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PHASE II SUBSURFACE INVESTIGATION REPORT

135, 141 & 153 West Avenue 34, and
3401 & 3433 Pasadena Avenue
Los Angeles, California 90031

Prepared for
DLA Piper, LLP

Report Date
June 17, 2021

Project Number
202101-7868

for full results go to: https://www.envirostor.dtsc.ca.gov/public/community_involvement_documents?global_id=60003112&document_folder=+8858487784

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Statement of Responsibility

By signing this report, the senior author declares that, to the best of his or her professional knowledge and belief, he or she meets the definition of *Environmental Professional* as defined in §312.10 of 40 CFR Part 312.

Based on training, education, professional experience, the environmental professional has completed this Phase II Site Investigation to satisfy ASTM guidelines. The environmental professional has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40CFR Part 312.

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FIGURES & APPENDICES

Fulcrum Resources (FR) Environmental conducted a Phase II Subsurface Investigation at **135, 141 & 153 West Avenue 34, and 3401 & 3433 Pasadena Avenue, Los Angeles, California 90031** (subject property) per the request of DLA Piper, LLP (Client).

The purpose of the subsurface investigation was to evaluate the subsurface at the property for contaminants of concern that could potentially be present from past site use and an off-site vapor encroachment concern. The objective of the assessment was to collect adequate data from soil matrix and soil vapor samples to characterize the subsurface conditions beneath the property.

1.0 Background

Summary of Property Description

The subject property is located on the north side of West Avenue 34 and the west side of Pasadena Avenue, between North Artesian Street (to the west), within a highly-developed light industrial/commercial area. The subject property consists of four lots comprising a total of approximately 219,299 square-feet. The parcels are described below based on publicly available information from the Los Angeles County Assessor Portal and visual observations. A Site Location Map illustrating the location of the subject property is provided as Figure 1.

135 and 141 West Avenue 34

The property at 135 and 141 West Avenue 34 is currently improved with an industrial-commercial building of concrete construction, built in 1977. The building is comprised of two units, each of which include office and warehouse space. The units are currently unoccupied, but most recently were occupied by Ortiz Bros. Moving and Storage and Atlas Van Lines, a moving company; Phil's Transfer & Storage, Inc. for storage space; and Studio 34, Inc. for art studio space. Separate entrances and loading bays for the building are located near the southwest corner of the structure, and customer entry is achieved near the southeast corner of the building. Stacked corrugated steel shipping containers are located outside of the building in the parking areas in the south and central areas of the lot. The property features perimeter fencing of variable design, and gate entry to the south along West Avenue 34.

153 West Avenue 34

The property at 153 West Avenue 34 is currently improved with an industrial-commercial building of brick and corrugated steel construction, built in 1929. The building is currently unoccupied, but most recently was occupied by Ortiz Bros. Moving and Storage. The structure features a front entrance with a garage door for vehicular access along the southern boundary of the site. All other areas are asphalt paved with landscaped areas near the front entrance. Stacked corrugated steel shipping containers are located outside of the building in the parking areas to the north and northwest of the building. The property shares perimeter fencing with 145 and 141 West Avenue 34.

3401 Pasadena Avenue

The property at 3401 Pasadena Avenue is currently improved with an industrial-commercial building of wood-frame, cinderblock, and brick-façade construction on the east side of the parcel, built in 1925. That building is currently unoccupied, but most recently was occupied by LootCrate, a merchandise wholesaler of apparel, games, accessories, and other various novelty items and collectables; and Call Time Quenchers, a beverage

distribution company. Operational areas within the structure are primarily unfinished warehouse space with concrete flooring, utilized for storage of products, finished office/administrative areas with tile flooring and suspended drop-grid ceilings. The office portion of the structure features a split-level design with the second-story utilized for storage.

In the southeast corner of the site is a second industrial-commercial building of corrugated steel construction, built in 1948. The building is currently vacant, but was most recently utilized as a warehouse for dry-goods storage. The exterior of the property is asphalt paved with employee parking. An entrance is located near the southeast corner of the structure. The property also features perimeter chain link fencing with barbed wire and a manual gate for vehicular access along Pasadena Avenue.

3433 Pasadena Avenue

The property at 3433 Pasadena Avenue is currently improved with an industrial-commercial building of wood-frame and cinderblock construction with reinforced steel support beams and a brick façade, built in 1967. The building is unoccupied, but most recently was occupied by LootCrate. The building is comprised of office and work area space. The work area is partially finished with concrete and carpet flooring, and the office areas feature tile floors with drop-grid ceilings. The property shares parking areas and perimeter chain link fence with the 3401 Pasadena Avenue property.

All four parcels are together enclosed with fencing of variable design. A railroad corridor with a northeast/southwest alignment is present, parallel and adjacent to the western boundary of the subject property.

Summary of Property History

Based on a review of available historical records, the north, west, and central areas of the subject property were vacant, and the east and west areas were developed with private residential structures by as early as 1894. Most of these residential properties persisted until 1964 with few exceptions, including the subject property warehouse building addressed 153 West Avenue 34 (constructed in 1929) along the southern boundary of the site, and the subject property warehouse buildings addressed 3401 Pasadena Avenue (constructed in 1925) and 3433 Pasadena Avenue (constructed in 1967) along the eastern boundary of the site. A railroad corridor has been historically present along the western boundary since at least 1894, and is still currently in use. A bakery occupied the southeast corner of the property (original occupant of the 3401 Pasadena Avenue building) from 1919 until at least 1951, and was redeveloped as a machine and woodworking shop in 1970.

The historic industrial areas of the subject property have a more complicated history, and are discussed here as the “historic industrial areas”. These areas include the north, west, and central parts of the site. The historic industrial areas were vacant and undeveloped in 1894 until at least 1906. By 1920, these areas were developed and occupied by the Los Angeles Sand & Gravel Company, which occupied the property until at least 1928, and terminated by 1938, at which time the historic industrial areas of the subject property consisted of vacant land. By 1948, these areas were redeveloped with six industrial structures, occupied by Steel Framing & Building Corporation in 1951, and ITT Cannon Electronics Inc. from at least 1964-1970. The historic industrial areas were demolished and consisted of vacant and graded land in the 1977 aerial photograph, and the subject property buildings addressed 135 and 141 West Avenue 34 were constructed in 1977 according to building department files and tax assessor records, and was occupied by American Caster Corp from 1977 until the property was

purchased by the current owner, Mr. Eric Ortiz, in 1999. The subject property has been primarily occupied by Ortiz Brothers Moving & Storage, with a variety of tenants between 1999 and present.

Adjacent Vapor Encroachment Concern

The property to the north is identified as a potential vapor encroachment concern. The property, identified as 3505 Pasadena Avenue was formally occupied by Welch's Uniform Supply, and reported a release of volatile organic compounds (VOCs) impacting soil and groundwater. The site was enrolled in the Voluntary Cleanup Program (VCP) in 2007 after being transferred to the Department of Toxic Substances Control (DTSC) in 2006. Groundwater beneath the property is being actively monitored, and, according to a 2016 groundwater monitoring report, groundwater concentrations of the contaminants of concern are highest near the center of the site, and the plume appears to be migrating west and then south along the railroad corridor right-of-way (ROW) along the western boundary of the subject property. The site included remediation of VOCs in soil vapor extraction under the supervision of DTSC. In 2016, results of soil vapor monitoring after operation of the SVE system indicated adequate treatment of the VOC source areas on the property, and shut-down of the SVE system was recommended. The most recent (2016) groundwater monitoring report indicates that groundwater concentrations of VOCs have approached cleanup levels at the subject property boundary. It is expected that the concentrations have continued to decline over the last three years since the most recent report.

Four areas of concern with elevated VOC concentrations were identified on the north adjacent property, including one located just north of the northwestern portion of the subject property. Based on the vapor intrusion risk from the north adjacent property, a subsurface investigation was recommended for the subject property.

Proposed Scope of Work

Past on-site activities on the subject property indicated the risk for the use of hazardous materials, and contaminants of concern include pesticides, PCBs, metals, petroleum hydrocarbons, volatile organic compounds. On-site areas of concern include a three-stage clarifier, a former electrical transformer pad, and past use for electronics manufacturing.

The release of VOCs on the north adjacent property, including impact to groundwater (found at a depth of approximately 35 feet with a southwest flow direction) represents a vapor encroachment concern.

Based on the above identified areas of concern, a Phase II subsurface investigation was performed at the subject property in order to evaluate the subsurface conditions beneath the property.

2.0 Environmental Setting

2.1 Regional Physiographic Setting

A United States Geological Survey (USGS) Los Angeles, California Quadrangle 7.5-minute series topographic map dated 2012 was reviewed for the purposes of this report. The elevation of the subject property is approximately 370 feet above mean sea level (feet-amsl). Topography at the subject property is relatively flat and declines gently towards the west.

2.2 Geology/Soil Conditions

The subject property is located in the Arroyo Seco Watershed, within the Repetto Hills, which lies in the Peninsular Range geomorphic province of Southern California. The Peninsular Range geomorphic province is characterized by elongated northwest-trending mountain ridges separated by straight-sided, sediment-floored valleys. The sediments that underlie the subject property vicinity have been identified as Quaternary alluvial stream channel deposits consisting of unconsolidated silts, sands, and gravels. The sedimentary rock beneath the subject property vicinity is the Puente Formation sandstone and is of Tertiary age.

Soils encountered during FRs subsurface investigation generally consisted of poorly graded sands, well graded sands, silty sands, gravelly sands and gravelly sands with cobbles from the surface to the total depth explored of 28 feet below ground surface (feet-bgs)

2.3 Hydrogeology

The subject property is located in the Los Angeles River Narrows area, within the southwestern end of the Arroyo Seco Watershed and near the confluence of the Los Angeles River and Arroyo Seco Channel. The Arroyo Seco Watershed, a sub-watershed of the Los Angeles River Watershed, stretches 22 miles from its headwaters in the San Gabriel Mountains to its confluence with the Los Angeles River, south of the subject property.

Groundwater was not encountered during FRs subsurface investigation to the total depth explored of 28 feet-bgs. Previous subsurface investigations for the north-adjacent property at 3305 Pasadena Avenue indicate the first water bearing zone at approximately 35 feet-bgs; so it can reasonably be inferred that groundwater at the subject property may exist at a similar depth. The local groundwater flow direction reportedly has consistently been to the southwest.

3.0 Methodology

The following areas of concern were included in this subsurface investigation:

Area of Concern	Borings	Analysis	EPA Method
Clarifier	Three borings to depths of 10, 10, and 12	Collect soil at 5 foot intervals Analyze two (2) selected soil samples (one [1] per boring) for VOCs, TPH, metals. Assume 15 FT for analysis, or highest PID, place others on Hold. Analyze one soil vapor sample collected at 5 feet bgs for VOCs	8260; 8015; 6000/7000 series TO-15
Transformer pad southwest portion of property	Two (2) borings to 10 feet	Analyze two (2) selected soil samples (one [1] per boring) for TPH and PCBs, collected at 6"-12" bgs. Place 5, and 10 FT on Hold Analyze one soil vapor sample collected at 5 feet bgs for VOCs	8015; 8082 TO-15
Former electronics manufacturing areas of activity	Six (6) borings to 10 feet	Collect soil samples at 3, 5, 10 feet bgs Analyze six (6) selected soil samples (one [1] per boring) for VOCs, TPH, metals. Place others on Hold. Analyze six soil vapor samples (one [1] per boring) collected at 5 feet bgs for VOCs	8260; 8015; 6000/7000 series TO-15
North adjacent property (3505 Pasadena Avenue) vapor encroachment concern	Twelve (12) soil vapor probes to 5 feet with six (6) soil vapor probes at 15 and 28 feet	Collect soil samples at 0.5, 5, 10, 15, 20, 25 bgs. Analyze 10 soil matrix samples collected at depths of 6"-12" bgs for TPH, M, PCBs, organochlorine pesticides. Place deeper samples on Hold Analyze twelve (12) soil vapor samples collected at 5 feet bgs	8015; 6000/7000 series, 8082, 8081 TO-15

		for VOCs Analyze six (6) soil vapor samples collected at 15 feet and 28 feet bgs for VOCs	TO-15

Notes: TPH = total petroleum hydrocarbons, full-range organics (gasoline, diesel, oil). VOCs = volatile organic compounds. PCB = polychlorinated biphenyls. The building at 135/141 West Avenue 34 has a four-foot raised floor; therefore, sampling depths will be adjusted in this building to maintain the depth ***below ground surface***.

Field activities were conducted between May 5 and 13, 2021. FR contracted Golden State Locators, Crestline, California to clear utility lines in the vicinity of the proposed boring locations via ground-penetrating radar (GPR) and/or magnetometer testing. The geophysical survey cleared the proposed boring locations from potential subsurface utilities. The private utility locate documentation is included in Appendix A.

Soil Sampling

A total of twenty-three soil borings were advanced at the subject property to depths ranging from five to 28 feet-bgs, as described in the above table, and at the locations depicted on Figure 2. Initially a 540M Geoprobe limited access drill rig and a 6600 Geoprobe track-mounted drill rig were used to advance borings. Due to difficult drilling conditions from the presence of cobbles, a hollow stem auger rig was used to achieve the target depths of the investigation.

Soil samples were collected at selected intervals as described in the above table and screened using a photoionization detector (PID) for VOCs. Soils recovered were logged using the Unified Soils Classification System (USCS). The subsurface investigation activities were conducted under the supervision of FR's California Professional Geologist (PG). Soil boring logs are provided in Appendix B.

For borings drilled with direct-push technology, soil samples were collected with a Geoprobe Large Bore Sampler that measures 2 feet by 1.5 inches and is capable of recovering discrete samples inside removable liners that measure up to 320 milliliters (mL) in volume. The liner is a thin-walled tube that fits inside the sample tube, facilitates retrieval of the sample, and may be used for storage when applicable. No headspace was present in the tube once the sample was collected. When a soil sample was collected, both ends of a given tube were immediately covered with Teflon tape, capped with polyethylene lids, and packed in an ice chest to maintain a minimum of 4 degrees Centigrade temperature to minimize potential volatilization prior to delivery to the laboratory.

For borings drilled with hollow stem auger drill rig, soil matrix samples were collected with a split-spoon sampler fitted with steel tubes. The bottom tube was prepared for potential laboratory analysis by sealing the ends of the tubes with Teflon tape and fitted plastic caps. The soil sample containers were labeled, placed within sealable bags and packed in an ice chest.

Soil samples were delivered under chain of custody protocol to American Scientific Laboratories, LLC (ASL), a state-certified laboratory in Los Angeles, California; with selected soil samples analyzed for one or more of the following: VOCs using Method 8260B; CAM17 Metals using Method 6010B/7471A; total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO)using Method

8015B; polychlorinated biphenyls (PCBs) using Method 8082A; and organochlorine pesticides using Method 8081A.

Soil Vapor Sampling

A total of thirty-two (32) soil vapor samples were collected at depths ranging from five to 28 feet-bgs at the locations depicted on Figure 2.

Dedicated vapor probes were emplaced at depths of 5 feet, 15 feet, and 28 feet at specified areas of concern. Vapor samples were collected into Summa canisters using Nylaflow tubing. All tubing was discarded between sampling locations to eliminate the possibility of cross contamination. The vapor probe tubing was purged at a flow rate of 2 liters per minute using a CEL Scientific vacuum air sampling pump, with three probe volumes removed. A shut-in test was conducted prior to purging and sampling to assure that there were no leaks within the sampling train.

For probes installed using Geoprobe drilling technology, a minimum of two hours transpired prior to purging and sampling. For probes installed using hollow-stem-auger drilling technology, a minimum of 48 hours transpired prior to purging and sampling.

During sampling, a tracer gas was used by placing a solution of 1,1-DFA on cloth and placed adjacent to the sampling train valve connectors. The soil vapor sampling was conducted in general accordance with DTSC Advisory: Active Soil Gas Investigations (July 2015).

Soil vapor samples were delivered under chain of custody protocol to Sunstar Laboratories (Sunstar), a state-certified laboratory in Lake Forest, California, and analyzed for VOCs by EPA Method TO-15.

Drill Cuttings

Soil generated from drilling with hollow-stem auger rig on May 13, 2021, was placed in a total of five 55-gallon steel drums, labeled with accumulation date and source, and temporarily stored on-site. Analytical results of the soil sample analysis will be provided to the disposal facility for profiling and acceptance. The drums will be transferred by a licensed hazardous waste transporter to an appropriate disposal/recycling facility. The disposal documents will be provided once received from the disposal facility.

4.0 Field Observations

Soil samples were field screened at selected intervals as described in the above table for VOCs using a PID. Soil samples from boring SB-18 exhibited slightly elevated VOC readings with the PID at depths of 15 feet bgs (16.4 ppm) and 25 feet bgs (24.4 ppm). Field indicators of potential chemical impact, including discoloration, degradation, odor, or elevated PID readings were not identified in any of the other soil samples collected from the borings.

Soils encountered during FRs subsurface investigation generally consisted of poorly graded sands, well graded sands, silty sands, gravelly sands and gravelly sands with cobbles from the surface to the total depth explored of 28 feet-bgs. Boring SB17 exhibited apparent fill material (brick fragments) from approximately 5 to 15 feet bgs.

Groundwater was not encountered during FR's subsurface investigation to the total depth explored of 35 feet-bgs.

5.0 Analytical Results

The Department of Toxic Substances Control (DTSC) Human and Ecological Risk Office (HERO) is the primary authority in California for environmental assessment of contaminated sites in the state. In addition, San Francisco Bay Regional Water Quality Control Board (SFBRWQCB or Waterboard) has published interim *guidance* for soil, groundwater, air, and soil vapor intrusion screening levels (ESLs). Various DTSC and Waterboard screening levels are referenced in the tables of this report to evaluate the laboratory results as they apply to the various exposure scenarios (such as residential, industrial/commercial, and/or construction worker property use/exposure).

The SFBRWQCB ESLs issued in January 2019 are the current industry standard in California for preliminary environmental soil, groundwater and soil vapor screening. These ESLs are not *cleanup action levels*; do not necessarily indicate *contamination*; and are intended for use as *guidance* only. DTSC HERO issued an updated Human Health Risk Assessment (HHRA) Note No. 3 in June 2020. In this note, DTSC makes recommendations regarding the methodology and use of the U.S. EPA Regional Screening Levels (RSLs) and DTSC-modified screening levels (jointly referred to herein as "DTSC Recommended SLs") for soil vapor screening under residential and commercial/industrial land use scenarios. The DTSC-Recommended SLs for evaluating soil vapor intrusion are calculated using indoor air screening levels and recommended attenuation factors. These calculated soil vapor screening levels are typically applied to samples collected no more than five ft-bgs and have been developed for both existing buildings and future buildings (DTSC and CalEPA, October 2011). The values calculated using Note No. 3 recommendations are considered conservative, and concentrations in excess of the calculated DTSC-Recommended SLs are not considered conclusive evidence of adverse risks to human health. Depending on VOC concentrations, distribution, land use, and other factors, additional investigation such as soil vapor sampling, indoor air assessments, site-specific health risk assessments, etc. may be warranted to further assess site-specific health risks.

Analytical results compared to the applicable screening levels based on the proposed future use of the subject property (commercial and residential) are described below and summarized in Tables 1 through 6. Analytical results are also compared to the applicable screening levels based on the proposed future redevelopment of the subject property (construction worker screening levels). Laboratory analytical data is included in Appendix C.

5.1 Soil Results

Twenty-one (21) soil samples collected from borings SB1 through SB5, SB7 through SB10, and SB12 through SB23 were analyzed for CAM17 Metals via EPA Method 6010B/7471A and TPH-G/D/O via EPA Method 8015B; thirteen (13) soil samples collected from borings SB1 through SB4, SB9, SB10, SB15, and SB17 through SB22 were analyzed for PCBs via EPA Method 8082A and pesticides via EPA Method 8081A; and eleven (11) soil samples collected from borings SB5, SB7, SB8, SB12 through SB14, SB16 through SB18, SB22, and SB23 were analyzed for VOCs via EPA Method 8260B.

Metals

Arsenic was detected at concentrations from 0.344 to 4.06 milligrams per kilogram (mg/kg), which is within the background range for arsenic in Southern California soils (Table 1). This level is above the residential and/or industrial/commercial ESL in the samples analyzed from all but one of the borings; and was detected at concentrations above its construction worker ESL in the samples analyzed from all but four of the borings.

Lead was detected in soil at boring SB15, but this detection was within the background range for lead in Southern California soils (Table 1). These concentrations exceeding its residential ESL in the samples analyzed at depths of 0.5 and one feet-bgs from borings SB1 and SB15, respectively. Lead was detected at a concentration exceeding its construction worker ESL in the sample analyzed at a depth of 0.5 feet-bgs from boring SB1.

Mercury was detected at a concentration of 1.44 mg/kg in the sample collected at a depth of three feet-bgs from boring SB7, was slightly above background range for Southern California soils (0.3-0.9 mg/kg), which slightly exceeds its respective residential ESL of 1 mg/kg.
Antimony, barium, cadmium, chromium III, cobalt, copper, molybdenum, nickel, vanadium and zinc were detected at concentrations below their respective residential and industrial/commercial ESLs, if established, in the soil samples analyzed. No other metals were detected in the soil samples analyzed.

Analytical results for metals in soil are presented in Table 1.

TPH-G/D/O

TPH-GRO was not detected in any of the soil matrix samples analyzed. TPH-DRO and TPH-ORO were detected at concentrations below their respective ESLs in the soil samples collected from borings SB15 and SB18. TPH were not detected in any of the other soil samples analyzed.

Analytical results for TPH-G/D/O in soil are presented in Table 2.

PCBs

PCBs were not detected in the soil samples analyzed.

Analytical results for PCBs in soil are presented in Table 2.

Pesticides

Pesticides were not detected in the soil samples analyzed.

Analytical results for pesticides in soil are presented in Table 3.

VOCs

VOCs were not detected in the soil samples analyzed.

Analytical results for VOCs in soil are presented in Table 4.

5.2 Soil Vapor Results

A total of thirty-two (32) soil vapor samples were collected from borings SB1 through SB9, SB11 through SB15, and SB17 through SB23 and analyzed for VOCs via EPA Method TO-15.

The following VOCs were detected in one or more of the soil vapor samples: acetone, benzene, bromodichloromethane, 1,3-Butadiene, 2-Butanone, carbon disulfide, chlorobenzene, chloroform, chloromethane, cyclohexane, dibromochloromethane, 1,3-Dichlorobenzene, dichlorodifluoromethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, ethylbenzene, 4-Ethyltoluene, heptane, hexane, methylene chloride, methyl isobutyl ketone, 2-Propanol, tetrahydrofuran, tetrachloroethene (PCE), toluene, 1,1,1-Trichloroethane, trichloroethene (TCE), 1,1,2-trichloro-1,2,2-trifluoroethane, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, vinyl acetate, vinyl chloride, and xylenes. No other VOCs were detected in the soil vapor samples collected.

All soil vapor results were below their respective residential and industrial/commercial ESLs, where published, with the exception of the following constituents: benzene, bromodichloromethane, chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, PCE, TCE, and vinyl chloride. The elevated soil vapor results are summarized below and in Table 5:

Benzene was detected at concentrations exceeding its residential ESL (3.2 µg/m^3) in fifteen (15) of the soil vapor samples analyzed. Reported concentrations of benzene in those soil vapor samples ranged from 3.4 to 57 micrograms per cubic meter (µg/m^3).

Bromodichloromethane was detected at concentrations exceeding its residential ESL (2.5 µg/m^3) in four (4) of the soil vapor samples analyzed. Reported concentrations of bromodichloromethane in those soil vapor samples ranged from 21 to 17,000 µg/m^3.

Chloroform was detected at concentrations exceeding its residential ESL (4.1 µg/m^3) in four (4) of the soil vapor samples analyzed. Reported concentrations of chloroform in those soil vapor samples ranged from 4.1 to 11 µg/m^3.

1,1-Dichloroethane was detected at concentrations exceeding its residential ESL (58 µg/m^3) in two (2) of the soil vapor samples analyzed. Reported concentrations of 1,1-Dichloroethane in those soil vapor samples ranged from 79 to 330 µg/m^3.

1,2-Dichloroethane was detected at concentrations exceeding its residential ESL (3.6 µg/m^3) in one (1) of the soil vapor samples analyzed. The reported concentration of 1,2-Dichloroethane in that soil vapor sample was 400 µg/m^3.

Cis-1,2-Dichloroethene was detected at concentrations exceeding its residential ESL (280 µg/m^3) in four (4) of the soil vapor samples analyzed. Reported concentrations of cis-1,2-Dichloroethene in those soil vapor samples ranged from 450 to 5,500 µg/m^3.

Trans-1,2-Dichloroethene was detected at concentrations exceeding its residential ESL (2,800 µg/m^3) in one (1) of the soil vapor samples analyzed. The reported concentration of trans-1,2-Dichloroethene in that soil vapor sample was 4,500 µg/m^3.

PCE was detected at concentrations exceeding its residential ESL (15 µg/m^3) in thirty-one (31) of the soil vapor samples analyzed. Reported concentrations of PCE in those soil vapor samples ranged from 17 to 280,000 µg/m^3.

TCE was detected at concentrations exceeding its residential ESL (16 µg/m^3) in twenty-one (21) of the soil vapor samples analyzed. Reported concentrations of TCE in those soil vapor samples ranged from 17 to 54,000 µg/m^3.

Concentrations of TCE exceeded the Short-Term Action Trigger Level for Soil Gas in the soil vapor samples collected at a depth of five feet-bgs from borings SB7 through SB9, SB11 through SB15, SB18 and SB23.

Vinyl chloride was detected at concentrations exceeding its residential ESL (0.32 µg/m^3) in three (3) of the soil vapor samples analyzed. Reported concentrations of vinyl chloride in those soil vapor samples ranged from 17 to 7,000 µg/m^3.

Analytical results for VOCs in soil vapor samples are presented in Table 5. PCE concentrations in soil vapor are shown on Figure 3. PCE isoconcentrations in soil vapor at 5 feet bgs are depicted on Figure 4.

6.0 Evaluation

Offsite areas of concern assessed during this investigation included potential vapor encroachment from the known VOC contamination existing at the north adjacent property addressed 3505 Pasadena Avenue. Areas of concern at the subject property assessed during this investigation included a three-stage clarifier, a former transformer pad, and historical use in certain areas for electronics manufacturing (Figure 2).

Transport media at the subject property include soil, soil vapor and groundwater. Potential human exposure pathways include ingestion and dermal contact of soil and groundwater, and inhalation of soil vapor. There are no current potential receptors at the subject property because it is vacant. Potential future receptors at the subject property include construction workers, commercial workers, and residential use.

Soil

No VOCs, pesticides or PCBs were detected in the soil matrix samples analyzed. The soil matrix samples at the subject property thus do not demonstrate the existence of PCE and TCE contamination within the soil matrix. TPH were detected in two of the soil samples (collected at 1-foot depths) analyzed at concentrations well below their respective screening levels. Therefore, it appears that the historic operations assessed at the subject property (transformer pad, clarifier, electronics manufacturing) were not significant contributors to the contaminated soil vapor that exists beneath the subject property (discussed below). The soil exposure pathway for these constituents (VOCs, pesticides, PCBs) is considered incomplete for current and future use of the subject property (the potential receptor is not being exposed). The exposure risk for the future development can be managed with proper soil movement during construction and capped and covered conditions with site development.

Arsenic was detected at concentrations from 0.344 to 4.06 mg/kg, which is within the background range for arsenic in Southern California soils (*Kearney Foundation Special Report, Background Concentrations of Trace and Major Elements in California Soils*, 1996). The levels detected were above the residential and/or industrial/commercial screening level in the samples analyzed from all but one of the borings; and was detected at concentrations above its construction worker screening level in the samples analyzed from all but four of the borings. Lead was detected at boring SB15 at concentrations within the background range for lead in Southern California soils, but at concentrations exceeding its residential ESL in the samples analyzed at depths of 0.5 and one feet-bgs from borings SB1 and SB15, respectively, and at a concentration exceeding its construction worker ESL in the sample analyzed at a depth of 0.5 feet-bgs from boring SB1. Mercury was detected at a concentration of 1.44 mg/kg in the sample collected at a depth of three feet-bgs from boring SB7, which slightly exceeds its respective residential ESL of 1 mg/kg, and a background level of 0.9 mg/kg.

Based on the known background concentrations of arsenic in California soils, the reported concentrations of arsenic in soil may be naturally occurring and not the result of anthropogenic activity at the subject property. The exceedances of lead appear unlikely to be related to the assessed onsite areas of concern, based on their locations (SB1 and SB15) not being in the areas of concern assessed for historical operations at the subject property. The reported concentration of mercury (SB7) may be related to historical operations at the subject property, based on its location in an assessed of onsite concern. Regardless, from a risk-based perspective, the subject property is proposed to undergo redevelopment involving earth-moving activities, and so, absent any safety measures taken, future construction workers could have dermal contact with and/or ingest metals-impacted soil at the subject property proximate to these locations. Therefore, the soil exposure pathway for these metals for future construction workers is considered to be potentially complete.

However, during earth-moving activities at the subject property, shallow soils impacted by these metals will be addressed based on an existing Soils Management Plan for the subject property, as the same may be updated, and the subject property will predominantly be capped with concrete and/or asphalt, and so future residents and commercial workers dermally contacting or ingesting soil impacted with these metals at the subject property is considered unlikely, as measures to prevent such exposure will be incorporated into future safety measures.

<u>Groundwater</u>

During FRs investigation, groundwater was not encountered to the total depth explored of 30 feet-bgs. Groundwater is expected to occur beneath the subject property at a depth of approximately 35 feet-bgs. Soils were not impacted by contaminants of concern (in case of potential leaching of contaminants of concern to groundwater), with the exception of arsenic (within natural background levels), lead and mercury in shallow soils (< 15 feet-bgs). Leaching of these metals to groundwater beneath the subject property is considered to be unlikely based on the estimated depth to groundwater of 35 feet-bgs. Additionally, according to the Los Angeles Department of Public Works, there are no municipal water supply wells located on the subject property. Based on the above, the groundwater exposure pathway for these constituents for current and future onsite receptors is considered incomplete.

During future construction work at the subject property involving soil excavation to depths that would necessitate dewatering activities, absent any safety measures taken, construction workers could dermally contact or ingest potentially contaminated groundwater (based on the potential that the impacted soil vapor at

the subject property that is discussed below is off-gassing from contaminated groundwater), therefore the groundwater exposure pathway for future construction workers is potentially complete.

Subsurface Soil Vapor

The subject property has clean soil that is impacted by VOC-containing soil vapor. The apparent impact to subsurface soil vapor without a corresponding shallow soil source area, as evidenced by the low VOC detections in soil samples collected from the same borings site-wide, indicate the impacted soil vapor appears to be off-gassing from contaminated groundwater that has migrated from an offsite source(s), consistent with the historical releases identified on the north-adjacent former Welch's Uniform site at 3505 Pasadena Avenue, where the contaminants detected at the subject property are consistent with historical contaminants detected as and identified as sourced from the Welch's Uniform site . Additionally, the highest concentrations of VOCs in soil vapor appear to generally be on the north and west portions of the subject property (Figure 3 and 4), which would further indicate off-gassing from contaminated groundwater migrating from the north adjacent property, due to the fact that the groundwater flow direction has been shown to be to the southwest as the apparent source of soil vapor impact.

Analytical results for VOCs in subsurface soil vapor samples (equal or greater than 15 feet-bgs) reported benzene, bromodichloromethane, chloroform, 1,1-Dichloroethane, 1,-Dichloroethane, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, PCE, TCE and vinyl chloride at concentrations above their respective screening levels. The source of the chloroform and bromodichloromethane in soil vapor is suspected to be from groundwater, as chloroform was detected in the wells at the 3505 Pasadena Avenue site, and bromodichloromethane is a breakdown component of chloroform. Chloroform can form as a by-product of water chlorination, as a by-product of the use of chlorine bleach, or as an ingredient in solvents. The source of the remaining chlorinated hydrocarbons is suspected to also be from groundwater, due to the documented release on the 3505 Pasadena Avenue site. No known potential sources of these chemicals have been identified at the subject property.

Shallow Soil Vapor

Analytical results for VOCs in shallow soil vapor samples collected reported benzene, bromodichloromethane, chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, PCE, TCE, and vinyl chloride at concentrations above their respective screening levels. These elevated concentrations are further evaluated as presented in Table 6 and summarized below using attenuation factors to predict *potential indoor air* concentrations due to *potential* vapor intrusion into structures on site. This evaluation utilizes DTSC and USEPA-recommended attenuation factors (0.001 and 0.0005, respectively). In addition, DTSC has recommended that screening assessments calculate soil vapor screening levels using the US EPA recommended attenuation factor of 0.03 (based on June 2015 guidance) for sub-slab soil gas and "near-source" exterior soil gas. Only soil vapor samples from a depth of five feet-bgs were utilized in the modeling (refer to discussion in Section 5.0). Utilizing these criteria, the maximum concentration of the constituents of concern in soil vapor are as follows:

Constituent	Sample Identification	Maximum Concentration ($\mu g/m^3$)
Benzene	SB11-SV5	57
Bromodichloromethane	SB11-SV5	110

Constituent	Sample Identification	Maximum Concentration (µg/m³)
Chloroform	SB7-SV5	11
1,1-Dichloroethane	SB11-SV5	330
cis-1,2-Dichloroethene	SB11-SV5	1,300
PCE	SB14-SV5	280,000
TCE	SB14-SV5	54,000
Vinyl chloride	SB5-SV5	17

Using the maximum concentrations of the constituents outlined above, predicted indoor air concentrations for PCE and TCE are well above their residential screening levels when utilizing all three attenuation factors. Predicted indoor air concentrations for bromodichloromethane and vinyl chloride are above their residential screening levels when utilizing the attenuation factor of 0.001. Predicted indoor air concentrations for all of the constituents modeled are above their residential screening levels when utilizing the USEPA recommended attenuation factor of 0.03.

These results reveal that predicted indoor air concentrations for the constituents modeled are above their respective residential screening levels, and an unacceptable human health risk for vapor inhalation may exist at the subject property (predominantly due to PCE and TCE) under current conditions under the proposed future residential use scenario without mitigation. Therefore, mitigation of the vapor intrusion risk is recommended using engineering controls.

EPA-OLEM Vapor Intrusion Risk Assessment

Further risk assessment was conducted via the Environmental Protection Agency – Office of Land and Emergency Management (EPA-OLEM) vapor intrusion risk assessment guidance for the constituents outlined in the table above, with the exception of cis-1,2-Dichloroethene, which did not have inhalation toxicity information.

The calculated cancer and noncancer risk for benzene, chloroform, 1,1-Dichloroethane (cancer risk only, no reference concentration for hazard quotient for 1,1-Dichloroethane exists), and vinyl chloride were below the target cancer risk of 1.00E-05 and the target hazard quotient of 1.0 for a residential use scenario. The calculated cancer and noncancer risk for PCE, TCE and bromodichloromethane (cancer risk only, no reference concentration for hazard quotient for bromodichloromethane exists) were above the target cancer risk of 1.00E-05 and the target hazard quotient of 1.0 for a residential use scenario under current conditions without mitigation.

Based on the vapor intrusion risk assessment results, an unacceptable cancer and non-cancer health risk for residential use appears to exist at the subject property based on the current conditions relative to soil vapor. Since the subject property is currently vacant, the soil vapor inhalation exposure pathway for current potential receptors is considered incomplete. However, the soil vapor inhalation exposure pathway is considered complete for potential future receptors at the subject property absent mitigation. Note that concentrations of TCE in soil gas exceeded the Residential Short-Term Action Level in several of the soil vapor samples analyzed, however as the subject buildings are not currently occupied by residential receptors, expedited indoor air sampling does not appear to be necessary at this time. Mitigation of the vapor intrusion risk is recommended through engineering controls.

The EPA OLEM calculation sheet is included in Appendix D.

7.0 Conclusions and Recommendations

- Twenty-three (23) soil borings were advanced at the subject property to depths between five and 33 feet-bgs to assess the identified areas of concern associated with historical subject property operations, and the offsite vapor encroachment risk from the north adjacent property at 3505 Pasadena Avenue. Soils encountered generally consisted of poorly graded sands, well graded sands, silty sands, gravelly sands and gravelly sands with cobbles from the surface to the total depth explored of 33 feet-bgs. Apparent fill material was observed in boring SB17 at depths from approximately 5 to 15 feet bgs. Groundwater was not encountered to the total depth explored of 33 feet-bgs

- No VOCs, PCBs or pesticides were detected in the soil matrix samples analyzed. TPH were detected at concentrations below their respective screening levels in the soil samples analyzed. Arsenic was detected at concentrations above its residential and/or commercial screening levels in the samples analyzed from all but one of the borings; and was detected at concentrations above its construction worker screening level in the samples analyzed from all but four of the borings. Lead and mercury were detected at concentrations above their respective residential screening levels in two of the soil samples analyzed. Lead was detected at a concentration above its construction worker ESL in one of the soil samples analyzed. No other metals were detected at concentrations above their respective screening levels in the soil samples analyzed.

- The impact to soil vapor without a corresponding shallow soil source area (evidenced by the low VOC detections in soil samples collected at varying depths from the same borings site-wide) indicate the impacted soil vapor appears to be off-gassing from the known contaminated groundwater migrating from the north-adjacent property at 3505 Pasadena Avenue. The absence of detections of the same VOCs in soil strongly indicates an offsite source of the soil vapor detections at the subject property. This is further evidenced by the fact that the highest concentrations of VOCs in soil vapor appears to generally be on the north and west portions of the subject property (Figure 3 and 4), which would indicate off-gassing from contaminated groundwater migrating from the north adjacent property (the groundwater flow direction has been shown to be to the southwest) as the apparent source of soil vapor impact.

- All soil vapor results were below their respective residential and industrial/commercial ESLs, where published, with the exception of the following constituents: benzene, bromodichloromethane, chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, PCE, TCE, and vinyl chloride.

- Using the maximum concentrations of the constituents outlined above, predicted indoor air concentrations for PCE and TCE under present conditions are well above their residential screening levels when utilizing all three attenuation factors (0.001, 0.0005, and 0.03). Predicted indoor air concentrations for bromodichloromethane and vinyl chloride are above their residential screening levels when utilizing the attenuation factor of 0.001 under present conditions. Predicted indoor air concentrations for all of

the constituents modeled are above their residential screening levels when utilizing the USEPA recommended attenuation factor of 0.03. These results reveal that predicted indoor air concentrations for the constituents modeled are above their respective residential screening levels, and an unacceptable human health risk for vapor inhalation may exist at the subject property (primarily PCE and TCE) under the proposed future residential use scenario absent mitigation of soil vapors. Accordingly, mitigation of such conditions is recommend through engineering methods.

- Further risk assessment for soil vapor was conducted via the EPA-OLEM vapor intrusion risk assessment guidance. The calculated cancer and noncancer risk for benzene, chloroform, 1,1-Dichloroethane (cancer risk only, no reference concentration for hazard quotient for 1,1-Dichloroethane exists), and vinyl chloride were below the target cancer risk of 1.00E-05 and the target hazard quotient of 1.0 for a residential use scenario. The calculated cancer and noncancer risk for PCE, TCE and bromodichloromethane (cancer risk only, no reference concentration for hazard quotient for bromodichloromethane exists) were above the target cancer risk of 1.00E-05 and the target hazard quotient of 1.0 for a residential use scenario. Based on the vapor intrusion risk assessment results, an unacceptable cancer and non-cancer health risk for residential use appears to exist at the subject property under the current conditions, if no additional control measures were taken to address these issues. Accordingly, mitigation of such conditions is recommended through engineering methods.

- Since the subject property is currently vacant, the soil vapor inhalation exposure pathway for current potential receptors is considered incomplete. However, based on these results, the soil vapor inhalation exposure pathway is considered complete for potential future receptors (residential use) at the subject property absent future protective measures/ mitigation to address the issue.

Based on the known background concentrations of arsenic in California soils, the reported concentrations of arsenic in soil may be naturally occurring and not the result of anthropogenic activity at the subject property. The exceedances of lead appear unlikely to be related to the assessed onsite areas of concern, based on their locations (SB1 and SB15) not being in the areas of concern assessed for historical operations at the subject property. The reported concentration of mercury (SB7) may be related to historical operations at the subject property, based on its location in an assessed of onsite concern. However, the mercury in soil only slightly exceeds the expected background level, and may represent background conditions. Regardless, from a risk-based perspective, future construction workers at the subject property may have dermal contact with and/or ingest metals-impacted soil absent protective measures. Therefore, the soil exposure pathway for these metals for future construction workers is considered to be potentially complete. It is assumed that during earth-moving activities at the subject property, shallow soils impacted by these metals will be managed based on the existing Soils Management Plan for the subject property and the subject property will predominantly be capped with concrete and/or asphalt with site development. Therefore, the exposure risk to construction workers and future residential occupants can be managed and reduced to levels below applicable residential screening levels with proper soil movement during construction, and capped and covered conditions with site development.

Based on the above conclusions and the evaluation presented in Section 6.0, FR makes the following recommendations:

- Modify the existing Soils Management Plan for the subject property, to include a management plan for soils impacted by arsenic, lead and mercury, to limit potential exposure to construction workers, and conduct proper waste characterization, if necessary.

- Mitigation of the vapor intrusion risk is recommended through engineering controls to reduce the risk from soil vapor sourced from offsite to levels that would meet unlimited use screening levels for a proposed future residential use.

Limitations

This Phase II Subsurface Investigation report was prepared for the site at **135, 141 & 153 West Avenue 34, and 3401 & 3433 Pasadena Avenue, Los Angeles, California 90031** (subject property) per the request of DLA Piper, LLP. Fulcrum Resources Environmental has applied appropriate scientific judgment and used suitable measures consistent with accepted industry standards of practice for site assessments. Fulcrum Resources Environmental makes no expressed or implied warranty, in fact or by law, of the fitness of the site, for any particular purpose, with the material or "services" furnished by Fulcrum Resources to the client.

It should be recognized that potential subsurface contamination from unknown sources could vary laterally and with depth below a given site. The analysis and interpretations in this report have been developed based on the review of existing information pertaining to the subject property and a limited number of soil sample analysis from discrete locations.

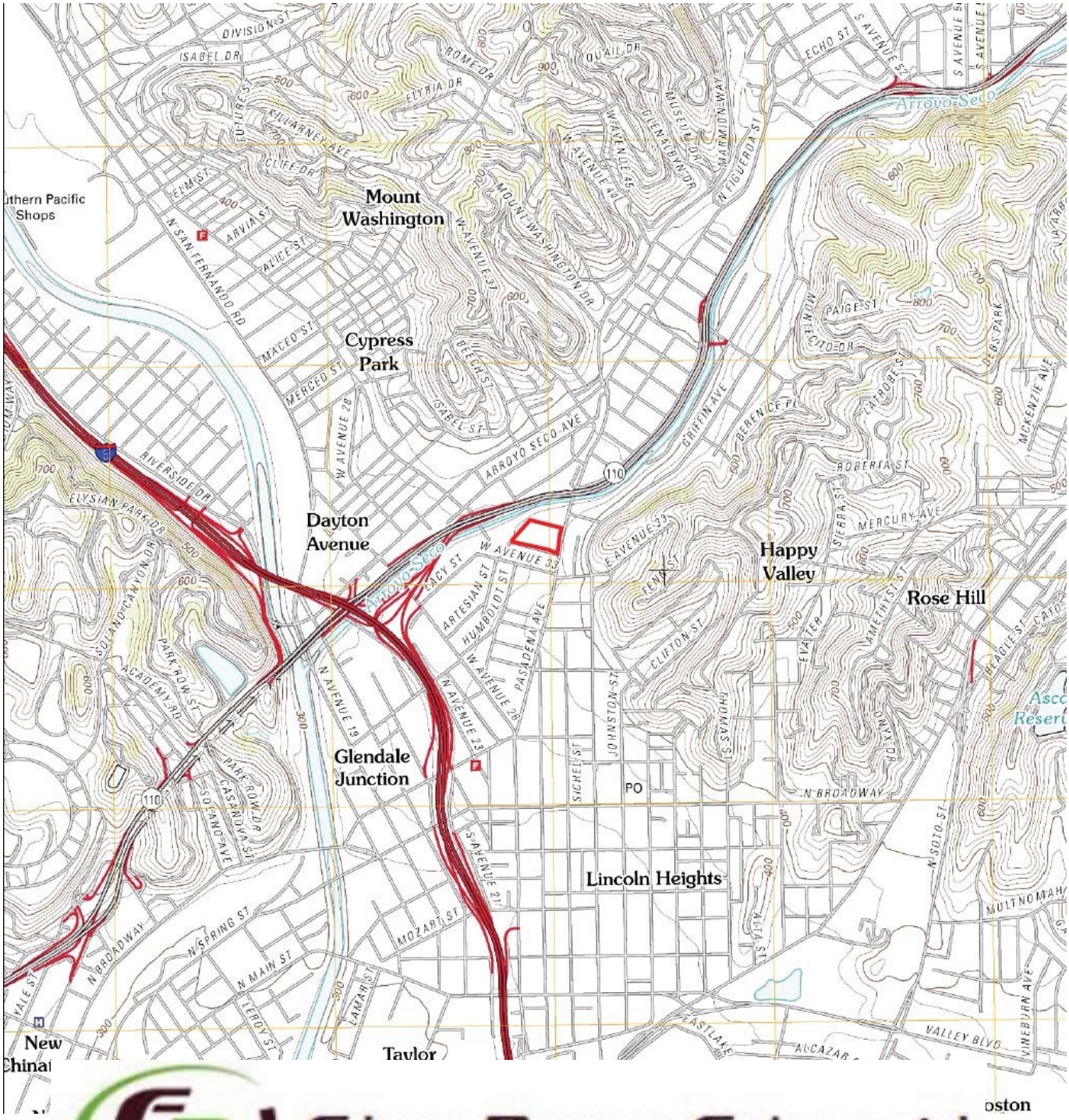

Figure 1: Site Vicinity Map

(USGS 7.5minute series Los Angeles, California 2012)

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