HELIX Environmental Planning

Madison Avenue Street Improvements Project

General Biological Resources Assessment and Western Riverside County Multiple Species Habitat Conservation Plan Consistency Analysis

November 2025 | 01391.00002.003

Prepared for:

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TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY 1
1.0 INTRODUCTION 1
1.1 Project Area 1
1.2 Project Description 2
1.3 General Setting 3
1.4 Soils 3
1.5 Literature Review and Nomenclature 4
1.6 Survey Limitations 5
2.0 VEGETATION MAPPING 5
2.1 Methods 5
2.2 Results 5
2.2.1 Southern Willow Scrub 6
2.2.2 Mulefat Scrub 6
2.2.3 Riversidean Sage Scrub 6
2.2.4 Non-Native Grassland 7
2.2.5 Tamarisk Scrub 7
2.2.6 Residential/Urban/Exotic (Disturbed) 7
2.2.7 Residential/Urban/Exotic (Developed) 8
2.3 Impacts 8
2.4 Mitigation 9
3.0 AQUATIC RESOURCE DELINEATION 9
3.1 Methods 9
3.2 Results 10
3.2.1 Waters of the U.S. 12
3.2.2 Regional Water Quality Control Board Jurisdictional Waters 14
3.2.3 CDFW Jurisdictional Waters 16
3.3 Impacts 16
3.3.1 Potential USACE Impacts 16
3.3.2 Proposed RWQCB Impacts 17
3.3.3 Proposed CDFW Impacts 17
3.4 Mitigation 18
4.0 REGULATORY CONTEXT 18
4.1 Federal Government 18
4.1.1 Federal Endangered Species Act 18
4.1.2 Migratory Bird Treaty Act 19
4.1.3 Clean Water Act and Rivers and Harbors Act 19
4.2 State of California 20
4.2.1 California Environmental Quality Act 20
4.2.2 California Endangered Species Act 20
4.2.3 Native Plant Protection Act 20
4.2.4 California Fish and Game Code 20
4.2.5 State Porter-Cologne Act 21

TABLE OF CONTENTS (cont.)

4.3 Western Riverside Multiple Species Habitat Conservation Plan 21
5.0 MSHCP RESERVE ASSEMBLY ANALYSIS 21
5.1 Criteria Cell 6409 21
5.2 Criteria Cell 6525 22
5.3 Criteria Cell 6528 22
5.4 Criteria Cell 6416 22
5.5 Stephens' Kangaroo Rat Habitat Conservation Plan Fees 22
6.0 PROTECTION OF SPECIES ASSOCIATED WITH RIPARIAN/RIVERINE AREAS AND VERNAL POOLS (SECTION 6.1.2) 23
6.1 Riparian/Riverine 24
6.1.1 Methods 24
6.1.2 Existing Conditions and Results 24
6.1.3 Impacts 26
6.1.4 Mitigation 26
6.2 Vernal Pools 27
6.2.1 Methods 27
6.2.2 Existing Conditions and Results 27
Study Area Fairy Shrimp 27
6.3 27
6.3.1 Methods 27
6.3.2 Results 28
6.3.3 Impacts 28
6.4 Riparian Birds 28
6.4.1 Methods 28
6.4.2 Existing Conditions and Results 28
6.4.3 Impacts 29
6.5 Plants 29
6.5.1 Plants 29
6.5.2 Methods 30
6.5.3 Results 30
6.6 Other Section 6.1.2 Species 32
6.6.1 Fish 32
6.6.2 Amphibians 32
7.0 PROTECTION OF NARROW ENDEMIC PLANT SPECIES (SECTION 6.1.3) 33
7.1 Methods 33
7.2 Results 33
7.3 Impacts 33
8.0 ADDITIONAL SURVEY NEEDS AND PROCEDURES (SECTION 6.3.2) 33
8.1 Criteria Area Plant Species 33
8.2 Amphibians 33
8.3 Burrowing Owl 33
8.3.1 Methods 34
8.3.2 Results 34
8.3.3 Impacts 34

TABLE OF CONTENTS (cont.)

8.3.4 Mitigation 34
8.4 Mammals 35
9.0 INFORMATION ON OTHER SPECIES 35
9.1 Species Not Adequately Conserved 35
9.2 Special Status Plant Species 35
9.3 Special Status Animal Species 36
9.3.1 Nesting Birds 38
10.0 GUIDELINES PERTAINING TO THE URBAN/WILDLANDS INTERFACE (SECTION 6.1.4) 39
11.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES 40
11.1 Sensitive Wildlife 40
11.1.1 Nesting Birds 43
11.2 Aquatic Resources 44
11.3 Sensitive Vegetation 45
11.4 Non-native Invasive Species Restrictions 46
12.0 REFERENCES 47

LIST OF APPENDICES

A Plant Species Observed
B Animal Species Observed or Detected
C Special-Status Plant Species Potential to Occur
D Special-Status Animal Species Potential to Occur
E 2023-2024 Wet Season Fairy Shrimp Survey Report for the Madison Avenue Street Improvements Project
F 2024 Dry Season Sampling for Listed Large Branchiopods, Madison Avenue Street Improvements Project
G 2018 Burrowing Owl (*Athene cunicularia*) Survey Report for the Madison Avenue Street Improvements Project
H 2022 Burrowing Owl (*Athene cunicularia*) Survey Report for the Madison Avenue Street Improvements Project

LIST OF FIGURES

No.	Title	Follows Page
1	Regional Location	2
2	USGS Topography	2
3	Aerial Photograph	2
4	MSHCP Criteria Cells	2
5	Site Plan	2
6	Soils	4
7a-e	Vegetation Communities	6

TABLE OF CONTENTS (cont.)

LIST OF FIGURES (cont.)

No.	Title	Follows Page
8a-e	Vegetation Communities/Impacts	8
9-1a-e	Waters Evaluated for USACE Jurisdiction	14
9-2a-e	Waters of the State (RWQCB)	16
9-3a-e	CDFW Jurisdiction	16
9-4a-e	MSHCP Riparian/Riverine Resources	16
10-1a-e	Waters Evaluated for USACE Jurisdiction/Impacts	16
10-2a-e	Waters of the State/Impacts	18
10-3a-e	CDFW Jurisdiction/Impacts	18
10-4a-e	MSHCP Riparian/Riverine Resources/Impacts	18

LIST OF TABLES

No.	Title	Page
1	Vegetation Communities and Land Covers	5
2	Vegetation Communities and Land Covers Impacts For The Madison Avenue Street Improvements Project[1]	8
3	Aquatic Resources Evaluated Within the Study Area[1]	14
4	RWQCB Waters	15
5	CDFW Waters	16
6	RWQCB Jurisdictional Impacts[1]	17
7	CDFW Jurisdictional Impacts[1]	17
8	Existing Habitats Evaluated for Riparian/Riverine Potential[1]	26
9	MSHCP Riparian/Riverine Impacts	26

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
BMP	best management practice
BUOW	burrowing owl
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFG	California Fish and Game
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Riverside
CWA	Clean Water Act
DBESP	Determination of Biologically Equivalent or Superior Preservation
GBRA	General Biological Resources Assessment
HELIX	HELIX Environmental Planning, Inc.
IPaC	Information for Planning and Conservation
LDMF	Local Development Mitigation Fee
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Plan
NEPSSA	Narrow Endemic Plant Species Survey Area
NOAA	National Oceanic and Atmospheric Administration
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
Project	Madison Avenue Street Improvements Project
Project applicant	Kleinfelder, Inc.
PQP	public quasi-public
R4SBC	Riverine Intermittent Streambed Seasonally Flooded
RCA	Regional Conservation Authority
RCTMLA	Riverside County Transportation and Land Management Agency
ROW	right-of-way
RWQCB	Regional Water Quality Control Board

ACRONYMS AND ABBREVIATIONS (cont.)

SAA	Streambed Alteration Agreement
SKRHCP	Stephens' Kangaroo Rat Habitat Conservation Plan
Study Area	Madison Avenue Street Improvements Study Area
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
UWIG	Urban/Wildlands Interface Guidelines

Report Date:	November 11, 2025
Title:	General Biological Resources Assessmment (GBRA) and Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) Consistency Analysis for the Madison Avenue Street Improvements Project
Project Location:	The approximately 92.53-acre Study Area is located in the southern portion of the City of Murrieta, within southwest Riverside County, California. Proposed improvements follow the existing road alignment of Madison Avenue between the intersections of Guava Street and approximately Elm Street. Additional improvements will occur on the intersecting Fig Street, Larchmont Lane, and Elm Streets between Jefferson Avenue and Hoover Street. A temporary construction detour route will be identified on Fig Street, Hoover Street, and Elm Street; as well as Guava Street, Monroe Avenue and Newton Azrak Street. It is located in unsectioned lands of Township 7 South, Range 3 West, as shown on the U.S. Geological Survey 7.5-minute Murrieta quadrangle map.
Assessor's Parcel Numbers:	Portions of the following 72 APNs: 910-020-010, 910-020-014, 910-020-071, 910-150-001, 910-150-006, 910-150-013, 910-150-014, 910-150-015, 910-150-016, 910-150-017, 910-150-020, 910-150-022, 910-150-023, 910-150-024, 910-150-026, 910-160-001, 910-160-007, 910-160-011, 910-160-012, 910-160-013, 910-160-014, 910-160-015, 910-170-005, 910-170-009, 910-170-010, 910-170-011, 910-180-003, 910-180-004, 910-180-005, 910-180-006, 910-180-007, 910-180-008, 910-180-009, 910-180-010, 910-180-011, 910-180-012, 910-180-013, 910-180-014, 910-180-015, 910-180-017, 910-180-018, 910-180-023, 910-180-024, 910-210-008, 910-210-009, 910-210-010, 910-210-011, 910-210-012, 910-210-013, 910-210-014, 910-210-015, 910-210-016, 910-210-017, 910-210-018, 910-210-019, 910-210-020, 910-210-026, 910-210-027, 910-210-028, 910-211-003, 910-211-004, 910-211-005, 910-211-007, 910-220-016, 910-230-001, 910-230-002, 910-230-003, 910-490-016, 910-490-017, 910-500-001, 910-500-002, and 910-500-005.

Owner/Applicant:	Kleinfelder, Inc. 770 First Avenue, Suite 400 San Diego, CA 92101 (909) 793-2691
Principal Investigator**:**	HELIX Environmental Planning, Inc. 7578 El Cajon Blvd. La Mesa, CA 91942 (619) 462-1515
Report Summary:	The purpose of this report is to summarize the findings of a biological resource technical study and analyze Project impacts in light of the California Environmental Quality Act (CEQA) and Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The approximately 92.53-acre Study Area was previously surveyed for burrowing owl (*Athene cunicularia*), MSHCP riparian/riverine and Vernal Pool resources, sensitive plants, and aquatic resources. Current surveys included verifying vegetation mapping and aquatic resource delineation, a burrowing owl survey, and focused wet/dry season surveys for fairy shrimp. No special-status plants were observed in the Study Area. Three sensitive animals, which are MSHCP covered species, were observed: Cooper's hawk (*Accipiter cooperi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). Ten additional special-status animal species have high or moderate potential to occur in the Study Area. The aquatic resources delineation resulted in mapping various MSHCP riparian/riverine features in thirteen drainages.
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EXECUTIVE SUMMARY

The Madison Avenue Street Improvements Project (Project) is located within the Southwest Area Plan of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), and portions of the Project site are located within or adjacent to MSHCP Criteria Cells 6409, 6525, and 6528. Implementation of the proposed Project does not effect the conservation goals for the MSHCP Criteria Cells it is in. Proposed or existing MSHCP Cores and Linkages and conserved land do not occur within the Study Area, which includes the proposed Project plus a 100-foot buffer, and the Project is not adjacent to conserved areas. Surveys conducted within the Study Area include general biological surveys, aquatic resource delineations, MSHCP riparian/riverine and Vernal Pool habitat assessment, rare plant surveys, fairy shrimp surveys, and burrowing owl (BUOW) surveys. Thirteen drainages and swales, and nine shallow depressions occur in the Study Area. Ten of these drainages are riparian/riverine features, but no MSHCP riparian/riverine species were observed. No BUOW, listed fairy shrimp, or special-status plant species were observed during surveys. Three MSHCP covered animal species were observed. Project mitigation for special-status animals include pre-construction nesting bird and BUOW surveys, and Crotch's bumble bee (*Bombus crotchii*) surveys.

The Project would result in permanent and temporary impacts to 60.27 acres of land of which more than half consists of existing disturbed and developed lands that primarily occur as roadways (unimproved and improved). Given that the project is the widening of an existing roadway, most of these impacts occur to Developed/Disturbed Lands (residential/urban/exotic). Project impacts to MSHCP Riparian resources include 0.05 acre of mulefat scrub, 0.07 acre of southern willow scrub, and 0.03 acre of tamarisk scrub. Habitat mitigation consists of payment of the MSHCP mitigation fee.

The Project would also result in permanent impacts to 0.18 acre of non-wetland waters of the State and 0.15 acre of wetland waters of the State, as well as temporary impacts to 0.26 acre of non-wetland waters of the State and 0.03 acre of wetland waters of the State regulated by the Regional Water Quality Control Board (RWQCB) pursuant to CWA Section 401. The Project would result in permanent impacts to 0.21 acre of streambed and 0.12 acre of riparian habitat regulated by the California Department of Fish and Wildlife (CDFW) pursuant to California Fish and Game (CFG) Code Sections 1600 et seq., and temporary impacts to 0.25 acre of streambed and 0.03 acre of riparian habitat. In addition, the Project would result in permanent impacts to 0.20 acre of riverine resources and 0.12 acre of MSHCP riparian resources. Temporary impacts would occur to 0.25 acre of riverine resources and 0.03 acre of riparian resources. Mitigation for permanent impacts is proposed to occur at a minimum 1:1 ratio, with the final ratio to be determined during the negotiation with the resource agencies during the permitting process. Mitigation is proposed to occur via the purchase of re-establishment and rehabilitation credits at an agency approved mitigation bank, the purchase of preservation credits at the Barry Jones Mitigation Bank (aka Skunk Hollow), restoration and improvements to the features within and adjacent to the Study Area, or permittee-responsible off-site mitigation at a property owned by the City. Temporary impacts will be restored to pre-project conditions.

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1.0 INTRODUCTION

This report describes the results of a general biological resources assessment (GBRA) study conducted by HELIX Environmental Planning, Inc. (HELIX) for Kleinfelder, Inc.'s proposed Madison Avenue Street Improvements Project (Project), which includes the widening of Madison Avenue to the City's "Secondary Arterial Highway" (64' from curb-to-curb) design standards as identified in the City of Murrieta's General Plan Circulation Element. As work would occur within the existing roadway, the Project includes a temporary detour route and laydown areas. The Project refers to the area of potential permanent and temporary impacts and includes direct impacts, staging areas, and temporary travel routes for both construction equipment and daily traffic detours while the Study Area includes the Project site and a 100-foot buffer. The purpose of this report is to document the existing biological conditions within an approximately 92.53-acre Study Area and provide an analysis of potential impacts on sensitive biological resources with respect to local, State, and federal policy. Specifically, the Project would result in unavoidable impacts on MSHCP riparian/riverine and aquatic resources. In addition, three MSHCP-covered animal species were observed in the Study Area: Cooper's hawk (*Accipiter cooperi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). Ten additional special-status animal species have high or moderate potential to occur in the Study Area.

The Project includes the widening of Madison Avenue to match the City's General Plan Circulation Element. The improvement/construction of circulation element roadways are Covered Activities within Criteria Areas, as are the operation and Maintenance Activities conducted for these facilities. The benefit of being a Covered Activity is in receiving Take Authorization under the MSHCP. Additionally, roads within the Project are not on the MSHCP's list of roads with special environmental issues.

The purpose of this report is to document the results of a biological resource technical study, and to analyze the potential impacts of the Project pursuant to the requirement of the adopted western Riverside MSHCP (RCTLMA 2003), and the California Environmental Quality Act (CEQA). The City of Murietta (City) is the CEQA lead agency for the Project.

1.1 Project Area

The proposed Project alignment is located in the southern portion of the City, within southwest Riverside County (County), California (Figure 1, *Regional Location*). The Study Area is located in un-sectioned lands of Township 7 South, Range 3 West, as shown on the U.S. Geological Survey (USGS) 7.5 minute Murrieta Quadrangle (Figure 2, *USGS Topography*). The Project location is directly west of Interstate 15, the major freeway through the City. The proposed improvements follow the existing road alignment of Madison Avenue between the intersections of Guava Street and approximately Golden Gate Circle. Additional improvements will occur on the intersecting Newton-Azrak Street, Fig Street, Larchmont Lane, and Elm Streets between Jefferson Avenue and Hoover Street (Figure 3, *Aerial Photograph*). A temporary construction detour route (i.e., traffic control limits, or access route) will be identified on Fig Street, Hoover Street, and Elm Street; as well as Guava Street, Monroe Avenue, and Newton Azrak Street. The Study Area for the Project encompasses portions of 72 Assessor's Parcel Numbers (APNs) and the Madison Avenue public right-of-way (ROW). The elevation in the Study Area ranges from 1,080 to 1,120 feet (329 to 341 meters) above mean sea level. The Project is located within the Southwest Area Plan of the MSHCP, and portions of the Project site are located within or adjacent to a MSHCP Criteria Cells 6409, 6525, and 6528, but does not include any MSHCP Cores and Linkages,

conserved land, or agricultural preserves (Figure 4, *MSHCP Criteria Cells*). The Project site occurs outside of U.S. Fish and Wildlife Service- (USFWS) designated critical habitat (USFWS 2024b).

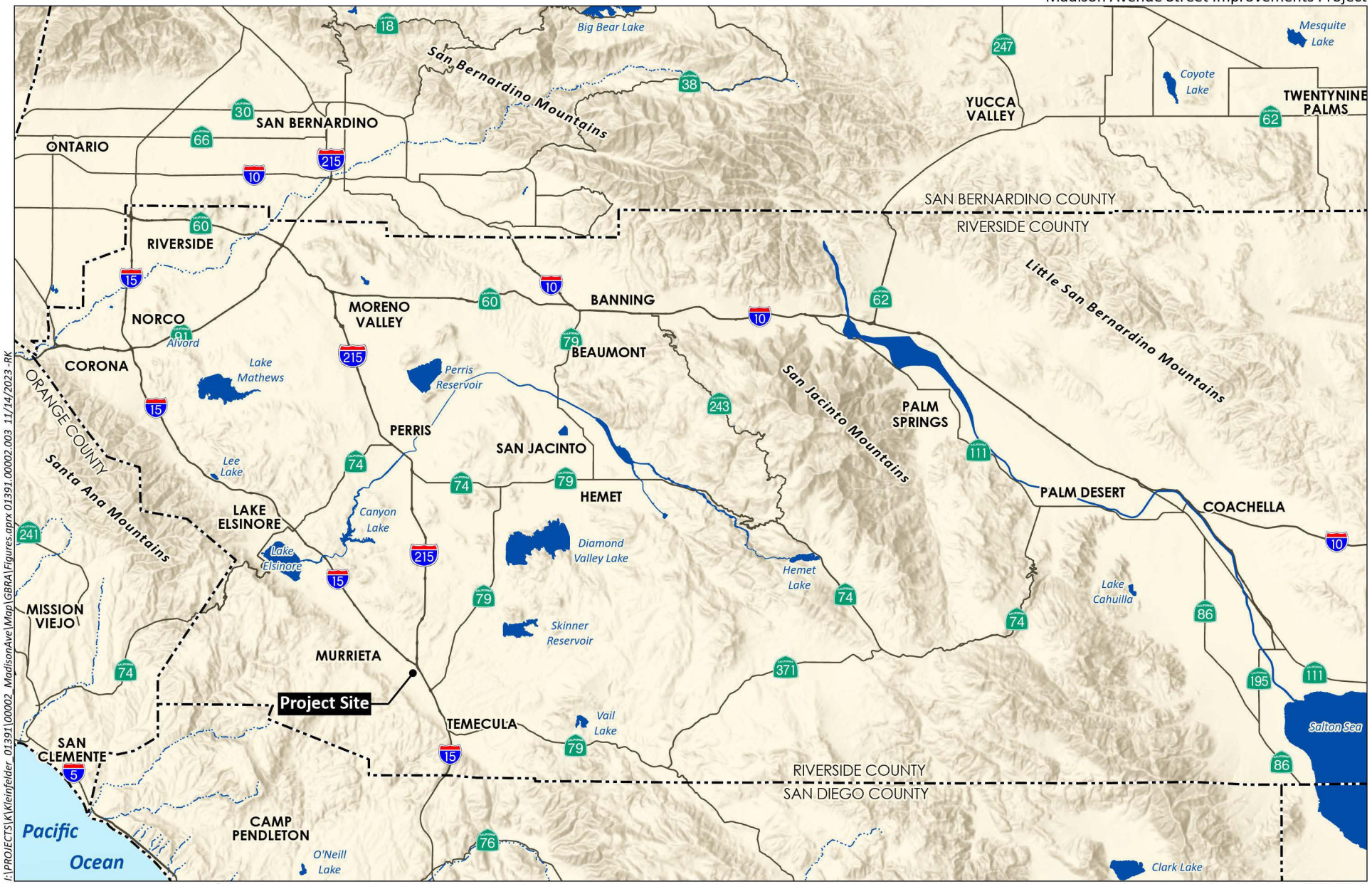
1.2 Project Description

The City of Murrieta (City) proposed Madison Avenue Street Improvements project has been planned to improve accessibility to the South Madison Avenue Business Corridor, as identified in the City's General Plan 2035 Circulation Element (City 2020). Consistent with General Plan 2035, which anticipates increased commercial activity throughout the project corridor as part of the City's economic development goals, the proposed Project would provide improved access to the area through: 1) an alternative north/south circulation option between Jefferson Avenue (to the west) and Monroe Avenue (to the east); and 2) alternative routes to the surrounding Murrieta Hot Springs Road, Jefferson Avenue, Winchester Road, Interstate 215, and Interstate 15 roadway network (Figure 5, *Site Plan*). In addition, enhanced safety would be provided by improving sight distance lines (following grade changes which adhere to roadway design standards) as well as additional sidewalks and streetlights at existing developed frontage and intersections.

The proposed Project roadway alignment is located in the southern portion of the City of Murrieta, within southwest Riverside County, California (Figure 1). The Project location is directly west of Interstate 15, a major freeway through the City. The proposed improvements would follow the existing horizontal road alignment of Madison Avenue between the intersections of Guava Street and Elm Street and would include additional improvements on the intersecting Fig Street, Larchmont Lane, and Elm Street between Jefferson Avenue and Hoover Street (Figure 3). A temporary construction detour route would be provided on Fig Street, Hoover Street, Elm Street, Guava Street, Monroe Avenue and Newton-Azrak Street. Base material (gravel) will be placed upon the detour route. Once the project is complete, the base material of the detour route will be removed.

The proposed Project, which has been preliminarily designed to a 70 percent completed plans level, involves the development of an approximately 1.1-mile (5,900 linear feet) segment of Madison Avenue (from the intersection at Guava Street to a transitional connection with existing pavement south of Elm Street, and no further than Golden Gate Circle). In order to minimize the need for additional area outside of the existing 60-foot right-of-way (ROW), the project would follow the existing roadway along its entire length.

Construction would be to the City's Secondary Highway Design Standards (as provided on the City's Circulation Element) with a full ultimate ROW width of 88-feet and full ultimate curb-to-curb width of 64-feet. The project roadway would be full-width between Guava Street and Newton-Azrak Street, and partial-width from Newton-Azrak Street to Elm Street. The partial width segment would consist of full-width improvements on the western half of the roadway plus 12-feet of paving and a 10-foot graded shoulder on the eastern half of the roadway, resulting in a total pavement width of 44-feet. The roadway would be striped for two vehicular travel lanes, one in each direction, a center two-way-left-turn-lane, and two striped 5-foot-wide Class 2 bike lanes adjacent to the travel lanes. The southbound lanes would feature a concrete curb and gutter, and a 12' parkway with a 5' wide non-contiguous sidewalk located 7' behind face of curb in portions of the project. The northbound lanes would feature a 6-inch AC berm, and 10-foot-wide graded parkway.



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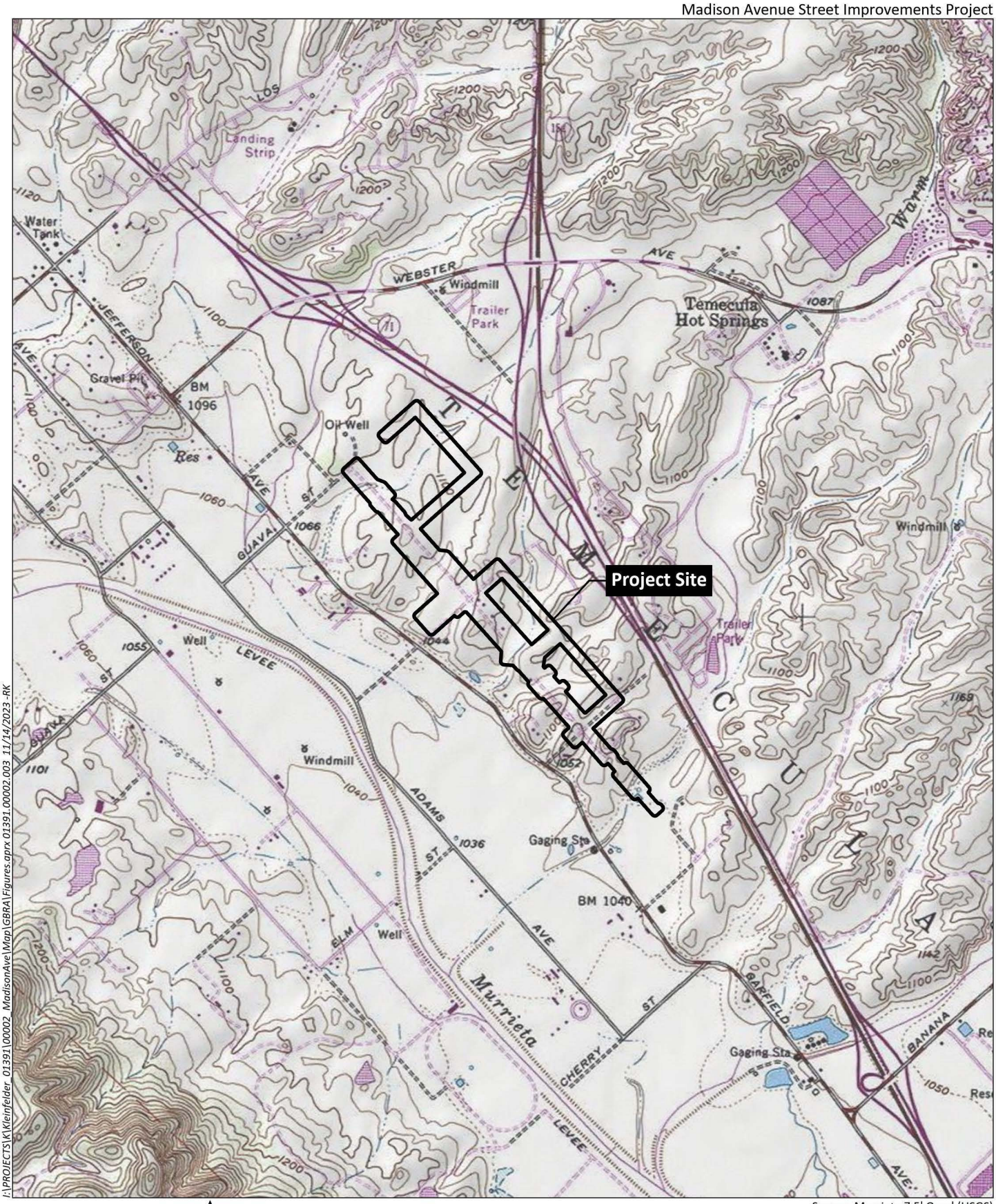
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Source: Base Map Layers (ESRI, 2013)

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Regional Location

Figure 1



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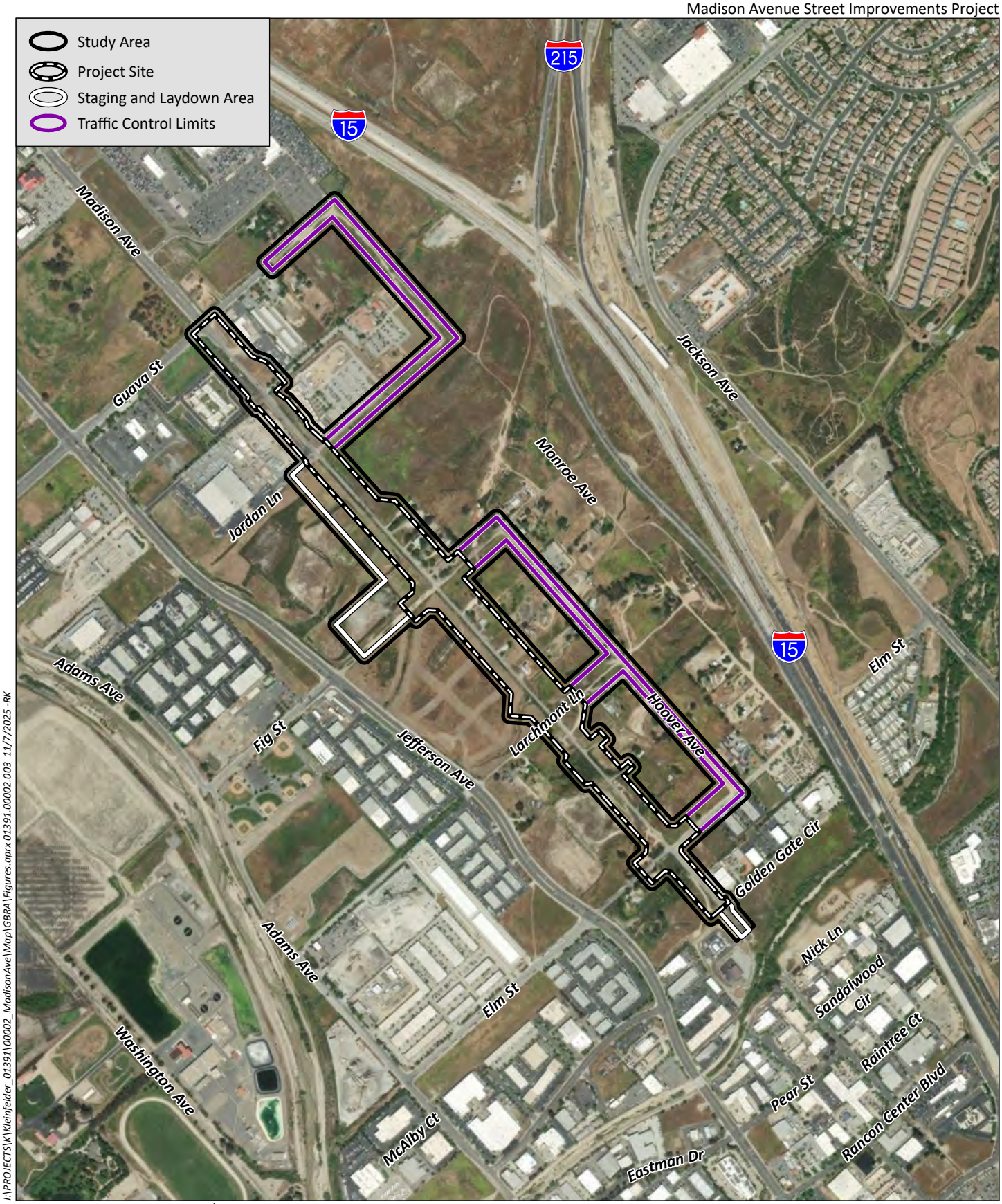
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Source: Murrieta 7.5' Quad (USGS)

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USGS Topography

Figure 2



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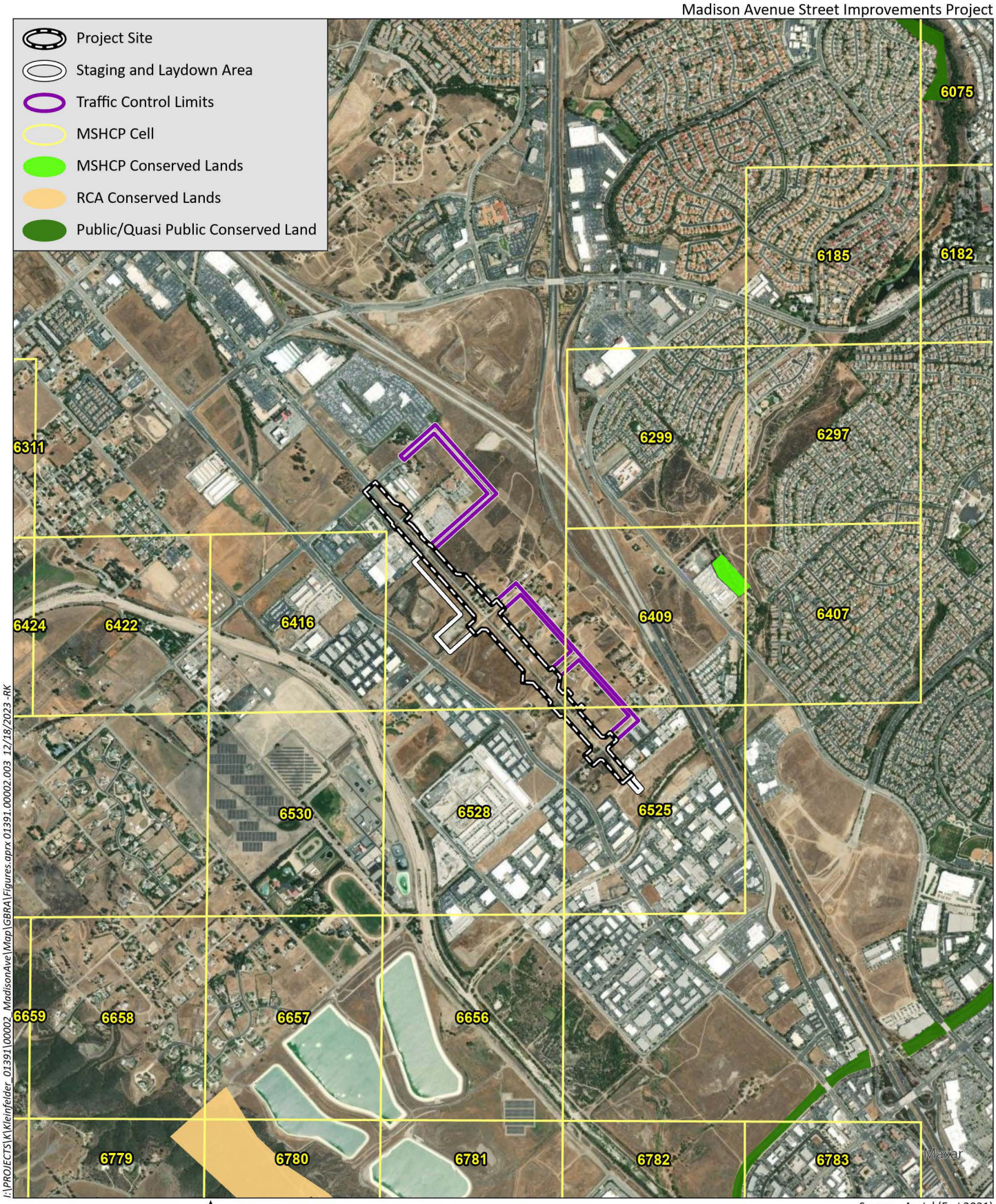
Source: Aerial (Esri 2021)

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Aerial Photograph

Figure 3

Madison Avenue Street Improvements Project



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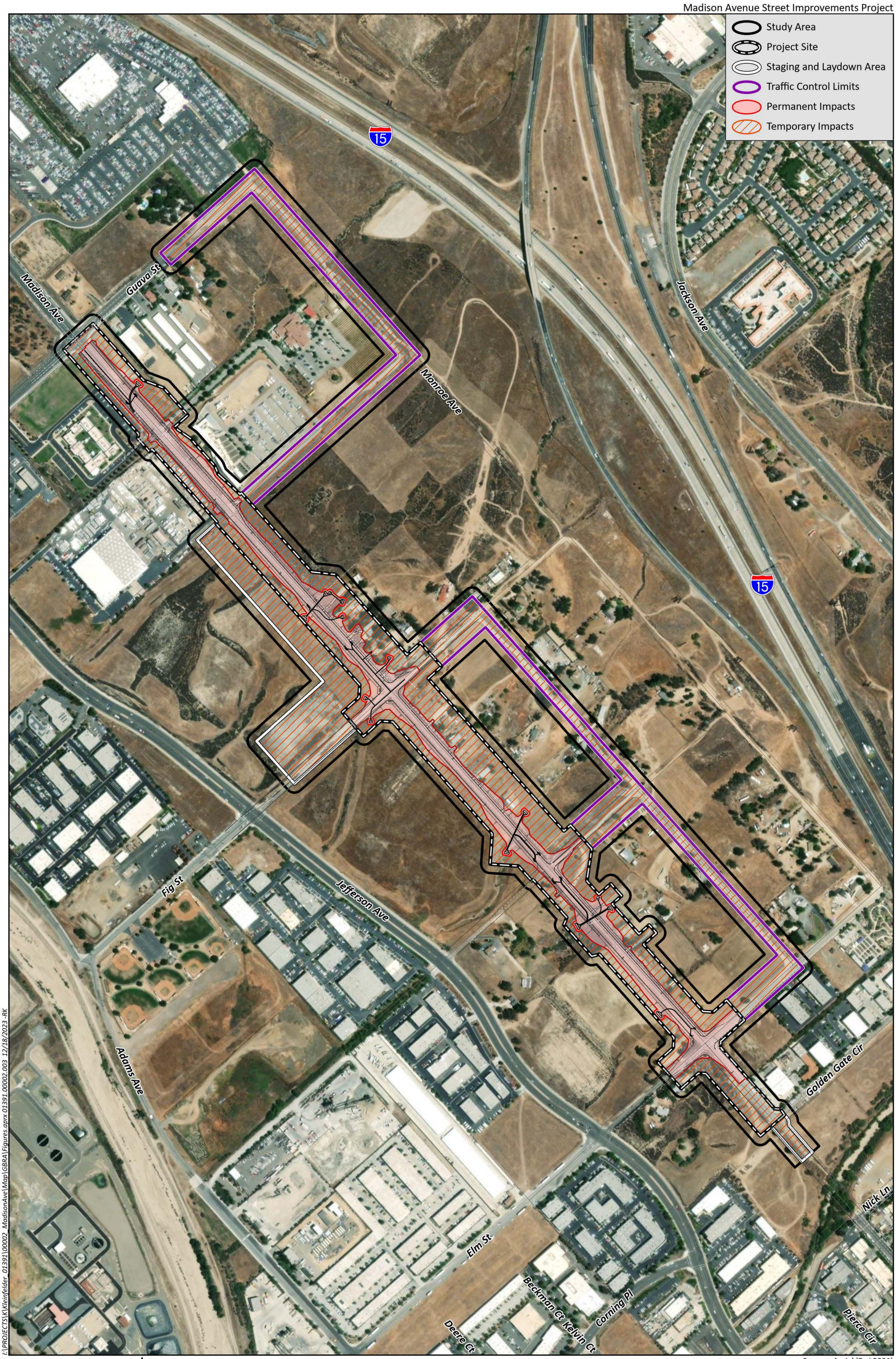
Source: Aerial (Esri 2021)

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MSHCP Criteria Cells

Figure 4

Madison Avenue Street Improvements Project



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0 500 Feet

Source: Aerial (Esri 2021)

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Site Plan

Figure 5

The proposed project southern alignment would terminate a minimum of 300-feet north of the location of a potential future bridge over Warm Springs Creek. Upon completion (pursuant to separate analysis and permitting), the bridge would connect Madison Avenue from Golden Gate Circle to Nick Lane. The bridge would consist of two 12-foot-wide lanes in each direction, a painted median, and 5-foot-wide sidewalks on each side. Additional development associated with the proposed project would include:

- Streetlights. Approximately 8 streetlights (32' feet in height) would be required at cross street intersections (where warranted for safety).

- Sidewalks. Approximately 3,200 linear feet of sidewalks would be provided adjacent to existing developed properties along Madison Avenue.

- Utilities. Utilities would be installed within the roadbed during construction activities, including but not limited to water, sewer, gas, electrical, and storm drains, in order to provide for efficient and cost-effective development. With the exception of storm drains, utilities would be installed per separate plan by the respective utility provider.

- Stormwater drainage facilities and storm drain crossings. Stormwater drainage facilities would be developed where necessary for efficient and effective off-site conveyance, consistent with the City of Murrieta Stormwater Pollution Prevention Plan.

Project construction is anticipated to commence in 2026 and is anticipated to require approximately 18 months for completion. Access would be maintained for existing businesses, churches, and residences along existing Madison Avenue throughout construction activity.

1.3 General Setting

The Project site is located along the existing Madison Avenue ROW. Madison Avenue is primarily bordered by Business Park and Innovation Zone land uses. The eastern side of Madison Avenue consists of Innovation Zone and the western side consists of Business Park. North of Guava Street, land use is classified as Commercial. Generally, the land use to the north of Warm Springs Creek in the proposed project vicinity consist of vacant land, a church, storage unit facility, residences, a construction business, and other commercial development. A Border Patrol facility is located to the northeast of Madison Avenue and approximately 500 feet southeast of Guava Street. The entire project area lies within Murrieta city limits.

1.4 Soils

The U.S. Department of Agriculture (USDA) web soil survey was reviewed for the types of soil occurring on the Study Area (NRCS 2024a). Soils in the Study Area represent seven soil series which include Arlington, Chino, Grangeville, Greenfield, Hanford, Monserate, and Ramona, as well as Gullied land and Riverwash (Natural Resources Conservation Service [NRCS] 2024a; Figure 6, *Soils*). The Arlington series is comprised of well-drained soils found in coastal and intermediate valleys of southern California. The Chino series is comprised of poorly to somewhat poorly drained soils in the coastal valleys and intermountain valleys of southern California and southern San Joaquin Valley of California. The Grangeville series are somewhat poorly drained soils that formed in moderate course textured alluvium

and are associated with alluvial fans and floodplains. The Greenfield series are well-drained soils associated with alluvial fans and terraces that developed from granitic alluvium. The Hanford series consists of very deep, well drained soils associated with stream bottoms, floodplains, and alluvial fans. Soils in the Monserate series are comprised of moderately well to well drained soils found in the interior valleys in the western part of southern California. The Ramona series which are well-drained soils associated with alluvial fans and terraces that developed on granitic alluvium.

The specific soils present in the Study Area are:

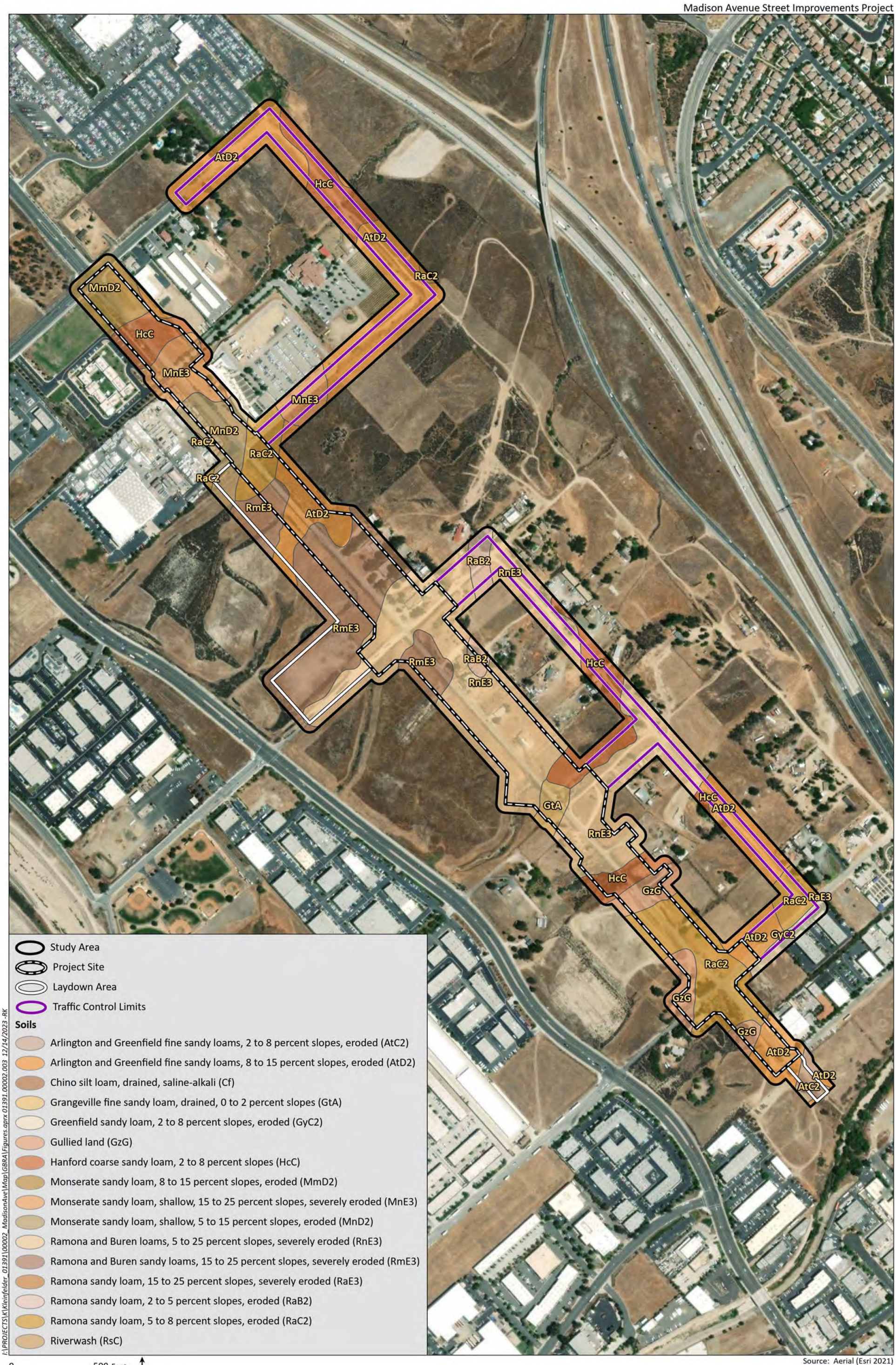
- Arlington and Greenfield fine sandy loams, 2 to 15 percent slopes, eroded;
- Chino silt loam, drained, saline-alkali;
- Grangeville fine sandy loam, drained, 0 to 2 percent slopes;
- Greenfield sandy loam, 2 to 8 percent slopes, eroded;
- Guillied Land;
- Hanford course sandy loam, 2 to 8 percent slopes;
- Monserate sandy loam, 8 to 25 percent slopes, shallow, eroded, and severely eroded;
- Ramona and Buren loams to sandy loams, 5 to 25 percent slopes, severely eroded;
- Ramona sandy loam, 2 to 25 percent slopes, eroded to severely eroded; and
- Riverwash.

1.5 Literature Review and Nomenclature

Before conducting field surveys, HELIX performed a thorough review of relevant maps, databases, and literature pertaining to biological resources known to occur within the project vicinity. Recent and historical aerial imagery were reviewed via Google Earth (Google 2024) in addition to historical and current topographic maps found in the USGS TopoView Database (USGS 2024). Soils maps were acquired via the U.S. Department of Agriculture (USDA) Web Soil Survey database (NRCS 2024a), and other internal HELIX maps of the project and vicinity were acquired and reviewed to obtain updated information on the natural environmental setting.

In addition, a query of special-status species and habitats databases was conducted, including the USFWS Critical Habitat Portal (USFWS 2024a), USFWS Information for Planning and Conservation (IPaC) species records (USFWS 2024b), CDFW California Natural Diversity Database (CNDDB; CDFW 2024a), and California Native Plant Society (CNPS) Rare Plant Inventory (CNPS 2024). The USFWS National Wetlands Inventory (NWI) was also reviewed (USFWS 2024c). Recorded locations of species, habitat types, wetlands, and other resources were mapped and overlaid onto aerial imagery using Geographic Information Systems (GIS). Data pertaining to the MSHCP was also reviewed.

Plants named in this report were identified according to The Jepson Manual: Higher Plants of California (Baldwin et al. 2012) and the Calflora database (2024). Nomenclature also follows the MSHCP (RCTLMA



HELIX Environmental Planning

Soils

Figure 6

2003) for vegetation community classifications, with additional vegetation community information taken from Oberbauer et al. (2008) and Holland (1986) for vegetation, Bradley et al. (2014) for mammals, American Ornithological Society (2023) for birds, the Society for the Center for North American Herpetology (Taggart 2020) for amphibians, and the Butterflies of southern California (Emmel 1973) for butterflies. Names for the sensitivity status of plants are from the California Rare Plant Ranks developed by CNPS (CNPS 2024), and special-status animal names are from the CDFW CNDDB Special Animal List (CDFW 2024b).

1.6 Survey Limitations

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of animal species identified are not necessarily comprehensive accounts of all species that utilize the Project site, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special-status and have the potential to occur in the Project site; however, are still addressed in this report.

2.0 VEGETATION MAPPING

2.1 Methods

A general habitat assessment and vegetation mapping was conducted by HELIX biologist Amy Lee on April 20, 2018. HELIX biologists Rob Hogenauer and Kacee Morrell conducted an updated general biological survey of the Study Area on October 30, 2023. Vegetation communities within the Study Area were mapped on an aerial photograph (1" = 150' scale).

Vegetation mapped within the Study Area followed Holland (1986) as modified by Oberbauer et al. (2008) along with the vegetation communities in the MSHCP (RCTLMA 2003). A minimum mapping unit size of 0.01 acre was used to map habitat. A list of all plant and animal species observed or detected within the Study Area was prepared. Plant species were identified in the field or later in the laboratory with the aid of voucher specimens (Appendix A, *Plant Species Observed*). Animals were identified in the field by direct visual observation with the aid of binoculars or indirectly by detection of calls, tracks, burrows, or scat (Appendix B, *Animal Species Observed or Detected*). Special-status plant species potential for occurrence is further discussed in Appendix C, *Special-Status Plant Species Potential to Occur*. Special-status animal species with potential for occurrence is further discussed in Appendix D, *Special-Status Animal Species Potential to Occur*.

2.2 Results

There are six MSHCP vegetation communities present within the Study Area (Table 1, *Vegetation Communities and Land Covers*; Figure 7a-e, *Vegetation Communities*). Residential/Urban/Exotic land does not distinguish between disturbed habitat and urban/developed land, which are described using the Holland/Oberbauer code distribution. Vegetation communities and land covers in the Study Area are southern willow scrub, mulefat scrub, Riversidean sage scrub, non-native grassland, tamarisk scrub, residential/urban/exotic (disturbed), and residential/urban/exotic (developed). A brief description of each community/land cover within the Study Area is provided below.

Table 1

VEGETATION COMMUNITIES AND LAND COVERS

MSHCP Vegetation Community Classification[1]		Holland/Oberbauer[2]	Acres in Study Area[3]
Collapsed	**Uncollapsed**		
Riparian Scrub, Woodland, Forest	Southern Willow Scrub	Southern Willow Scrub (63320)	0.07
Riparian Scrub, Woodland, Forest	Mulefat Scrub	Mule Fat Scrub (63310)	0.06
Coastal Sage Scrub	Riversidean Sage Scrub	Riversidean Sage Scrub (32700)	9.14
Grassland	Non-native Grassland	Non-native Grassland (42200)	21.56
Riparian Scrub, Woodland, Forest	Tamarisk Scrub	Non-native Woodland (79000)	0.29
Developed/Disturbed Land	Residential/Urban/Exotic	Disturbed Habitat (11300)	28.02
Developed/Disturbed Land	Residential/Urban/Exotic	Urban/Developed (12000)	33.39
		Total	**92.53**

1 Collapsed and uncollapsed community classifications are terms from MSHCP Table 2-1.
2 Holland/Oberbauer Element Code in parentheses.
3 Acreages are rounded to the nearest hundredths.

2.2.1 Southern Willow Scrub

Southern willow scrub consists of dense, broadleaved, winter-deciduous stands of trees dominated by shrubby willows (*Salix* spp.) in association with mule fat (*Baccharis salicifolia*), and with scattered Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*). This vegetation community generally occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Within the Study Area, this vegetation community consists of a patch of arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*), as well as Fremont cottonwood and mule fat growing within a roadside flood control facility. Tamarisk (*Tamarix* spp.) and herbaceous weeds are also present in this vegetation community. Approximately 0.07 acre of southern willow scrub occurs within the Study Area.

2.2.2 Mulefat Scrub

Mulefat scrub is a shrubby riparian scrub community dominated by mule fat and interspersed with small willows, often lacking diversity in species numbers. This vegetation community occurs along intermittent stream channels within coarse substrates and moderate depth to the water table. Within the Study Area, mulefat scrub is dominated by mule fat. Herbaceous plants in the Study Area include western ragweed (*Ambrosia psilostachya*) and cocklebur (*Xanthium strumarium*). Approximately 0.06 acre of mulefat scrub occurs within the Study Area, growing within a roadside flood control facility and the off-site portion of a stream crossing the Project.

2.2.3 Riversidean Sage Scrub

Riversidean sage scrub is the driest expression of coastal sage scrub, typically found on dry steep slopes, severely drained soils, or clays that release stored soil moisture slowly. Typical stands are open and

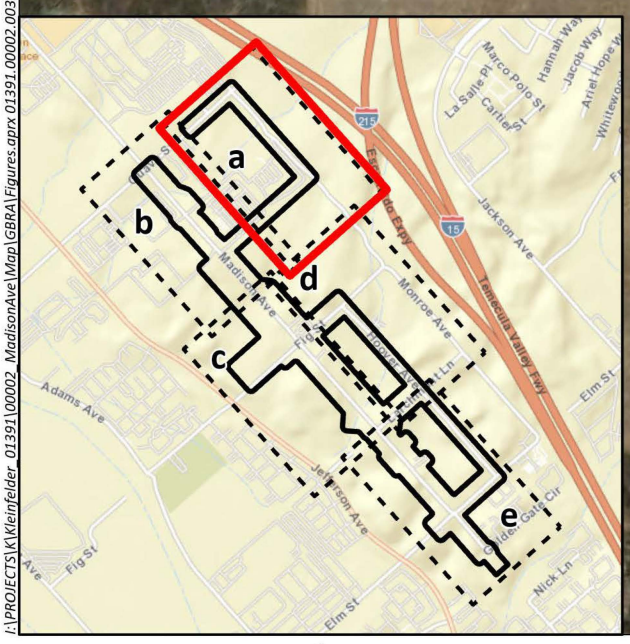
Madison Avenue Street Improvements Project

Study Area
Traffic Control Limits

Vegetation

Riversidean Sage Scrub
Non-native Grassland
Tamarisk Scrub
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

Addison Ln
Guava St
Monroe Ave
I 215



0 150 Feet

Source: Aerial (Esri 2021)

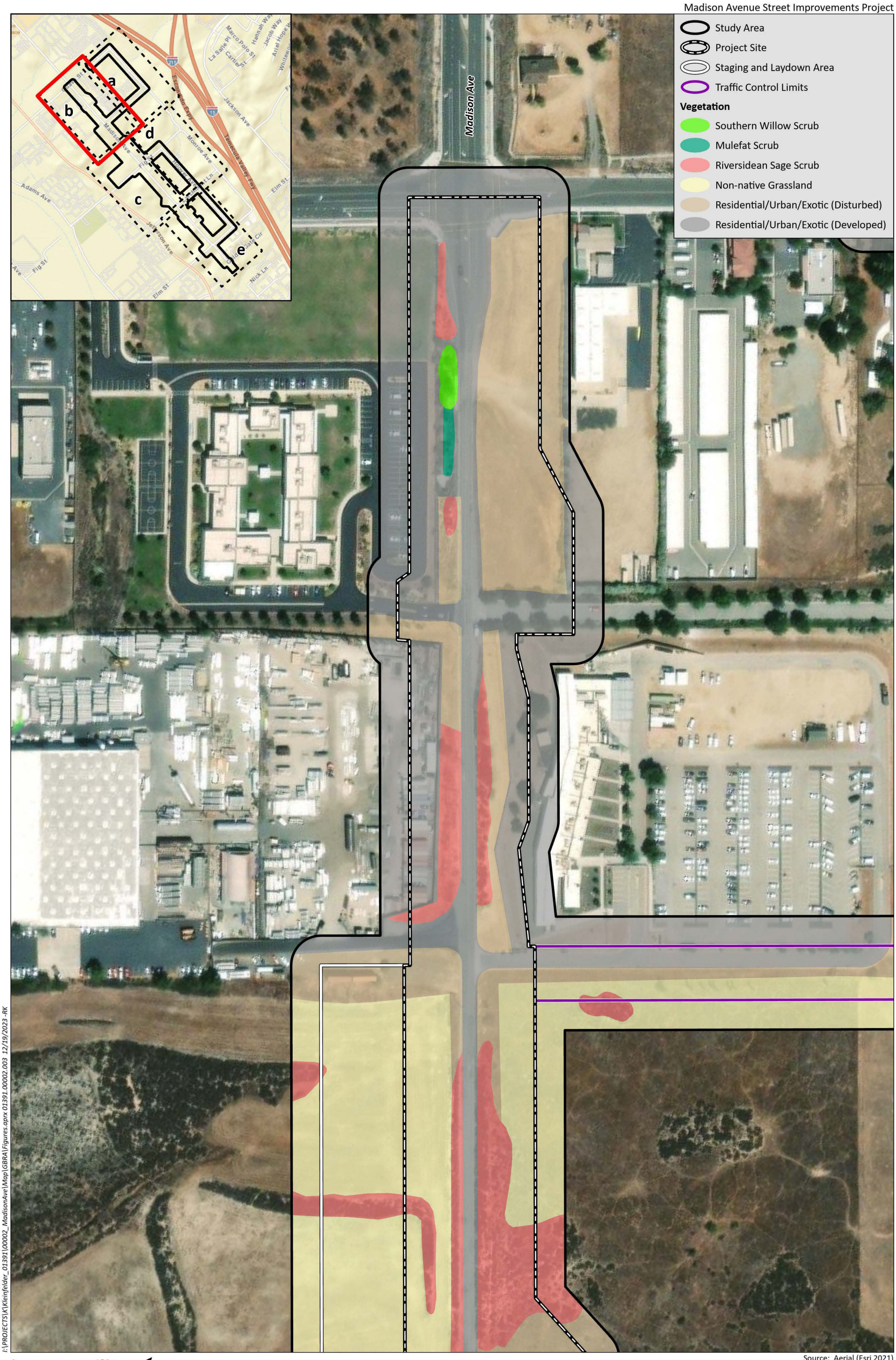
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HELIX Environmental Planning

Vegetation Communities

Figure 7a

Madison Avenue Street Improvements Project



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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities

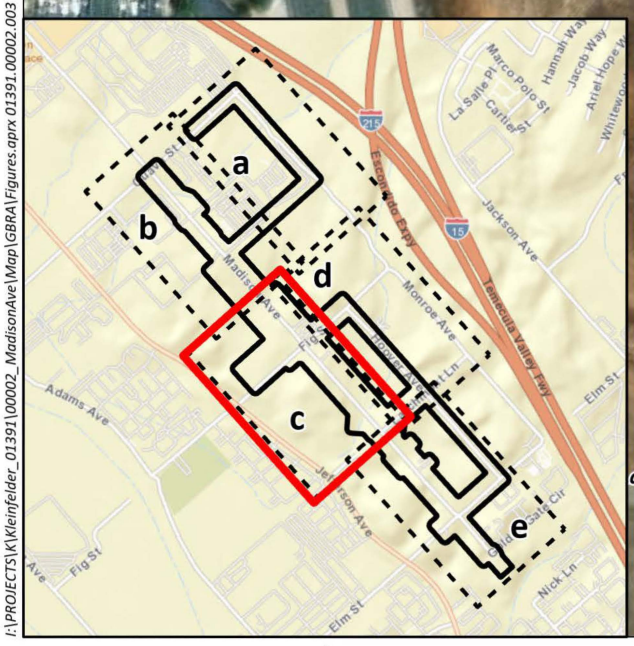
Figure 7b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits

Vegetation

Mulefat Scrub
Riversidean Sage Scrub
Non-native Grassland
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

Fig St
Jefferson Ave
Madison Ave
Larchmont Ln



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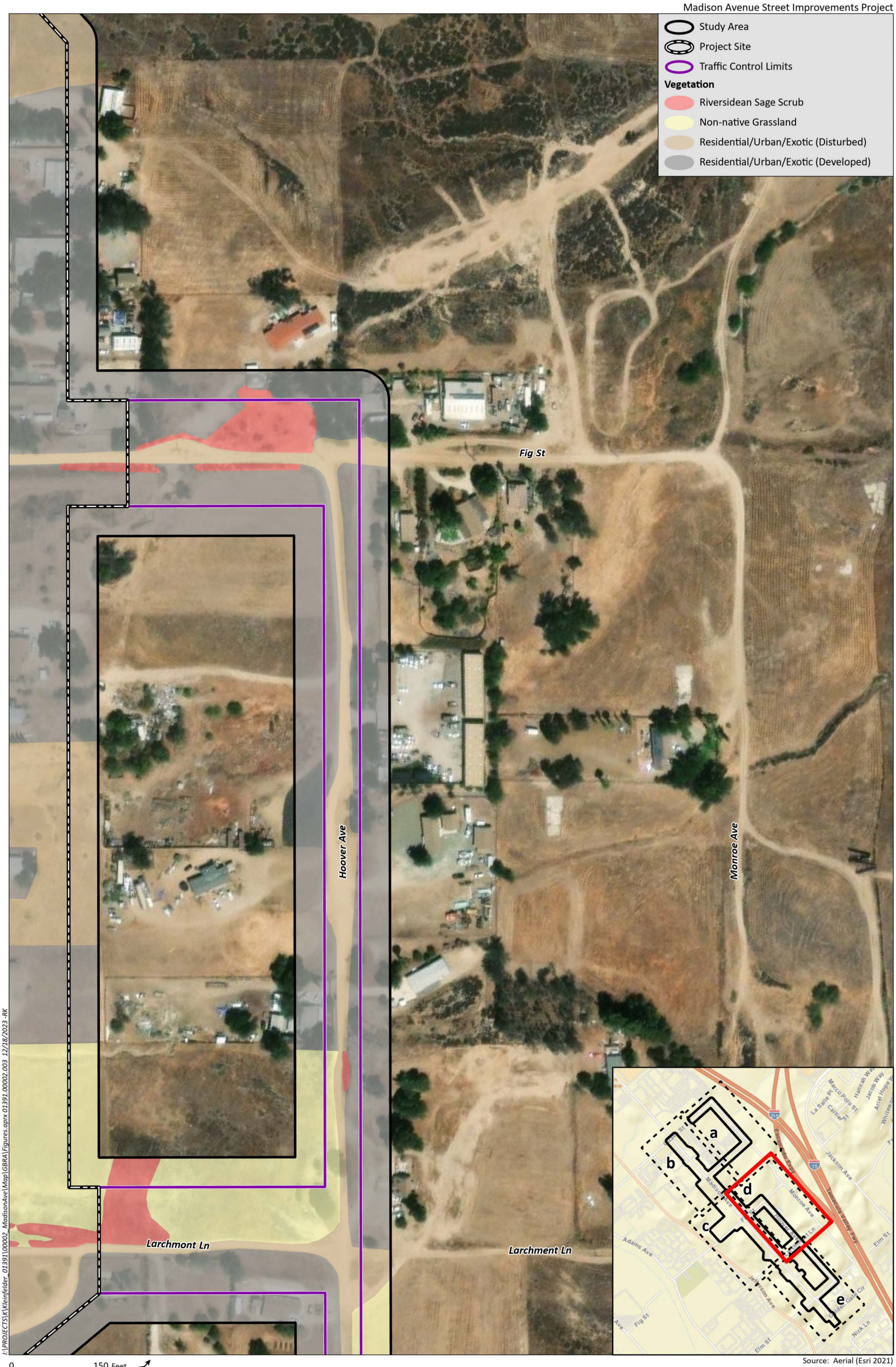
Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities

Figure 7c

Madison Avenue Street Improvements Project



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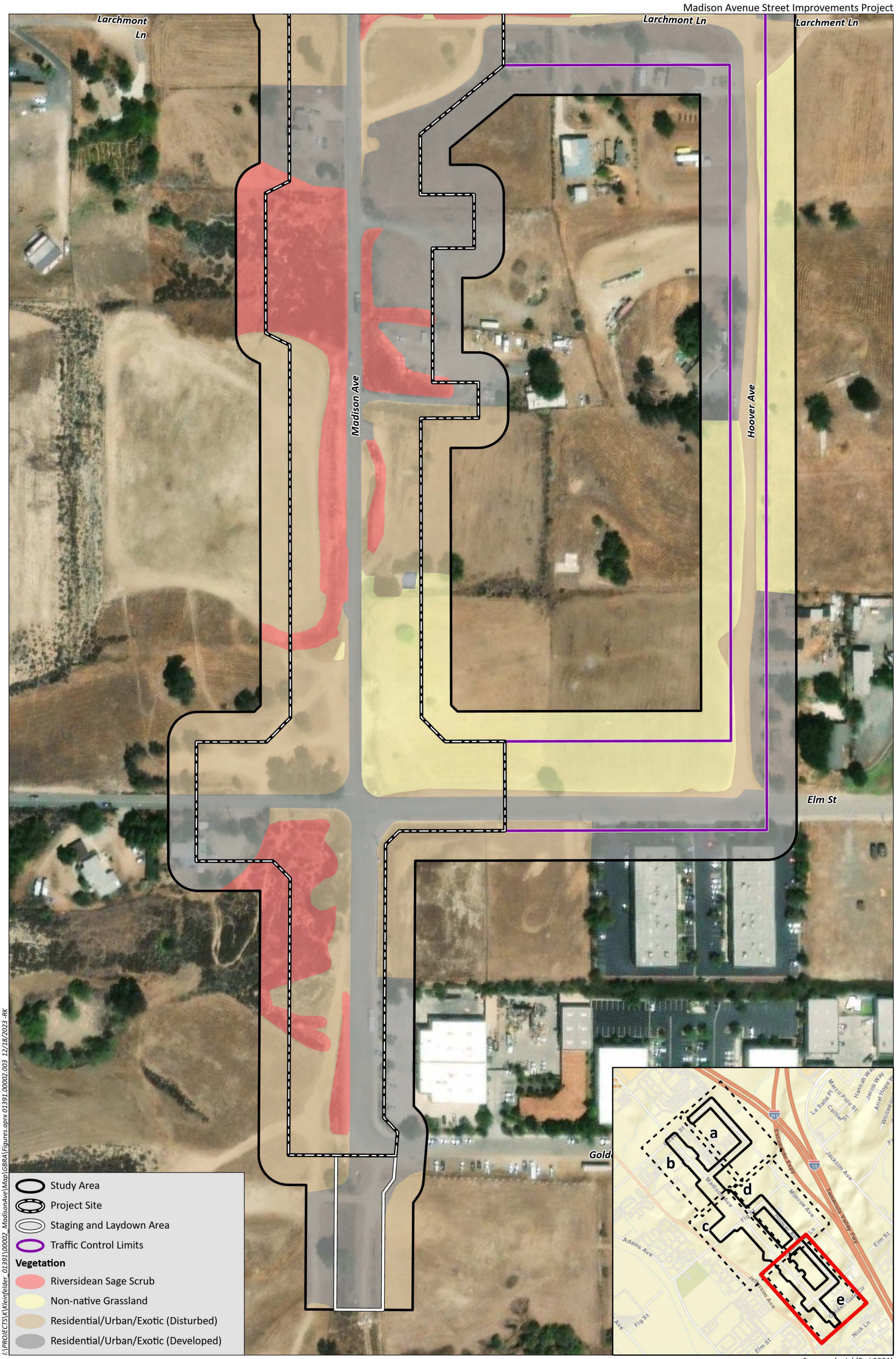
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities

Figure 7d



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HELIX Environmental Planning

Vegetation Communities

Figure 7e

dominated by California buckwheat (*Eriogonum fasciculatum),* brittlebush (*Encelia farinosa*), California sagebrush (*Artemisia californica*), and foxtail chess (*Bromus madritensis*). Riversidean sage scrub within the Study Area is dense to open and dominated by California buckwheat. Other species occurring in this vegetation community include black sage (*Salvia mellifera*), white sage (*Salvia apiana*), Great Basin sagebrush (*Artemisia tridentata*), brittlebush, mule fat, coastal prickly pear (*Opuntia littoralis*), deerweed (*Acmispon glaber*), fourwing saltbush (*Atriplex canescens*), and dove weed (*Croton setigerus*). This vegetation community includes a mix of non-native plants, including foxtail chess, common ripgut grass (*Bromus diandrus*), oats (*Avena* sp.), tamarisk, yellow sweet clover (*Melilotus officinalis*), and short-pod mustard (*Hirschfeldia incana*). Approximately 9.14 acres of Riversidean sage scrub occur in patches throughout the Study Area.

2.2.4 Non-Native Grassland

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. Characteristic species include oats (*Avena* spp.), brome grasses (*Bromus* spp.), and mustards (*Brassica* spp.). Most of the annual introduced species within the non-native grassland originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California. Intensive grazing and agricultural practices, combined with severe droughts in California, contributed to the successful invasion and establishment of these non-native species and the replacement of native grasslands with annual-dominated non-native grasslands. Within the Study Area, non-native grassland habitat is dominated by a mix of slender oats (*Avena barbata*), wild oats (*Avena fatua*), Bermuda grass (*Cynodon dactylon*), common ripgut grass, foxtail chess, and fescue (*Festuca microstachys*). This habitat contained a variety of native and non-native herbs and scattered sparse shrubs including red stem filaree (*Erodium cicutarium*), scarlet pimpernel *(Anagallis arvensis),* winter vetch (*Vicia villosa*) and California buckwheat. Approximately 21.56 acres of non-native grassland occur in open fields in the central portion of the Study Area.

2.2.5 Tamarisk Scrub

Tamarisk scrub typically comprises shrubs and/or small trees of exotic tamarisk species but may also contain willows, salt bushes (*Atriplex* spp.), catclaw acacia (*Senegalia greggii*), and salt grass (*Distichlis spicata*). This habitat occurs along intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a drainage (Holland 1986). In the Study Area, other species occurring in tamarisk scrub include non-native grasses, buckwheat, tocalote (*Centaurea melitensis*), and short pod mustard. Patches of tamarisk totaling 0.29 acre occur in the northeast portion of the Study Area.

2.2.6 Residential/Urban/Exotic (Disturbed)

Residential/urban/exotic land, with reference to disturbed habitat includes land cleared of vegetation (e.g., dirt roads), land containing non-native plant species, such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage that removes any capability of providing viable habitat. Within the Study Area, most residential/urban/exotic land (disturbed) consists of bare ground with scattered short-pod mustard (*Hirschfeldia incana*) and annual non-native species, including tocalote, filaree (*Erodium*

cicutarium), foxtail chess, common ripgut grass, stinknet (*Oncosiphon piluliferum*), dove weed, pigweed (*Chenopodium album*), Russian thistle (*Salsola tragus*), London rocket (*Sisymbrium irio*), and common fiddleneck (*Amsinckia menziesii*). Residential/urban/exotic land (disturbed) includes cottonwood, mule fat, tamarisk, Peruvian pepper tree (*Schinus molle*), olive (*Olea europaea*), blue elderberry (*Sambucus nigra* ssp*. caerulea*), palm trees, and river red gum (*Eucalyptus camaldulensis*). Residential/urban/exotic land (disturbed) covers approximately 28.02 acres of the Study Area, consisting of dirt roads, disturbed lots, and open fields that are not dominated by grasses.

2.2.7 Residential/Urban/Exotic (Developed)

Residential/urban/exotic land, with reference to developed land includes areas that have been constructed upon or otherwise covered with a permanent, unnatural surface and may include, for example, structures, pavement, irrigated landscaping, or hardscape to the extent that no natural land is evident. These areas no longer support native or naturalized vegetation. Developed portions of the Study Area consist of paved roads, commercial and residential development and associated landscaping, a school, a border patrol facility, a vineyard, and a landscaped slope dominated by brittlebush. A total of 33.39 acres of Residential/urban/exotic land (developed) occurs in the Study Area.

2.3 Impacts

The proposed Project would result in 16.06 acres of permanent impacts, 21.26 acres of temporary impacts; in addition to 8.08 acres of temporary impacts for construction staging and laydown areas and 14.87 acres of temporary impacts for detours. Vegetation and land use impacts consist of 0.07 acre of southern willow scrub, 0.05 acre of mulefat scrub, 6.98 acres of Riversidean sage scrub, 13.62 acres of non-native grassland, 0.28 acre of tamarisk scrub, 19.94 acres of residential/urban/exotic (disturbed), and 19.33 acres of residential/urban/exotic (developed); See Table 2, *Vegetation Communities and Land Covers Impacts for the Madison Avenue Street Improvements Project;* Figure 8a-e, *Vegetation Communities/Impacts*).

Table 2
VEGETATION COMMUNITIES AND LAND COVERS IMPACTS FOR THE MADISON AVENUE STREET IMPROVEMENTS PROJECT[1]

Habitat	Existing (Study Area)	Permanent Impacts for Project Site	Temporary Impacts for Project Site	Temporary Impacts for Staging and Laydown Areas	Temporary Impacts for Detour Route	Total Impacts	Avoided
Southern Willow Scrub	0.07	0.07	0	0	0	0.07	0
Mulefat Scrub	0.06	0.05	0	0	0	0.05	0.01
Riversidean Sage Scrub	9.14	3.51	2.1	0.56	0.81	6.98	2.16
Non-native Grassland	21.56	2.16	5.14	3.61	2.71	13.62	7.94
Tamarisk Scrub	0.29	0	0	0	0.28	0.28	0.01
Residential/Urban/Exotic (Disturbed)	28.02	3.96	5.89	3.44	6.65	19.94	8.08
Residential/Urban/Exotic (Developed)	33.39	6.31	8.13	0.47	4.42	19.33	14.06
Total	**92.53**	**16.06**	**21.26**	**8.08**	**14.87**	**60.27**	**32.26**

[1] Acreages are rounded to the nearest hundredths.

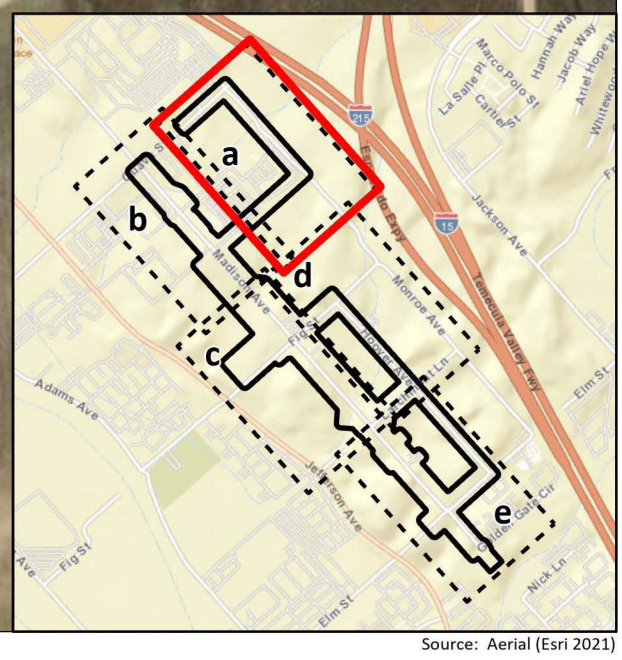
Madison Avenue Street Improvements Project

Study Area
Traffic Control Limits
Temporary Impacts

Vegetation

Riversidean Sage Scrub
Non-native Grassland
Tamarisk Scrub
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

Addison Ln
Guava St
Monroe Ave



Source: Aerial (Esri 2021)

0 150 Feet

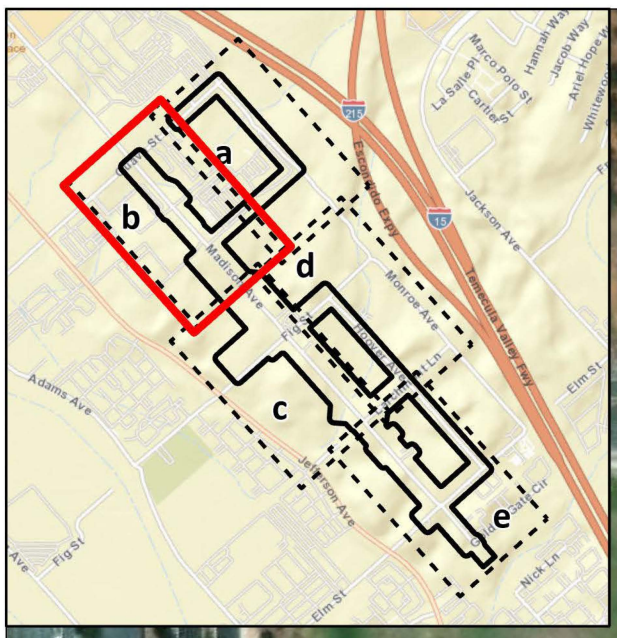
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HELIX Environmental Planning

Vegetation Communities/Impacts

Figure 8a

Madison Avenue Street Improvements Project



Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts

Vegetation

Southern Willow Scrub
Mulefat Scrub
Riversidean Sage Scrub
Non-native Grassland
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities/Impacts

Figure 8b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts

Vegetation

Mulefat Scrub
Riversidean Sage Scrub
Non-native Grassland
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

Fig St
Jefferson Ave
Madison Ave
Larchmont Ln
archmont Ln

a
b
c
d
e

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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities/Impacts

Figure 8c

Madison Avenue Street Improvements Project

Study Area
Project Site
Traffic Control Limits
Permanent Impacts
Temporary Impacts

Vegetation

Riversidean Sage Scrub
Non-native Grassland
Residential/Urban/Exotic (Disturbed)
Residential/Urban/Exotic (Developed)

Fig St
Hoover Ave
Monroe Ave
Larchmont Ln
Larchment Ln

a
b
c
d
e

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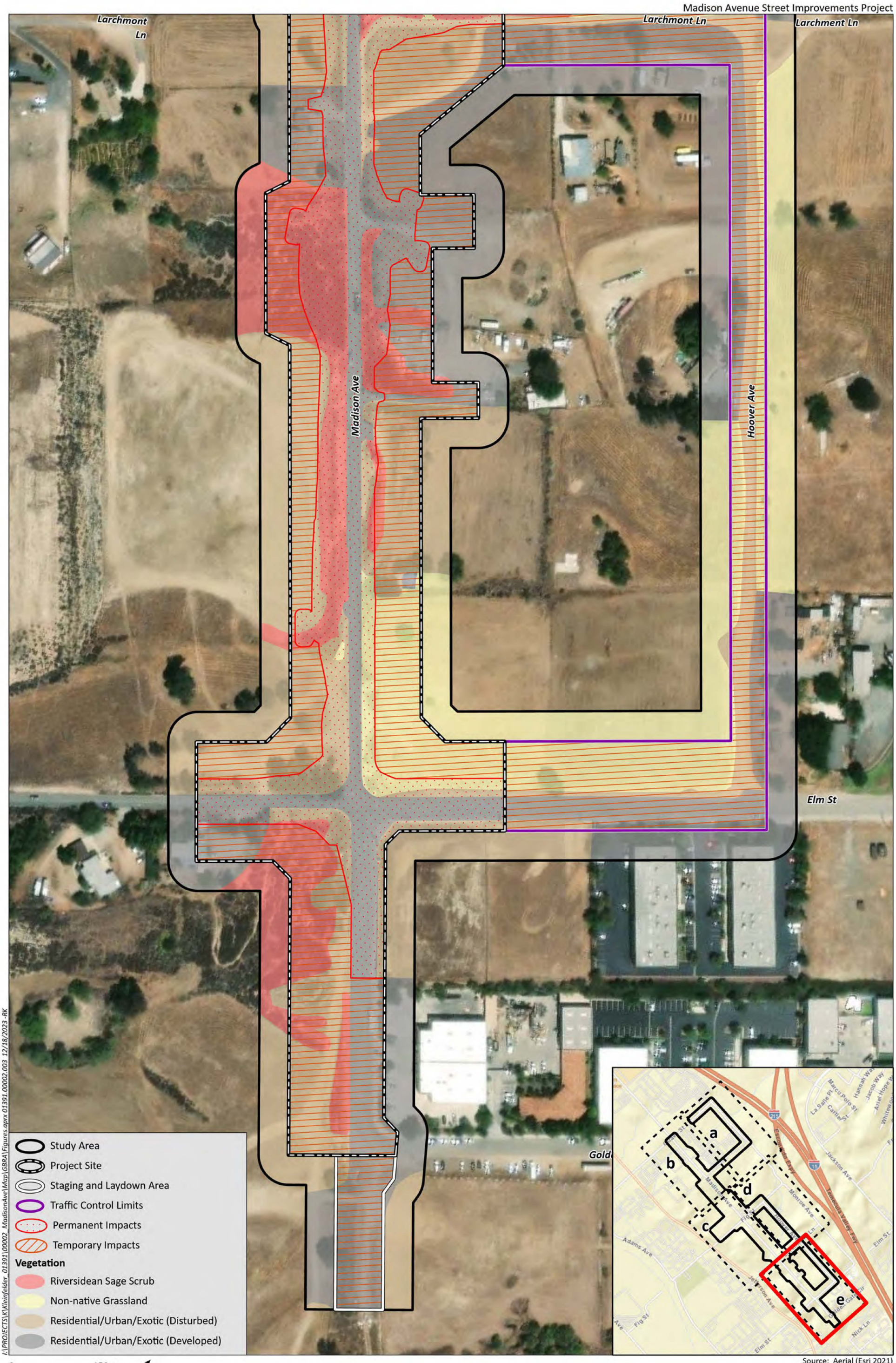
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities/Impacts

Figure 8d



Source: Aerial (Esri 2021)

HELIX Environmental Planning

Vegetation Communities/Impacts

Figure 8e

2.4 Mitigation

The project will require mitigation for impacts to vegetation communities. Projects within the MSHCP plan area are subject to an MSHCP mitigation fee, which contributes to the funding required to implement the MSHCP. This fee provides for habitat mitigation since the MSHCP is a Habitat Conservation Plan that allows take of some habitat provided that other (more biologically valuable or strategically located) habitat is conserved. The fee for City roadway projects is typically five percent of the facility construction costs for the roads. The amount of the fee for this project will be determined by the City and the Western Riverside County Regional Conservation Authority (RCA) during the project approval process.

The areas temporarily impacted for construction laydown areas will be returned to pre-construction grades and compaction. These areas will be revegetated with native plants by hand and/or hydroseeded. Therefore, the preparation of a restoration plan should not be required. Additional avoidance, minimization, and mitigation measures are discussed in Section 11.4.

3.0 AQUATIC RESOURCE DELINEATION

3.1 Methods

Prior to beginning fieldwork, HELIX reviewed aerial photographs (1" =150' scale), Riverside County soil survey maps (NRCS 2024a), USGS quadrangle maps (USGS 2024), and National Wetlands Inventory (USFWS 2024c) maps to assist in determining the locations of potential aquatic resource features in the Study Area. The knowledge of the site from work conducted previously by HELIX was also utilized.

Delineation fieldwork was conducted on November 20 and 22, 2023, by HELIX biologist Rob Hogenauer. This field work was supplemented by previous data collected by HELIX in May 2018. Aquatic resources were mapped in the field on 1" = 150' aerial imagery with one-foot topographic contours, and data collection was assisted with a submeter Global Positioning System (GPS) unit. The Study Area identified herein includes all aquatic resources identified during the assessment. Remote sensing was not used for the delineation.

Plants were identified according to Baldwin et al. (2012). Wetland affiliations of plant species follow the 2020 National Wetland Plant List, which became effective in November 2021 (USACE 2021). Soil descriptions and survey information were taken from the Web Soil Survey (NRCS 2024a), and hydric soil information was obtained from the NRCS online query tool for the National List of Hydric Soils (NRCS 2024b). Soil chromas were identified according to Munsell's Soil Color Charts (Munsell Color 2009).

The delineation was conducted to identify jurisdictional waters potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the CWA, and streambed habitats potentially subject to CDFW jurisdiction pursuant to Sections 1600 et seq. of the CFG Code. MSHCP riparian/riverine and Vernal Pool Resources were also mapped during the aquatic resource delineation and discussed in the appropriate section below.

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act. The State Water Resources Control Board's (SWRCB's) State Wetland Definition and Procedures for

Discharges of Dredged or Fill Material to Waters of the State (Procedures), adopted on April 2, 2019 (SWRCB 2019), and implemented as of May 28, 2020, was used to identify potential RWQCB wetland waters of the State within the Study Area. The boundaries of non-wetland waters of the State stream channels were delineated at the top of bank. Vegetation rooted with the limits of the waters was also included within the limits of the delineation.

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code (CFGC), the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. CDFW does not have a specific definition of what constitutes a stream as it relates to regulation under Sections 1600-1603 of the CFGC. In practice, CDFW defines a stream channel as that area where water uniformly or habitually flows over a given course, and where the width of the water course can reasonably be identified by physical or biological indicators (stream typically include a bed and bank). CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Delineation of CDFW streambed width followed the delineation of non-wetland waters of the State, measured to the top of bank. Riparian habitat extending outside the limits of stream channels was delineated as CDFW jurisdiction to the outermost edge.

3.2 Results

According to the Wetlands Mapper Documentation and Instructions Manual (USFWS 2019), the NWI defines wetlands according to the Cowardin et al. 2nd Edition definition of wetland published by the Federal Geographic Data Committee (FGDC 2013). This definition is a one-parameter definition in which only one of the following three attributes need to be present for an area to be considered wetland by the NWI: predominance of hydrophytes, undrained hydric soil, or non-soil substrate saturated or covered with shallow water at some time during the growing season of each year. As such, some wetlands shown on NWI may not meet the three-parameter definitions of USACE wetland waters of the U.S. or RWQCB State wetland.

The NWI shows Riverine Intermittent Streambed Seasonally Flooded (R4SBC) crossing the Study Area at two locations. These are the approximate locations where HELIX has mapped streams 3a-c, and 6. The NWI mapping closely aligns with CDFW jurisdiction for the site.

The Study Area includes 13 drainages/swales and nine depressions (seasonal pools) that were evaluated to determine if they are considered jurisdictional to one or more of the resource agencies.

Drainage 1. Drainage 1 is an isolated water located east of the undeveloped portion of Monroe Ave and does not connect to other resources. This drainage has vegetation similar to the surrounding uplands, along with additional vegetation that includes blue elderberry (*Sambucus nigra caerulea*), annual sunflower (*Helianthus annuus*), and curly dock (*Rumex crispus*). This drainage is isolated, lacking a connection to downstream resources.

Swale 2. Swale 2 is comprised of reaches 2a and 2b that are swales that lack bed and back or an ordinary high water mark (OHWM) and are vegetated with species similar to the surrounding uplands. The swales are weakly defined but connect to Drainage 3 west of Monroe Avenue outside of the limits of the Study Area. Based on Drainage 3 lacking a connection to Murrieta Creek (See Stream 3 details below), Swales 2a and 2b also lack a downstream connection.

Drainage 3. Drainage 3 occurs in three parts within the Study Area. Segment 3a occurs in the northeast portion of the Study Area and crosses Monroe Avenue via a culvert. This segment is well defined and vegetated similar to the surrounding uplands with a mix of non-native annuals and a few upland shrubs. Salt cedar occurs in segment 3a at the east side of the culvert crossing Monroe Avenue. This drainage continues outside of the Study Area and reenters the Study Area on the east side of Madison Avenue as segment 3b. Segment 3b enters the Study Area from the off-site concrete channel section of Drainage 3. The eastern portion of segment 3b is vegetated like the surrounding uplands. The portion of segment 3b closer to Madison Avenue has sparse to moderate cover of riparian vegetation. The vegetation is comprised of tall cyperus, curly dock, and western ragweed. Due to Drainage 3b being lower than the road, water when present backs up in a portion of Drainage 3b and eventually flows across Madison Avenue via an Arizona crossing on the street surface. Segment 3c occurs within a fence in flood control facility on the west side of Monroe Avenue. This segment has a rocky bottom, comprised of a mix of loose rip/rap and grouted rip/rap. Within the area with loose rock substrate the segment has vegetation comprised of a mix of southern willow scrub and mule fat scrub. Drainage 3c is an artificially created flood control feature in line with the drainage course and supports a small amount of southern willow scrub and mule fat scrub due to the culvert being placed at a slightly higher elevation. Drainage 3c serves as a detention basin for roadside runoff. Flows, when present, enter a culvert at the south end of Drainage 3c with the ultimate outfall location being unknown. Prior to development of the area Drainage 3 dissipated at or just west of Madison Avenue and did not connect to downstream resources. The overall drainage (including areas between the portions of the Study Area is 1,800 linear feet long, with only 0.01 acre and 141 linear feet (eight percent) of the drainage having riparian/wetland vegetation. Since less than 50 percent of the drainage has riparian/wetland vegetation it is considered ephemeral. Based on the historical lack of downstream connection and the ephemeral nature of the drainage is not considered a water of the U.S.

Swale 4. Swale 4 comprises a mixed swale and sheet flow that is vegetated with upland grasses like the surrounding uplands. This drainage has no bed and bank, or OHWM, and has intermittent signs of sheetflow. This swale connects to a more well-defined drainage west of the Study Area that enters a culvert with no discernable outlet on the east side of Jefferson Avenue. Swale 4 is not a water of the U.S.

Drainage 5. Drainage 5 is an isolated ephemeral drainage that occurs on the north and south sides of a driveway. This drainage is primarily unvegetated or includes sparse vegetation similar to surrounding disturbed areas. The drainage collects road runoff and lacks a connection to downstream resources. Drainage 5 is not a water of the U.S.

Drainage 6. Drainage 6 is an ephemeral drainage that originates within the Study Area at the southern edge of the undeveloped Fig Street. Drainage 6 flows to the southwest and is vegetated with a mix of sage scrub and upland annuals that also occur in the adjacent uplands. The drainage is incised and has an average OHWM of one foot. The drainage enters a culvert off-site on the east side of Jefferson Avenue and lacks an obvious outfall. A defined surface connection to downstream waters is not detectable. Drainage 6 is not a water of the U.S.

Drainages 7 and 9. Drainages 7 and Swale 9 are part of the same drainage but with distinct characteristics within the Study Area. Swale 9 originates west of the Study Area from a culvert along the west side of Interstate 215. Within the Study Area Swale 9 turns into sheet flow traversing disturbed rural residential lands adjacent to Hoover Street. The swale and sheet flow lack an OHWM and are mapped as Swale/Sheetflow 9. This swale/sheetflow becomes a defined drainage with bed and bank and an OHWM between Hoover Street and Madison Avenue and is mapped as drainage 7 within the

section of the Study Area on either side of Madison Avenue. Drainage 7 east of Madison Avenue is well-defined with upland vegetation, along with a single patch of tamarisk scrub. Downstream (west) of Madison Avenue drainage 7 is a wide incised drainage with a wide top of bank and a much smaller OHWM at the bottom of the drainage. Vegetation is primarily sage scrub and upland annuals like the surrounding uplands, but also includes a patch of mulefat scrub. This drainage connects to Murrieta Creek off-site via culverts and a section of channelized drainage. As this is an ephemeral drainage it is not a water of the U.S.

Drainage 8. Drainage 8 is an isolated stream that lacks an OHWM and has been manipulated by the local landowner and is lined with loose rock and broken concrete and has sparse upland vegetation. This drainage ends at the road and does not have a downstream connection. Drainage 8 is not a water of the U.S.

Drainages 10 and 11. Drainages 10 and 11 both originate with the Study Area and dissipate just west of the Study Area prior to reaching the rural residential parcel on the east side of Jefferson Avenue. These drainages are vegetated with a mix of sage scrub and upland annual species similar to the surrounding uplands. The drainages are ephemeral and do not have a connection to downstream resources. Drainages 10 and 11 are not waters of the U.S.

Drainages 12 and 13. Drainages 12 and 13 (includes 13a) originate within the Study Area and converge off-site west of the Study Area to form a single drainage. These drainages are ephemeral and primarily vegetated with sage scrub like the surrounding uplands. The off-site drainage connects to a small ephemeral pond surrounded by trees approximately 200 feet west of the Study Area. Further connection to downstream resources is visible in aerial photos. Drainages 12 and 13 are not waters of the U.S.

Pools 1-9. Pools 1-9 are all ephemeral road pools occurring within dirt roads. These pools occur on soil that has been compacted by vehicle activity. The road pools are all unvegetated except for Pool 4 that was bordered by prostrate knotweed (*Polygonum arviculare*), a non-native, disturbance-associated facultative species. The pools are isolated features that lack an OHWM and are not waters of the U.S.

3.2.1 WATERS OF THE U.S.

The USACE regulates impacts to waters of the U.S. through Section 404 of the Clean Water Act. The definition of waters of the U.S. was revised by the Environmental Protection Agency (EPA) on August 28, 2023 with the new definition referred to as the Conforming Rule. The updated definition of waters of the U.S. removes the significant nexus standard from determining if a water course is a water of the U.S. The updated definition of what is a water of the U.S. also removes wetland and streams that were once considered jurisdictional (Under rule (a)(5)) because an OHWM was present, and they contributed to downstream relatively permanent waters but were not relatively permanent waters themselves. To summarize, ephemeral drainages that were once considered jurisdictional simply because of a downstream connection are no longer considered jurisdictional under the final rule. Additionally, wetlands need to have a continuous surface connection to be jurisdictional and not just adjacent to jurisdictional water. A stream that enters a culvert to flow under a road is still considered to have a continuous surface connection.

All drainages were evaluated and determined to be ephemeral drainages, and as such are not jurisdictional to the USACE (Table 3, *Aquatic Resources Evaluated within the USACE Phase D Review*

Area; Figures 9-1a- e, *Waters Evaluated for USACE Jurisdiction*). Waters evaluated consist of ten streams (Drainages 1, 3a-c, 5, 6, 7, 8, 10, 11, 12, and 13), three swales (Swales 2a-b, 4, and 9), and nine ephemeral pools (Road Pools 1 through 9). Many of the drainages appear only to flow during larger rain events and have no flow during the smaller rain events. Small amounts of riparian vegetation were present in Drainages 3a, 3c, and 7. Drainage 3a has a small stand of tamarisk scrub at a culvert, with the tamarisk scrub also occurring nearby due to irrigation run off and not due to flow in the stream. Drainage 3c is a constructed flood control facility created at the location that was once the end (dissipation point) of the drainage. The culvert that Drainage 3c enters is approximately 0.5 mile (2,600 feet) from the nearest relatively permanent water (Murrieta Creek). The outfall location of the culvert is not known.

In addition to being ephemeral, Drainages 1, 5, 8, 12, and 13 are isolated waters, lacking a connection to downstream waters. Drainages 3, 6, 10, and 11 enter into culverts adjacent to Jefferson Avenue and do not have a known outfall location making a downstream connection unclear. Drainages 2, 4, and 9 lack an OHWM.

Based on the Conforming Rule (updating the definition of waters of the U.S. resulting in ephemeral waters no longer being jurisdictional), along with several drainages either not having a downstream connection or lacking an OHWM, there are no waters of the U.S. in the Study Area. The Study Area also includes several depressions (road pools) within undeveloped (dirt) roads that hold water following rain events. The road pools are isolated, not connected to drainages, and therefore are not waters of the U.S. The waters evaluated but determined not to be waters of the U.S. are shown in Table 3 below. (Table 3, *Aquatic Resources Evaluated within the Study Area*).

Table 3
AQUATIC RESOURCES EVALUATED WITHIN THE STUDY AREA[1]

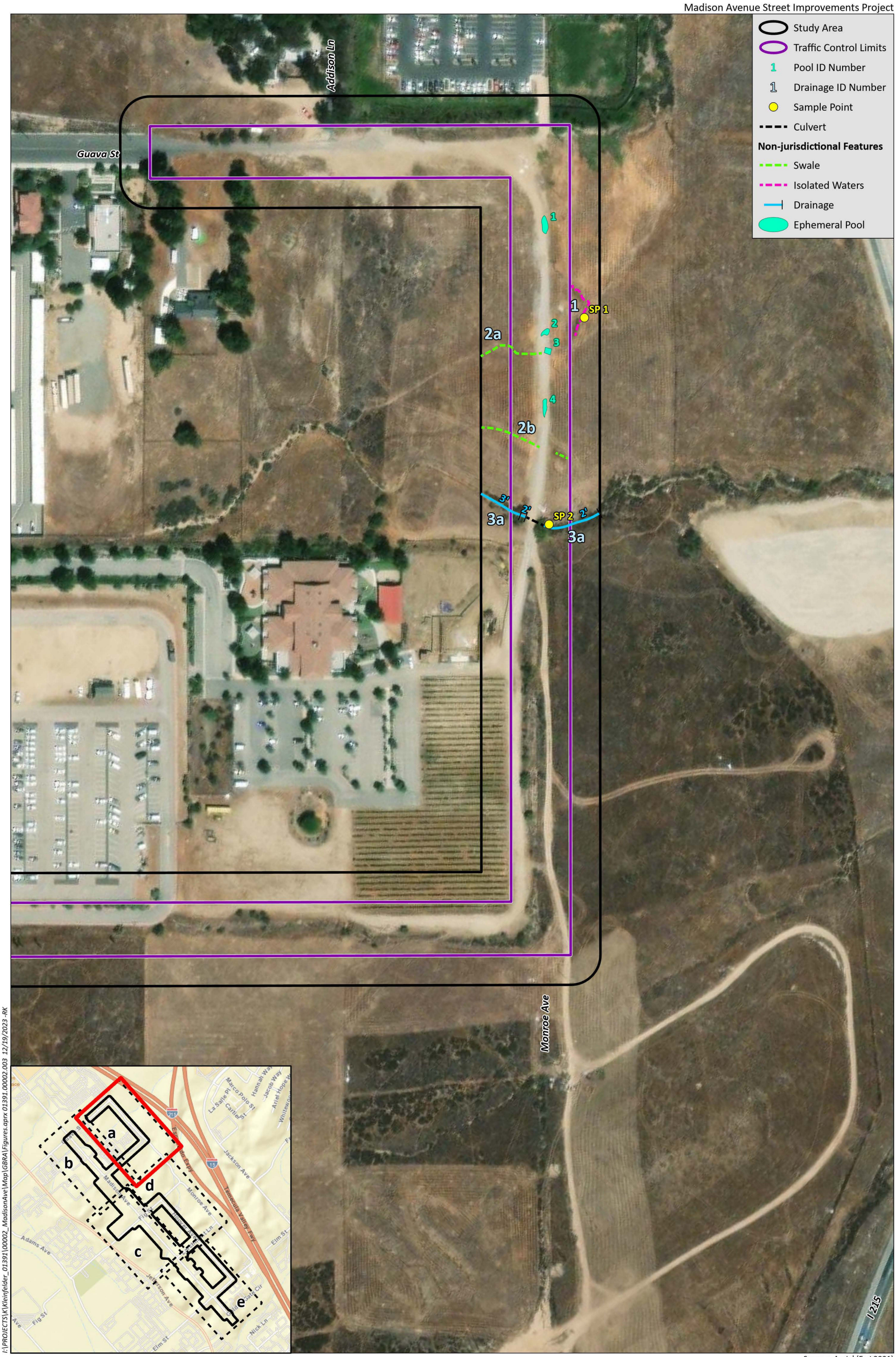
Ephemeral Drainages	Acres[2]	Linear Feet[2]
Drainage 1	0.002	106
Swale 2a	-	113
Swale 2b	-	127
Drainage 3a	0.01	186
Drainage 3b[3]	0.02	340
Drainage 3c	0.04	209
Swale 4	-	290
Drainage 5	0.01	64
Drainage 6	0.005	206
Drainage 7	0.06	590
Drainage 8	0.02	89
Swale 9	-	140
Drainage 10	0.008	166
Drainage 11	0.02	221
Drainage 12	0.01	116
Drainage 13	0.04	193
Total	**0.245**	**3,156**
Road Pools		
Pool 1	0.01	--
Pool 2	0.041	--
Pool 3	0.001	--
Pool 4	0.004	--
Pool 5	0.010	--
Pool 6	0.027	--
Pool 7	0.021	--
Pool 8	0.002	--
Pool 9	0.002	--
Totals[2]	**0.118**	**-**

[1] All waters were determined to not be waters of the U.S.
[2] Acres rounded to nearest 0.01 acre except for areas less than 0.01 acre that are rounded to nearest 0.001 acre, and linear feet are rounded to nearest whole foot.
[3] Drainage 3b includes 0.01 acre and 141 linear feet with potential wetland characteristics.

3.2.2 Regional Water Quality Control Board Jurisdictional Waters

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act (Porter-Cologne Act). In cases where CWA Section 404 waters are present the RWQCB asserts jurisdiction over the same waters under CWA Section 401. When the waters present are not jurisdictional under CWA Section 404 the RWQCB then can assert jurisdiction over those waters under the State Porter-Cologne Act. Impacts under the Porter-Cologne Act are permitted via Waste Discharge Requirements (WDR). The State Water Resources Control Board's (SWRCB's) State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), adopted on April 2, 2019 (SWRCB 2019), and implemented as of May 28, 2020, was used to identify potential RWQCB wetland waters of the State within the Study Area. The boundaries of non-wetland waters of

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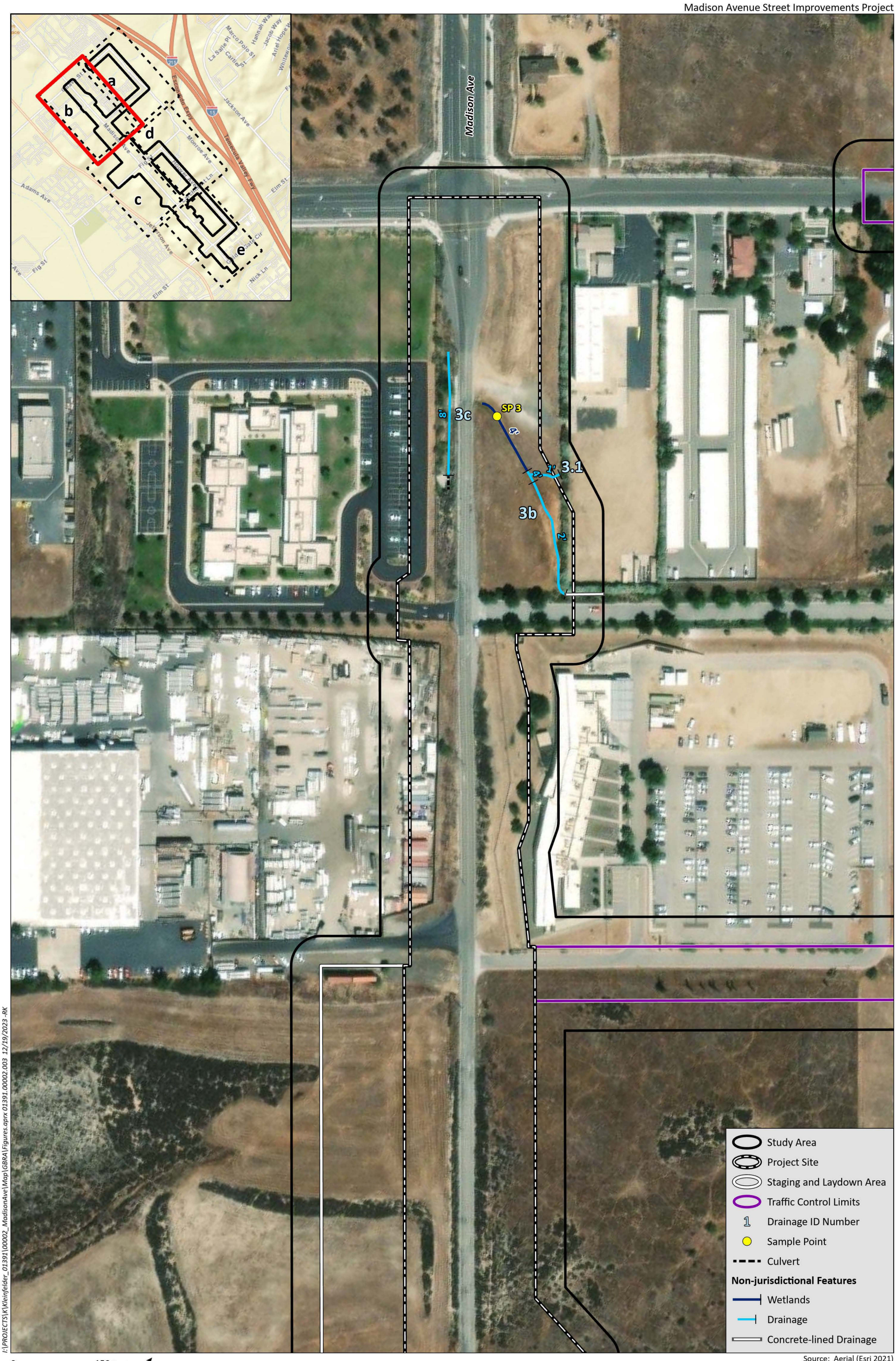
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction

Figure 9-1a



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HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction

Figure 9-1b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Pool ID Number
1 Drainage ID Number
Culvert
Sample Point
Culvert

Non-jurisdictional Features

Swale
Isolated Waters
Drainage
Ephemeral Pool

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
1'
6
Fig St
Jefferson Ave
Madison Ave
4'
5'
4'
3'
5'
2'
12'
5'
10'
7
1'
SP 4
Larchmont Ln
Larchmont Ln

a
b
c
d
e

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0 150 Feet

Source: Aerial (Esri 2021)

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Waters Evaluated for USACE Jurisdiction

Figure 9-1c

Study Area
Project Site
Traffic Control Limits
1 Drainage ID Number
Culvert
Non-jurisdictional Features
Swale
Isolated Waters
Drainage
Sheetflow

Fig St
8
Culvert
Dual 24" Plastic Culvert
Hoover Ave
9
Monroe Ave
5'
4'
Larchmont Ln
Larchment Ln
a
b
c
d
e
Jackson Ave
Adams Ave
Elm St
Fig St
Nick Ln

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0 150 Feet

Source: Aerial (Esri 2021)

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Waters Evaluated for USACE Jurisdiction

Figure 9-1d

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Drainage ID Number

Non-jurisdictional Features

Isolated Waters
Drainage

Larchmont Ln
Larchment Ln
Madison Ave
Hoover Ave
Elm St
Gold

10
11
12
13
13a

2'
3'
6'
2'

a
b
c
d
e

0 150 Feet

Source: Aerial (Esri 2021)

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HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction

Figure 9-1e

the State stream channels were delineated to the OHWM. Vegetation rooted with the limits of the waters was also included within the limits of the delineation.

A total of 0.25 acre/2.558 lf of potential waters of the State were delineated (Table 4, *RWQCB Waters*; Figures 9-2a-e, *Waters of the State [RWQCB]*), consisting of 0.24 acre/2,417 lf of non-wetland waters and 0.01 acre and 141 linear feet of wetland waters. The streambed acreage for the RWQCB is measured to the OHWM. As discussed above in Section 6.1, waters in the Study Area are isolated from downstream waters and/or ephemeral, and therefore do not meet the current definition of waters of the U.S. under the Conforming Rule. These isolated and ephemeral waters are subject to RWQCB regulation solely under the Porter-Cologne Water Quality Control Act. A total of 0.04 acre of non-jurisdictional ephemeral road pools are not included in the table.

Table 4
RWQCB WATERS

HABITAT	ACRES[1]	LINEAR FEET[2]
Wetland		
Streambed-3b	0.01	141
Non-Wetland		
Streambed	0.24	2,417
Total	**0.25**	**2,558**

[1] acres rounded to nearest 0.01 acre
[2] linear feet rounded to nearest whole foot

3.2.3 CDFW Jurisdictional Waters

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code (CFGC), the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. CDFW does not have a specific definition of what constitutes a stream as it relates to regulation under Sections 1600-1603 of the CFGC. In practice, CDFW defines a stream channel as that area where water uniformly or habitually flows over a given course, and where the width of the water course can reasonably be identified by physical or biological indicators (streambeds are typically considered areas that include a bed and bank). CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." CDFW jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Delineation of CDFW streambed width was measured to the top of bank. Riparian habitat extending outside the limits of stream channels was delineated as CDFW jurisdiction to the outermost edge.

A total of 0.87 acres of CDFW jurisdictional habitats were identified within the Study Area composed of 0.17 acres of riparian habitat, 0.70 acre of upland vegetated (or non-vegetated) stream channel (Table 5, *CDFW Waters*; Figure 9-3a-e, *CDFW Jurisdiction*). The 0.04 acre of non-jurisdictional ephemeral road pools are not included in the table. Riparian vegetation is comprised of 0.06 acre of mule fat scrub, 0.07 acre of southern willow scrub, and 0.04 acre tamarisk scrub. MSHCP riparian/riverine resources are discussed in 6.0 and are included in Figure 9-4a-e, *MSHCP Riparian/Riverine Resources*.

Table 5
CDFW WATERS

HABITAT	ACRES[1]	LINEAR FEET[2]
Mule fat scrub	0.06	136
Southern willow scrub	0.07	97
Tamarisk scrub	0.04	40
Streambed	0.70	2,961
Total	**0.87**	**3,234**

[1] acres rounded to nearest 0.01 acre
[2] linear feet of stream rounded to nearest whole foot

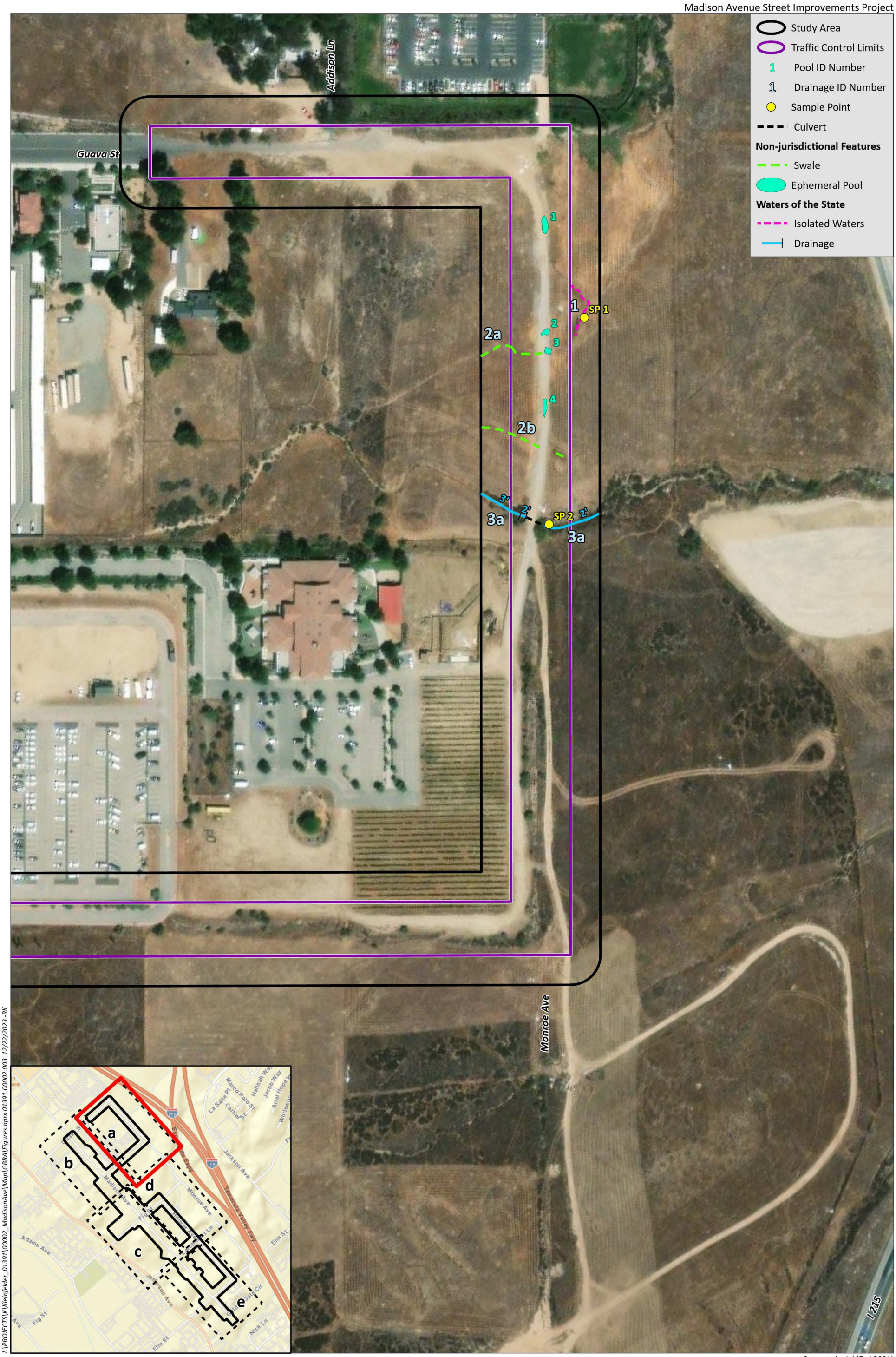
3.3 Impacts

Proposed impacts to the drainages result from improvements to Madison Avenue that include widening of the road, adding a bike lane, sidewalk, and a graded parkway. Permanent impacts to drainages also include extending or replacement of existing culverts as part of the project improvements. Temporary impacts may occur to drainages as a result of traffic control measures that can result in increased traffic on the unimproved roads adjacent to Madison Avenue, and as part of the extending or replacement of existing culverts.

3.3.1 Potential USACE Impacts

All the waters in the Study Area were deemed to be non-jurisdictional to the USACE therefore no impacts to waters of the U.S. are proposed (Figure 10-1a-e, *Waters Evaluated for USACE Jurisdiction/Impacts*).A CWA Section 404 permit is not required as no impacts to waters of the U.S. are proposed

Madison Avenue Street Improvements Project



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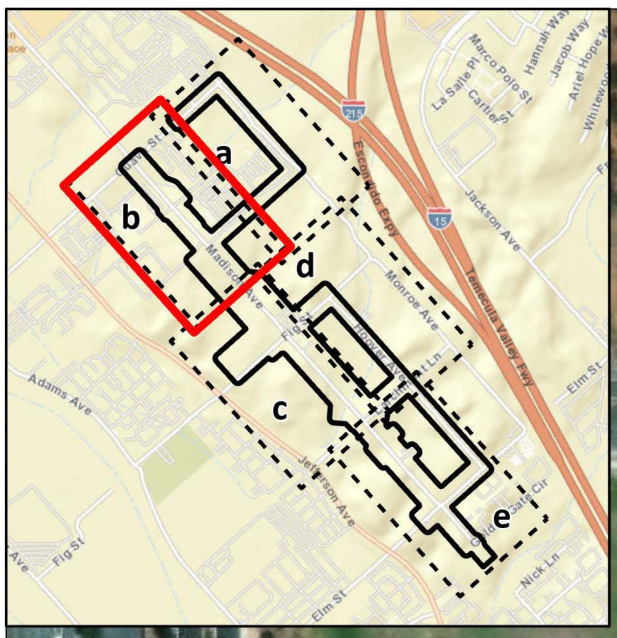
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters of the State (RWQCB)

Figure 9-2a



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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters of the State (RWQCB)

Figure 9-2b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Pool ID Number
1 Drainage ID Number
Culvert
Sample Point
Culvert

Non-jurisdictional Features

Swale
Ephemeral Pool

Waters of the State

Isolated Waters
Drainage

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
1'
6
Fig St
Jefferson Ave
Madison Ave
4'
5'
4'
3'
5'
2'
12'
5'
10'
7
1'
SP 4
Larchmont Ln
Larchmont Ln

a
b
c
d
e

0 150 Feet

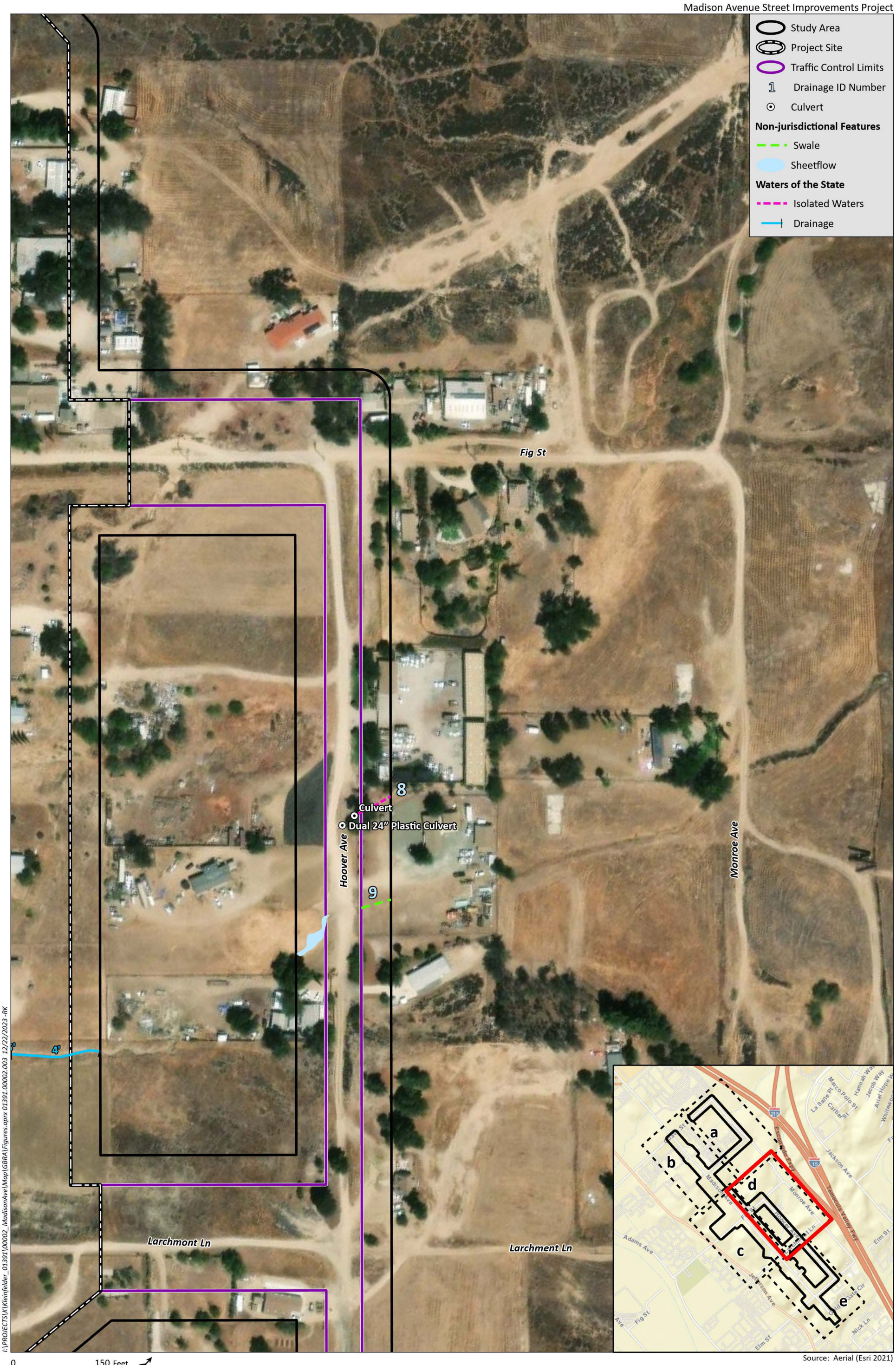
Source: Aerial (Esri 2021)

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Waters of the State (RWQCB)

Figure 9-2c



Source: Aerial (Esri 2021)

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Waters of the State (RWQCB)

Figure 9-2d

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Drainage ID Number

Waters of the State

Isolated Waters
Drainage

10
11
12
13
13a
2'
3'
6'
2'

Madison Ave
Larchmont Ln
Larchment Ln
Hoover Ave
Elm St

a
b
c
d
e

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0 150 Feet

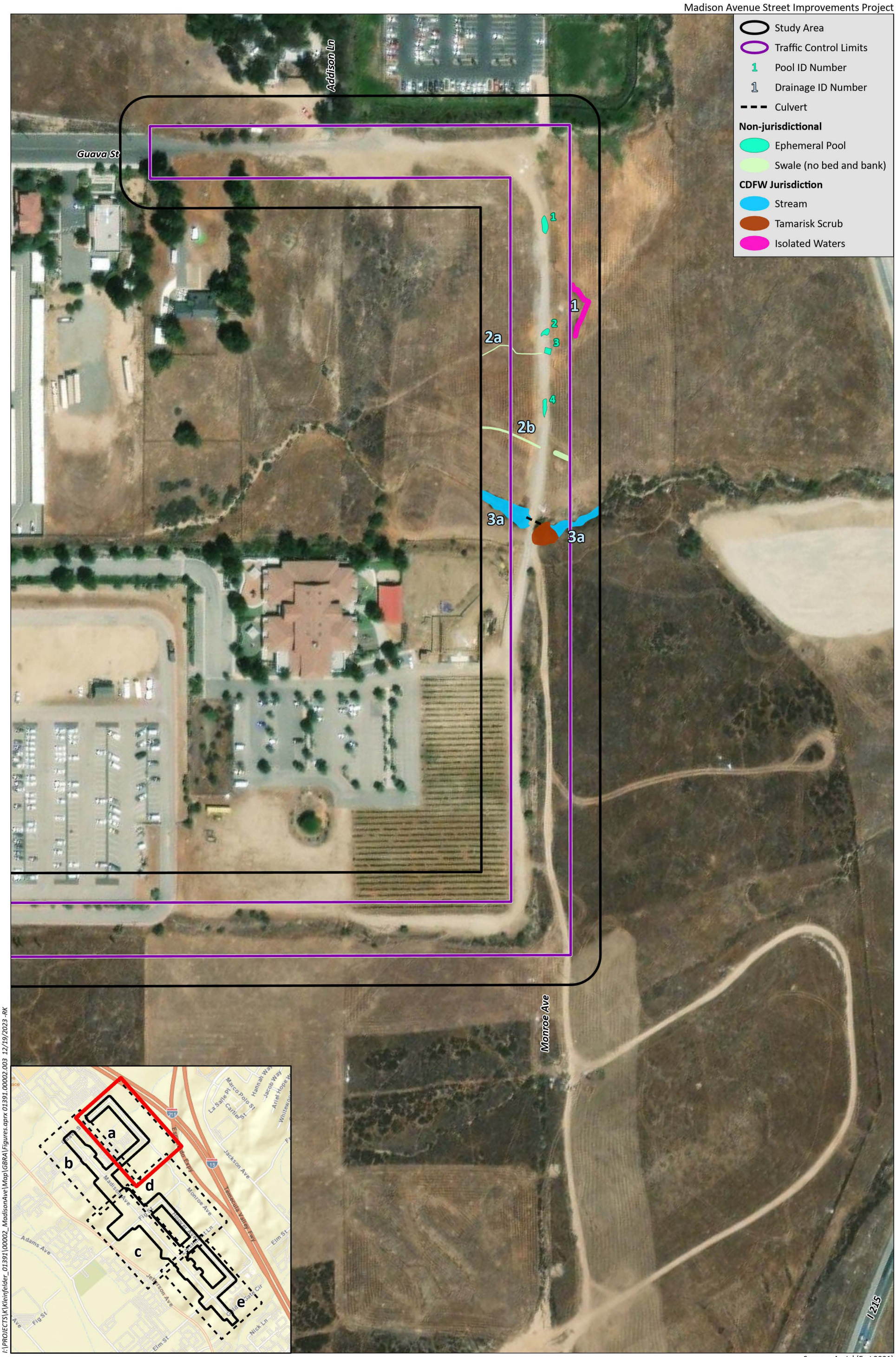
Source: Aerial (Esri 2021)

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Waters of the State (RWQCB)

Figure 9-2e

Madison Avenue Street Improvements Project



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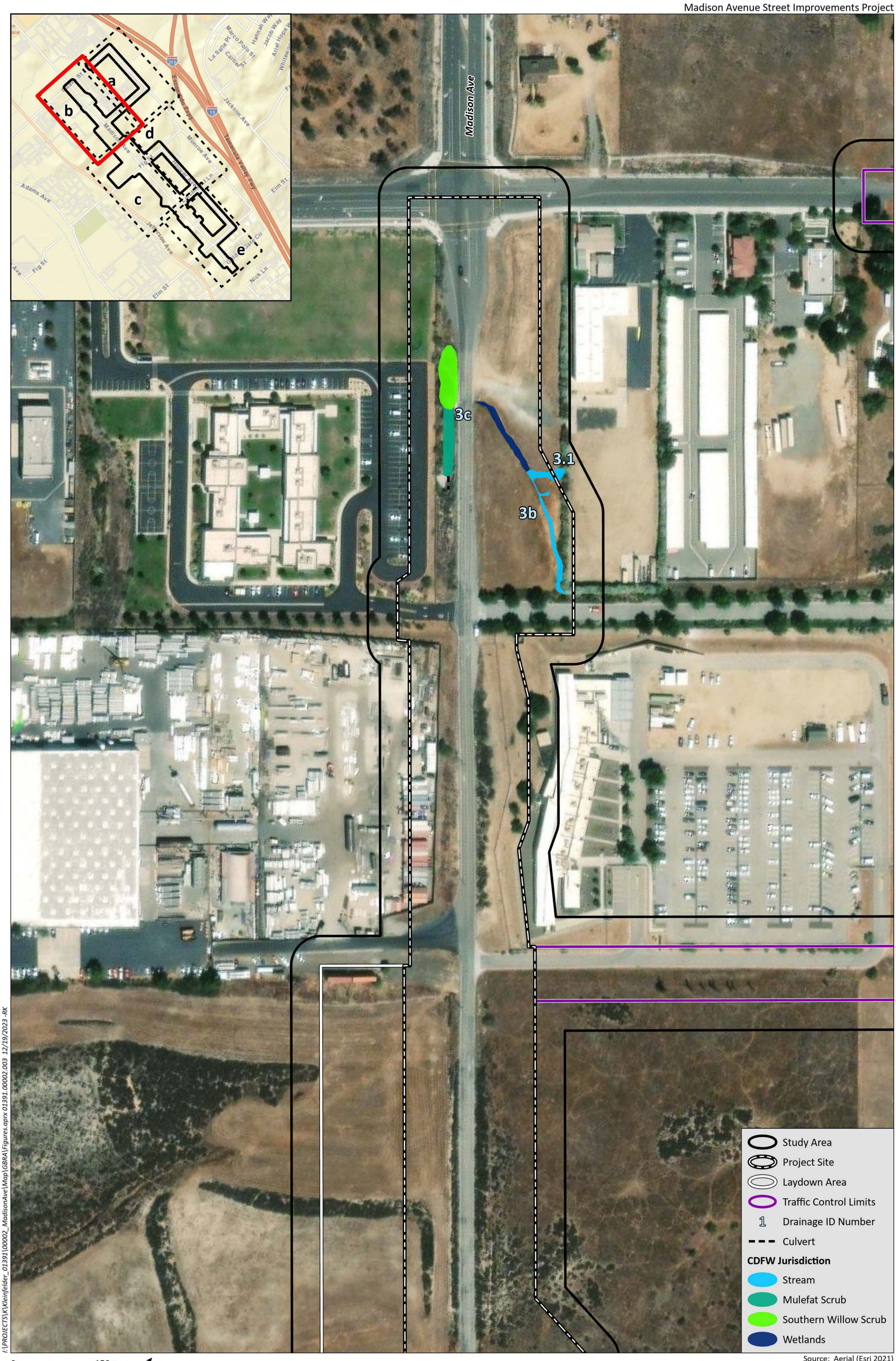
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction

Figure 9-3a



Source: Aerial (Esri 2021)

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HELIX Environmental Planning

CDFW Jurisdiction

Figure 9-3b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Pool ID Number
1 Drainage ID Number
Culvert
Culvert

Non-jurisdictional

Ephemeral Pool
Swale (no bed and bank)
Swale/Sheetflow

CDFW Jurisdiction

Stream
Mulefat Scrub
Tamarisk Scrub
Isolated Waters

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
6
Fig St
Jefferson Ave
Madison Ave
7
Larchmont Ln
Larchmont Ln

a
b
c
d
e

0 150 Feet

Source: Aerial (Esri 2021)

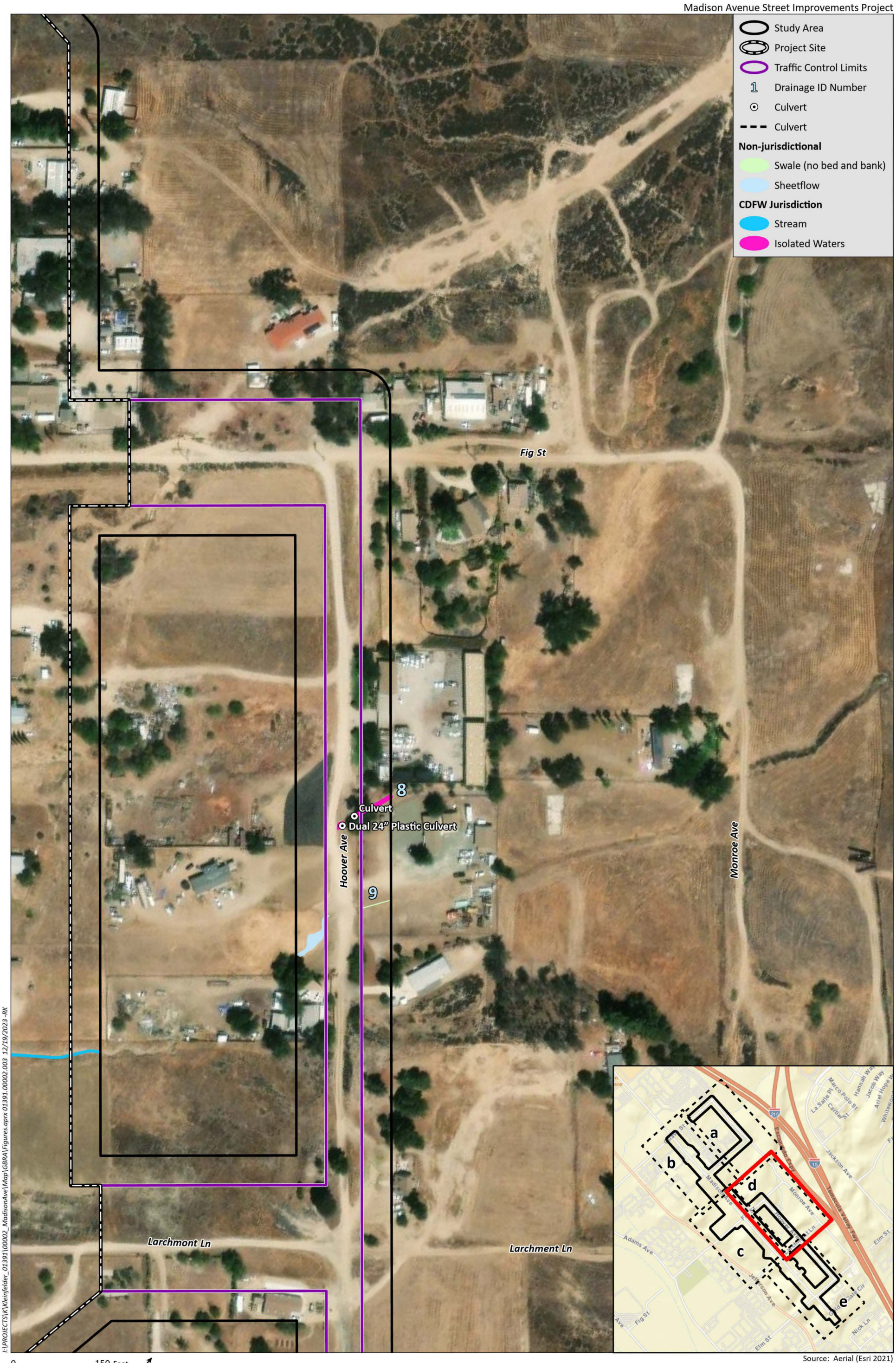
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HELIX Environmental Planning

CDFW Jurisdiction

Figure 9-3c

Madison Avenue Street Improvements Project



HELIX Environmental Planning

CDFW Jurisdiction

Figure 9-3d

Study Area
Project Site
Laydown Area
Traffic Control Limits
1 Drainage ID Number
Culvert
CDFW Jurisdiction
Stream
Isolated Waters

10
11
12
13
13a

Madison Ave
Hoover Ave
Larchmont Ln
Larchment Ln
Elm St

a
b
c
d
e

I:\PROJECTS\K\Kleinfelder_01391\00002_MadisonAve\Map\GBRA\Figures.aprx 01391.00002.003 12/19/2023 -RK

0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction

Figure 9-3e

Madison Avenue Street Improvements Project

Study Area
Traffic Control Limits
1 Drainage ID Number
1 Pool ID Number
Culvert

Non-jurisdictional

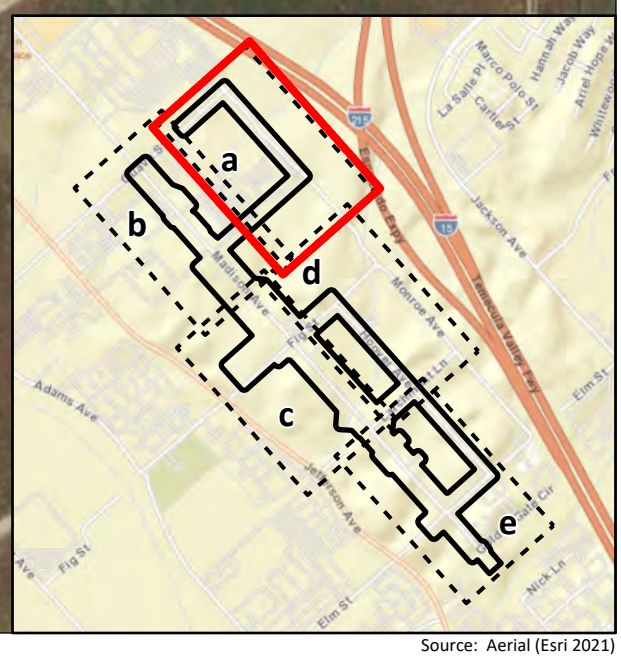
Isolated Waters
Ephemeral Pool

MSHCP Jurisdiction

Stream
Tamarisk Scrub
Swale (no bed and bank)

Guava St
Jordan Ln
Monroe Ave

1
2a
2b
3a
3a
1
2
3
4



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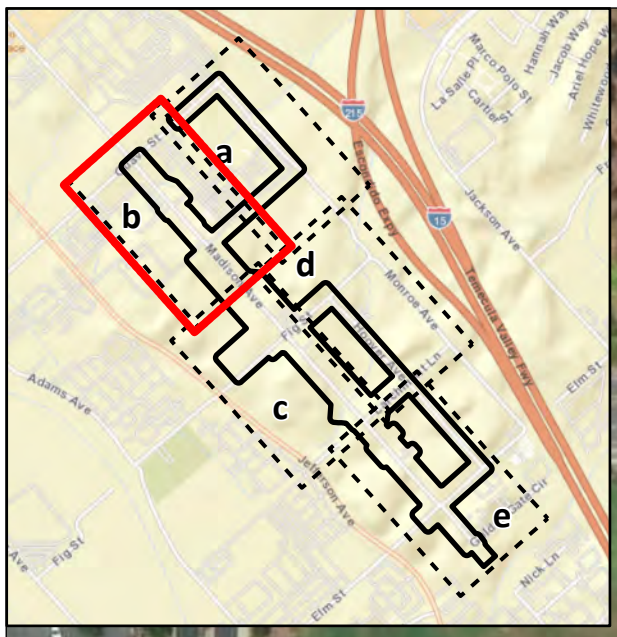
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources

Figure 9-4a

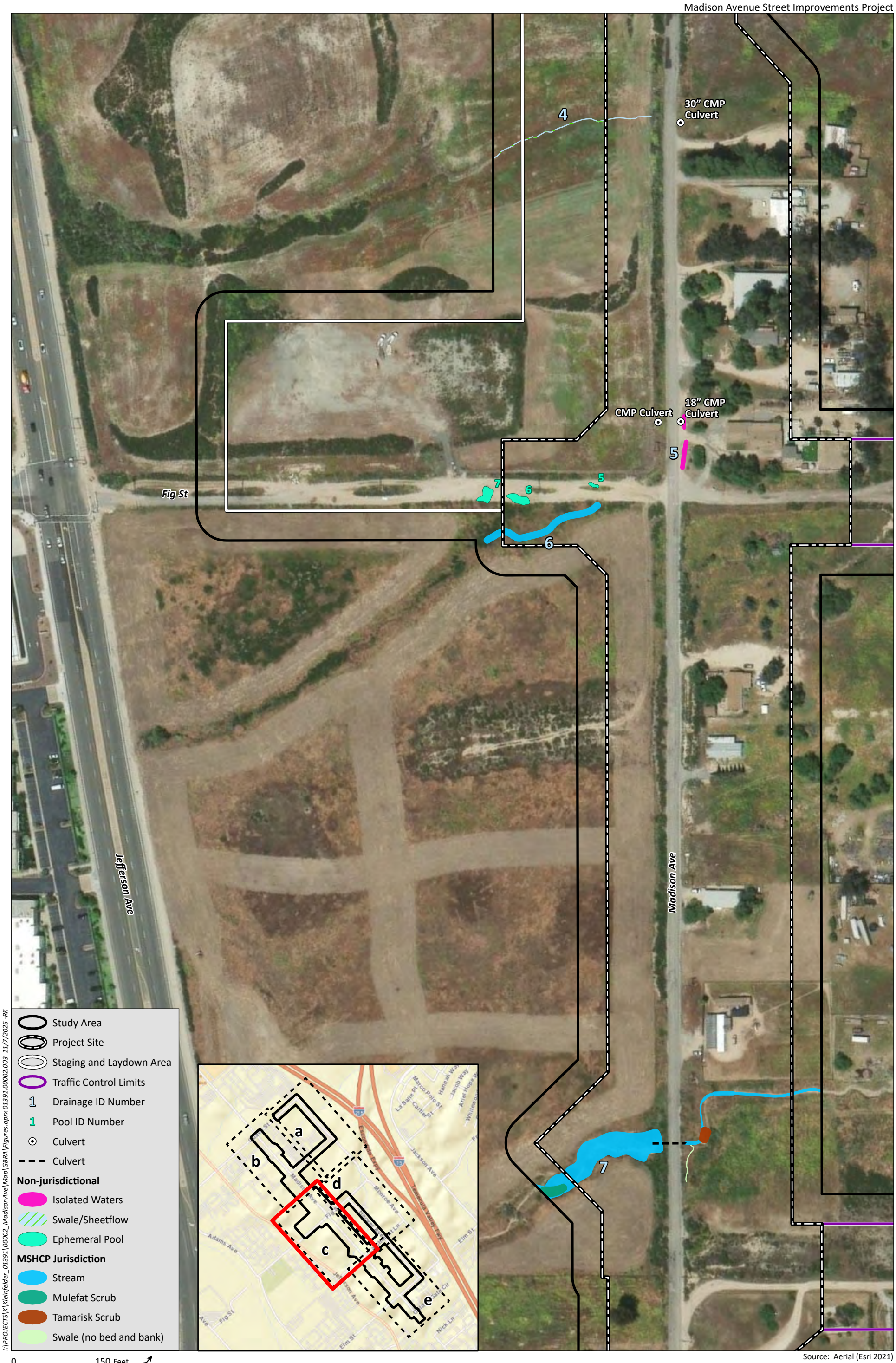


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HELIX Environmental Planning

MSHCP Riparian/Riverine Resources

Figure 9-4b



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HELIX Environmental Planning

MSHCP Riparian/Riverine Resources

Figure 9-4c

Study Area
Project Site
Traffic Control Limits
1 Drainage ID Number
Culvert

Non-jurisdictional
Isolated Waters
Sheetflow

MSHCP Jurisdiction
Stream
Swale (no bed and bank)

Fig St
8
Culvert
Dual 24" Plastic Culvert
9
Monroe Ave
Larchmont Ln
Hoover Ave
a
b
c
d
e
Adams Ave
Jackson Ave
Elm St
Fig St
Nick Ln

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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources

Figure 9-4d

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
1 Drainage ID Number

Non-jurisdictional
Isolated Waters

MSHCP Jurisdiction
Stream

10
11
12
13
13a

Hoover Ave
Elm St
Madison Ave

a
b
c
d
e

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0 150 Feet

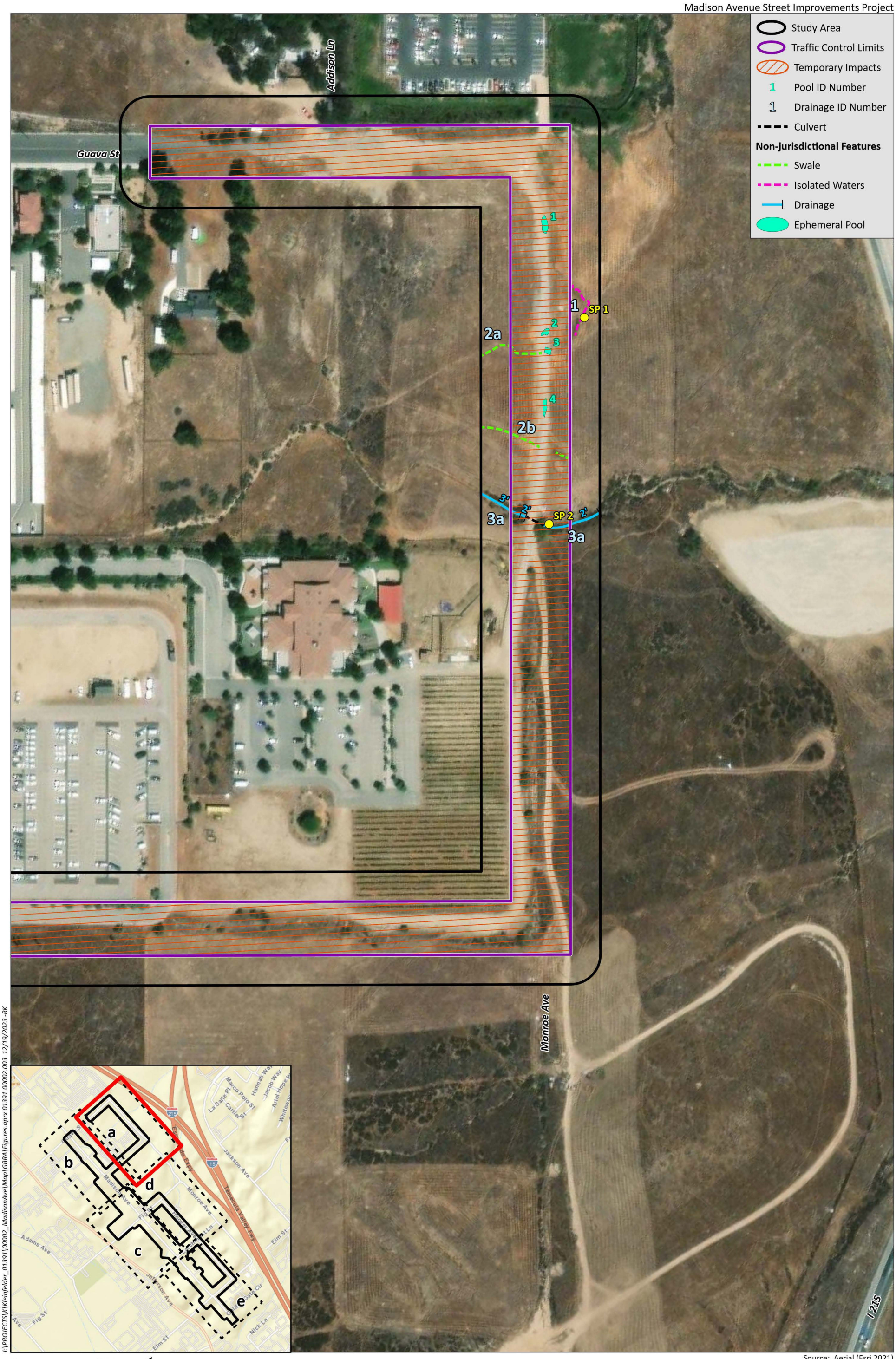
Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources

Figure 9-4e

Madison Avenue Street Improvements Project



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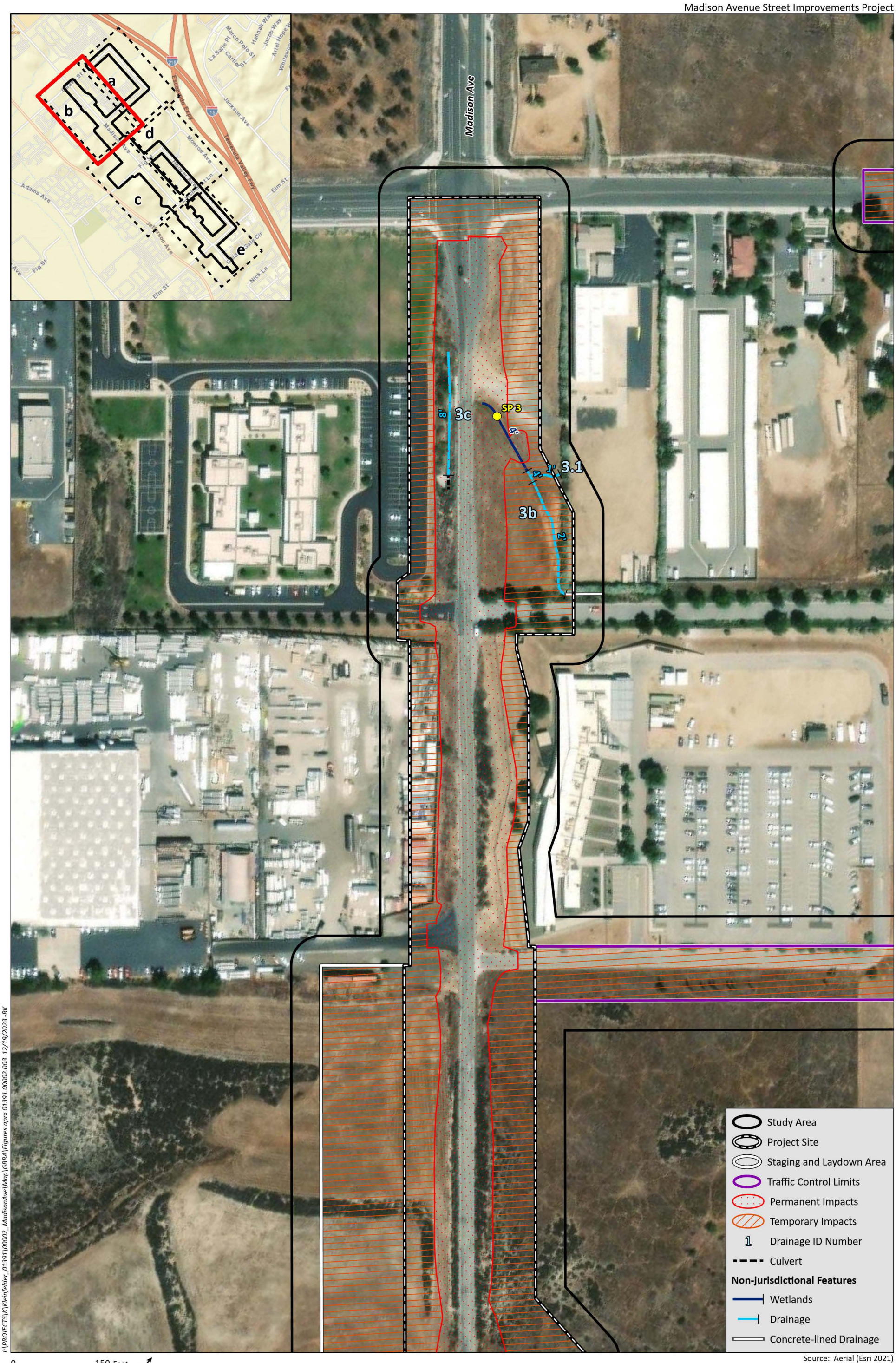
0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction/Impacts

Figure 10-1a



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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction/Impacts

Figure 10-1b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
1 Pool ID Number
1 Drainage ID Number
Culvert

Non-jurisdictional Features

Swale
Isolated Waters
Drainage
Ephemeral Pool

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
1'
6
Fig St
Jefferson Ave
Madison Ave
4'
5'
4'
3'
5'
12'
5'
10'
2'
4'
7
SP 4
Larchmont Ln
a
b
c
d
e

0 150 Feet

Source: Aerial (Esri 2021)

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HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction/Impacts

Figure 10-1c

Madison Avenue Street Improvements Project

Study Area
Project Site
Traffic Control Limits
Permanent Impacts
Temporary Impacts
1 Drainage ID Number

Non-jurisdictional Features

Swale
Isolated Waters
Drainage
Sheetflow

Fig St
Hoover Ave
Monroe Ave
Larchmont Ln
Larchment Ln
8
9
Culvert
Dual 24" Plastic Culvert
3'
4'

a
b
c
d
e

I:\PROJECTS\K\Kleinfelder_01391\00002_MadisonAve\Map\GBRA\Figures.aprx 01391.00002.003 12/19/2023 -RK

0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction/Impacts

Figure 10-1d

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
1 Drainage ID Number

Non-jurisdictional Features

Isolated Waters
Drainage

10
11
12
13
13a
2'
3'
6'
2'
Madison Ave
Larchmont Ln
Larchment Ln
Hoover Ave
Elm St
Gold

a
b
c
d
e

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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters Evaluated for USACE Jurisdiction/Impacts

Figure 10-1e

3.3.2 Proposed RWQCB Impacts

The proposed Project would impact a total of 0.23 acre of potential waters of the State, which are comprised of 0.10 acre permanent impacts and 0.23 acre temporary impacts (Table 6, *RWQCB Jurisdictional Impacts*; Figure 10-2a-e, *Waters of the State/Impacts*). Permanent impacts are comprised of 0.09 acre ephemeral stream, and 0.01 acre wetland ephemeral stream. Temporary impacts are comprised of 0.13 acre ephemeral stream, and a minor amount (0.002 acre) of wetland ephemeral stream.

If the waters are confirmed by the USACE to not be waters of the U.S. and a CWA Section 404 permit is not require the Project will require a request for Waste Discharge Requirements (WDR) pursuant to the State Porter Cologne Act. If the USACE does elect to claim jurisdiction over some are all of the water as waters of the U.S., then a Clean Water Act Section 401 water quality certification will be required.

Table 6
RWQCB JURISDICTIONAL IMPACTS[1]

Habitat Type	Acres	Linear Feet
Permanent		
Ephemeral Streambed[2]	0.09	735
Wetlands	0.01	124
Subtotal[3]	0.10	859
Temporary		
Ephemeral Streambed	0.13	976
Wetlands	<0.01	17
Subtotal	0.13	993
Total	**0.23**	**1,852**

1 Impacts are shown to the nearest 0.01 acre due to the small size of the impacts.
2 includes swales and isolated waters of the State.
3 totals may be more/less than column sum due to rounding.

3.3.3 Proposed CDFW Impacts

The proposed CDFW impacts total 0.61 acre comprised of 0.33 acre permanent impacts and 0.28 acre temporary impacts (Table 7, *CDFW Jurisdictional Impacts*; Figure 10-3a-e, *CDFW Jurisdiction/Impacts*). The permanent impacts consist of 0.07 acre southern willow, 0.05 acre mulefat scrub, less than 0.01 acre tamarisk scrub, and 0.21 acre ephemeral streambed. The temporary impacts consist of 0.03 acre tamarisk scrub, and 0.25 acre ephemeral streambed. Impacts associated with MSHCP riparian/riverine resources are discussed in Section 6.0 and are included in Figure 10-4a-e, *MSHCP Riparian/Riverine Resources Impacts*. Impacts to CDFW waters will require obtaining a Streambed Alteration Agreement from CDFW pursuant to CFGC 1600-1603.

Table 7
CDFW JURISDICTIONAL IMPACTS[1]

Habitat Type	Acres	Linear Feet
Permanent		
Ephemeral Streambed[2]	0.21	625

Habitat Type	Acres	Linear Feet
Southern Willow Scrub	0.07	97
Mulefat Scrub	0.05	112
Tamarisk Scrub	<0.01	26
Subtotal[3]	0.33	860
Temporary		
Ephemeral Streambed	0.25	1,127
Tamarisk Scrub	0.03	14
Subtotal	0.28	1,141
Total	**0.61**	**2,001**

[1] Impacts are shown to the nearest 0.01 acre due to the small size of the impacts.
[2] includes isolated waters of the State
[3] totals may be more/less than column sum due to rounding.

3.4 Mitigation

The Project will be required to mitigate impacts to CDFW and RWQCB resources. The Project may mitigate impacts using one of the following options, or a combination of the options.

- Purchase of a mix of re-establishment and/or rehabilitation credits from an agency approved mitigation bank, such as at the Riverpark Mitigation Bank or San Luis Rey.
- Purchase of preservation credits at an agency approved mitigation bank, such as Skunk Hollow.
- Restoration and improvements to the features within and adjacent to the Study Area.
- Permittee responsible off-site mitigation at a property owned by the City.

Mitigation for permanent impacts will consist of a minimum of 1:1 replacement with the final ratio to be determined during the negotiation with the resource agencies during the permitting process. Temporary impacts will be restored to pre-project conditions. The mitigation bank credits will be for resources with an equal or higher value than the resources being impacted. The Riverpark Mitigation Bank occurs within the planning boundaries of the MSHCP and is approved by the USACE, CDFW, and USFWS. Skunk Hollow also occurs within the MSHCP boundary and is approved by the USACE, CDFW, San Diego RWQCB, and USFWS. The San Luis Rey mitigation bank is approved by the USACE and the San Diego RWQCB.

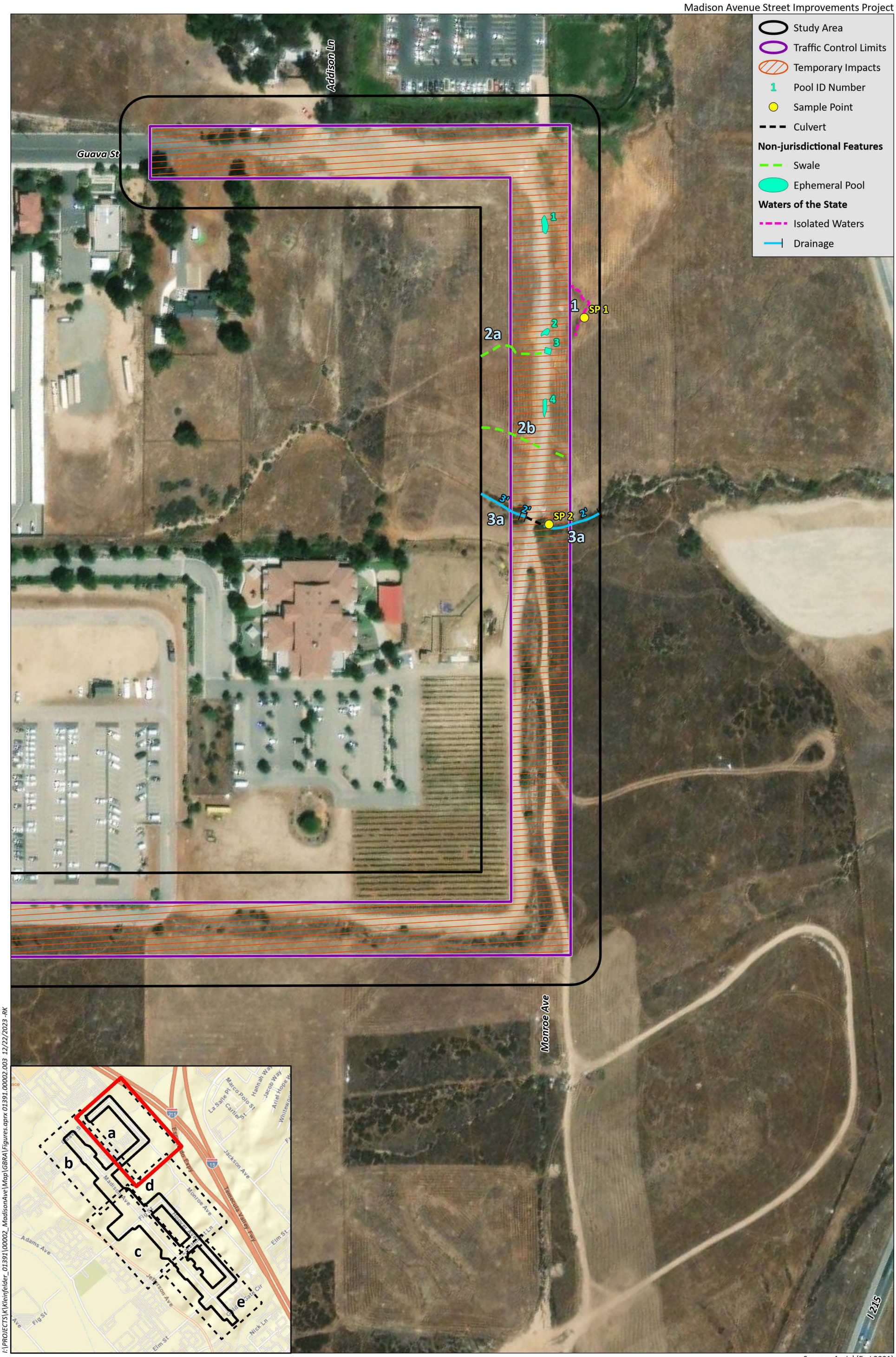
4.0 REGULATORY CONTEXT

4.1 Federal Government

4.1.1 Federal Endangered Species Act

Administered by the USFWS, the federal ESA provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species, and the habitats upon which they rely, are considered take under the ESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot,

Madison Avenue Street Improvements Project



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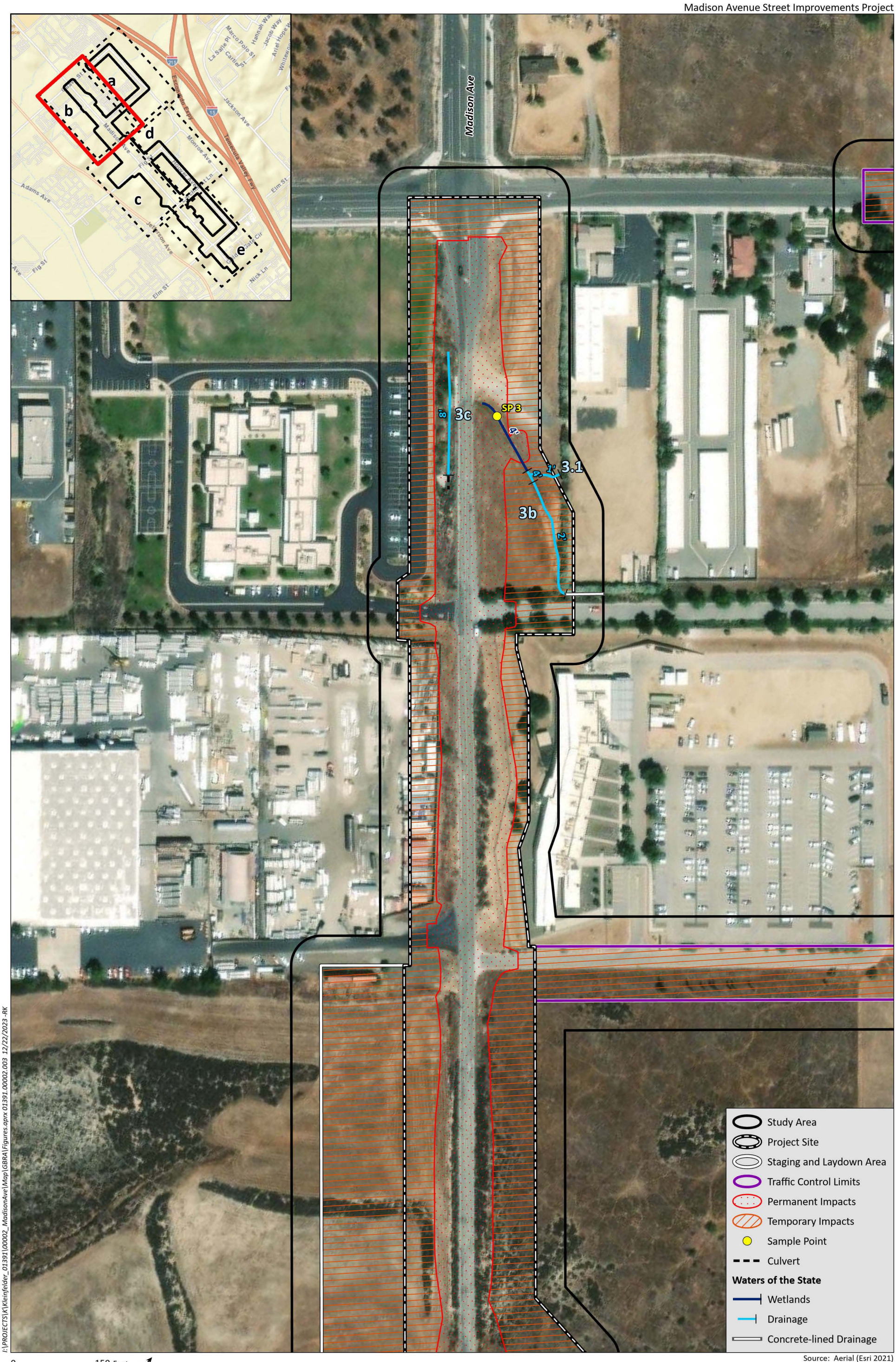
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters of the State/Impacts

Figure 10-2a



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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters of the State/Impacts

Figure 10-2b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
1 Pool ID Number
Culvert
Sample Point
Culvert

Non-jurisdictional Features

Swale
Ephemeral Pool

Waters of the State

Isolated Waters
Drainage

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
1'
6
Fig St
Jefferson Ave
Madison Ave
Larchmont Ln
4'
5'
4'
3'
5'
2'
12'
5'
10'
7
4'
SP 4
a
b
c
d
e
Escondido Expy
Tenaschitis Valley Fwy
Jackson Ave
Monroe Ave
Adams Ave
Elm St
Fig St
Nick Ln

0 150 Feet

Source: Aerial (Esri 2021)

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HELIX Environmental Planning

Waters of the State/Impacts

Figure 10-2c

Study Area
Project Site
Traffic Control Limits
Permanent Impacts
Temporary Impacts
Culvert
Non-jurisdictional Features
Swale
Sheetflow
Waters of the State
Isolated Waters
Drainage

Fig St
Hoover Ave
Monroe Ave
8
Culvert
Dual 24" Plastic Culvert
9
3'
4'
Larchmont Ln
Larchment Ln
a
b
c
d
e
Escondido Expy
Tennessee Valley Fwy
Jackson Ave
Madison Ave
Adams Ave
Elm St
Fig St
Nick Ln
Jefferson Ave
Monroe Ave

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0 150 Feet

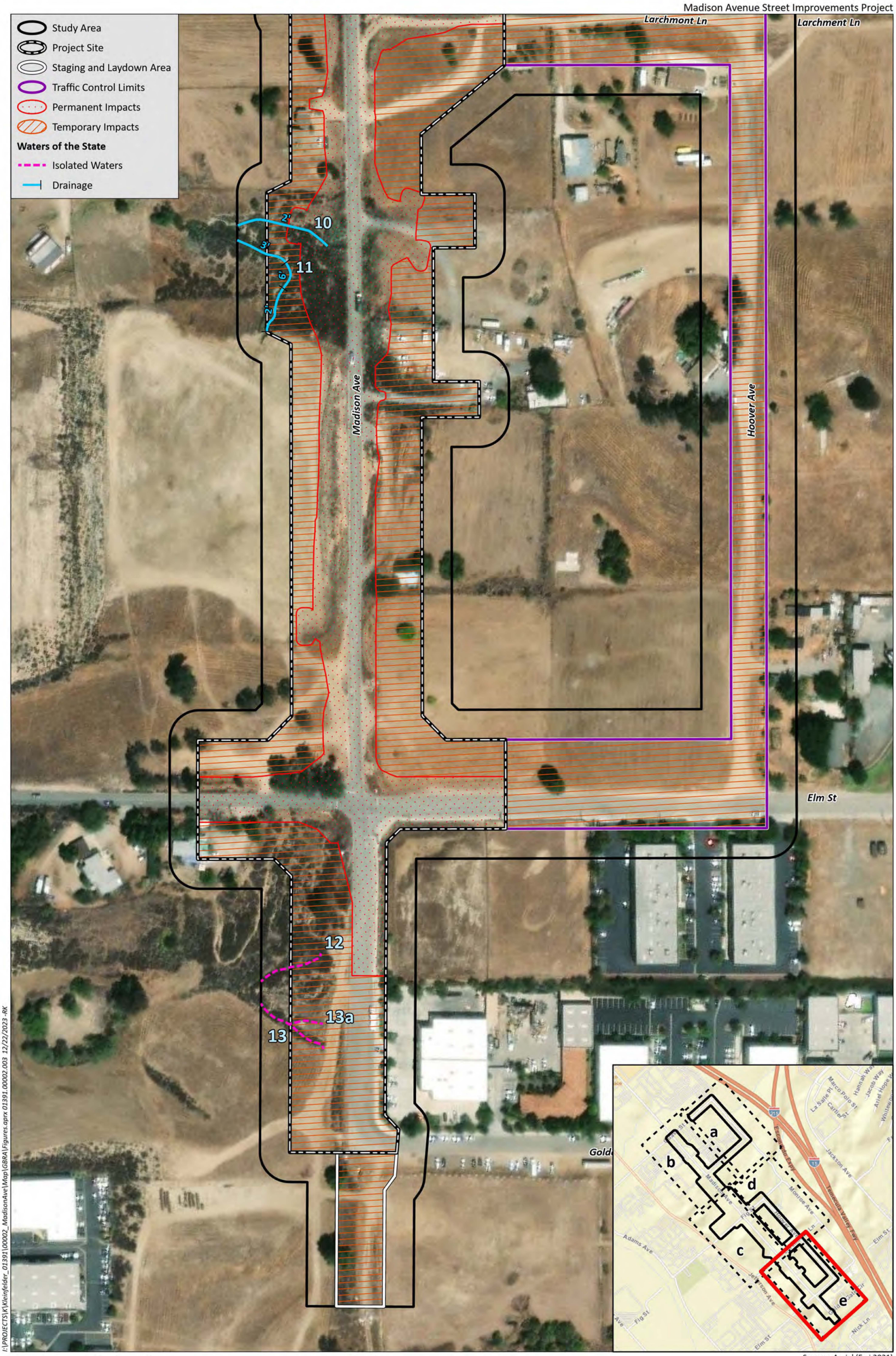
Source: Aerial (Esri 2021)

HELIX Environmental Planning

Waters of the State/Impacts

Figure 10-2d

Madison Avenue Street Improvements Project



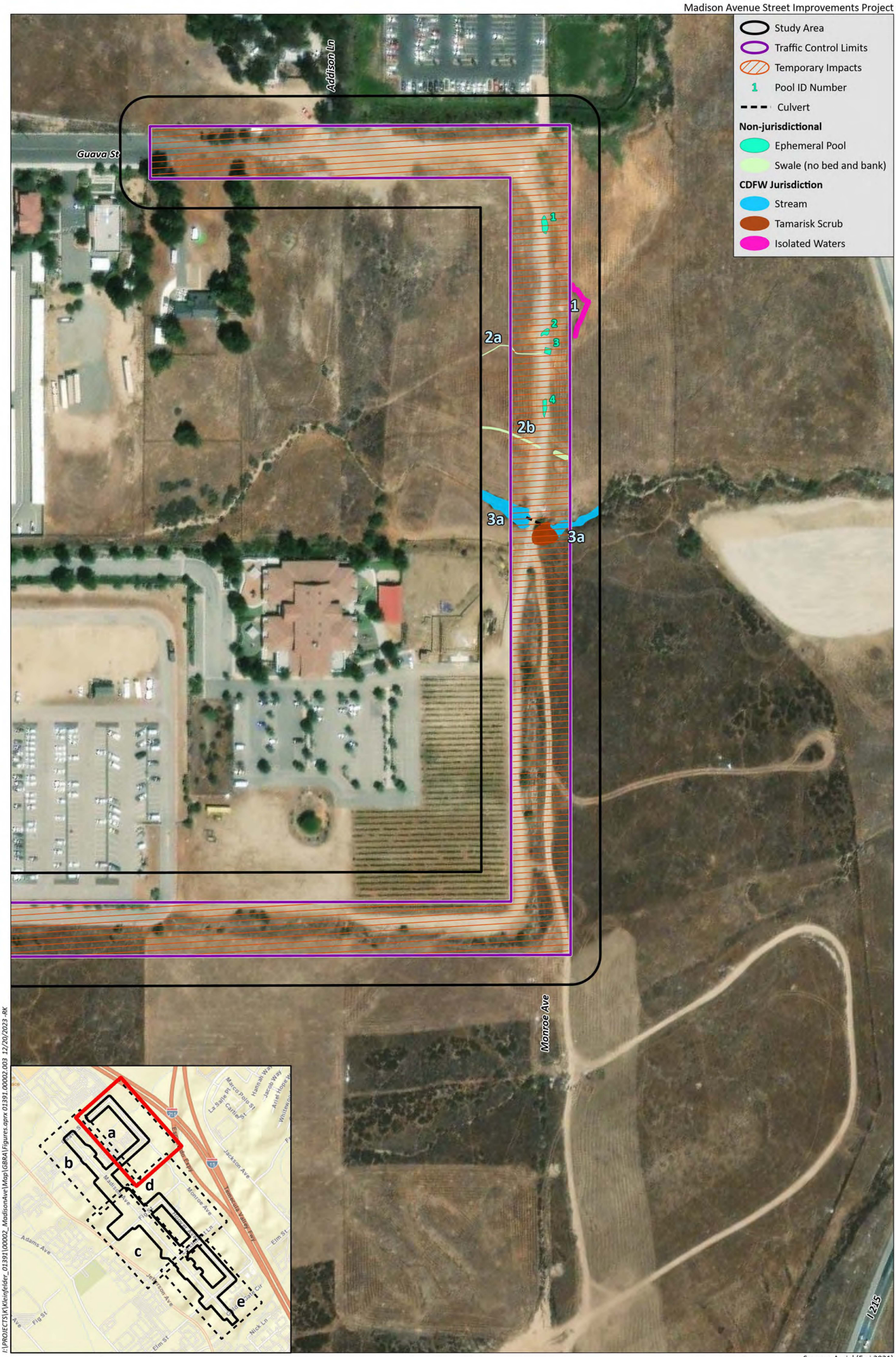
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HELIX Environmental Planning

Waters of the State/Impacts

Figure 10-2e

Madison Avenue Street Improvements Project



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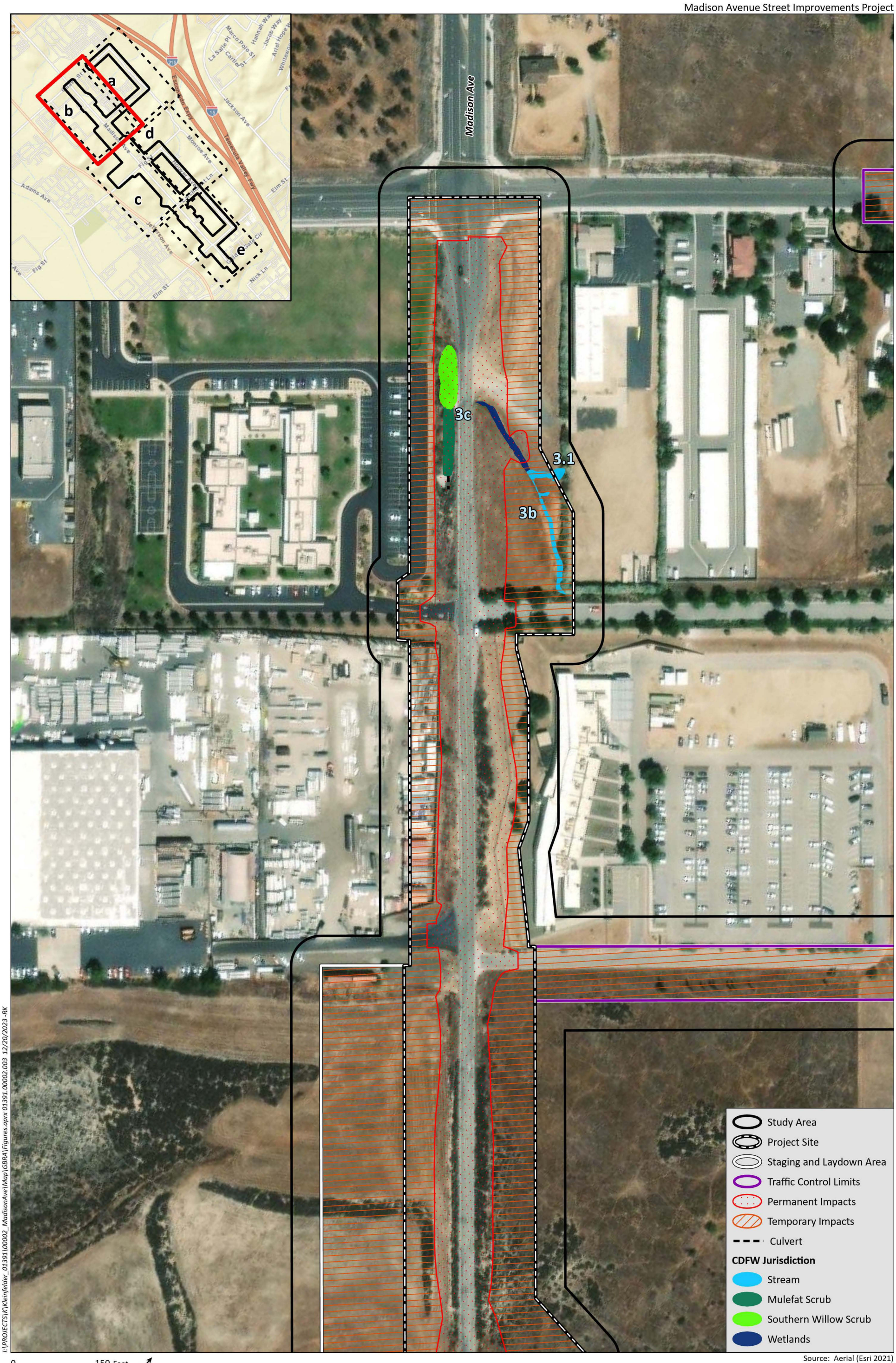
0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction/Impacts

Figure 10-3a



Source: Aerial (Esri 2021)

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HELIX Environmental Planning

CDFW Jurisdiction/Impacts

Figure 10-3b

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
1 Pool ID Number
Culvert
Culvert

Non-jurisdictional

Ephemeral Pool
Swale (no bed and bank)
Swale/Sheetflow

CDFW Jurisdiction

Stream
Mulefat Scrub
Tamarisk Scrub
Isolated Waters

4
30" CMP Culvert
CMP Culvert
18" CMP Culvert
5
7
6
5
6
7
Fig St
Jefferson Ave
Madison Ave
Larchmont Ln
archmont Ln
a
b
c
d
e
Escondido Expy
Jackson Ave
Monroe Ave
Adams Ave
Elm St
Nick Ln
Marco Polo St
La Salle Pl
Cartier St
Hannah Way
Jacob Way
Ariel Hope Pl
Whitewing Pl
Temecula Valley Fwy
215
15

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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction/Impacts

Figure 10-3c

Madison Avenue Street Improvements Project

Study Area
Project Site
Traffic Control Limits
Permanent Impacts
Temporary Impacts
Culvert
Culvert
Non-jurisdictional
Swale (no bed and bank)
Sheetflow
CDFW Jurisdiction
Stream
Isolated Waters

Fig St
Hoover Ave
Monroe Ave
8
9
Culvert
Dual 24" Plastic Culvert
Larchmont Ln
Larchment Ln
a
b
c
d
e
Encanto Expy
Jackson Ave
Tennessee Valley Fwy
Adams Ave
Elm St
Nick Ln

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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction/Impacts

Figure 10-3d

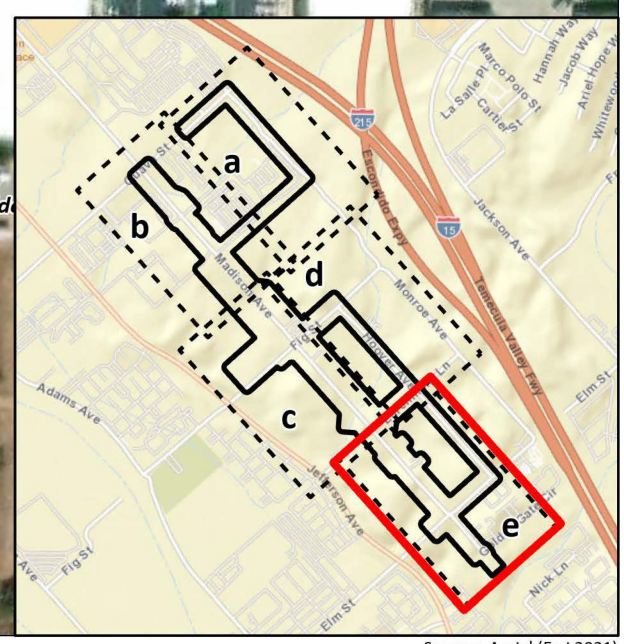
Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
Culvert

CDFW Jurisdiction

Stream
Isolated Waters

10
11
12
13
13a

Madison Ave
Larchmont Ln
Larchment Ln
Hoover Ave
Elm St



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0 150 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

CDFW Jurisdiction/Impacts

Figure 10-3e

Madison Avenue Street Improvements Project

Study Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts
Culvert
1 Pool ID Number
Culvert

Non-jurisdictional

Isolated Waters
Ephemeral Pool

MSHCP Jurisdiction

Stream
Tamarisk Scrub
Swale (no bed and bank)

Guava St
Jordan Ln
Monroe Ave
1
2
3
4
1
2a
2b
3a
3a

a
b
c
d
e

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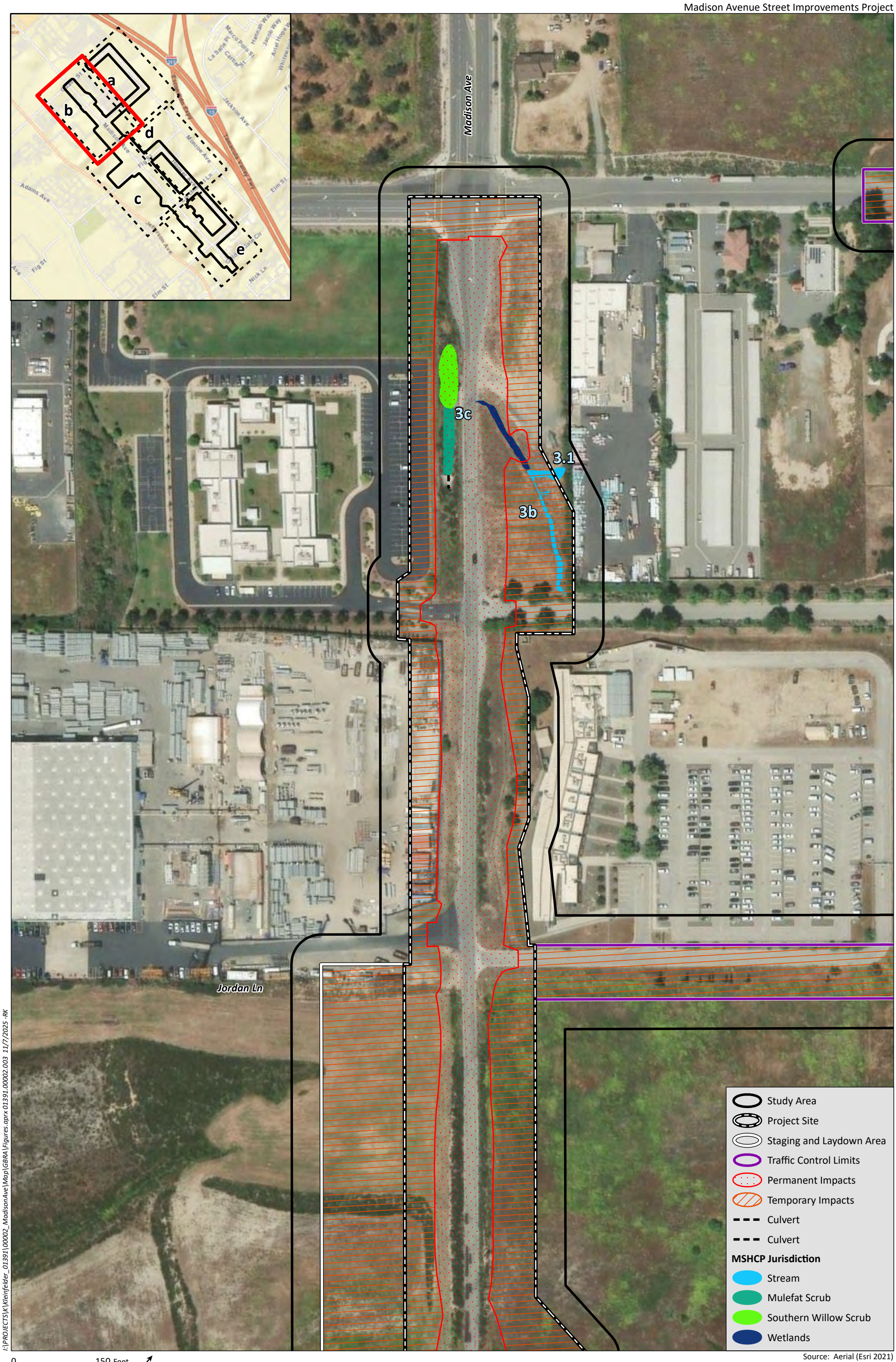
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources/Impacts

Figure 10-4a



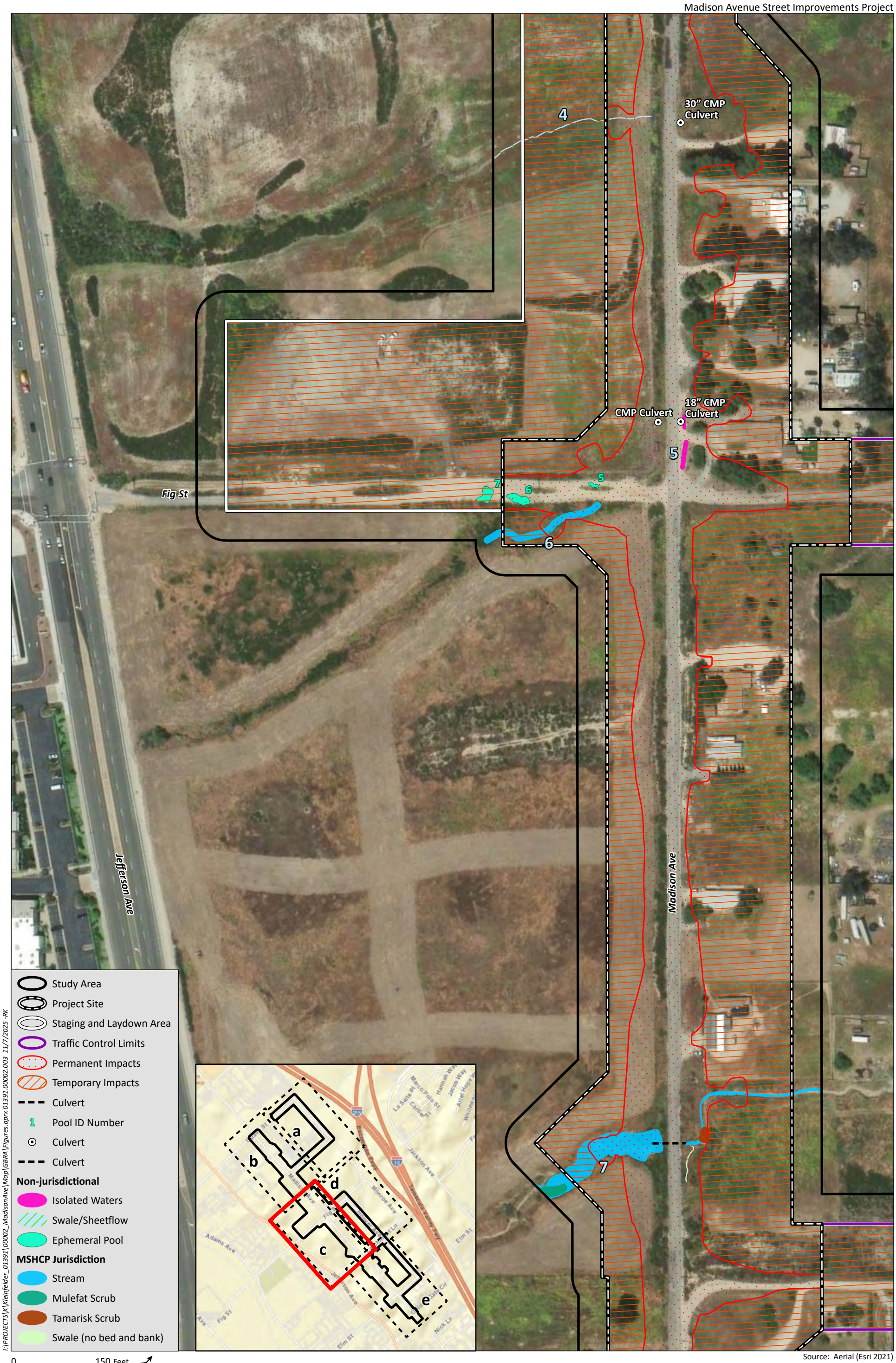
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Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources/Impacts

Figure 10-4b



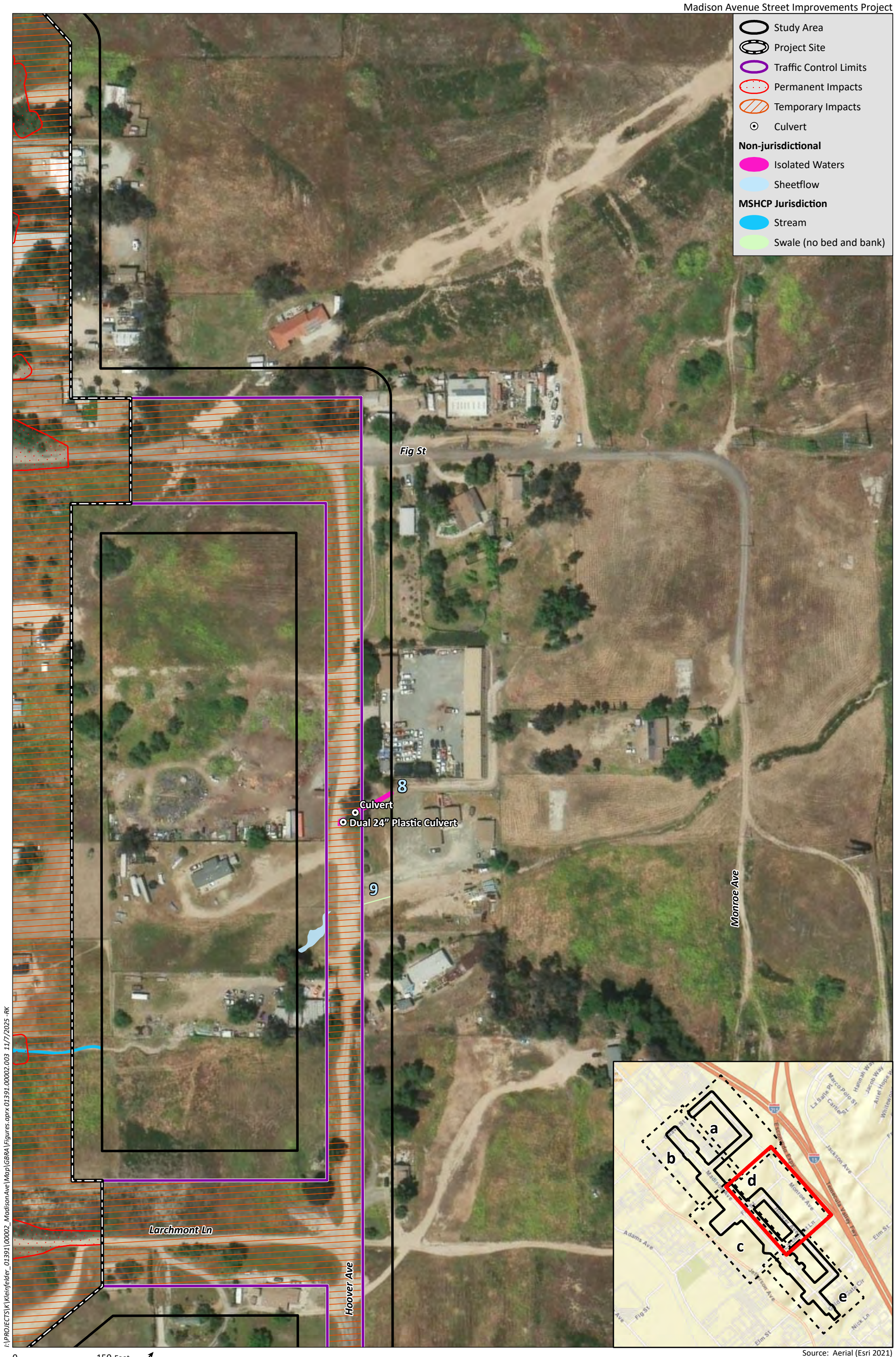
Source: Aerial (Esri 2021)

HELIX Environmental Planning

MSHCP Riparian/Riverine Resources/Impacts

Figure 10-4c

Madison Avenue Street Improvements Project



HELIX Environmental Planning

MSHCP Riparian/Riverine Resources/Impacts

Figure 10-4d

Study Area
Project Site
Staging and Laydown Area
Traffic Control Limits
Permanent Impacts
Temporary Impacts

Non-jurisdictional

Isolated Waters

MSHCP Jurisdiction

Stream

10
11
12
13
13a

Hoover Ave
Elm St
Madison Ave

a
b
c
d
e

Source: Aerial (Esri 2021)

0 150 Feet

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HELIX Environmental Planning

MSHCP Riparian/Riverine Resources/Impacts

Figure 10-4e

wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

Sections 4(d), 7, and 10(a) of the federal ESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. A biological assessment is required for any major construction activity if it may affect listed species. In this case, take can be authorized via a letter of biological opinion, issued by the USFWS for non-marine related listed species issues. A Section 7 consultation is required when there is a nexus between federally listed species use of the site and impacts to USACE jurisdictional areas. Section 10(a) allows the issuance of permits for "incidental" take of endangered or threatened species. The term "incidental" applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. The MSHCP is the Section 10(a) permit for this portion of Riverside County, including the subject property.

Identified by the USFWS, critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitat, so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the federal ESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat.

4.1.2 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal Migratory Bird Treaty Act (MBTA), as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In widespread practice, the MBTA is used to place restrictions on the disturbance of active bird nests during the nesting season. The nesting season is generally from February 1 to August 31. In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests.

4.1.3 Clean Water Act and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting for projects filling waters of the U.S. is overseen by the USACE under Section 404 of the CWA and by the RWQCB under Section 401 of the CWA. Many ephemeral waters in California no longer fall under the jurisdiction of the USACE due to a recent change in the regulations. Most development projects with impacts to federal waters are permitted using Individual Permit or Nationwide Permit instruments.

4.2 State of California

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (i.e., impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

4.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) established State policy to conserve, protect, restore, and enhance State endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the CFG Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For State-only listed species, Section 2081 of the CFG Code authorizes the CDFW to issue an Incidental Take Permit for State listed threatened and endangered species if specific criteria are met. The MSHCP is a regional Natural Communities Conservation Plan granted take coverage under Section 2081 of the CESA.

4.2.3 Native Plant Protection Act

Sections 1900–1913 of the CFG Code (Native Plant Protection Act; NPPA) direct the CDFW to carry out the State legislature's intent to "…preserve, protect, and enhance endangered or rare native plants of this State." The NPPA gives the CFG Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

4.2.4 California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Section 1600 of the CFG Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow, change, or use of any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require an SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities.

Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

4.2.5 State Porter-Cologne Act

Waters of the State that are not subject to regulation under the CWA are regulated by the RWQCB under the Porter-Cologne Act. Waters of the State regulated under the Porter-Cologne Act are subject to similar restrictions as those regulated under Section 401 of the CWA. The purpose of the RWQCB under the Porter-Cologne Act is to restore and maintain the chemical, physical, and biological integrity of all waters of the State. Projects with impacts to waters of the State will be subject to Waste Discharge Regulations from the RWQCB.

4.3 Western Riverside Multiple Species Habitat Conservation Plan

The MSHCP is a comprehensive multi-jurisdictional effort that includes multiple cities and unincorporated County lands in western Riverside County. Rather than addressing sensitive species on an individual basis, the MSHCP focuses on the conservation of 146 species, proposing a reserve system of approximately 500,000 acres and a mechanism to fund and implement the reserve system (RCTLMA 2003). Most importantly, the MSHCP allows participating entities to issue take permits for listed species so that individual applicants need not seek their own permits from the USFWS and/or CDFW. The MSHCP was adopted on June 17, 2003, by the Riverside County Board of Supervisors. The Incidental Take Permit was issued by both the USFWS and CDFW on June 22, 2004.

5.0 MSHCP RESERVE ASSEMBLY ANALYSIS

The Madison Avenue Street Improvements Project is located within the Southwest Area Plan of the MSHCP. The Study Area overlaps three MSHCP Criteria Cells but is not in or adjacent to Bureau of Land Management (BLM) public quasi-public (PQP) land (Figure 4). The Study Area overlaps the southwest corner of Criteria Cell 6409 and the northwest corner of Criteria Cell 6525 in Subunit 5 (French Valley/Lower Sedco Hills), and the northeast corner of Criteria Cell 6528 in Subunit 1 (Murrieta Creek) 6528. The Study Area is approximately 40 feet from the northeast corner of Criteria Cell 6416. The Project's effects on Criteria Cells 6409, 6525, 6528, and 6416 is discussed below.

5.1 Criteria Cell 6409

The conservation goals for Criteria Cell 6409 call for conservation of 10 to 20 percent, focusing across the eastern portion of the cell. Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 15. Conservation within this Cell will focus on Riversidean alluvial fan sage scrub habitat along Warm Springs Creek and adjacent grassland habitat. Areas conserved within this Cell will be connected to grassland and Riversidean alluvial fan sage scrub habitat proposed for conservation in cell 6299 to the north and cell 6407 to the east and to Riversidean alluvial fan sage scrub habitat proposed for conservation in cell 6525 to the south.

The Project occurs in and adjacent to existing roadways in the southwest end of cell 6409, to the west of Interstate 15. Thus, the Project would not adversely affect this cell's conservation goals for lands east of Interstate 15, along Warm Springs Creek in the eastern portion of the cell. Approximately 83.7 acres of undeveloped land (approximately 50 percent of the cell) will remain in cell 6409 after Project development. Therefore, the Project would not conflict with the Cell Conservation Criterion.

5.2 Criteria Cell 6525

The conservation goals for Criteria Cell 6525 call for conservation of approximately 5 percent, focusing across the northeastern portion of the cell. Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 15. Conservation within this Cell will focus on Riversidean alluvial fan sage scrub habitat along Warm Springs Creek and adjacent grassland habitat. Areas conserved within this Cell will be connected to Riversidean alluvial fan sage scrub habitat proposed for conservation in Cell #6409 to the north.

The Project occurs in and adjacent to existing roadways in the northwest end of cell 6525. Proposed Project impacts south of Golden Gate Circle nearest the creek are limited to Residential/Urban/Exotic land. Thus, the Project would not adversely affect this cell's conservation goals for lands along Warm Springs Creek in the middle of the cell. Approximately 48.4 acres of undeveloped land (approximately 25 percent of the cell) will remain in cell 6525 after Project development. Therefore, the Project would not conflict with the Cell Conservation Criterion.

5.3 Criteria Cell 6528

The conservation goals for Criteria Cell 6528 call for conservation of approximately 5 percent, focusing across the western portion of the cell. Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 13. Conservation within this Cell will focus on grassland habitat along Murrieta Creek to the extent feasible. Areas conserved within this Cell will be connected to habitat proposed for conservation along Murrieta Creek in Cell #6530 to the west and #6656 to the south.

The Project occurs in and adjacent to existing roadways in the northeast corner of cell 6528. The Project would not adversely affect this cell's conservation goals for lands along Warm Springs Creek in the west side of the cell. Approximately 35.6 acres of undeveloped land (approximately 18 percent of the cell) will remain in cell 6528 after Project development. Therefore, the Project would not conflict with the Cell Conservation Criterion

5.4 Criteria Cell 6416

The conservation goals for Criteria Cell 6528 call for conservation of 15 to 25 percent, focusing across the southwestern portion of the cell. Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 13. Conservation within this Cell will focus on the existing Murrieta Creek channel and adjacent grassland habitat and agricultural land to the extent feasible. Areas conserved within this Cell will be connected to agricultural land proposed for conservation in Cell #6422 to the west and #6530 to the south.

The Study Area is approximately 40 feet from the northeast corner of Criteria Cell 6416, which is currently developed. The Project would not impact any of the land within this cell and would not affect conservation goals for this cell, which relate to the Murrieta Creek channel and land to the west and south.

5.5 Stephens' Kangaroo Rat Habitat Conservation Plan Fees

Because the Project is within the Stephens' Kangaroo Rat (*Dipodomys stephensi*) Habitat Conservation Plan (SKRHCP) area, but not within any of the core reserves (Riverside County Habitat Conservation

Agency 1996). As a development by a local entity for government purposes, the project is exempt from paying the SKR mitigation fees (County 1996).

6.0 PROTECTION OF SPECIES ASSOCIATED WITH RIPARIAN/RIVERINE AREAS AND VERNAL POOLS (SECTION 6.1.2)

The MSHCP requires that projects be assessed for MSHCP Section 6.1.2 resources, including riparian/riverine resources, vernal pools, fairy shrimp, and riparian birds. The goal is to protect resources used by MSHCP-covered species, as well as the existing and future downstream conservation areas.

According to Section 6.1.2 of the MSHCP:

> "**Riparian/Riverine Areas** are lands which contain Habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to, or which depend upon soil moisture from a nearby fresh water source; or areas with freshwater flow during all or a portion of the year."
>
> "**Vernal pools** are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season. The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records."
>
> "**Fairy Shrimp**. For Riverside, vernal pool and Santa Rosa fairy shrimp, mapping of stock ponds, ephemeral pools and other features shall also be undertaken as determined appropriate by a qualified biologist.
>
> "With the exception of wetlands created for the purpose of providing wetlands Habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating characteristics as described above which are artificially created are not included in these definitions."

Note that the MSHCP states that "areas demonstrating characteristics [of riparian/riverine habitat] which are artificially created are not included in these definitions" of riparian/riverine habitat. The identification of riparian/riverine and Vernal Pool habitats is based on the potential for the habitat to support riparian/riverine and Vernal Pool Covered Species, which are identified in Section 6.1.2 of the MSHCP. These species include least Bell's vireo (*Vireo bellii pusillus*) and a suite of other animals and plants outlined in Section 6.1.2 of the MSHCP. During the sensitive plant surveys on June 28 and July 25,

2018, the aquatic resource assessment on November 20 and 22, 2023, and wet/dry season fairy shrimp surveys during the 2023-2024 survey period, the Study Area was evaluated for habitat that could support animals and/or plants identified by the MSHCP as riparian/riverine and Vernal Pool species.

6.1 Riparian/Riverine

6.1.1 Methods

Mr. Hogenauer conducted a riparian/riverine and Vernal Pool habitat assessment during site visits on November 20 and 22, 2023. The assessment was conducted concurrently in the field with the aquatic resources assessment (Section 3.0 above). The evaluation consisted of a directed search for field characteristics indicative of riparian/riverine habitats. Field indicators include the presence of certain plant species, drainage courses, drainage patterns, ponded water, changes in soil character, changes in vegetation character, and deposits of water-borne debris. The visit consisted of a focused survey for riparian/riverine and Vernal Pool plant species, along with mapping potential riparian/riverine resources in the Study Area.

The MSHCP has a separate definition for “riparian” and for “riverine.” Riverine features include those that are natural in origin as well as semi-natural features that have been modified and/or redirected and can include features indirectly created through manipulation of the landscape, including channelization of a historic riverine feature. If these features connect to nearby downstream resources that are either existing or described conservation lands, they would be considered riverine. Riverine features are typically unvegetated or include vegetation similar to surrounding uplands. Riparian features are those with vegetation dependent upon a water source such as a stream, drainage, pond, or similar.

6.1.2 Existing Conditions and Results

The potential riverine habitat in the Study Area consists of 13 unnamed ephemeral drainages and swales. The drainages are described in Section 3.2 above. Drainages 2a, 2b, 4, and 9 are swales with limited sign of flow, while the remaining drainages are ephemeral drainages that flow only during or directly after rain events. Drainages 1-4, and 6-13 appear to be naturally occurring at their current location or are naturally occurring but have been at least partially manipulated by development.

Drainage 5 appears to be artificially created between 2012 and 2016 as part of a method to protect a residential driveway at an area that collects road runoff. Drainage 5 does include a culvert under the driveway and a culvert under Madison Avenue but the downstream end of the culvert on the west side of Madison Avenue does not show signs of flow. Since this drainage was artificially created in an upland and lacks a connection to downstream resources it is considered to not be an MSHCP riverine resource. Drainages 1 is also not an MSHCP resource due to their lack of connection to downstream resources. Drainages 2, 2a, 3a, 3b, 6, 7, 8, 9, 10, 11, 12, 13, and 13a are MSHCP riverine resources. Many of these features are connected to resources out of the Study Area but do not have a clear surface connection to downstream resources such as Murrieta Creek but are considered as MSHCP Riverine resources due to their potential to support MSCHP covered species. The total riverine resources within the Study Area are 0.63 acre of ephemeral streambed.

Riparian habitat within the Study Area is comprised of 0.07 acre of southern willow scrub, 0.06 acre of mulefat scrub, and 0.04 acre of tamarisk scrub. These habitats occur in small patches within drainages

3a, 3c, and 7 and are MSHCP riparian resources (Table 8, *Existing Habitats Evaluated for Riparian/Riverine Potential*).

All drainages were evaluated and determined to be ephemeral. Waters evaluated consist of ten streams (Drainages 1, 3a-c, 5, 6, 7, 8, 10, 11, 12, and 13), three swales (Swales 2a-b, 4, and 9), and nine ephemeral pools (Road Pools 1 through 9). Many of the drainages appear only to flow during larger rain events and have no flow during the smaller rain events. Small amounts of riparian vegetation were present in Drainages 3a, 3c, and 7. Drainage 3a has a small stand of tamarisk scrub at a culvert, with the tamarisk scrub also occurring nearby due to irrigation run off and not due to flow in the stream. Drainage 3c is a constructed flood control facility created at the location that was once the end (dissipation point) of the drainage. The culvert that Drainage 3c enters is approximately 0.5 mile (2,600 feet) from the nearest relatively permanent water (Murrieta Creek). The outfall location of the culvert is not known.

In addition to being ephemeral, Drainages 1, 5, 8, 12, and 13 are isolated waters, lacking a connection to downstream waters. Drainages 3, 6, 10, and 11 enter into culverts adjacent to Jefferson Avenue and do not have a known outfall location making a downstream connection unclear. Drainages 2, 4, and 9 are swales that lack a defined bed and bank.

The drainages originate east of the Study Area as a natural drainage or in the case of drainages 6, 12 and 13 originate within the Study Area. Drainages 12, 13, and 13a connect to a small ephemeral pond approximately 200 feet west of the Study Area; further connection to downstream resources is unknown. Drainages 2, 2a, 3a, 3b, 3c, 6, 7, and 9 may have connectivity to Murrieta Creek via culverts but do not have a defined surface connection to downstream resources. Drainages 1, 5, 8, 10, and 11 lack connectivity to downstream resources. Drainage 4 connects to a more well-defined drainage west of the Study Area that enters a culvert on the east side of Jefferson Avenue.

The plant species in and around the drainages are a mainly a mix of native and non-native upland species commonly found in Riversidean sage scrub and disturbed habitats (Appendix B). Riversidean sage scrub and disturbed habitat both occur adjacent to the drainages

Wildlife utilizing the project site, and potentially the drainages include common songbird species associated with sage scrub, and disturbed habitats. MSHCP protected riparian wildlife species were not present on the site.

The functions and services of the drainages are minimal, consisting of conveying small amounts of water and sediment, and toxin and nutrient trapping. Patches of riparian habitat that occur in the Study Area provide limited habitat for wildlife given their small size and distance from other habitat.

Table 8
EXISTING HABITATS EVALUATED FOR RIPARIAN/RIVERINE POTENTIAL[1]

Resource Type	Acre	Linear Feet
Riverine-Ephemeral Streambed	0.63	2,792
Riparian-Southern Willow Scrub	0.07	97
Riparian-Mulefat Scrub	0.06	136
Riparian-Tamarisk Scrub	0.04	40
Isolated ephemeral streambed[2]	0.03	169
Total	**0.83**	**3,234**

[1] Acreage rounded and linear feet rounded to nearest 0.01.
[2] Not an MSHCP riparian/riverine resource.

6.1.3 Impacts

The proposed Project will result in impacts to 0.61 acre riparian/riverine resources comprised of 0.33 acre permanent impacts and 0.28 acre temporary impacts (Table 9; Figure 10-4a-e). The permanent impacts consist of 0.07 acre southern willow scrub, 0.05 acre mulefat scrub, less than 0.01 acre tamarisk scrub, and 0.20 acre ephemeral stream and are a result of proposed improvements to Madison Avenue that include widening of the road, adding a bike lane, sidewalk, and a graded parkway. Permanent impacts to drainages also include extending or replacement of existing culverts as part of the project improvements. Temporary impacts may occur to drainages as a result of traffic control measures that can result in increased traffic on the unimproved roads adjacent to Madison Avenue, and as part of the extending or replacement of existing culverts.

Table 9
MSHCP RIPARIAN/RIVERINE IMPACTS

Habitat Type	Acres[1]
Permanent	
Riverine-Ephemeral Streambed	0.20
Riparian-Southern Willow Scrub	0.07
Riparian-Mulefat Scrub	0.05
Riparian-Tamarisk Scrub	<0.01
Permanent Totals	**0.33**
Temporary	
Riverine-Ephemeral Streambed	0.25
Riparian-Tamarisk Scrub	0.03
Temporary Totals	**0.28**
Totals	**0.61**

[1] all acreage has been rounded to the nearest 0.01 acre.

6.1.4 Mitigation

Prior to Project activities occurring within jurisdictional aquatic resources, the Project proponent shall prepare for approval by the RCA, USFWS, and CDFW, a DBESP for impacts to MSHCP Section 6.1.2 riparian/riverine resources. Permanent impacts to 0.33 acre riparian/riverine resources are proposed to be mitigated via one or more of the following methods:

- Purchase of a mix of re-establishment and/or rehabilitation credits from an agency approved mitigation bank, such as at the Riverpark Mitigation Bank or San Luis Rey.
- Purchase of preservation credits at an agency approved mitigation bank, such as Skunk Hollow.
- Restoration and improvements to the features within and adjacent to the Study Area.
- Permittee-responsible off-site mitigation at a property owned by the City.

Mitigation for permanent impacts will consist of a minimum of 1:1 replacement, with the with the proposed mitigation and ratio) included in the Determination of Biologically Equivalent or Superior Preservation (DBESP), which will be reviewed and approved by the RCA and wildlife agencies (CDFW and USFWS). Temporary impact will be restored to pre-project conditions. The mitigation bank credits will be for resources with an equal or higher value than the resources being impacted. The Riverpark Mitigation Bank and Skunk Hollow occur within the planning boundaries of the MSHCP and are approved by the resource agencies.

6.2 Vernal Pools

6.2.1 Methods

The Study Area was surveyed by Mr. Hogenauer on November 20, 2023, for signs of vernal pool, ephemeral ponds, or similar habitat. Vernal pool indicators searched for include standing water, cracked soil, presence of certain plant species, and changes in soil or vegetation characteristics. Soils information was gathered from the U.S. Department of Agriculture online database (NRCS 2024a).

6.2.2 Existing Conditions and Results

The vernal pool assessment revealed that the Study Area includes nine unvegetated pools. These are road depressions located on hard pan created by vehicles that compacted the roads. No MSCHP pools are present in the Study Area. Because listed fairy shrimp can be found in non-vernal pool features such as stock ponds, ephemeral pools, road ruts, people made depressions, or other depression that may pond, wet/dry season fairy shrimp protocol surveys were conducted in the nine unvegetated pools in the Study Area.

6.3 Study Area Fairy Shrimp

6.3.1 Methods

HELIX permitted biologists Amanda Mathews and Amy Mattson (Permit ES-778195-15) conducted the 2023-2024 wet season survey in accordance with current USFWS protocol (USFWS 2017). The survey consisted of 18 survey visits, conducted between January 3 and May 1, 2024. The first substantial rainfall of the season occurred on December 20-22, 2024 (0.66 inch; NOAA 2023), with the initial survey occurring on January 3, 2024. Each feature was sampled at approximately seven-day intervals until dry, and sampling was reinitiated within seven days of the feature becoming re-inundated. All features were observed to be dry on May 1, 2024. Given insubstantial rainfall on-site after May 1, 2024, this was the last survey visit for the 2023-2024 wet season.

The features were sampled using fine mesh aquarium nets swept through the water and examined for invertebrates. If fairy shrimp were present, an attempt to identify netted fairy shrimp to species occurred in the field. Following identification, individuals identified in the field were immediately returned to their pool of origin. Fairy shrimp unable to be identified to species in the field were collected and identified using the key in Eriksen and Belk, with the aid of a dissecting scope. Because multiple similar branchiopod species may occupy the same features, when "take" of fairy shrimp occurred, no more than 30 specimens of each species from each feature, or less than 50 percent of the estimated subpopulation for each feature, were collected (whichever was the lesser amount). Care was taken to ensure that nets were cleaned after each feature was sampled.

USFWS vernal pool data sheets were completed during each site visit and included the collection of the following data at each feature, as applicable: average and maximum water depth, air and water temperature, feature length and width, habitat condition, a population estimate of any fairy shrimp present, and observations of any other feature-dwelling species.

6.3.2 Results

The 2023-2024 wet season fairy shrimp surveys only yielded versatile fairy shrimp (*Branchinecta lindahli*), a common fairy shrimp species. No listed fairy shrimp species were detected. Specific methods and findings are provided in the 2023-2024 Wet Season Fairy Shrimp Survey Report for the Madison Avenue Street Improvements Project (Appendix E) and the 2024 Dry Season Sampling for Listed Large Branchiopods, Madison Avenue Street Improvements Project, Riverside County, California (Appendix F).

6.3.3 Impacts

As no listed fairy shrimp species were observed during the 2023-2024 focused surveys, no impacts would occur to listed fairy shrimp. The proposed project would impede on hydrology that may support fairy shrimp; however, given that the features consist of road ruts, the implementation of the project would not have any impacts on the hydrology to the features. No mitigation is required.

6.4 Riparian Birds

6.4.1 Methods

The vegetation in the Study Area was mapped and assessed during a site visit in April 2018 and updated in October and November 2023. The MSHCP includes five bird species associated with riparian/riverine habitat: least Bell's vireo, southwestern willow flycatcher (*Empidonax traillii extimus)*, western yellow-billed cuckoo (*Coccyzus americanus)*, peregrine falcon (*Falco peregrinus*), and bald eagle (*Haliaeetus leucocephalus*). Three of these species (least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo) require surveys if potential habitat is present.

6.4.2 Existing Conditions and Results

The on-site Study Area was determined not to include habitat with the potential to support riparian bird species. Habitats on-site primarily consist of residential/urban/exotic (developed), residential/urban/exotic (disturbed), and non-native grassland. Patches of non-native trees, such as Peruvian pepper tree (*Schinus molle*) and river red gum (*Eucalyptus camaldulensis*) are present within the disturbed areas. Although southern willow scrub does occur within the Study Area it is limited to a

small patch of habitat located within a roadside flood control facility and does not represent potential habitat for MSHCP sensitive bird species. Least Bell's vireo, southwestern willow flycatcher, yellow-billed cuckoo bird species utilize willow riparian or similar woodland or forest habitats that are layered. The preferred habitat for these riparian bird species does not occur in the Study Area. Bald eagle and peregrine falcon primarily occur adjacent to open water habitats, with the peregrine falcon possibly occurring in riparian woodland and forest habitats. Suitable nesting habitat for these species does not occur in the Study Area.

6.4.3 Impacts

The Study Area does not include habitat with the potential to support MSHCP riparian birds. No impacts are proposed to occur to riparian bird habitat; therefore, no surveys or mitigation is required.

6.5 Plants

6.5.1 Plants

The MSHCP lists 23 sensitive plant species that have the potential to occur in riparian/riverine and Vernal Pool habitats. These species are:

- California black walnut (*Juglans californica* var. *californica*),
- Engelmann oak (*Quercus engelmannii*),
- Coulter's matilija poppy (*Romneya coulteri*),
- San Miguel savory (*Clinopodium chandleri*),
- spreading navarretia (*Navarretia fossalis*),
- graceful tarplant (*Holocarpha virgata* ssp. *elongata*),
- California Orcutt grass (*Orcuttia californica*),
- prostrate navarretia (*Navarretia prostrata*),
- San Diego button-celery (*Eryngium aristulatum* var. *parishii*),
- Orcutt's brodiaea (*Brodiaea orcuttii*),
- thread-leaved brodiaea (*Brodiaea filifolia*),
- Fish's milkwort (*Polygala cornuta* var. *fishiae*),
- lemon lily (*Lilium parryi*),
- San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*),
- ocellated Humboldt lily (*L. humboldtii* ssp. *ocellatum*),
- Mojave tarplant (*Deinandra mohavensis*),
- vernal barley (*Hordeum intercedens*),
- Parish's meadowfoam (*Limnanthes gracilis* var. *parishii*),
- slender-horned spineflower (*Dodecahema leptoceras*),
- Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*),

- Brand's phacelia (*Phacelia stellaris*),
- mud nama (*Nama stenocarpum*), and
- smooth tarplant (*Centromadia pungens* ssp. *laevis*).

6.5.2 Methods

A focused plant survey of the Study Area was conducted on June 28 and July 25, 2018, by HELIX biologists Amy Lee, Daniel Torres, and Lauren Singleton. The surveys included searching for the riparian/riverine plant species listed above and in Section 6.1.2 of the MSHCP. Biologists walked the entire Study Area searching for sensitive plants, including MSHCP riparian/riverine species. The aquatic resource assessment and riparian/riverine habitat assessment discussed above also included surveying for the aforementioned species.

6.5.3 Results

The Study Area has limited habitat with the potential to support riparian/riverine and Vernal pool plant species. The plant species associated with riparian/riverine and Vernal Pool areas were confirmed to be absent from the Study Area. Plant species are discussed in greater detail below.

California black walnut is a conspicuous tree species associated with alluvial soils within coastal sage scrub, chaparral, riparian woodlands, and cismontane woodlands. No California black walnut were observed and are presumed to be absent from the Study Area.

Engelmann oak is a conspicuous tree species associated with alluvial fans and slopes with a mesic aspect. No oak trees, including Engelmann oaks, were observed. This species is presumed to be absent from the Study Area.

Coulter's Matilija poppy occurs in dry washes and canyons below 3,600 feet. It often occurs within sage scrub and chaparral habitats but has not been recorded in the vicinity of the Study Area. This species is easily detected when present. It was not observed and is presumed absent from the Study Area.

San Miguel savory is a perennial shrub that occurs on rocky, gabbroic, or metavolcanic soils. Suitable soils are not present in the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Spreading navarretia, California Orcutt grass, prostrate navarretia, San Diego button-celery, and vernal barley occur in mesic soil associated with vernal pools and similar features. Vernal barley may also occur in saline areas within grasslands. Shallow ponding was observed along dirt roads during 2023 survey, but most of these shallow depressions are subject to ongoing disturbance and none of these were observed to support vernal pool associated species. Saline grasslands are not indicated by field surveys or aerial imagery.

Graceful tarplant is an annual herb associated with grasslands, coastal scrub, chaparral, and cismontane woodland. No graceful tarplant were observed and are presumed to be absent from the Study Area.

Orcutt's brodiaea is a perennial bulbiferous herb that occurs on clay or mesic soils, associated with annual grassland, vernal pools, coniferous forest, chaparral, cismontane woodland, meadows, and seeps. This species has not been recorded in the vicinity of the Study Area. Suitable soils or mesic areas

are not present in the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Thread-leaved brodiaea is a perennial bulbiferous herb that occurs on clay soils, usually associated with annual grassland and vernal pools. This species has not been recorded in the vicinity of the Study Area. Suitable soils are not present in the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Fish's milkwort is a perennial shrub associated with chaparral and oak woodlands. Suitable habitat is not present in the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Lemon lily is a perennial bulbiferous herb that occurs in moist montane meadows. Suitable habitat is not present in the Study Area, this species has not been recorded in the vicinity of the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

San Jacinto Valley crownscale is an annual herb associated with vernal pools, playas, and similar habitats. Suitable habitat is not present in the Study Area, this species has not been recorded in the vicinity of the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Ocellated Humboldt lily is associated with riparian corridors in coniferous forest and chaparral habitats. Within Western Riverside County, ocellated Humboldt lily is restricted to canyons along the east slope of the Santa Ana Mountains and the north slope of the Palomar Mountains. The limited riparian habitat on-site is not associated with coniferous forest, and this species has not been recorded in the vicinity of the Study Area. This species was not observed and is presumed to be absent from the Study Area.

Mojave tarplant is associated with arid montane chaparral. Habitat for this species does not occur in the Study Area, and this species has not been recorded in the vicinity. This species was not observed and is presumed to be absent from the Study Area.

Parish's meadowfoam is an annual herb associated with montane meadows, dominated by broad-leaved plants. Suitable habitat is not present in the Study Area, this species has not been recorded in the vicinity of the Study Area, and it was not observed. This species is presumed to be absent from the Study Area.

Slender-horned spineflower is typically found in mature alluvial scrub with sandy soils but is also found in rocky soils and open chamise chaparral. Ideal habitat is thought to be benches or terraces that receive overbank flow every 50 to 100 years. Habitat for this species does not occur in the Study Area, and this species has not been recorded in the vicinity. This species was not observed and is presumed to be absent from the Study Area.

Santa Ana River woolly-star is endemic to the Santa Ana River drainage and has not been recorded in the vicinity of the Study Area. This species was not observed and is presumed to be absent from the Study Area.

Brand's phacelia is associated with sandy openings in Diegan coastal sage scrub near the coast. The Study Area is not coastal, and this species has not been recorded in the vicinity of the Study Area. This species was not observed and is presumed to be absent from the Study Area.

Mud nama is restricted to muddy embankments of marshes and swamps, and within lake margins and river banks (CNPS 2023). Three populations are known from Riverside County, with two occurring along the San Jacinto River (RCTLMA 2003). This species has not been recorded in the vicinity of the Study Area. This species was not observed and is presumed to be absent from the Study Area.

Smooth tarplant is found in southwestern California and northwestern Baja California, Mexico (Baja), and occurs in San Bernardino, Riverside, and San Diego counties. This species occurs in open spaces within a variety of habitats, including alkali scrub and playas, riparian woodland, watercourses, and grasslands with alkaline affinities (RCTLMA 2003; CNPS 2043). Alkaline grasslands are not present. This species was not observed and is presumed to be absent from the Study Area.

None of the 23 MSHCP riparian/riverine and Vernal pool plant species were observed in the Study Area, and none are expected to occur within the Study Area. No impacts are proposed to occur to MSHCP riparian/riverine and Vernal pool plant; therefore, mitigation is required. A list of plant species observed during the field surveys is provided as Appendix A.

6.6 Other Section 6.1.2 Species

Section 6.1.2 of the MSHCP also includes the protection of fish and amphibian species.

6.6.1 Fish

The Santa Ana sucker is restricted to the Santa Ana River watershed with year-round flows. This species generally lives in small shallow streams less than seven meters wide with various current strengths. They require permanent streams with a gravel bottom preferred. They prefer cool, clear water but can tolerate turbid waters. Habitat for this species is not present in the Study Area; thus, this species is not expected to occur.

6.6.2 Amphibians

The MSHCP Section 6.1.2 includes the protection of three amphibian species, arroyo toad (*Anaxyrus californicus),* mountain yellow legged frog (*Rana muscosa*), and California red-legged frog (*Rana draytonii*). Arroyo toad occur in streams that have breeding pools that are shallow with minimal current. Requirements also include sandy banks with areas of minimal vegetative cover. The drainages/streams in the Study Area are ephemeral and only flow in response to direct rainfall. The ephemeral streams do not constitute habitat for arroyo toad, mountain yellow legged frog, or California red-legged frog. Mountain yellow-legged frog and California red-legged frog are not known to occur on or adjacent to the Study Area. The mountain yellow-legged frog occurs in mountain streams and is currently only known within the County in the San Jacinto Mountains. The California red-legged frog is only known within the County on the Santa Rosa Plateau. It requires deep water with adjacent uplands to move between breeding sites. Habitat for these species does not occur in the Study Area; thus, none of the MSHCP sensitive amphibian species are expected to occur.

7.0 PROTECTION OF NARROW ENDEMIC PLANT SPECIES (SECTION 6.1.3)

The Study Area is not located within an MSHCP Section 6.1.3 Narrow Endemic Plant Species Survey Area (NEPSSA).

7.1 Methods

Although the Study Area is not within the MSHCP survey area for narrow endemic plants, a survey for sensitive plants was conducted. On June 28 and July 25, 2018, HELIX biologists Amy Lee, Daniel Torres, and Lauren Singleton conducted focused surveys for potential sensitive plant species. Surveys were conducted by walking transects across the entire site to allow for 100 percent visual coverage of the Study Area. Most plants were identified in the field. Those plants unable to be identified to species in the field were keyed in the office to species. The survey method follows the guideline recommended by the CDFW (CDFW 2018).

7.2 Results

The plant surveys (and other biological surveys) conducted within the Project Study Area resulted in the observation of 84 plant species. None of the observed plants are NEPSSA plant species.

7.3 Impacts

NEPSSA plant species do not occur in the Study Area. No impacts are proposed to occur to NEPSSA plant species; therefore, no surveys or mitigation is required.

8.0 ADDITIONAL SURVEY NEEDS AND PROCEDURES (SECTION 6.3.2)

MSHCP Section 6.3.2 Additional Survey Needs and Procedures includes survey areas for plants, amphibians, BUOW, and mammals. These items are discussed below as they apply to the Study Area.

8.1 Criteria Area Plant Species

The Study Area is not within a Criteria Area Plant Species Survey Area. A general sensitive plant survey was conducted, as detailed in Section 7 above.

8.2 Amphibians

The Study Area is not within an amphibian survey area. No surveys for amphibians are required, and none were conducted.

8.3 Burrowing Owl

The Study Area is within the mapped survey area for BUOW, and surveys were conducted.

8.3.1 Methods

The Study Area is located within an MSHCP BUOW Survey Area; thus, MSHCP protocol surveys for BUOW are required. Surveys were conducted in 2018 and 2022 in accordance with the County's survey protocol (County 2006, HELIX 2018, and Kleinfelder 2022). Both surveys included a Step I-Habitat Assessment for BUOW, which included the Study Area and a 150-meter (approximately 500-foot) buffer zone surrounding the periphery of the Study Area (survey area). Since suitable habitat for BUOW was observed, Step II surveys were conducted. Step II surveys typically consist of a focused burrow survey (Part A) and four focused BUOW surveys (Part B) to determine whether the survey area supports suitable burrows and/or BUOWs.

8.3.2 Results

The Study Area includes suitable habitat for BUOW, consisting of Residential/Urban/Exotic (disturbed), non-native grassland, and Riversidean sage scrub vegetation communities. Additionally, suitable burrows that could potentially be used by BUOW were observed. Although potential habitat was present, no sign of current or past use by burrowing owl was observed in the Study Area during burrowing owl surveys conducted in 2018 and 2022. Therefore, the Study Area does not currently support burrowing owls. The survey methods and results are discussed in detail in each of the survey reports (Appendix G and Appendix H, respectively).

8.3.3 Impacts

Given that the Study Area has suitable BUOW habitat that includes burrows from ground-dwelling mammals, there is high potential for significant impacts to BUOW.

8.3.4 Mitigation

The Study Area is not currently occupied; however, a survey for burrowing owls is required within the 30-days prior to initial ground-disturbing activities (e.g., vegetation clearing, clearing, and grubbing, grading, tree removal, site watering, equipment staging), to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owl are not detected during the pre-construction survey, no further mitigation is required. If burrowing owls have colonized the Project site prior to the initiation of ground-disturbing activities, the Project applicant will inform the RCA, City, and the Wildlife Agencies within three days of detection of burrowing owls and will need to coordinate further with RCA, City, and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance.

If active burrowing owl burrows are detected, the Project applicant shall not commence activities until no sign is present that the burrows are being used by adult or juvenile owls and following RCA and CDFW approval of a Burrowing Owl Plan as described below. The on-site qualified biologist will verify the nesting effort has finished according to methods identified in the Burrowing Owl Plan.

The Burrowing Owl Plan shall be prepared in accordance with guidelines in the CDFW Staff Report on Burrowing Owl (CDFW 2012) and MSHCP. The qualified biologist and Project applicant shall coordinate with the Project applicant, RCA, CDFW, and USFWS to develop a Burrowing Owl Plan to be approved by RCA, CDFW, and USFWS prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, relocation, monitoring, minimization, and/or mitigation actions. The Burrowing

Owl Plan shall include the number and location of occupied burrow sites and details on proposed buffers if avoiding the burrowing owls or information on the adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The Project applicant shall implement the Burrowing Owl Plan following RCA, CDFW, and USFWS review and approval.

If burrowing owls are observed within the Study Area during Project implementation and construction, the Project applicant shall notify RCA and CDFW immediately in writing . A Burrowing Owl Plan shall be submitted to CDFW for review and approval within two weeks of detection and no Project activity shall continue within 500 feet of the active burrowing owl~~s~~ burrows during the breeding season of March 1 to August 31, or within 250 feet during the non-breeding season, until CDFW approves the Burrowing Owl Plan. The Project applicant shall be responsible for implementing appropriate avoidance and mitigation measures, including burrow avoidance, passive or active relocation, or other appropriate mitigation measures as identified in the Burrowing Owl Plan.

If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a preconstruction survey for burrowing owl shall be conducted and reported to the RCA, City, and CDFW as described above. If a burrowing owl is found, the same coordination described above shall be necessary.

A final letter report shall be prepared by a qualified biologist documenting the results of the passive relocation. The letter shall be submitted to RCA and CDFW prior to the start of Project activities.

These measures would reduce potential impacts to less than significant.

If the proposed Project cannot avoid (permanent and temporary) at least 90 percent of the occupied portions of the Study Area that contributes to the long-term conservation value of BUOW, a DBESP report will be required.

8.4 Mammals

The Study Area is not within a survey area for mammals. No mammal surveys are required, and none were conducted.

9.0 INFORMATION ON OTHER SPECIES

9.1 Species Not Adequately Conserved

The MSHCP includes a table (MSHCP Table 9-3) of 28 species not adequately conserved under the MSHCP. These species were not observed on the property during the various site visits conducted on the property.

9.2 Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS and/or CDFW. They may also be included in the CNPS' Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity,

and/or population size. Sensitive species are those considered unusual or limited in that they are: (1) only found in the region; (2) a local representative of a species or association of species not otherwise found in the region; or (3) severely depleted within their ranges or within the region. No sensitive plant species were observed in the Study Area.

A total of 36 plant species were evaluated for their potential to occur in the Study Area (Appendix C, *Special-Status Plant Species Potential to Occur*). Only 13 of the evaluated species have suitable habitat within the Study Area. None of the species were observed in the Study Area during the sensitive plant survey (or other biological surveys), although paniculate tarplant (*Deinandra paniculata*) was observed within the 500-foot buffer for burrowing owl surveys. Paniculate tarplant is California Rare Plant Rank 4.2. The 36 plant species evaluated are all presumed absent or do not have the potential to occur in the Study Area and described further in Appendix C, where the explanation of status codes are included as a footnote. No additional plant species have a high potential to occur based on geographic range, elevation range, and/or lack of suitable habitat in the Study Area.

Three of the species evaluated are listed at either the federal or State level, with two of the three listed at both the federal and State level. Habitat for the listed species is not present in the Study Area. Habitat for an additional thirteen sensitive (but not listed) species is present in the Study Area, but these species were determined to be absent by the conducting of the sensitive plant surveys. They are alkali marsh aster (*Almutaster pauciflorus*), Douglas' fiddleneck (*Amsinckia douglasiana*), Catalina mariposa lily (*Calochortus catalinae*), intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), paniculate tarplant, graceful tarplant (*Holocarpha virgata* ssp. *elongata*), Southern California black walnut, Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Engelmann oak (*Quercus engelmannii*), bottle liverwort (*Sphaerocarpos drewei*), and San Bernardino aster (*Symphyotrichum defoliatum*).

9.3 Special Status Animal Species

Special status animal species include those that have been afforded special status and/or recognition by the USFWS and/or CDFW. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss.

Three special status animal species were observed within or adjacent to the Study Area during the 2018 and 2023 biological surveys. The three special status animal species known to occur within the Study Area are listed below.

Cooper's hawk (*Accipiter cooperi*)
Status: --/WL, Covered
Distribution: In California, breeds from Siskiyou County south to San Diego County and eastwards to Owens Valley at elevations below 9,000 feet.
Habitat(s): Occurs in forests, riparian areas, and more recent suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.
Status on-site: Species was observed overhead.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
Status: --/WL, Covered

Distribution: Year-round resident of southwestern California occurring from Santa Barbara County south to San Diego County at elevations below 5,000 feet.
Habitat(s): Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefers areas with California sagebrush (Artemisia californica) but generally absent from areas with dense stands of coastal sage scrub.
Status on-site: Species was observed foraging within the Study Area.

Black-tailed jackrabbit (*Lepus californicus bennettii*)
Status: --/--, Covered
Distribution: Occurs along the coastal regions of southern California.
Habitat(s): Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.
Status on-site: Species was observed foraging within the Study Area.

Special-status animal species that were not observed or otherwise detected but assessed as to their potential to occur on-site, are included in Appendix D, *Special Status Animal Species Potential to Occur*. The species are grouped into invertebrates and vertebrates (crustaceans, insects, fishes, amphibians and reptiles, birds, and mammals) and alphabetized by scientific name. An explanation of status codes is included as a footnote at the end of Appendix D. A total of 52 species were assessed for their potential to occur. A few of the species are known to occur within one mile of the Study Area.

In addition to the special status species observed in the Study, six other species analyzed have a high potential to occur within the Study Area based on the presences of suitable habitat and recent records near the Study Area. These species include: California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), Blainville's [coast] horned lizard (*Phrynosoma blainvillei*), Bell's sage sparrow (*Artemisiospiza belli belli*), California horned lark (*Eremophila alpestris actia*), and coastal California gnatcatcher (*Polioptila californica californica*).

Species-specific conservation objectives for burrowing owl include focused species surveys. Surveys in 2018 and 2022 were negative. However, pre-construction presence/absence surveys for burrowing owl are required.

There are no species-specific conservation objectives for the remaining species with high potential to occur in the Study Area. California glossy snake and Blainville's horned lizard are California State species of concern and are locally common. These species are mobile and, in most circumstances, would be able to move from active construction areas. Project impacts to these species are not significant.

Orange-throated whiptail, Bell's sage sparrow, and California horned lark are each a CDFW watch list species and MSHCP covered. Coastal California gnatcatcher is federally threatened and California State species of concern, as well as MSHCP covered. Given that these species are being adequately conserved within the MSHCP, Project impacts to these species are not significant.

Three additional species were assessed with a moderate potential to occur in the Study Area due to older species records and/or further records: Crotch's bumble bee (*Bombus crotchii*), Stephens' kangaroo rat (*Dipodomys stephensi*), and Los Angeles pocket mouse (*Perognathus longimembris brevinasus*). Of these species, one is a candidate for being listed as endangered under the CESA, one is federally and State listed threatened, and one is a California State species of concern and is locally common. Presence/absence surveys for Crotch's bumble bee have not been conducted in the Study

Area.. There are no species-specific conservation objectives for Stephens' kangaroo rat or Los Angeles pocket mouse, since the Project site is located outside of the mammal species survey area and would not be obligated to conduct surveys for Los Angeles pocket mouse.

There are seven species with low potential to occur in the Study Area, including one crustacean, one reptile, four birds, and one mammal. Of these species, one is federally listed endangered, one is federally and State listed endangered, one is State listed threatened, one is California State species of concern, one is a CDFW watch list species (and CDFW fully protected), and one is CDFW fully protected. The remaining species was evaluated because it is MSHCP covered.

None of the other species analyzed have a high or moderate potential to occur in the Study Area based on geographic range, lack of suitable habitat, and the lack of observation.

9.3.1 NESTING BIRDS

In addition to the above sensitive animal species, nesting birds are protected under the Migratory Bird Treaty Act (MBTA) and under the CDFW code. The MBTA is interpreted as protecting nesting birds from direct impacts while the CDFW code protects nests from direct and indirect impacts.

Habitat both within and adjacent to the Project site could provide suitable nesting habitat for numerous bird species known to the region. Several bird species were observed that have the potential to nest in the Study Area.

Five raptor species were observed in flight in the Study Area during biological surveys (Cooper's hawk, red-tailed hawk [*Buteo jamaicensis*], red-shouldered hawk [*Buteo lineatus*], turkey vulture [*Cathartes aura*], and American kestrel [*Falco sparverius*]), and others have the potential to forage in the Project vicinity. The Project site does not provide high-quality raptor nesting habitat due to the limited number of trees, adjacent residential and commercial use, and location along existing roadways. Extensive raptor foraging habitat occurs in the undeveloped and agricultural fields adjacent to the Project site. To avoid impacts to nesting birds, site preparation activities (ground disturbance, construction activities, and/or removal of trees and vegetation) for all Project activities shall be avoided, to the greatest extent possible, during the nesting season of potentially occurring nesting species (February 15 to August 31). Additionally, raptors (birds of prey) are known to begin nest building in January or February. If vegetation clearing is to occur between January 1 and February 15, a nesting raptor survey shall be conducted within the Project site, including a 500-foot buffer, no more than three days before vegetation removal.

If site-preparation activities must take place during the nesting season (generally February 15 to August 31), a qualified biologist shall be retained to perform a pre-construction survey for nesting birds within three days before site-preparation activities. A pre-activity field survey shall be conducted by a qualified biologist to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone in addition to ongoing monitoring and if necessary, the establishment of minimization measures. The Project applicant shall adhere to the following:

1. Applicant shall utilize a qualified biologist experienced in identifying local and migratory bird species of special concern; conducting bird surveys using appropriate survey methodology; nesting surveying techniques, recognizing breeding and nesting behaviors, and locating nests determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

2. Pre-activity field surveys shall be conducted at the appropriate time of day/night, during appropriate weather conditions, no more than three days prior to the initiation of Project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the Project site; density, and complexity of the habitat; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected is complete and accurate.

If active nests are not located within the implementing Project site, no biological monitor is needed. If active bird nests are confirmed to be present during the pre-construction survey, an appropriate buffer zone shall be established by a qualified biologist immediately based on their best professional judgement and experience, the buffer around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines nesting species have fledged and the nest is no longer active or the nest has failed. A minimum buffer of 500 feet around an active listed species or raptor nest, 300 feet around active passerine (perching birds or songbirds), sensitive, or protected bird nests (non-listed), or 100 feet of sensitive or protected songbird nests. The biologist shall monitor the nest(s) at the onset of Project activities, and at the onset of any changes in such Project activities (e.g., increase in number or type of equipment, change in equipment usage, etc.) to determine the efficacy of the buffer. If the biologist determines that such Project activities may be causing an adverse reaction, the biologist shall adjust the buffer accordingly or implement alternative avoidance and minimization measures, such as redirecting or rescheduling construction or erecting sound barriers. All work within these buffers will be halted until the nesting effort is finished (i.e., the juveniles are surviving independently from the nest). The on-site qualified biologist will review and verify compliance with these nesting avoidance buffers and will verify the nesting effort has finished. Work can resume within these avoidance areas when no other active nests are found. Upon completion of the survey and nesting bird monitoring, a report shall be prepared and submitted to the Project applicant for mitigation monitoring compliance record keeping.

10.0GUIDELINES PERTAINING TO THE URBAN/WILDLANDS INTERFACE (SECTION 6.1.4)

Section 6.1.4 of the MSHCP addresses potential indirect impacts to MSHCP Conservation Areas via the Urban/Wildlands Interface Guidelines (UWIG). The Project does not occur adjacent to PQP land. Consequently, the Project is in compliance with the UWIG guidelines.

- **Drainage**. The project will incorporate measures to avoid the discharge of untreated surface runoff into downstream waters. Measures include those required for construction pursuant to the State Water Resources Control Board General Construction Stormwater Permit and those required post-construction pursuant to the National Pollutant Discharge Elimination System and Municipal Storm Drain requirements. The project is being designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes downstream from the project.

- **Toxics**. Land uses that use chemicals or generate bio-products that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that the application of such chemicals does not result in a discharge into downstream waters.

Measures, such as those employed to address drainage issues, would be implemented by the proposed infrastructure to avoid the potential impacts of toxics.

- **Lighting**. The project site does not occur directly adjacent to MSHCP Conservation Areas, which are separated by existing development and I-15. Therefore, lighting standards are not applicable.

- **Noise**. The project site does not occur directly adjacent to MSHCP Conservation Areas. Therefore, noise standards are not applicable.

- **Invasives**. The project shall not use invasive plants listed in Table 6.2 of the MSHCP for erosion control, landscaping, windrows, or other purposes.

- **Barriers**. Since the project site is not directly adjacent to the MSHCP Conservation Area, barriers or signage are not necessary.

- **Grading/Land Development**. The project does not propose the construction of manufactured slopes.

11.0AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

11.1 Sensitive Wildlife

The Project will demonstrate compliance with the MSHCP through the implementation of mitigation measures BIO-1, BIO-2, and BIO-3. Potential impacts to the Cooper's hawk, Southern California rufous-crowned sparrow, and black-tailed jackrabbit, are covered under the MSHCP, with no species-specific mitigation requirements.

BIO-1 **MSHCP Local Development Mitigation Fee (LDMF).** Before construction, the Project Applicant will pay the appropriate MSHCP LDMF in accordance with the MSHCP Mitigation Fee Implementation Manual (RCA 2022), as updated. For City road projects, this fee is five percent of the capital cost of the project pursuant to the MSHCP. The fees shall be either collected by, or submitted to, the Western Riverside County Regional Conservation Authority (RCA).

BIO-2 **Pre-construction Burrowing Owl Survey.** A survey for burrowing owls is required within the 30-days prior to initial ground-disturbing activities (e.g., vegetation clearing, clearing, and grubbing, grading, tree removal, site watering, equipment staging), to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owl are not detected during the pre-construction survey, no further mitigation is required. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the Project Applicant will inform the RCA and the Wildlife Agencies within three days of detection of burrowing owls and will need to coordinate further with RCA and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance.

If active burrowing owl burrows are detected, the Project Applicant shall not commence activities until no sign is present that the burrows are being used by adult or juvenile owls or following CDFW approval of a Burrowing Owl Plan as described below. The on-site qualified biologist will verify the nesting effort has finished according to methods identified in the Burrowing Owl Plan.

The Burrowing Owl Plan shall be prepared in accordance with guidelines in the CDFW Staff Report on Burrowing Owl (March 2012) and MSHCP. The qualified biologist and Project applicant shall coordinate with the Project Applicant, CDFW, and USFWS to develop a Burrowing Owl Plan to be approved by the Project Applicant, CDFW, and USFWS prior to commencing Project activities. The Burrowing Owl Plan shall describe proposed avoidance, relocation, monitoring, minimization, and/or mitigation actions. The Burrowing Owl Plan shall include the number and location of occupied burrow sites and details on proposed buffers if avoiding the burrowing owls or information on the adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the creation and funding of artificial burrows (numbers, location, and type of burrows) and management activities for relocated owls shall also be included in the Burrowing Owl Plan. The Project Applicant shall implement the Burrowing Owl Plan following CDFW and USFWS review and approval.

If burrowing owls are observed within Project Site(s) during Project implementation and construction, the Project Applicant shall notify CDFW immediately in writing within 48 hours of detection. A Burrowing Owl Plan shall be submitted to CDFW for review and approval within two weeks of detection and no Project activity shall continue within 500 feet of the active burrowing owls burrows during the breeding season of March 1 to August 31 or if young are present, or within 250 feet during the non-breeding season, until CDFW approves the Burrowing Owl Plan. The Project Applicant shall be responsible for implementing appropriate avoidance and mitigation measures, including burrow avoidance, passive or active relocation, or other appropriate mitigation measures as identified in the Burrowing Owl Plan.

If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey for burrowing owl shall be conducted and reported to CDFW as described above. If a burrowing owl is found, the same coordination described above shall be necessary.

A final letter report shall be prepared by a qualified biologist documenting the results of the passive relocation. The letter shall be submitted to CDFW prior to the start of Project activities.

BIO-3 **Crotch's Bumble Bee Survey.** If Crotch's bumble bee remains a candidate species or its status becomes elevated to a listed species under the California Endangered Species Act, a qualified biologist shall conduct updated protocol-level surveys for Crotch's bumble bee in accordance with CDFW Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species (CDFW 2023) or subsequently adopted guidelines. Surveys shall be conducted during the appropriate flying season no more than two years prior to construction activities where suitable habitat occurs in direct impact area(s). If the candidate State endangered listing is removed for Crotch's bumble bee and the species does not become listed as a State threatened or endangered species, then this measure and the additional measures below for California Endangered Species Act compliance (**BIO-4** and **BIO-5**) would no longer be required.

If Crotch's bumble bee remains a candidate species or its status becomes elevated to a listed species under the California Endangered Species Act, a qualified biologist shall conduct protocol-level surveys for Crotch's bumble bee during the appropriate flying season, no more than two years prior to the commencement of construction activities, to determine the presence/absence of Crotch's bumble bee. The surveys shall be conducted in accordance with current CDFW guidelines as detailed in the CDFW's Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species, dated June 6, 2023, or subsequently adopted guidelines, within the direct impact area(s) where construction is scheduled to occur within two years. Any modification to the Crotch's bumble bee survey protocol shall be submitted to CDFW for review and approval prior to survey implementation. The results of the survey shall be summarized in a survey report and submitted to CDFW prior to initiation of ground-disturbing activities.

If Crotch's bumble bee is found to occur and has potential to be directly or indirectly adversely affected by construction, the City shall implement the avoidance and minimization measures described in mitigation measure **BIO-4**. The locations of any Crotch's bumble bee detected during the protocol survey shall be reported to the CDFW's CNDDB through submittal of a CNDDB Online Field Survey Form.

BIO-4 Crotch's Bumble Bee Avoidance and Agency Consultation. If Crotch's bumble bee remains a candidate species or its status becomes elevated to a listed species under the California Endangered Species Act, and the species is found to occur within the direct impact area(s), the project proponent shall consult with the CDFW and implement measures to avoid or minimize impacts.

If Crotch's bumble bee remains a State candidate species for listing or is listed as threatened or endangered under the California Endangered Species Act and is found to occur within the direct impact area(s) during the updated protocol-level surveys, then the following measures shall be implemented:

a. Prior to initiation of construction activities that could result in direct adverse impacts to Crotch's bumble bee, the project proponent shall consult with the CDFW regarding potential effects to the species and, if required by CDFW in accordance with the California Endangered Species Act. If take of Crotch's bumble bee is expected, no construction activities with the potential to result in direct or indirect adverse impacts on Crotch's bumble bee shall occur until CDFW has authorized such take through ITP, as applicable. The project proponent shall comply with any additional measures (e.g., avoidance, conservation) incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over this resource beyond what is being proposed under this CEQA analysis to reduce the impact to less than significant. Unless otherwise directed by the CDFW, the following measures shall be implemented:

i. Removal (i.e., vegetation clearing, crushing, trimming) of Crotch's bumble bee suitable habitat shall be avoided during the species' flight season (February 1 through October 31) to the extent feasible;

ii. If construction activities must occur during the flight season, a qualified biologist shall conduct a pre-construction survey for Crotch's bumble bee queens, gynes, and colonies. The survey shall be conducted no more than 14 days prior to construction during

suitable weather conditions in accordance with CDFW's requirements. If the pre-construction survey is negative, no further assessment shall be required, and construction activities shall be allowed to proceed;

iii. If an active Crotch's bumble bee nest site is detected, a minimum 50-foot avoidance buffer shall be established by the qualified biologist. Construction activities shall avoid any active nest sites until a qualified biologist has verified that the nesting colony is no longer active; and

iv. If Crotch's bumble bee is detected but no active nest sites are found, a qualified biological monitor shall be present during vegetation removal activities that are scheduled to occur during the queen flight period (February through March), colony active period (March through September), and/or gyne flight period (September through October). If Crotch's bumble bee is observed within the direct impact area during construction activities, the biological monitor shall immediately stop work activities within the area until the bumble bee freely moves away from the work area.

BIO-5 Compensatory Mitigation for Crotch's Bumble Bee. Direct impacts to Crotch's bumble bee occupied habitat shall be mitigated in consultation with the CDFW in accordance with the California Endangered Species Act. Direct impacts to Crotch's bumble bee occupied habitat shall be mitigated at a minimum 1:1 ratio. Mitigation that satisfies the fully mitigated standard may occur through one or more of the following: onsite and/or offsite habitat creation, restoration, and/or enhancement; acquisition and preservation of onsite and/or offsite lands demonstrated to be occupied by the species; and/or purchase of mitigation credits at an approved mitigation bank. If mitigation occurs through habitat creation, restoration, and/or enhancement, a Habitat Restoration Plan shall be prepared and approved by CDFW. The project proponent shall comply with any additional measures (e.g., avoidance, conservation) incorporated into any permits or authorizations issued by the regulatory agencies with jurisdiction over this resource beyond what is being proposed under this CEQA analysis to reduce the impact to less than significant.

11.1.1 Nesting Birds

The implementation of mitigation measures BIO-2 and BIO-6 would ensure that potential impacts to birds protected under the MBTA and CFG Code are avoided during Project construction.

BIO-6 Pre-Construction Nesting Bird Survey and Avoidance. Site preparation activities (ground disturbance, construction activities, and/or removal of trees and vegetation) for all Project activities shall be avoided, to the greatest extent possible, during the nesting season of potentially occurring nesting species (generally February 15 to August 31). Additionally, raptors (birds of prey) are known to begin nest building in January or February. If vegetation clearing is to occur between January 1 and February 15, a nesting raptor survey shall be conducted within the project site, including a 500-foot buffer, no more than three days prior to vegetation removal.

If site-preparation activities must take place during the nesting season (generally February 15 to August 31), a qualified biologist shall be retained to perform a pre-construction survey for nesting birds within three days prior to site preparation activities. A pre-activity field survey shall

be conducted by a qualified biologist to determine if active nests of species protected by the MBTA or the California Fish and Game Code are present in the construction zone in addition to ongoing monitoring, and if necessary, establishment of minimization measures. The Project Applicant shall adhere to the following:

1. Applicant shall utilize a qualified biologist experienced in identifying local and migratory bird species of special concern; conducting bird surveys using appropriate survey methodology; nesting surveying techniques, recognizing breeding and nesting behaviors, and locating nests determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

2. Pre-activity field surveys shall be conducted at the appropriate time of day/night, during appropriate weather conditions, no more than three days prior to the initiation of Project activities. Surveys shall encompass all suitable areas, including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the Project site; density, and complexity of the habitat; number of survey participants; survey techniques employed; and shall be sufficient to ensure the data collected is complete and accurate.

If active nests are not located within the implementing project site, no biological monitor is needed. If active bird nests are confirmed to be present during the pre-construction survey, an appropriate buffer zone shall be established by a qualified biologist immediately based on their best professional judgement and experience, the buffer around the nest shall be delineated and flagged, and no construction activity shall occur within the buffer area until a qualified biologist determines nesting species have fledged and the nest is no longer active or the nest has failed. A minimum buffer of 500 feet around an active listed species or raptor nest, 300 feet around active passerine (perching birds or songbirds), sensitive, or protected bird nests (non-listed), or 100 feet of sensitive or protected songbird nests. The biologist shall monitor the nest(s) at the onset of project activities, and at the onset of any changes in such project activities (e.g., increase in number or type of equipment, change in equipment usage, etc.) to determine the efficacy of the buffer. If the biologist determines that such project activities may be causing an adverse reaction, the biologist shall adjust the buffer accordingly or implement alternative avoidance and minimization measures, such as redirecting or rescheduling construction or erecting sound barriers. All work within these buffers will be halted until the nesting effort is finished (i.e., the juveniles are surviving independently from the nest). The on-site qualified biologist will review and verify compliance with these nesting avoidance buffers and will verify the nesting effort has finished. Work can resume within these avoidance areas when no other active nests are found. Upon completion of the survey and nesting bird monitoring, a report shall be prepared and submitted to the Project Applicant for mitigation monitoring compliance record keeping**.**

11.2 Aquatic Resources

The Project will result in permanent impacts to 0.33 acre waters of the State jurisdictional to RWQCB, streambed/riparian habitat jurisdictional to CDFW, and MSHCP Riverine resources. There will be temporary impacts to 0.29 acre waters of the State jurisdictional to RWQCB, 0.28 acre of streambed/riparian habitat jurisdictional to CDFW, and 0.28 acre MSHCP Riverine resources. In accordance with regional standards, impacts are proposed to be mitigated at a minimum 1:1 ratio, with the final ratio to be determined during the negotiation with the resource agencies during the permitting process. Mitigation is proposed to occur via the purchase of re-establishment and rehabilitation credits

at the Riverpark Mitigation Bank and/or San Luis Rey mitigation bank or other agency approved mitigation bank, via the purchase of preservation credits at the Barry Jones Mitigation Bank (aka Skunk Hollow), or via restoration and improvements to the features within and adjacent to the Study Area, or off-site mitigation at a property owned by the City. Temporary impacts will be restored to pre-project conditions. With the implementation of this mitigation, the impact on aquatic resources would be less than significant, and the project would be consistent with MSHCP Section 6.1.2.

BIO-7: **Aquatic Resources Permitting and Mitigation.** Prior to project activities occurring within jurisdictional aquatic resources, the Project applicant shall prepare for approval by the RCA, USFWS, and CDFW a Determination of Biologically Equivalent or Superior Preservation (DBESP) for impacts to MSHCP Section 6.1.2 riparian/riverine resources. As identified in the DBESP report, the proposed impacts are 0.33 acre of permanent impacts and 0.28 acre of temporary impacts, and the proposed mitigation sufficient to offset impacts to MSHCP riparian/riverine areas is the purchase of a minimum of 0.33 acre of re-establishment and rehabilitation credits at the Riverpark Mitigation Bank and/or San Luis Rey mitigation bank or other agency approved mitigation bank, purchase of a minimum of 0.33 acre of preservation credits at the Barry Jones Mitigation Bank, or restoration and improvements to a minimum of 0.33 acre of the features within and adjacent to the Study Area, or via off-site mitigation at a property owned by the City.

Prior to Project activities, the Project applicant shall also coordinate with the appropriate regulatory agencies for the following regulatory permits and approvals from the USACE, RWQCB, and/or CDFW or documentation that no permit is required, as applicable:

- Clean Water Act Section 404 Permit or documentation of no permit required;
- Clean Water Act Section 401 Water Quality Certification or Waste Discharge Requirements; and/or
- California Fish and Game Code Section 1602 Streambed Alteration Agreement.

11.3 Sensitive Vegetation

The Project has been designed to concentrate and reduce the impact footprint and amount of pavement to the smallest area necessary to construct the Project to the City's "Secondary Highway" design standards. An unavoidable impact on southern willow scrub and mulefat scrub would occur and would be considered significant. The impact would be reduced to a less-than-significant level with the implementation of mitigation measure BIO-1. The Project applicant will pay the appropriate LDMF required for City roads projects.

The Project would incorporate standard best management practices (BMPs) to help ensure the protection of sensitive habitat during Project construction. Specific BMPs may include but would not necessarily be limited to maintaining the Project work areas free of trash and debris; employing appropriate standard spill prevention practices and clean-up materials; installing and maintaining sediment and erosion control measures; maintaining effective control of fugitive dust; and safely storing, handling, and disposing of toxins and pollutants, including waste materials.

Implementation of required BMPs in combination with mitigation measures BIO-1, BIO-6, and BIO-7 would ensure that construction activities are contained within the proposed work limits, and that

potentially significant direct and indirect impacts on sensitive natural communities are reduced to less-than-significant levels.

BIO-8 **Biological Monitor.** Before construction, the Project applicant shall retain a qualified biologist to monitor vegetation clearing and/or grubbing activities. The biological monitor shall attend the pre-construction meeting where they will present information to all construction personnel about the sensitive resources in the project vicinity and be present during the removal of vegetation to ensure that the approved limits of disturbance are not exceeded and provide periodic monitoring of the impact area including, but not limited to, trenches, stockpiles, storage areas, and protective fencing. Before construction activities occur in areas containing sensitive biological resources, the biologist shall educate workers to recognize and avoid those areas that have been marked as sensitive biological resources.

BIO-9 **Temporary Construction Fencing.** Prior to construction, the Project applicant shall require environmentally sensitive areas that occur outside of the approved work limits are identified on construction plans, including riparian/riverine resources and jurisdictional waters. Temporary construction fencing shall be installed along the approved work limits under the direction of the qualified biological monitor. Fencing shall be maintained and remain in place through the duration of Project construction.

11.4 Non-native Invasive Species Restrictions

In accordance with the MSHCP, no plant species on List 6.2 of the MSHCP shall be utilized on the site (including any hydroseed mix used for interim erosion control) for consistency with Section 6.1.4 of the MSHCP.

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Appendix A

Plant Species Observed

Family	Scientific Name	Common Name
GYMNOSPERMS		
Cupressaceae	*Cupressus sempervirens**	Italian cypress
Pinaceae	*Pinus halepensis**	Aleppo pine
ANGIOSPERMS – EUDICOTS		
Adoxaceae	*Sambucus nigra* ssp. *caerulea*	blue elderberry
Aizoaceae	*Carpobrotus edulis**	hottentot-fig
Anacardiaceae	*Schinus molle**	Peruvian pepper tree
Apocynaceae	*Nerium oleander**	oleander
Asteraceae	*Ambrosia psilostachya*	western ragweed
	Artemisia californica	California sagebrush
	Artemisia tridentata	Great Basin sagebrush
	Baccharis pilularis	coyote brush
	Baccharis salicifolia	mule fat
	*Centaurea melitensis**	tocalote
	Corethrogyne filaginifolia	common sandaster
	Deinandra fasciculata	fascicled tarplant
	Deinandra paniculata†	paniculate tarplant
	Encelia farinosa	brittlebush
	Erigeron canadensis	horseweed
	Eriophyllum confertiflorum	golden-yarrow
	*Hedypnois cretica**	Crete hedypnois
	Helianthus annuus	western sunflower
	Heterotheca grandiflora	telegraph weed
	*Lactuca serriola**	wild lettuce
	*Matricaria discoidea**	pineapple weed
	*Oncosiphon piluliferum**	stiniknet
	Osteospermum sp.*	African daisy
	Pseudognaphalium californicum	California everlasting
	*Pseudognaphalium luteoalbum**	Jersey cudweed
	Xanthium strumarium	cocklebur
Boraginaceae	*Amsinckia intermedia*	rancher's fiddleneck
	Heliotropium curassavicum var. *occulatum*	salt heliotrope
Brassicaceae	*Hirschfeldia incana**	short-pod mustard
	*Sisymbrium irio**	London rocket
Cactaceae	*Opuntia littoralis*	coastal prickly pear
Chenopodiaceae	*Atriplex canescens*	fourwing saltbush
	*Chenopodium album**	pigweed
	*Salsola tragus**	Russian thistle
Cucurbitaceae	*Cucurbita foetidissima*	calabazilla
Euphorbiaceae	*Chamaesyce albomarginata*	rattlesnake weed
	Croton californicus	California croton
	Croton setigerus	dove weed
	*Euphorbia peplus**	petty spurge
Fabaceae	*Acmispon americanus*	Spanish-clover
	Acmispon glaber	deerweed
	*Albizia julibrissin**	silktree
	Lupinus bicolor	miniature lupine
	*Melilotus officinalis**	yellow sweet clover
	Trifolium albopurpureum	rancheria clover

Family	Scientific Name	Common Name
	*Vicia villosa**	winter vetch
Geraniaceae	*Erodium botrys**	long-beak filaree
	*Erodium cicutarium**	redstem filaree
Lamiaceae	*Marrubium vulgare**	horehound
	*Rosmarinus officinalis**	rosemary
	Salvia apiana	white sage
	Salvia mellifera	black sage
Magnoliaceae	*Magnolia grandiflora**	southern magnolia
Myoporaceae	*Myoporum parvifolium**	slender myoporum
Myrsinaceae	*Anagallis arvensis**	scarlet pimpernel
Myrtaceae	*Eucalyptus camaldulensis**	river red gum
Oleaceae	*Olea europaea**	olive
Papaveraceae	*Eschscholzia californica*	California poppy
Polygonaceae	*Eriogonum fasciculatum*	buckwheat
	*Rumex crispus**	curly dock
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood
	Salix gooddingii	Goodding's black willow
	Salix laevigata	red willow
	Salix lasiolepis	arroyo willow
	Salix nigra	black willow
Solanaceae	*Nicotiana glauca**	tree tobacco
Tamaricaceae	*Tamarix* sp.*	Tamarisk
	Tamarix parviflora	Small flower tamarisk
ANGIOSPERMS – MONOCOTS		
Arecaceae	*Washingtonia robusta**	Mexican fan palm
Cyperaceae	*Cyperus eragrostis*	flatsedge
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass
	*Avena barbata**	slender oat
Poaceae	*Avena fatua**	wild oats
	*Bromus diandrus**	common ripgut grass
	*Bromus madritensis**	foxtail chess
	*Cynodon dactylon**	Bermuda grass
	Distichlis spicata	saltgrass
	Elymus condensatus	giant wild rye
	Festuca microstachys	fescue
	*Hordeum murinum**	hare barley
Themidaceae	*Dichelostemma capitatum*	blue dicks
Typhaceae	*Typha* sp.	cattail

*Non-native species

†Special status species

Appendix B

Animal Species Observed or Detected

Taxon Order	Taxon Family	Scientific Name	Common Name
INVERTEBRATES			
Anostraca	Branchinectidae	*Branchinecta lindahli*	versatile fairy shrimp
Hymenoptera	Formicidae	unidentified ant	harvester ant
Lepidoptera	Hesperiidae	*Burnsius* [*Pyrgus*] *communis*	common checkered-skipper
	Nymphalidae	*Junonia coenia*	common buckeye
	Pieridae	*Pieris protodice*	checkered (common) white butterfly
Orthoptera	Acrididae	*Trimerotropis pallidipennis*	pallid-winged grasshopper
VERTEBRATES			
Amphibians and Reptiles			
Squamata	Phrynosomatidae	*Sceloporus occidentalis*	western fence lizard
		Uta stansburiana	common side-blotched lizard
Birds			
Accipitriformes	Accipitridae	*Accipiter cooperii*†	Cooper's hawk
		Buteo jamaicensis	red-tailed hawk
		Buteo lineatus	red-shouldered hawk
	Cathartidae	*Cathartes aura*	turkey vulture
Apodiformes	Apodidae	*Aeronautes saxatalis*	white-throated swift
	Trochilidae	*Calypte anna*	Anna's hummingbird
Charadriiformes	Charadriidae	*Charadrius vociferus*	killdeer
Columbiformes	Columbidae	*Columba livia*	rock pigeon
		Streptopelia decaocto	Eurasian collared-dove
		Zenaida macroura	mourning dove
Cuculiformes	Cuculidae	*Geococcyx californianus*	greater roadrunner
Falconiformes	Falconidae	*Falco sparverius*	American kestrel
Passeriformes	Aegithalidae	*Psaltriparus minimus*	bushtit
	Alaudidae	*Eremophila alpestris*	horned lark
	Corvidae	*Corvus brachyrhynchos*	American crow
		Corvus corax	common raven
	Fringillidae	*Haemorhous mexicanus*	house finch
		Spinus psaltria	lesser goldfinch
	Hirundinidae	*Stelgidopteryx serripennis*	northern rough-winged swallow
	Icteridae	*Icterus bullockii*	Bullock's oriole
		Icterus cucullatus	hooded oriole
		Molothrus ater	brown-headed cowbird
	Mimidae	*Mimus polyglottos*	northern mockingbird
	Parulidae	*Oreothlypis celata*	orange-crowned warbler
	Passerellidae	*Aimophila ruficeps*†	rufous-crowned sparrow
		Chondestes grammacus	lark sparrow
		Melospiza melodia	song sparrow
		Melozone crissalis	California towhee
	Passeridae	*Passer domesticus*	house sparrow
		Zonotrichia leucophrys	white-crowned sparrow
	Sturnidae	*Sturnus vulgaris*	European starling
	Troglodytidae	*Thryomanes bewickii*	Bewick's wren
	Tyrannidae	*Sayornis nigricans*	black phoebe

		Sayornis saya	Say's phoebe
		Tyrannus verticalis	western kingbird
		Tyrannus vociferans	Cassin's kingbird
	Vireonidae	*Vireo bellii pusillus*†	least Bell's vireo
Piciformes	Picidae	*Colaptes auratus*	northern flicker
		Picoides nuttallii	Nuttall's woodpecker
Mammals			
Carnivora	Canidae	*Canis latrans*	coyote
Lagomorpha	Leporidae	*Lepus californicus*	black-tailed jackrabbit
		Sylvilagus audubonii	desert cottontail
Rodentia	Geomyidae	*Thomomys bottae*	Botta's pocket gopher
	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

† Special Status Species

Appendix C

Special-Status Plant Species Potential to Occur

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Abronia villosa var. *aurita*	Chaparral sand-verbena	--/-- CRPR 1B.1	Annual herb. Grows on desert dunes and in sandy areas within coastal scrub, chaparral. Found along the coast from Ventura County south to San Diego County, and east to San Bernardino, Riverside, and Imperial Counties. Flowering period: March to September. Elevation: 245 to 5,250 feet (75 to 1,600 meters).	**None.** Suitable sand dune habitat for this species is not present on-site. Species not observed during plant surveys.
Almutaster pauciflorus	alkali marsh aster	--/-- CRPR 2B.2	Perennial herb. Most often associated with alkali sinks, wetlands, and riparian areas although has been found in more upland areas. Found in Riverside, San Bernardino, Inyo, and Kern Counties. Flowers period: June to October. Elevation: 790 to 2,620 feet (240 - 800 meters).	**Presumed Absent.** Limited amounts of riparian habitat occur in the Study Area. Species not observed during plant surveys.
Amsinckia douglasiana	Douglas' fiddleneck	--/-- CRPR 4.2	Annual herb. Found in valley grassland and cismontane woodland habitats. Known localities in southern Central California coast. Found in Kern, Monterey, Riverside, Santa Barbara, San Benito, San Luis Obispo, and Ventura Counties. Flowering period: March to May. Elevation: 0 to 6,360 feet (0 to 1,950 meters).	**Presumed absent**. Valley grassland habitat occurs in Study Area. Species not observed during plant surveys, conducted when flowering heads would have been visible.
Arctostaphylos rainbowensis	Rainbow manzanita	--/-- CRPR 1B.1 Covered	Perennial shrub. Occurs among granitic outcrops within chaparral. Found in Riverside and San Diego Counties. Flowering period: December to March. Elevation: 670 to 2,200 feet (205 to 670 meters).	**None.** Chaparral does not occur in Study Area. Species not observed during plant surveys.
Atriplex parishii	Parish's brittlescale	--/-- CRPR 1B.1 Covered	Annual herb. Occurs on highly alkaline silty-clay soils in playas, vernal pools, and chenopod scrub. Flowering period: June to October. Elevation: 80 to 6,235 feet (25 to 1,900 meters).	**None.** Vernal pools, playas, chenopod scrub, and appropriate soils do not occur in Study Area. Species not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Brodiaea santarosae	Santa Rosa Basalt brodiaea	--/-- CRPR 1B.2	Perennial herb. Occurs within grasslands on basaltic soils. Found in Riverside and San Diego Counties. Flowering period: May to June. Elevation: 1,850 to 3,430 feet (565 to 1,045 meters).	**None.** Study Area occurs below known elevation range for this species, and basaltic soils not present. Species not observed during plant surveys.
Calochortus catalinae	Catalina mariposa lily	--/-- CRPR 4.2	Perennial bulbiferous herb. Occurs in chaparral, cismontane woodland, coastal scrub, and native grassland. Flowering period February to June. Elevation: 50 to 2,300 feet (15 to 700 meters).	**Presumed absent.** Coastal scrub and grassland habitats occur in the Study Area. Species not observed during plant surveys.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	--/-- CRPR 1B.2 Covered	Perennial herb. Found on dry, rocky, and open slopes within chaparral, coastal sage scrub, and grasslands. Found within Los Angeles, Orange, Riverside, and San Bernardino counties. Flowering period: May to July. Elevation: 340 to 2,805 feet (105 and 855 meters).	**Presumed absent.** Coastal scrub and grassland habitats occur in the Study Area. Species not observed during plant surveys.
Centromadia pungens ssp. *laevis*	smooth tarplant	--/-- CRPR 1B.1 Covered	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Found in San Bernardino, Los Angeles, Riverside, and San Diego Counties. Flowering Period: April to September. Elevation: below 2,100 feet (640 meters).	**None.** Grassland habitat in the Study Area does not co-occur with alkaline soils. Species not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Chorizanthe parryi var. *parryi*	Parry's spineflower	--/-- CRPR 1B.1 Covered	Annual herb. Occurs in sandy soil on flats and foothills in mixed grassland, coastal sage scrub, and chaparral communities. Found in the San Gabriel and San Bernardino Mountains and western Transverse Ranges within Los Angles, San Bernardino, and Riverside County. Flowering Period: April to June. Elevation: 900 to 4,005 feet (275 to 1,220 meters).	**Presumed absent.** Coastal scrub and grassland habitats occur in the Study Area. Species not observed during plant surveys.
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	--/-- CRPR 1B.2 Covered	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often on clay soils. Found within Orange, Riverside, San Bernardino, and San Diego Counties. Flowering period: April to July. Elevation: 95 to 5,020 feet (30 to 1,530 meters).	**None.** Coastal scrub habitat occurs in the Study Area but clay soils are lacking. Species not observed during plant surveys.
Clinopodium [*Satureja*] *chandleri*	San Miguel savory	--/-- CRPR 1B.2 Narrow Endemic Covered	Perennial shrub. Occurs within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic, or metavolcanic soils. Flowering Period: March to July. Found in Orange, Riverside, and San Diego Counties. Flowering Period: March to July. Elevation: 390 to 3,525 feet (120 to 1,075 meters).	**None.** Coastal scrub and grassland habitats occur in the Study Area but suitable soils are lacking. Species not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Convolvulus simulans	small-flowered morning-glory	--/-- CRPR 4.2 Covered	Annual herb. Occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. Found within the San Francisco Bay area, San Joaquin Valley, western Sierra Nevada foothills, along the coast of southern California, the Channel Islands, and the western Transverse and Peninsular Ranges. Flowering period: April to June. Elevation: 95 to 2,430 feet (30 to 740 meters).	**None.** Coastal scrub habitat occurs in the Study Area but clay soils are lacking. Species not observed during plant surveys.
Deinandra paniculata	paniculate tarplant	--/-- CRPR 4.2	Annual herb. Occurs in vernally mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools with sandy soil. Found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties. Flowering Period: March to December. Elevation: 80 to 3,100 feet (25 to 940 meters).	**Presumed absent.** The species was observed off-site during biological surveys in 2018.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE CRPR 1B.1 Covered	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Found in Los Angeles, Orange, Riverside, and San Diego Counties. Flowering period: April to June. Elevation: 65 to 2,035 feet (20 to 620 meters).	**None.** Vernal pools, marshes and similar habitats do not occur in Study Area. Ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.
Erythranthe diffusa	Palomar monkeyflower	--/-- CRPR 4.3 Covered	Annual herb. Grows in sandy or gravelly areas within chaparral and lower montane coniferous forests. Found in Riverside, Orange, and San Diego counties. Flowering period: April	**None.** Study Area occurs below known elevation range for this species, and suitable habitat not present. Species not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
			to June. Elevation: 4,000 to 6,005 feet (1,220 to 1,830 meters).	
Harpagonella palmeri	Palmer's grapplinghook	--/-- CRPR 4.2 Covered	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering Period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).	**None.** Clay soils not present in Study Area. Species not observed during plant surveys.
Holocarpha virgata ssp. *elongata*	graceful tarplant	--/-- CRPR 4.2 Covered	Annual herb. Occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. Found along the southern coast of California and Peninsular Ranges. Flowering period: May to November. Elevation: 195 to 3,600 feet (60 to 1,100 meters).	**Presumed absent.** Grasslands and coastal scrub occur in the Study Area. Species not observed during plant surveys.
Hordeum intercedens	vernal barley	--/-- CRPR 3.2 Covered	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Found in the San Joaquin Valley, South Coast and Peninsular Ranges, San Jacinto Mountains, and southern coast of California. Flowering period: March to June. Elevation: below 3,280 feet (1,000 meters).	**None.** Streambed present in Study Area, but not saline. Species not observed during plant surveys.
Juglans californica	Southern California black walnut	--/-- CRPR 4.2 Covered	Perennial tree. Grows in alluvial soils within coastal sage scrub, chaparral, riparian woodlands, and cismontane woodlands. Found along the southern California coast from Monterey County south to San Diego County and east into western Transverse and Peninsular Ranges, including San Jacinto and San Gabriel Mountains. Flowering period: March to August. Elevation: 165 to 2,955 feet (50 to 900 meters).	**Presumed absent.** Coastal scrub present in Study Area. Species conspicuous and was not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	--/-- CRPR 4.2	Perennial herb. Found in moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps. Found along the coastal regions from San Luis Obispo south to San Diego County. Flowering period: May to June. Elevation: below 984 feet (300 meters).	**None.** Moist saline habitats are not present in Study Area, which occurs just above the known elevation range for the species. Species not observed during plant surveys.
Juncus luciensis	Santa Lucia dwarf rush	--/-- CRPR 1B.2	Annual herb. Found on wet, sandy soils of seeps, meadows, streams, and roadsides. Also occurs within vernal pools. Found in northeastern California in the Cascade and northern Sierra Nevada Ranges, Modoc Plateau, and Warner Mountains; and along the Coast, Transverse and Peninsular Ranges of central and southern California. Flowering period: April to July. Elevation: 980 to 6,695 feet (300 to 2,040 meters).	**None.** Wet sandy soils, seeps, meadows, flowing streams, and vernal pools are not present in Study Area. Ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	--/-- CRPR 1B.1 Covered	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Found along the Coast, Sierra Nevada, and Peninsular Ranges; Sacramento and San Joaquin Valleys; central and southern coasts; Mojave Desert, and north Channel Islands. Flowering period: April to May. Elevation: below 4,005 feet (1,220 meters).	**None.** Vernal pools, marshes and other wetland communities do not occur in Study Area.
Lathyrus splendens	pride-of-California	--/-- CRPR 4.3	Perennial herb. Found within chaparral. Found along the coast and Peninsular Ranges of southern California. Flowering period: March to	**None.** Chaparral does not occur in Study Area. Species not observed during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
			June. Elevation: 650 to 5,000 feet (200 to 1,525 meters).	
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	--/-- CRPR 4.3	Annual herb. Grows in openings of sage scrub and chaparral at the coastal and foothill elevations throughout California. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas. Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	**Presumed absent.** Sage scrub and disturbed areas occur in the Study Area. Species not observed during plant surveys.
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	--/-- CRPR 4.2 Covered	Annual herb. Found on clay soils within coastal sage scrub, woodlands, and grasslands. Often near vernal pools or serpentine outcrops. Flowering period: March to May. Elevation: 49 to 3,510 feet (15 to 1,070 meters).	**None.** Clay soils, vernal pools and similar habitat are not present in the Study Area.
Myosurus minimus ssp. *apus*	little mousetail	--/-- CRPR 3.1 Covered	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Found within San Joaquin Valley south to San Diego County and east to western Riverside and San Bernardino Counties. Elevation: 65 to 2,100 feet (20 to 640 meters).	**None.** Vernal pools and alkaline soils are not present in Study Area. Ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.
Navarretia fossalis	spreading navarretia	FT/-- CRPR 1B.1 Narrow Endemic Covered	Annual herb. Occurs in vernal pools, vernal swales, roadside depressions, playas, marshes and swamps, and chenopod scrub. Population size is strongly correlated with rainfall. Depth of pool appears to be a significant factor as this species is rarely found in shallow pools. Found in the Mojave Desert, desert mountains, Channel Islands, and the Transverse and Peninsular Ranges. Flowering period:	**None.** Vernal pools or deep depressions are not present in Study Area. Shallow ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
			April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).	
Navarretia prostrata	prostrate vernal pool navarretia	--/-- CRPR 1B.2 Covered	Annual herb. Occurs in mesic soil within vernal pools in coastal scrub, meadows, seeps, valleys, and foothill grasslands. Grows at mid-levels within the deeper pools to the basin bottoms of the shallower pools. Found in along the central and southern coasts, San Francisco Bay Area, San Joaquin Valley, and the South Coast and Peninsular Ranges. Flowering period: April to July. Elevation: 5 to 3,970 feet (3 to 1,210 meters).	**None.** Vernal pools, seeps and other habitats with mesic soils are not present in Study Area. Shallow ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.
Orcuttia californica	California Orcutt grass	FE/SE CRPR 1B.1 Narrow Endemic Covered	Annual herb. Occurs in vernal pools. Tends to grow in wetter portions of the vernal pool basins but does not show much growth until the basins become somewhat desiccated. Found in the coastal regions of southern California from Ventura County south to San Diego county and in western Riverside County. Flowering period: April to August. Elevation: 45 to 2,165 feet (15 to 660 meters).	**None.** Vernal pools are not present in Study Area. Shallow ponding was observed in dirt roads during 2023 survey. Species not observed when ponded or during plant surveys.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Pseudognaphalium leucocephalum	white rabbit-tobacco	--/-- CRPR 2B.2	Perennial herb. Occurs on sandy or gravelly soils of benches, dry stream bottoms, and canyon bottoms within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Found within southern California from Ventura County south to San Diego County and western Riverside and San Bernardino Counties. Flowering period: July to November. Elevation: below 6,890 feet (2,100 meters).	**Presumed absent.** Dry streams and coastal scrub occur in the Study Area. Species not observed during plant surveys.
Quercus engelmannii	Engelmann oak	--/-- CRPR 4.2 Covered	Perennial tree. Occurs on slopes and foothills within grasslands, chaparral, oak woodland, and riparian woodlands. Found from Los Angeles County south to San Diego County, western Riverside and San Bernardino Counties, and the Channel Islands. Flowering period: March to June. Elevation: 160 to 4,300 feet (50 to 1,300 meters	**Presumed absent.** Species conspicuous, no oak trees observed in Study Area. Species not observed during plant surveys.
Rhinotropis [*Polygala*] *cornuta var. fishiae*	Fish's milkwort	--/-- CRPR 4.3 Covered	Perennial shrub. Occurs within chaparral and oak woodlands. Found along the coastal regions from Santa Barbara County south to San Diego County. Flowering period: May to August. Elevation: 320 to 3,280 feet (100 to 1,000 meters).	**None.** Chaparral and oak woodland habitat do not occur in the Study Area. Species not observed during plant surveys.
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	--/-- CRPR 1B.2	Perennial herb. Occurs in mesic areas and streambanks in chaparral, cismontane woodland, and lower montane coniferous forest. Flowering period June to August. Elevation: 1,390 to 6,560 feet (600 to 2,000 meters).	**None.** Chaparral, woodlands, and forest habitats are not present in Study Area, which occurs below the known elevation range for the species.

Scientific Name	Common Name	Status[1]	Habitat, Ecology, and Life History	Potential to Occur[2]
Sphaerocarpos drewei	bottle liverwort	--/-- CRPR 1B.1	Ephemeral liverwort. Occurs in openings of coastal scrub and chaparral within Riverside and San Diego counties. Flowering period: none. Elevation: 295 to 1,970 feet (90 to 600 meters).	**Presumed absent.** Coastal sage scrub with openings present. Species not observed during plant surveys.
Symphyotrichum defoliatum	San Bernardino aster	--/-- CRPR 1B.2	Perennial herb. Occurs near ditches, streams, and springs within grasslands, meadows, coastal scrubs, cismontane woodland, and lower montane coniferous forests. Also grows in disturbed areas. Found in southern California from San Luis Obispo County south to San Diego County and east to Kern and western San Bernardino and Riverside Counties. Flowering period July to November. Elevation: 2 to 6,695 feet (2 to 2,040 meters).	**Presumed absent.** Dry streams, grassland, and coastal scrub occur in the Study Area. Species not observed during plant surveys.

[1] Listing codes as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate for listing; R = Rare.
CRPR = California Native Plant Society California Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – plants for which more information needed (review list); 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.
Covered = Covered Species under MSHCP
Narrow Endemic = MSHCP Narrow Endemic Species

[2] Potential to Occur is assessed as follows: **None**: Habitat suitable for species survival does not occur on the Study Area, the Study Area is not within geographic range of the species, and/or the Study Area is not within the elevation range of the species; **Low**: Suitable habitat is present on the Study Area but of low quality and/or small extent. The species has not been recorded recently on or near the Study Area. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **Moderate**: Suitable habitat is present on the Study Area and the species was recorded recently near the Study Area; however, the habitat is of moderate quality and/or small extent. Although the species was not observed during surveys for the current project, the species cannot be excluded with certainty; **High**: Suitable habitat of sufficient extent is present on the Study Area and the species has been recorded recently on or near the Study Area, but was not observed during surveys for the current project. However, focused/protocol surveys are not required or have not been completed; **Presumed Present**: The species was observed during focused surveys for the current project and is assumed to occupy the Study Area; **Presumed Absent**: Suitable habitat is present on the Study Area but focused surveys for the species were negative.

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Appendix D

Special-Status Animal Species Potential to Occur

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
INVERTEBRATES				
Crustaceans				
Branchinecta lynchi	Vernal pool fairy shrimp	FT/-- Covered	Restricted to cool water vernal pools or other ephemeral basins from Tehama County in northern California south to the Central Valley. Disjunct populations also found within Riverside County and the Coastal Ranges. Though found over a large geographical range, has a sporadic distribution and is seldom abundant where found, especially where it co-occurs with other large branchiopod species.	**Not Expected.** Focused surveys conducted during the 2023-2024 rainy season were negative for this species. Species records in the vicinity are at two vernal pool preserves: the Santa Rosa Plateau approximately 2.5 miles to the west and Skunk Hollow approximately 3.8 miles to the east.
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/--	Restricted to vernal pools and other ephemeral basin in southern California from coastal Orange County to San Diego County. Found in seasonally astatic pools which occur in tectonic swales or earth slump basins and other areas of shallow, standing water often in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.	**Not Expected.** Focused surveys conducted during the 2023-2024 rainy season were negative for this species. The nearest record of the species is 4.3 miles to the northwest.
Linderiella santarosae	Santa Rosa Plateau fairy shrimp	--/-- Covered	Occurs in the vernal pools on the Santa Rosa Plateau on southern basalt flow vernal pools.	**Not Expected.** Focused surveys conducted during the 2023-2024 rainy season were negative for this species. The nearest record of the species is approximately 2.5 miles to the west.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Streptocephalus woottoni	Riverside fairy shrimp	FE/-- Covered	In California, occurs from Los Angeles County south to coastal San Diego County, and east to western Riverside County. Found in deep seasonal vernal pools, ephemeral ponds, stock ponds, and other human modified depressions at least 30 centimeters deep. Associated with grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation.	**Not Expected.** Focused surveys conducted during the 2023-2024 rainy season were negative for this species. The closest records are a possibly extirpated population within 0.8 mile and an extirpated population 2.6 miles away. The next records are at Skunk Hollow approximately 3.8 miles to the east and 3.9 miles to the northwest.
Insects				
Bombus crotchii	Crotch's bumble bee	--/SCE	Found throughout southwestern California from the Central Valley south to the U.S./Mexico border. Inhabits open grasslands and scrub habitats. Primarily nests underground and forages on a wide variety of flowers, but a short tongue renders it best suited to open flowers with short corollas. Most commonly observed on flowering species in the Fabaceae, Asteraceae, and Lamiaceae families. Occurrence has also been linked to habitats containing *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* genera.	**Moderate.** Sage scrub and non-native grassland are present in Study Area, and California ground squirrel that would create places to nest were observed. No recent records of this species are in the vicinity. The only close record of this species is from 1949, approximately 2.7 miles to the southeast**.** Not observed during biological surveys.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Euphydryas editha quino	Quino checkerspot butterfly	FE/-- Covered	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [*Plantago erecta*], woolly plantain [*Plantago patagonia*] but also Coulter's snapdragon [*Antirrhinum coulterianum*], Chinese houses [*Collinsia* spp.], and rigid bird's beak [*Cordylanthus rigidus*]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.	**None.** Host plants not observed in the Study Area. The nearest record of the species is approximately 2.0 mile to the east.
VERTEBRATES				
Fishes				
Gila orcuttii	arroyo chub	--/SSC Covered	Found in streams and rivers of southern California including the Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita Rivers, and Malibu and San Juan Creeks. Historic range has been expanded through the introduction to streams along the coast as far north as Chorro Creek in San Luis Obispo County. Additional introductions have occurred within the Santa Ynez, Ventura, Santa Maria, Cuyama, Santa Clara, and Mojave River systems. Habitats include slow-moving or backwater environments with mud or sand substrates, though can also occur in pools habitats with gravel, cobble, or boulder substrates.	**None.** Creeks, rivers, and streams that would support fishes do not occur in the Study Area.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Amphibians and Reptiles				
Actinemys [*Emys marmorata*] *pallida*	Southwestern [western] pond turtle	--/SSC Covered	In California, occurs in most major coast-facing drainages below 4,700 feet from the San Francisco Bay area south to San Diego County, including the Mojave River (San Bernardino County) and Andreas Canyon (Riverside County). Habitat generalist that occurs within many types of aquatic habitats from freshwater to brackish environments and permanent to intermittent waterbodies. Inhabits creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants. Prefers habitats with slow flowing water, particularly where basking sites (such as rocks, downed logs, or emergent vegetation), deep water retreats, and egg laying areas are readily available. Leaves water and travels to surrounding upland habitats to nest, over-winter, and aestivate.	**None.** Flowing streams and ponds or pools do not occur in the Study Area. Although ponding was observed in dirt roads during 2023 survey, features are not suitable to support this species.
Arizona elegans occidentalis	California glossy snake	--/SSC	Occurs along the coastal regions of California from San Francisco south to San Diego County; though it is absent along the central coast. Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas and areas with soils loose enough for easy burrowing.	**High.** Scrub and grassland habitats are present, with loose soils. A historic record occurs from 1946 occurs 0.6 mile to the northwest, and a record from 2000 occurs 3.4 miles to the southeast. Not observed during biological surveys.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Aspidoscelis hyperythra [*Cnemidophorus hyperthrus*]	orange-throated whiptail	--/WL Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego counties on the western slopes of the Peninsular Ranges at elevations below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species is correlated with the presence perennial plants which provide a food base for its major food source, termites.	**High.** Sage scrub and grassland habitats occur, with perennial plant species. The closest record is from 1989 and is 3.0 miles to the northeast. Not observed during biological surveys.
Crotalus ruber	red-diamond rattlesnake	--/SSC Covered	Occurs in southwestern California from San Bernardino County south to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.	**Low.** Shrub habitat occurs in the Study Area but is not rocky. An undated record with an approximate area (0.8 mile diameter) occurs 0.6 mile to the west.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Phrynosoma [*coronatum*] *blainvillei*	Blainville's [coast] horned lizard	--/SSC	In California, predominately occurs from Kern County south to San Diego County, west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (*Pogonmyrmex* spp.) and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).	**High.** Grassland, sage scrub habitats, as well as non-native woodland, occur in Study Area. Harvester ants were present. An undated record with an approximate area (1.0 mile diameter) occurs 0.5 mile to the west. Not observed during biological surveys.
Spea hammondii	western spadefoot	--/SSC Covered	Occurs from northern California southward to San Diego County, west of the Sierra Nevada at elevations below 4,500 feet. Terrestrial species requiring temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains but may also be found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	**Not Expected.** Flowing streams and ponds do not occur in the Study Area. Although shallow ponding was observed in dirt roads following rains during 2023 survey, features are not expected to last long enough to support this species. The nearest record occurs 0.4 mile to the east in a creek disconnected from the creek that is south of the Study Area.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Taricha torosa	coast range newt	--/SSC Covered	This endemic California species is found along the coast and coastal range mountains from Mendocino County south to San Diego County. Populations appear to be highly fragmented. An isolated population occurs in the southern Sierra Nevada from the Kaweah River in Tulare County south to Breckenridge Mountain in northern Kern County. Inhabits wet forests, oak woodlands, grasslands, and chaparral at elevations below 4,200 feet.	**Not Expected.** Flowing streams are not present in Study Area, which is generally dry. The nearest record occurs 3.4 mile northwest of the Study Area.
Thanmophis hammondii	two-striped garter snake	--/SSC	Found in California from Monterey County south along the coast to San Diego County at elevations below 7,000 feet. Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows (*Salix* spp.) and other dense vegetation. Has also been found in stock ponds, and other artificially created aquatic habitats, if bordered by dense vegetation and potential prey, such as amphibians and fish, are present.	**Not Expected.** Flowing streams and rocky soils are not present in Study Area. The nearest record occurs 3.4 mile northwest of the Study Area.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Birds				
Accipiter cooperi	Cooper's hawk	--/WL Covered	In California, breeds from Siskiyou County south to San Diego County and eastwards to Owens Valley at elevations below 9,000 feet. This raptor species occurs in forests, riparian areas, and more recently suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.	**Present.** This species was observed during surveys. Non-native woodland within the Study Area may support breeding of this species.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	--/WL Covered	Year-round resident of southwestern California occurring from Santa Barbara County south to San Diego County at elevations below 5,000 feet. Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefers areas with California sagebrush (*Artemisia californica*) but generally absent from areas with dense stands of coastal sage scrub.	**Present.** Grassland and sage scrub habitat present in Study Area. Species observed foraging in the Study Area during surveys in 2018.
Aquila chrysaetos	golden eagle	--/WL, Fully protected Covered	Uncommon year-round resident and migrant throughout California, except the center of the Central Valley. More common in southern California than in northern regions. Inhabits a variety of habitats over rugged terrain. Nests on cliffs or trees. Forages over plains, grasslands, and low and open shrublands including chaparral and coastal sage scrub. Typically absent from heavily forested areas or on the immediate coast, and almost never detected in urbanized environments.	**Low.** Study Area occurs along roadways and development. Nearest record from the Santa Rosa Plateau approximately 3.0 miles to the west.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Artemisiospiza belli belli	Bell's sage sparrow	--/WL Covered	Non-migratory year-round resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, tends toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	**High.** Sage scrub habitat present in the Study Area. Nearest record from 1999 approximately 1.9 miles to the northeast. Not observed during biological surveys.
Athene cunicularia	burrowing owl	BCC/SSC Covered	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Also occupies agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as the California ground squirrel (*Spermophilus beecheyi*). Will also utilize natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.	**High.** Open habitat occurs in Study Area and California ground squirrel are present, but species not observed during focused surveys in 2018 and 2022. Nearest record 0.3 mile to the west.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Buteo swainsoni	Swainson's hawk	--/ST Covered	Uncommon breeding resident and migrant within California. Migrates from breeding grounds in North American to wintering areas in South America and forages in flocks, sometimes numbering up into the thousands. In California, breeds locally in the Central Valley and Great Basin regions within Shasta Valley, Owens Valley, and the Mojave Desert. Inhabits open grasslands and shrub habitats as well as canyons, foothills, and smaller interior valleys in otherwise mountainous regions. Increasingly becoming more dependent on agriculture, especially alfalfa crops. Nests in stands with few trees, often on the edge of riparian habitats, though also uses lone trees in agriculture fields and pastures, and along roadsides with suitable foraging habitat nearby.	**Low.** Species may use trees along roadsides although not preferred. The only species record within five miles was a historical observation from 1933, which was noted as possibly extirpated.
Elanus leucurus	white-tailed kite	--/-- Fully protected Covered	Year-round resident of California residing along the coasts and valleys west of the Sierra Nevada foothills and southeast deserts; has also been documented breeding in arid regions east of the Sierra Nevada and within Imperial County. Inhabits low elevation grasslands, wetlands, oak woodlands, open woodlands, and is often associated with agricultural areas. Breeds in riparian areas adjacent to open spaces nesting in isolated trees or relatively large stands.	**Low.** Breeding habitat is lacking but may forage in the Study Area. The southern willow scrub in the Study Area is limited to a small patch of habitat located within a roadside flood control facility. High level of human activity. Nearest record 2.7 miles to the east.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Eremophila alpestris actia	California horned lark	--/WL Covered	In California occurs along the coastal ranges of from San Joaquin Valley south to U.S./Mexico border. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	**High.** Suitable grassland and open shrub habitats occur in the Study Area. Nearest record from 1998 approximately 1.0 mile to the east. Not observed during biological surveys.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east to the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 feet. Composition of sage scrub in which gnatcatchers are found varies though California sagebrush (*Artemisia californica*) present as dominant or co-dominant species. Mostly absent from areas dominated by black sage (*Salvia mellifera*), white sage (*Salvia apiana*), or lemonade berry (*Rhus integrifolia*), though may occur more regularly in inland regions dominated by black sage.	**High.** Suitable shrub habitat occurs in the Study Area. Nearest record from 2001 approximately 1.0 mile to the east. Not observed during biological surveys.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Vireo bellii pusillus	least Bell's vireo	FE/SE Covered	In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood (*Populus* spp.) and willows (*Salix* spp.) with mule fat (*Baccharis salicifolia*), oaks (*Quercus* ssp.), and sycamore (*Platanus racemosa*), and mesquite (*Prosopis* spp.) and arrowweed (*Pluchea sericea*) within desert habitats. Can be tolerant of the presence of non-native species such as tamarisk (*Tamarix* spp.).	**Low.** Species observed south of the Study Area, within riparian habitat associated with Warm Springs Creek. Limited riparian habitat occurs within the Study Area. The few willows located in the Study Area are located within a roadside flood control facility where there is a high level of human activity.
Mammals				
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	--/-- Covered	Occurs throughout southwestern California from western Riverside County to northern Baja California at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forages for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.	**Low.** Suitable sage shrub and grassland habitats occur in the Study Area, but soils are sandy rather than gravelly. Nearest record approximately 0.4 mile to the east, across Interstate-15. Not observed during biological surveys.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE/SSC, Candidate Endangered Covered	Occurs in southern California within eastern Los Angeles County, western Riverside County, southwestern San Bernardino County, and northern San Diego County. Inhabits alluvial scrub/coastal sage scrub habitats on gravelly and sandy soils adjoining river and stream terraces and on alluvial fans. Prefers sparse scrub habitats, and rarely occurs in dense vegetation or rocky washes. Requires herbaceous vegetation and insects in spring.	**Not Expected.** Sage scrub present the Study Area, but is not associated with creeks or rivers. The only record within 5 miles of the Study Area is a possibly extirpated occurrence from 1989 (1.3 miles across Interstate 15).
Dipodomys stephensi	Stephens' kangaroo rat	FT/ST Covered	Occurs in southern California within the San Jacinto Valley, western Riverside County, and southwestern San Bernardino County, and northwestern San Diego county at elevations between 180 to 4,100 feet. Inhabits native to open grasslands and sparse coastal sage scrub (less than 30 percent cover) on relatively flat or gently sloping ground with loose, friable, well-drained soil. Dominant species include native and non-native herbaceous species such as filaree (*Erodium* spp.), non-native grasses (*Bromus* ssp.), California sagebrush, and California buckwheat.	**Moderate.** Suitable sage shrub and grassland habitats occur in the Study Area. Nearest record from 1987 approximately 0.4 mile to the east, across Interstate-15. Not observed during biological surveys.
Eumops perotis californicus	western mastiff bat	--/SSC	In California, occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.	**Not Expected.** May forage in sage shrub, grassland, and non-native woodland habitats that occur in the Study Area, but roosting habitat not present. Nearest record approximately 2.8 miles to the south.

Scientific Name	Common Name	Status[1]	Habitat Associations[2]	Potential to Occur
Lepus californicus bennettii	San Diego black tailed jackrabbit	--/-- Covered	Occurs along the coastal regions of southern California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.	**Present.** Observed within the non-native grassland habitat along Hoover Avenue on June 5, 2018.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	--/SSC Covered	Historically occurred from the San Fernando Valley of Los Angeles County east to Cabazon in the San Gorgonio Pass and southeast to north-central San Diego County. Only known San Diego localities are in Dameron Valley and Warner Pass. Possibly intergrades with the Palm Springs pocket mouse in San Felipe Valley. Found in sandy washes, grasslands, disturbed sage scrub, and oak woodland habitats.	**Moderate.** Suitable sandy soils occur in the Study Area, but the closest record 2.8 to the east is from 1993. Not observed during biological surveys.

[1] Listing codes are as follows: FE = Federally Endangered; FT = Federally Threatened; FC= Federal Candidate species; BCC = Birds of Conservation Concern; SE = State of California Endangered; FP = State of California Fully Protected; WL = State of California Wait-Listed; SSC = State of California Species of Special Concern; Covered = Covered Species under MSHCP

[2] Potential to Occur is assessed as follows – **None**: The Study Area is located outside of the species known range and distribution, the species is so limited to a particular habitat that it cannot disperse on its own, and/or habitat suitable for species establishment and survival does not occur in the Study Area; **Not Expected**: There are no recent or historical records of the species occurring on or in the immediate vicinity (within 5 miles) of the Study Area and the suitable habitats associated with the species do not occur on or adjacent to the Study Area. The species moves freely and might disperse through or across the Study Area, but suitable habitats for residence or breeding do not occur; **Low**: There is a recent or historical record of the species on or in the immediate vicinity of the Study Area (within 5 miles) and potentially suitable habitats associated with the species occur in or adjacent to the Study Area, but existing conditions such as elevation, species composition, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation may substantially reduce the possibility that the species may occur; **Moderate:** Suitable habitats associated with the species occur on or adjacent to the Study Area but there is not a documented occurrence of the species within the immediate vicinity (within 5 miles), or recorded occurrences are limited to historical records. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High**: Suitable habitats associated with the species occur in the Study Area and the species has been recently recorded on or in the immediate vicinity (within 3 miles) of the Study Area, but was not observed during project surveys; **Present**: The species was observed in or adjacent to the Study Area during biological surveys or during a previous survey and is assumed to occupy the Study Area.

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Appendix E

2023-2024 Wet Season Fairy Shrimp Survey Report for the Madison Avenue Street Improvements Project

HELIX Environmental Planning, Inc.
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August 1, 2024 01391.00002.003

Ms. Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: **2023-2024 Wet Season Fairy Shrimp Survey Report for the Madison Avenue Street Improvements Project**

Dear Ms. Love:

This letter presents the results of the 2023-2024 U.S. Fish and Wildlife Service (USFWS) protocol presence/absence wet season survey for the listed large branchiopods (i.e., fairy shrimp) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Madison Avenue Street Improvements Project (project). This report describes the methods used to perform the survey and the results. It is being submitted to the USFWS as a condition of HELIX's Threatened and Endangered Species Permit ES-778195-15. A total of four features were mapped and surveyed within the fairy shrimp survey area (survey area) during the survey effort. Feature conditions were suitable for conducting surveys during the 2023-2024 wet season.

PROJECT LOCATION

The project site is approximately 52.2 acres of undeveloped land, located in the City of Murrieta of southwestern Riverside County, California (Figure 1, *Regional Location*). It is situated within an unsectioned portion of Township 7 South, Range 3 West on the U.S. Geological Survey (USGS) 7.5-minute Murrieta Quadrangle (Figure 2, *USGS Topography*). The project site includes improvements along Madison Avenue between Guava Street and Golden Gate Circle, with additional improvements to occur on the intersecting Fig Street, Larchmont Lane, and Elm Streets between Jefferson Avenue and Hoover Street. The study area (92.5 acres) includes the project site, two staging and laydown areas, and two unimproved roadways adjacent to Madison Avenue proposed as detour routes for traffic control (Figure 3, *Aerial Photograph*). The study area is not located within the USFWS-designated critical habitat for fairy shrimp species.

SPECIES INFORMATION

There are three species of fairy shrimp with the potential to occur on-site: vernal pool fairy shrimp (*Branchinecta lynchi*), Riverside fairy shrimp (*Streptocephalus woottoni*), and versatile fairy shrimp

(*Branchinecta lindahli*). Vernal pool fairy shrimp are federally listed as threatened, and Riverside fairy shrimp are federally listed as endangered, whereas versatile fairy shrimp are relatively common and are not listed or considered sensitive. Vernal pool fairy shrimp have the widest geographic range of the federally listed vernal pool crustaceans occurring from southern Oregon to northern and central California, generally west of the Sierra Nevada, to southern California. The species range extends south to Orange and Los Angeles counties and east to western Riverside County but is generally absent from San Diego County. Vernal pool fairy shrimp are found in vernal pools and other vernal pool-like habitats, such as ephemeral ponds or basins that can be formed from anthropogenic events such as tire ruts. Riverside fairy shrimp can be found in Riverside, Orange, and San Diego counties and occur in vernal pools and other ephemeral basins with long inundation times. The versatile fairy shrimp is common in pools throughout California and can co-occur with both vernal pool and Riverside fairy shrimp.

METHODS

HELIX permitted biologists Amanda Mathews and Amy Mattson (Permit ES-778195-15) conducted the 2023-2024 wet season survey in accordance with current USFWS protocol[1]. The survey consisted of 18 survey visits, conducted between January 3 and May 1, 2024 (Table 1, *2023-2024 Wet Season Fairy Shrimp Survey Results*). The first substantial rainfall of the season occurred on December 20-22, 2024 (0.66 inch; NOAA 2023[2]), with the initial survey occurring on January 3, 2024. Each feature was sampled at approximately seven-day intervals until dry, and sampling was reinitiated within seven days of the feature becoming re-inundated. All features were observed to be dry on May 1, 2024. Given insubstantial rainfall on-site after May 1, 2024, this was the last survey visit for the 2023-2024 wet season.

The features were sampled using fine mesh aquarium nets swept through the water and examined for invertebrates. If fairy shrimp were present, an attempt to identify netted fairy shrimp to species occurred in the field. Following identification, individuals identified in the field were immediately returned to their pool of origin. Fairy shrimp unable to be identified to species in the field were collected and identified using the key in Eriksen and Belk,[3] with the aid of a dissecting scope. Because multiple similar branchiopod species may occupy the same features, when "take" of fairy shrimp occurred, no more than 30 specimens of each species from each feature, or less than 50 percent of the estimated subpopulation for each feature, were collected (whichever was the lesser amount). Care was taken to ensure that nets were cleaned after each feature was sampled.

USFWS vernal pool data sheets were completed during each site visit and included the collection of the following data at each feature, as applicable: average and maximum water depth, air and water temperature, feature length and width, habitat condition, a population estimate of any fairy shrimp present, and observations of any other feature-dwelling species. The USFWS vernal pool data sheets are included in Attachment A, *USFWS Vernal Pool Data Sheets*. Representative site photos are included in Attachment B, *Representative Site Photos*.

1 U.S. Fish and Wildlife Service (USFWS). 2017. Survey Guidelines for the Listed Large Branchiopods. November 13. Available at: https://www.fws.gov/sites/default/files/documents/survey-guidelines-for-large-branchiopods.pdf.

2 NOAA. 2023. Elsinore RTP Station. Available from: https://www.wrh.noaa.gov/sgx/obs/rtp/rtp_ELS_23.

3 Eriksen, C.H. and D. Belk. 1999. Fairy Shrimps of California's Puddles, Pools, and Playas. Mad River Press. Eureka, California. 196pp.

RESULTS

Fairy Shrimp

A total of nine features were surveyed within the study area during the 2023-2024 wet season survey effort (Figure 4, *2023-2024 Wet Season Fairy Shrimp Survey Results*). All features sampled lack vernal pool indicator plant species and are not considered vernal pools. The non-listed versatile fairy shrimp was detected within three of the nine features, specifically Features 2, 6, and 7 (Table 1). Federally listed species were not observed in any features during the 2023-2024 wet season survey effort.

Table 1
2023-2024 WET SEASON SURVEY RESULTS

Feature	UTM	Survey Results																	
		2024																	
		1/3	1/10	1/17	1/24	1/31	2/8	2/14	2/21	2/28	3/6	3/13	3/20	3/27	4/3	4/10	4/17	4/24	5/1
1	11S 489996.52 E 3727036.20 N	---	Dry	Dry	---	Dry	---	Dry	---	Dry	---	Dry	Dry	Dry	---	Dry	Dry	Dry	Dry
2	11S 489966.34 E 3727140.12 N	BRLI	BRLI	BRLI	---	BRsp	---	BRLI	---	---	BRLI	BRLI	---	Dry	---	---	Dry	Dry	Dry
3	11S 489872.98 E 3727208.53 N	---	Dry	Dry	Dry	Dry	---	---	---	Dry	Dry	Dry	Dry	Dry	---	Dry	Dry	Dry	Dry
4	11S 489952.13 E 3727174.57 N	---	Dry	Dry	---	Dry	---	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
5	11S 482784.69 E 3711392.43 N	---	Dry	Dry	---	Dry	---	---	---	---	---	Dry	Dry	Dry	---	Dry	Dry	Dry	Dry
6	11S 482875.79 E 3711385.33 N	---	BRLI	---	---	BRLI	---	BRsp	---	BRLI	---	BRLI	---	---	---	---	---	---	Dry
7	11S 482872.60 E 3711382.45 N	---	BRLI	---	BRLI	BRLI	BRLI	BRsp	---	BRLI	---	BRLI	BRLI	Dry	---	---	Dry	Dry	Dry
8	11S 482841.52 E 3711359.73 N	---	Dry	Dry	Dry	Dry	---	---	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
9	11S 482834.87 E 3711347.68 N	---	Dry	Dry	Dry	Dry	---	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

---: Feature sampled, but no fairy shrimp observed
Dry: Feature not ponded, and not sampled.
BRLI: Versatile Fairy Shrimp (*Branchinecta lindahli*).
BRsp: Immature *Branchinecta* individuals that could not be identified to species.

Rainfall

The nearest National Oceanic and Atmospheric Administration (NOAA) weather station to the study area is located immediately north of Lake Elsinore, Elsinore Station (EOR). The year-to-date precipitation total (as of July 1, 2024) for the Elsinore Station, as reported by the NOAA, is 13.56 inches.[4] The average annual precipitation in this area is 11 inches.[5]

The Palmer Drought Severity Index categorizes precipitation into ranges that fall either above or below what is classified as average precipitation. The index classified the region where the survey occurred as moderately moist in October 2023, mid-range November 2023 – February 2024, moderately moist in March and April 2024, and mid-range in May 2024.[5]

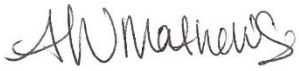
Pursuant to the 2017 USFWS protocol, a wet season survey may be considered unreliable if moderate to extreme drought conditions persist through the wet season as determined by this index. Wet season surveys for the project were conducted during a period categorized as mid-range to moderately moist. Therefore, based on the higher-than-average rainfall year and moist conditions, the surveys meet the requirements of a reliable survey.

CONCLUSION

There were no federally listed fairy shrimp species identified during the protocol 2023-2024 wet season fairy shrimp survey within the study area. However, the non-listed versatile fairy shrimp were found in three of the nine features. A dry season survey covering the nine features will occur later in 2024, once the soil has completely dried.

CERTIFICATION

I certify that the information in this survey report and attached exhibit fully and accurately represents my work.



Amanda Mathews
Biologist
ES-778195-15



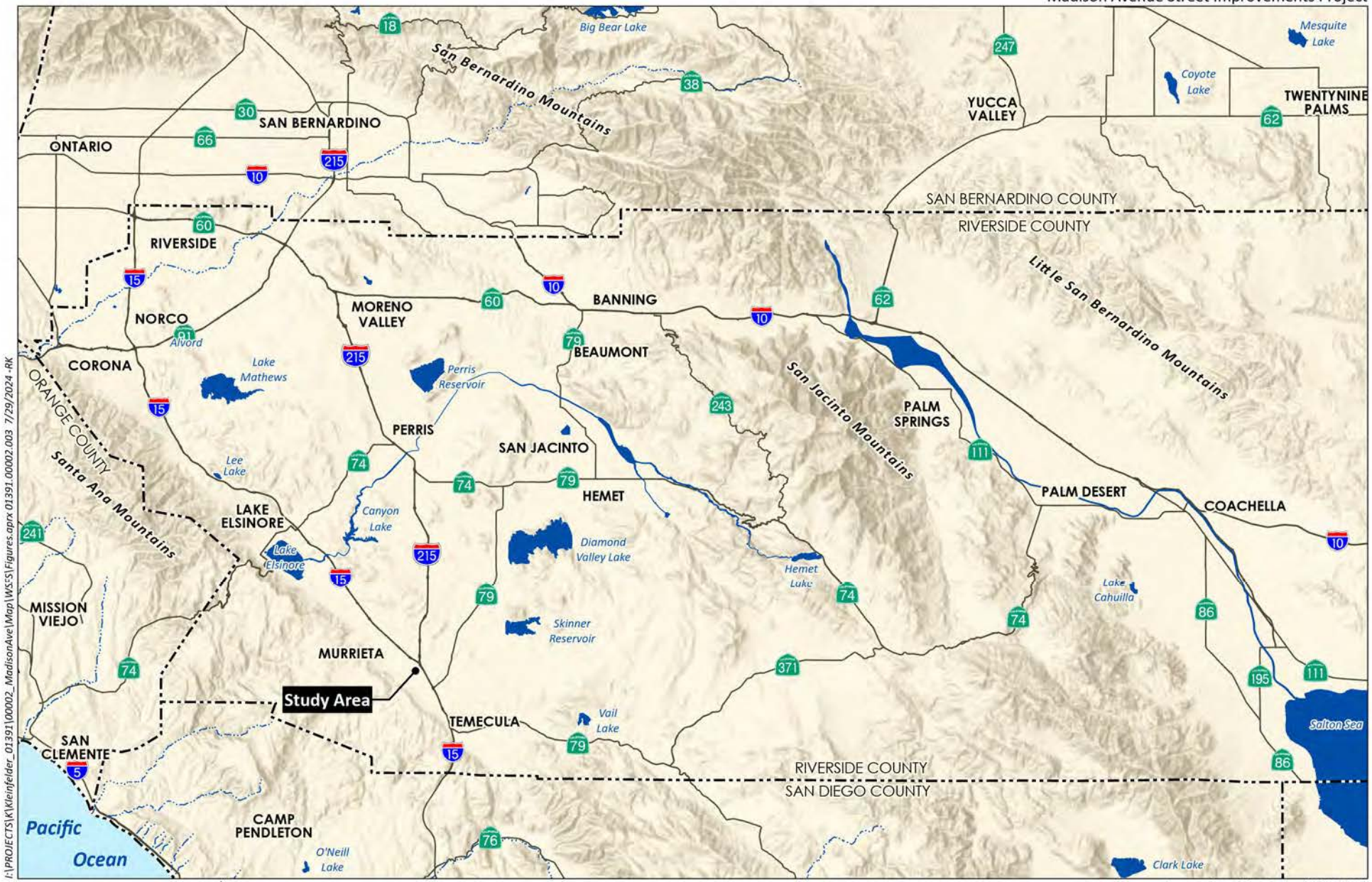
Amy Mattson
Senior Scientist I
ES-778195-15

Attachments:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4: 2023-2024 Wet Season Fairy Shrimp Survey Results
Attachment A: USFWS Vernal Pool Data Sheets
Attachment B: Representative Site Photos

[4] NOAA. 2024. NOWData. Available from: https://www.weather.gov/wrh/Climate?wfo=sgx.
[5] NOAA. 2024. Historical Palmer Drought Indices. Available from: https://www.ncei.noaa.gov/access/monitoring/historical-palmers/maps/psi/202301-202304.

Figures



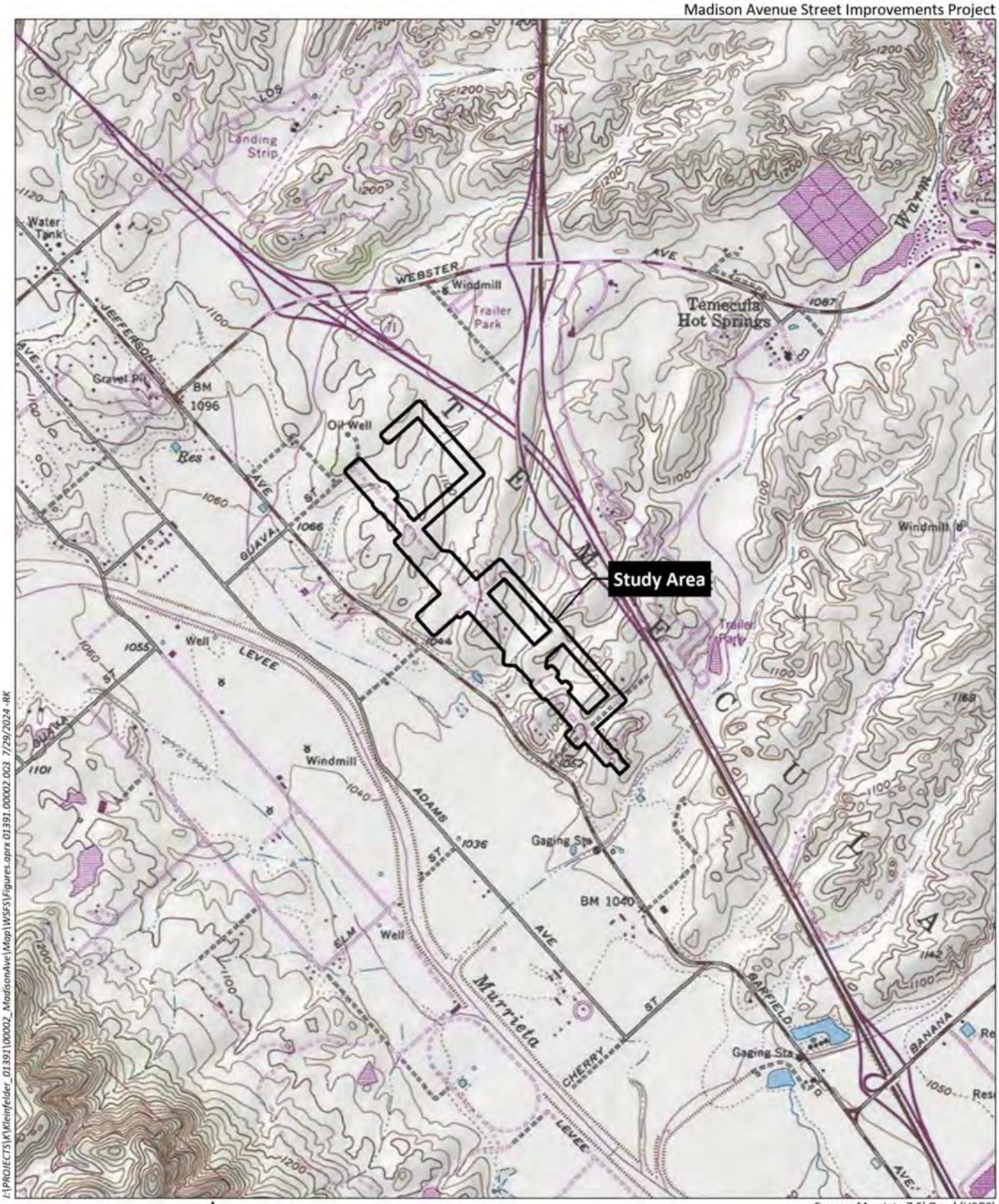
I:\PROJECTS\K1\Kleinfelder_01391\00002_MadisonAve\Map\WS:S\Figures.aprx 01391.00002.003 7/29/2024 -RK

Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



I:\PROJECTS\K\Kleinfelder_01391\00002_MadisonAve\Map\WSFS\Figures.aprx 01391.00002.003 7/29/2024 -RK

0 2,000 Feet

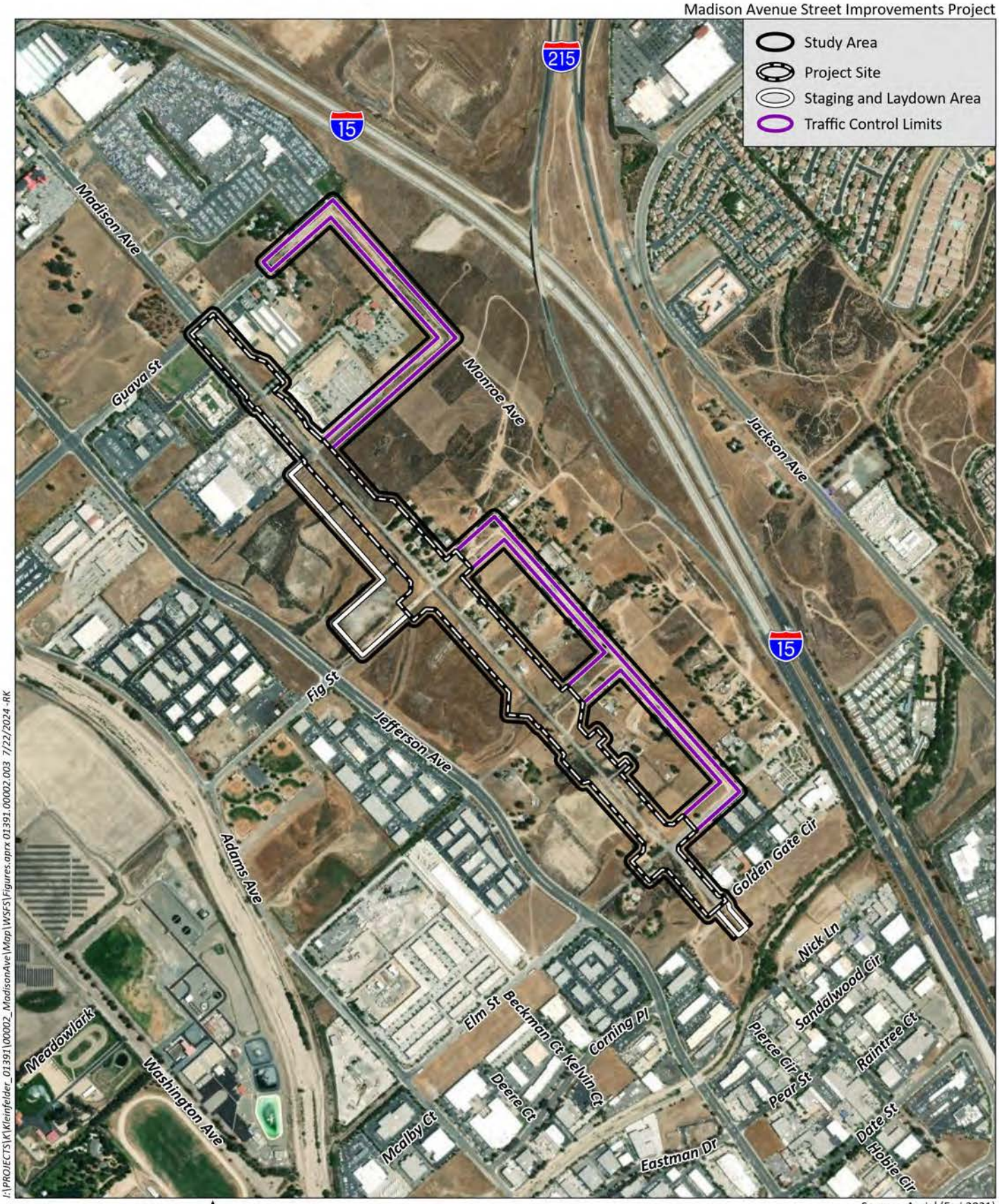
Source: Murrieta 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

Madison Avenue Street Improvements Project



I:\PROJECTS\K\Kleinfelder_01391\00002_MadisonAve\Map\WSFS\Figures.aprx 01391.00002.003 7/22/2024 - RK

0 1,000 Feet

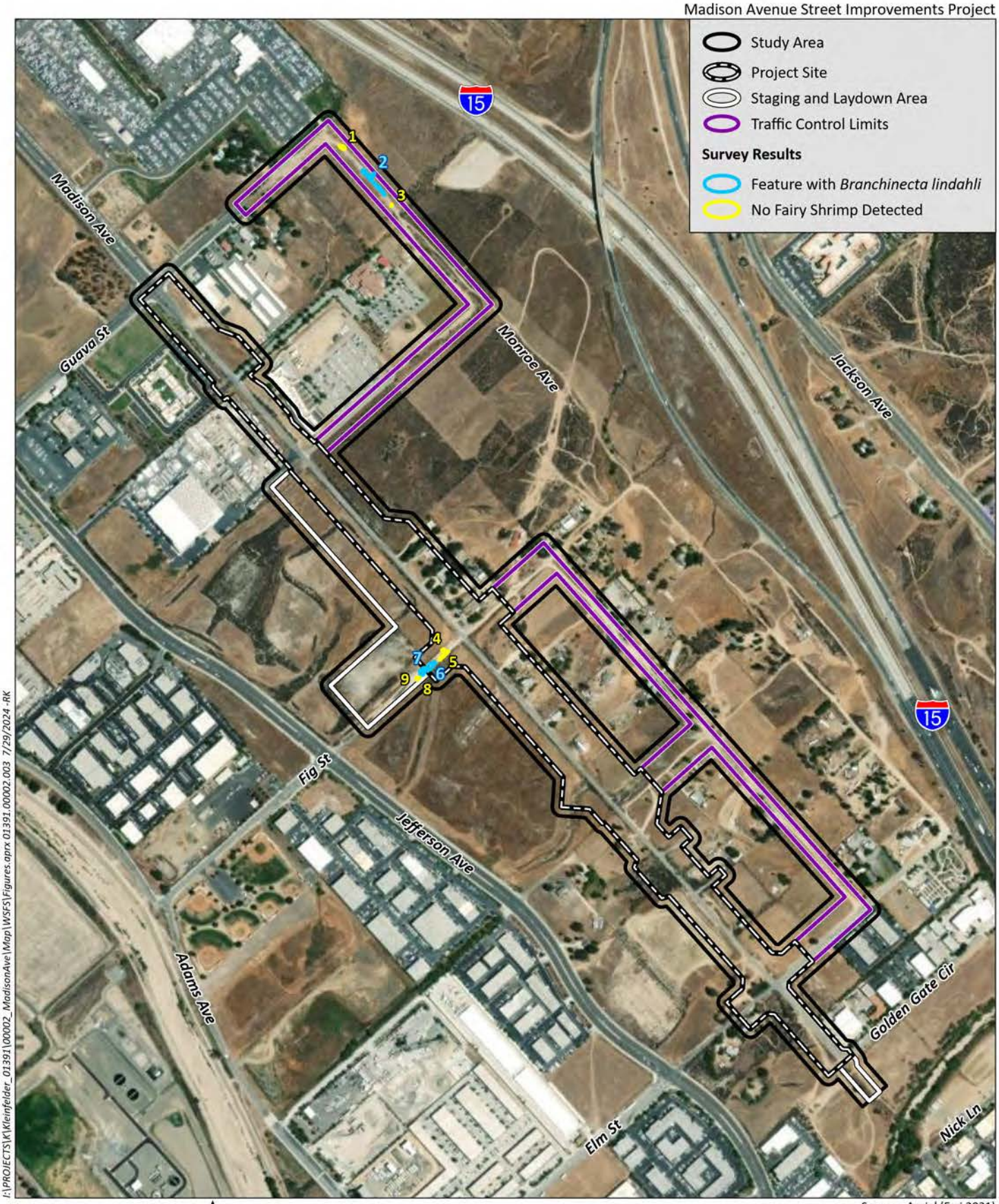
Source: Aerial (Esri 2021)

HELIX Environmental Planning

Aerial Photograph

Figure 3

Madison Avenue Street Improvements Project



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0 750 Feet

Source: Aerial (Esri 2021)

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2023-2024 Wet Season Fairy Shrimp Survey Results

Figure 4

Attachment A

USFWS Vernal Pool Data Sheets

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 1/3/2024 Time: 14:00 Weather Conditions: Temp (°C): 10 Wind (mph): 0-3 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	10	15.7	5	15	6x2	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	10	16.6	12	33	3x2	30x4	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered; BRLI. 1,000s
3	11S 489872.98 E 3727208.53 N	10	18.2	4	22	1x1	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	10	17.3	3	10	2x0.5	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	10	15.7	5	12	2x1	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	10	15.3	10	25	9x3	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	
7	11S 482872.60 E 3711382.45 N	10	16.2	10	27	8x9	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	
8	11S 482841.52 E 3711359.73 N	10	15.7	7	2	2x1	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	10	14.9	3	13	1x1	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 1/10/2024 Time: 14:00 Weather Conditions: Temp (°C): 14 Wind (mph): 0-2 Cloud Cover: 20%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	14	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	14	17	9	33	4x1	30x4	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI 1,000s
3	11S 489872.98 E 3727208.53 N	14	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	14	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	14	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	14	16.5	11	25	6x3	13x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered; BRLI. 100s
7	11S 482872.60 E 3711382.45 N	14	16.4	10	27	5x4	9x8	BRLI	---	---	---	---	X	---	---	---	---	D, TT	Vouchered; BRLI. 100s
8	11S 482841.52 E 3711359.73 N	14	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	14	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 1/17/2024 Time: 14:00 Weather Conditions: Temp (°C): 16 Wind (mph): 0-3 Cloud Cover: 20%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	16	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	16	18.1	5	33	3.5x0.5	30x4	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI 100s
3	11S 489872.98 E 3727208.53 N	16	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	16	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	16	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	16	20.1	1	25	2x1	13x8	Not sampled										D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	16	19	6	27	4x2.5	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	16	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	16	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 1/24/2024 Time: 14:20 Weather Conditions: Temp (°C): 15 Wind (mph): 1-3 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	15	17.3	8	15	5.5x2.5	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	15	16.5	10	33	7x2	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	15	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	15	16.9	4	10	2.5x0.5	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	15	16.5	3	12	3.5x0.5	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	15	16.9	14	25	13x6	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	15	16.4	18	27	6x4	9x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 10s
8	11S 482841.52 E 3711359.73 N	15	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	15	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 1/31/2024 Time: 12:45 Weather Conditions: Temp (°C): 19 Wind (mph): 2-5 Cloud Cover: 5%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	19	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	19	20.2	15	33	5x1.5	30x4	BRsp.	---	---	---	---	---	---	X	---	---	D, TT	Vouchered 1/3/2024; BRLI 1,000s juvs, one gravid female
3	11S 489872.98 E 3727208.53 N	19	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	19	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	19	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	19	21.2	10	25	9x4	13x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
7	11S 482872.60 E 3711382.45 N	19	21.3	12	27	6x4	9x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
8	11S 482841.52 E 3711359.73 N	19	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	19	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amy Mattson; ES778195-15

Date: 2/8/2024 Time: 10:35 Weather Conditions: Temp (°C): 9 Wind (mph): 1-15 Cloud Cover: 75%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	9	12.7	11	15	14x3	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	9	11.7	30	33	28x3	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	9	13.6	12	22	5x2	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	9	16.8	20	10	47x6.5	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	9	16	10	12	5x1.5	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	9	17.1	20	25	13x8	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	9	14.5	21	27	9x8	9x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 1s
8	11S 482841.52 E 3711359.73 N	9	15	5	2	6x3	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	9	17.8	10	13	6x3	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 2/14/2024 Time: 14:00 Weather Conditions: Temp (°C): 17 Wind (mph): 1-2 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	17	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	17	22.8	10	33	5x1.2	30x4	BRLI	---	---	X	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI 10,000s
3	11S 489872.98 E 3727208.53 N	17	23.2	1	22	1x0.4	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	17	N/A	Dry	10	15x1	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	17	23	5	12	2x1	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	17	22.4	12	25	8x4	13x8	BRsp	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s (juveniles only)
7	11S 482872.60 E 3711382.45 N	17	22.1	14	27	6x4	9x8	BRsp	---	---	---	---	---	---	X	---	---	D, TT	Vouchered 1/10/2024; BRLI 10s (juveniles only)
8	11S 482841.52 E 3711359.73 N	17	23.6	1	2	0.5x0.5	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	17	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 2/21/2024 Time: 13:30 Weather Conditions: Temp (°C): 14 Wind (mph): 1-4 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	14	19.2	7	15	6x3	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	14	18.3	8	33	8x4	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	14	18.3	15	22	4x1	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	14	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	14	18.4	7	12	5x2	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	14	17.8	12	25	7x4	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	14	18.9	10	27	7x3	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	14	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	14	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 2/28/2024 Time: 15:00 Weather Conditions: Temp (°C): 21 Wind (mph): 3-5 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	21	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	21	23.3	10	33	6x1.5	30x4	---	---	X	X	X	X	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	21	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	21	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	21	22	4	12	2x1	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	21	21.4	15	25	8x4	13x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
7	11S 482872.60 E 3711382.45 N	21	20.5	9	27	5x3	9x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
8	11S 482841.52 E 3711359.73 N	21	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	21	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 3/6/2024 Time: 13:30 Weather Conditions: Temp (°C): 16 Wind (mph): 5-10 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	16	23.7	3	15	4x1	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	16	22.5	10	33	5x2	30x4	BRLI	---	X	X	X	X	---	X	---	---	D, TT	Vouchered 1/3/2024; BRLI 10s
3	11S 489872.98 E 3727208.53 N	16	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	16	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	16	21.6	5	12	1x1	5x2	---	---	X	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	16	21.9	10	25	9x4	13x8	---	---	X	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	16	22.5	8	27	6x4	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	16	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	16	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 3/13/2024 Time: 13:30 Weather Conditions: Temp (°C): 17 Wind (mph): 1-3 Cloud Cover: 40%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	17	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	17	25.1	5	33	3x1	30x4	BRLI	---	X	X	X	---	---	X	---	---	D, TT	Vouchered 1/3/2024; BRLI 10s
3	11S 489872.98 E 3727208.53 N	17	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	17	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	17	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	17	25	11	25	8x5	13x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
7	11S 482872.60 E 3711382.45 N	17	24.3	11	27	7x5	9x8	BRLI	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 100s
8	11S 482841.52 E 3711359.73 N	17	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	17	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 3/20/2024 Time: 13:00 Weather Conditions: Temp (°C): 22 Wind (mph): 2-3 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	22	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	22	24.9	2	33	4x1	30x4	---	---	X	---	X	---	---	X	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	22	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	22	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	22	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	22	25.6	7	25	7x3	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	22	26.1	6	27	4x3	9x8	BRLI	---	X	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI 1s
8	11S 482841.52 E 3711359.73 N	22	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	22	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 3/27/2024 Time: 13:30 Weather Conditions: Temp (°C): 20 Wind (mph): 3-5 Cloud Cover: 10%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	20	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	20	N/A	Dry	33	---	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	20	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	20	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	20	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	20	24.1	5	25	3x2	13x8	---	---	X	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	20	N/A	Dry	27	---	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	20	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	20	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 4/3/2024 Time: 14:00 Weather Conditions: Temp (°C): 24 Wind (mph): 3-5 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	24	27.3	3	15	3x2	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	24	27	7	33	2x1	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	24	26.9	5	22	2x2	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	24	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	24	27.2	3	12	1x0.5	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	24	28.1	9	25	9x3	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	24	27.1	7	27	6x4	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	24	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	24	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 4/10/2024 Time: 13:30 Weather Conditions: Temp (°C): 27 Wind (mph): 2-5 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	27	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	27	29.2	7	33	7x1	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	27	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	27	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	27	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	27	29.1	8	25	5x3	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	27	29.7	5	27	4x2	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	27	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	27	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 4/17/2024 Time: 13:30 Weather Conditions: Temp (°C): 21 Wind (mph): 0-2 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	21	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	21	N/A	Dry	33	---	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	21	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	21	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	21	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	21	18.9	6	25	5x3	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	21	N/A	Dry	27	---	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	21	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	21	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

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(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 4/24/2024 Time: 13:30 Weather Conditions: Temp (°C): 19 Wind (mph): 0-2 Cloud Cover: 100%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	19	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	19	N/A	Dry	33	---	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	19	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	19	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	19	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	19	26.2	10	25	4x0.6	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	19	N/A	Dry	27	---	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	19	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	19	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Appendix 1. U.S. Fish and Wildlife Service - Data Sheet for Wet Season Surveys for Listed Large Branchiopods

Site or Project Name: Madison Avenue County: Riverside Quad: Murrieta Township: 7 South Range: 3 West Section: 00

Surveyor/Permit Number: Amanda Mathews; ES778195-15

Date: 5/1/2024 Time: 11:30 Weather Conditions: Temp (°C): 22 Wind (mph): 0-2 Cloud Cover: 0%

Feature ID #	UTM (Northing, Easting, Datum)	Temp (°C)		Depth (cm)		Surface Area (m x m)		Crustaceans					Insects				Platyhelminths	Habitat Condition	Notes/Voucher Information
		Air	Water	Average	Est. Max	Present	Est. Max	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chironomidae			
1	11S 489996.52 E 3727036.20 N	22	N/A	Dry	15	---	14x3	---	---	---	---	---	---	---	---	---	---	D, TT	
2	11S 489966.34 E 3727140.12 N	22	N/A	Dry	33	---	30x4	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/3/2024; BRLI
3	11S 489872.98 E 3727208.53 N	22	N/A	Dry	22	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
4	11S 489952.13 E 3727174.57 N	22	N/A	Dry	10	---	3x2	---	---	---	---	---	---	---	---	---	---	D, TT	
5	11S 482784.69 E 3711392.43 N	22	N/A	Dry	12	---	5x2	---	---	---	---	---	---	---	---	---	---	D, TT	
6	11S 482875.79 E 3711385.33 N	22	N/A	Dry	25	---	13x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
7	11S 482872.60 E 3711382.45 N	22	N/A	Dry	27	---	9x8	---	---	---	---	---	---	---	---	---	---	D, TT	Vouchered 1/10/2024; BRLI
8	11S 482841.52 E 3711359.73 N	22	N/A	Dry	2	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	
9	11S 482834.87 E 3711347.68 N	22	N/A	Dry	13	---	6x3	---	---	---	---	---	---	---	---	---	---	D, TT	

Notes: Fill in abbreviated names of Anostracans and Notostracans, for all others indicate presence with a check mark. Anostracan and Notostracan Abbreviations: Use first two letters of genus and species name (e.g., LIOC = Linderiella occidentalis, BRLI = Branchinecta lindahli).

For habitat conditions use two letter abbreviation as follows: NP = Natural Pool, CP = Constructed Pool; UD = undisturbed, D = disturbed: with TT = tire tracks, T = trash, P = plowed; G = grazed, UG = ungrazed by: C = cattle, H = horses, S = sheep; AB = Algal blooms present.

(Estimate grazing regime by height of grasses and forbs and density of hoof prints) LG = light grazing, MG = moderate grazing, HG = heavy grazing.

Attachment B

Representative Site Photos



Photo 1: Basin 1, facing southwest. Photo taken February 10, 2024 by AM.



Photo 2: Basin 2, facing south. *Branchinecta lindahli* found.
Photo taken February 10, 2024 by AM.

C:\...OJECTS\K\Kleinfelder_013911\KLE-02.03_MadisonAve_S_2023 RESTART_Reports\FairyShrimp\W5FS\90-Day_W5FS\Attachments\Attachment B Photos



Photo 3: Basin 5, facing east. Photo taken February 10, 2024 by AM.



Photo 4: Basin 7, facing east. *Branchinecta lindahli* found.
Photo taken January 10, 2024 by MM.

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Photo 5: Overview of features, facing south.
Photo taken January 10, 2024 by MM.

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Appendix F

2024 Dry Season Sampling for Listed Large Branchiopods, Madison Avenue Street Improvements Project

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942
619.462.1515 tel
619.462.0552 fax
www.helixepi.com

November 21, 2024 01391.00002.003

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008

Subject: **2024 Dry Season Sampling for Listed Large Branchiopods, Madison Avenue Street Improvement Project, Riverside County, California**

Dear Stacey Love:

This letter report presents the results of the 2024 U.S. Fish and Wildlife Service (USFWS) dry season sampling effort for listed large branchiopods (i.e., fairy shrimp) conducted by HELIX Environmental Planning, Inc. (HELIX) for the Madison Avenue Street Improvement Project (project). This report presents the dry season findings of features identified during the 2023-2024 wet season survey effort.[1] The purpose of this letter report is to summarize the 2024 dry season survey results for listed large branchiopods.

PROJECT LOCATION

The approximately 52.2-acre project site is located in the City of Murietta of southwestern Riverside County, California (Figure 1, *Regional Location*). It is situated within an unsectioned portion of Township 7 South, Range 3 West on the U.S. Geological Survey (USGS) 7.5-minute *Murrieta, California* Quadrangle (Figure 2, *USGS Topography*). The project site includes improvements along Madison Avenue between Guava Street and Golden Gate Circle, with additional improvements to occur on the intersecting Fig Street, Larchmont Lane, and Elm Street between Jefferson Avenue and Hoover Street. The study area (92.5 acres) includes the project site, two staging and laydown areas, and two unimproved roadways adjacent to Madison Avenue proposed as detour routes for traffic control (Figure 3, *Aerial Photograph*). The project site is not located within the USFWS designated critical habitat for fairy shrimp species.

SPECIES INFORMATION

There are three species of fairy shrimp with the potential to occur on-site: Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), and versatile fairy shrimp (*Branchinecta lindahli*).[2] Riverside fairy shrimp are federally listed as endangered, and vernal pool fairy

[1] HELIX. 2024. 2023-2024 Wet Season Fairy Shrimp Survey Report for the Madison Avenue Street Improvement Project. August 1.

[2] California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB). 2024. RareFind Database Program.
Erikson, C.H. and D. Belk. 1999. Fairy Shrimps of California's Puddles, Pools, and Playas. Mad River Press. Eureka, California. 196 pp.

shrimp are federally listed as threatened, whereas the versatile fairy shrimp is relatively common and is not listed or considered sensitive under any jurisdiction. Riverside fairy shrimp can be found in Riverside, Orange, and San Diego counties and occur in vernal pools and other ephemeral features with long inundation times. Vernal pool fairy shrimp have the widest geographic range of the federally listed vernal pool crustaceans and occur from southern Oregon to northern and central California, generally west of the Sierra Nevada, to southern California. The species' range extends south to Orange and Los Angeles counties and east to western Riverside County but is generally absent from San Diego County. Vernal pool fairy shrimp are found in vernal pools and other vernal pool-like habitats such as ephemeral ponds or features that can be formed from anthropogenic events such as tire ruts. The versatile fairy shrimp is common in pools throughout California and can co-occur with Riverside and vernal pool fairy shrimp.

Fairy shrimp are adapted for variable and uncertain rainfall patterns. When fertilized by males of their species, female fairy shrimp produce "resting eggs," which are dormant embryos surrounded by hard-shelled membranes capable of remaining viable in the soil for long periods. Dry season fairy shrimp surveys are designed to detect, collect, and identify eggs present in the soil. The surface characteristics of these eggs can be used to differentiate the genus and potentially the species of fairy shrimp. Certain fairy shrimp species, such as *B. lindahli* and *B. lynchi*, cannot be identifiable to species level by examination of the eggs alone. For these species, a wet season fairy shrimp survey or authorized hatching would be required to identify individuals to the species level.

METHODS

HELIX permitted biologist Amanda Mathews (Permit ES-778195-15), assisted by HELIX biologist Lindsay Willrick (supervised individual), conducted the 2024 dry season survey in accordance with USFWS protocol.[3] Ms. Mathews and Ms. Willrick collected soil on May 23, 2024. Following soil collection, the samples were transferred to the HELIX laboratory for processing. HELIX permitted biologist Jason Kurnow (Permit ES-778195-15) supervised Ms. Mathews during soil sample processing and examination for listed large branchiopods. The soil samples were prepared by hydrating them in distilled water and sequentially sieving the small aliquot (approximately 50 milliliter [mL]) samples through a 710 and 75 micron diameter pore size sieve. The small size of these screens ensures that eggs from the target fairy shrimp species are retained. The portion of each sample retained in the screen was dispersed in a five percent brine solution to separate the organic material from the inorganic material. The samples were decanted, dried, and examined under a dissecting microscope. Eggs were identified to genus level based on surface characteristics. Multiple species of the *Branchinecta* genus can occur in Riverside County but cannot be identified past genus level based on the surface characteristics of the eggs.

For each soil sample, the number of eggs per genera and egg abundance was estimated per feature, according to the guidelines provided in the USFWS Survey Guidelines. The USFWS guidelines are as follows:

- none (no eggs found in sample)
- low abundance (estimate of 1 to 10 eggs/100 mL soil)

[3] USFWS. 2017. Survey Guidelines for the Listed Large Branchiopods. Revised November 13.

- medium abundance (estimate of 11 to 50 eggs/100 mL soil)
- high abundance (estimate of more than 50 eggs/100 mL of soil)

RESULTS

Branchinecta sp. eggs were observed in four of the nine features sampled in 2024 (Table 1, *2024 Dry Season Results*; Figure 4, *2024 Dry Season Survey Results*). No *Streptocephalus* sp. eggs were observed in the sampled features. The USFWS Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods is included as Appendix A.

Table 1
2024 DRY SEASON RESULTS

Feature	*Branchinecta* sp. Present	Abundance*	*Streptocephalus* sp. Present	Abundance*
1	No	None	No	None
2	Yes	Low	No	None
3	No	None	No	None
4	No	None	No	None
5	No	None	No	None
6	Yes	Low	No	None
7	Yes	Medium	No	None
8	Yes	Low	No	None
9	No	None	No	None

* Based on abundance categories found within the 2017 U.S. Fish and Wildlife Service Survey Guidelines for the Listed Large Branchiopods.

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Amanda Mathews
Biologist V
Supervised Individual, ES-778195-15

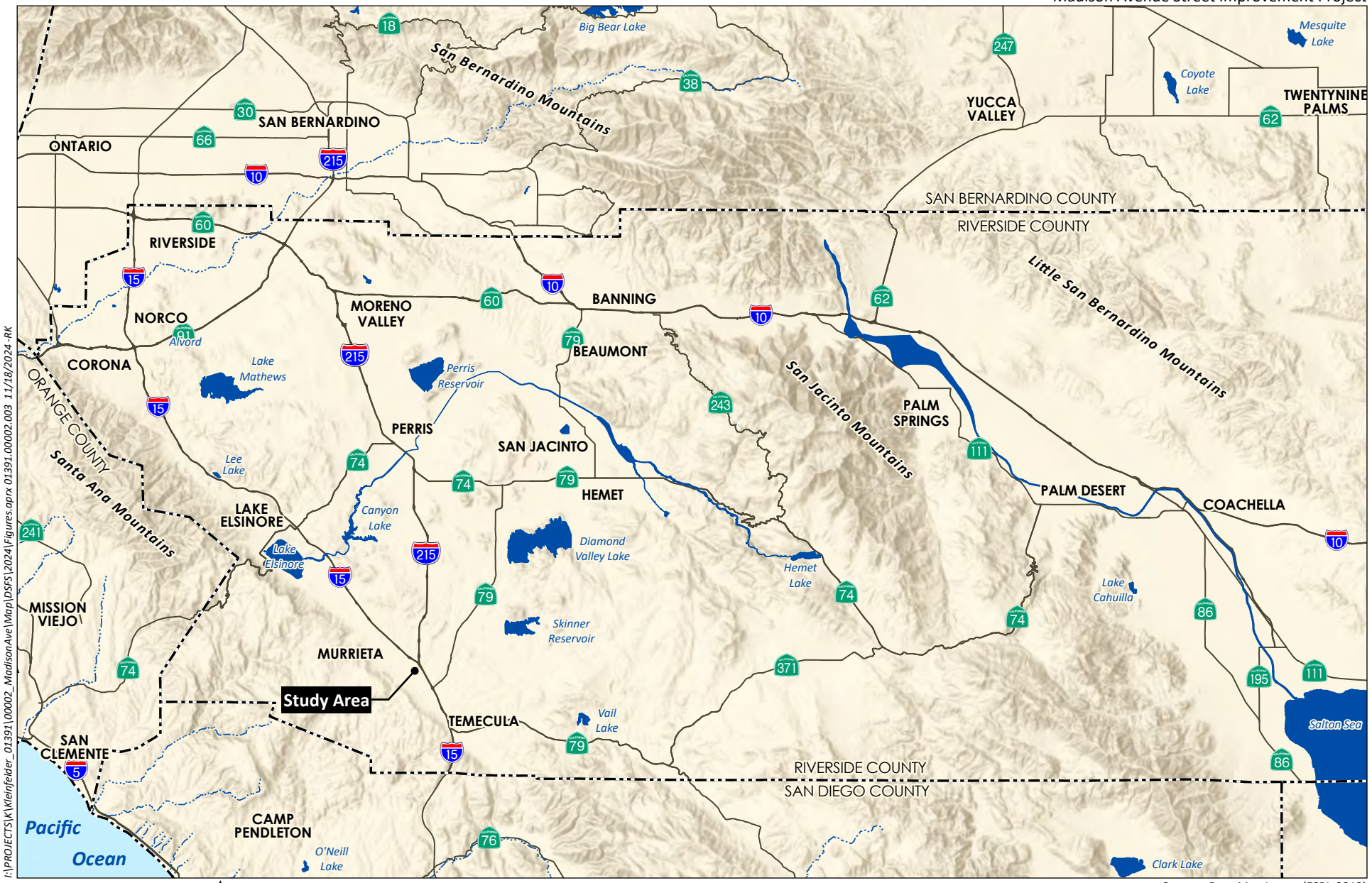
Jason Kurnow
Senior Biology Project Manager
ES-778195-15

Lindsay Willrick
Senior Biology Project Manager
Supervised Individual; ES-778195-15

Enclosures:

Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4: 2024 Dry Season Survey Results
Appendix A: USFWS Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods

Figures



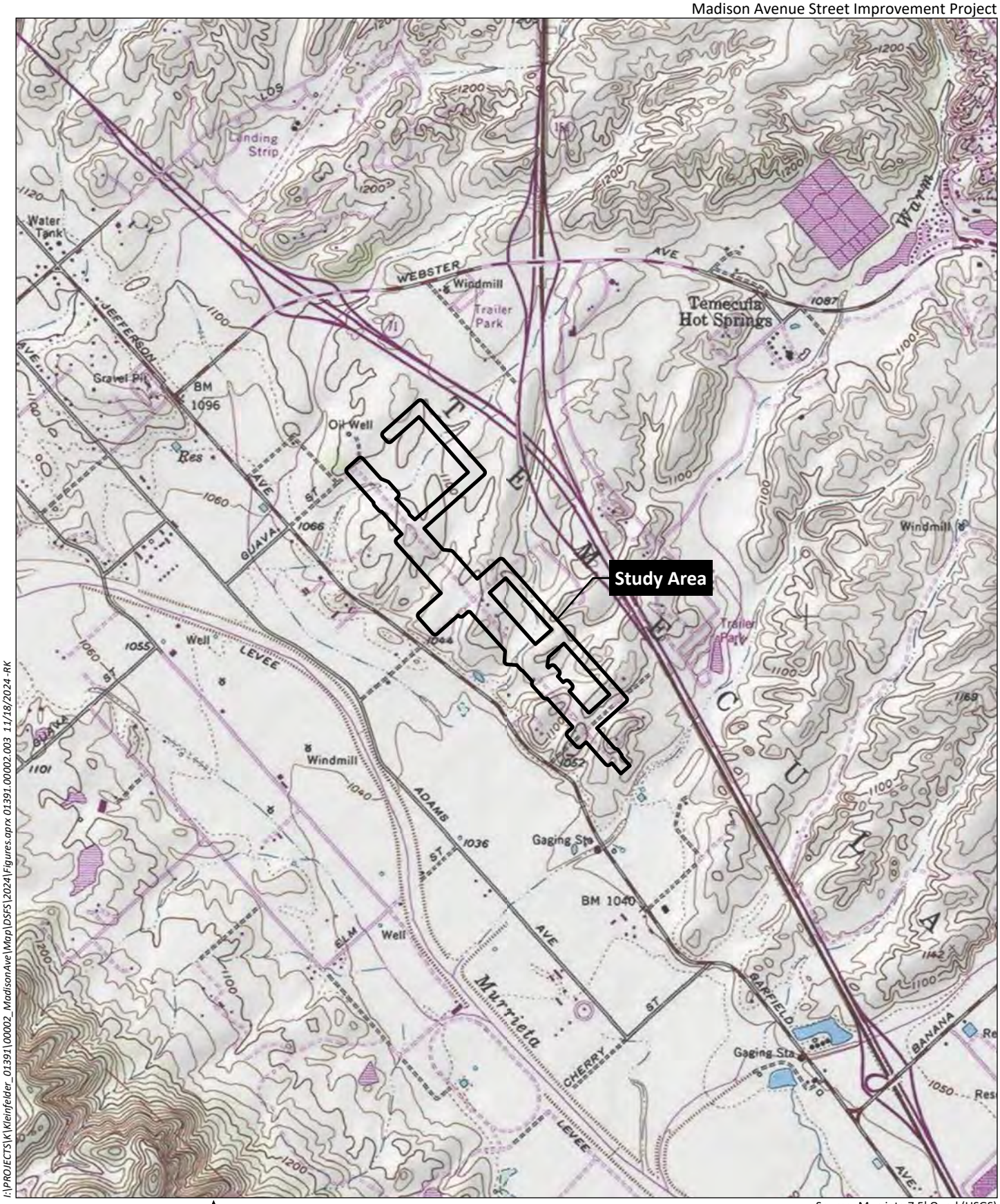
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Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



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0 2,000 Feet

Source: Murrieta 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

Madison Avenue Street Improvement Project



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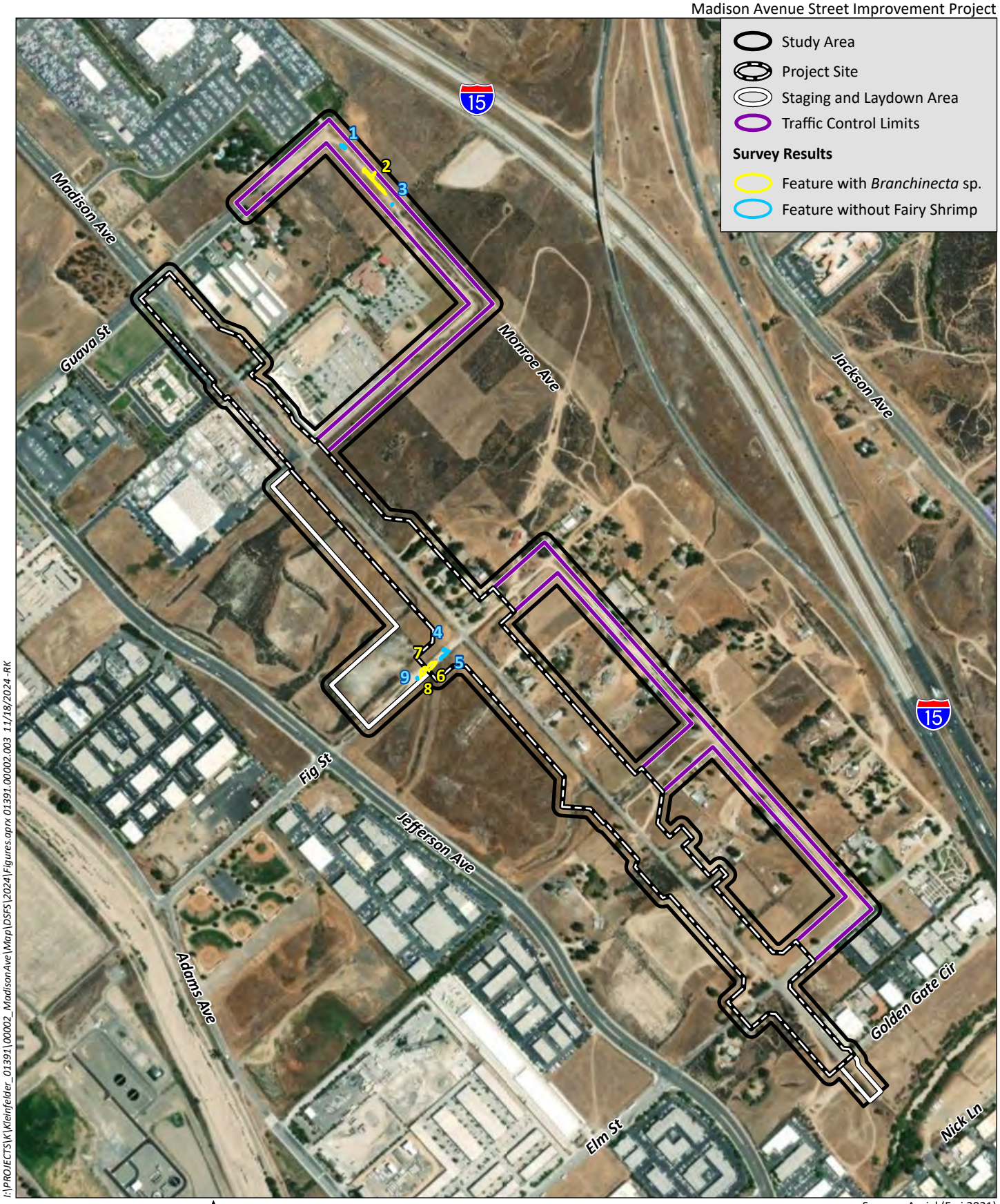
0 1,000 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

Aerial Photograph

Figure 3



I:\PROJECTS\K\Kleinfelder_01391\00002_MadisonAve\Map\DSFS\2024\Figures.aprx 01391.00002.003 11/18/2024 RK

0 750 Feet

Source: Aerial (Esri 2021)

HELIX Environmental Planning

2024 Dry Season Survey Results

Figure 4

Appendix A

USFWS Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods

APPENDIX A. U.S. Fish and Wildlife Service – Data Sheet for Dry Season Sample Analysis for Listed Large Branchiopods		
Project Information		Biologist Information
Project Name: Madison Ave Street Improvements Project	Quad: Murrieta	Name of Person(s) Who Conducted the Following Tasks and Permit #'s
USFWS Project Number:	Township: 7 south	Soil Collection: Amanda Mathews (ES-778195-15)
County: Riverside	Range: 3 west	Soil Processing: Jason Kurnow and Amanda Mathews (supervised; ES-778195-15 for wet season)
Lat: 33.549178°	Section: 33	Soil Analysis/Cyst ID: Jason Kurnow (ES-778195-15)
Long: -117.186016°	Soil Collection Date: 5/23/24	

	Invertebrates Present (X)															
						Number of Large Branchiopod Cysts										
Pool/Habitat/ Basin	Insect Exo-Skeletons	Micro-Turbellaria Cysts	Cladocera Ephippia	Ostracods Live/Cysts/ Carapaces	Copepod Live/Cysts	*Branchinecta* sp.	*Lepidurus packardi*	*Streptocephalus woottoni*	*Linderiella occidentalis*	*Lynceus brachyurus*	*Cyzicus californicus*	Hydracanna Live	Nematoda	Collembola	Other Species	Comments
1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	176	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	48	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	273	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	6	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Appendix G

2018 Burrowing Owl (Athene cunicularia) Survey Report for the Madison Avenue Street Improvements Project

HELIX Environmental Planning, Inc.
16485 Laguna Canyon Road, Suite 150
Irvine, CA 92618
949.234.8792 **tel.**
619.462.0552 **fax**
www.**helixepi**.com

September 21, 2018 KLE-02.03

Mr. Robert Motschall, Ph.D
Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Subject: 2018 Burrowing Owl (*Athene cunicularia*) Survey Report for the Madison Avenue Street Improvement Project

Dear Mr. Motschall:

This letter report presents the results of the 2018 focused burrowing owl (*Athene cunicularia;* BUOW) survey conducted by HELIX Environmental Planning, Inc. (HELIX) for Madison Avenue Street Improvement Project (project) located in the City of Murrieta (City), Riverside County (County), California. The survey was conducted in accordance with the County's Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP; County of Riverside [County] 2006) and meets the applicable conditions under the MSHCP, which was approved in 2003 (Dudek and Associates [Dudek] 2003). The MSHCP is a comprehensive planning effort that includes the County of Riverside and multiple cities, including the City. As part of the MSHCP implementation, enrolled jurisdictions are required to impose terms of the MSHCP, including appropriate surveys in accordance with Volume 1, Section 6. The project site is located within the survey area for BUOW; therefore, surveys are required if suitable habitat is present (County 2006). This letter report describes the methods used to perform the survey and the survey results.

PROJECT SITE LOCATION

The project site is situated in the City of Murrieta in the County of Riverside. The project site is generally located west of Interstate 215 and Interstate 15 and north of State Route 79 (Figure 1, *Regional Location*). The project site is located on the U.S. Geological Survey (USGS) 7.5-minute Murrieta quadrangle map within Section 24 of Township 7 South and Range3 West (Figure 2, *USGS Topography*). Specifically, the project site is located along Madison Avenue, between the intersection of Guava Street and Golden Gate Circle (Figure 3, *Aerial Photograph*).

The project also includes two potential construction staging (laydown) areas off Fig Street, between Madison Avenue and Jefferson Avenue and south of Golden Gate Circle, in addition to temporary access roads along Hoover Street and Monroe Avenue (Figure 3).

PROJECT DESCRIPTION

The proposed project involves the widening of Madison Avenue from the intersection at Guava Street to Golden Gate Circle. The project will be constructed within a 100-foot right-of-way (ROW). Grading will be necessary for construction of the roadway and will extend beyond the ROW, incorporating 2:1 cut and fill slopes and retaining walls as necessary to comply with standard engineering practices and design criteria in accordance with the City of Murrieta's Grading Ordinance. The proposed project will consist of a 100-foot ROW Major roadway (76 feet curb-to-curb) along an alignment length of approximately 1.3 miles (6,990 linear feet). Additional ROW may be required to temporary construction access and easements. Two construction staging areas are proposed; the unimproved area west of Madison Avenue and north of Fig Street and a second potential laydown area has been identified along Madison Avenue and south of Golden Gate Circle. A temporary access road may be constructed between Madison Avenue and Monroe Avenue to the south of Guava Street to allow for parcel access throughout construction. This access road will be a minimum width, an all-weather surface (dirt/gravel), and will avoid sensitive resources to the extent possible. The proposed project will include street lights exclusively at cross street intersections where warranted for safety. Sidewalks will be provided only along developed properties that currently exist along Madison Avenue. As part of road construction, road improvements may include installation of various wet/dry utilities within the road bed (water, sewer, gas, electrical, storm drain). The project will also include appropriate storm water drainage facilities and storm drain crossings for off-site conveyance. Existing overhead dry utilities will be relocated and not in the roadway.

PROJECT SITE DESCRIPTION

The project site is located mainly along Madison Avenue and mostly occurs within the existing City ROW, but also includes areas immediately outside and along the ROW periphery. Disturbed land, non-native grassland, ornamental/exotic vegetation, Riversidean sage scrub, disturbed Riversidean sage scrub communities, eucalyptus woodland, and developed land are located along and within the periphery of the existing ROW.

The project site is generally flat, with gently rolling hills along Madison Avenue. Elevations on the project site range from approximately 1,069 feet (325 meters) above mean sea level (AMSL) near the southern end of the project site, south of Golden Gate Circle, to a high of approximately 1,124 feet (342 meters) AMSL near the center of the project site on Hoover north of Larchmont Lane.

Vegetation Communities

Vegetation within the project site is dominated by Riversidean sage scrub, disturbed land, non-native grassland, and ornamental vegetation associated with rural residential developments. The burrowing owl survey concentrated on the disturbed and non-native grassland habitat on the project site (Figure 4, *Suitable Burrow and Transect Locations*). Representative photographs of the site are shown on Figure 5, *Site Photographs*.

METHODS

A Step I Habitat Assessment and Step II Locating Burrows and Burrowing Owls were conducted on the project site by HELIX biologists Amy Lee, Daniel Torres, and Lauren Singleton between April 20 and August 21, 2018, in accordance with the County's survey protocol (County 2006). The specific survey information is provided in Table 1, *Survey Information.* The habitat assessment and focused burrow and BUOW surveys are described in detail below.

Table 1
SURVEY INFORMATION

Site Visit	Survey Date	Biologist(s)	Start/Stop Time	Start/Stop Weather Conditions	Survey Results
HA[1]	04/20/18	Amy Lee	0845-1800	53°F, wind 0-1 mph, 0% clouds 57°F, wind 2-4 mph, 0% clouds	Suitable habitat present.
1[2]	06/05/18	Amy Lee Lauren Singleton	0540-0800	59°F, wind 0-1 mph, 100% clouds 61°F, wind 0-1 mph, 100% clouds	Suitable burrows observed; no BUOW detected.
2	06/28/18	Amy Lee Daniel Torres	0530-0720	58°F, wind 0-1 mph, 100% clouds 59°F, wind 0-1 mph, 98% clouds	No BUOW or signs detected.
3	07/25/18	Amy Lee Lauren Singleton	0600-0750	71°F, wind 0-1 mph, 20% clouds 75°F, wind 0-1 mph, 5% clouds	No BUOW or signs detected.
4	08/21/18	Amy Lee Lauren Singleton	0620-0810	65°F, wind 1-2 mph, 0% clouds 68°F, wind 2-3 mph, 10% clouds	No BUOW or signs detected.

[1] Habitat Assessment
[2] Step II Part A conducted concurrently with the first focused survey (Step II Part B).

Step I – Habitat Assessment

The project site is located within an MSHCP BUOW survey area; therefore, consistent with MSHCP protocol a Step I Habitat Assessment was conducted to determine whether the project site and off-site staging areas support suitable BUOW habitat. The habitat assessment was conducted prior to commencement of the Step II surveys described below. The assessment was conducted on the project site and within a 150-meter (approximately 500-foot) buffer zone around the periphery of the project site (survey area). The survey area was slowly walked and assessed for suitable BUOW habitat, including:

- disturbed low-growing vegetation within grassland and shrublands (less than 30 percent canopy cover);
- gently rolling or level terrain;
- areas with abundant small mammal burrows, especially California ground squirrel burrows (*Otospermophilus beecheyi*);
- fence posts, rocks, or other low perching locations; and
- man-made structures, such as earthen berms, debris piles, and cement culverts.

Inaccessible areas of the survey area were visually assessed using binoculars.

Step II – Locating Burrows and Burrowing Owls

Since suitable habitat was observed during the habitat assessment, Step II surveys were conducted within the survey area. Step II surveys, which consist of a focused burrow survey (Part A) and four focused BUOW surveys (Part B), were conducted to determine whether the survey area supports suitable burrows and/or BUOW. The focused burrow survey was conducted concurrently with the first BUOW survey.

All potential burrows were checked for signs of recent owl occupation. Signs of occupation include:

- pellets/casting (regurgitate fur, bones, and/or insect parts);
- white wash (excrement); and/or
- feathers.

Since suitable burrows were observed within the survey area, three additional BUOW surveys were conducted. The biologist walked transects along the City ROW.[1] The biologists walked slowly and methodically, closely checking suitable habitat within the survey area from the ROW for suitable burrows, BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance), and individual BUOW. Inaccessible areas of the survey area (i.e, private property) were visually assessed using binoculars. All suitable burrows, burrow surrogates, BUOW sign, and/or BUOW observations were recorded using a handheld Global Positioning System unit (Figure 4).

RESULTS

Suitable BUOW habitat was observed within the survey area, including disturbed habitat, non-native grassland, and Riversidean sage scrub, and disturbed Riversidean sage scrub communities. Suitable burrows that could potentially be used by BUOW were observed within and adjacent to the survey area. No BUOW or sign of BUOW occupation were observed during the four focused surveys. Therefore, BUOW does not currently occupy the project site. Observed burrow locations and transects walked are shown on Figure 4.

CONCLUSION

No BUOW were observed or detected within the survey area during the focused surveys. Burrows with potential to support BUOW were noted on the project site, but no sign of BUOW occupation was observed. Consistent with MSHCP protocol, a pre-construction survey is required 30 days prior to ground disturbance pursuant to the County's survey protocol (County of Riverside 2006). If ground-disturbing activities are delayed more than 30 days after the pre-construction survey has been completed, the project site must be resurveyed.

Please call me at (949) 234-8770 if you have any questions about this report.

[1] MSHCP protocol requires transects to be spaced no more than 30 meters (approximately 100 feet) apart. However, to avoid trespassing on private property, biologist surveyed from the City ROW.

Sincerely,



Amy Lee
Biologist

Enclosures:

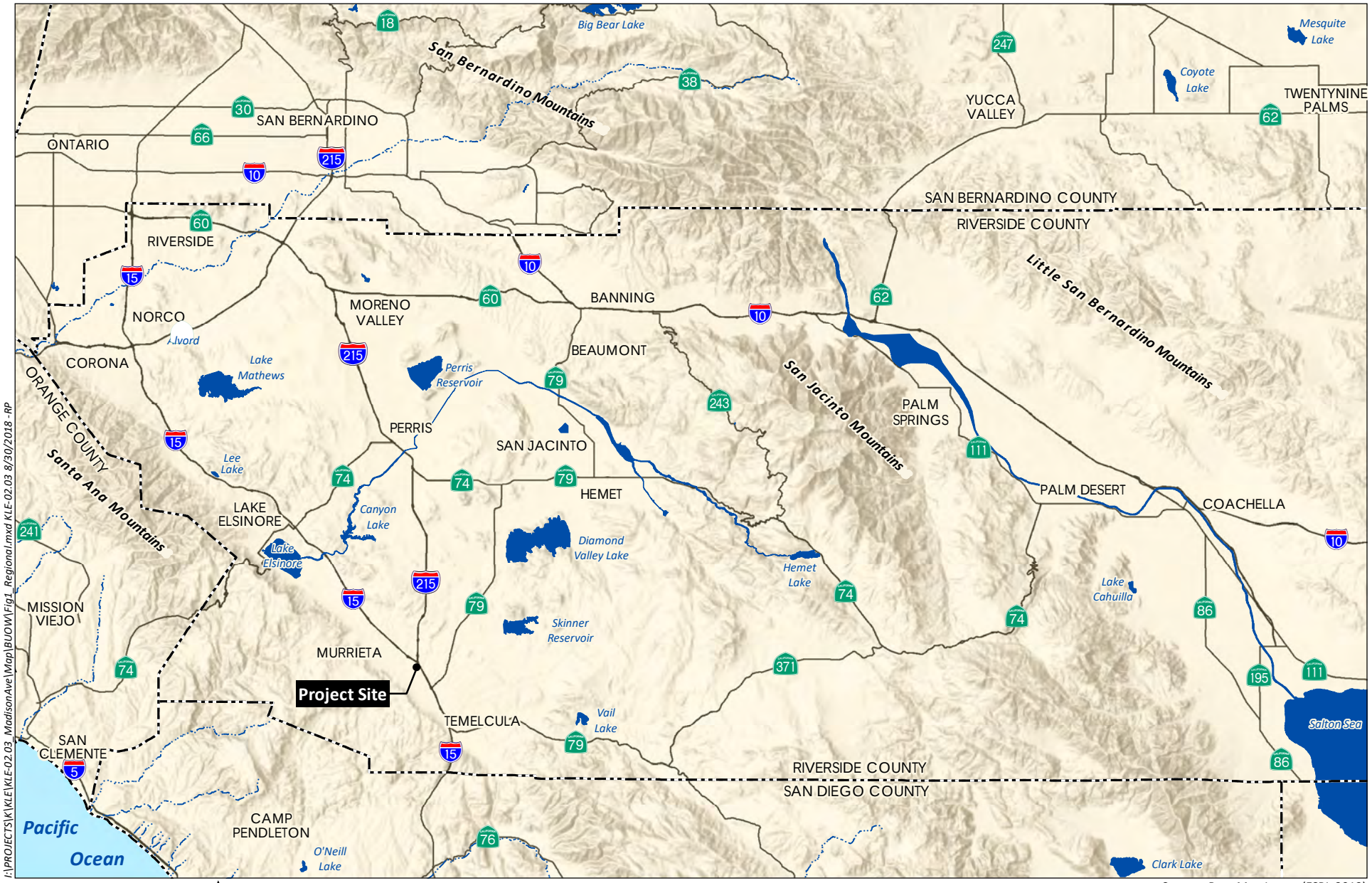
Figure 1: Regional Location
Figure 2: USGS Topography
Figure 3: Aerial Photograph
Figure 4a and 4b: Suitable Burrow and Transect Locations
Figure 5: Site Photographs

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Dudek and Associates. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Final MSHCP Volume I. Prep. for County of Riverside, Transportation and Land Management Agency.

Riverside, County of. 2006. Environmental Programs Department. Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Retrieved from: http://www.tlma.co.riverside.ca.us/epd/documents/Burrowing_Owl _Survey_Instructions.pdf. March 29. Accessed August 3, 2017.

Madison Avenue



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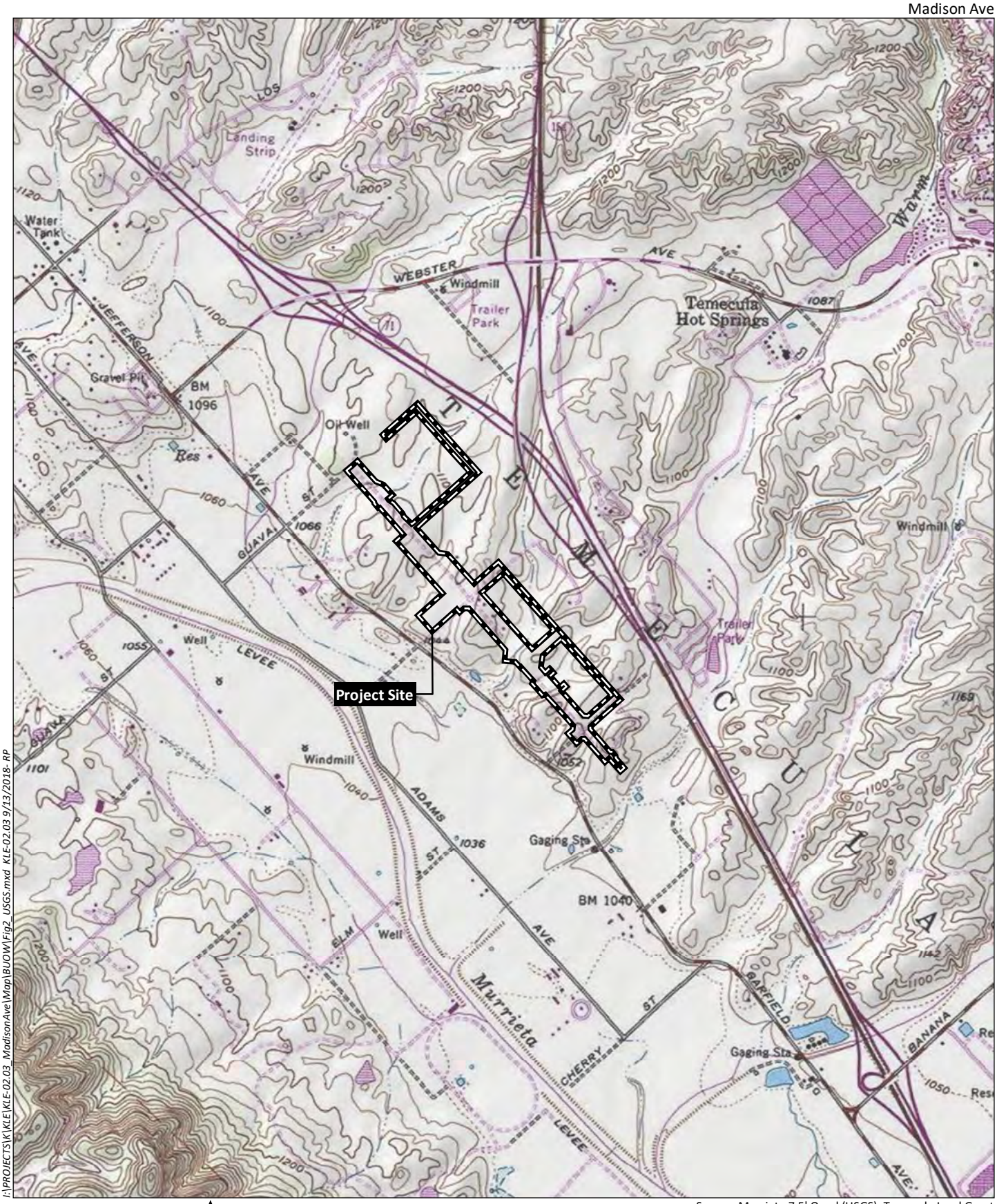
0 10 Miles

Source: Base Map Layers (ESRI, 2013)

HELIX Environmental Planning

Regional Location

Figure 1



Source: Murrieta 7.5' Quad (USGS), Temecula Land Grant

USGS Topography

Figure 2

Madison Avenue

Project Site

HAWTHORN AVE
JEFFERSON AVE
ADDISON LN
MONROE AVE
ADAMS AVE
GUAVA ST
BROWN ST
MARCO POLO ST
CARTIER ST
ISAAC ST
SCHAFER DR
PINE ST
BANYAN ST
MANZANITA ST
JACKSON AVE
ARBORETUM WAY
ELM ST
EMERY DR
CHARLESBURG DR
YNEZ RD
MEDFORD RD
DATE ST
NICK LN
SANDALWOOD CIR
GOLDEN GATE CIR
CORNING PL
MADISON AVE
FIG ST
PAPAYA
WASHINGTON AVE
DOUGLASS AVE
BAY MEADOWS WAY
GUAVA ST

15
215

I:\PROJECTS\KL\KLE\KLE-02.03_MadisonAve\Map\BUOW\Fig3_Aerial.mxd KLE-02.03 8/31/2018 -RP

0 800 Feet

N

Source: Aerial (Nearmap, 2015).

HELIX Environmental Planning

Aerial Photograph

Figure 3



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Source: Aerial (Nearmap, 2015).

HELIX Environmental Planning

Suitable Burrow and Transect Locations

Figure 4a

Madison Avenue

Project Site
500-foot Buffer
Transect Line
Potential Burrow Location

Jefferson Ave
Fig St
Larchmont Ln
Monroe Ave
Jackson Ave
Elm St
Madison Ave
Golden Gate Cir
Nick Ln
Adams Ave

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0 400 Feet

Source: Aerial (Nearmap, 2015).

HELIX Environmental Planning

Suitable Burrow and Transect Locations

Figure 4b



Photograph 1: View of non-native grassland habitat in the foreground and disturbed habitat in the background near the Madison Avenue and Fig Street intersection, looking west.



Photograph 2: View of disturbed habitat near the Madison Avenue and Guava Street intersection, looking northwest.

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Photograph 3: View of non-native grassland habitat adjacent to the U.S. Customs and Border Patrol Station, looking northeast.



Photograph 4: View of non-native grassland habitat along Monroe Avenue, looking east.

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Photograph 5: Representative suitable burrowing owl burrow found on project site.



Photograph 6: Suitable burrowing owl habitat (cement pile) found along Hoover Street.

Appendix H

2022 Burrowing Owl (Athene cunicularia) Survey Report for the Madison Avenue Street Improvements Project

July 26, 2022
Kleinfelder Project No.: 20184134.001A

Mr. Jeff Hitch, P.E.
City of Murrieta
1 Town Square
Murrieta, California 92562

SUBJECT: 2022 Burrowing Owl (*Athene cunicularia)* Survey Report for the Madison Avenue Street Improvement Project

Dear Mr. Hitch:

This letter report presents the results of the 2022 focused burrowing owl (*Athene cunicularia*; BUOW) survey conducted by Kleinfelder, Inc. for the Madison Avenue Street Improvement Project (project) located in the City of Murrieta (City), Riverside County (County), California. The survey was conducted in accordance with the County's *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006) and meets the applicable conditions under the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP; County of Riverside 2003).

The City is an enrolled jurisdiction of the MSHCP and therefore required to impose the terms of the MSHCP, including appropriate biological surveys in accordance with the MSHCP Implementation Structure (Volume 1, Section 6). The project is located in the predetermined survey area for BUOW; therefore, surveys are required if suitable habitat is present (County of Riverside 2006). This letter report describes the methods and results of the focused BUOW survey.

PROJECT SITE LOCATION

The project is generally located west of Interstate 215 and Interstate 15 and north of State Route 79 (Attachment A, Figure 1). The project is located on the U.S. Geological Survey (USGS) 7.5-minute Murrieta quadrangle map within Section 24 of Township 7 South and Range 3 West. Specifically, the project is located along Madison Avenue, between the intersection of Guava Street and Elm Avenue. The BUOW survey was conducted on the project site and a 150-meter (approximately 500-foot) buffer zone around the periphery of the project site (survey area; Attachment A, Figure 2).

The proposed project involves the widening of Madison Avenue from the intersection at Guava Street to Elm Avenue. The project will be constructed within a 88-foot right-of -way (ROW). Grading will be necessary for construction of the roadway and will extend beyond the ROW, incorporating 2:1 cut and fill slopes and retaining walls as necessary to comply with standard engineering practices and design criteria in accordance with the City of Murrieta's Grading Ordinance. The proposed project will consist of a 88-foot ROW Secondary roadway (64 feet curb-

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to-curb) along an alignment length of approximately 1.3 miles (6,990 linear feet). Additional ROW may be required to temporary construction access and easements. Two construction staging areas are proposed; the unimproved area west of Madison Avenue and north of Fig Street and a second potential laydown area has been identified along Madison Avenue and south of Golden Gate Circle. A temporary access road may be constructed between Madison Avenue and Monroe Avenue to the south of Guava Street to allow for parcel access throughout construction. This access road will be a minimum width, an all-weather surface (dirt/gravel), and will avoid sensitive resources to the extent possible. The proposed project will include street lights exclusively at cross street intersections were warranted for safety. Sidewalks will be provided only along developed properties that currently exist along Madison Avenue. As part of road construction, road improvements may include installation of various wet/dry utilities within the road bed (water, sewer, gas, electrical, storm drain). The project will also include appropriate storm water drainage facilities and storm drain crossings for off-site conveyance. Existing overhead dry utilities will be relocated and not in the roadway.

PROJECT SITE DESCRIPTION

The project site is located mainly along Madison Avenue and mostly occurs within the existing City ROW, but also includes areas immediately outside and along the ROW periphery. Disturbed land, non-native grassland, ornamental/exotic vegetation, Riversidean sage scrub, disturbed Riversidean sage scrub communities, eucalyptus woodland, and developed land are located along and within the periphery of the existing ROW. The project site is generally flat, with gently rolling hills along Madison Avenue. Elevations on the project site range from approximately 1,069 feet above mean sea level near the southern end of the project site, south of Golden Gate Circle, to a high of approximately 1,124 feet above mean sea level near the center of the project site on Hoover north of Larchmont Lane.

Vegetation Communities and Land Covers

Vegetation communities and land covers in the is dominated by Riversidean sage scrub, disturbed land, non-native grassland, and ornamental vegetation associated with rural residential developments. The burrowing owl survey concentrated on the disturbed land cover and non-native grassland vegetation community in the study area (Attachment A, Figure 3). Representative photographs of the study area are included in Attachment B, Site Photographs.

METHODS

A Step I Habitat Assessment and Step II Locating Burrows and Burrowing Owls were conducted in the survey area by Kleinfelder biologists W. Ryan Hilgris and Minh Dao between March 22, 2022 and June 16, 2022, in accordance with the County's survey protocol (County of Riverside 2006). Specific survey conditions are provided in Table 1, Survey Information. Methods for the habitat assessment and focused burrow and BUOW surveys are described in detail below.

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Table 1: Survey Information

Site Visit	Survey Date	Biologists	Time Start-Stop	Weather Conditions	Results
HA	03/22/2022	W. Ryan Hilgris, Minh Dao	0830-1150	59º-79ºF, wind 1-3 mph, clear	Suitable habitat present
1*	04/08/2022	W. Ryan Hilgris	0530-0815	56º-64ºF, wind 1-4 mph, clear	No BUOW or signs detected
2	04/30/2022	W. Ryan Hilgris	0545-0805	52º-57ºF, wind 1–3 mph, clear	No BUOW or signs detected
3	05/22/2022	W. Ryan Hilgris	0530-0830	57º-58ºF, wind 1–2 mph, overcast	No BUOW or signs detected
4	06/16/2022	W. Ryan Hilgris	0450-0820	59º-69ºF, wind 0-2 mph, clear	No BUOW or signs detected

Notes: HA = Step I habitat assessment; * Step II Part A conducted concurrently with Part B first focused survey; F = Fahrenheit

Step I: Habitat Assessment

The study area is located in an MSHCP BUOW survey area; therefore, consistent with MSHCP protocol a Step I Habitat Assessment was conducted to determine whether the study area support suitable BUOW habitat. The habitat assessment was conducted prior to commencement of the Step II surveys described below. The survey area was slowly walked and assessed for suitable BUOW habitat characteristics including disturbed low-growing vegetation within grassland and shrublands (less than 30 percent canopy cover); gently rolling or level terrain; areas with abundant small mammal burrows, especially California ground squirrel burrows *(Otospermophilus beecheyi);* fence posts, rocks, or other low perching locations; and man-made structures, such as earthen berms, debris piles, and cement culverts. Binoculars were used to visually assess inaccessible areas of the survey area.

Step II: Locating Burrows and Burrowing Owls

Step II surveys were conducted due to the presence of suitable BUOW habitat in the study area. The Step II effort consisted of a focused burrow survey (Part A) and four focused BUOW surveys (Part B). The Step II surveys were conducted to determine whether the survey area supported suitable BUOW burrows and/or individual BUOW. Part A was conducted concurrently with the first survey for Part B. All potential burrows were checked for signs of recent owl occupation, which included pellets/casting (regurgitate fur, bones, and/or insect parts); whitewash (excrement); and/or feathers.

Due to the presence of potentially suitable burrows in the survey area, Kleinfelder biologists conducted four focused BUOW surveys. The biologists walked transects spaced no more than 100 feet apart per the County's survey protocol where feasible. In order to avoid trespassing on private property, survey transects were limited to the City Street right-of-ways and binoculars were used for full study area coverage. Kleinfelder biologists slowly and methodically walked the transects while closely inspecting suitable burrows for BUOW diagnostic sign (e.g., molted feathers, pellets/castings, or whitewash at or near a burrow entrance), and individual BUOW. Binoculars were used to visually assess inaccessible areas of the survey area. All suitable

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burrows, BUOW sign, and/or BUOW observations were recorded using an Android phone running Field Maps.

RESULTS

The study area supports disturbed habitat, non-native grassland, and Riversidean sage scrub, and disturbed Riversidean sage scrub communities, which may provide suitable habitat for the BUOW. Suitable burrows that could potentially be used by BUOW were observed in the survey area. Wildlife species detected during the surveys are included as Attachment C. Figure 3 illustrates the burrow locations investigated during the survey. However, no BUOW or sign of BUOW occupation were observed during the four focused surveys. Therefore, BUOW does not currently occupy the project site.

CONCLUSIONS

Burrows with potential to support BUOW were noted in the study area. However, no sign of BUOW occupation was observed. Additionally, no BUOW individuals were observed in the survey area during the focused surveys. Although results of the focused surveys were negative, a pre-construction survey is required 30 days prior to ground disturbance pursuant to the County's survey protocol (County of Riverside 2006). If the pre-construction survey is conducted and ground-disturbing activities are delayed more than 30 days after the survey, then another pre-construction survey for BUOW must be conducted.

Sincerely,



W. Ryan Hilgris
Senior Wildlife Biologist

cc: Ryan Henry, Kleinfelder

Attachments:
References
A – Figures
B – Site Photographs
C – Species Compendium

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County of Riverside. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Riverside, California. Riverside County Integrated Project. Adopted June 17, 2003. Accessed August 2020. https://rctlma.org/Portals/0/mshcp/index.html.

County of Riverside. 2006. Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Retrieved from: https://www.wrc-rca.org/species/survey_protocols/burrowing_owl_survey_instructions.pdf. Accessed March 20, 2022.

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ATTACHMENT A

FIGURES

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Attachment A – Figures

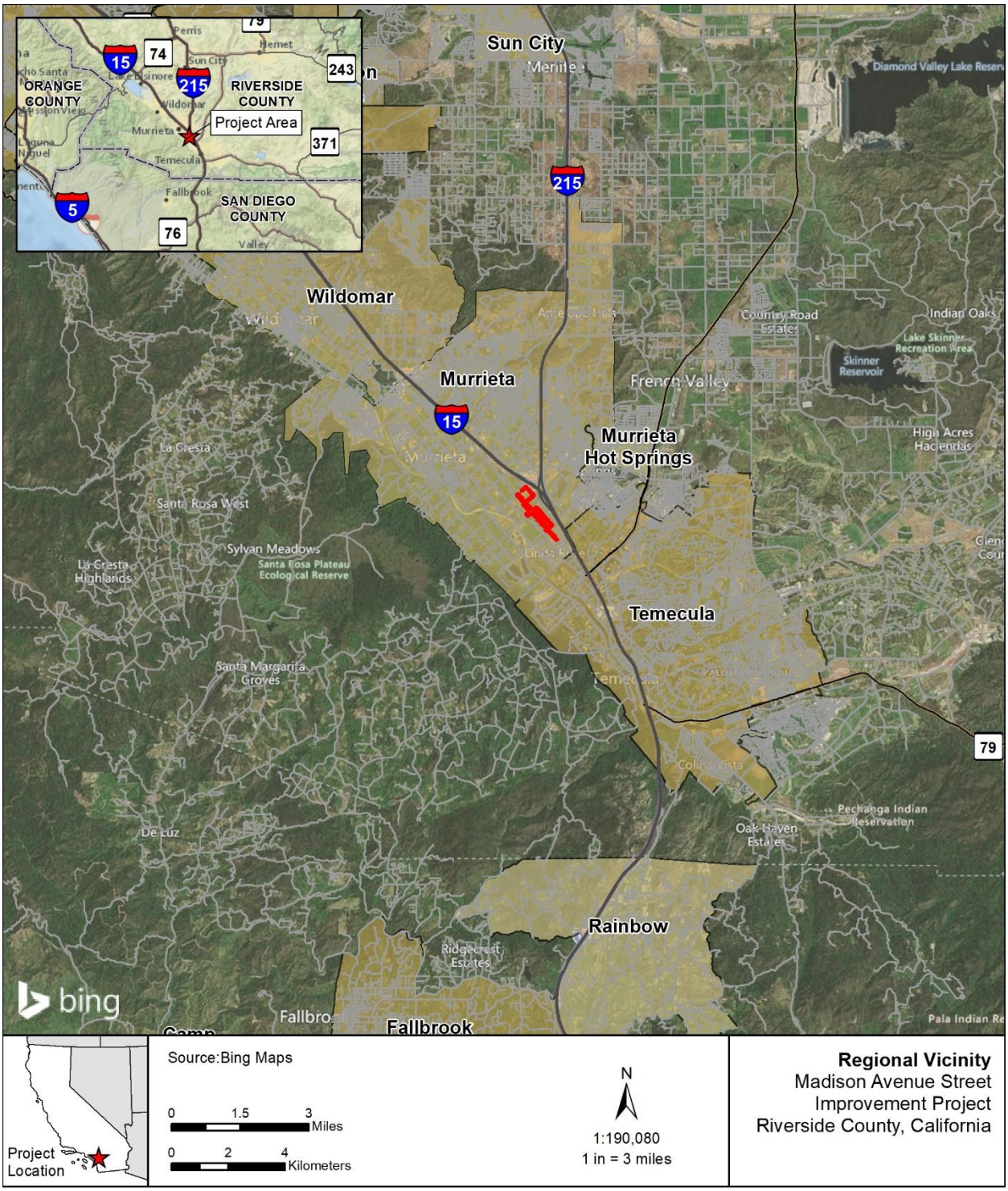


Figure 1: Regional Vicinity

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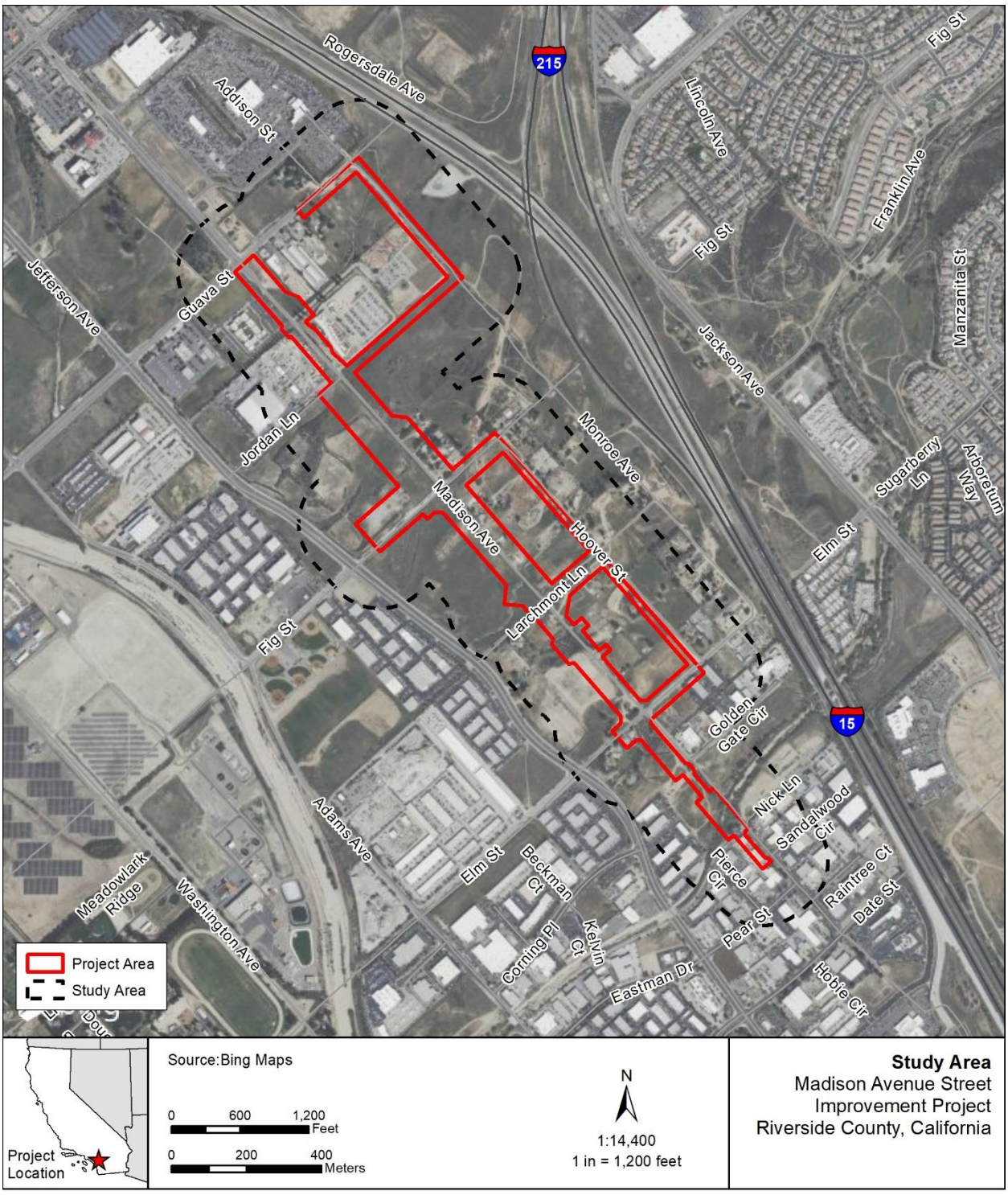


Figure 2: Study Area

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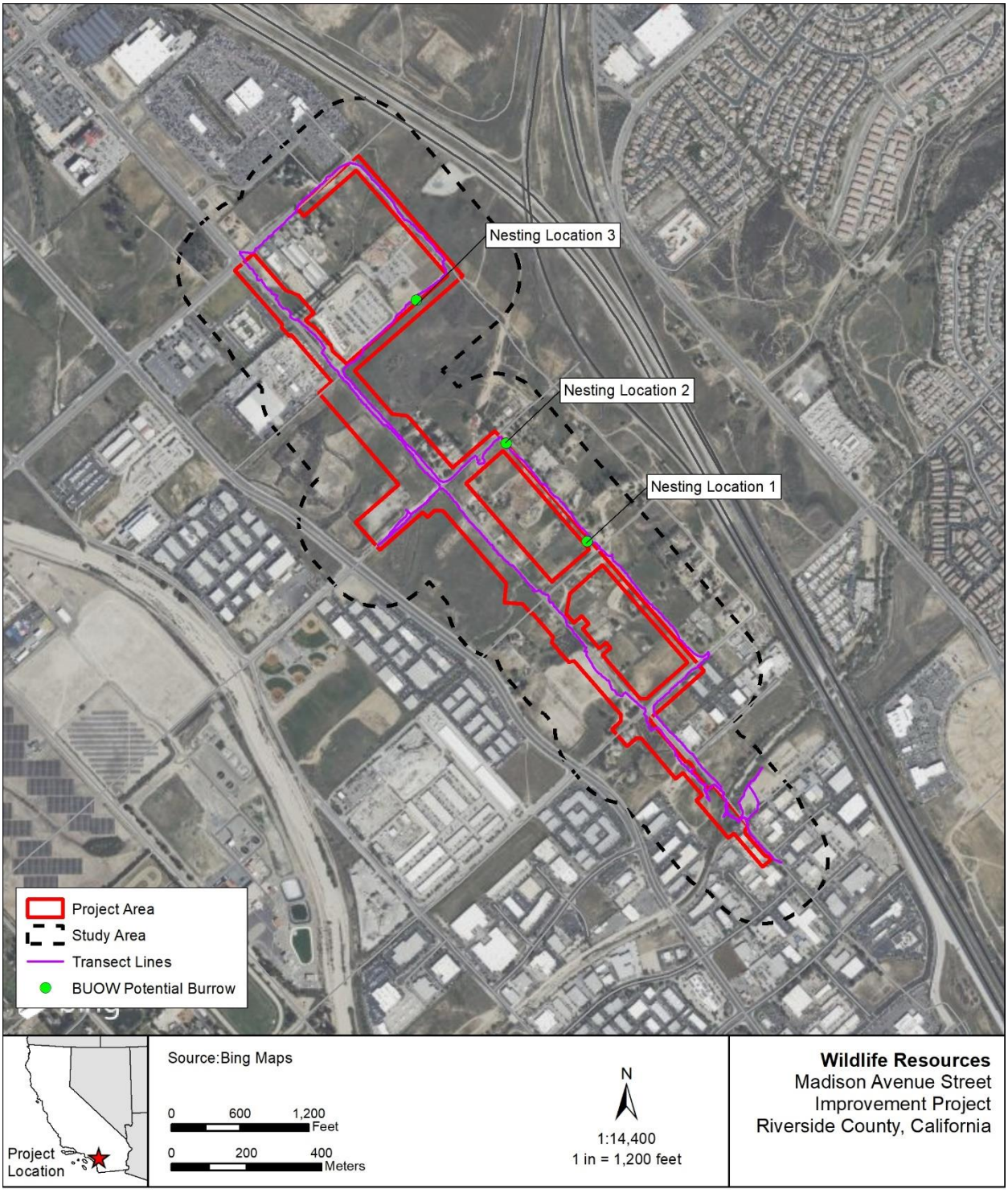


Figure 3: Wildlife Resources

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ATTACHMENT B

SITE PHOTOGRAPHS

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Attachment B – Site Photographs



Photo 1. Disturbed field southwest of the Madison Avenue and Elm Street intersection.



Photo 2. Mowed field west of Madison Avenue and north of Fig Street.

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Potential BUOW Burrows



Photo 3. Potential BUOW nesting burrow #1 in concrete rubble pile located on the southwest corner of Hoover Street and Larchmont Lane facing west.



Photo 4. Potential BUOW nesting burrow #2 along northeastern berm of Hoover Street southeast of Fig Street facing northeast.

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Photo 5. Potential BUOW nesting burrow #3 in concrete rubble pile located southeast of U.S. Customs and Border Protection - Theodore Newton and George Azrak Border Patrol Station facing south-southeast.

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ATTACHMENT C

SPECIES COMPENDIUM

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Attachment C – Species Compendium

Common Name	Scientific Name
Birds	
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
Anna's hummingbird	*Calypte anna*
Bewick's wren	*Thryomanes bewickii*
black phoebe	*Sayornis nigricans*
bushtit	*Psaltriparus minimus*
California scrub jay	*Aphelocoma californica*
California towhee	*Melozone crissalis*
Canada goose	*Branta canadensis*
Cassin's kingbird	*Tyrannus vociferans*
Cooper's hawk	*Accipiter cooperii*
greater roadrunner	*Geococcyx californianus*
horned lark	*Eremophila alpestris*
house finch	*Haemorhous mexicanus*
lesser goldfinch	*Spinus psaltria*
mourning dove	*Zenaida macroura*
northern mockingbird	*Mimus polyglottos*
Says phoebe	*Sayornis saya*
savannah sparrow	*Passerculus sandwichensis*
common raven	*Corvus corax*
red-tailed hawk	*Buteo jamaicensis*
western kingbird	*Tyrannus verticalis*
white-crowned sparrow	*Zonotrichia leucophrys*
Mammals	
California ground squirrel	*Otospermophilus beecheyi*
coyote	*Canis latrans*
desert cottontail	*Sylvilagus audubonii*
domestic dog	*Canis familiaris*
Reptiles	
granite spiny lizard	*Sceloporus orcutti*
sagebrush lizard	*Sceloporus graciosus*
western fence lizard	*Uta stansburiana*

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