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

Subject: *Site Investigation Work Plan*, 5th Street and Magnolia Street, West Oakland,
California (Case No.: RO0003194).

Dear Mr. Detterman:

Please find attached the *Site Investigation Work Plan* prepared by West Environmental Services & Technology, Inc. (WEST) for the 5th Street and Magnolia Street property in West Oakland, California (the "Site"). I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

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

Sincerely,



Kevin Brown
Holliday Development

SITE INVESTIGATION WORK PLAN
5TH Street and Magnolia Street
West Oakland, California

April 2016

Prepared for

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Prepared by

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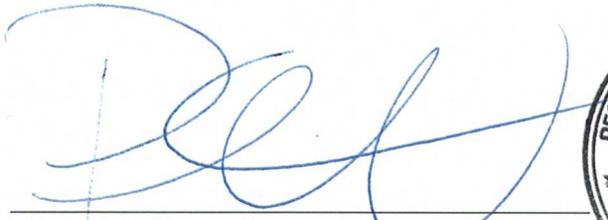
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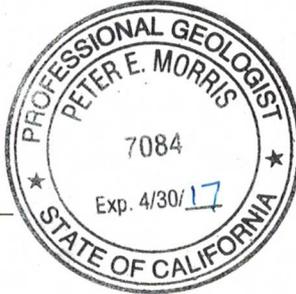
All information, conclusions and recommendations contained in this report have been prepared under the supervision of the undersigned professional(s).


Peter M. Krasnoff
California Registered Civil Engineer (44031)



4/4/16
Date


Peter E. Morris
California Professional Geologist (7084)



4/4/16
Date

1.0 INTRODUCTION

This *Site Investigation Work Plan* (“*Work Plan*”) has been prepared by West Environmental Services & Technology, Inc., (WEST) and presents a scope of work to further characterize the presence of metals in soil at 5th Street and Magnolia Street property located in West Oakland, California (“*Site*,” Figure 1-1). This *Work Plan* includes: a description of the Site background and setting; summary of previous investigations; data evaluation and comparative analysis; and a scope of work to conduct additional investigations. The *Work Plan* was prepared in accordance with regulatory guidance documents including the State Water Resources Control Board (SWRCB) *Resolution 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code 13304* (SWRCB, 1996).

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.

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 the UST releases on the adjacent properties. Eight borings (W-1 to W-8) were advanced 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 ($\mu\text{g}/\text{kg}$). Organochlorine pesticides were also detected in the soil samples including chlordane up to 18.4 $\mu\text{g}/\text{kg}$ and 4,4-DDE up to 7.54 $\mu\text{g}/\text{kg}$. Metals were detected in the soil samples including arsenic up to 7.21 milligrams per kilogram (mg/kg) and lead up to 2,180 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 ($\mu\text{g}/\text{m}^3$) and benzene up to 9.14 $\mu\text{g}/\text{m}^3$. 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 ($\mu\text{g}/\text{l}$).

The Site is proposed for a multi-story mixed commercial/multi-family residential building. Based on the findings of the September 2015 investigations, additional sampling will be conducted to further characterize the presence of metals in soil that will be excavated as part of the development foundation work. This *Work Plan* presents the scope of work of the additional sampling to be conducted at the Site.

2.0 SITE DESCRIPTION

The approximately 0.5-acre Site is an undeveloped asphalt paved lot located within a commercial zone and bounded by: 5th Street to the south; Union Street to the west; commercial businesses to the north; and Magnolia Street to the east (Figure 2-1). 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 SURFACE WATER

The San Francisco Bay is located approximately 500-feet west of the Site.

2.3 HISTORICAL SITE USE

The Site was formerly part of the Caltrans Interstate 880 (Cypress Freeway) right-of-way that was demolished following the 1989 Loma Prieta earthquake. Following freeway demolition, the Site was paved and fenced for use as a parking and equipment storage lot.

2.4 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 California Regional Water Quality Control Board – San Francisco Bay Region (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).

2.5 PROPOSED DEVELOPMENT

The Site will be developed with a multi-story mixed commercial/multi-family residential building. The ground floor will be occupied by commercial offices, parking, landscaping and hardscape. Residential studio, one bedroom and two bedroom apartments will be constructed above the parking garage and commercial offices (Appendix A). As part of the construction, foundation footings will be excavated between approximately two-feet and four-feet below ground surface. Soil generated during the foundation excavations will be characterized for off-Site disposal.

3.0 SUMMARY OF INVESTIGATIONS

In September 2015, soil, soil gas and groundwater samples were collected from eight borings, W-1 to W-8, advanced at the Site. The borings were advanced between three-feet and 16-feet below ground surface. A summary of the investigation is presented below. Summaries of the laboratory analytical results are also included in Tables 3-1 to 3-4 and depicted on Figures 3-1 and 3-2.

3.1 SOIL SAMPLING

Twenty-four soil samples were collected from eight borings advanced at the Site on September 17, 2015 (Figure 2-1). The soil samples were collected between approximately one-foot and six-feet below ground surface using direct push drilling equipment operated by a California licensed C-57 well drilling contractor. Soil cores were collected from the borings continuously using a four-foot long, two-inch diameter stainless steel Macrocore core barrel outfitted with an acetate liner. The soil cores were described on boring logs using the Unified Soil Classification System (USCS) and field screened for total organic vapors using a photoionization detector (PID) equipped with a 10.6 electron-Volt (eV) lamp and calibrated to 100 parts per million by volume (ppm_v) isobutylene gas. The soil samples were analyzed for PAHs by United States Environmental Protection Agency (USEPA) Method 8270C, organochlorine pesticides by USEPA Method 8081A and Title 22 Metals by USEPA Method 6000/7000 series.

3.1.1 Laboratory Analytical Results

3.1.1.1 PAHs

Laboratory analysis of the soil samples collected from the borings at approximately one-foot below ground surface revealed PAHs including: Acenaphthylene up to 32 µg/kg (W-4); anthracene up to 25.9 µg/kg (W-4); benzo(a)anthracene up to 105 µg/kg (W-4); benzo(b)fluoranthene up to 187 µg/kg (W-7); benzo(k)fluoranthene up to 60.7 µg/kg (W-4);

benzo(a)pyrene up to 119 µg/kg (W-4); benzo(g,h,i)perylene up to 287 µg/kg (W-4); chrysene up to 130 µg/kg (W-3); dibenzo(a,h)anthracene up to 430 µg/kg (W-6); fluoranthene up to 87 µg/kg (W-4); fluorene up to 28.2 µg/kg (W-4); indeno(1,2,3-c,d)pyrene up to 120 µg/kg (W-7); naphthalene up to 26.2 µg/kg (W-2); phenanthrene up to 129 µg/kg (W-4); and pyrene up to 184 µg/kg (W-4; Table 3-1).

3.1.1.2 ORGANOCHLORINE PESTICIDES

The organochlorine pesticides chlordane and 4,4-DDE were detected in the soil samples collected from borings W-1 to W-8 at one-foot below ground surface. Chlordane was detected up to 18.4 µg/kg (W-8). 4,4-DDE was detected up to 7.54 µg/kg (W-5; Table 3-1). Other organochlorine pesticides were not detected above the laboratory-reporting limits.

3.1.1.3 METALS

Soil samples collected from the borings at one-foot, three-feet and six-feet below ground surface were analyzed for metals. Arsenic was detected up to 7.21 mg/kg (W-2 at one-foot below ground surface); barium up to 1,790 mg/kg (W-2 at three-feet below ground surface); chromium up to 29.9 mg/kg (W-4 at three-feet below ground surface); cobalt up to 8.18 mg/kg (W-3 at one-foot below ground surface); copper up to 43.4 mg/kg (W-4 at three-feet below ground surface); lead up to 2,180 mg/kg (W-4 at three-feet below ground surface); mercury up to 0.38 mg/kg (W-2 at three-feet below ground surface); nickel up to 34.5 mg/kg (W-4 at three-feet below ground surface); vanadium up to 43.2 mg/kg (W-3 at one-foot below ground surface); and zinc up to 701 mg/kg (W-4 at three-feet below ground surface)(Table 3-2 and Figure 3-1).

3.2 SOIL GAS SAMPLING

Four soil gas samples were collected from four borings, W-1, W-2, W-4 and W-7, at approximately five-feet below ground surface. The soil gas samples were analyzed for VOCs by USEPA Method TO-15 and helium by ATM Method D 1945.

3.2.1 Laboratory Analytical Results

Laboratory analysis of the soil gas samples revealed the presence of VOCs including: PCE up to 352 $\mu\text{g}/\text{m}^3$ (W-4); benzene up to 9.14 $\mu\text{g}/\text{m}^3$ (W-1); toluene up to 15.8 $\mu\text{g}/\text{m}^3$ (W-1); ethyl benzene up to 4.60 $\mu\text{g}/\text{m}^3$ (W-1); xylenes up to 19.11 $\mu\text{g}/\text{m}^3$ (W-1); 1,3,5-trimethylbenzene (1,3,5-TMB) up to 10.4 $\mu\text{g}/\text{m}^3$ (W-1); 1,2,4-trimethylbenzene (1,2,4-TMB) up to 17 $\mu\text{g}/\text{m}^3$; and trichlorofluoromethane (TCFM) up to 16.7 $\mu\text{g}/\text{m}^3$ (W-1)(Table 3-3 and Figure 3-2). The helium leak tracer gas was not detected in the soil gas samples above the laboratory-reporting limit of 0.100-percent.

3.3 GROUNDWATER SAMPLING

Three groundwater samples were collected from borings W-1, W-2 and W-4. The groundwater samples were analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPHg) by USEPA Method 8015M modified and for VOCs by USEPA Method 8260B. 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 3-4). VOCs were not detected in the groundwater samples above their laboratory-reporting limits, except for PCE at 0.850 $\mu\text{g}/\text{l}$ (W-2)(Table 3-4).

4.0 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, 2016). 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.

4.1 SCREENING LEVEL ASSESSMENT

4.1.1 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. 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 4-1).

4.1.1.1 EXPOSURE CONCENTRATIONS

Where sample data were limited, the maximum-detected concentration of the chemicals was compared with the screening levels. Where an adequate number of data points were available, the 95 percent upper confidence level (UCL) of the mean concentration, i.e., the Reasonable Maximum Exposure (RME) was compared with the screening levels, pursuant to CalEPA and USEPA guidance (CalEPA, 1996). The 95-percent UCL was calculated using ProUCL Version 5.0 (USEPA, 2013) and was performed on the soil laboratory analytical results for lead in soil (WEST, 2015).

The USEPA recommends that maximum beneficial uses of a property be the basis for evaluation. Based on the develop plans for ground floor commercial offices, parking garage, landscaping and hardscape, the Site conditions have been screened using the methods described below based on a commercial exposure scenario.

4.1.1.2 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, 2013). 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.

4.1.2 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). 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, 2016).

4.1.2.1 REGIONAL WATER BOARD ESLs

The Regional Water Board has identified ESLs for PAHs, pesticides and metals in soil, VOCs in soil gas and groundwater (Regional Water Board, 2016). The Regional Water Board ESLs “are considered to be very 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 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.” 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.

4.2 COMPARATIVE ANALYSIS

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

4.2.1 Soil Conditions

4.2.1.1 PAHs

PAHs were detected in the soil samples collected at the Site at concentrations below their respective commercial and construction worker Regional Water Board ESLs with the exception of dibenzo(a,h)anthracene. Dibenzo(a,h)anthracene was detected up to 430 µg/kg, which is above its commercial Regional Water Board ESL of 290 µg/kg, but below its construction worker Regional Water Board ESL of 1,600 µg/kg (W-6; Table 3-1). However, as the commercial worker is not anticipated to be exposed to soil below two-feet; the presence of dibenzo(a,h)anthracene at this depth does not represent a complete exposure pathway. The 95-percent UCL, i.e., exposure point concentration of dibenzo(a,h)anthracene in soil at one-foot

below ground surface was calculated at 185 µg/kg, which is below the commercial Regional Water Board ESL of 290 µg/kg.

4.2.1.2 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, which is below its commercial Regional Water Board ESL of 2,200 µg/kg. 4,4-DDE was detected up to 7.54 µg/kg, which is below its commercial Regional Water Board ESL of 8,500 µg/kg (Table 3-1).

4.2.1.3 METALS

Metals were detected in the soil samples collected between one-foot and six-feet below ground surface. Arsenic was detected up to 7.21 mg/kg, which is within the range of background arsenic concentrations up to 11 mg/kg for the San Francisco Bay Area (Duverge, 2011). Lead was detected up to 2,180 mg/kg (W-4 at three-feet below ground surface), which is above its commercial Regional Water Board ESL of 320 mg/kg (Table 3-2 and Figure 3-1). However, as the commercial worker is not anticipated to be exposed to soil below two-feet; the presence of lead at this depth does not represent a complete exposure pathway. The 95-percent UCL, i.e., exposure point concentration of lead in soil at one-foot below ground surface was calculated at 185 mg/kg, which is below the commercial Regional Water Board ESL of 320 mg/kg.

Other metals were detected above the laboratory-reporting limits but at concentrations below their respective commercial Regional Water Board ESLs (Table 3-2).

4.2.2 Soil Gas Conditions

VOCs were detected in the soil gas samples collected from borings W-1, W-2, W-4 and W-7. PCE was detected up to 352 µg/m³ (W-4), which is below its commercial Regional Water Board ESL of 2,100 µg/m³ for the protection of indoor air. Benzene was detected up to 9.14 µg/m³ (W-

1), which is below its commercial Regional Water Board ESL of 420 $\mu\text{g}/\text{m}^3$. Toluene was detected up to 15.8 $\mu\text{g}/\text{m}^3$, which is below its commercial Regional water Board ESL of 1,300,000 $\mu\text{g}/\text{m}^3$. Ethyl benzene was detected up to 4.60 $\mu\text{g}/\text{m}^3$, which is below its commercial Regional Water Board ESL of 4,900 $\mu\text{g}/\text{m}^3$. Xylenes were detected up to 19.11 $\mu\text{g}/\text{m}^3$, which is below its commercial Regional Water Board ESL of 440,000 $\mu\text{g}/\text{m}^3$ (Table 3-3 and Figure 3-2).

Other VOCs were detected in the soil gas samples including 1,3,5-TMB (up to 10.4 $\mu\text{g}/\text{m}^3$), 1,2,4-TMB (up to 17 $\mu\text{g}/\text{m}^3$) and TCFM (up to 16.7 $\mu\text{g}/\text{m}^3$); however, there are currently no promulgated Regional Water Board ESLs for these compounds.

4.2.3 Groundwater Conditions

Groundwater samples were collected from borings W-1, W-2 and W-4 (Figure 2-1). 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 $\mu\text{g}/\text{l}$, which is below its maximum contaminant level (MCL) of 5 $\mu\text{g}/\text{l}$. Other VOCs were not detected in the groundwater samples above their respective laboratory-reporting limits (Table 3-4).

4.3 SUMMARY

The findings of the Site investigation indicate that the exposure point concentration for the PAH dibenzo(a,h)anthracene (185 $\mu\text{g}/\text{kg}$) and lead (185 mg/kg) are present in soil below their respective commercial and construction worker ESLs Regional Water Board ESLs of 290 $\mu\text{g}/\text{kg}$ and 320 mg/kg, for the protection of human health under a commercial use scenario. VOCs were detected in the soil gas samples including PCE, but at levels below their respective commercial indoor air protection ESLs. The VOC PCE was detected in the groundwater sample at 0.850 $\mu\text{g}/\text{l}$ (boring W-2) but at a concentration below its MCL of 5 $\mu\text{g}/\text{l}$.

The development plan includes excavation of soil for construction of foundations. The foundation excavations will be advanced between approximately one-foot and 2.5-feet below

ground surface. Based on the comparative analysis, soil-containing lead is present at one-foot below applicable Regional Water Board ESLs. However, since the foundation excavations will extend to approximately 2.5-feet below ground surface, additional data are needed to characterize soil conditions within and at the base of the proposed foundations. Procedures and protocols for conducting the additional investigations are presented in Section 5.0.

5.0 SCOPE OF WORK

A scope of work has been developed to further characterize the soil conditions within the footprint of the proposed foundations at the Site (Figure 5-1). The following tasks have been developed to conduct the additional soil characterization.

- Task 1.0: Permitting, Health and Safety, Utility Clearance
- Task 2.0: Soil Sampling
- Task 3.0: Site Management Plan

Details of the tasks are presented below.

5.1 TASK 1.0: PERMITTING, HEALTH AND SAFETY, UTILITY CLEARANCE

In preparation for sample collection, WEST will obtain appropriate boring permits from the Alameda County Public Works Agency (ACPWA). WEST will also prepare a site-specific Health and Safety Plan (HASP) pursuant to CalOSHA Title 8 §5192 Hazardous Waste Operations and Emergency Response and the United States Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 Hazardous Waste Operations and Emergency Responses, which outlines worker protection procedures, chemical toxicology and training requirements for worker safety. Pursuant to California Assembly Bill AB 73, the work areas will be outlined on the ground surface and Underground Services Alert (USA) will be contacted to locate and clear the work areas for underground utilities. A private utility locator will also be used to clear the work areas.

5.2 TASK 2.0: SOIL SAMPLING

5.2.1 Borings

The borings will be advanced using hydraulic direct push drilling equipment operated by a California licensed C-57 well drilling contractor (Figure 5-1). Soil cores will be collected from the borings continuously using a four-foot long, two-inch diameter stainless steel Macrocore core barrel outfitted with an acetate liner. The soil cores will be described on boring logs using the Unified Soil Classification System (USCS) and field screened for total organic vapors using a photoionization detector (PID). The PID will be equipped with a 10.6 electron-Volt (eV) lamp and calibrated to 100 parts per million by volume (ppm_v) isobutylene gas. Downhole drilling rods and sampling equipment will be cleaned prior to sample collection and between boring locations.

5.2.2 Sample Collection Methodology

Soil samples for laboratory analyses will then be cut from approximately six-inch lengths of the acetate liner at target depths below ground surface (Table 5-1). The ends of the soil samples will then be covered with Teflon® sheets and plastic end caps, labeled and placed in a cooler with ice for transportation to a California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) certified laboratory for chemical analysis following ASTM D4840 chain-of-custody protocols. The soil samples will be analyzed for the suite of analytes included in Table 5-1.

5.2.3 Investigation-Derived Waste Management

Soil cuttings and decontamination water generated during soil sampling will be placed in United States Department of Transportation (DOT)-approved drums. The drums will be labeled and temporarily stored on-Site pending waste profile acceptance at an appropriate off-Site disposal facility.

5.3 TASK 3.0: SITE MANAGEMENT PLAN

WEST will prepare a Site Management Plan (SMP) for the project, which will outline the protocols and procedures for managing soil during Site development. The laboratory analytical results from the additional sampling will be incorporated into the SMP. The SMP will include: Site description; summary of investigations; a Conceptual Site Model (CSM); risk assessment; and a description of soil management measures to be implemented during and after Site development. The SMP will be prepared under the supervision of a California licensed Professional Engineer and a California licensed Professional Geologist and submitted to the Alameda County Department of Environmental Health for review and approval.

6.0 REFERENCES

- AEC Environmental Consultants, *Subsurface Site Investigation, 1211 Seventh Street, Oakland, California*, June 16, 1995 (AEC, 1995).
- Alameda County Health Care Services Agency, *Remedial Action Completion Certification, All Mercedes Dismantlers, 1225 7th Street, Oakland, California*, June 6, 1997 (ACHCSA, 1997).
- California Environmental Protection Agency - Department of Toxic Substances Control (DTSC) *Advisory – Active Soil Gas Investigation*, April 2012 (DTSC, 2012).
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7.0 DISTRIBUTION LIST

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SITE INVESTIGATION WORK PLAN
5TH STREET AND MAGNOLIA STREET
WEST OAKLAND, CALIFORNIA



TABLES

TABLE 3-1
SUMMARY OF SOIL ANALYTICAL RESULTS - PAHS and PESTICIDES
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	Depth (feet)	PAHs													Pesticides			
			Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Chlordane	4,4-DDE
			(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	9/17/18	1	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	<12.5	<5.00
W-2	9/17/18	1	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	17.6	<5.00
W-3	9/17/18	1	11.3	6.73	26	176	27	87.4	240	130	98.1	14.4	23	87.3	12.3	49.2	101	<12.5	<5.00
W-4	9/17/18	1	32	25.9	105	178	60.7	119	287	91.9	70.6	87	28.2	107	13.9	129	184	15.2	<5.00
W-5	9/17/18	1	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	<12.5	7.54
W-6	9/17/18	1	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	15.8	<5.00
W-7	9/17/18	1	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	15.3	<5.00
W-8	9/17/18	1	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	18.4	<5.00
ESLs-Commercial			4.5.E+07	2.3.E+08	2,900	2,900	29,000	290	--	290,000	290	3.0E+07	3.0.E+07	2,900	8,200	--	2.3.E+07	2,200	8,500
ESLs-Construction worker			9.6.E+06	4.8.E+07	16,000	16,000	150,000	1,600	--	1.5E+06	1,600	6.4E+06	6.4.E+06	16,000	78,000	--	4.8.E+06	14,000	57,000

Notes:

PAHs: Polycyclic aromatic hydrocarbons

µg/kg: micrograms per kilogram

--: Not analyzed/not available

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 µg/kg

TABLE 3-2
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	Vaadium	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)	(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	--	--	--	--	--	--	--	--	
ESLs-Commercial			470	bg	2.2E+05	0.390	1,000	1.8E+06	350	47,000	320	190	5,800	11,000	5,800	5,800	12	580,000	3.1E+05	
ESLs-Construction Worker			140	11	2,900	2.9	110	5.1E+05	27	14,000	2,700	42	1,700	83	1,700	1,700	3	600	1.0E+05	

Notes:

mg/kg: milligrams per kilogram

--: Not analyzed

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 µg/kg

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

Sample ID	Depth (feet)	Date	PCE	Benzene	Toluene	Ethyl benzene	Xylenes	1,3,5-TMB	1,2,4-TMB	TCFM	Helium
			($\mu\text{g}/\text{m}^3$)								
W-1	5	9/17/15	29.4	9.14	15.8	4.60	19.11	10.4	17	16.7	<0.100
W-2	5	9/17/15	224	<16.0	<18.8	<21.7	<21.7	<24.6	<24.6	<28.1	<0.100
W-4	5	9/17/15	352	<16.0	<18.8	<21.7	<21.7	<24.6	<24.6	<28.1	<0.100
W-7	5	9/17/15	64	<16.0	<18.8	<21.7	<21.7	<24.6	<24.6	<28.1	<0.100
ESLs-Commercial			2,100	420	1,300,000	4,900	440,000	--	--	--	--

Notes:

PCE: Tetrachloroethene

TMB: Trimethylbenzene

TCFM: Trichlorofluoromethane

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

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

--: not available

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

TABLE 3-4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
5th Street and Magnolia Street
West Oakland, California

Sample ID	Date	TPHg	Benzene	PCE
		(mg/l)	(µg/l)	(µg/l)
W-1	9/17/15	<0.050	<0.500	<0.500
W-2	9/17/15	<0.050	<0.500	0.850
W-4	9/17/15	<0.050	<0.500	<0.500
MCLs		100	1	5

Notes:

TPHg: Total petroleum hydrocarbons as gasoline

PCE: Tetrachloroethene

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 5-1
 PROPOSED LABORATORY ANALYSES
 5th Street and Magnolia Street
 West Oakland, California

Sample ID	Depth	Proposed Laboratory Analyses		
		PAHs	Lead	Title 22 Metals
		(8270C-SIM)	(6020)	(6000/7000)
B-1	1.5	X	X	
B-2	1		X	
	2.5	X		X
B-3	1.5		X	
	3			X
B-4	1.5	X	X	
B-5	1.5		X	
B-6	1		X	
	2.5	X		X
B-7	1.5		X	
	2.5	X	X	
B-8	1.5	X		X

SITE INVESTIGATION WORK PLAN
5TH STREET AND MAGNOLIA STREET
WEST OAKLAND, CALIFORNIA



FIGURES

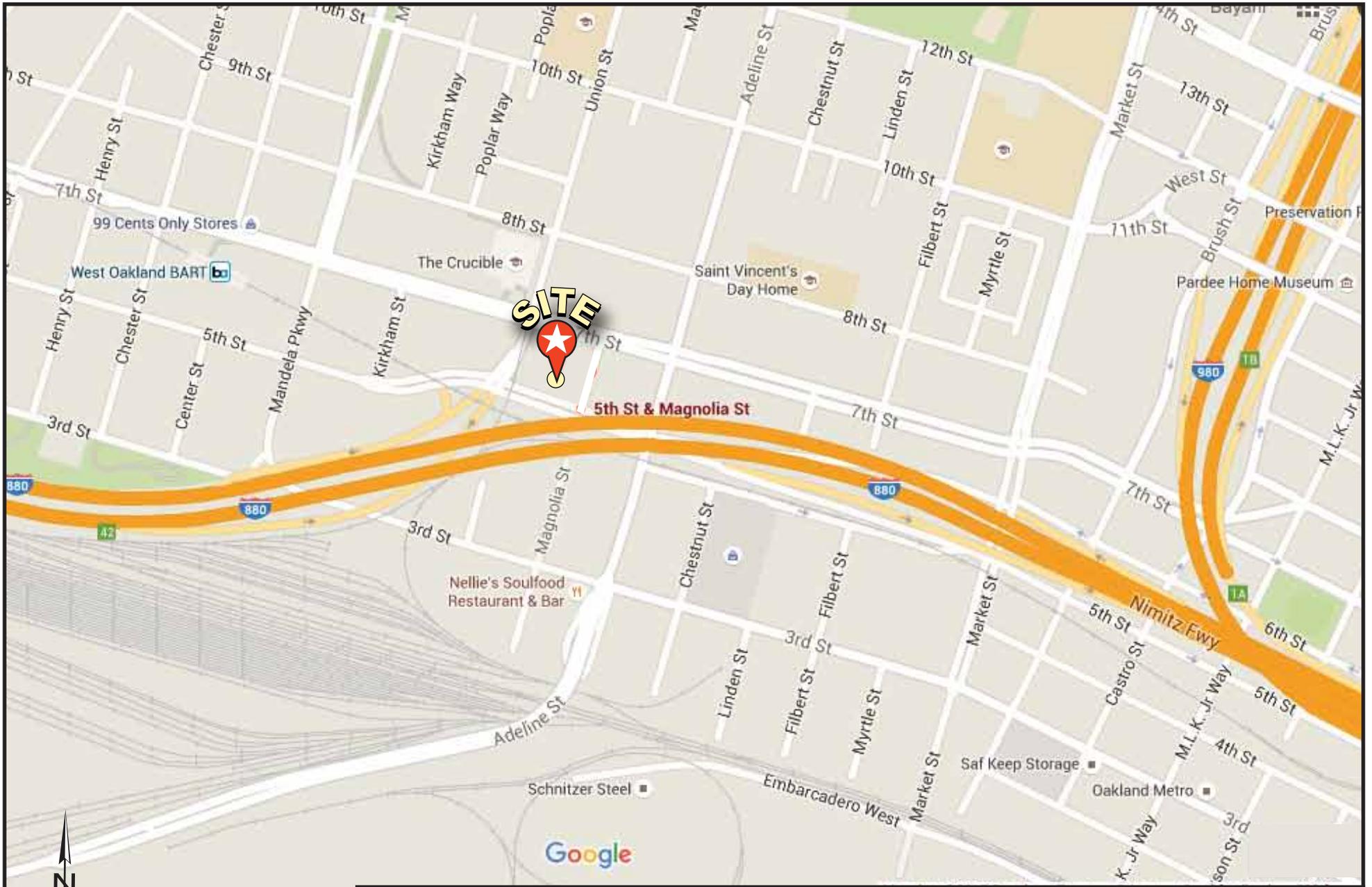


Figure 1-1

SITE LOCATION MAP

April 2016

5th Street and Magnolia Street, West Oakland, California







Figure 3-1

SUMMARY OF LEAD IN SOIL ANALYTICAL RESULTS

April 2016

5th Street and Magnolia Street, West Oakland, California



0 FEET 40



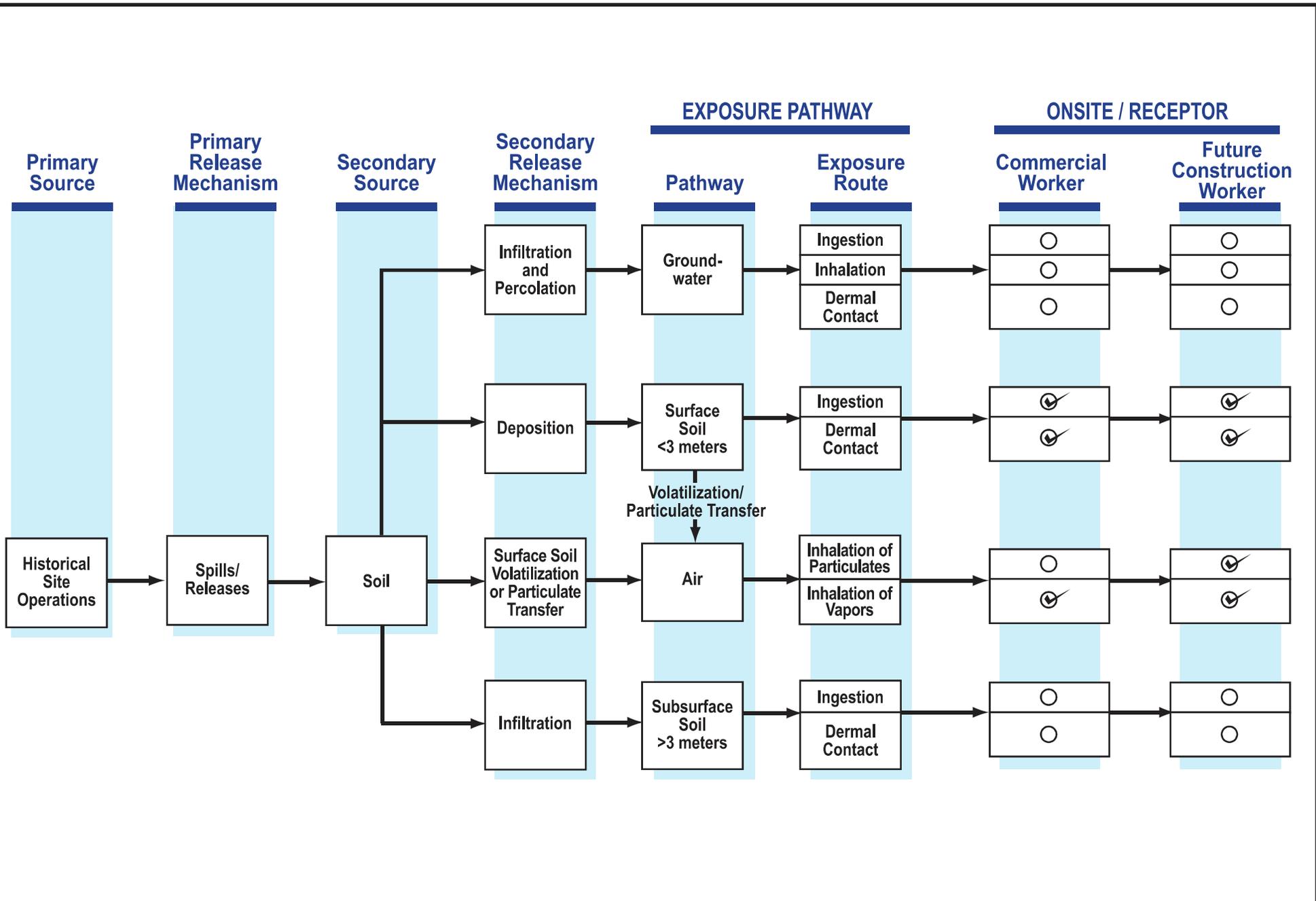
0 FEET 40

Figure 3-2

SUMMARY OF SOIL GAS ANALYTICAL RESULTS

April 2016

5th Street and Magnolia Street, West Oakland, California



- Incomplete exposure pathway
- Complete exposure pathway

Figure 4-1	EXPOSURE PATHWAY CHART
April 2016	5th Street and Magnolia Street, West Oakland, California



FOOTING SCHEDULE:

COLUMN:

- F9 = 9'-0" SQ x 30" DEEP
- F8 = 8'-0" SQ x 30" DEEP
- F7 = 7'-0" SQ x 24" DEEP
- F6 = 6'-0" SQ x 24" DEEP

WALL:

- WF4 = 4'-0" WIDE x 30" DEEP
- WF3 = 3'-0" WIDE x 24" DEEP
- WF2 = 2'-0" WIDE x 24" DEEP



Union Street

Magnolia Street

5th Street

W-3	
1'	19.6
3'	169
6'	1,360

W-2	
1'	36.4
3'	661
6'	<2.50

W-4	
1'	24.7
3'	2,180
6'	<2.50

W-1	
1'	25.9
3'	119
6'	3.45

W-5	
1'	510
3'	50.2
6'	<2.50

W-7	
1'	18.9
3'	199
6'	2.87

W-6	
1'	25.5
3'	316
6'	7.87

W-8	
1'	20.1
3'	174
6'	3.58

EXPLANATION

Sample Location

W-5		Sample ID
1'	510	Lead
3'	50.2	
6'	<2.50	

Lead

Depth (feet)

Soil Results in mg/kg

FOUNDATION NOTES:

1. FOUNDATION IS BASED ON PRELIMINARY ROCKRIDGE GEOTECHNICAL REPORT DATED OCT 16, 2015
2. ASSUMED ALLOWABLE DEAD+LIVE SOIL BEARING PRESSURE = 6000 PSF

Proposed Soil Boring Location



PROPOSED BORING LOCATIONS

5th Street and Magnolia Street
West Oakland, California



Figure 5-1

April 2016

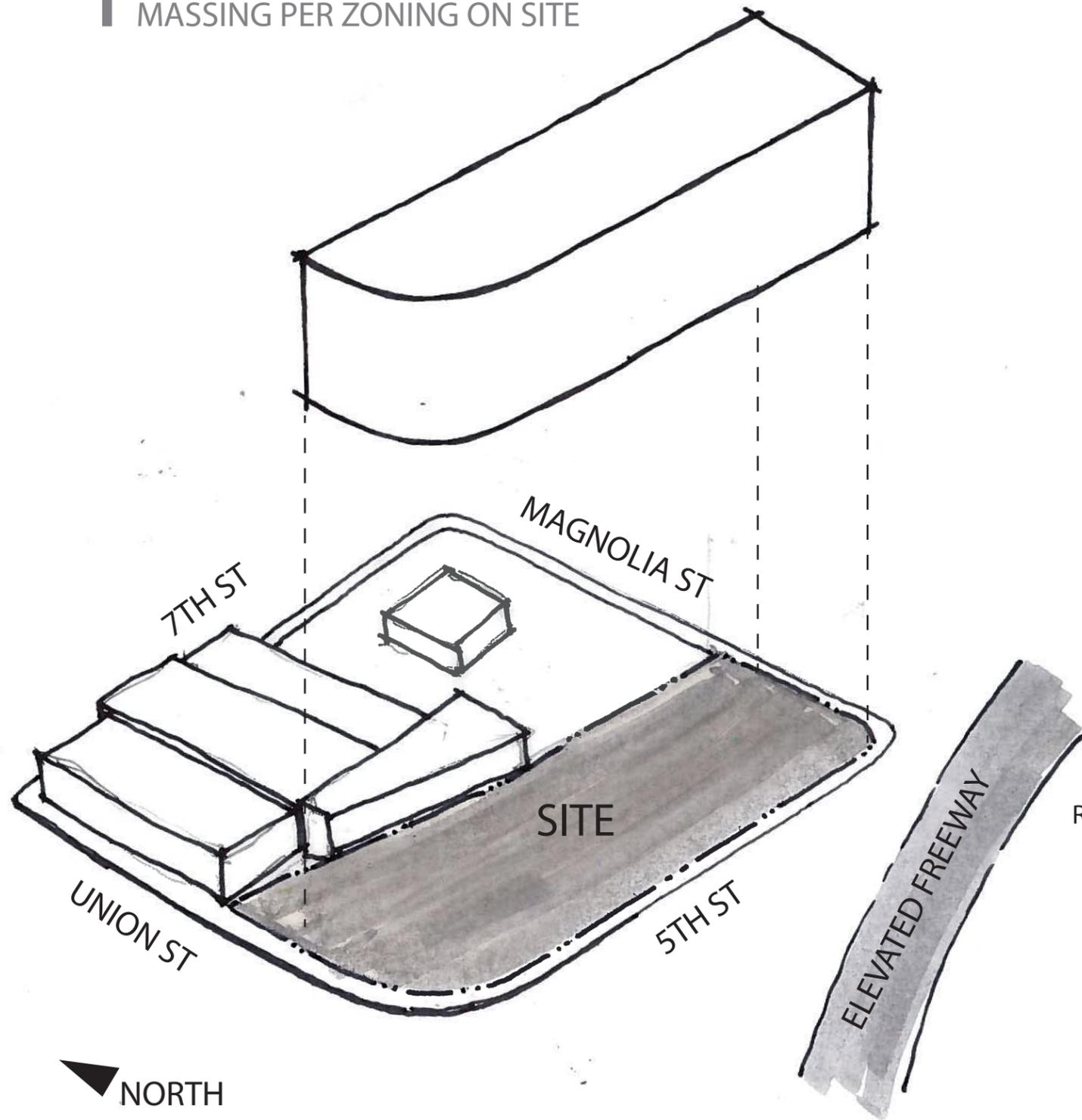
SITE INVESTIGATION WORK PLAN
5TH STREET AND MAGNOLIA STREET
WEST OAKLAND, CALIFORNIA



APPENDIX A

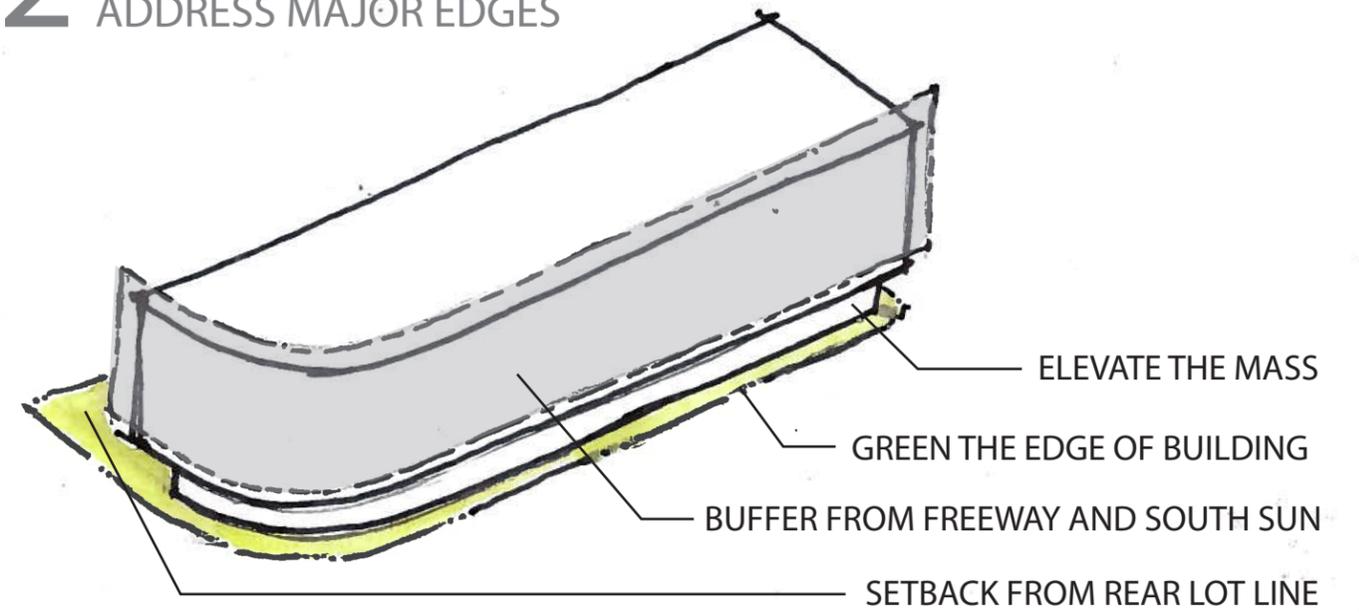
PROPOSED DEVELOPMENT PLANS

1 MASSING PER ZONING ON SITE

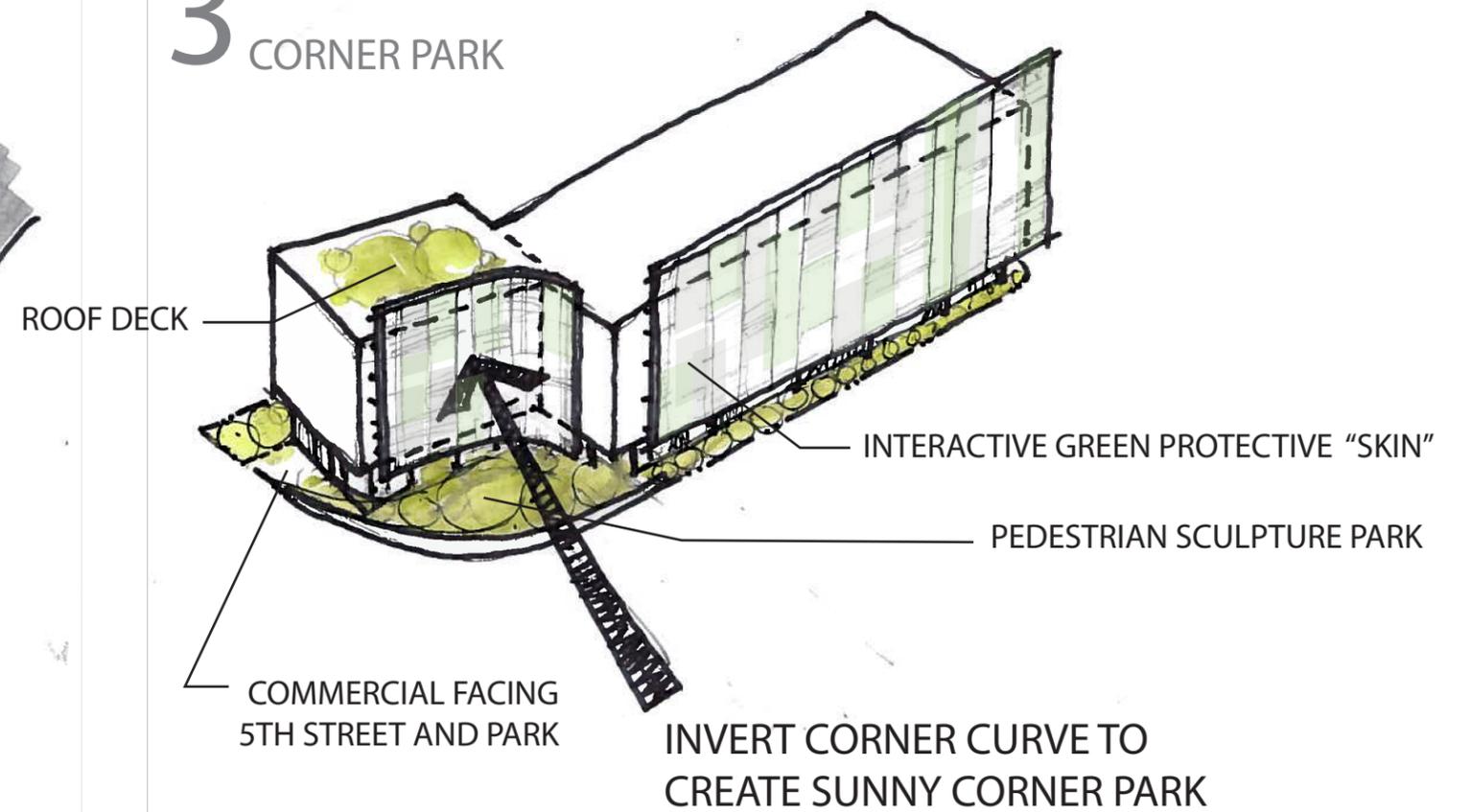


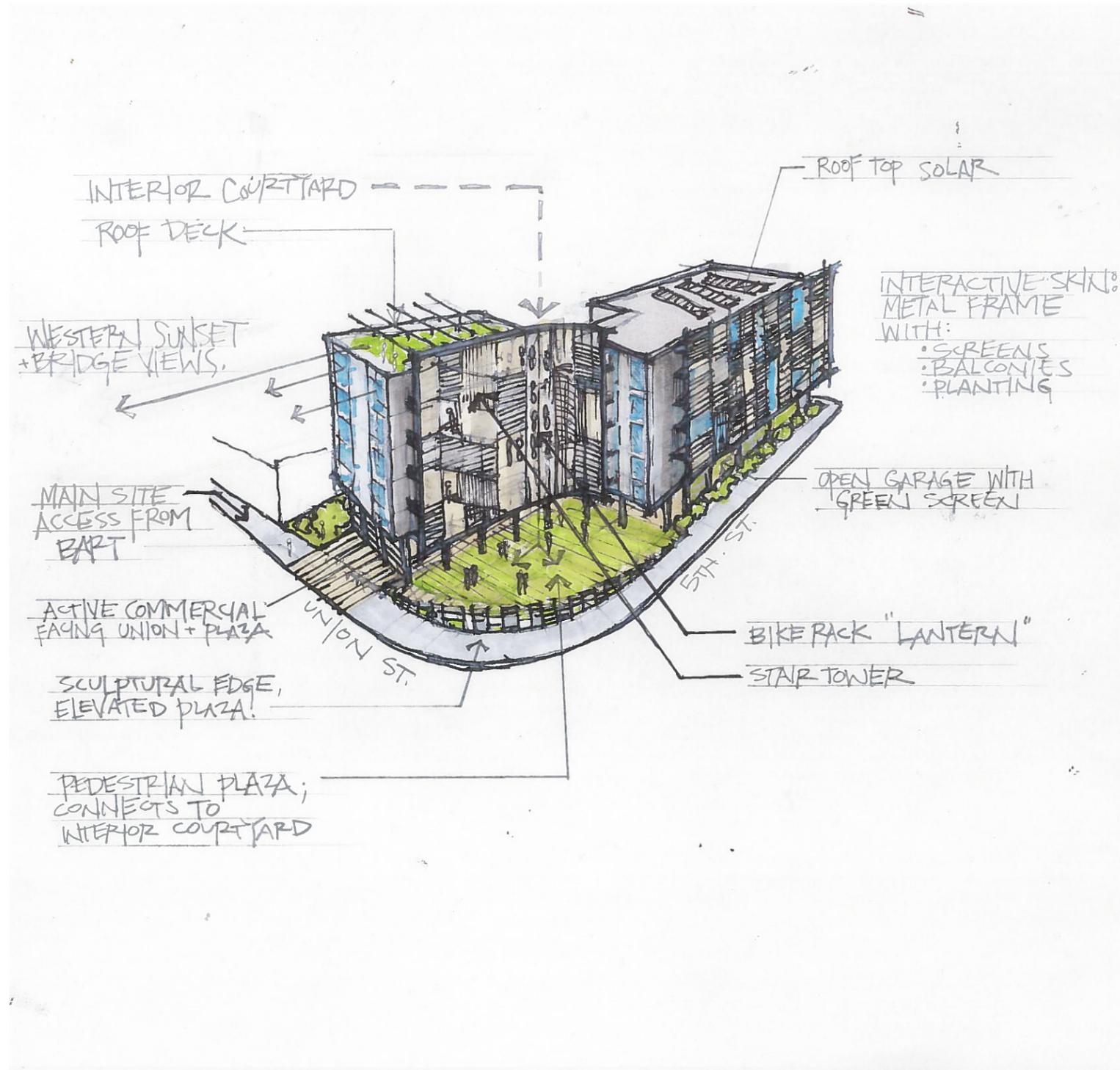
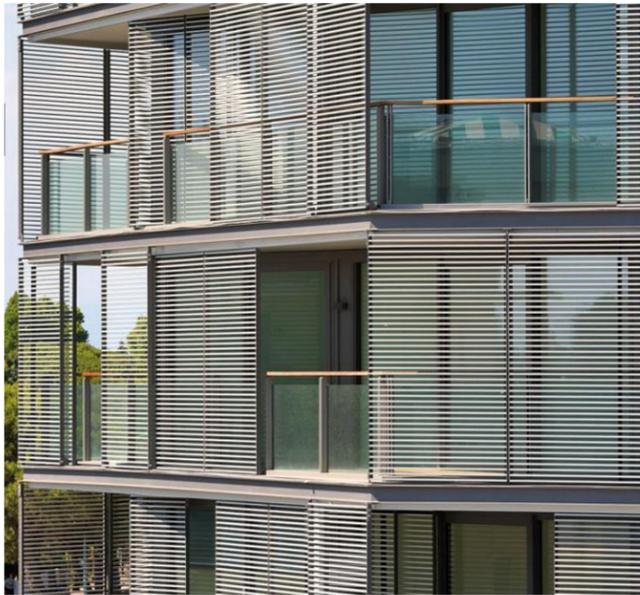
21525 THE UNION
2015-10-21

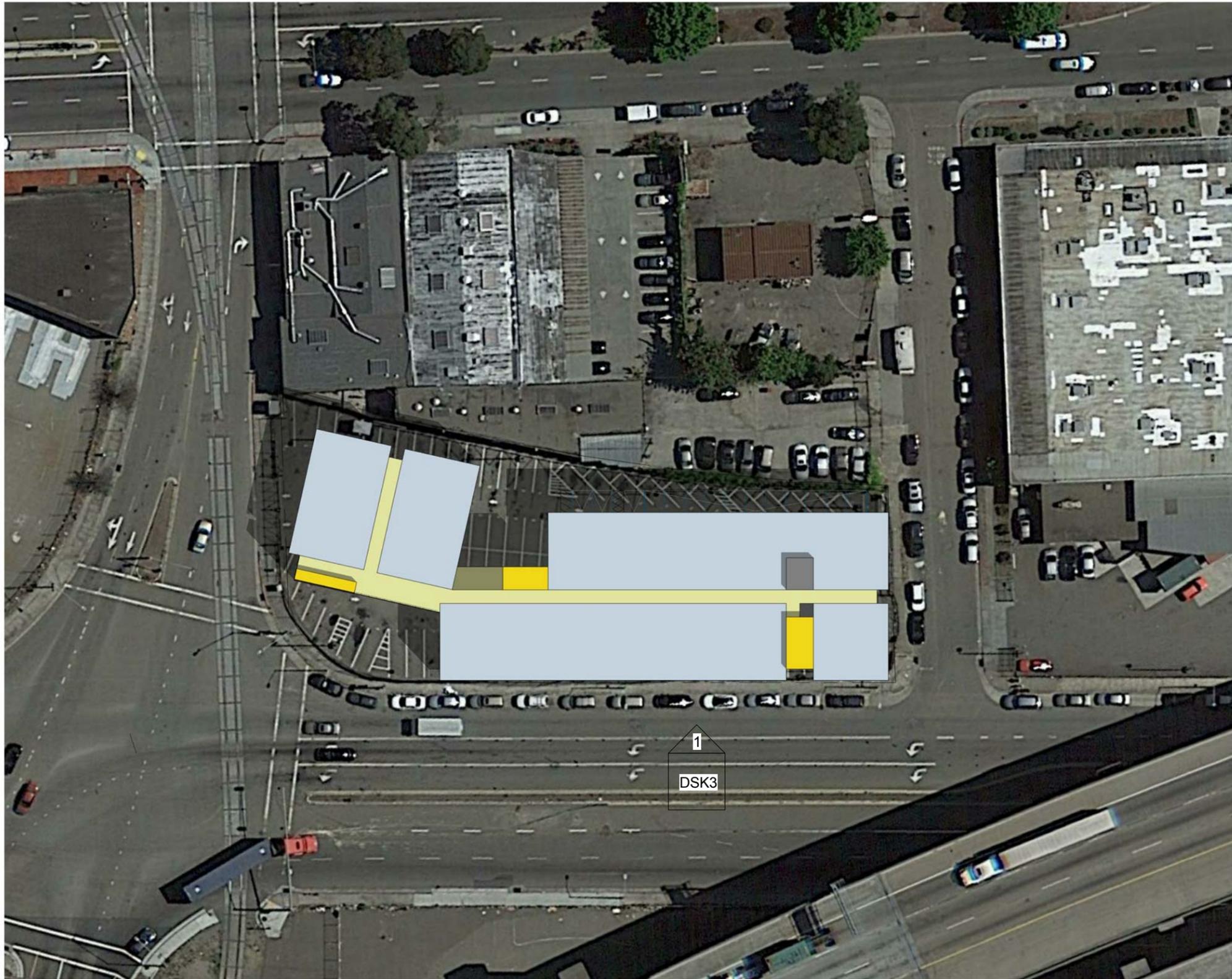
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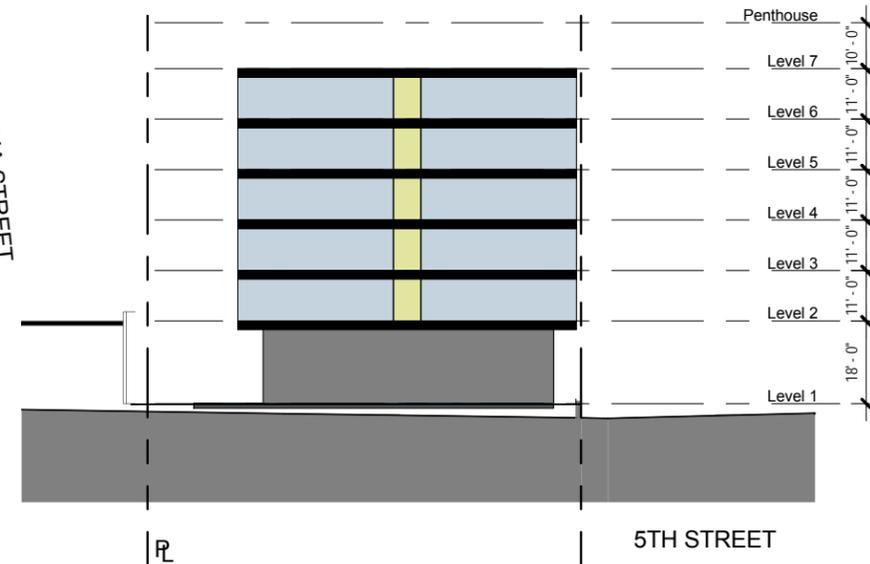
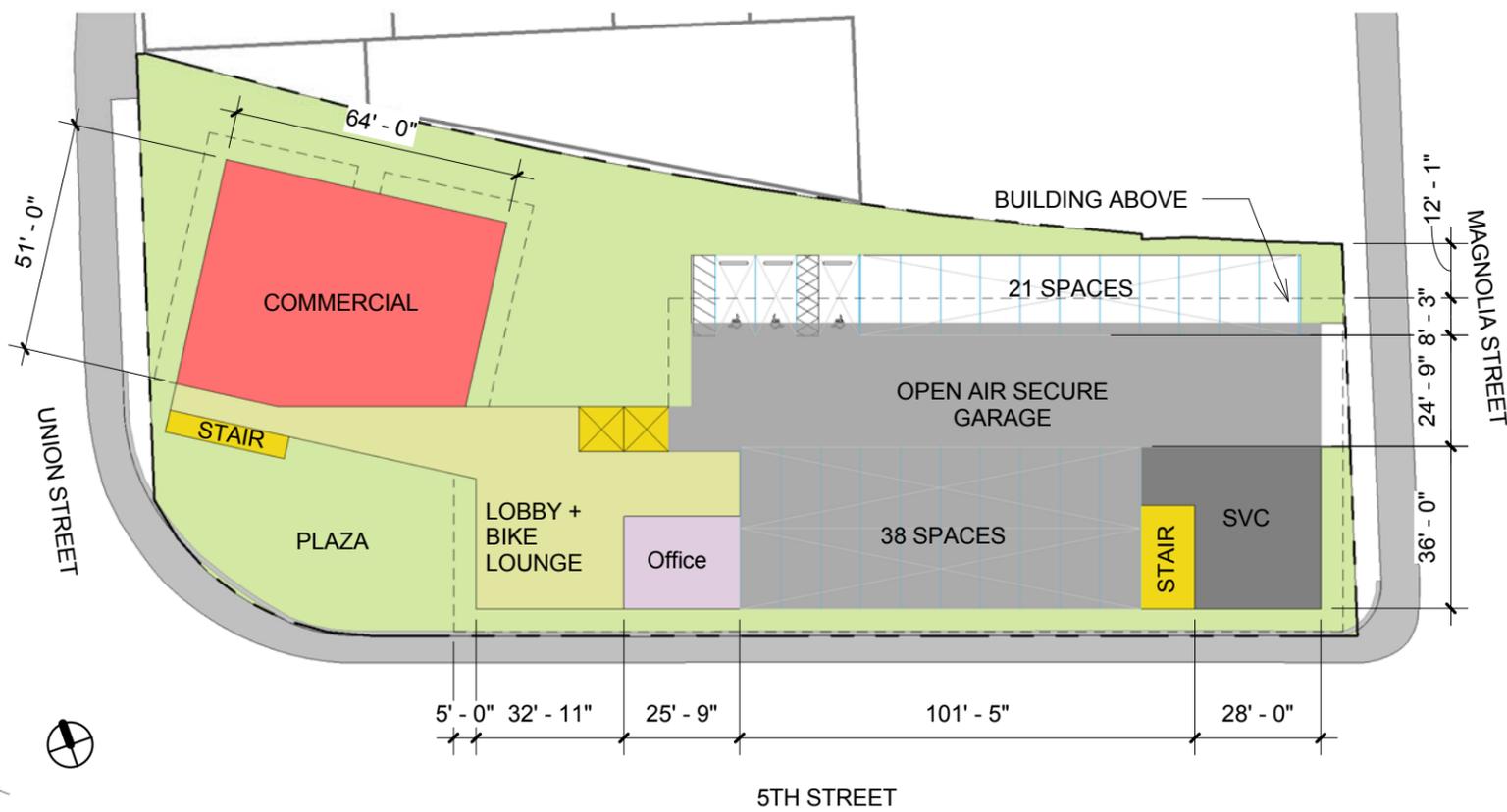
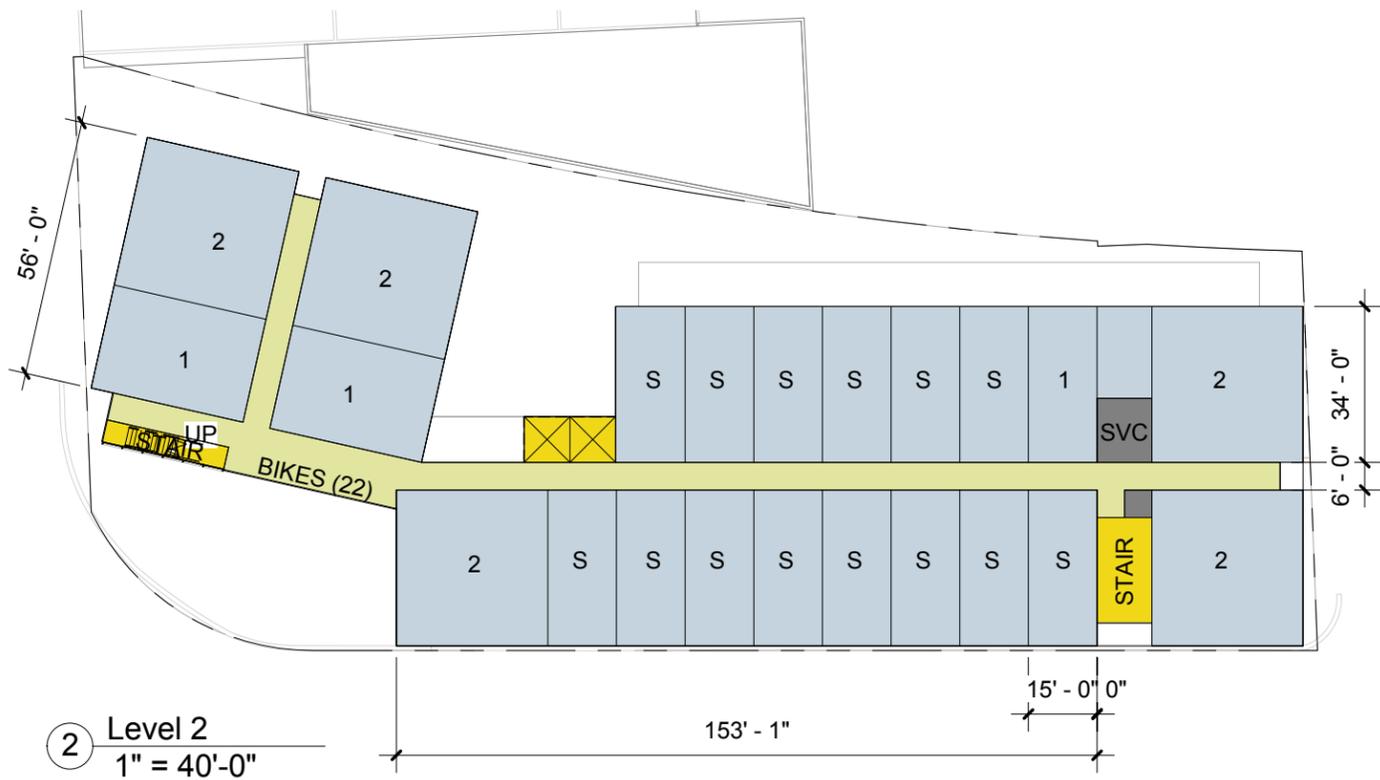


3 CORNER PARK







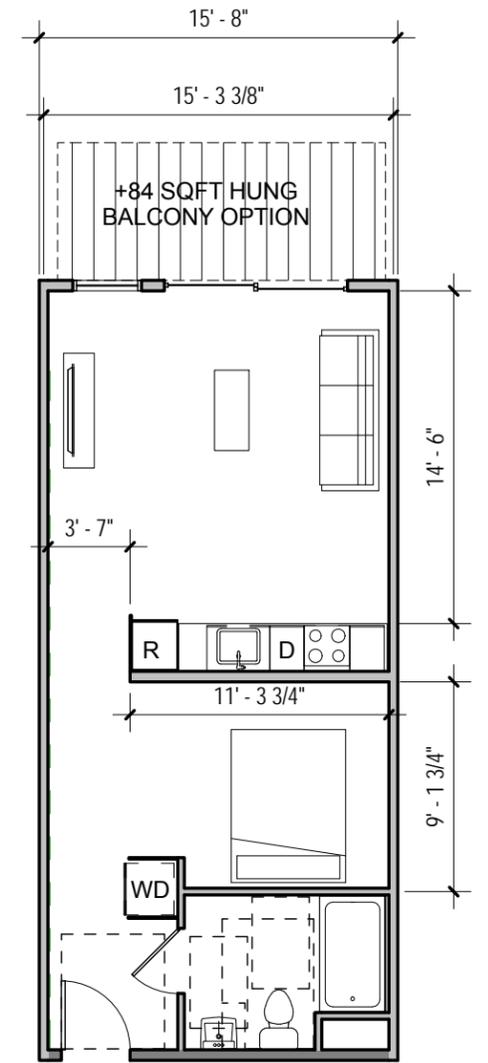
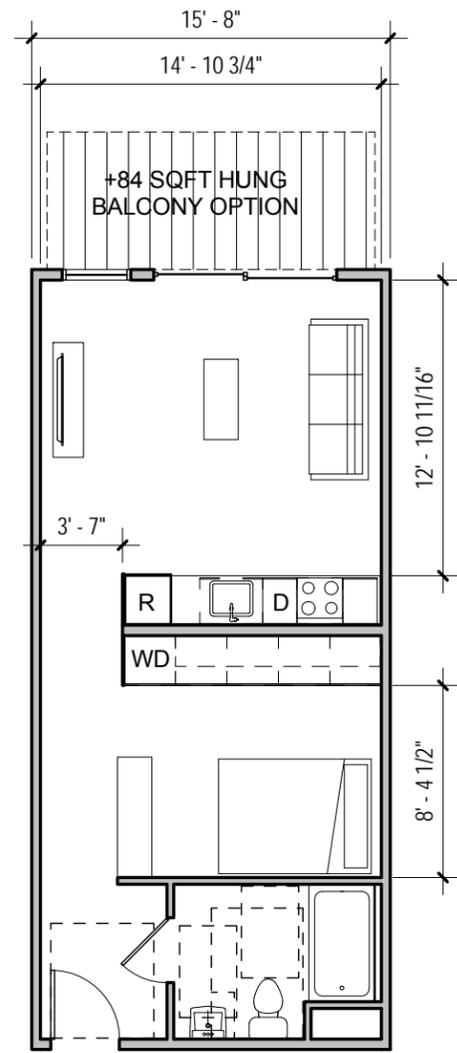
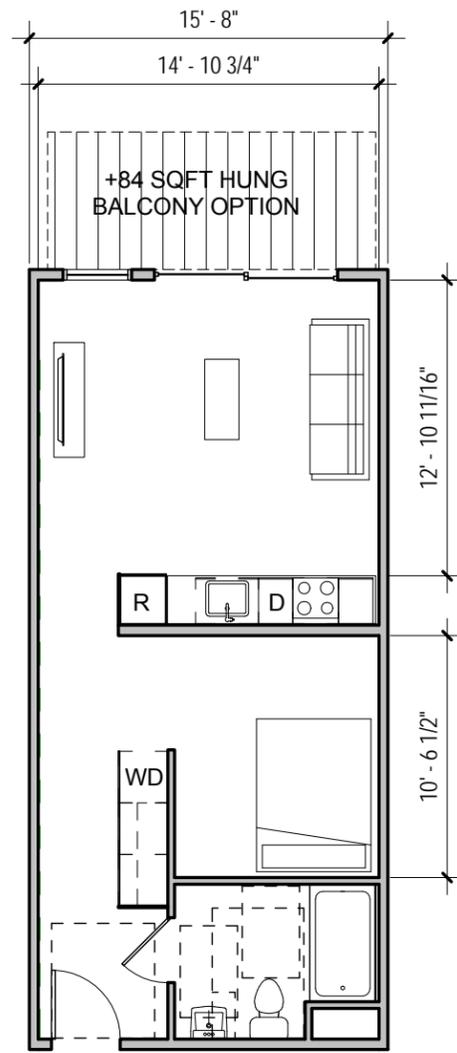
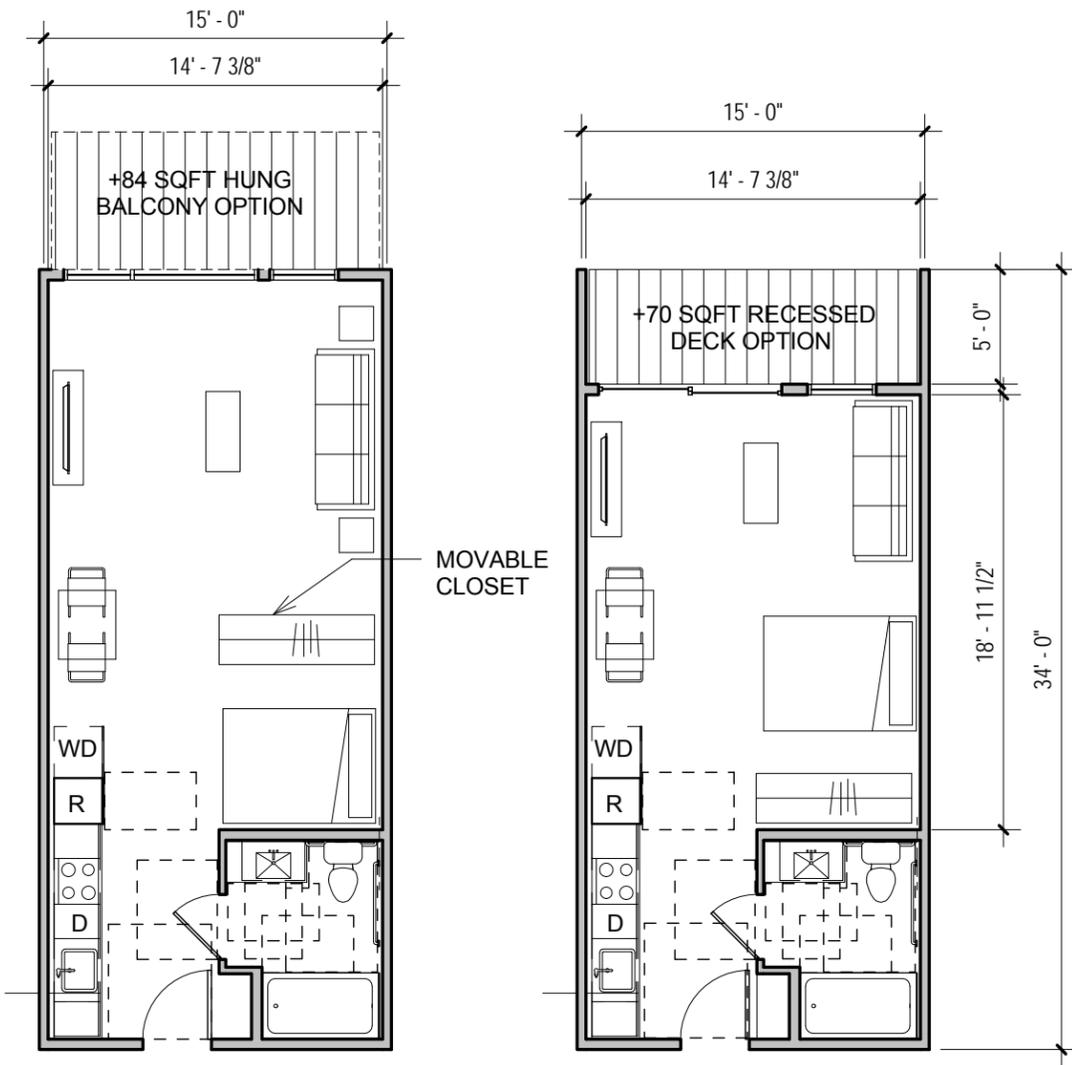


PROJECT DATA

Circulation Horiz.	12778 SF
Circulation Vert.	2882 SF
Commercial	3079 SF
Common	531 SF
Garage	7131 SF
Residential	75363 SF
Service	1164 SF
TOTAL	102927 SF

UNIT SUMMARY

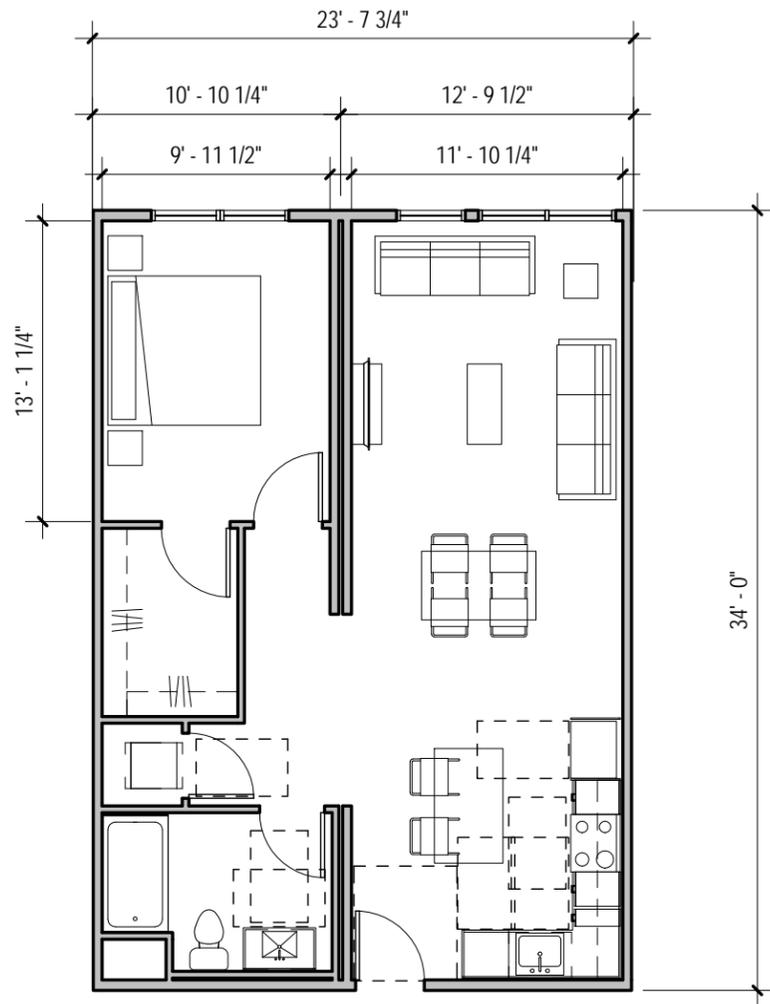
UNIT MIX	AREA	COUNT
Studio	510 SF	80 UNITS
1 Bedroom	730 SF	15 UNITS
2 Bedroom	1000 SF	25 UNITS
TOTAL		110 UNITS



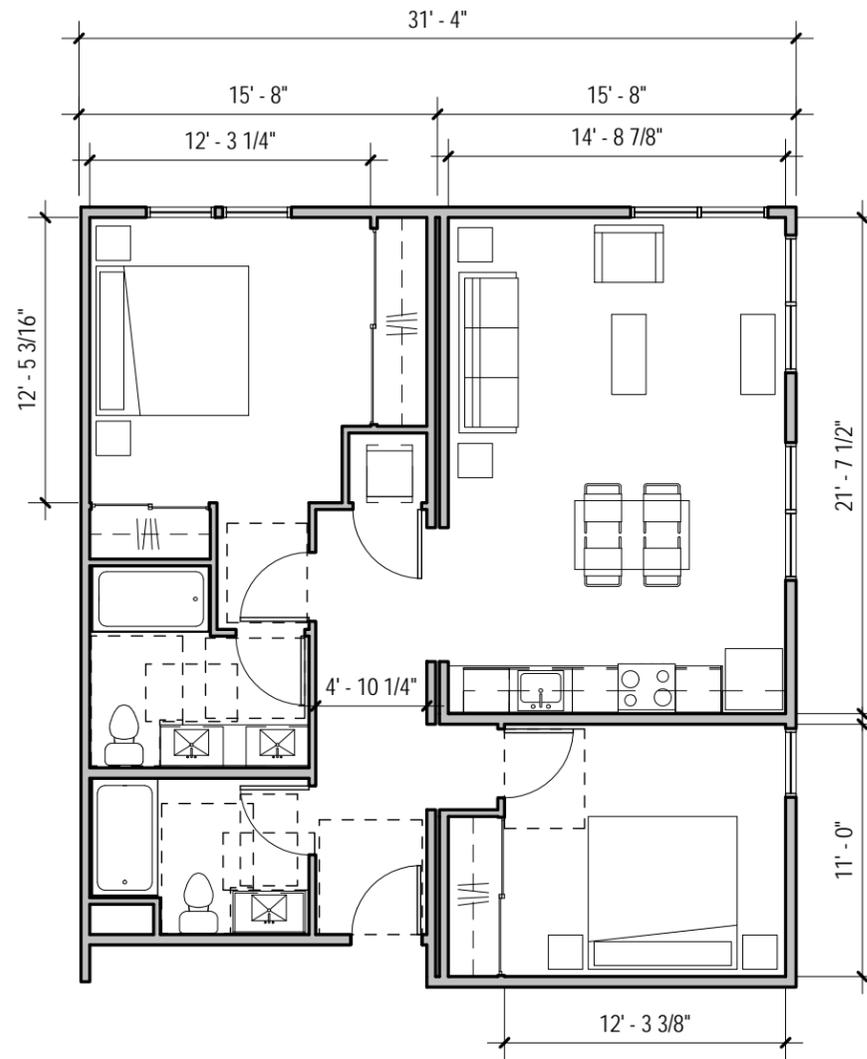
1 Studio Type A
1/8" = 1'-0"



2 Studio Type B
1/8" = 1'-0"



① 1BR
1/8" = 1'-0"



② 2BR
1/8" = 1'-0"