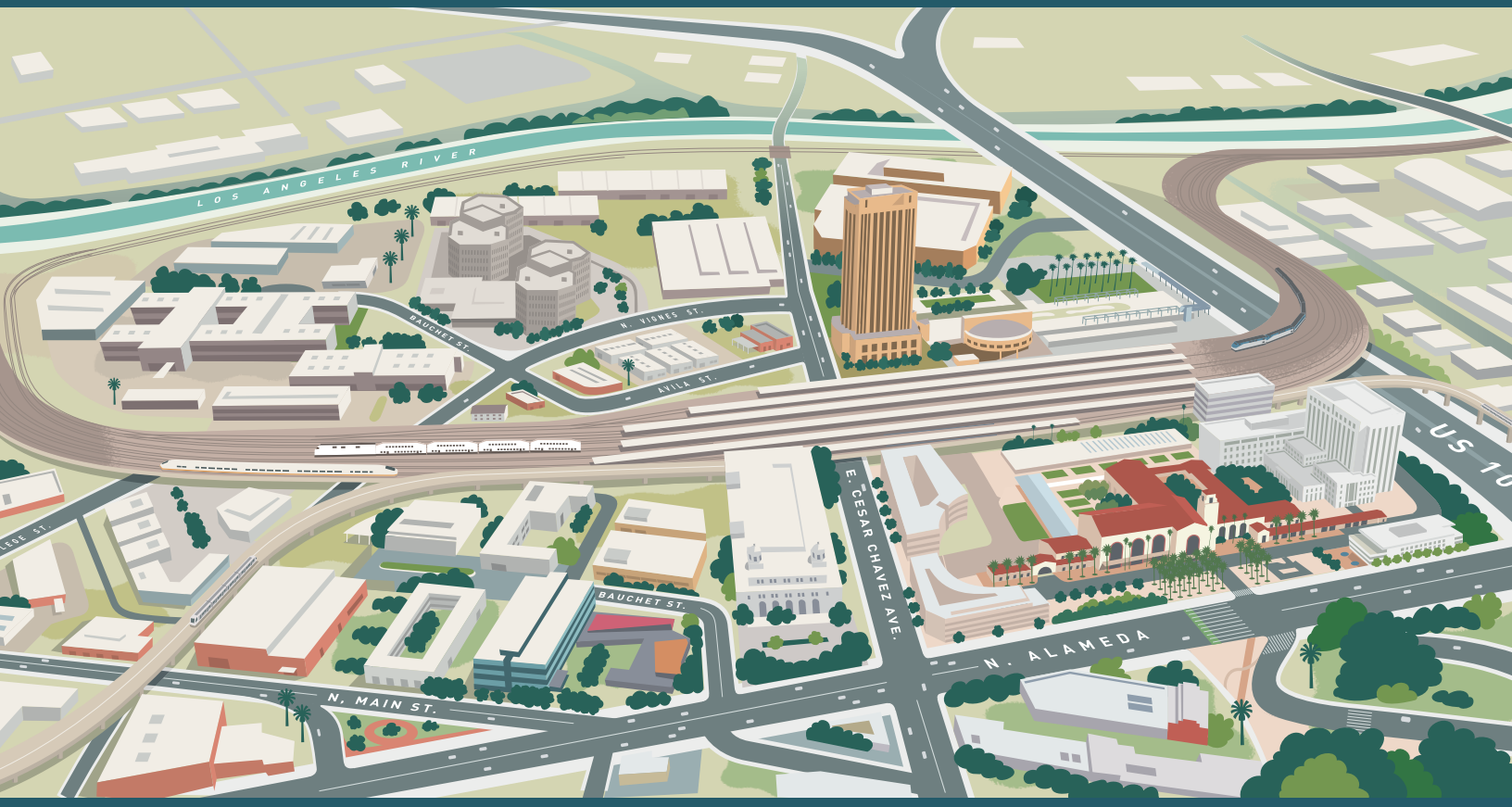
Los Angeles County
Metropolitan Transportation Authority

Link Union Station

Phase I Environmental Site Assessment

October 2016



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ACRONYMS

AAI	All Appropriate Inquiry
AIRS	Aerometric Information Retrieval System
amsl	above mean sea level
API	unique, permanent, numeric identifier
AST	aboveground storage tank
ASTM	American Society for Testing and Materials, ASTM International Inc.
AT&SF	Atchison, Topeka, and Santa Fe
AVE	Avenue
AULs	Activity Use Limitations
bgs	below ground surface
BNSF	Burlington Northern and Santa Fe
BLVD	Boulevard
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHMIRS	California Hazardous Material Incident Report System
CP	Control Point
CPAH	Carcinogenic polycyclic aromatic hydrocarbons
COC	Contaminants of Concern
CoLA	County of Los Angeles
CORRACTS	Corrective Action Report
CREC	Control Recognized Environmental Condition
CRF	Code of Federal Regulations
DCE	dichloroethylene
DOGGR	Division of Oil, Gas and Geothermal Resources
DTSC	Department of Toxic Substance Control
DWR	Department of Water Resources
E.	east
EDR	Environmental Data Resources, Inc.
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FS	Feasibility Study
FINDS	Facility Index System
FUDS	Formally Used Defense Sites
HDR	HDR Engineering, Inc.
HHRE	Human Health Risk Evaluation
HMIRS	Hazardous Materials Incident Report System
HREC	Historical Recognized Environmental Condition
HRA	Health Risk Assessment
HWP	Hazardous Waste Permits
I-10	Interstate 10
ICIS	Integrated Compliance Information System
ISA	Initial Site Assessment
LARWQCB	Los Angeles Regional Water Quality Control Board
LQG	Large Quantity Generator
LUST	Leaking underground storage tank

LAUS	Los Angeles Union Station
Metro	Los Angeles County Metropolitan Transportation Authority
mg/kg	milligram/kilogram
MGP	Manufacturing Gas Plant
MTBE	Methyl tertiary butyl ether
N.	North
NFRAP	No Further Remedial Action Planned
NLR	No Longer Reported
NonGen	Non-generator
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	National Response Center
PADS	PCB Activity Database System
PAH	polycyclic aromatic hydrocarbons
PCBs	Polychlorinated Biphenyls
PEA	Preliminary Environmental Assessment
PPB	parts per billion
PRP	Potentially Responsible Parties
RI/FS	Remedial Investigation/Feasibility Study
RCRA	Resource Conservation and Recovery Act
RCRA LQG	Resource Conservation and Recovery Information System Large Quantity Generators
RCRA SQG	Resource Conservation and Recovery Information System Small Quantity Generators
RCRA Non-Gen	Resource Conservation and Recovery Information System Non-Generator
REC	Recognized Environmental Condition
RGA LF	Recovered Government Archive Landfill
ROW	right-of-way
RP	Responsible Party
S.	South
SCRIP	Southern California Regional Interconnector Project
SCRRA	Southern California Regional Rail Authority
SEMS	Superfund Enterprise Management System
SLIC	Spills, Leaks, Investigations, and Cleanups
SR-60	State Route 60
SCG	Southern California Gas Company
ST	Street
SWF/LF	Solid Waste Facility/Landfill
SWRCB	State Water Resources Control Board
SVE	Soil vapor extraction
SVOC	semi volatile organic compounds
TEPH	Total extractable petroleum hydrocarbons
TCE	Trichloroethylene
TPH	Total petroleum hydrocarbons
TSDF	Treatment, storage, or disposal of waste
ug/kg	microgram/kilogram
UPRR	Union Pacific Railroad

USGS	United States Geological Survey
U.S.	United States
UST	underground storage tank
VOCs	volatile organic compounds
VEC	vapor encroachment condition
W.	west
WDS	Waste Discharge System
WMUDS	Waste Management Unit Database System

Note: A complete acronyms list is located in the Governmental Database Report, Appendix C.

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ES.0 Executive Summary

This Phase I Environmental Site Assessment (Phase I ESA) was prepared for the Link US Project (project), located in the City of Los Angeles, Los Angeles County, California. This Phase I ESA documents the environmental conditions that exist in the project study area at the time of preparation (October 2016).

A Draft Initial Site Assessment (ISA) was previously completed for the Southern California Regional Interconnector Project (SCRIP) in December 2014 (Kleinfelder 2014). This report is referenced herein. The historical review of the previous ISA was incorporated into this Phase I ESA to limit duplication of historical research, and is referenced as such (Kleinfelder 2014). The previous Draft ISA analyzed the project study area divided into five segments, although at that time, the project study area did not continue to the south past the Sixth Street Bridge.

For the purposes of this Phase I ESA, the project study area and Environmental Data Resources, Inc. (EDR) buffer area encompasses 58 Los Angeles County Assessor's Parcel Numbers (APNs): 5409-023-941, 5409-023-946, and 5409-025-900 through 5409-025-955.

LAUS was constructed in 1939 and has expanded since that time. Land uses in the project study area, and at LAUS specifically, have transitioned over time, from agricultural and residential at the turn of the twentieth century, to a major transportation hub today. Commercial and industrial land uses in the area have existed for over 100 years. The area also has a history of gas and oil production, in addition to naturally-occurring subsurface methane gas.

This Phase I ESA identifies Recognized Environmental Conditions (RECs) in the project study area, and was conducted in accordance with the scope and limitations of the ASTM International, Inc. (ASTM) Practice E 1527-13. Environmental Data Resources, Inc. (EDR) completed an agency database search to reveal any known environmental issues or cases, and provided historical photographs, City Directory data, and Sanborn® Fire Insurance Map data for the project study area. The records search included a 0.5-mile buffer zone from the project study area (herein referred to as the EDR Buffer Zone).

This report includes the following investigative elements:

- a review of an environmental database search report (EDR Report)
- a review of additional relevant regulatory documentation
- a review of historical data sources
- a review of environmental liens
- a summary of the site reconnaissance conducted on May 16 and June 6, 2016, by HDR personnel; and persons interviewed with knowledge of the properties

Any exceptions to or deletions from these ASTM practices are described later in this report.

Based on conditions noted within the project study area, HDR identified RECs associated with the Project Area.

ES.1 Findings

The Phase I ESA resulted in the following findings:

- The project study area is underlain by fill material consisting of a mixture of silt, sand, and gravel, with an approximate thickness of 6 to 15 feet (suspected to be deeper in some locations). Holocene and Pleistocene age alluvium, consisting of silt and sand with varying amounts of gravel and cobbles, occurs below the fill, and is approximately 85 feet thick. Siltstone bedrock of the Fernando Formation occurs approximately 85 to 90 feet below ground surface (bgs). The project study area is located near active oil fields, and natural petroleum seeps are encountered in the vicinity. Some seeps are present in the lower levels of subterranean structures.
- Groundwater occurs at depths ranging from approximately 28 to 58 feet bgs, depending on the presence of perched groundwater. Groundwater flow direction is generally to the south. North of US-101, groundwater flows to the south-southwest. South of US-101, groundwater flows to the south-southeast.
- Active oil and gas reserves are located throughout the City. The Union Station Oil Field is located adjacent to the project study area, and the Los Angeles Oil Field is located approximately 0.5 miles northwest of LAUS and the project study area. Naturally-occurring oil seeps have been documented at various locations throughout the project study area. The Union Station Oil Field includes a Methane Buffer Zone. Segments 2 and 3, and portions of Segment 4, are located within the Union Station Methane Zone. The City of Los Angeles has specific land use and building requirements pertaining to ventilation and methane gas detection systems for development within Methane Zones (Ordinances 175790 and 180619).
- The former Aliso Street Manufactured Gas Plant (MGP) operated from the late nineteenth to mid-twentieth centuries in the eastern portion of the project study area. Following its closure, contaminated soil and groundwater were documented to have affected a widespread area, including most of the Project Area. Remedial investigations and site cleanup activities were initiated in the 1990s, with the implementation of a groundwater monitoring program and the removal of contaminated soil from selected locations within the site. Contaminants include petroleum hydrocarbons, volatile organic compounds (VOCs), cyanide, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Due to the large area of the former MGP site, investigations were conducted in five smaller sectors: Sectors A, B, C, D, and E.
- Chemicals in the subsurface, whether in soil or groundwater, can migrate upward through the soil and enter into buildings, causing unacceptable chemical exposure for building occupants (Department of Toxic Substance Control (DTSC), 2011). Soil vapor (gas that exists within the pore spaces of sediments) has the potential to carry volatile contaminants an appreciable distance from their source.

- A total of 1,535 regulatory listings were noted within the project study area and the EDR Buffer Zone (0.5 mile around the project study area) (Appendix A, Table A1, Potential Sites of Concern in the Project Study Area). In urban areas, it is anticipated that commercial and industrial operations will increase the number of regulatory listings included in a database search.
- A total of 279 regulatory listings associated with 154 sites were noted to have a potential to impact the project study area. Of the 154 sites, a total of 34 Recognized Environmental Concerns (RECs), Controlled Recognized Environmental Concerns (CRECs), and Historic Recognized Environmental Concerns (HRECs) sites were categorized with a Moderate to a High Risk ranking, and are recommended for Phase II assessment because they occur within areas where project-related disturbance would occur. These sites have been renumbered from the EDR Report numbering for the purpose of this report (HDR Map Code) (Table ES-1 Summary of Identified REC Sites and Phase II Recommendations and Figure 3-2 through Figure 3-5 Sites of Concern and Risk Rankings).
- The following sites were determined to have land use restrictions associated with the properties:
    - 718 Commercial Street, no HDR Map Code
    - 830 Commercial Street, HDR Map Code 59 (Viertel's Police Impound Garage)
    - 1746 Spring Street, HDR Map Code 5 (Bortz Oil Company)
    - 1300 Cardinal Street, HDR Map Code 31 (William Mead Homes)
    - 410 Center Street, HDR Map Code 63 (LA County Metro Transportation Authority)
    - 530 Ramirez Street, HDR Map Code 66 (former Aliso Sector - Denny's Site)
    - 710-720 Keller Street (Macy), HDR Map Code 84 (SCG/Olympic Base)
- A site reconnaissance of the project study area, including the surrounding properties, was conducted by HDR on May 16, 2016, to assess the present conditions and photo- document the project study area. A subsequent site reconnaissance was completed on June 6, 2016. Generally, subsurface electrical and other utilities, including transformers, were noted throughout the project study area. The surrounding area is highly industrialized, with commercial, industrial, governmental buildings and facilities (e.g., jail, police impound storage lot). The project study area has multiple recycling-type facilities. The railroad ROW contained oil staining throughout, with the majority considered to be a "de minimis" condition. However, some areas that were inaccessible during the site reconnaissance may have actionable staining. One site, an auto dismantling business (located beneath I-10) was noted during the site reconnaissance. This site is located adjacent to Segment 4a, and has a potential for metals contamination. Photographs taken during the site reconnaissance are presented in Appendix K.

Table ES-1 provides a summary of sites of concern, issues that are classified as RECs, contaminants of concern for each site, and recommendations for inclusion in a Phase II. This table is a summary of issues. For a more complete description of a site and the rationale for inclusion as a site of concern, please refer to the main text of this report.

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Table ES-1. Summary of Identified REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
5	5	Bortz Oil Company	1746 Spring Street	CA HIST UST , CA BOND EXP. PLAN, CA HIST CORTESE, CA LUST, ENVIROSTOR	Upgradient Located 1,200 feet north of Segment 5	CREC/Moderate Risk Land Use Restrictions	cis-1, 2-DCE and vinyl chloride in groundwater	Yes
16	13	Western Brassworks	1440 Spring Street	CA LUST	Upgradient The site is located 1,900 feet northwest of Segment 5	HREC/Moderate Risk Due to groundwater contamination	TPH-diesel in groundwater	Yes
17	14	1. Main Street Center/Main Street Oil Depot 2. LA Department Water	1630 Main Street	SEMS-ARCHIVE, CORRATS, 2020 COR ACTION, US FIN ASSUR, CA HIST CORTESE, CA LUST, CA UST, ENVIROSTOR ENVIROSTOR	Crossgradient The site is located adjacent to Segment 5	REC/High Risk Open case	Solvents, non-petroleum hydrocarbons, polychlorinated biphenyls (PCB), arsenic, metals, and VOCs in soil and groundwater	Yes
22	20	Witco/Allied Kelite	1250 Main Street	ENVIROSTOR	Upgradient The site is located north and adjacent to Segment 5	HREC/High Risk Historical industrial land use and groundwater contamination	Total petroleum hydrocarbon (TPH), VOC, SVOCs, PAH, PCBs, and metals in the groundwater	Yes
25	22	Blossom Plaza	900 Broadway	ENVIROSTOR	Upgradient The site is located 1,600 feet northeast of Segment 5	HREC/Moderate Risk Active cleanup site	TPH and VOCs in soil gas, vadose zone and groundwater	Yes
31	25	William Mead Homes	1300 Cardinal Street	CA HIST UST, CA Cortese, ENVIROSTOR	Upgradient The site is located adjacent to Segment 5	REC/High Risk Historical industrial use of the property, potential for residual soil and groundwater contamination, and land use restrictions.	TPH, VOCs, SVOCs, PAHs, PCBs, metals in groundwater	Yes
36	27	The California Endowment	1000 Alameda Street	CA LUST	Crossgradient The site is located 500 feet west of the Segment 1	HREC/Moderate Risk	Petroleum, hydrocarbons, VOCs, and chlorinated solvents in t groundwater	Yes
38	27	Fansteel CA Drop Forge	1033 Alhambra Avenue	CA HIST CORTESE, CA LUST	Upgradient The site is located adjacent to Segment 5	HREC/Moderate Risk	Petroleum hydrocarbons due to active business practices	Yes
40	29	Burlington Northern and Santa Fe (BNSF) Mission Tower Site	1430 Bolero Lane	SLIC, ENF	Project Area The site is located within Segment 5	HREC/High Risk Historical industrial land use. Potential for residual soil and groundwater contamination	TPH, VOCs, SVOCs, PAHs, PCBs, metals in groundwater	Yes
43	33	LA County Central Jail/Sherriff's Department	429 and 441 Bauchet Street	CA HIST CORTESE, LUST (2), CA UST	Upgradient/Downgradient The site is located between Segment 1 and the main tracks and Segment 6	REC/Moderate Risk	Residual TPH-d contamination in groundwater	Yes
45	33	Van Der Horst Corporation	496 Bauchet Street	SEMS, LIENS 2	Upgradient The site is located 500 feet south of Segment 5 and adjacent to Segment 6	REC/High Risk	Residual TPH-Dx contamination in groundwater	Yes

Table ES-1. Summary of Identified REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
46	33	Bauchet Partners / So. CA Gas Company	490 Bauchet Street	SEMS-ARCHIVE, PRP, ENVIROSTOR	Upgradient The site is located 500 feet south of Segment 5 and adjacent to Segment 6	REC/Moderate Risk	PCE, TCE and dicyclo-pentadiene in groundwater	Yes
48	35	U.S. Postal Service Terminal Annex	900 Alameda Street	CA LUST	Upgradient The site is located adjacent to Segment 1	HREC/High Risk	Residual TPHs, VOCs, and chlorinated solvents in groundwater	Yes
49	35	Chevron Station	901 Alameda Street	CA LUST, CA UST	Upgradient The site is located 700 feet northeast of the Segment 1	HREC/Moderate Risk	TPH, groundwater contamination	Yes
55	37	Caltrans – Commercial	501 Commercial Street	CA HIST CORTESE	Project Area The site is located south of Segment 2 and adjacent to Segment 3	REC/High Risk Historical industrial land uses, Open Cleanup Program site	TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
56	37	Vacant Lot	510 Commercial Street	None Listed	Project Area The site is located adjacent to Segment 2 and Segment 3	HREC/High Risk Historical land uses	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes
57	37	PBR Realty, LLC / Caltrans District 7)	531 Commercial Street	CA LUST, CA SLIC	Project Area The site is located adjacent to Segment 2 and Segment 3	REC/High Risk Due to historical land uses and open-inactive LUST case	TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
58	37	Friedman Bag Company, Inc.	801 Commercial Street & 706 Ducommom Street	CA HIST CORTESE, CA LUST	Project Area The site is located east of Segment 2	HREC/Moderate Risk Based on historical land use and potential for residual soil and groundwater contamination.	Residual soil and groundwater contamination	Yes
59	37	A&H Greenfield Sheet Metal / Viertel's Police Impound Garage	830 Commercial Street/540 Center Street	SEMS-ARCHIVE	Project Area Moderate Risk based on residual metals in the soil.	REC/High Risk Based on residual metals in soil.	TPH, VOCs, SVOCs, PAHs, PCB, metals, and other MGP chemicals in the soil and groundwater	Yes
60	N/A	LA County MTA c/o Environmental Services Department	840 Commercial Street	None Listed	Project Area	HREC/High Risk Based on historical land use and potential for residual soil and groundwater contamination.	TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
61	37	Mobil #11 & #18	520 Alameda Street	CA HIST CORTESE , CA LUST (2), CA UST	Crossgradient The site is located adjacent to Segment 2	HREC/High Risk	TPH in soil and groundwater	Yes
63	NA	1. Los Angeles County Metro Transportation Authority 2. Manley Oil	410 Center Street	1. CA DEED, ENVIROSTORCA VCP(2) 2. ENVIROSTOR	Crossgradient The site is located adjacent to Segment 3	CREC/High Risk Land use restrictions	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes

Table ES-1. Summary of Identified REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
64	NA	National Cold Storage Company	820 Jackson Street	CA VCP, ENVIROSTOR	Upgradient The site is located adjacent to Segment 3	CREC/High Risk Land use restrictions	TPH, VOCs, cyanide, PAHs, and heavy metals in soil, soil vapor, and groundwater. Gas vent located on-site	Yes
66	37	Former Aliso Sector - Denny Site	530 Ramirez Street	ENVIROSTOR	Upgradient The site is located north and adjacent to Segment 2 and 3, and west of Segment 6	CREC/High Risk Land use restrictions association with the former Aliso MGP site.	TPH, VOCs, cyanide, PAHs, and heavy metals in soil, soil vapor, and groundwater	Yes
67	37	So. CAL Gas/Former Aliso / LA PD Central Garage	555 Ramirez Street	CA HIST CORTESE , CA LUST, CA UST, ENVIROSTOR	Upgradient The site is located north of Segment 2 and 3, and adjacent to Segment 6	REC/High Risk Open Case	TPH, VOCs, cyanide, PAHs, and heavy metals in soil, soil vapor, and groundwater	Yes
70	37	Unocal, Conoco Phillips Center Street Terminal / S & P Company	501 Center Street / 706 Commercial Street	CA FID UST	Project Area Located within Segment 3	REC/High Risk Open inactive case	Petroleum hydrocarbons, PAHs, and VOCs	Yes
71	39	LA to Pasadena Metro Blue Line Construction Author (SL204EG2409)	None listed	CA SLIC	Project Area	HREC/High Risk Accumulation of diesel and petroleum, and potential soil vapor	Diesel and petroleum, and potential soil vapor	Yes
73	41	So. CA Gas / Former Aliso MGP	600 Cesar Chavez Avenue	CA Cortese	Downgradient The site is located east of Segment 1 and upgradient from Segment 6	REC/High Risk Open-inactive case status	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes
74	41	Mendoza Service, Inc.	866 Caesar Chavez Avenue	CA HIST CORTESE, CA LUST	Upgradient The site is located adjacent to Segment 6	HREC/Moderate Risk Due to timeframe of the reported leak and closure	TPH in soil and groundwater	Yes
75	41	Metro Division 30/LACMTA	900 Lyon Street	CA LUST, CA UST	Crossgradient The site is located adjacent to Segment 6	REC/High Risk Open Status	Petroleum releases in the soil and groundwater	Yes
76	43	Union Station	800 Alameda Street	SEMS-ARCHIVE	Project Area	HREC/High Risk Soil vapor potential	TPH-impacted soil was re-used on the property, and soil vapor	Yes
84	47 52	1. Southern CA Regional Rail Authority Track Extension (Keller Yard) 2. Santa Fe/Macy Street	1. 720 Keller Street 2. Macy Street/Former Aliso Street/Keller Street	1. ENVIROSTOR 2. FINDS, ECHO, CA DEED, CA VCP, ENVIROSTOR	Project Area The site is located adjacent to the Segment 6 and north of Segment 3	CREC/High Risk Land Use Restrictions	TPH-Dx and Gx, VOCs, SVOCs, PAHs, PCBs, and metals in groundwater	Yes
102	82	1. Butterfield 2. Sun Chemical Corp.	590 Santa Fe Avenue	1. CA HIST UST, CA HIST CORTESE, ENVIROSTOR 2. CA LUST	Crossgradient The site is located 500 feet west of Segment 4	REC/High Risk Active site and distance to the Project	Metals, PAHs, TPH, VOCs in soil and soil vapor	Yes

Table ES-1. Summary of Identified REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
138	NA	Auto Dismantling	2425 Enterprise Street	None listed	Crossgradient he site is located adjacent Segment 4a Potential for metals	REC/Moderate Risk The site is located adjacent Segment 4a	Metals in the soil	Yes
145	122, 127	Crown Coach Site	2429 Washington Blvd.	US BROWNFIELDS	Crossgradient The site is located adjacent to Segment 4a	REC/Moderate Risk Active case	VOCs, TCE, and PCE in the groundwater and soil vapor	Yes

Notes:

1 ***This map code was assigned to the site for the purposes of the report and is not included in the EDR Report map coding.***

2 ***Corresponds to location of site as indicated in the EDR Report (Appendix C).***

3 ***Complete acronym list is included in the EDR Report (Appendix C).***

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ES.2 Opinions

HDR has performed a Phase I ESA, as described in the ASTM Practice E 1527-13 assessment protocol. Based upon this assessment, HDR has developed the following professional opinions:

- The degraded groundwater in the region is a concern for the project, since many contaminants will be transported by groundwater. The historical land uses in the project study area include gas manufacturing, oil production, dry cleaners, industrial uses, and railroad operations over a prolonged period of time. In addition, naturally-occurring petroleum and methane have been shown to be present and have affected soil and groundwater quality. The quality of groundwater in the deeper production aquifers is threatened by migration of pollutants from the upper aquifers. The general condition of groundwater is a concern for the project, constitutes a REC and is considered to be High Risk.
- The soil vapor below the project study area may contain elevated concentrations of VOCs from past land uses, as well as natural hydrocarbon deposits. These impacts may present an exposure risk to construction workers, as well as an indoor air quality risk within subterranean structures due to vapor encroachment. This condition is a REC and is considered to be High Risk.
- A portion of the project study area is located within the Union Station Oil Field and the Union Station Methane Zone and Methane Buffer Zone. Oil seeps and subsurface methane deposits may be present on-site. The project would be required to comply with the City of Los Angeles building ordinances regarding ventilation and methane gas detection systems for built structures. The presence of hydrocarbon-impacted soil vapor is a REC and is considered to be High Risk. A vapor encroachment condition (VEC) was noted to be present in the vadose zone below LAUS. This is also a separate REC and is considered to be High Risk.
- The Los Angeles River acts as a barrier for shallow (less than 35 feet deep) contaminants migrating from east to west across the river. No RECs were noted on the east side of the river.
- One site, an auto dismantling site located at 2425 Enterprise Street (HDR Map code 138), is located adjacent to Segment 4a, and has the potential for elevated metals in the soils. This condition is a REC and is considered to be High Risk.
- Various sites in and near the project study area have experienced releases of contaminants to soil and groundwater. Ongoing and historical cleanup efforts have occurred for a total of 35 known sites (Refer to Table 7-1). Therefore, the potential for encountering contaminated soil and groundwater at any location during subsurface work during construction cannot be ruled out. This general condition is a REC and excavated soil at the site may be considered High Risk.

ES.3 Conclusions

Based upon the above-detailed Findings and Opinions, HDR concludes that RECs have been identified both on and adjacent to the project study area. The following statement is required by ASTM Practice E 1527-13 as a declaration of whether RECs were found:

> *HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Link Union Station Project Study Area (Project Study Area) located in the City of Los Angeles, Los Angeles County, California. Any exceptions to or deletions from these practices are described in previous sections of this report. This report revealed a total of 35 RECs (15 RECs, 15 HRECs, and five CRECs) in connection with the Project Study Area.*

1. A total of 35 RECs (15 RECs, 15 HRECs, and five CRECs) were noted in the regulatory listings with a Moderate to High Risk ranking (Table ES-1).
2. The former Aliso Street MGP, Sector C, at various locations (including Blocks G, K, L, O, Q, R; Santa Fe/Macy St/Aliso St/Keller St; and site-wide groundwater) – Based on the open and/or operation and maintenance status of the regulatory listings and the ongoing remediation and monitoring activities, these areas are considered to be RECs.
3. The methane deposits associated with the Union Station Methane Buffer Zone is considered to be a REC.
4. A VEC is noted to be present in the vadose zone below LAUS. This is considered to be a REC.
5. Seven properties have land use restrictions associated with the properties:
    a. 718 Commercial Street
    b. 830 Commercial Street
    c. 1746 Spring Street
    d. 1300 Cardinal Street
    e. 410 Center Street
    f. 530 Ramirez Street
    g. 710-720 Keller Street

ES.4 Recommendations

Recommendations included in this report were developed through the investigative procedures described in the Scope of Services, Significant Assumptions, and Limitations section of this report (Section 1.4). These findings should be reviewed within the context of the limitations provided in the Limitations section.

Based upon the identification of RECs associated with the project study area, HDR makes the following recommendations:

ES.1.1 Recommendation 1

HDR recommends a Phase II ESA be prepared to characterize potential impacts where physical disturbance would occur from the project. The following specific areas of investigation are recommended:

- Soil in the planned areas of excavation should be characterized with respect to the nature and extent of contamination with petroleum hydrocarbons as a follow up to this Phase I ESA.
- Dewatering may be required during construction. Therefore, it would be prudent to characterize the nature and extent of groundwater contamination beneath the project study area, especially in planned excavation areas, as a follow up to this Phase I ESA.
- Soil vapor encroachment may pose a construction worker health risk and indoor air quality risk for subsurface structures in contact with contaminated soil. Therefore, it would be prudent to characterize the soil vapor conditions beneath the project study area, especially in planned excavation areas, as a follow up to this Phase I ESA.

ES.1.2 Recommendation 2

HDR recommends Metro consider the "shelf life" of Phase I documents in determining risk. ASTM Practice E 1527-13, Section 4.6 states that a conforming "Phase I" report is valid for a period of 180 days and may be updated during the 180-day to 1-year timeframe. The report is valid for use in any of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) defenses ONLY if it is updated within this timeframe. If greater than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the "All Appropriate Inquiry" (AAI) protection.

1.0 Introduction

The Los Angeles County Metropolitan Transportation Authority (Metro) is proposing the Link Union Station Project to transform Los Angeles Union Station (LAUS) from a "stub-end tracks station" into a "run-through tracks station" with a new passenger concourse that would improve the efficiency of the station and accommodate future growth and transportation demands in the region.

1.1 Project Location and Study Area

LAUS is located at 800 Alameda Street in the City of Los Angeles, California. LAUS is bounded by US-101 to the south, Alameda Street to the west, Cesar Chavez Avenue to the north, and Vignes Street to the east. Figure 1-1 depicts the regional location and general vicinity of LAUS.

Figure 1-2 depicts the project study area, which encompasses the extent of environmental study associated with potential direct, indirect, and cumulative impacts from implementation of the project. The project study area includes three main segments (Segment 1: Throat Segment, Segment 2: Concourse Segment, and Segment 3: Run-Through Segment). The existing conditions within each segment are summarized north to south below.

- Segment 1: Throat Segment – This segment, known as the LAUS throat, includes the area north of the platforms, from Main Street at the north to Cesar Chavez Avenue at the south. In the throat segment, all arriving and departing trains traverse five lead tracks into and out of the rail yard, except for one location near the Vignes Street Bridge where the tracks reduce to four lead tracks. Currently, special track work consisting of multiple turnouts and double-slip switches are used in the throat to direct trains into and out of the appropriate assigned terminal platform tracks.
- Segment 2: Concourse Segment – This segment is between Cesar Chavez Avenue and US-101; and includes LAUS, the rail yard, the Garden Tracks (stub-end tracks where private train cars are currently stored, just north of the platforms and adjacent to the existing Gold Line aerial guideway), the East Portal building, the baggage handling building with aboveground parking areas and access roads, the ticketing/waiting halls, and the pedestrian passageway with connecting ramps and stairways below the rail yard.
- Segment 3: Run-Through Segment – This segment is south of LAUS and extends east/west from Alameda Street to the west bank of the Los Angeles River and north/south from Keller Yard to Control Point (CP) Olympic. This segment includes US-101, the Commercial Street/Ducommun Street corridor, Metro Red and Purple Lines Maintenance Yard (Division 20 Rail Yard), BNSF West Bank Yard, Keller Yard, the main line tracks on the west bank of the Los Angeles River, from Keller Yard to CP Olympic, and the "Amtrak Lead Track" connecting the main line tracks with Amtrak's Los Angeles Maintenance Facility. Businesses within the run-through segment are primarily industrial and manufacturing related.

The project study area has a dense street network ranging from major highways to local city streets. The roadways within the project study area include the El Monte Busway, US-101, Bolero Lane, Leroy Street, Bloom Street, Cesar Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, Vignes Street, Main Street, Aliso Street, Avila Street, Bauchet Street, and Center Street.

1.2 Proposed Project Overview

The proposed project components are summarized north to south below.

- Throat and Elevated Rail Yard – The proposed project includes subgrade and structural improvements in Segment 1 of the project study area (throat segment) to increase the elevation of the tracks leading to the rail yard. The proposed project includes the addition of one new lead track in the throat segment for a total of six lead tracks to facilitate enhanced operations for regional/intercity rail service providers (Metrolink/Amtrak) and accommodate the planned High-Speed Rail (HSR) system within a shared track alignment. Regional/intercity and HSR trains would share the two western lead tracks in the throat segment. The rail yard would be elevated approximately 15 feet. New passenger platforms with individualized canopies would be constructed on the elevated rail yard, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed. North of CP Chavez, the proposed project also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.
- Above-Grade Passenger Concourse with New Expanded Passageway – The proposed project includes an above-grade passenger concourse with new expanded passageway in Segment 2 of the project study area (concourse segment). The above-grade passenger concourse with new expanded passageway would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The new passenger concourse would create an opportunity for an outdoor, community-oriented space and enhance Americans with Disabilities Act (ADA) accessibility at LAUS. The elevated portion of the above-grade passenger concourse would be located above the rail yard, approximately 90 feet above the existing grade with new plazas east and west of the elevated rail yard (East and West Plazas). The new expanded passageway would be located below the rail yard to provide additional passenger travel-path convenience and options. Amtrak ticketing and baggage check-in services would occur at two locations at the east and west ends of LAUS, and new carousels would be constructed within the new expanded passageway. The above-grade passenger concourse includes a canopy over the West Plaza up to 70 feet in height, with individual canopies that would extend up to 25 feet over each platform. New vertical circulation elements (VCEs) would also be constructed throughout the concourse to

enhance passenger movements throughout LAUS while meeting ADA and National Fire Protection Association (NFPA) platform egress code requirements.

- Run-Through Tracks – The proposed project includes up to 10 new run-through tracks (including a new loop track) south of LAUS in Segment 3 of the project study area (run-through segment). The run-through tracks would facilitate connections for regional/intercity rail trains and HSR trains from LAUS to the main line tracks on the west bank of the Los Angeles River. A "common" viaduct/deck over US-101 and embankment south of US-101, from Vignes Street to Center Street, would be constructed wide enough to support regional/intercity rail run-through service, and future run-through service for the planned HSR system.

The proposed project would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control (PTC), and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad right-of-way (ROW); additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

1.3 Build Alternative Overview

The primary differences between the proposed project and the build alternative are related to the lead tracks north of LAUS and the new passenger concourse. Compared to the proposed project, the build alternative includes the following:

- Dedicated Lead Tracks North of LAUS – The build alternative includes reconstruction of the throat, with two new lead tracks that would be located outside of the existing railroad ROW, facilitating a dedicated track alignment, with a total of seven lead tracks. Reconfiguration of Bolero Lane and Leroy Street would also be required.
- At-Grade Passenger Concourse – The build alternative includes an at-grade passenger concourse below the rail yard.

All other infrastructure elements are similar to the proposed project. The components of the build alternative are described north to south below.

- Throat and Elevated Rail Yard – The build alternative accommodates future HSR trains on dedicated lead tracks in the throat segment. The build alternative includes the addition of two new lead tracks for a total of seven lead tracks in the throat segment (with future HSR trains and some express/intercity services using the two western dedicated lead tracks and most regional/intercity trains using the five eastern lead tracks). The rail yard would be elevated approximately 15 feet. New passenger platforms with a grand canopy covering the elevated rail yard would be constructed, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the

planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed under the build alternative. North of CP Chavez, the build alternative also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.

- At-Grade Passenger Concourse – The build alternative includes a new at-grade passenger concourse that would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The at-grade passenger concourse would also create an opportunity for an outdoor, community-oriented space and enhanced ADA accessibility. The at-grade passenger concourse would be constructed below the elevated rail yard. Amtrak ticketing and baggage check-in services would occur at a centralized location where new carousels would be constructed at the concourse level. The at-grade passenger concourse also includes new plazas east and west of the elevated rail yard (East and West Plazas), and a grand canopy that would extend up to 70 feet above the elevated rail yard and West Plaza. New vertical circulation elements would also be constructed throughout the concourse to enhance passenger movements throughout LAUS while meeting ADA and NFPA platform egress code requirements.
- Run-Through Tracks – The build alternative includes up to 10 new run-through tracks (including a new loop track) in the run-through segment. All infrastructure south of LAUS is the same as described above for the proposed project.

The build alternative would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control, and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad ROW; additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

Figure 1-1. Project Location and Regional Vicinity

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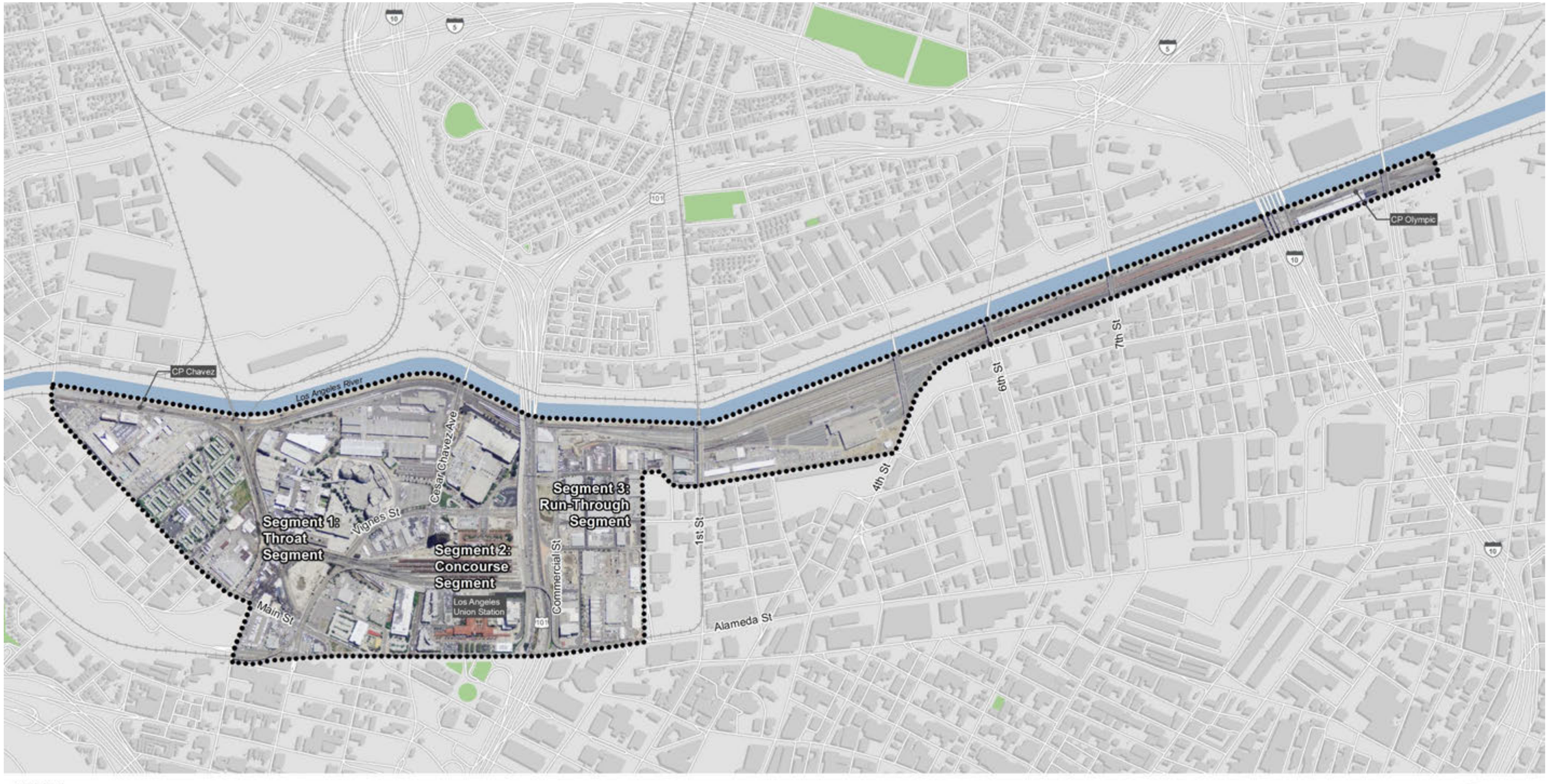
Figure 1-2. Project Study Area



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1.4 Methodology

This Phase I ESA generally conforms to the investigative methods outlined in ASTM Practice E 1527-13 and included a review of regulatory data, a site reconnaissance by an Environmental Professional, interviews with limited contacts, and review of historical data. A prior investigation was referenced for much of the historical data for this report. This investigation was performed for the predecessor SCRIP project in December 2014 (Kleinfelder 2014). To limit duplication of historical research, the previous ISA historical data were incorporated into this Phase I ESA and are referenced as such (Kleinfelder 2014). The previous Draft ISA analyzed the project study area divided in five segments, although the project study area did not continue past the Sixth Street Bridge. Additional data sources such as Historicalaerials.com were utilized for the portion of the project located south of Sixth Street.

1.5 Purpose

The purpose of this Phase I ESA is to document the evaluation of the project study area for indications of RECs. The ASTM Practice E 1527-13 defines the following categories of RECs:

1.5.1 REC

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. *De minimis* conditions are not recognized environmental conditions (as defined below).

ASTM Practice E 1527-13 defines "release" as a release of any hazardous substance or petroleum product and shall have the same meaning as the definition of "release" in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA 42 U.S.C. §9601(22)).

1.5.2 HREC

A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

1.5.3 CREC

A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Additional conditions that are not included under the definitions of a REC, but are defined by ASTM Practice E 1527-13 include:

1.5.4 De Minimis

A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions nor controlled recognized environmental conditions.

1.5.5 Business Environmental Risk

These are risks which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice.

Consideration of business environmental risk issues may involve addressing one or more non-scope considerations.

1.5.6 HDR Risk Ranking

In addition to the ASTM-based "REC" classification of a site, HDR also employed a relative risk ranking system that includes several investigative elements to describe "sites of concern." A site of concern is a site that the investigative process has determined to have sufficient possibility of contamination, which warrants special attention during the Phase I ESA investigation. A site of concern may or may not ultimately be classified as a REC site as defined by ASTM, yet still may be "of concern" and is, therefore, highlighted in the report. A site of concern may or may not be carried forward in recommendations for further investigation, depending upon the specific issues associated with the site.

Once the elements of the investigation process are completed, HDR categorized identified sites of concern using a subjective risk ranking system, classifying the sites as Low Risk, Moderate Risk, High Risk, or (in some instances) Indeterminate Risk. The following paragraphs provide general descriptions of each category.

Low risk sites are those sites that have few indications of potential for release of hazardous materials. On some occasions, sites that have had a hazardous materials issue in the past, but have been remediated with approval of the state environmental agency or local regulatory agencies, may qualify as low risk. Examples of low risk sites include undeveloped or agricultural property, residential property, or benign commercial properties such as office buildings, warehouses, distribution facilities, or municipal facilities with no listed violation.

Moderate risk sites are those sites that have some indications of possible hazardous materials issues. A Moderate Risk site may appear on a database as having a permit to handle hazardous materials, but has recorded no violations to date. Another way that a site could be interpreted as Moderate Risk would be if

the environmental records search indicated no listing, but the site is an auto repair facility with visible surface staining. Examples of Moderate Risk sites include auto repair garages, welding shops, or manufacturing facilities with minor listings in the environmental database.

High Risk sites are those sites that have a high potential for releasing hazardous materials to the soil or groundwater, or have a recorded release issue. Examples of High Risk sites include current service stations, bulk fueling terminals, sites listed in environmental databases as having had a release, or a known release that has not been remediated.

Indeterminate Risk sites are those which, at the time of report preparation, did not include sufficient information to include a high, moderate, or low ranking. Indeterminate risk sites often require additional file review to determine the details of any related environmental issues at the site.

When HDR assigned a risk ranking to a site, the risk ranking criteria were reviewed and concurred with by at least one Environmental Professional (EP) as defined in ASTM. It is HDR policy to have subjective criteria cross-reviewed for accuracy and adherence to its assessment protocols and internal quality assurance standards. It is worthwhile to note that risk ranking does not directly correspond to whether a site qualifies as a REC; rather, the risk ranking system is intended as a method of categorizing sites on large projects for consideration of common contamination characteristics.

1.6 Report Users

HDR received authorization from Metro to conduct a Phase I ESA of the project study area, generally located at and near LAUS, 800 North Alameda Street, including portions of the railroad ROW, extending to the north by Control Point (CP) Chavez (near Main Street) and to CP Olympic to the south, near the Interstate 10/State Route 60/US-101 interchange (herein referred to as the project study area) (Figure 1-3). This Phase I ESA has been prepared for Metro as the client, and only Metro has the right to rely on the contents of this Phase I ESA without written authorization.

1.7 Scope of Services, Significant Assumptions, and Limitations

The services provided for this project consisted of the following:

- Provide a description of the project study area including current land uses (Sections 1.1 through 1.3)
- Provide a general description of the geology, topography, soils, hydrogeology, oil and gas wells, including soil vapor migration (intrusion) (Section 1.1)
- Review reasonably ascertainable and reviewable regulatory information published by federal, state, local, tribal, health, and/or environmental agencies pertaining to the Project Area (Section 3.1 through 3.5)
- Review historical data sources for the Project Area, including aerial photographs, topographic maps, fire insurance maps, city directories, and other readily available development data

(Section 3.4), environmental liens (Section 3.6), vapor encroachment conditions (Section 5.7), and previous environmental investigations (Section 3.8)

- Interview of the current owner (if conducted) and other persons that have knowledge of the development history of the Project Area (Section 3.9 and 3.10)
- Conduct an area site reconnaissance and an environmental review including a visual review of adjoining properties with a focus on indications of hazardous substances, petroleum products, polychlorinated biphenyls (PCBs), wells, storage tanks, solid waste disposal pits and sumps, and utilities (Sections 3.10 and 3.12)
- Determine data gaps in the information obtained and comment on their significance in identifying RECs for the Project Area (Section 4.0)
- Summarize the findings, opinions, and conclusions (Section 5.0)
- Provide recommendations based on the investigative procedures (Section 6.0)

The goal of this scope of services is to assist the user in identifying conditions in the Project Area that may indicate risks regarding hazardous materials storage, disposal, or other impacts. The resulting report may qualify the user for relief from liabilities as one of three "defenses" identified in the 2002 Brownfields Amendments to the CERCLA Section 9607 (AAI subsections). These three defenses include:

1. The "innocent landowner" defense to potential liabilities under 42 United States Code [U.S.C.] § 9601
6. The "contiguous project corridor owner" defense pursuant to 42 U.S.C. § 9607(q)
7. The "bona fide prospective purchaser" defense pursuant to 42 U.S.C. §9607(r)

Federal regulations (42 U.S.C §9601(35)(A) & (B), §9607(b)(3), §9607(q); and §9607(r)), promulgated by the United States (U.S.) Environmental Protection Agency (EPA), require that liability release be based (in part) on completion of AAI prior to purchase of a property. Those inquiries are documented by Phase I reports, or ESAs. EPA has agreed that the recently developed ASTM guidance (ASTM Practice E 1527-13: 3.2.6) specifies and interprets AAI requirements.

A user is defined by ASTM Practice E 1527-13 as the party seeking to use Practice E 1527 to complete a Phase I ESA of the Project Area and may include a potential purchaser of land in the Project Area, a potential tenant in the Project Area, an owner of land in the Project Area, a lender, or a Project Area manager. Investigative areas not included in the standard ASTM Phase I ESA scope include: asbestos, lead-based paint, lead in drinking water, radon or urea formaldehyde, wetland issues, regulatory compliance, cultural and historic resources, industrial hygiene, health and safety, ecological resources, endangered species, and high voltage power lines.

Indoor air quality from sources such as mold and asbestos is not included in the ASTM standard, except to the extent that indoor air impacts are related to Superfund release and/or caused by releases of hazardous substances into subsurface soil or groundwater (vapor intrusion).

The potential for vapor encroachment or intrusion into structures in the Project Area is considered and identified from on-site or off-site sources based on the experience of the Environmental Professional.

The scope of services for Phase I ESA projects also does not include the completion of soil borings, the installation of groundwater monitoring wells, or the collection of soil or groundwater samples. State and national policies and standards relevant to vapor intrusion are in flux and subject to change.

HDR has made certain assumptions in preparing the scope of this assessment:

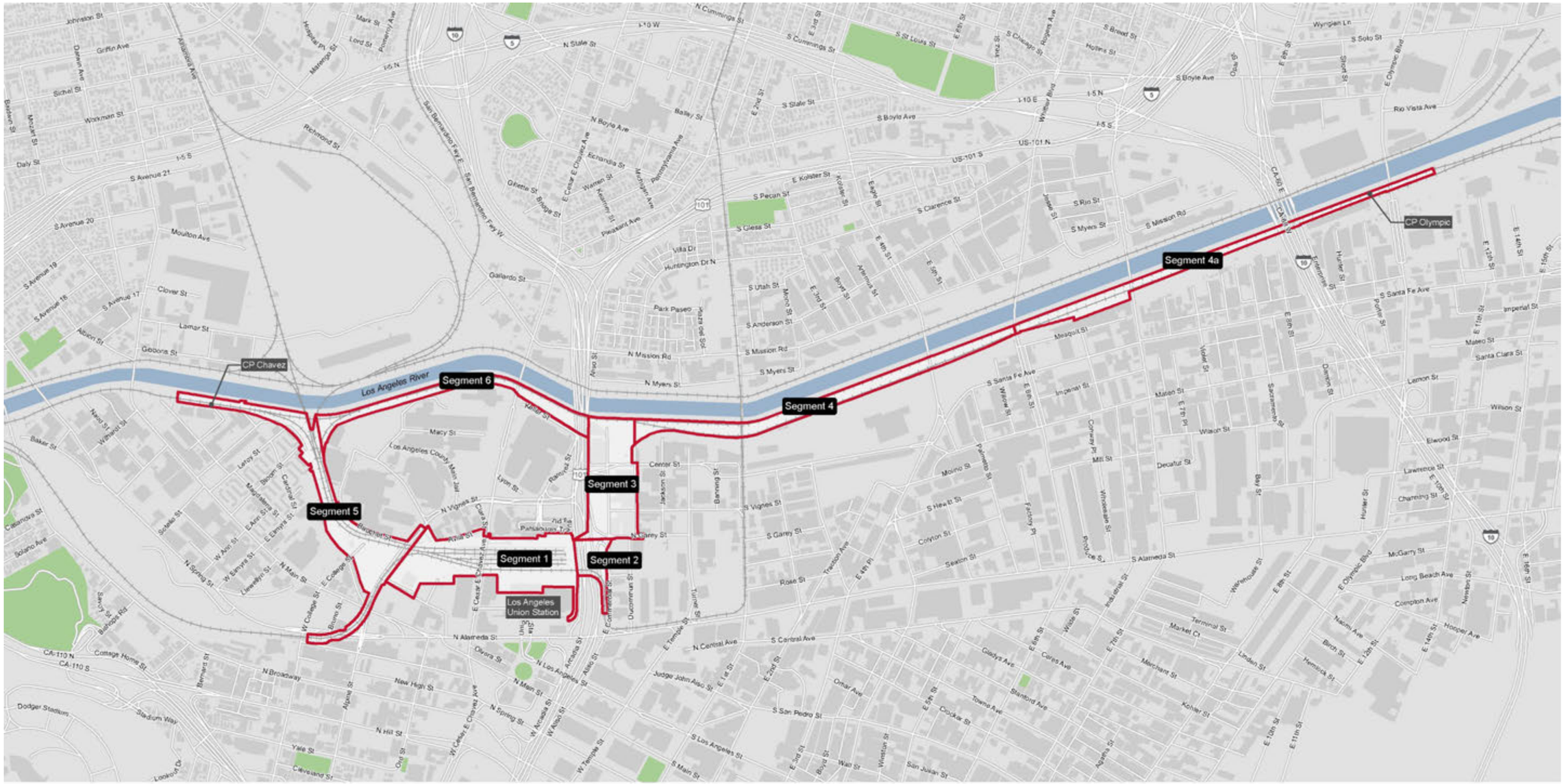
- Data gathered from public information sources (e.g., libraries or public regulatory agencies) are accurate and reliable.
- Site operations reflect site conditions relative to potential releases and no intentional concealment of environmental conditions or releases has occurred.
- Interview information (if conducted) is directly reported as gathered by the assessor and is limited by the accuracy of the interviewee's recollection and experience.
- Published geologic information and site observations made by the Environmental Professional are used to estimate likely contaminant migration pathways in the subsurface. These estimates by the Environmental Professional are limited in accuracy and are generally cross-referenced with existing information about similar sites and environmental releases in the area.
- Regulatory information is limited to sites identified after the late 1980s, because reliable records were not kept by regulatory agencies prior to that timeframe.

The findings and conclusions presented in this report are based on the procedures described in ASTM Practice E 1527-13, informal discussions with various agencies, a review of the available literature cited in this report, conditions noted at the time of this Phase I ESA, and HDR's interpretation of the information obtained as part of this Phase I ESA. The findings and conclusions are limited to the specific project and properties described in this report and by the accuracy and completeness of the information provided by others.

A Phase I ESA cannot entirely eliminate uncertainty regarding the potential for RECs. Conducting this assessment is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a Project Area within reasonable limits of time and cost. In conducting its services, HDR used a degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. This Phase I ESA conforms to the level of documentation required in ASTM Practice E 1527-13. However, HDR may omit discussion of certain records; e.g., sources deemed, in HDR's professional opinion, to be inapplicable or of limited value to the specific needs of this

client. In accordance with ASTM; however, if the lack of available documentation results in a data gap, this data gap is identified herein and its significance is discussed.

Figure 1-3. Phase I ESA Segments



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1.8 Site and Vicinity Characteristics

The Project Area is located within the city center of Los Angeles, a completely built urban environment consisting of varying land uses that have transformed and developed over time. Adjacent land uses in the area include residential, commercial, industrial, parks, and public land.

1.8.1 Historic LAUS Area

The Historic LAUS Area makes up the western portion of the Project Area. It is improved with two primary buildings: the Historic Station building on the central and western portion of the area and the Amtrak Office & Baggage Building on the eastern portion of the area. The Historic Station building was completed in 1939, and has had various restorations over time. The central portion of the building contains a waiting room, ticket offices, retail businesses, and entrance to the Metro Red/Purple Line Station below. The eastern portion of this building contains administrative offices. A subsurface parking garage is located beneath the eastern office area. Limited inspection of the office area was performed during this Phase I ESA. The western portion of the building consists of open and enclosed walkways.

The Amtrak Office & Baggage building consists of a series of connected stucco buildings on three levels that were completed in the early 1990s. The bottom floor is accessed from a subsurface tunnel beneath the rail lines to the east and consists of a passenger waiting area connected to the historic waiting area. The second floor consists of an Amtrak-occupied luggage handling and storage area. The third floor contains executive offices occupied by Amtrak. Limited inspection of the office areas was performed during this Phase I ESA.

The exterior of the Historic LAUS Area contains parking and driveways on the western portion, courtyards intermixed with the Historic Station building on the central portion, and parking areas and concrete ramps accessing the Amtrak Office & Baggage Building. Parking areas and drive paths surround the buildings. Amtrak maintains numerous storage totes on the eastern exterior of their building that reportedly store maintenance materials in support of baggage handling but were not accessible during the site reconnaissance. Intermittent landscaped areas exist throughout the area.

The Metro subway station runs in a northwest-southeast orientation beneath the northern portion of the Historic LAUS Area.

1.8.2 Passenger Platforms Area

The Passenger Platform Area has 15 rail lines and seven concrete passenger platforms, which combine to five rail lines within the throat portion of the Project (Segment 1). Areas surrounding the rail lines are paved with concrete or asphalt. The rail lines were installed on engineered fill to elevate them above a subsurface passenger concourse tunnel. The concourse tunnel is oriented in an east-to-west direction beneath the rail platforms, and has access ramps and elevators to the surface within the platform area. A Metro subway station runs in a northwest-southeast orientation beneath the passenger concourse tunnel.

The proposed Link US Concourse would be encompassed entirely within and below the Passenger Platforms Area.

1.8.3 Gateway Area

The Gateway Area is located on the eastern side of the LAUS, and consists of the Gateway Station Complex entrance, the eastern access to the rail tunnel and passenger platforms, retail businesses, and an entrance to the Metro Red/Purple Line Station below. A subsurface parking garage extends beneath the bus and taxi passenger pickup area adjacent to the Metro Headquarters building. Vents for the subsurface Metro subway tunnel are located on the southwest portion of an undeveloped lot, and vents for the subsurface parking garage are located on the northern portion of the undeveloped lot and parking area. The Metro subway runs in a northwest-southeast orientation beneath the southern portion of the Gateway Area.

1.9 Description of Structures, Roads, and Other Site Improvements

The Project Area includes a dense street network south of Union Station, ranging from major highways to local city streets. The roadways within the Project Area that could potentially be impacted by the build alternatives and design options include: the El Monte Busway, US-101, Cesar Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, North Vignes Street, and Center Street.

1.10 Area Geology and Hydrogeology

The following historical United States Geological Survey (USGS), 7.5-Minute Series Topographic Maps were reviewed as part of this Phase I ESA: Pasadena, California (CA), 1896 and 1900; Los Angeles, 1901, 1928, 1953, and 1966 (photorevised 1972, 1981, and 1994). The elevation of the Project Area is between approximately 260 to 290 feet above mean sea level (amsl). The Project Area's general topography includes a gradual slope from north to south-southeast, toward the Los Angeles River.

1.10.1 Township, Range and Section

The Project Area is located in Section 27 of Township 1 South, Range 13 West, in the San Bernardino Meridian.

1.10.2 Regional Geology

The Project Area is located within the Los Angeles Basin, near the boundary of the Transverse Ranges Province and the Peninsular Ranges Geomorphic Province. The Los Angeles Basin is a lowland coastal plain, approximately 50 miles long by 20 miles wide. The basin slopes gradually southward and westward toward the Pacific Ocean. Nearby mountain ranges include the Santa Monica and San Gabriel Mountains, located northwest of the Project Area, and the Palos Verdes Hills to the southwest. The Transverse Ranges Province is an east-west trending complex group of mountain ranges and valleys. The Transverse Ranges

Province is composed primarily of sedimentary rocks, Mesozoic granitic rocks, and Precambrian rocks of various types. The Peninsular Ranges Province is a series of northwest-to-southwest trending mountains and faults. These ranges are composed of metamorphosed sedimentary and volcanic rocks of Jurassic age (Gastil et al. 1981; Schoellhamer et al. 1981).

Specific features of the Los Angeles Basin area are:

- The Newport-Inglewood and Whittier fault zones, which separate the basin into northwestern, southwestern, northeastern, and central blocks
- The N70W Los Angeles anticline, a significant geologic influence to the central block
- A narrow fault and folding zone of the south limb of the Elysian Park anticline

The Project Area is located within the central block, bound by the Newport-Inglewood, Whittier, and Santa Monica fault zones. No known active or potentially active faults were noted within the vicinity of the Project Area (EarthTech, 1987).

1.10.3 Site Geology

The Project Area is generally underlain by the following sedimentary horizons:

- Varying amounts of fill materials consisting of a mixture of silt, sand, and gravel, with an approximate thickness of 6 to 15 feet
- Alluvium consisting of silty sands, sands, and silts with varying amounts of gravel and cobbles, approximately 85 feet thick (Holocene and Pleistocene age)
- Siltstone bedrock (Fernando Formation) at approximately 85 to 90 feet bgs

The LAUS tracks and passenger platforms are elevated above the surrounding grade by varying amounts of fill material (up to 30 feet), consisting primarily of silty sand, silt, sand, and clay, with various amounts of construction debris (concrete and brick). Below the existing LAUS and platforms are Holocene- and Pleistocene-age alluvial deposits, approximately 10 to 70 feet thick, consisting of silty sands, sands, and silts with varying amounts of gravel and cobbles. Beneath these sediments is the Pliocene-age Fernando Formation, which consists of interbedded sandstone and siltstone (URS 2011).

1.10.4 Regional Hydrogeology

The Project Area is located in the Central Groundwater Basin of the Los Angeles Coastal Plain (Central Basin – Groundwater Basin Number 4-11.04). The Central Basin is bound to the north by the Hollywood Basin and the Elysian, Repetto, Merced, and Puente Hills, to the east by the Los Angeles County/Orange County line, and to the south and west by the Newport-Inglewood uplift (Water Replenishment District of Southern California [WRD], 2013). Groundwater occurs in Holocene- and Pleistocene-age sediments at relatively shallow depths throughout the Central Basin. The California Department of Water Resources (DWR) divides the Central Basin into the Los Angeles Forebay, the Montebello Forebay, the Whittier Area,

and the Pressure Area. The Los Angeles Forebay is located in the northern part of the Central Basin, where the Los Angeles River enters the Central Basin, through the Los Angeles Narrows from the San Fernando Groundwater Basin. The Forebay areas generally have unconfined groundwater conditions and relatively interconnected aquifers up to 1,600-feet deep that provide recharge to the aquifer system of this subbasin (DWR 1961).

The Central Basin Pressure Area is the largest of the four divisions and it contains many aquifers of permeable sands and gravels, separated by semi-permeable to impermeable sandy-clay to clay, that extend to about 2,200 feet below the surface (DWR 1961). The Central Basin Pressure Area includes the following formational units and aquifers: Alluvium (Gaspur and Semi-perched aquifers), Lakewood Formation (Gardena and Gage aquifers), and San Pedro Formation (from shallow to deep, the Lynwood, Silverado, and Sunnyside aquifers) (DWR, 1961; WRD, 2013). The main source of potable groundwater in the Central Basin is the deeper aquifers of the San Pedro Formation, which generally correlate with the Main and Lower San Pedro aquifers of Orange County. Within the southern portion of the Central Basin Pressure Area, the shallower aquifers of the Alluvium and the Lakewood Formation (including the Gaspur, Exposition, Gardena-Gage, Hollydale and Jefferson Aquifers) locally produce smaller volumes of potable water. In the northern portions of the Central Basin (Forebay area), many of the aquifers are merged and allow for direct recharge into the deeper aquifers. In the Pressure Area, the aquifers are separated by thick aquitards, which create confined aquifer conditions and protection from surface contamination.

Regional groundwater levels varied over a range of about 25 vertical feet between 1961 and 1977, and have varied within a range of about 5 to 10 feet since 1996 (WRD 2013). Historically, the groundwater flow direction in the Central Basin has been from recharge areas in the northeast portion of the basin, toward the Pacific Ocean in the southwest. Pumping patterns have lowered the water level in large portions of the Central Basin. The regional groundwater flow direction is based on regional data. Site-specific conditions may vary due to a variety of factors, including geologic anomalies, utilities, nearby pumping wells (if present), and other factors.

1.10.5 Site Hydrogeology

Groundwater beneath the Project Area occurs at depths ranging from approximately 28 to 58 feet bgs and it flows generally southward. The deposits of the unconfined Gaspur aquifer measure approximately 80 to 100 feet thick in this vicinity. Localized areas of perched water also appear in some locations, but they are not laterally continuous (Kleinfelder 2014). Fluctuations of the groundwater level, localized zones of perched water, and increased soil moisture content occur during and following the rainy season, generally November to April.

Annual groundwater monitoring activities are on-going at the former Southern California Gas Company (SCG) Aliso Street Manufactured Gas Plant (MGP) facility (Aliso Street MGP). Based on the 2014 Annual Groundwater Monitoring Report (dated April 2015), the overall groundwater flow direction in the shallow and deep groundwater zones is to the south, but shifts to south-southeast across the northern part of the former Aliso Street MGP (north of US-101). Groundwater south of US-101 flows in a south-southwestern

direction (Tetra Tech 2015b). Site- specific groundwater data obtained from agency documentation is included in Appendix A, Table A1 Potential Sites of Concern to the Project Area.

1.10.6 Oil and Gas Wells, Petroleum Seeps, and Methane Zones

The City of Los Angeles has active oil and gas fields throughout the area (Figure 1-4). Two oil fields are located in the vicinity of the Project Area. The Union Station Oil Field is located adjacent to or within Segments 3 and 4, and the Los Angeles Oil Field is located approximately 0.5 miles to northwest of LAUS. Naturally-occurring oil seeps have been documented at various locations throughout the vicinity of the Project Area. Oil seeps were reported along both sides of the Los Angeles River during the concrete lining of the river channel in 1940. Oil seeps were found along the Los Angeles River between the US-101 and Cesar Chavez Avenue, and crude oil and gases were found in alluvial deposits along Mission Street (Tetra Tech, 2003). The potential exists for naturally-occurring oil and gas seeps to be encountered during construction activities.

According to the California Division of Oil, Gas, and Geothermal Resources (DOGGR) Well Finder database (DOGGR, 2015) and the EDR Well Report (Appendix B), the nearest wells not depicted within a known oil or gas field, include the following:

- A Southern California Rapid Transit Distribution plugged oil and gas well, designated as "Metrorail Unknown 1" (unique, permanent, numeric identifier (API) 03725060), was located on a private property east of Center Street, between Commercial Street (to the north) and Ducommun Street (to the south). The well was listed as a dry hole that was abandoned in December 1988. A Report of Well Abandonment was issued on January 18, 1989.
- A F.F. Hoard oil and gas well (API 03706277) was located within the Los Angeles River, adjoining to Segment 5, north of US-101. This well was listed as inactive, buried, and idle.
- A Chevron U.S.A., Inc., oil and gas well, designated "Miller Corehole 1" (API 03720503), was located approximately 500 feet northeast of the LAUS, within the loop area north of US-101. The well was listed as plugged and abandoned. A Report of Well Abandonment was issued on December 2, 1968.

Oil and gas seeps are natural springs where liquid and gaseous hydrocarbons arrive at the ground surface. Oil and gas seeps are fed by natural underground accumulations of oil and natural gas. Petroleum that leaks to the Earth's surface is typically in the form of a tar-like substance called asphaltum. The lighter components of the oil are lost to evaporation and the remaining heavier oil is oxidized and degraded by bacteria until it becomes sticky and black (USGS 2011). In addition to the health hazards associated with encountering volatile hydrocarbons during excavation, oil fields may produce hydrogen sulfide (H2S), which is highly toxic and poses a particular hazard to drillers and construction workers. An inactive hazardous liquid pipeline was noted parallel to the Los Angeles River, and along Center Street, between Segments 3 and 4 (Kleinfelder 2014). Natural gas pipelines are located throughout the Project Area, illustrated in Figure 1-5. In addition, several abandoned oil and gas wells are located in the vicinity of Segment 3 and 4.

Naturally-occurring methane may also accumulate in soil vapor near oil fields and oil wells. The City of Los Angeles Bureau of Engineering has defined Methane Zones and Methane Buffer Zones around known oil fields and wells (CoLA 2004) (Figure 1-5). These areas have developmental regulations required by the City of Los Angeles pertaining to ventilation and methane gas detection systems, depending on the designation category under the City of Los Angeles Building Ordinance 175790 and 180619.

1.10.7 Soil Vapor Migration

Volatile chemicals in the subsurface, whether in soil or groundwater, can migrate upward through the soil and enter into buildings, causing unacceptable chemical exposure for building occupants (DTSC 2011). Soil vapor, the gas that exists within the pore spaces of sediments, has the potential to carry volatile contaminants an appreciable distance from their source. A VEC is said to exist when volatile contaminant vapors are present in the vadose zone below a target property. Because it can pose an environmental hazard independent of the source, a VEC below a property may be considered a REC (ASTM 2015).

The source for a vapor plume may be soil contaminated with VOCs or petroleum products, or a groundwater table with a dissolved VOC or petroleum plume, or a floating layer of light non-aqueous phase liquid. Soil vapor migrates from areas of higher air pressure to areas of lower pressure along preferential pathways of least resistance. The hydraulic gradient of the groundwater does not affect the direction of soil vapor migration. Common preferential pathways include soil layers with high porosity, as well as subsurface utility corridors. Examples include sands and gravels, horizontal utility trenches filled with sandy material or crushed rock, vertical structures such as the gravel pack of a dry well, and open conduits like sewers or storm drains that are not airtight. Soil vapor also migrates with changing weather conditions, and the diurnal changes in atmospheric pressure.

Naturally-occurring methane may also accumulate in soil vapor near oil fields and oil wells. The CoLA Bureau of Engineering has defined Methane and Methane Buffer Zones, described as the safety margin surrounding the Methane Zone in areas of known oil fields and wells (CoLA 2004). Construction within these zones may be subject to additional building codes related to the methane hazard under Ordinance 175790. Portions of the Project Area, Segments 2 and 3, are located within the Methane Buffer Zone and Segments 4 and 4a are located within the Methane Zone, both associated with the Union Station Oil Field, located south of US-101.

Figure 1-4. Oil Wells

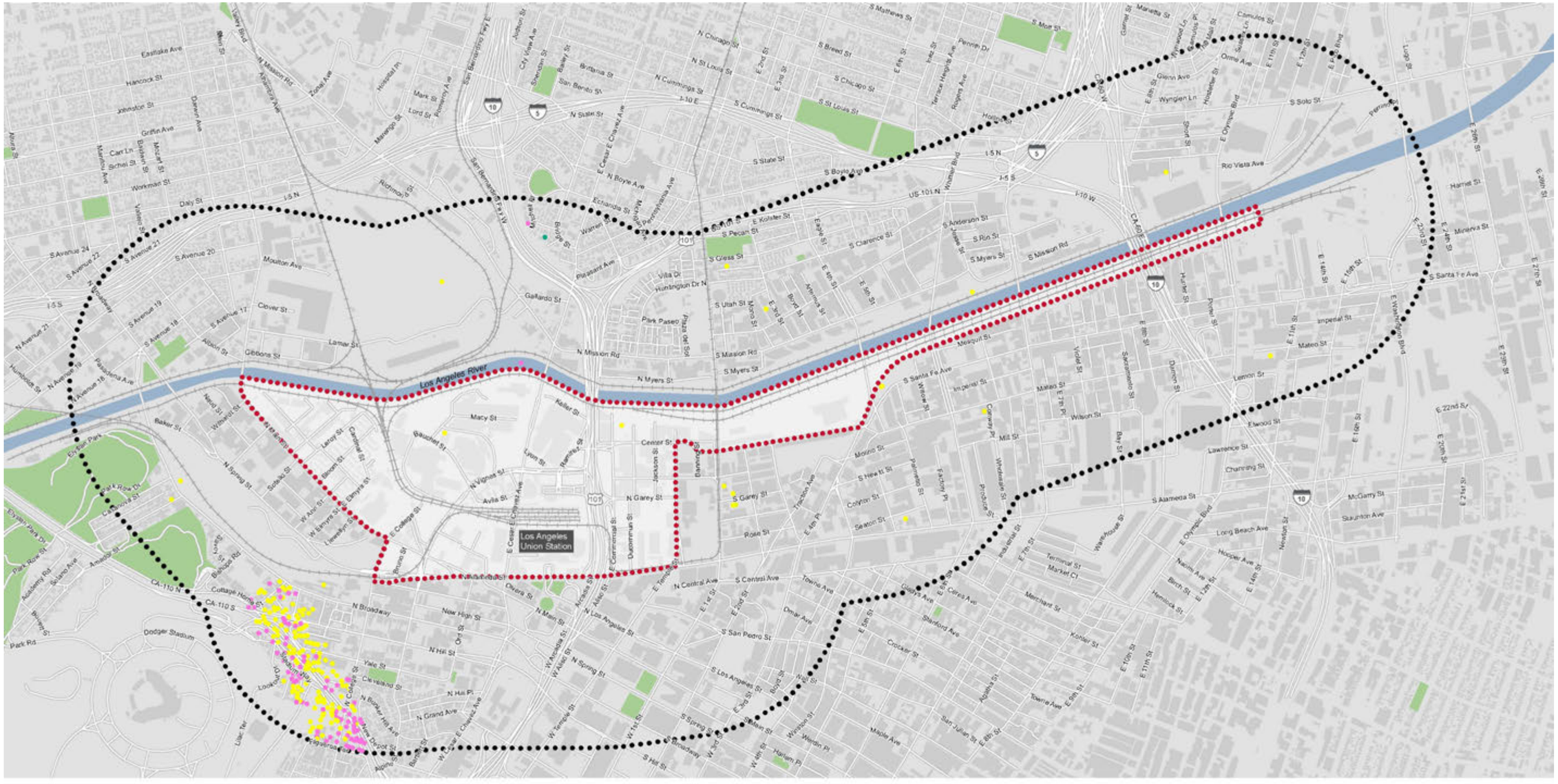

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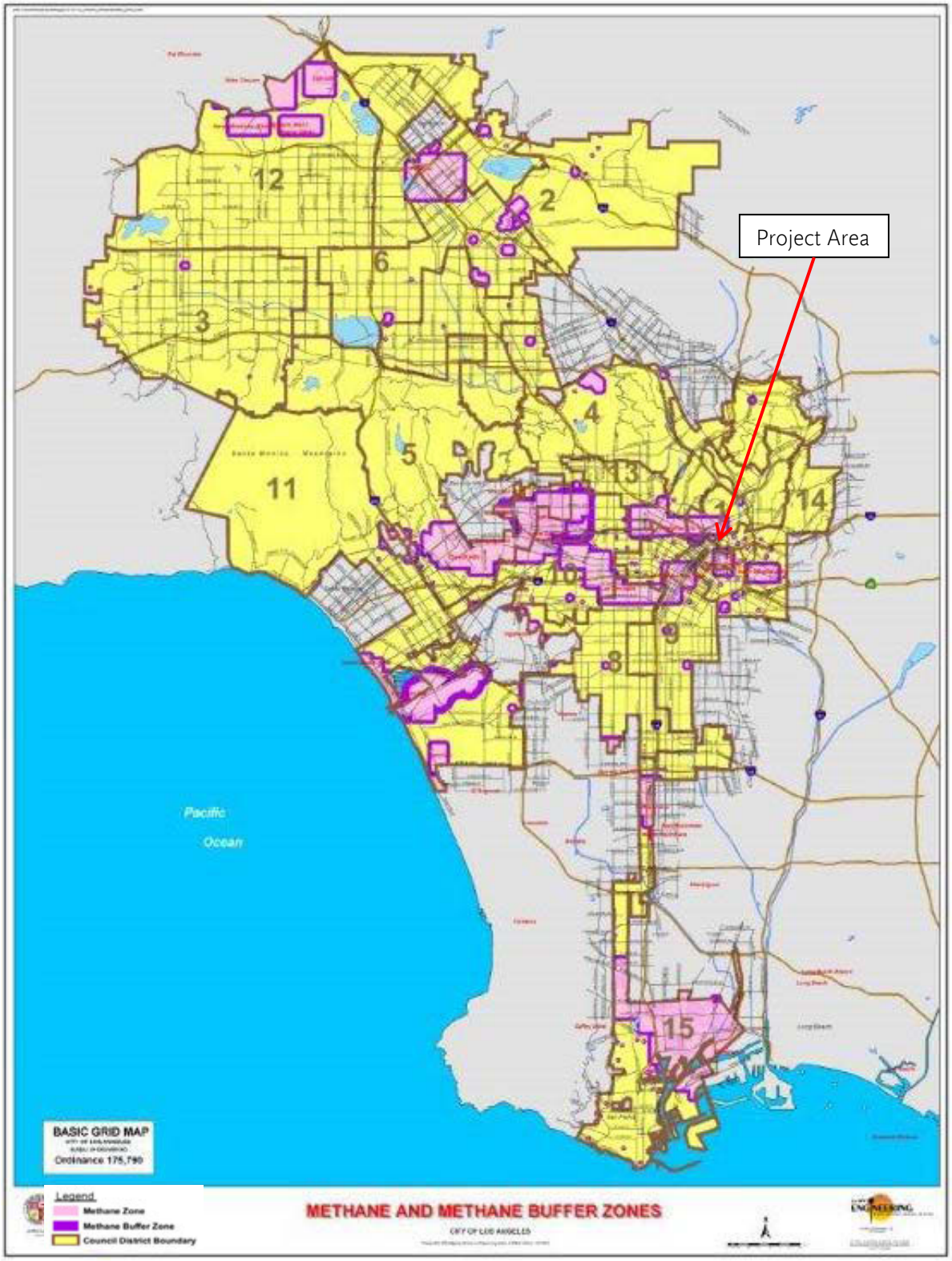
Figure 1-5. Methane and Methane Buffer Zones



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2.0 User Provided Information

Metro provided HDR with maps of the Project Area and some reports from prior investigations. A prior Draft ISA performed in 2014 included environmental lien searches provided by Moffatt & Nichol, discussed further in Section 3.6. In addition, the user provided access to a library of electronic files for review, some of which contained information relevant to the environmental history of the Project Area.

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3.0 Records Review

3.1 Environmental Records Review

EDR was contracted by HDR to complete a database search of the Project Area that included federal, state, local, tribal databases as defined by ASTM Practice E 1527-13, in addition to EDR proprietary databases. HDR provided EDR with the Project Area boundaries and search parameters (a minimum of 0.5 mile buffer zone around the Project Area) to determine the EDR Buffer Zone. A computerized environmental information database search was completed by EDR on May 11, 2016 (Table 3-1 and Appendix C).

Table 3-1. Summary of Environmental Database Search

Database	Description	Records Listed within the EDR Buffer Zone	Potential Concern to the Project Area
FEDERAL			
CONSENT	Released periodically by the US. District Courts. Major legal settlements that establish responsibility and standards for cleanup at Superfund sites.	1	1
CORRACTS	A list of handlers with Resource Conservation and Recovery (RCRA) Information System with nationally-defined corrective action core events	4	2
ECHO	Enforcement and Compliance History Online	114	0
ERNS	Emergency Response Notification System	12	0
FINDS	Facility Index Database System	115	0
FUDS	Formally Used Defense Sites	1	0
FTTS/HIST FTTS	Federal Insecticide, Fungicide and Rodenticide Act of 1972 / Toxic Substances Control Act Tracking System	3/3	2/2
ICIS	Integrated Compliance Information System	3	0
LIENS 2	A federal CERCLA (Superfund) lien can exist by operation of law at any site or property at which the EPA has spent Superfund monies to investigate and address releases and threatened releases of contamination	2	2
PADS	PCB Activity Database System	1	0
PRP	Potentially Responsible Parties	3	3
PCRA-TSDF	RCCA treatment, storage or disposal of the waste (TSDF)	5	0
RCRA Generators	Resource Conservation and Recovery Act.	LQG-29	0

Table 3-1. Summary of Environmental Database Search			
Database	**Description**	**Records Listed within the EDR Buffer Zone**	**Potential Concern to the Project Area**
	Small Quantity Generator (SQG) Large Quantity Generator (LQG) Conditionally Exempt Small Quantity Generator (CESQG)	SQG-79 CESQG-1	
RCRA-NonGen/NLR	RCRA Non-generators (NonGen) or no-longer reported (NLR)	17	0
SEMS	Superfund Enterprise Management System. This list was formerly known as CERCLIS, and was renamed in 2015	6	5
SEMS Archive	Superfund Enterprise Management System Archive. This list was formerly known as the CERCLIS-NFRAP, renamed to SEMS-ARCHIVE in 2015	13	11
U.S. AIRS	Aerometric Information Retrieval System	3	0
US Brownfields	EPAs listing of Brownfields properties	7	6
US FIN ASSUR	All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they have sufficient funds to pay for clean up, closure, and post-closure care of their facilities	5	3
2020 COR ACTION	A RCRA Corrective Action	3	2
STATE of CALIFORNIA, LOCAL, and TRIBAL			
AST	Aboveground Storage Tank	6	0
BOND EXP. Plan	Department of Heath Services developed a site-specific expenditure plan as the basis for an appropriate of Hazardous Substance Cleanup Bond Act funds	3	3
CHMIRS	California Hazardous Material Incident Report System	20	0
CORTESE	The sites for the list are designated by the State Water Resources Control Board (SWRCB) and Integrated Waste Board, and the DTSC.	6	3
DEED	The use of recorded land use restrictions is one of the methods the DTSC uses to protect the public from unsafe exposures to hazardous substances and wastes	13	2
DRYCLEANER	A list of dry cleaner-related facilities that have EPA identification numbers. Facilities include commercial and family businesses	3	0
EMI	Toxics and criteria pollutant emissions data collected by the Air Resources Board and local air pollution agencies	11	0

Table 3-1. Summary of Environmental Database Search

Database	Description	Records Listed within the EDR Buffer Zone	Potential Concern to the Project Area
ENF	Listings of Water Board Enforcement Actions	4	1
ENVIROSTOR	DTSC Site Mitigation and Brownfields Reuse Program's ENVIROSTOR database	101	36
FID UST	Facility Inventory Database Underground Storage Tanks	154	4
HAZNET	DTSC Facility and Manifest Data	79	0
HIST UST	Historical listing of UST sites previously maintained by SWRCB	92	12
HIST Cal-Sites	Formerly known as ASPIS, this database contains both known and potential hazardous substance site. This database is no longer updated and has been replaced by ENVIROSTOR.	10	0
HIST CORTESE	Historical Cortese Hazardous Waste & Substances Sites	48	46
HWP	Hazardous Waste Permits	7	0
HWT	Hazardous Waste Transporters	2	0
LUST	Leaking Underground Storage Tanks	80	73
MANIFEST	A document that lists and tracks hazardous waste from the generator through transporters to a TSD facility	1	0
MCS	The Department of Defense partner with the RWQCB to oversee the investigation and remediation of water quality issues at military facilities	2	0
NPDES	National Pollutant Discharge Elimination System	40	0
RESPONSE	Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity	9	0
SCH	Proposed and existing schools that are being evaluated by the DTSC for possible hazardous materials contamination	18	0
SLIC	Spills, Leaks, Investigations, and Cleanup	53	5
SWEEPS UST	Statewide Environmental Evaluation and Planning System UST	160	1
SWF/LF	Solid Waste Facilities/Landfill Sites	7	3
SWRCY	Solid Waste Recycling	8	6
UST	Underground Storage Tank	39	38

Table 3-1. Summary of Environmental Database Search			
Database	**Description**	**Records Listed within the EDR Buffer Zone**	**Potential Concern to the Project Area**
VCP	Voluntary Cleanup Program	37	5
WDS	Waste Discharge System	30	1
WMUDS	Waste Management Unit Database System	3	0
EDR Proprietary Records			
EDR US Hist Auto	United States Historical Auto Stations – Gas stations/filling stations/service station establishments	32	0
EDR US Hist Cleaners	United States Historical Cleaners – Dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash and dry establishments	7	1
EDR MGP	Manufactured Gas Plants	8	0
RGA LUST	This database provides a list of LUST incidents derived from historical databases and includes records that no longer appear in current government lists	17	0
Total Regulatory Listings		**1,535**	**279**

3.2 Initial Screening Criteria

The EDR database search resulted in 1,535 regulatory listings located within the requested search area (including the 0.5 mile EDR Buffer Zone around the Project Area (Figure 3-1, Overall Governmental Database Search Results). In urban areas, it is anticipated that commercial and industrial operations increase the number of regulatory listings in the database search. The EDR Report mapping has numerous regulatory listings at one location, which can be associated with numerous business names and addresses over a broad span of time. Given the frequent change of tenant businesses and leasing, more than one address or name may be associated with the site.

EDR utilizes a geographical information system to plot the locations of facilities listed in regulatory databases that had reported spills, leaks, or other incidents. Information was reviewed to help establish if the listed site address was within the EDR Buffer Zone. The EDR listings include the type of hazardous material, the quantity, and regulatory agency involved.

The listings were reviewed to assess whether properties within close proximity to the Project Area may have had significant releases or spills, which may result in a hazardous waste impact or environmental concern. Listings which indicate a significant release had occurred, and/or which remain as an open case with the designated regulatory agency, were further assessed by reviewing applicable online regulatory databases and/or by obtaining a file review with the appropriate regulatory agency. Each of the listings were reviewed to assess whether these properties would likely pose a hazardous waste impact to the Project Area based on the following, or a combination thereof.

- The listed site was included in low risk databases (i.e., HAZNET, RCRA SQG databases) not located within or immediately adjoining the Project Area and were not listed in other databases and/or were not listed as having associated violations. The listing of a facility on these databases is not indicative of an unauthorized release.
- The listed site was located in a downgradient or crossgradient direction from the Project Area, rendering the facility unlikely to pose a hazardous waste impact.
- The listed site was located sufficiently distant from the Project Area, so as to render contaminant migration unlikely.
- The regulatory listing suggested a short-term or low-volume release had occurred (e.g., from incidental traffic accidents, or chemicals from illegal drug labs found at residences) with an associated hazardous materials cleanup.
- The listing indicates that the reported release affected soil only and that the impact was not on or immediately adjoining the Project Area.
- The quantity of the substances released was not considered to cause a significant hazardous waste impact to the Project Area.
- If the site was located east of the Los Angeles River, it was assumed to be hydrogeologically disconnected from the Project Area and not a potential source of contamination to it.

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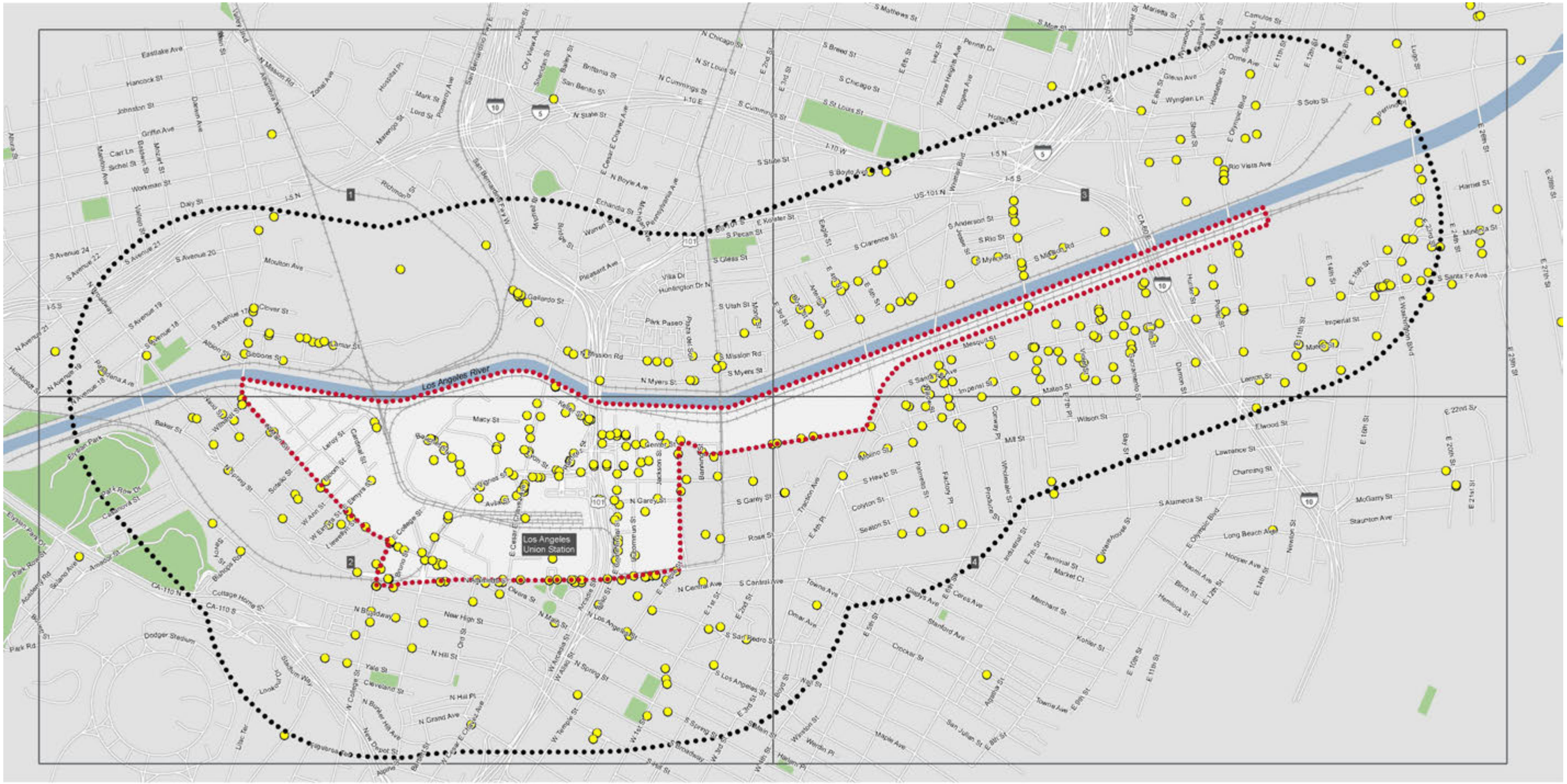
Figure 3-1. Overall Governmental Database Search Results, Unranked



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Based on these criteria, these types of listings were not evaluated further and are not discussed in the following sections.

The remaining listings were reviewed to assess whether properties within close proximity to the Project Area may have had significant environmental releases or incidents, which may have resulted in a hazardous waste impact. Listings which indicate a significant release had occurred, and/or which remain as an open case with the designated regulatory agency, were further assessed by reviewing applicable online regulatory databases and/or by obtaining a file review with the appropriate regulatory agency. Further evaluation was made as to whether the listed release may represent a hazardous waste impact risk to the Project Area.

3.3 Summary of Listed Records

A total of 279 regulatory listings, associated with 34 sites of concern, are mapped (Figure 3-2 through Figure 3-5). Based on the density of the regulatory listings, the sites have been assigned unique map codes (HDR Map Code) for mapping purposes in this report. The results of the database search are summarized in Appendix A, Table A1, Potential Sites of Concern to the Project Area. This table incorporates the site name, address, regulatory listings, contaminants of concern, any site-specific groundwater or soil data, the location of the site relevant to the ESA segments of the project, in addition to the risk ranking and Phase II recommendations, which are discussed further in Section 5.0, Findings, Opinions, and Conclusions. Sites of concern to the Project Area are noted to be a REC if they have a High or Moderate Risk ranking.

It is also important to note that in the State of California, several databases exist for the purpose of tracking USTs. Many of the databases are no longer updated and limited information is available for the sites identified in these databases (HIST UST, SWEEPS UST, and FID UST). While some overlap of sites does exist among the databases, each database may contain sites not listed elsewhere and often the sites identified in these databases are not listed in the current State UST database. Based on the lack of updated and consistent information, the most accurate information regarding many of the UST regulatory listings identified for the Project Area cannot be verified without additional site-specific reconnaissance and/or property owner interviews.

The EDR Report included an Orphan Summary (unmappable sites due to insufficient address information). It was determined that no new sites were located within the Project Area.

3.3.1 State of California, Regional Water Quality Control Board GeoTracker Database

Records were reviewed on the State of California Regional Water Quality Control Board (RWQCB) GeoTracker website. GeoTracker includes information from the UST Program regarding environmental cleanup activities at LUST sites and non-UST sites. This information is used to assess whether releases from facilities have potentially impacted environmental conditions beneath the Project Study Area. Site-specific information is listed in Appendix A, Table A1, Potential Sites of Concern to the Project Area. In addition, agency documentation pertaining to the site is included in Appendix J. The Appendix numbers are presented by the HDR Map Code (e.g., J-5) and are not in sequential order.

3.3.2 Natural Gas Pipelines

Pipeline information was reviewed on the Pipe and Hazardous Material Safety Administration's National Pipe Mapping System online database (https://www.npms.phmsa.dot.gov) and public utilities Geographic Information System data for the Project.

3.3.3 City of Los Angeles Fire Department

An Underground Tank Request for the Fire Prevention Records was submitted on June 28, 2016, for a total of 17 addresses for which additional information was required. No responses have been received at the time of this report.

3.3.4 City of Los Angeles Department of Building and Safety

Building permits were reviewed as part of the previous environmental review at the Los Angeles Department of Building and Safety for information associated with properties located along Commercial Street, and former Aliso Street, that may suggest a potential concern to the Project Area. Based on the permit search, the following information was obtained:

- Properties located at 501, 509 and 511 Commercial Street (west of Segment 3) were occupied by a saloon (1914), storage shed associated with the saloon (1916), and a winery bottling room (1925) on the northwestern portion of the property (near former Aliso Street). Permits dated 1917, 1921, and 1928 were also listed. Permits were issued in 1988 associated with grading and foundation investigations associated with this same property.
- The property at 801 Commercial Street (Segment 3) was listed with several permits between 1906 and 2013.
    - The earliest permit was for the construction of a warehouse.
    - A permit was issued on April 9, 1934, for the construction of a storage "tank."
    - Friedman Bag Company was listed at 801-821 Commercial Street (formerly 600 Former Aliso Street) according to a Certificate of Occupancy issued January 13, 1956. An existing three-story manufacturing/office building at this location was converted into a self-storage/office building, based on a November 2, 2006, Certificate of Occupancy.
- A permit to construct a new sand blasting building at 817 Commercial Street was issued on October 25, 1927.
- Permits for 840 Commercial Street (Segment 4) were noted between the years 1914 and 1965.

Figure 3-2. Sites of Concern and Risk Rankings – Northwest Quadrant

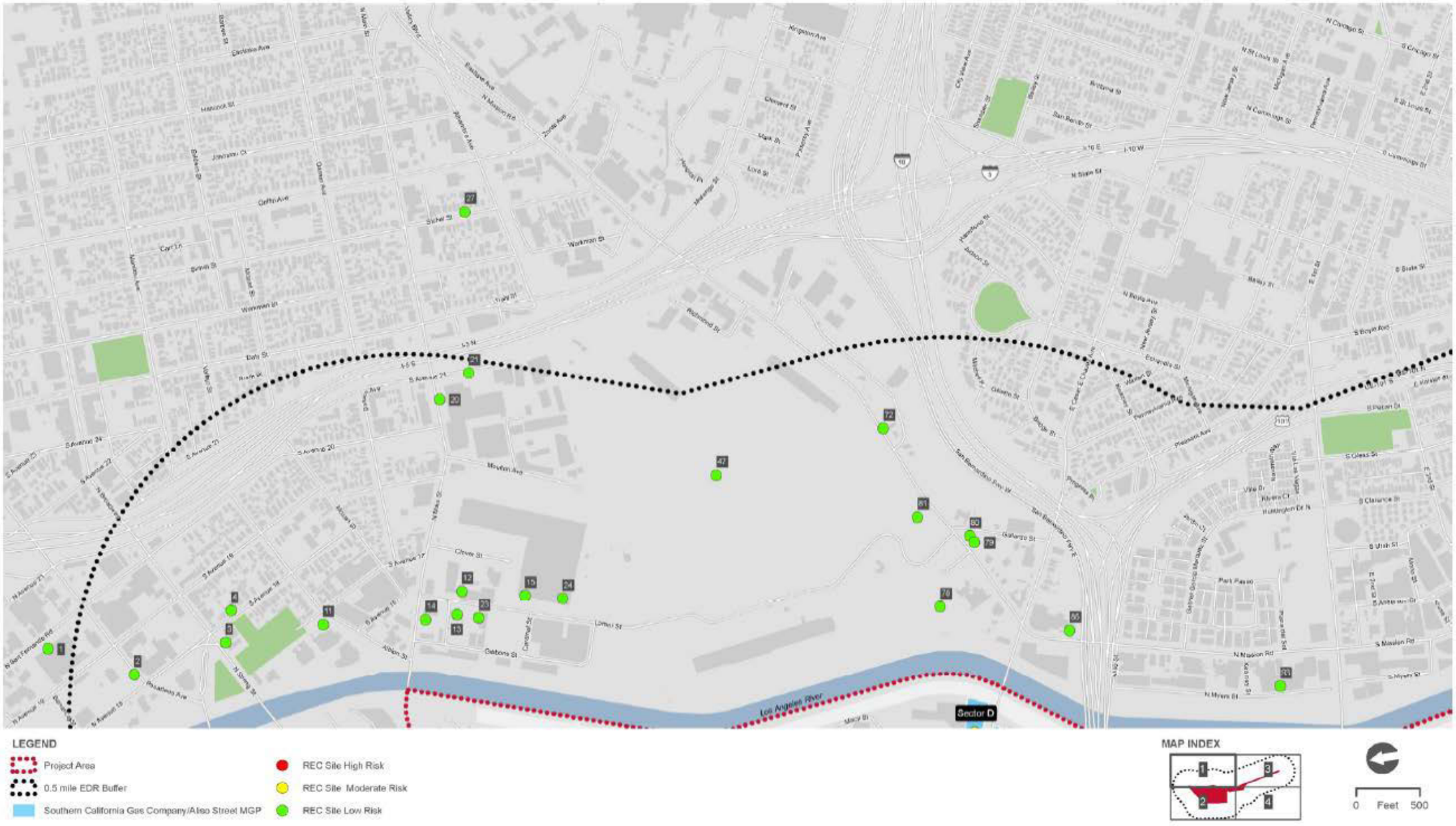

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Figure 3-3. Sites of Concern and Risk Rankings- Southwest Quadrant

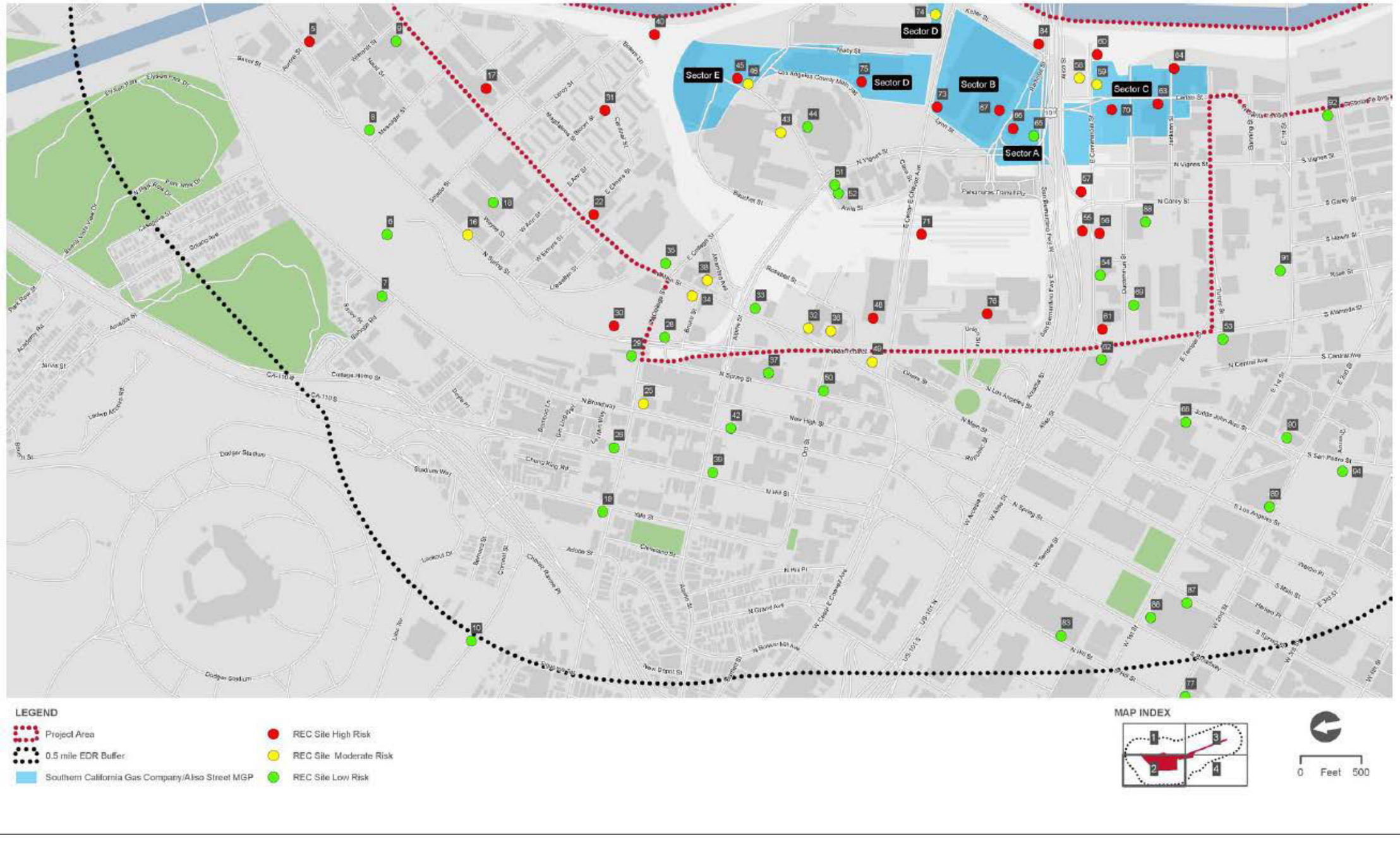

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Figure 3-4. Sites of Concern and Risk Ranking - Northeast Quadrant

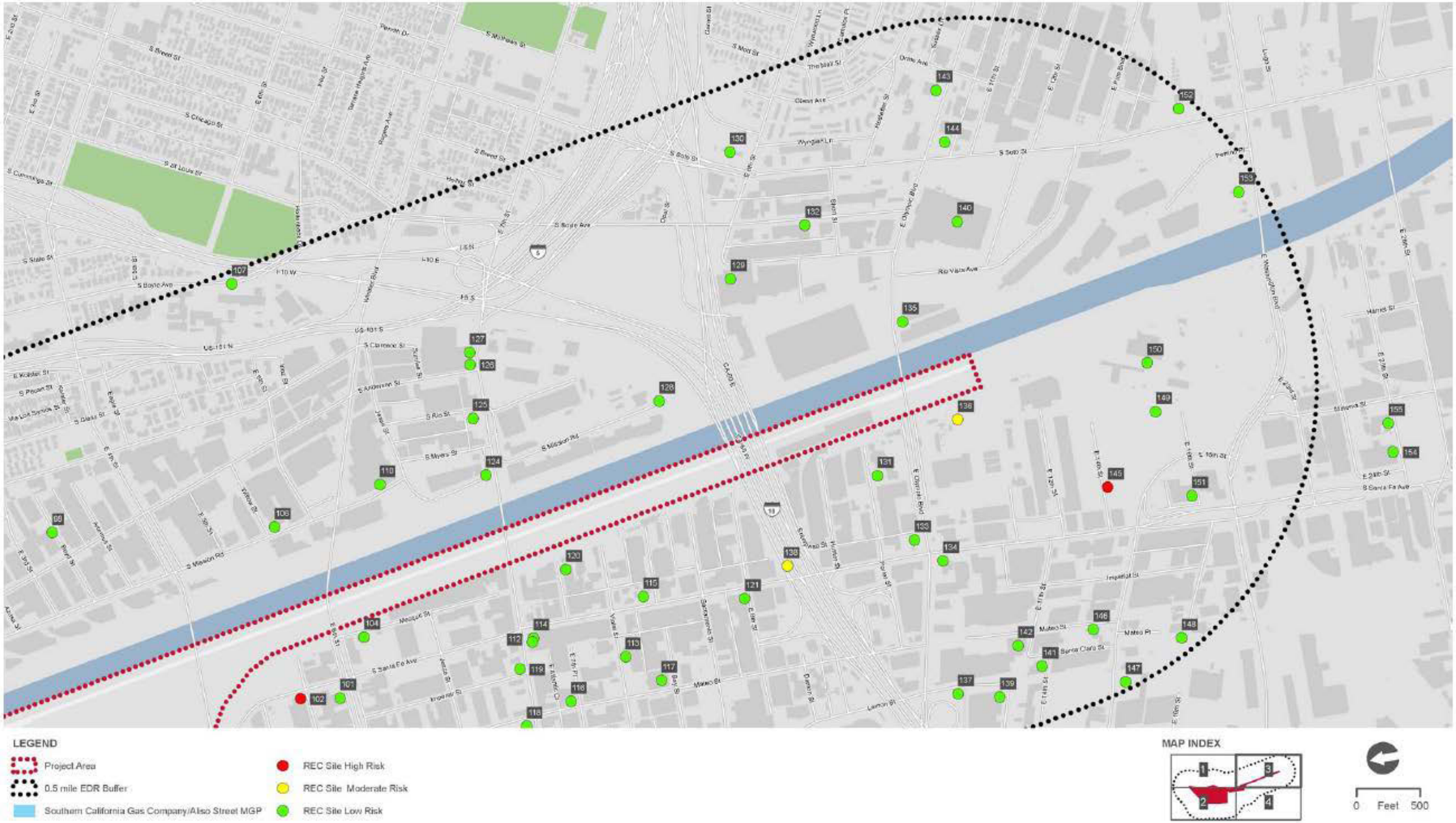

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Figure 3-5. Sites of Concern and Risk Rankings – Southeast Quadrant

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3.4 Historical Use Information

The objective of reviewing historical use information is to develop a history of previous land uses in the vicinity of the Project Area. This information was used to assess the previous land uses for potential hazardous materials impacts that may affect the Project Area. HDR reviewed historical sources that were likely to provide useful information, as defined by the current ASTM standard.

An extensive historical review was completed in the previous Draft ISA (Kleinfelder 2014), which was incorporated into this report (Appendix A, Table A2, Sanborn® Fire Insurance Maps Summary and Table A3, Summary of Historical Aerial Photographs). Considering historical data is not subject to change, this review was incorporated into this Phase I ESA and is cited as such. The following historical sources and years were reviewed (Table 3-2). The area of Segment 4a was not included in the previous report; therefore, an online review of Historicaerials.com was completed to review historical aerial photographs and USGS maps. A brief overview of the historical source review is provided in the sections below.

Table 3-2. Historical Sources Reviewed

Source	Years Reviewed
Sanborn® Fire Insurance Maps	1888, 1894, 1906, 1920, 1950, 1953, 1954, 1957, 1960, 1964, 1965, 1968, and 1970
Aerial Photographs	1923, 1928, 1938, 1947, 1948, 1952, 1964, 1965, 1976, 1977, 1979, 1981, 1983, 1989, 1994, 2002, 2005, 2009, 2010, and 2012
Historical Topographic Map Report	1896, 1900, 1901, 1928, 1953, 1966, 1972, 1981, and 1994
City Directories	Select years between 1906 and 1995

3.4.1 Historical Overview

Project Area History and Land Use

During the mid-nineteenth century, the Project Area and general vicinity consisted mainly of vineyards, and included some of the largest wine producers in California (Los Angeles Conservancy 2016). By the late nineteenth century, citrus crops outnumbered grapes as the primary agricultural product. Railroads and manufacturing land uses increased, initially to serve the shipping needs of the citrus industry, and later to support the rapidly increasing population. Prior to 1876, the only railroads traveling through Los Angeles were local railroads. However, by 1876, the Southern Pacific Railroad connected San Francisco with Los Angeles, and over the next quarter century, the Atchison, Topeka, Santa Fe, and Union Pacific Railroads were also serving the city.

By the early 1900s, Los Angeles became a transportation hub, and the construction of railroad depots, rail yards, warehouses, and other associated structures to serve the railroad industry dominated the formerly agricultural landscape. Additional development of the downtown area in the early 1900s brought various industrial and manufacturing uses to the area, and products generated in the area included machinery,

furniture, clothing, automobile parts, and rubber. Following World War II, the transportation needs of the industrial and manufacturing land uses in the area began to shift away from the railroad and instead to trucking, and as a result, facility operators began to focus on outlying areas where larger parcels could be purchased for the construction of manufacturing plants. Many of the remaining warehouses in this area of downtown were vacated, until they later became occupied by artists in the 1970s, which used the warehouses for art studios and living spaces. The area became known as the Arts District.

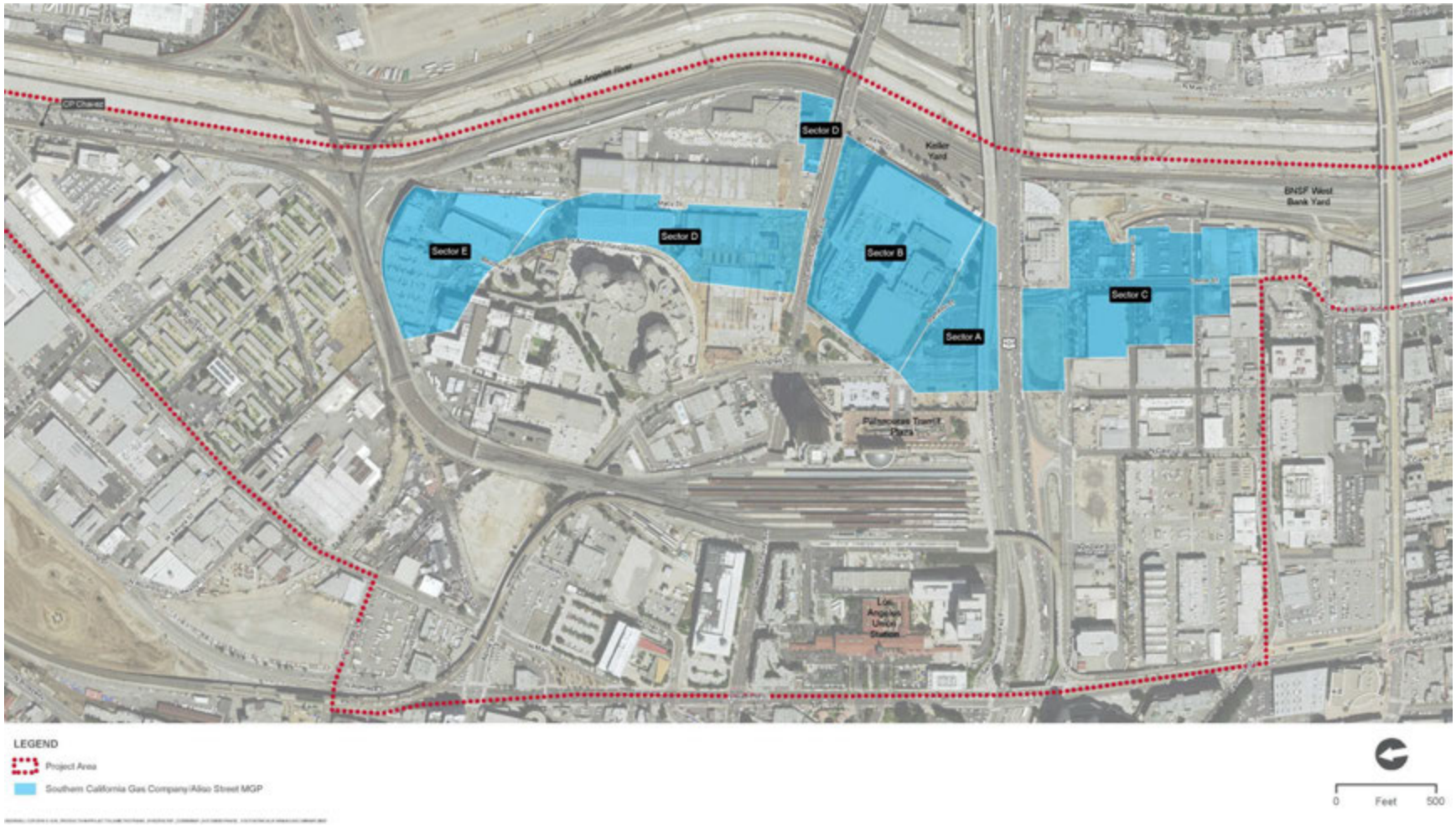
Los Angeles River

The Project Area is located adjacent to and west of the Los Angeles River. The path of the Los Angeles River has shifted over time, but has remained in its current location since the early 1800s. From the early 1800s, the Los Angeles River was a major source of water for the agricultural and early development occurring in the area, and early forms of flood protection included channelization of the Los Angeles River to convey water and sediment during storms (Los Angeles County Department of Public Works 2016). However, the Los Angeles River has historically been inundated by severe flood events, which have been known to wash out river banks and water distribution systems. By the early 1900s, pumping wells had largely depleted local aquifers, increasing the need for a reliable water supply to serve the area. A severe flood in 1914 resulted in damage throughout the developing Los Angeles basin. The public demanded that Los Angeles County address the recurring flooding. Subsequently, in 1915, the Los Angeles County Flood Control District was formed. Early flood control projects included the further channelization of the river and the creation of reservoirs and dams along the river. Following additional floods in the 1930s, Congress passed the Flood Control Act of 1938, which included funding for the future Los Angeles County Drainage Area (USACE 2013). The U.S. Army Corps of Engineers took over the channelization project, which was completed between 1938 and 1960. The result of the project is the existing 51-mile-long engineered waterway that is present today.

Southern California Gas Company/Former Aliso Street Manufactured Gas Plant (MGP)

The Project Area is located within the former 52-acre former Aliso Street MGP site. Operations at the former Aliso Street MGP began in 1876, using both coal-based and oil-based manufacturing processes (DTSC 2002). A photograph of the former Aliso Street MGP is included as Figure 3-6. Between 1927 and 1941, the former Aliso Street MGP was placed on standby, and not operated because of the availability of natural gas. Between 1943 and 1947, operations at the former Aliso Street MGP resumed and SCG operated the plant for the U.S. Defense Plant Corporation for the production of butadiene, a raw material used for the production of rubber. In 1947, the former Aliso Street MGP was closed and most structures were demolished by 1954 to make-way for the construction of US-101 along the former Aliso Street. The construction of the highway necessitated the removal of some of the remaining structures and large amounts of soil, with the exception of the large gas holders and associated equipment, which were removed in 1973. Following the removal of the large gas holders, the former Aliso Street MGP property was sold and redeveloped for various other industrial and commercial land uses.

Figure 3-6. Historic View of the Southern California Gas Company/Former Aliso Street MGP



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Based on the extensive area of the former MGP site, the site was broken into five smaller sectors (Sectors A, B, C, D, and E) for the purpose of future investigation (Figure 3-7). Sector C was further divided into Blocks G, K, L, N, O, Q, and R, although these divisions are not illustrated in Figure 3-7. The historical view of the MGP area (photograph date is undetermined), including the sectors identified as an overlay on the photograph to illustrate the location of the MGP tanks relative to the Project Area. Contaminants associated with the Aliso MGP include: petroleum hydrocarbons, VOCs, PAHs, and heavy metals.

3.5 Agency File Reviews

An agency file review to obtain supporting regulatory documentation was conducted using the DTSC ENVIROSTOR and the SWRCB GeoTracker online databases to confirm the EDR regulatory listings. ENVIROSTOR and GeoTracker databases serve as document storage location for the lead agency, enabling the public to access public files. The type of regulatory case determines which agency acts as oversight for a project. The Los Angeles Fire Department and the Los Angeles Regional Water Quality Control Board (LARWQCB) have sole or joint oversight for area sites. Online data from both databases is included in Appendix D.

3.5.1 State of California, Department of Toxic Substance Control (ENVIROSTOR)

The DTSC maintains detailed information on hazardous waste permitted and corrective action facilities, as well as existing site cleanup information. An online database search was conducted to obtain detailed documentation on sites. The database includes federally designated sites, state response sites, military sites, school sites, and voluntary cleanup sites. Site-specific documentation, if obtained was noted in Appendix A, Table A1, Potential Sites of Concern to the Project Study Area. Regarding sites that did not have documentation listed on ENVIROSTOR, no further information requests were made due to the low potential for the site to impact the Project (e.g., based on distance from the Project Area).

3.5.2 Sanborn® Fire Insurance Maps

Sanborn® Fire Insurance Maps were initially created to estimate fire insurance liability in urbanized areas. The maps give a detailed historical accounting of street names and numbers, railroad corridors, business types, building components (e.g., building construction type and business equipment), and natural features. A detailed review of the Sanborn® Fire Insurance Maps was completed by Kleinfelder for the 2014 ISA (Kleinfelder 2014), for the years indicated (Appendix A, Table A2 and Appendix E). HDR did not obtain an additional Sanborn® map search.

All the project segments are similar in the transition of land uses, a mixture of commercial, industrial and residential, with residences removed as time progressed. A brief description of some of the noted land uses during the noted timeframes are presented below:

- 1888 – Chinese Quarters (or a laundry establishment), oil companies, asphalt refining, brewery, medical college, railways, and iron works

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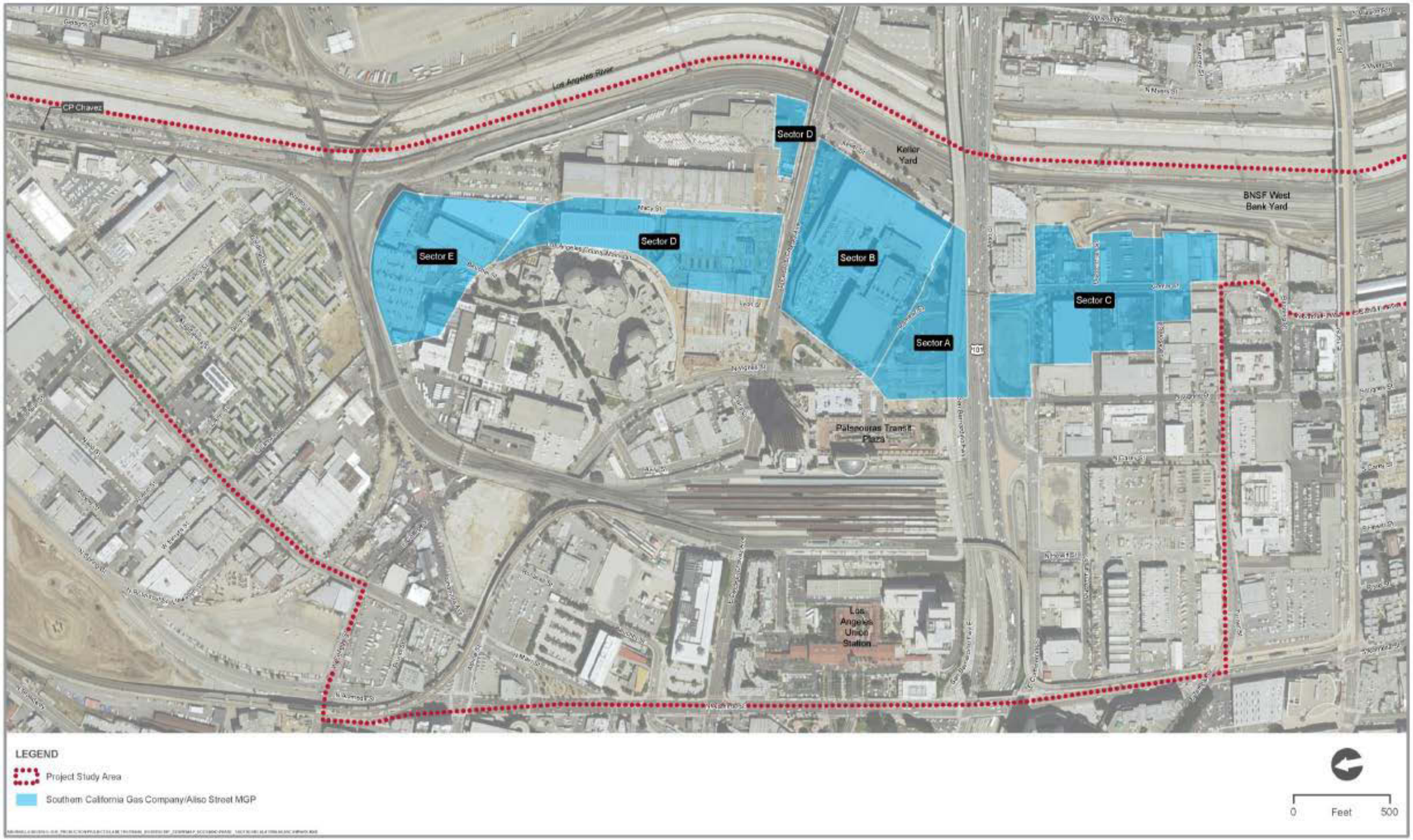
Figure 3-7. Southern California Gas Company/Former Aliso Street MGP Sectors



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- 1894 – Chinese Quarters, oil companies, coal and feed yard, lighting company, railways, stable, plumbing supply, orchard, lumber company, and sheet iron works
- 1906 – Chinese Quarters, horse stables, paper company, lumber yard and mill, asphalt company, brewery, gas and electric company, macaroni and cheese factory, lime factory, oil company, and brick company
- 1920 – Chinese Quarters, paper company, wood yard and mill, gas companies with ASTs and railways were noted
- 1950 – Railways and LAUS train concourse, post office, turf manufacturer, tool warehouse, brewery and beer bottling warehouse, fire station, oil well equipment manufacturing company, pottery company, scrap metal yard, aluminum smelter, oil and gas company with ASTs, fertilizer factory, and pork and poultry processing facility
- 1957 – Brewery, railways, chrome plating facility, frozen food packaging facility, and a grocery warehouse
- 1960 – Brewery, railways, burlap bag manufacturer, post office, chrome plating facility, household cleaner manufacturing facility, and a textile manufacturer
- 1964 and 1965 – Brewery, railways, post office, central jail, chemical plant, and vehicle storage and repair
- 1970 – No significant land use changes noted from the previous year

3.5.3 City Directory Information

The City Directory provides information regarding addresses of occupants during various years. A City Directory search was conducted by Kleinfelder staff at the Los Angeles City Central Library, for the years spanning 1906 to 1995. Project Area (Appendix F) and which encompasses Segments 1 through 6 of the Project Area. No City Directory search was completed for Segment 4a. HDR did not perform an additional City Directory search.

The City Directory was used to confirm the land use information provided in the Sanborn® Maps. Based on the City Directories reviewed, properties in the vicinity of the Project were consistent with information stated on the historical Sanborn® Insurance Fire Maps.

3.5.4 Historical Aerial Photographs

Historical aerial photographs are valuable for the environmental assessor to review features of the Project Area and surrounding properties over a long period of time (Appendix A, Table A3 and Appendix G). The historical aerial photographs were consistent with the Sanborn® Maps and City Directory that documents the land uses changes over time from agricultural, transitioning into residential, and finally into industrial and commercial. HDR did not obtain additional historical aerials photographs. No additional land use information was obtained.

3.5.5 Historical Topographic Maps

The following historical United States Geological Survey (USGS), 7.5-Minute Series Topographic Maps were reviewed as part of this Phase I ESA: Pasadena, California (CA), 1896 and 1900; and Los Angeles, 1901, 1928, 1953, and 1966 (photorevised 1972, 1981, and 1994). The topographic maps indicated that the street configuration in the vicinity of the Project Area, as well as the existing railroad ROW located adjacent to and west of the Project Area, have been present since 1896. Features of the former Aliso Street MGP, including the large gas holders, were present in 1928 and were removed prior to 1981. LAUS had been constructed sometime after 1928 with expansions occurring through 1953 (Appendix H). HDR did not obtain any additional historical topographic maps for this report.

3.6 Environmental Liens, Activity Use Limitations (AULs) and Additional Information

Moffatt and Nichol completed an environmental lien search for ten parcels not owned by Metro (Appendix I), that may be acquired property for the Link US Project as part of the ISA. No environmental liens were associated with those parcels, however, two parcels (noted in italics in Table 5-3) were determined to have a land use restriction associated with their former use as the Aliso Street MGP (Kleinfelder 2014). In addition, HDR identified ten sites in the ENVIROSTOR or GeoTracker database search with land use restrictions, of which five parcels are located within or adjacent to the Project Area (Table 3-3 in italics).

Table 3-3. Activity Use Limitations

Address, APN, HDR Map Code	Owner(s)	AULs
620 Commercial Street, 5173-003-010, N/A	Gregory S. Heet	Not found
549 Commercial Street, 5173-003-011, N/A	PBR Realty LLC	Not found
621 Commercial Street, 5173-003-012, N/A	PBR Realty, LLC	Not found
No Address Listed 5173-003-900, N/A	State of California	Not found
706 Commercial Street 5173-017-004, HDR Map Code 70	Keller Street Development Co.	Not found
711 Ducommun Street 5173-017-006, N/A	Wilkie Hawthorne, LLC; Samyoung Investments, LLC	Not found
718 Commercial Street	*SSE Real Estate Group, LLC*	*Based on the historical use as part of the former Aliso Street MGP,*

Table 3-3. Activity Use Limitations

Address, APN, HDR Map Code	Owner(s)	AULs
5173-017-008, N/A		*the property is prohibited from being used for residential, hospital, school, and day care center purposes. In addition, it prohibits the construction of groundwater wells for injection or extraction and utilization. The DTSC is provided the right to access the property for inspection, monitoring, and other activities consistent with the Land Use Covenant.*
801 Commercial Street, 5173-019-006, HDR Map Code 58	Magellan Commercial, LLC	Not found
837 Commercial Street, 5173-019-011, N/A	Victory Investment Group, LLC	Not found
830 Commercial Street, *5173-020-010, HDR Map Code 59 (Viertel's Police Impound Garage)*	*500 N Center Street, LLC*	*Property is part of the former Aliso Street MGP, Block K. A VCA, California Environmental Quality Act Notice of Exemption, Removal Action Workplan, and RACR were completed for the property. The SEMS-Archive tracks sites that have no further interest under the Federal Superfund Program based on available information. The property was issued no further action for soils at the property and is allowed unrestricted commercial or industrial use. Groundwater is contaminated with petroleum hydrocarbons and is being addressed separately.*
703 Commercial Street, 5173-018-001, N/A	Undetermined	A soil investigation at Block G of the former Aliso Street MGP site indicates that potentially effected soils were removed during the subway tunnel construction.
138 San Fernando Road, 5447-014-024, HDR Map Code 1 (Victor Industrial)	Undetermined	Land Use Restrictions (Appendix J-1)
1746 Spring Street, 5409-002-029, HDR Map Code 5 (Bortz Oil Company)	*Undetermined*	*Land Use Restrictions (Appendix J-5)*

Table 3-3. Activity Use Limitations		
Address, APN, HDR Map Code	**Owner(s)**	**AULs**
1300 Cardinal Street, *5409-012-903, HDR Map Code 31 (William Mead Homes)*	*City of Los Angeles Department of Housing*	*Land Use Restrictions (Appendix J-31)*
410 Center Street, *5173-021-905, HDR Map Code 63 (LA County Metro Transportation Authority)*	*Undetermined*	*Land Use Restrictions (Appendix J-63)*
530 Ramirez Street, *5409-022-905, HDR Map Code 66 (Former Aliso Sector – Denny's Site)*	*Undetermined*	*Land Use Restrictions (Appendix J-66)*
710-720 Keller Street (Macy), *5409-021-902, HDR Map Code 84 (Keller Yard)*	*Undetermined*	*Land Use Restrictions (Appendix J-84)*
2424 Olympic Boulevard, 5168-002-800, HDR Map Code 135 (SCG/Olympic Base)	Undetermined	Land Use Restrictions (Appendix J-135)
2182 11th Street, 5167-009-019, HDR Map Code 139 (Western Lead and Metal)	Undetermined	Land Use Restrictions (Appendix J-139)

3.7 Vapor Encroachment Conditions

Natural petroleum seeps were located within the Project Area, occurring most notably on the lowest level of the parking garage beneath the Gateway Plaza Area. These natural seeps are composed of weathered crude oil that has been depleted of its more volatile components. However, they remain a source of VOCs. CoLA Ordinances 175790 and 180619 may have building requirements that apply to the redevelopment of the Project Area as petroleum seeps are present and it is located within a defined Methane Buffer Zone (CoLA 2004).

The subterranean structures of the Project Area, particularly the passenger tunnel below the tracks and platforms and the underground parking garage below the Gateway Plaza, are exposed to soils impacted with petroleum and petroleum products. Therefore, a VEC exists at the Project Area.

3.8 Summary of Previous Environmental Investigations

HDR reviewed site-specific agency documentation as previously described in Section 3.4. Notations regarding the site-specific documentation are summarized in Appendix A, Table A1 and Appendix J.

3.9 Site Interviews

HDR personnel (Ms. Jeanette Price) met with Mr. Jesus Villanueva, Senior Environmental Specialist with Metro on May 16, 2016. Mr. Villanueva provided an overview of the history of a portion of the former Aliso Street MGP site, and he confirmed that the Metro site (840 Commercial Street) and adjacent sites were known to have soil and groundwater contamination as a result of the former Aliso Street MGP operations in the area of Segments 2, 3, and 4. Mr. Villanueva provided a brief overview of the transition of the site from industrial use to its current transportation use and indicated that all bus refueling occurs off-site at Metro's fleet site. Mr. Villanueva indicated that Metro had purchased the 410 Center Street site (HDR Map Code 63) and intends to relocate the existing operations and demolish the existing site structures to make way for construction of the proposed Emergency Security Operations Center. Mr. Villanueva indicated that he would provide records for previous environmental investigations conducted at the site during the period of ownership by Metro and also indicated that he had no additional documentation beyond publicly ascertainable records held by DTSC and/or SWRCB. Based on a request by HDR personnel, Mr. Villanueva also indicated that he would inquire internally with Metro for a referral to staff that may have additional historical knowledge of the site. However, no additional Metro staff was available for interviews at the time this Phase I ESA was prepared.

On June 16, 2016, HDR personnel (Mr. Andrew Cherene) met with Mr. Miguel Esquiviaz, Journeyman Engineer for Morlin Asset Services, who has been working at LAUS for 17 years. Mr. Esquiviaz provided a tour of the back-of-house areas at the Historic LAUS Area and Passenger Platforms Area that are not accessible to the public. He confirmed that the Historic LAUS Area and Passenger Platforms Area do not have fuel tanks and no maintenance or fueling of any kind is done on the property. Historically, boilers for heating the station were located north of the LAUS, in the vicinity of where the Mozaic Apartments are now located. Metro acquired the property in 2011 and has been steadily making upgrades and improvements to the systems. Mr. Esquiviaz confirmed that sewage and stormwater are not captured or treated before being discharged to municipal sanitary sewers and storm drains. No wastewater treatment systems or clarifiers operate on the facility, although a grease capture system for the restaurants in the passenger terminal is present. It drains to an underground tank on the north side of the Historic LAUS Area. This tank is pumped out periodically by a truck. To his knowledge, no monitoring wells, PCB transformers, history of fire, or hazardous materials spills were located on the property.

On June 16, 2016, Mr. Cherene also met with Mr. Jeff Hoel, Maintenance Lead for Metro, who has been working at the Metro headquarters for 18 years. Mr. Hoel provided a tour of the back-of-house areas in the Gateway Plaza Area that are not accessible to the public. He explained that the Gateway Plaza and subterranean parking garage had a backup generator and diesel fuel tank located at the north end, with the generator on the surface level and the fuel tank below, in the parking garage. The lowest garage level also had a stormwater sump that collects runoff and pumped it up to the municipal storm drain.

3.10 Off-site Interviews

HDR personnel (Mr. Andrew Cherene) interviewed Mr. Mark Evans, a rail engineer and senior project manager at HDR with specific knowledge about the history of LAUS. Mr. Evans provided files and historical documentation related to the development history of the passenger terminal. To his knowledge, maintenance activities were not performed routinely at any time in the station's history. Fueling and maintenance of locomotives took place at other facilities nearby and LAUS was used strictly for loading and unloading of passengers as quickly and efficiently as possible. He indicated that it may have been possible that incidental minor maintenance activities occurred, such as lubricating joints or unsticking wheels or brakes, but that these activities would be relatively infrequent and on an as-needed basis. Although locomotives did not refuel at LAUS, steam-powered engines would have filled up with water. At least one reference he provided showed a tall device on the north end of a platform that would have pumped water into a steam locomotive's reservoir.

A telephone interview was requested of the RWQCB case worker assigned to cleanup oversight for the former Aliso Street MGP, Sector C sites. However, no RWQCB staff was available for interviews at the time this Phase I ESA was prepared. No other off-site interviews were conducted in support of this Phase I ESA.

3.11 Site Reconnaissance

On May 16, 2016, HDR conducted a site reconnaissance of the Project Area and surrounding properties. A subsequent site reconnaissance was completed on June 6, 2016. The site reconnaissance was completed from the public ROW, accessed by foot and by vehicle. No private property access was provided. Photographs were taken during the site reconnaissance and are referenced to specific sites (Appendix A, Table A1 and Appendix K). Photographs not obtained during the site reconnaissance due to security concerns or lack of accessibility were obtained from Google Maps, referenced within the photo.

Overhead electrical lines, including transformers were noted throughout the Project Area. The surrounding area was highly industrialized with commercial, industrial, governmental buildings and facilities (e.g., jail, police impound storage lot, etc.). The Project Area has multiple recycling facilities. Surface oil staining was noted throughout the railroad ROW. Groundwater monitoring wells were located throughout the Project Area. A description of the site reconnaissance by ESA Segment is discussed below. Corresponding photo documentation is presented in Appendix K.

3.11.1 Segment 1

Segment 1 included the LAUS passenger platforms and underground walkways, railroad ROW from US-101 to the south, the El Monte Busway to the east, North Alameda Street to west, and the railroad ROW where the tracks converge into five sets (the "Throat" area), extending to North Vignes Street. Surface oil stains were noted within the railroad tracks on the ballast material. Railroad communication equipment and equipment boxes were noted throughout the area (Photo 1). Three pole-mounted transformers, adjoining Segment 1, near an office building located south of Vignes Street was noted in the previous Phase I ISA

(Kleinfelder 2014), but was not confirmed during either site reconnaissance. A large pile of construction debris was located east of the Los Angeles River (Photo 23).

3.11.2 Segment 2

Segment 2 included US-101, two parcels, and East Commercial Street. A vagrant camp was located on the vacant lot between North Hewitt Street and North Garey Street (Photo 12) and was not closely investigated due to security concerns. The other parcel contained blown trash, a City of Los Angeles equipment repair building, a vacant building, a parking structure, a temporary construction building staging area, and the streetcar flyover bridge.

3.11.3 Segment 3

Segment 3 included US-101, a parcel currently used as a construction staging area, large commercial buildings, and government facilities. The construction staging area was noted as a Metro staging area and large-scale drilling equipment was stored on it (Photo 13). No ASTs or surface staining were noted on this parcel. The Viertel's Police Impound lot (Photo 14), an equipment storage area, and the train tunnel (Photo 15) were located south of East Commercial Street. Additional construction staging was located north of US-101, in the Denny's parking lot (Photo 19). A pole-mounted transformer was located along the north side of Commercial Street, approximately midway between Vignes and Center Streets.

3.11.4 Segment 4

Segment 4 was bordered by the Los Angeles River to the east and mainly industrial-type businesses to the west along Center Street. The El Monte Busway was located south of Ducommun Street (Photo 16). Neither ASTs nor underground storage tanks (USTs) were noted. The vacant National Cold Storage Company building had undetermined machinery located at the rear of the building. A gas vent pipe was noted on the north side of the building, along Jackson Street (Photo 17). The Upper Crust Bakery was located on the corner of Ducommun Street and Center Street (Photo 18), with several large ASTs located on the front of the building. Several vacant buildings were located adjacent to the railroad ROW and contained undetermined types of equipment. The area north of the Metro Red Line Station facility (Photo 26) has been redeveloped with shops and residential buildings (Photo 27). The Metro Red Line Station facility was not accessed as part of this site reconnaissance.

3.11.5 Segment 4a

An automobile recycling business was located beneath the I-10 bridge and adjacent to the ROW. The site contained vehicles stored on gravel. Since the site was inaccessible, it is undetermined if operations included metal shredding. A large electrical substation was located on Mesquit Street (Photo 28). Large produce warehouses were located between the ROW and Mesquit Street. The area between East Seventh Street and the south end of the Project Area (south of East Olympic Blvd.) contained railroad buildings, parking lots, and equipment parallel to the ROW. Two large ASTs were located at the Amtrak facility, at the terminus of Porter Street. The Angelus-Western Paper Company and recycling facility was located adjacent

to the Amtrak facility (Photo 30). The City of Los Angeles Maintenance Facility, located at 2484 East Olympic Blvd., contained a fueling facility (Photo 31). No ASTs or USTs were noted.

3.11.6 Segment 5

Segment 5 was only accessible in the northern border from the terminus of several side streets. The southern portion was inaccessible due to the correctional facility buildings. The area of the William Mead residences and playground were accessible and consisted of buildings, paved areas, open grass, and play structures (Photo 6). The Mission Tower was inaccessible, but its exterior was viewed from the William Mead residence parking area (Photo 8).

3.11.7 Segment 6

Segment 6 was bordered by the Los Angeles River to the east (Photo 30). The Metro facilities and the County correctional facility were located west of the segment. Access in this area was limited. The Keller train yard was located just north of US-101 (Photo 25).

3.12 Utilities and Polychlorinated Biphenyls (PCBs)

Some indications of subsurface utilities were noted; considering the urban nature of the area, this infers a substantial subsurface utility network. Pole-mounted and pad-mounted transformers were present throughout the Project Area and it is possible that PCB-containing transformers were present. The Los Angeles Department of Power and Water has a test-and-replace policy for PCB transformers, and electrical equipment would be replaced with non-PCB transformers. The EDR report and agency reviews did not indicate any transformer-fire related listings.

4.0 Data Gap Analysis

The ASTM Practice E 1527-13 standards require a listing of "data gaps," including data failure, encountered during the investigative process that may affect the validity of the conclusions drawn by the Environmental Professional. The ASTM Practice E 1527-13 standard also requires that the Environmental Professional estimate the relative importance of the data gaps. Generally, gaps in available data are related to the availability of historical data sources for specific sites of concern. The Environmental Professional uses multiple historical data sources as a method to provide coverage for data gaps. Historical information is collected on a recurring basis and the passage of time between data sets may or may not constitute a significant gap in data coverage. For this project, the following items may constitute a data gap as defined by ASTM Practice E 1527-13.

Specifically for this assessment, the following data gaps were noted:

- Persons to interview with historic knowledge of specific sites
- Lack of access to inspect specific properties

The lack of interview and limitations of site-specific property presents a data gap; however, the presence of existing historical information reduces the significance of these data gaps.

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5.0 Findings, Opinions, and Conclusions

HDR has conducted a Phase I ESA Update of the Link US Project Area, located in City of Los Angeles, Los Angeles County, California.

The Phase I ESA was performed in accordance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described previously in this report. This Phase I ESA includes: a review of an environmental database search report; a review of historical data sources; a review of any additional regulatory documentation; and a summary of the site reconnaissance conducted on May 16 and June 6, 2016.

5.1 Findings

General findings of this assessment include the following:

- The Project Area is underlain by fill material consisting of a mixture of silt, sand, and gravel, with an approximate thickness of 6 to 15 feet (suspected to be deeper in some locations). Holocene-and Pleistocene-age alluvium, consisting of silt and sand with varying amounts of gravel and cobbles, occurs below the fill, and is approximately 85 feet thick. Siltstone bedrock of the Fernando Formation occurs approximately 85 to 90 feet bgs. The Project Area is located near active oil fields, and natural petroleum seeps are encountered in the vicinity. Some seeps are present in the lower levels of subterranean structures.
- Groundwater occurs at depths ranging from approximately 28 to 58 feet bgs, depending on the presence of perched groundwater. Groundwater flow direction is generally to the south. North of US-101, groundwater flows to the south-southwest. South of US-101, groundwater flows to the south-southeast.
- Active oil and gas reserves are located throughout the City. The Union Station Oil Field is located adjacent to the Project Area and the Los Angeles Oil Field is located approximately 0.5 miles northwest of LAUS and the Project Area. Naturally-occurring oil seeps have been documented at various locations throughout the Project Area. The Union Station Oil Field includes a Methane Buffer Zone. Segments 2 and 3 and portions of Segment 4 are located within the Union Station Methane Zone. The City of Los Angeles has specific land use and building requirements pertaining to ventilation and methane gas detection systems for development within Methane Zones (Ordinances 175790 and 180619).
- The former Aliso Street MGP operated from the late nineteenth to mid-twentieth centuries in the eastern portion of the Project Area. Following its closure, contaminated soil and groundwater were documented to have affected a widespread area including most of the Project Area. Remedial investigations and site cleanup activities were initiated in the 1990s, with the implementation of a groundwater monitoring program and the removal of contaminated soil at selected locations within the site. Contaminants include petroleum hydrocarbons, VOCs, cyanide, PAHs, and heavy

metals. Due to the large area of the former MGP site, investigations were conducted in five smaller sectors: Sectors A, B, C, D, and E.

- Chemicals in the subsurface, whether in soil or groundwater, can migrate upward through the soil and enter into buildings, causing unacceptable chemical exposure for building occupants (DTSC, 2011). Soil vapor (gas that exists within the pore spaces of sediments) has the potential to carry volatile contaminants an appreciable distance from their source.
- A total of 1,535 regulatory listings were noted within the Project Area and the EDR Buffer Zone (0.5 mile around the Project Area) (Appendix A, Table A1, Potential Sites of Concern to the Project Area). In urban areas, it is anticipated that commercial and industrial operations will increase the number of regulatory listings included in a database search.
- A total of 279 regulatory listings associated with 154 sites were noted to have a potential to impact the Project Area. Of the 154 sites, a total of 34 RECs, CRECs, and HRECs sites were categorized with a Moderate to a High Risk ranking, and are recommended for Phase II assessment. These sites have been renumbered from the EDR report numbering for the purpose of this report (HDR Map Code) (Table ES-1, Summary of Identified REC Sites and Phase II Recommendations, and Figure 3-2 through Figure 3-5, Sites of Concern and Risk Ranking).
- The following sites were determined to have land use restrictions associated with the properties:
  - 718 East Commercial Street, no HDR Map Code
  - 830 East Commercial Street, HDR Map Code 59 (Viertel's Police Impound Garage)
  - 1746 North Spring Street HDR Map Code 5 (Bortz Oil Company)
  - 1300 Cardinal Street, HDR Map Code 31 (William Mead Homes)
  - 410 Center Street, HDR Map Code 63 (LA County Metro Transportation Authority)
  - 530 East Ramirez Street, HDR Map Code 66 (Former Aliso Sector - Denny's Site)
  - 710-720 Keller Street (Macy), HDR Map Code 84 (SCG/Olympic Base)
- A site reconnaissance of the Project Area, including the surrounding properties was conducted by HDR on May 16, 2016. to assess the present conditions and photo document the Project Area. A subsequent site reconnaissance was completed on June 6, 2016. Generally, subsurface electrical and other utilities, including transformers, were noted throughout the Project Area. The surrounding area is highly industrialized with commercial, industrial, governmental buildings and facilities (e.g., jail, police impound storage lot). The Project Area has multiple recycling-type facilities. The railroad ROW contained oil staining throughout, with the majority considered to be a "*de minimis*" condition. However, some areas that were inaccessible during the site reconnaissance may have actionable staining. Groundwater monitoring wells. One site, an auto dismantling business (located beneath I-10) was noted during the site reconnaissance. This site is located adjacent to Segment 4a and has a potential for metals contamination. Photographs taken during the site reconnaissance are presented in Appendix K.

- The lack of interviews and limitations of site access to specific properties present a data gaps, however, the agency documentation and other available supporting historical information provides sufficient information in the areas that significant ground disturbance would occur.

Table 5-1 provides a summary of sites of concern, issues that are classified as RECs, contaminants of concern for each site, and recommendations for inclusion in a Phase II. This table is a summary of issues and for a more complete description of a site and the rationale for inclusion as a site of concern, please refer to the main text of this report.

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
5	5	Bortz Oil Company	1746 Spring Street	CA HIST UST , CA BOND EXP. PLAN, CA HIST CORTESE, CA LUST, ENVIROSTOR	Upgradient Located 1,200 feet north of Segment 5	CREC/Moderate Risk Land Use Restrictions	cis-1,2-DCE and vinyl chloride in groundwater	Yes
16	13	Western Brassworks	1440 Spring Street	CA LUST	Upgradient The site is located 1,900 feet northwest of Segment 5	HREC/Moderate Risk Due to groundwater contamination	TPH-diesel in groundwater	Yes
17	14	Main Street Center/Main Street Oil Depot LA Department Water	1630 Main Street	SEMS-ARCHIVE, CORRATS, 2020 COR ACTION, US FIN ASSUR, CA HIST CORTESE, CA LUST, CA UST, ENVIROSTOR ENVIROSTOR	Crossgradient The site is located adjacent to Segment 5	REC/High Risk Open case	Solvents, non-petroleum hydrocarbons, PCBs, arsenic, metals, and VOCs soil and groundwater	Yes
22	20	Witco/Allied Kelite	1250 Main Street	ENVIROSTOR	Upgradient The site is located north and adjacent to Segment 5	HREC/High Risk Historical industrial land use and groundwater contamination	Potential TPH, VOCs, SVOCs, PAHs, PCBs, and metals in the groundwater	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
25	22	Blossom Plaza	900 Broadway	ENVIROSTOR	Upgradient The site is located 1,600 feet northeast of Segment 5	REC/Moderate Risk Active cleanup site	TPH and VOCs in soil gas, vadose zone and groundwater	Yes
31	25	William Mead Homes	1300 Cardinal Street	CA HIST UST, CA Cortese, ENVIROSTOR	Upgradient The site is located adjacent to Segment 5	REC/High Risk Historical industrial use of the property	Potential TPH, VOCs, SVOCs, PAHs, PCBs, metals in groundwater	Yes
36	27	The California Endowment	1000 Alameda Street	CA LUST	Crossgradient The site is located 500 feet west of the Segment 1	HREC/Moderate Risk	Petroleum, hydrocarbons, VOCs, and chlorinated solvents in groundwater	Yes
38	27	Fansteel CA Drop Forge	1033 Alhambra Avenue	CA HIST CORTESE, CA LUST	Upgradient The site is located adjacent to Segment 5	HREC/Moderate Risk	Petroleum hydrocarbons due to active business practices	Yes
40	29	BNSF Mission Tower Site	1430 Bolero Lane	SLIC, ENF	Project Area The site is located within Segment 5	HREC/High Risk Historical industrial land use.	TPH, VOCs, SVOCs, PAHs, PCBs, metals in groundwater	Yes
43	33	LA County Central Jail/Sherriff's Department	429 and 441 Bauchet Street	CA HIST CORTESE, LUST (2), CA UST	Upgradient/Downgradient The site is located between Segment 1 and the main tracks and Segment 6	HREC/Moderate Risk	Residual TPH-Dx contamination in the groundwater	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
45	33	Van Der Horst Corporation	496 Bauchet Street	SEMS, LIENS 2	Upgradient The site is located 500 feet south of Segment 5 and adjacent to Segment 6	REC/High Risk	Residual TPH-Dx contamination in groundwater	Yes
46	33	Bauchet Partners / So. CA Gas Company	490 Bauchet Street	SEMS-ARCHIVE, PRP, ENVIROSTOR	Upgradient The site is located 500 feet south of Segment 5 and adjacent to Segment 6	REC/Moderate Risk	PCE, TCE and dicyclo-pentadiene in groundwater	Yes
48	35	U.S. Postal Service Terminal Annex	900 Alameda Street	CA LUST	Upgradient The site is located adjacent to Segment 1	HREC/High Risk	TPH, VOCs, and chlorinated solvents in groundwater	Yes
49	35	Chevron Station	901 Alameda Street	CA LUST, CA UST	Upgradient The site is located 700 feet northeast of the Segment 1	HREC/Moderate Risk	TPHs in groundwater	Yes
55	37	Caltrans – Commercial	501 Commercial Street	CA HIST CORTESE	Project Area The site is located south of Segment 2 and adjacent to Segment 3	REC/High Risk Historical industrial land uses, Open Cleanup Program Site	TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
56	37	Vacant Lot	510 Commercial Street	None Listed	Project Area	HREC/High Risk Historical land uses	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
					The site is located adjacent to Segment 2 and Segment 3		vapor, and groundwater	
57	37	PBR Realty, LLC / Caltrans District 7)	531 Commercial Street	CA LUST, CA SLIC	Project Area The site is located adjacent to Segment 2 and Segment 3	REC/High Risk Due to historical land uses and open-inactive LUST case	TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
58	37	Friedman Bag Company, Inc.	801 Commercial Street & 706 Ducommom Street	CA HIST CORTESE , CA LUST	Project Area The site is located east of Segment 2	HREC/Moderate Risk Based on historical land use.	Residual soil and groundwater contamination	Yes
59	37	A&H Greenfield Sheet Metal / Viertel's Police Impound Garage	830 Commercial Street/540 Center Street	SEMS-ARCHIVE	Project Area	HREC/High Risk Based on residual metals in the soil and the former Aliso MGP.	Potential TPH, VOCs, SVOCs, PAHs, PCB, metals, and in the soil and groundwater	Yes
60	NA	LA County MTA c/o Environmental Services Department	840 Commercial Street	None Listed	Project Area	HREC/High Risk Based on historical land use.	Potential TPH, VOCs, SVOCs, PAHs, PCBs, metals in soil and groundwater	Yes
61	37	Mobil #11 & #18	520 Alameda Street	CA HIST CORTESE , CA LUST (2), CA UST	Crossgradient The site is located adjacent to Segment 2	HREC/High Risk	TPH in soil and groundwater	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
63	NA	Los Angeles County Metro Transportation Authority Manley Oil	410 Center Street	CA DEED, ENVIROSTOR, CA VCP(2) ENVIROSTOR	Crossgradient The site is located adjacent to Segment 3	CREC/High Risk Land use restrictions	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes
64	N/A	National Cold Storage Company	820 Jackson Street	CA VCP, ENVIROSTOR	Upgradient The site is located adjacent to Segment 3	CREC/High Risk Land use restrictions	TPH, volatile VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater, gas vent located on-site	Yes
66	37	Former Aliso Sector - Denny Site	530 Ramirez Street	ENVIROSTOR	Upgradient The site is located north and adjacent to Segment 2 and 3, and west of Segment 6	CREC/High Risk Land use restrictions and groundwater contamination	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes
67	37	So. CAL Gas/Former Aliso / LA PD Central Garage	555 Ramirez Street	CA HIST CORTESE , CA LUST, CA UST, ENVIROSTOR	Upgradient The site is located north of Segment 2 and 3, and adjacent to Segment 6	REC/High Risk Open Case	TPH, VOCs, cyanide, PAHs, and heavy metals in soil, soil vapor, and groundwater	Yes
70	37	Unocal, Conoco Phillips Center Street Terminal / S & P Company	501 Center Street / 706 Commercial Street	CA FID UST	Project Area Located within Segment 3	REC/High Risk	Petroleum hydrocarbons, PAHs, and VOCs in soil	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
71	39	LA to Pasadena Metro Blue Line Construction Author (SL204EG2409)	None listed	CA SLIC	Project Area	HREC/High Risk	Diesel and petroleum, and potential soil vapor	Yes
73	41	So. CA Gas / Former Aliso MGP	600 Cesar Chavez Street	CA Cortese	Downgradient The site is located east of Segment 1 and upgradient from Segment 6	REC/High Risk Open-inactive case status.	TPH, VOCs, cyanide, PAHs and heavy metals in soil, soil vapor, and groundwater	Yes
74	41	Mendoza Service, Inc.	866 Caesar Chavez Avenue	CA HIST CORTESE, CA LUST	Upgradient The site is located adjacent to Segment 6	HREC/Moderate Risk Due to timeframe of the reported leak and closure.	TPH in soil and groundwater	Yes
75	41	Metro Division 30/LACMTA	900 Lyon Street	CA LUST, CA UST	Crossgradient The site is located adjacent to Segment 6	REC/High Risk Open Case	Petroleum releases in the soil and groundwater	Yes
76	43	Union Station	800 Alameda Street	SEMS-ARCHIVE	Project Area	HREC/High Risk Soil vapor potential	TPH impacted soil was re-used on the property, and soil vapor	Yes

Table 5-1. Summary of REC Sites and Phase II Recommendations

HDR Map Code[1]	EDR Map Code[2]	Site Name	Address	Regulatory Listings[3]	Upgradient/ Downgradient and Location	Determination/ Risk Ranking	Contaminants of Concern	Phase II Recommendation
84	47 52	Southern CA Regional Rail Authority Track Extension Santa Fe/Macy Street	720 Keller Street Macy Street/ Former Aliso Street/Keller Street	ENVIROSTOR FINDS, ECHO, CA DEED, CA VCP, ENVIROSTOR	Project Area The site is located adjacent to the Segment 6 and north of Segment 3	CREC/High Risk Land Use Restrictions	TPH-Dx and Gx, VOCs, , SVOCs, PAHs, PCBs, and metals in groundwater	Yes
102	82	Butterfield Sun Chemical Corp.	590 Santa Fe Avenue	CA HIST UST, CA HIST CORTESE, ENVIROSTOR CA LUST	Crossgradient The site is located 500 feet west of Segment 4	REC/High Risk Active site and distance to the Project	Metals, PAHs, TPH and VOCs in soil and soil vapor	Yes
138	N/A	Auto Dismantling	2425 Enterprise Street	None listed	Crossgradient The site is located adjacent Segment 4a Potential for metals	REC/Moderate Risk	Metals in in the soil	Yes
145	122 127	Crown Coach Site	2429 Washington Blvd.	US BROWNFIELDS	Crossgradient The site is located adjacent to Segment 4a	REC/Moderate Risk Active case	VOCs, TCE, and PCE in in the groundwater and soil vapor	Yes

Notes:

[1] ***This map code was assigned to the site for the purposes of the Report and is not included in the EDR Report map coding.***

[2] ***Corresponds to location of site as indicated in the EDR Report (Appendix C).***

[3] ***Complete acronym list is included in the EDR Report (Appendix C).***

5.2 Opinions

HDR has performed a Phase I ESA, as described in the ASTM Practice E 1527-13 assessment protocol. Based upon this assessment, HDR has developed the following professional opinions:

- The degraded groundwater in the region is a concern for the project, since many contaminants will be transported by groundwater. The historical land uses in the Project Area include gas manufacturing, oil production, dry cleaners, industrial uses, and railroad operations over a prolonged period of time. In addition, naturally-occurring petroleum and methane have been shown to be present and have affected soil and groundwater quality. The quality of groundwater in the deeper production aquifers is threatened by migration of pollutants from the upper aquifers. The general condition of groundwater is a concern for the project, constitutes a REC, and is considered to be High Risk.
- The soil vapor below the Project Area may contain elevated concentrations of VOCs from past land uses, as well as natural hydrocarbon deposits. These impacts may present an exposure risk to construction workers, as well as an indoor air quality risk within subterranean structures due to vapor encroachment. This condition is a REC and is considered to be High Risk.
- A portion of the Project Area is located within the Union Station Oil Field and the Union Station Methane Zone and Methane Buffer Zone. Oil seeps and subsurface methane deposits may be present on-site. The Project would be required to comply with the City of Los Angeles building ordinances regarding ventilation and methane gas detection systems for built structures. The presence of hydrocarbon-impacted soil vapor is a REC and is considered to be High Risk. A VEC was noted to be present in the vadose zone below LAUS. This is also a separate REC and is considered to be High Risk.
- The Los Angeles River acts as a barrier for shallow (less than 35 feet deep) contaminants migrating from east to west across the river. No RECs were noted on the east side of the river.
- One site, an auto dismantling site located at 2425 Enterprise Street (HDR Map Code 138), is located adjacent to Segment 4a and has the potential for elevated metals in the soils. This condition is a REC and is considered to be High Risk.
- Various sites in and near the Project Area have experienced releases of contaminants to soil and groundwater. Ongoing and historical cleanup efforts have occurred for a total of 35 known sites (refer to Table 7-1). Therefore, the potential for encountering contaminated soil and groundwater at any location during subsurface work for the Link US Project construction cannot be ruled out. This general condition is a REC and excavated soil at the site may be considered High Risk.

5.3 Conclusions

Based upon the above-detailed Findings and Opinions, HDR concludes that RECs have been identified both on and adjacent to the Project Area. The following statement is required by ASTM Practice E 1527-13 as a declaration of whether RECs were found:

> *HDR has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Link Union Station Project (Project Area) located in the City of Los Angeles, Los Angeles County, California. Any exceptions to or deletions from these practices are described in previous sections of this report. This report revealed a total of 35 RECs (15 RECs, 15 HRECs, and five CRECs) in connection with the Project Area.*

1. A total of 35 RECs (15 RECs, 15 HRECs, and five CRECs) were noted in the regulatory listings with a High to Moderate Risk ranking (Table ES-1).
2. The former Aliso Street MGP, Sector C, at various locations (including Blocks G, K, L, O, Q, R; Santa Fe/Macy St/Aliso St/Keller St; and site-wide groundwater) – Based on the open and/or operation and maintenance status of the regulatory listings and the ongoing remediation and monitoring activities, these areas are considered to be RECs.
3. The methane deposits associated with the Union Station Methane Buffer Zone is considered to be a REC.
4. A VEC is noted to be present in the vadose zone below LAUS. This is considered to be a REC.
5. Seven properties have land use restrictions associated with the properties:
   a. 718 E. Commercial Street
   b. 830 E Commercial Street
   c. 1746 N. Spring Street
   d. 1300 Cardinal Street
   e. 410 Center Street
   f. 530 E. Ramirez Street
   g. 710-720 Keller Street

6.0 Recommendations

Recommendations included in this report were developed through the investigative procedures described in the Scope of Services, Significant Assumptions, and Limitations sections of this report (Section 1.7). These findings should be reviewed within the context of the limitations provided in the Limitations section.

Based upon the identification of RECs associated with the Project Area, HDR makes the following recommendations:

6.1 Recommendation 1

HDR recommends a Phase II ESA to characterize potential impacts to the proposed project. At Metro's request, a specific work plan and cost estimate is being prepared under separate cover. The following specific areas of investigation are recommended:

- Soil in the planned areas of excavation, should be characterized with respect to the nature and extent of contamination with petroleum hydrocarbons as a follow up to this Phase I ESA.
- Dewatering may be required during construction. Therefore, it would be prudent to characterize the nature and extent of groundwater contamination beneath the Project Area, especially in planned excavation areas, as a follow up to this Phase I ESA.
- Soil vapor encroachment may pose a construction worker health risk and indoor air quality risk for subsurface structures in contact with contaminated soil. Therefore, it would be prudent to characterize the soil vapor conditions beneath the Project Area, especially in planned excavation areas, as a follow up to this Phase I ESA.

6.2 Recommendation 2

HDR recommends Metro consider the "shelf life" of Phase I documents in determining risk. ASTM Practice E 1527-13, Section 4.6 states that a conforming "Phase I" report is valid for a period of 180 days, and may be updated during the 180 days to 1-year timeframe. The report is valid for use in any of the CERCLA defenses ONLY if it is updated within this time frame. If greater than 1 year passes from the final report date, the Phase I effort would need to be repeated to remain in compliance with ASTM and the AAI protection.

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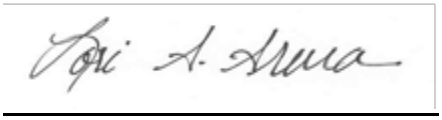
7.0 Qualifications of Environmental Professionals

7.1 Signature and Qualifications

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in Section 312.10 of 40 Code of Federal Regulations [CFR] Part 312.

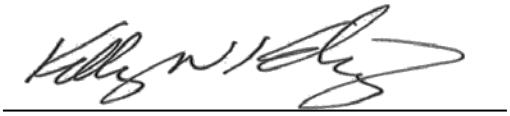
I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Project Area. I have developed and performed the all appropriate inquiries in conformance with standards and practices set forth in 40 CFR Part 312.



Qualified Environmental Professional

Lori Arena

Environmental Analyst



Quality Assurance / Quality Control

Kelly Kading, CPG

Senior Professional Associate

7.1.1 Qualifications of Environmental Professionals

This Phase I ESA was performed by the following HDR personnel:

Ms. Lori Arena, HDR's qualified Environmental Professional, as defined by ASTM Practice E 1527-13, has more than 8 years of experience in the assessment of impacted properties and compliance with environmental regulations. She has a Bachelor's degree in Geography with an emphasis in environmental policy from San Diego State University. Ms. Arena's experience includes environmental document writing and the submittal of various state- and federally- required reports and permits.

Quality Control was provided for this Phase I ESA by the following HDR personnel:

Mr. Kelly Kading, CPG, an Environmental Professional as defined by ASTM Practice E 1527-13, has more than 29 years of experience in assessment and remediation of impacted properties and compliance with environmental regulations. He has a B.S. in Geology from Colorado State University and is a Certified Professional Geologist (#9173). He specializes in forensic investigation of hazardous materials-impacted properties for municipal and state agencies, as well as commercial clients. His experience covers assessment of more than 3,500 properties ranging from agricultural land to multigenerational industrial properties in 34 states and two foreign countries. He is highly knowledgeable of federal, state, and local environmental regulations and standards and has served on the National Board of Directors of the Academy of Certified Hazardous Materials Managers.

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