-SPACED SLAB PENETRATIONS

3/4"=1'–0"



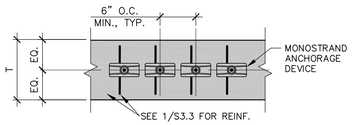
NOTES :
1.) DETAIL APPLIES WHERE SLAB THICKNESS (T) EXCEEDS OR EQUALS 12" AND THE NUMBER OF BANDED TENDONS EXCEEDS 20.
2.) THOROUGHLY CONSOLIDATE CONC. BEHIND TENDON ANCHORAGE.

2C BANDED



NOTES :
1.) DETAIL APPLIES WHERE SLAB THICKNESS (T) IS LESS THAN 12", OR WHERE SLAB THICKNESS (T) EXCEEDS 12" AND THE NUMBER OF BANDED TENDONS IS LESS THAN 20.
2.) THOROUGHLY CONSOLIDATE CONC. BEHIND TENDON ANCHORAGE.

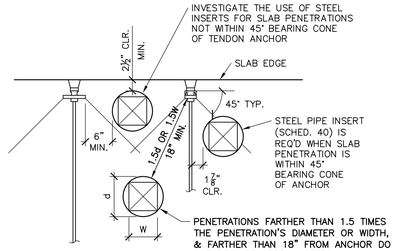
2B BANDED



2A UNIFORM

2 S3.3 TYP. TENDON ANCHORAGE AT SLAB EDGE

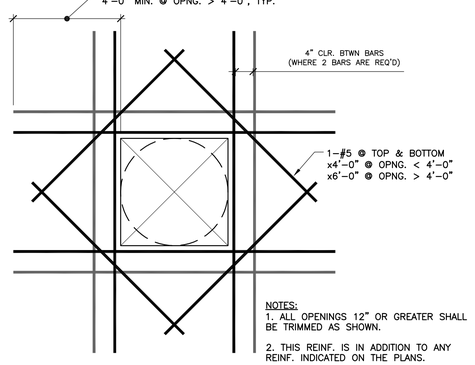
1"=1'–0"



NOTE:
ANY PENETRATIONS WITH DIMENSIONS GREATER THAN 11" MUST HAVE TRIM REINF. AS PER DETAIL 5/S3.3

10 S3.3 PENETRATIONS AT TENDON ANCHORS

3/4"=1'–0"



DIMENSION	REINFORCING
12" TO 18"	1–#5 T & B, EA. SIDE
18" TO 2'–6"	1–#5 T&B EA.SIDE
2'–6" & LARGER	2–#5 T&B EA.SIDE

NOTES:
1. ALL OPENINGS 12" OR GREATER SHALL BE TRIMMED AS SHOWN.

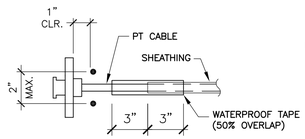
2. THIS REINF. IS IN ADDITION TO ANY REINF. INDICATED ON THE PLANS.

3. THIS DETAIL ONLY APPLIES TO OPENINGS SHOWN ON PLAN. ADDITIONAL OPENINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.

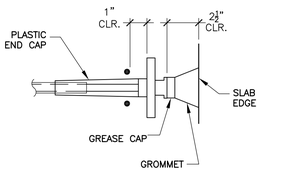
4. FOR MULTIPLE OPENINGS SEE 6/S3.3

5 S3.3 TRIM REINF. AT SLAB OPENING

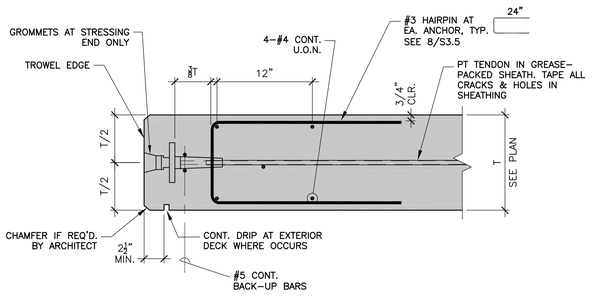
3/4"=1'–0"



1B DEAD ANCHOR



1A STRESSING ANCHOR



1 S3.3 SLAB EDGE & TENDON ANCHOR DETAIL

N.T.S.

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dbarchitect.com
461 second street loft 127
san francisco california 94107
415 896 6700 fax 415 896 6103

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SAN FRANCISCO, CA 94105
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FAX. 415.882.7257
STRUCTURAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER STEPHEN F. CURRY No. S 6364 Exp. 3-31-17 STRUCTURAL STATE OF CALIFORNIA

THE UNION
Holliday Development
532 Union Street Oakland, CA

DRAWING RELEASE STATUS	DATE
Permit Set	08.24.2016

ADDENDA

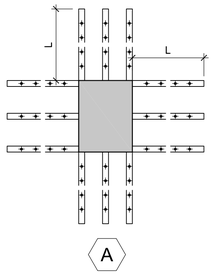
No.	Description	Date

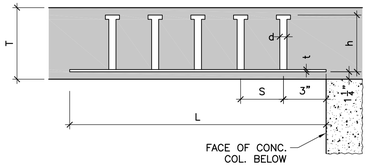
SHEET TITLE
Structural Details

SCALE
1" = 1'-0"

JOB NUMBER	RELEASE DATE
MBC #215-298	24 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

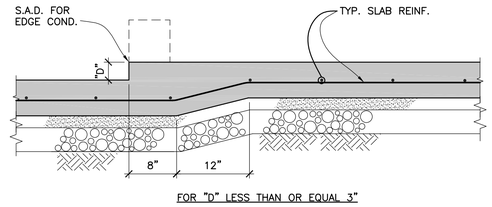
S3.3
OF SHEETS

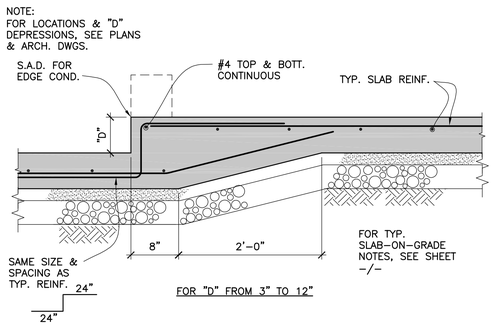




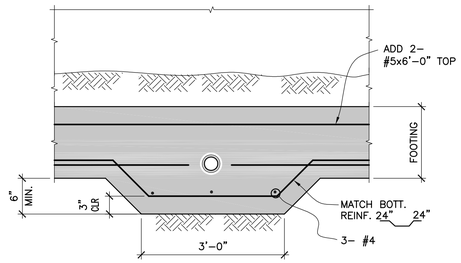
STUD RAIL SCHEDULE								
TYPE	L (LENGTH)	S (SPACING)	T	t	h	D	d	No. OF STUD
A	60"	5.375"	16"	0.375"	14"	2.37"	0.75"	9

11 S3.5 **STUDRAIL DETAILS**
1/2" = 1'-0"

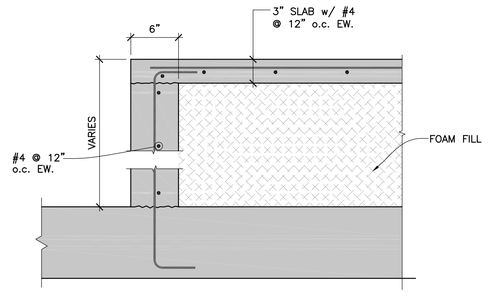




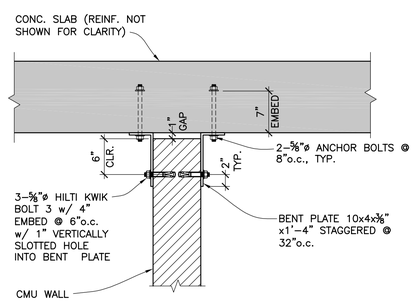
7 S3.5 **TYP. STEPPED SLAB ON GRADE**
3/4"=1'-0"



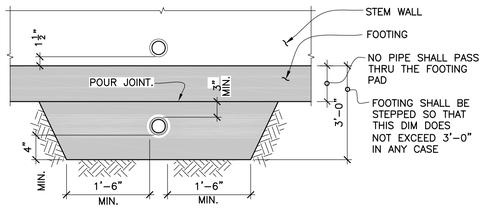
3 S3.5 **PIPE & TRENCH CLEARANCE**
1"=1'-0"

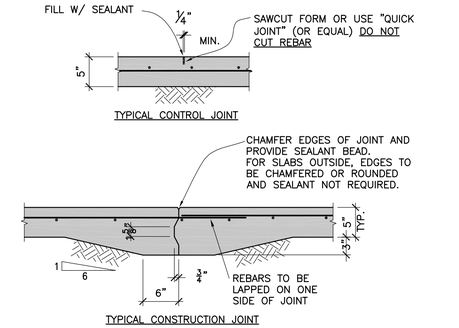


14 S3.5 **TYP. TOPPING SLAB OVER PODIUM (w/ FOAM)**
1" = 1'-0"

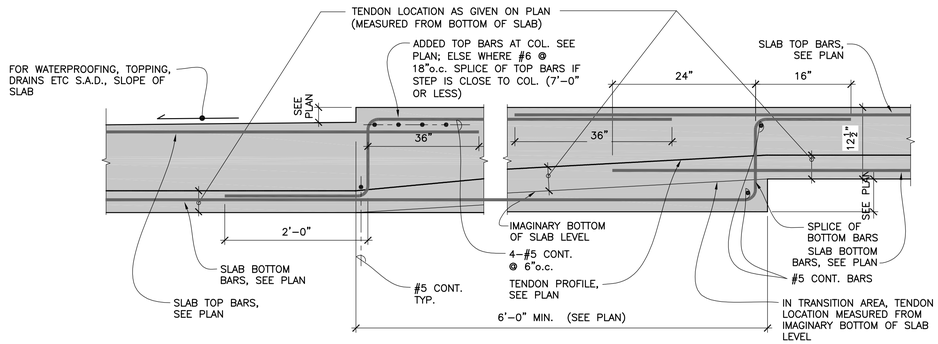


10 S3.5 **CMU WALL CONNECTION TO P.T. SLAB**
1" = 1'-0"

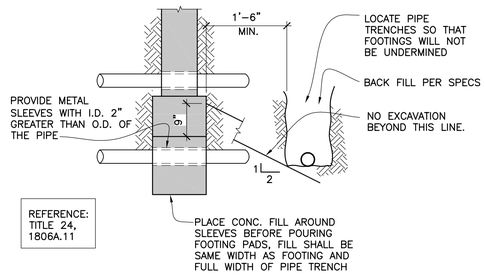




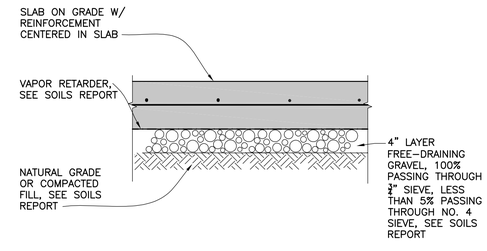
2 S3.5 **TYP. SLAB ON GRADE JOINTS**
1"=1'-0"



9 S3.5 **TYPICAL SLAB DETAIL AT STEPS**
1"=1'-0"



5 S3.5 **TYPICAL TRENCH/FOOTING DETAILS**
1"=1'-0"



1 S3.5 **TYPICAL SLAB ON GRADE**
1"=1'-0"

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415 896 6700 fax 415 896 6103

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ADDENDA

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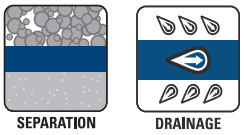
MBC #215-298	24 August, 2016
DRAWN BY	CHECKED BY
MBC STAFF	S.C.

S3.5
OF SHEETS

TENCATE Mirafi®



Mirafi® Orange Delineation Nonwoven Geotextile

for Visual Barrier, Soil Separation and Drainage

Mirafi® Orange Delineation Geotextiles

TenCate™ develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

The Difference Mirafi® Orange Nonwoven Geotextiles Make:

- Utility Alert. Mirafi® delineation geotextiles are a visual dig barrier designed to be placed above underground utilities.
- Contaminated Soils. Mirafi® delineation geotextiles separate contaminated soils from clean soils.
- Archeological Sites. Mirafi® delineation geotextiles assist in the long-term protection of historical sites.

APPLICATIONS

Mirafi® nonwoven geotextiles are used in a wide variety of applications in the environmental and general civil markets. These include separation, filtration and protection applications.

Mirafi® delineation geotextiles are is used in many critical subsurface systems. The use of this orange delineation fabric allows for safe excavations where utilities or other sensitive structures may be buried. The highly visible orange nonwoven geotextile serves as a warning to construction workers when the excavation reaches a buried structure.

Excavation near all utilities, (gas, electric, water, Cable TV and telephone) is always a sensitive operation. The use of Mirafi® delineation geotextile is a low cost-effective method of protection. In addition, lining trench's with a geotextile keeps the selected and costly backfill material separated from the native subgrade.

Construction in areas where contaminated soils exist poses risks when trenches or deep footings need to be excavated. These risks are minimized when the Mirafi® delineation geotextile is placed on the contaminated soils before the capping of these areas occurs. The geotextile limits particle movement between the clean new soil and the contaminated substrate. The Mirafi® delineation geotextile offers a visual barrier to future excavations of the contaminated hazard below.

Federal and State laws require that archeological sites must be protected from adverse impacts caused by engineering projects. Many archeological sites throughout the world are left in place to protect them. In some cases, after discovery, they are buried. Sites can be protected through burial below an engineered cover, if the engineering project does not require excavation. The installation of Mirafi® delineation geotextile before the new soil is placed will aide in the long term protection of these archeological sites.

* These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate™ representative.

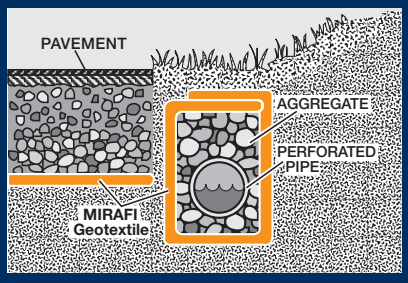
Mirafi® Orange Delineation Nonwoven Geotextiles

for Visual Barrier, Soil Separation and Drainage

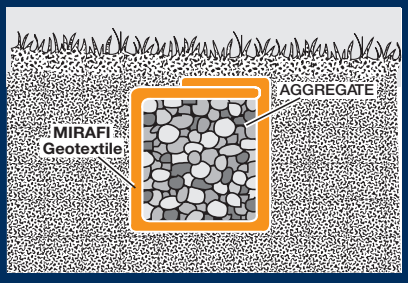
Property / Test Method	Units	140NL	160N	180N
MECHANICAL PROPERTIES				
Grab Tensile Strength ASTM D4632				
Strength @ Ultimate	lbs (N)	100 (445)	175 (779)	240 (1068)
Elongation @ Ultimate	%	75	75	70
Trapezoidal Tear Strength	lbs	50	85	90
ASTM D4533	(N)	(223)	(378)	(400)
CBR Puncture Strength	lbs	310	480	630
ASTM D6241	(N)	(1380)	(2136)	(2802)
UV Resistance after 500 hrs.	% strength	70	80	80
ASTM D4355				
HYDRAULIC PROPERTIES				
Apparent Opening Size (AOS)	US Sieve	70	100	100
ASTM D4751	mm	0.212	0.15	0.15
Permittivity	sec^{-1}	2.4	1.5	1.5
ASTM D4491				
Flow Rate ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	175 (7130)	105 (4278)	95 (3870)
Packaging				
Roll Width	ft (m)	15.0 (4.5)	15.0 (4.5)	15.0 (4.5)
Roll Length	ft (m)	360 (110)	300 (91)	300 (91)
Est. Gross Weight	lbs (kg)	143 (165)	215 (97)	265 (120)
Area	yd^2 (m^2)	600 (502)	500 (418)	500 (418)

*NOTE: Mechanical Properties and Hydraulic Properties shown are Typical Value. Apparent Opening Size (AOS) properties shown are Maximum Average Roll Values. (Values and methods could change without notice)

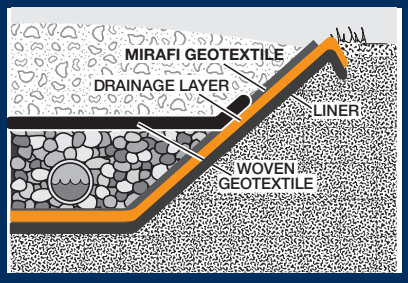
Mirafi® Orange Delineation Geotextiles



Cut-off/Inceptor Drain Along a Roadway Or Another Critical Struction



French Drain Without Pipe



Liner Protection Within a Landfill

PDS.NLO.0911

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Tel 706 693 2226

Fax 706 693 4400
www.mirafi.com

ISO 9001
FM 61026

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