

**Supplement to the
Final Environmental Impact Report**
SCH No. 2013091023

Appendices

**Modifications to the
Los Angeles Groundwater Replenishment Project**

Lead Agency:



Los Angeles Department of Water and Power
Environmental Planning and Assessment
111 North Hope Street, Room 1044
Los Angeles, California 90012

December 2024

APPENDIX A

Biological Resources Assessment

MODIFICATIONS TO THE LOS ANGELES GROUNDWATER REPLENISHMENT (LAGWR) PROJECT

CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, CALIFORNIA

Biological Resources Assessment

Prepared For:

Los Angeles Department of Water and Power
111 North Hope Street
Los Angeles, California 90012

Prepared By:

MICHAEL BAKER INTERNATIONAL
5 Hutton Centre Drive, Suite 500
Santa Ana, California 92707
Contact: *Arthur Popp*
949.379.0383

April 2024

MODIFICATIONS TO THE LOS ANGELES GROUNDWATER REPLENISHMENT (LAGWR) PROJECT

CITY OF LOS ANGELES, COUNTY OF LOS ANGELES, CALIFORNIA

Biological Resources Assessment

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Arthur Popp
Senior Biologist

April 2024

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Identified During Database Reviews

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AWPF	Advanced Water Purification Facility
Approved Project	Los Angeles Groundwater Replenishment Project
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CIRP	California Inventory of Rare and Endangered Plants
City	City of Los Angeles
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	federal Clean Water Act
DCTWRP	Donald C. Tillman Water Reclamation Plant
EIR	Environmental Impact Report
FESA	Federal Endangered Species Act
FP	Fully Protected
GIS	Geographic Information System
HEC-RAS	Hydraulic Engineering Center's River Analysis System
IPaC	Information for Planning and Consultation
LA River	Los Angeles River
LADWP	Los Angeles Department of Water and Power
LAGWRP	Los Angeles-Glendale Water Reclamation Plant
LASAN	Los Angeles Department of Public Works Bureau of Sanitation and Environment
MBTA	Migratory Bird Treaty Act
MGD	million gallons a day
Michael Baker	Michael Baker International
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
SSC	Species of Special Concern
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WL	Watch List

Section 1 Introduction

Approved Project

The City of Los Angeles (City), as represented by the Los Angeles Department of Water and Power (LADWP) and the Los Angeles Department of Public Works Bureau of Sanitation and Environment (LASAN), prepared the 2016 Environmental Impact Report (EIR) for the Los Angeles Groundwater Replenishment Project (approved project). To maintain the reliability of the City’s potable water supply and reduce dependence on imported sources of water, the approved project consists of three basic elements: 1) treatment entails the construction and operation of a new Advanced Water Purification Facility (AWPF) and related facilities that would provide additional levels of treatment of recycled water generated at the Donald C. Tillman Water Reclamation Plant (DCTWRP) to produce purified water; 2) conveyance entails the use of existing and newly constructed pipelines to transport the purified water from the AWPF to existing spreading grounds; and 3) replenishment entails the spreading of the purified water at the existing spreading grounds so that it percolates into the San Fernando Groundwater Basin.

The Board of Water and Power Commissioners certified the 2016 EIR, approved the project analyzed therein, and adopted the findings, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program on December 6, 2016. Under the approved project, influent for the AWPF would be provided from the balance of recycled water available from DCTWRP after meeting the requirements for in-plant functions and maintaining supplies for the Japanese Garden Lake, Lake Balboa, and the Wildlife Lake, the flows through which ultimately discharge to the Los Angeles River (LA River).

Proposed Project Modifications

The project modifications involve installing a new 90-foot pipeline and associated valves that would allow recycled water that flows from the DCTWRP to the Japanese Garden Lake to be routed from the lake outlet pipeline back to the headworks facility at DCTWRP. Under the approved project as described in the 2016 EIR, the water flowing through the Japanese Garden Lake could only be routed through an existing pipeline to a discharge point located at the LA River downstream of Sepulveda Dam. Essentially all other aspects of the approved project as described in the 2016 EIR would remain the same.

Since 2016, water conservation efforts in the City have substantially reduced the volume of wastewater influent available to DCTWRP compared to the volume anticipated during the preparation of the 2016 EIR. Therefore, the project modifications have been proposed to help increase the volume of influent to DCTWRP in order to more effectively utilize the existing treatment facilities and maintain an adequate volume of recycled water supply to serve as influent to the AWPF.

The recirculation of the Japanese Garden Lake water to the DCTWRP treatment facilities provided by the project modifications would deliver a sufficient volume of recycled water influent to the AWPF to generate purified water effluent to meet the needs of non-potable reuse customers and the groundwater replenishment program, as described in the 2016 EIR. However, as a result of the project modifications, there would be a decrease in flow of recycled water to the LA River equal to the amount that would previously have been

discharged from the Japanese Garden Lake. Based on 4 years of data for the Water Year¹ ending September 30, 2022, the average monthly flow through the Japanese Garden Lake was 3.89 million gallons a day (MGD). The average monthly flow fluctuated slightly throughout the year over this period, from a high of 4.17 MGD to a low of 3.64 MGD, with a median flow of 3.90 MGD.

Based on California Water Code Section 1211, this change in the point of discharge, place of use, and purpose of use of recycled water from DCTWRP, which would result in an average decrease in flow of approximately 4 MGD to the LA River downstream of the Japanese Garden discharge point, requires approval by the SWRCB. The review by SWRCB of a Wastewater Change Petition requesting this change requires an assessment of impacts to biological resources, recreation, and other instream beneficial uses that may be caused by the proposed diversion of approximately 4 MGD of recycled water from the LA River related to the project modifications. Because the discharge point to the river from the Japanese Garden Lake is located downstream of Sepulveda Dam and, therefore, outside the Sepulveda Flood Control Basin, discharges to the river within the basin from Lake Balboa and the Wildlife Lake would not be altered by the proposed project modifications. In addition, the flow-through function of the Japanese Garden Lake would not be impacted since the lake would continue to be supplied and return flow to DCTWRP would be intercepted after discharging from the lake.

This report contains the findings of Michael Baker International’s (Michael Baker) biological resources assessment for the survey area associated with the project modifications. The survey area is composed of two reaches of the LA River downstream of the DCTWRP. A field survey/habitat assessment was conducted on July 31, 2023 and August 1, 2023. The field surveys were conducted to characterize existing site conditions and assess the potential for special-status² biological resources to occur. Special attention was given to the suitability of habitats and their potential to support special-status biological resources that were identified during reviews of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database RareFind 5 (CNDDB), the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (CIRP; CNPS 2024a), and the U.S. Fish and Wildlife Service (USFWS) online Information for Planning and Consultation project planning tool (IPaC; USFWS 2024a), and other databases as potentially occurring in the vicinity of the project site and survey area, described in Section 1.1 below.

1.1 PROJECT LOCATION

The project modifications would be located within the DCTWRP facility located at 6100 Woodley Avenue, in the Encino and Van Nuys communities of the City. DCTWRP is located within the Sepulveda Basin (refer to Figures 1 and 2, *Regional Vicinity* and *Project Vicinity*). Specifically, the project modifications would be within an unsectioned portion of Township 2 North, Range 5 West of the U.S. Geological Survey’s (USGS) Van Nuys, California 7.5-minute topographic quadrangle.

¹ A Water Year begins on October 1 of a given year and ends on September 30 of the following year.

² As used in this report, “special-status” refers to species that are either federally-/State-listed, proposed, or candidates; species that have been designated a California Rare Plant Rank by the California Native Plant Society; species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW); species tracked by CDFW in the California Natural Diversity Database; or State/locally rare vegetation communities.

The survey area for the potential impacts from the project modifications is composed of two separate reaches of the LA River occurring downstream of the DCTWRP and located in the cities of Los Angeles and Long Beach, Los Angeles County, California (refer to Figures 1 and 2). The “Los Angeles” reach extends from approximately 1,200 feet upstream (west) of the Riverside Drive bridge over the LA River in Los Angeles and terminates immediately upstream of the State Route 110 bridge over the LA River and approximately 220 feet upstream (north) of the Arroyo Seco confluence with the river in Los Angeles. This reach, known as the Glendale Narrows, is approximately 7.5 miles in length and includes soft-bottom channel that supports riparian vegetation. The “Long Beach” reach extends from immediately downstream of the Interstate 405 bridge over the LA River in Long Beach and terminates immediately upstream of the Pacific Coast Highway bridge over the LA River in Long Beach. These survey areas were established based on the potential for the project modifications to affect existing biological resources within these areas of the LA River downstream of DCTWRP.

1.2 PROJECT SETTING

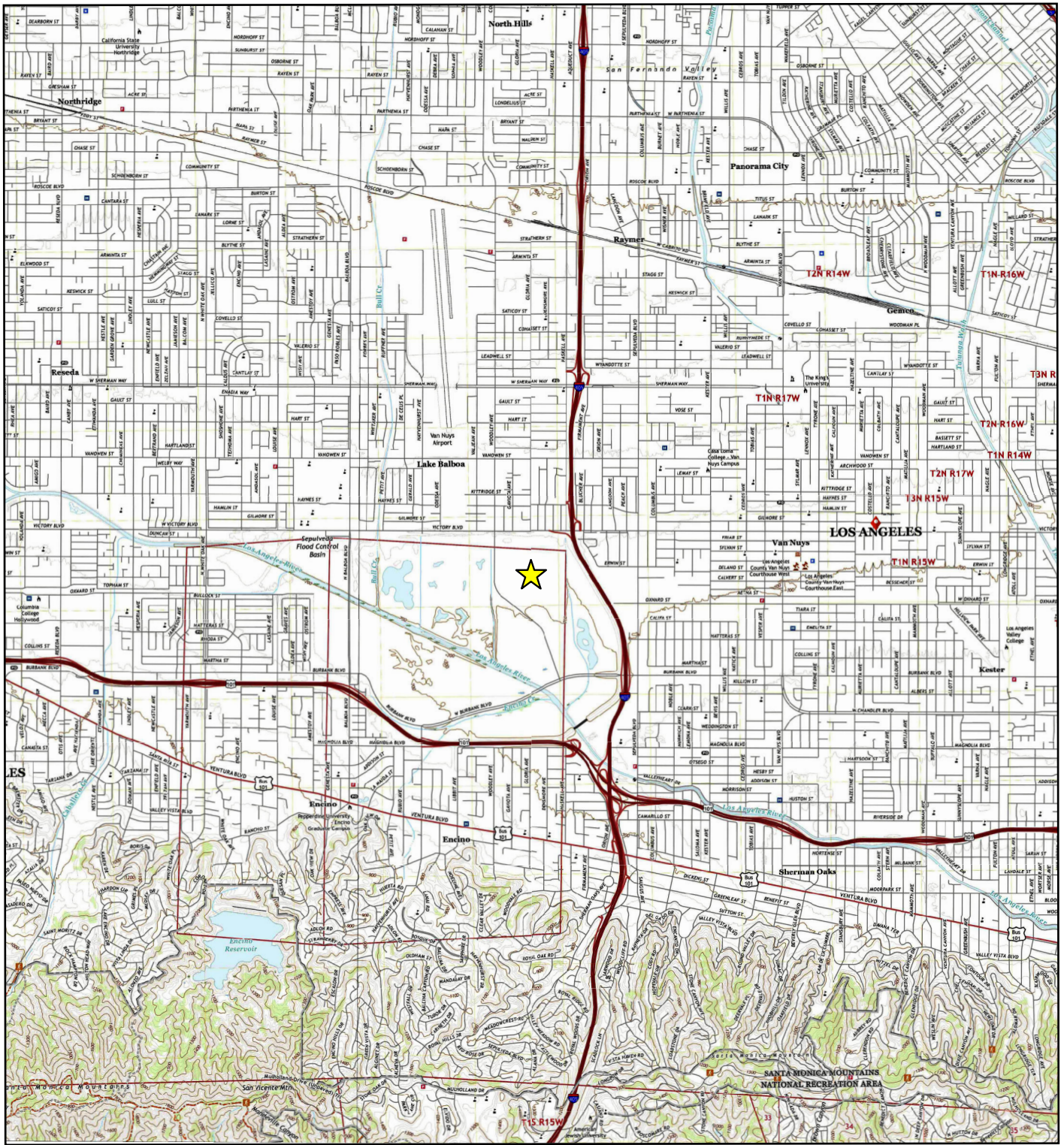
DCTWRP is located within the Sepulveda Basin, which is owned and managed by the United States Army Corps of Engineers (USACE) for the purposes of flood control, recreation opportunities, natural resources preservation and enhancement, and other uses. DCTWRP is operated by LASAN under a lease agreement with the USACE. The Japanese Garden, dedicated in 1984, occupies about 6.5 acres in the northwest corner of the DCTWRP.

The survey area includes reaches of the LA River that occur downstream of the DCTWRP. These reaches are flanked by the completely urbanized environment of the cities of Los Angeles and Long Beach.

1.3 PROJECT DESCRIPTION

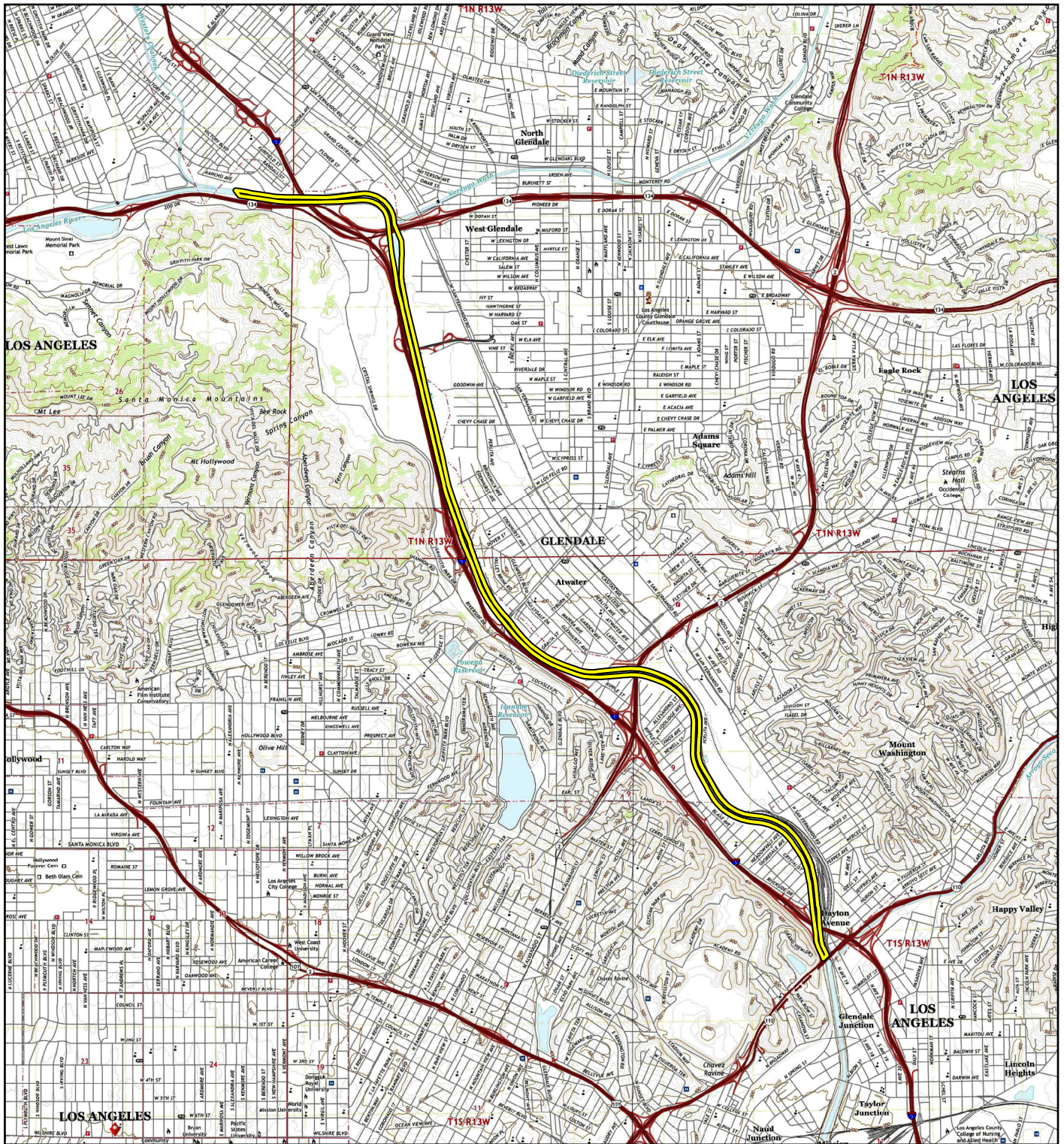
The proposed project modifications include the installation of a new 90-foot pipeline and associated valves that would allow recycled water that flows from the DCTWRP to the Japanese Garden Lake to be routed from the lake outlet pipeline back to the headworks facility at DCTWRP.






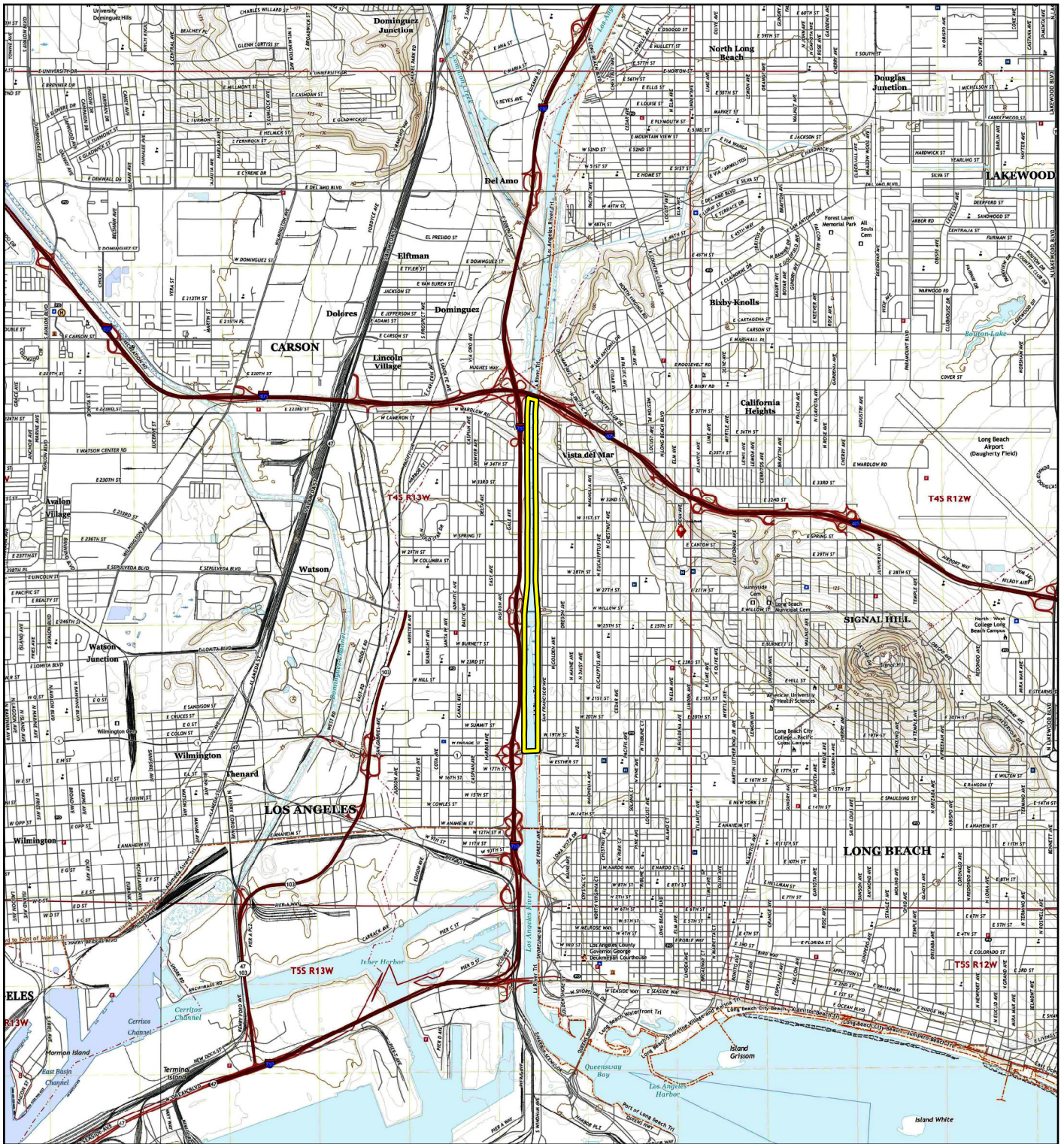
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★ Project Site (Donald C. Tillman Water Reclamation Plant)




Legend

 Survey Area (Los Angeles Reach)



Legend

 Survey Area (Long Beach Reach)

Section 2 Methodology

Michael Baker conducted thorough literature reviews and records searches to determine which special-status biological resources have the potential to occur on or within the general vicinity of the survey area. Field surveys were conducted to document existing conditions and determine the potential for special-status plant and wildlife species to occur within the survey area. Specifically, two reaches of the LA River (Los Angeles reach and Long Beach reach) located between DCTWRP and the Pacific Ocean were the focus of surveys because they support various biological resources. The remaining areas were not surveyed as they consisted of portions of the LA River with concrete lining not anticipated to be impacted by the project modifications due to the lack of habitat value. The survey area was visually assessed from public trails adjacent to the river.

2.1 LITERATURE REVIEW

Literature reviews and records searches were conducted for special-status biological resources³ potentially occurring on or within the vicinity of DCTWRP and the LA River. Special-status plant and wildlife occurrence records within the USGS quadrangles containing or closely adjacent to the DCTWRP and the portion of the LA River downstream of DCTWRP were identified through a query of the CNDDDB (CDFW 2024a) and CIRP (CNPS 2024), and through a review of IPaC. USGS quadrangles searched in the CNDDDB and CIRP included *Canoga Park*, *Van Nuys*, *Burbank*, *Pasadena*, *Hollywood*, *Los Angeles*, *South Gate*, and *Long Beach*. These quadrangles, which encompass an area of approximately 488 square miles, mostly outside the area of potential impact, capture the DCTWRP site and course of the LA River downstream of DCTWRP to the Pacific Ocean.

The current regulatory/conservation status of special-status plant and wildlife species was verified through lists and resources provided by the CDFW, specifically the *Special Animals List* (CDFW 2024b), *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2024c), *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2024d), and *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFW 2024e). USFWS-designated Critical Habitat for species listed under the federal Endangered Species Act (FESA) was reviewed online via the Critical Habitat Mapper (USFWS 2024b).

In addition to the databases referenced above, Michael Baker reviewed available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the survey area to understand existing site conditions, confirm previous species observations, and note the extent of any disturbances, if present, that have occurred in the survey area that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat

³ As used in this report, “special-status” refers to species that are either federally-/State-listed, proposed, or candidates; species that have been designated a California Rare Plant Rank by the California Native Plant Society; species designated as Fully Protected, Species of Special Concern, or Watch List by the California Department of Fish and Wildlife (CDFW); species tracked by CDFW in the California Natural Diversity Database; or State/locally rare vegetation communities.

requirements of special-status and non-special-status biological resources. Aerial photography was also reviewed prior to the field survey to locate potential natural corridors and linkages that may support the movement of wildlife through the area.

On-site and adjoining soils were researched using the United States Department of Agriculture's (USDA) Natural Resources Conservation Service's (NRCS) online Soil Web Survey (NRCS 2024). In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes and disturbances that may have occurred within the survey area.

2.2 HABITAT ASSESSMENT

A field survey was conducted by Michael Baker biologists Ryan Phaneuf and Trina Ming on July 31, 2023, and August 1, 2023, to document existing conditions and to evaluate the potential for special-status species to occur within the survey area. Weather conditions during the field surveys consisted of temperatures ranging between 76-90° F, clear skies, and variable winds 1-9 miles per hour.

Areas containing vegetation and other land cover types preliminarily identified on aerial photographs during the literature review and were verified through walking along publicly accessible vantage points located along the river channel, including primarily public hiking/biking trails. All plant and wildlife species observed during the field survey, as well as dominant plant species within each vegetation community, were recorded. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, and the overall condition of on-site vegetation communities were recorded.

2.3 VEGETATION COMMUNITIES AND LAND COVER TYPES

Vegetation communities and land cover types occurring within the survey area were noted on an aerial photograph during the habitat assessment and later digitized using the Geographic Information System (GIS) ArcGIS Pro software to quantify the area of each vegetation community in acres. Any natural vegetation communities occurring within the survey area are classified in accordance with descriptions provided in the *A Manual of California Vegetation, Online Edition* (CNPS 2024b). Additionally, any vegetation communities that may occur on-site that are listed by CDFW as a California Sensitive Natural Community (CDFW 2023) are noted.

2.4 PLANTS

Plant species observed during the habitat assessment were identified by visual characteristics and morphology in the field and recorded. Unfamiliar plants were photographed in the field and later identified using standard keys. Plant nomenclature used in this report follows the *Jepson Herbarium eFlora database* (Jepson Flora Project 2024). In this report, scientific names are provided immediately following common names of plant species (first reference only).

2.5 WILDLIFE

Wildlife species detected during the habitat assessment by sight, calls, tracks, scat, or other types of evidence were recorded in a field notebook. Field guides used to assist with identification of species during the habitat assessment included *The Sibley Guide to Birds* (Sibley, 2014) for birds, *A Field Guide to Western Reptiles and Amphibians* (Stebbins, 2003) for herpetofauna, and *A Field Guide to Mammals of North America* (Reid, 2006). Although common names of wildlife species are well standardized, scientific names are provided immediately following common names of wildlife species in this report (first reference only). To the extent possible, nomenclature of birds follows the most recent annual supplement of the American Ornithological Union's *Checklist of North American Birds* (Chesser et al., 2023), nomenclature of amphibians and reptiles follows *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding* (Crother, 2017), and nomenclature for mammals follows the *Bats of the United States and Canada* (Harvey et al., 2011) and *Revised Checklist of North American Mammals North of Mexico* (Bradley et al., 2014).

Section 3 Results

During field surveys, the survey area primarily consisted of open water of varying depths, with areas where soils have accumulated to support a mixture of established riparian and wetland habitats, primarily within the Los Angeles reach. Remaining areas of the survey area consist of concrete bottom and other areas that have been disturbed by activities related to channelization of the LA River. Representative photographs taken throughout the survey area are included in Appendix A.

3.1 TOPOGRAPHY AND SOILS

Surface elevations within the survey area ranges from approximately 455 feet above mean sea level at the upstream end of the Los Angeles reach, to 25 feet at the downstream end of the Long Beach reach. The survey area is associated with an urbanized stretch of the LA River through the cities of Los Angeles and Long Beach, with frequent anthropogenic manipulation. According to the online Web Soil Survey, (NRCS 2024), the survey area is underlain by:

- Urban land-Metz-Pico complex, 0 to 2 percent slopes (1001)
- Urban land-Tujunga-Typic Xerorthents, sandy substratum complex, 0 to 2 percent slopes (1012)
- Urban land, commercial, 0 to 5 percent slopes (1200)
- Urban land, frequently flooded, 0 to 5 percent slopes (1261)
- Xeropsamments, frequently flooded, 0 to 2 percent slopes (1264)
- Water (W)

Metz soils consist of very deep, fine sandy loam, somewhat excessively drained soils that formed in alluvial material from mixed, but dominantly sedimentary rocks. Metz soils are found on floodplains and alluvial fans. Pico soils consists of deep, well drained soils that formed in alluvium from mostly sedimentary rocks. Pico soils are on floodplains and alluvial fans and have slopes of 0 to 9 percent. Tujunga soils consists of very deep, somewhat excessively drained soils that formed in alluvium from granitic sources. Tujunga soils are on alluvial fans and floodplains, including urban areas. Slopes range from 0 to 12 percent.

3.2 VEGETATION COMMUNITIES AND LAND COVER TYPES

A total of five (5) vegetation communities and four (4) land cover types were observed within the survey area (refer to Figure 3, *Vegetation communities and Land Cover Types*). Descriptions of each vegetation community and land cover type are provided below.

Goodding's Willow – Red Willow Riparian Woodland and Forest (*Salix gooddingii* – *Salix laevigata* Forest and Woodland Alliance)

Mature Goodding's black willow (*Salix gooddingii*) formed the dominant cover in the tree canopy, with Fremont cottonwood (*Populus fremontii*) also occasionally present as a co-dominant. Cattail (*Typha* sp.), California bulrush (*Schoenoplectus californicus*), and chairmaker's bulrush (*Schoenoplectus americanus*)

were occasionally present in the understory, interspersed with bare ground or cobbly river substrate. Patches of other mixed herbaceous species are also present in the understory. The occurrence of non-native plant species is limited in this community.

Disturbed Goodding's Willow – Red Willow Riparian Woodland and Forest (Disturbed *Salix gooddingii* – *Salix laevigata* Forest and Woodland Alliance)

Mature Goodding's black willow formed the dominant cover in the tree canopy, with Fremont cottonwood also occasionally present as a co-dominant species. Non-native trees, including Brazilian pepper tree (*Schinus terebinthifolius*), white mulberry (*Morus alba*), shamel ash (*Fraxinus uhdei*), Chinese elm (*Ulmus parviflora*), London plane tree (*Platanus x hispanica*), Canary Island date palm (*Phoenix canariensis*) and Mexican fan palm (*Washingtonia robusta*) were also present in the tree canopy. Giant reed (*Arundo donax*), sandbar willow (*Salix exigua*), California bulrush, and chairmaker's bulrush were occasionally present in the shrub layer. Non-native or weedy herbaceous species, including white sweet clover (*Melilotus albus*), castor bean (*Ricinus communis*), common knotweed (*Persicaria lapathifolia*), cocklebur (*Xanthium strumarium*), and Marsh purslane (*Ludwigia peploides*) were frequently present in the understory, interspersed with bare ground or cobbly river substrate.

Cattail Marshes (*Typha [angustifolia, domingensis, latifolia]* Herbaceous Alliance)

Cattails were dominant in the shrub layer, with California bulrush and chairmaker's bulrush frequently present as co-dominant species. Mature Goodding's black willows were sporadically present, with willow saplings occasionally present in the shrub layer. Areas with mixed herbaceous species were also present, with the occurrence of non-native species limited in this community.

Disturbed Cattail Marshes (Disturbed *Typha [angustifolia, domingensis, latifolia]* Herbaceous Alliance)

Cattails were dominant in the shrub layer, with California bulrush and chairmaker's bulrush frequently present as co-dominant species. Mature Goodding's black willows, white mulberry, Chinese elm, and London plane tree were sporadically present, with willow saplings and giant reed occasionally present in the shrub layer. Mixed non-native or weedy herbaceous species were also present, including marsh purslane, white sweet clover, common knotweed, cocklebur, and castor bean.

Common and Giant Reed Marshes (*Phragmites australis* – *Arundo donax* Herbaceous Semi-Natural Alliance)

Common reed and giant reed were dominant or co-dominant in the herbaceous layer. Goodding's black willow, southern California black walnut (*Juglans californica*), shamel ash, white mulberry, Mexican fan palm, and tree of heaven (*Alianthus altissima*) were sporadically present in the tree canopy. Mixed herbaceous and shrub species were also present, including cocklebur, cattail, and castor bean.

Disturbed

Disturbed areas consisted of areas of bare ground, areas of dried or matted thatch, and where patches of primarily non-native or weedy native plant species were observed. Evidence of flood scour was commonly observed in disturbed areas. Vegetation consisted of non-native or weedy native annuals, including white sweet clover, common knotweed, common sunflower (*Helianthus annuus*), Bermuda grass (*Cynodon dactylon*), cocklebur, and marsh purslane. Perennial non-native species were also sporadically present, including Brazilian pepper tree, castor bean, and giant reed. Patches of native cattail, chairmaker's bulrush, and sporadic black willows were also present at low densities.

Open Water

Areas of open water consisted of non-vegetated portions of the LA River channel where flowing water was present.

Developed

Developed areas consisted of concrete or otherwise armored banks, bridges, or any hardened portion of the LA River channel which has been physically altered to the degree that native vegetation is no longer supported.

Open Water/Developed

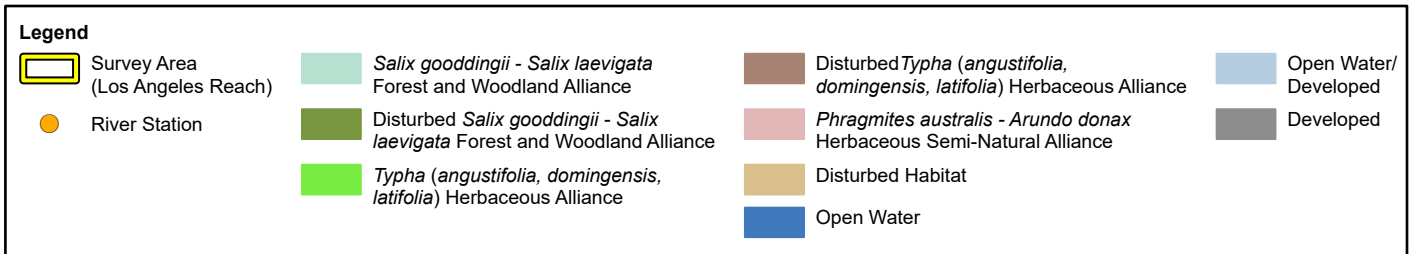
Open water/developed areas consisted of LA River channel sections located primarily under bridge spans, where the channel consisted both of open water and concrete structures such as bridge supports.

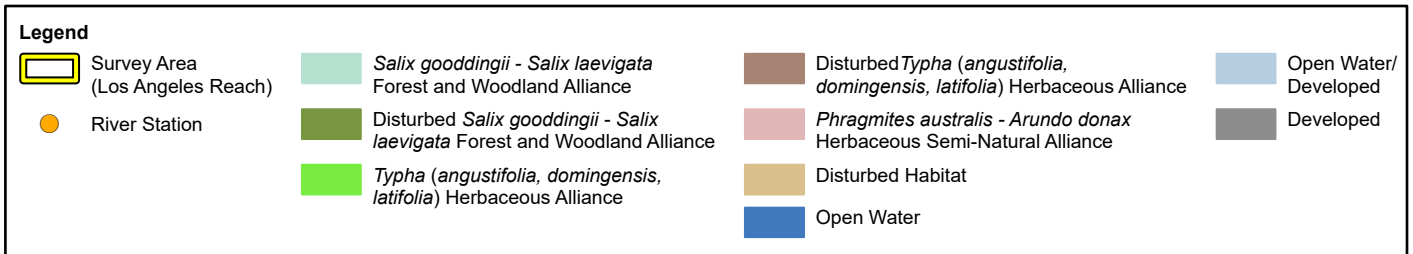
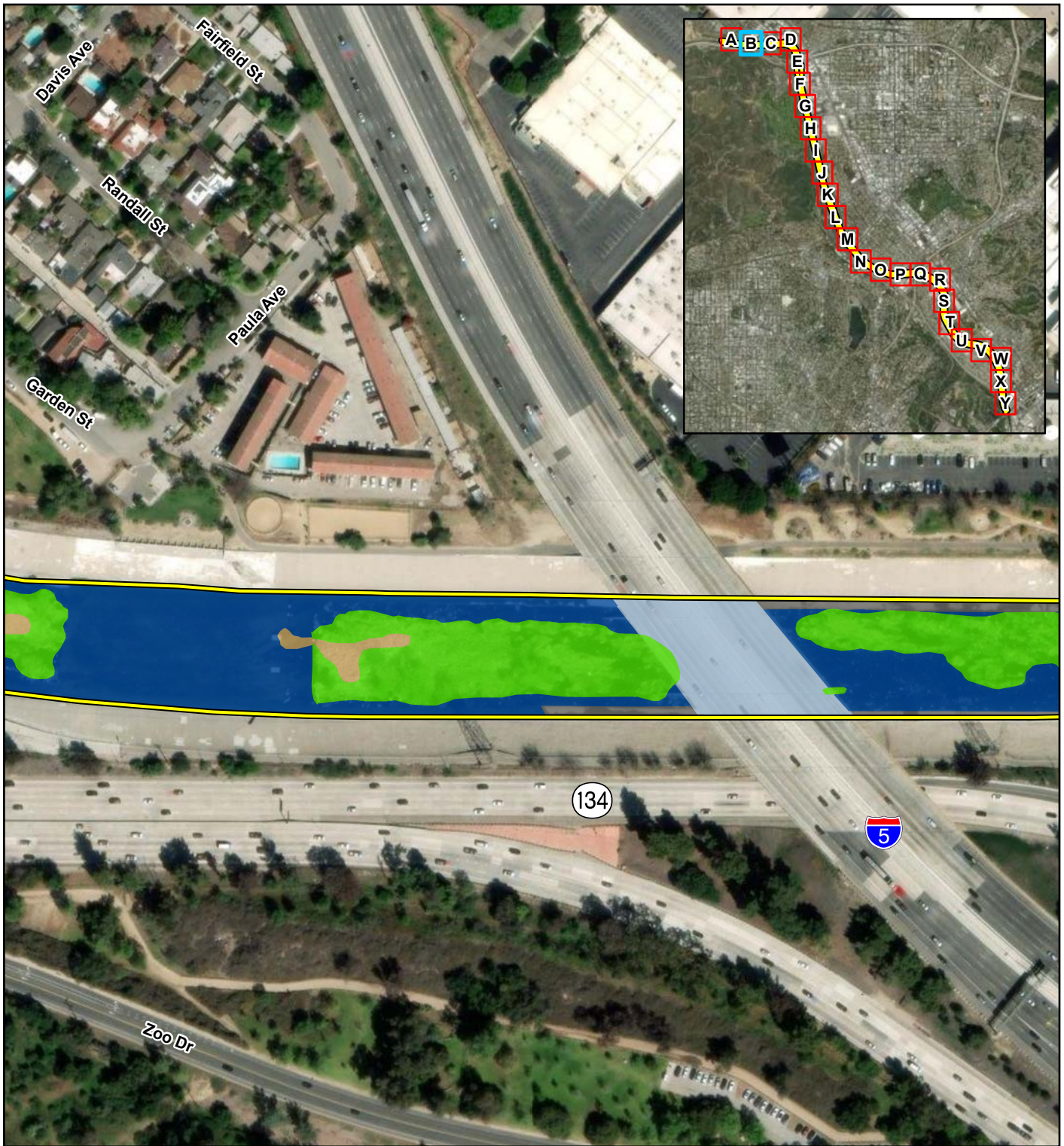
A summary of the vegetation communities and land cover types and their acreages identified in the Los Angeles reach and the Long Beach reach are provided in Table 1, below.

Table 1. Vegetation Acreage

Vegetation Community / Land Cover	Reach (Acres)		Total*
	Los Angeles	Long Beach	
Goodding's Willow – Red Willow Riparian Woodland and Forest	3.91	0.00	3.91
Disturbed Goodding's Willow – Red Willow Riparian Woodland and Forest	24.76	0.00	24.76
Cattail Marshes	14.18	0.00	14.18
Disturbed Cattail Marshes	22.29	0.00	22.29
Common and Giant Reed Marshes	7.48	3.01	10.49
Disturbed	16.25	24.94	41.19
Open Water	94.46	86.31	180.77
Developed	5.42	0.08	5.50
Open Water/Developed	2.02	0.00	2.02
Total	190.77	114.34	305.11

*Totals may not sum due to rounding.







Legend

Survey Area
(Los Angeles Reach)

River Station

Salix gooddingii - Salix laevigata
Forest and Woodland Alliance

Disturbed Salix gooddingii - Salix
laevigata Forest and Woodland Alliance

Typha (angustifolia, domingensis,
latifolia) Herbaceous Alliance

Disturbed Typha (angustifolia,
domingensis, latifolia) Herbaceous Alliance

Phragmites australis - Arundo donax
Herbaceous Semi-Natural Alliance

Disturbed Habitat

Open Water

Open Water/
Developed

Developed



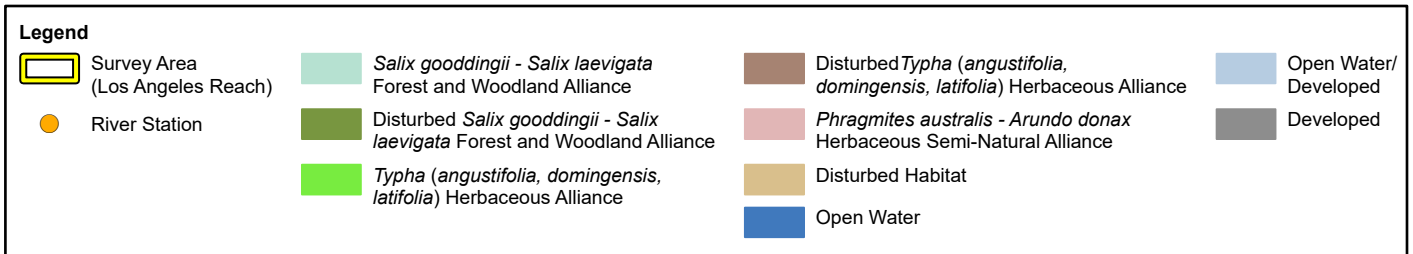
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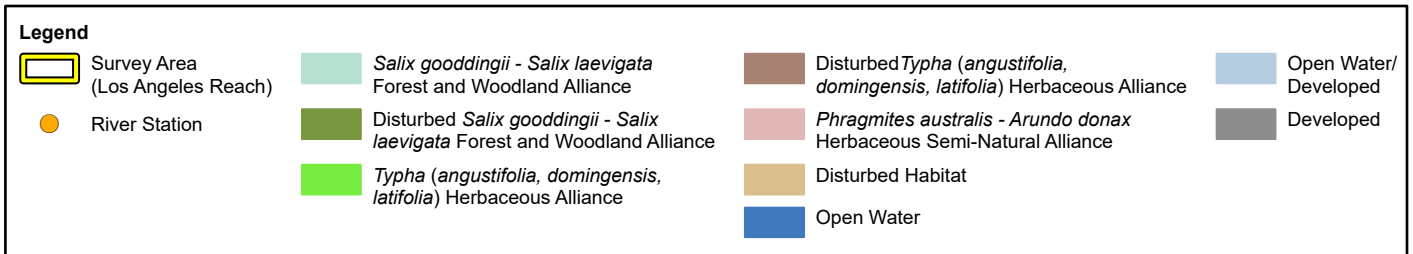
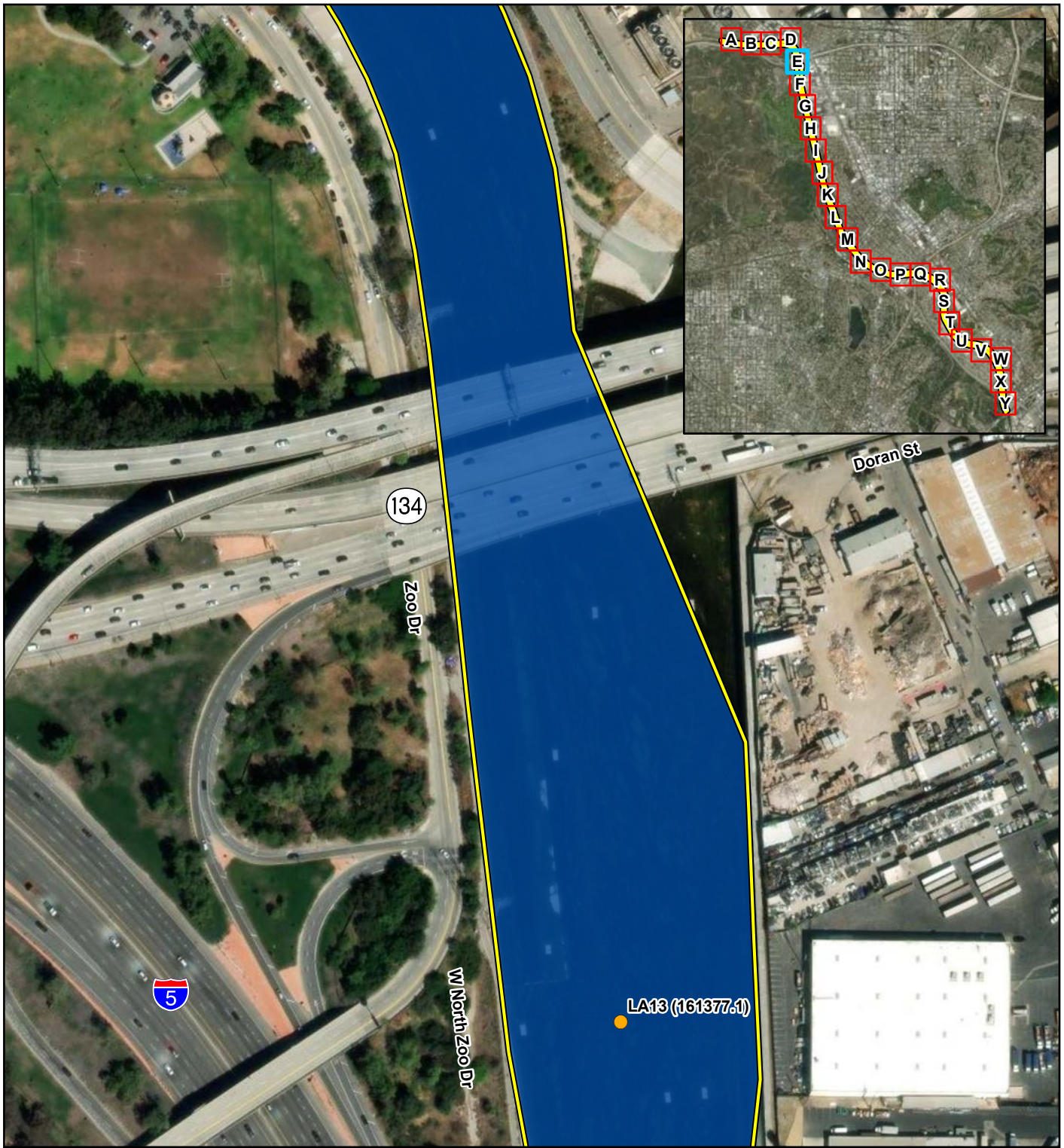
Source: Esri/Maxar (03/2022)

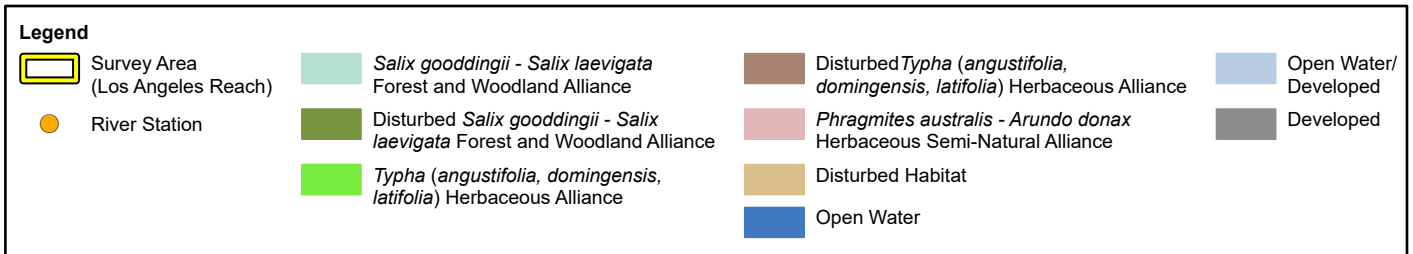
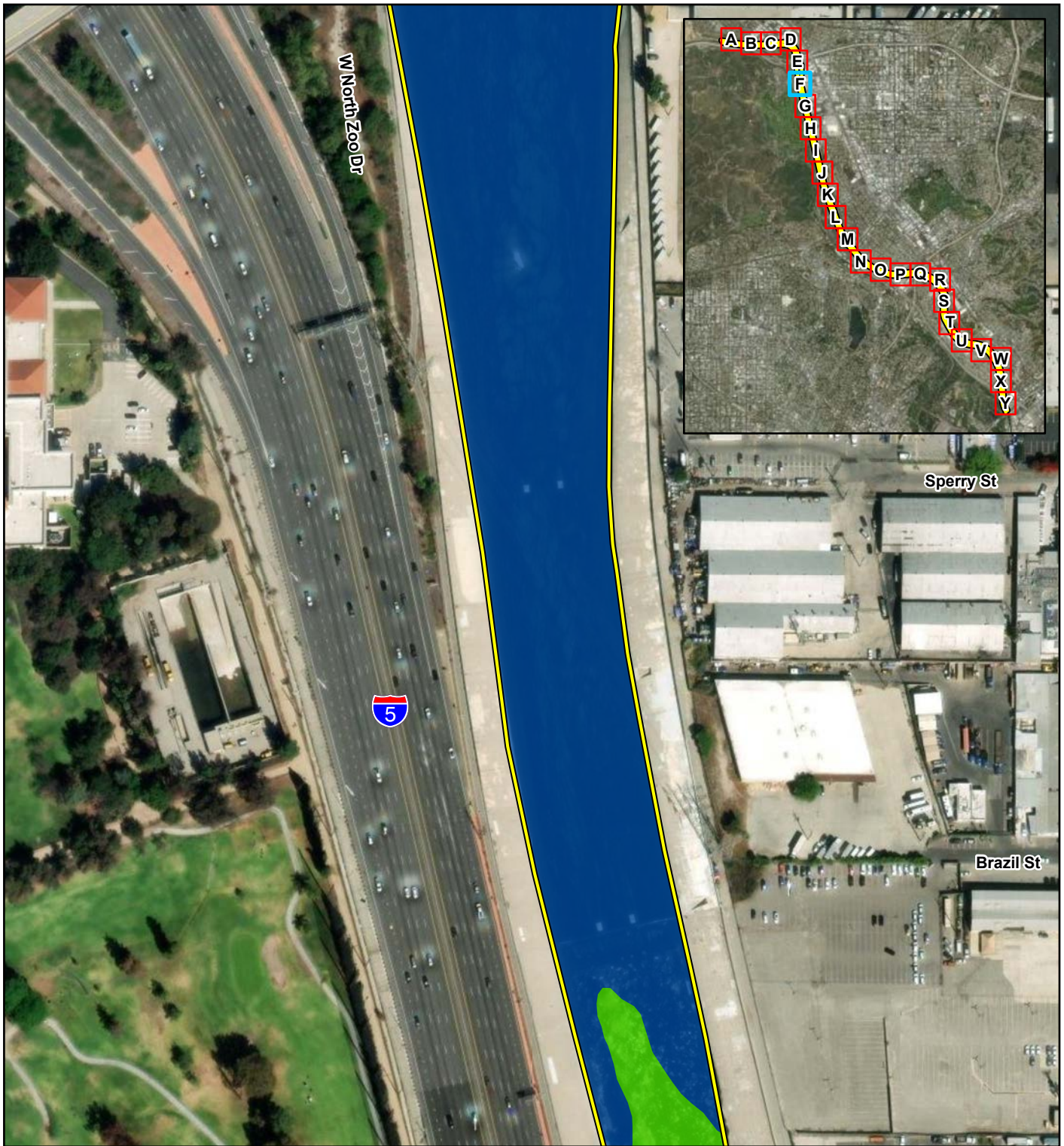
MODIFICATIONS TO LAGWR PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

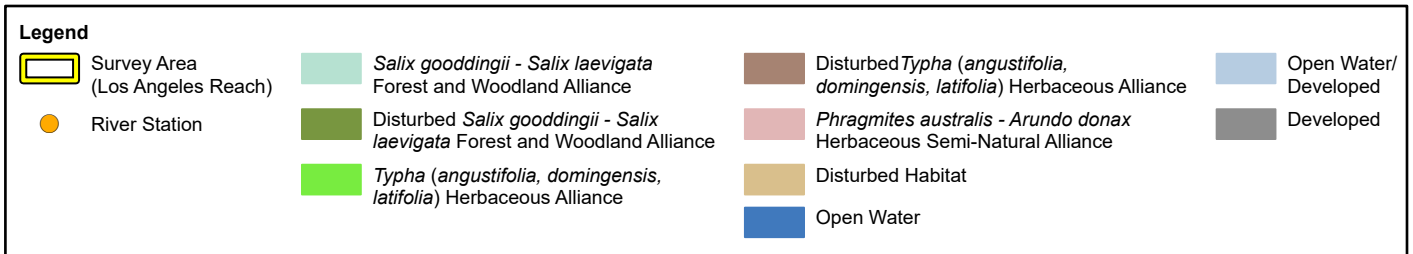
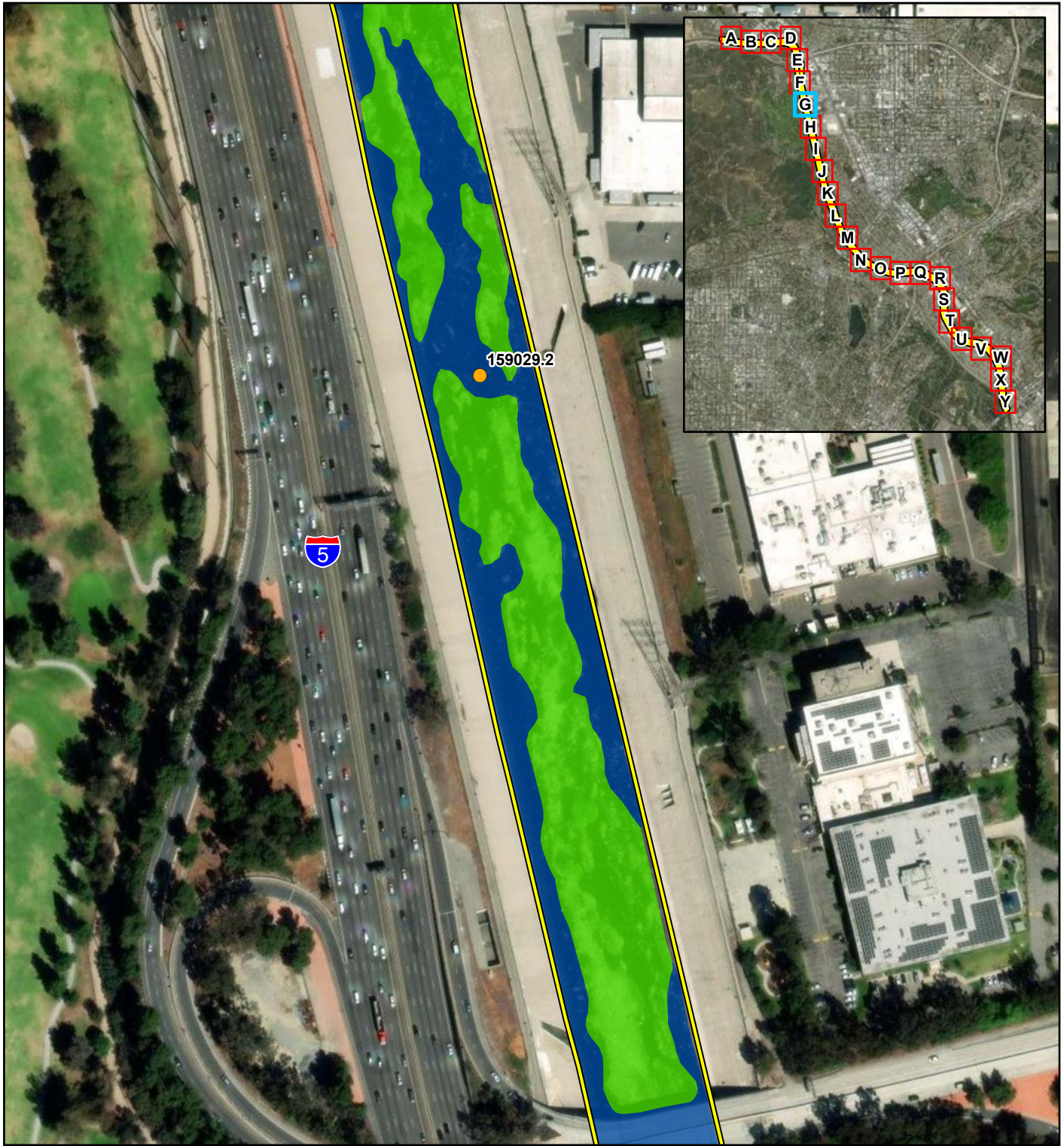
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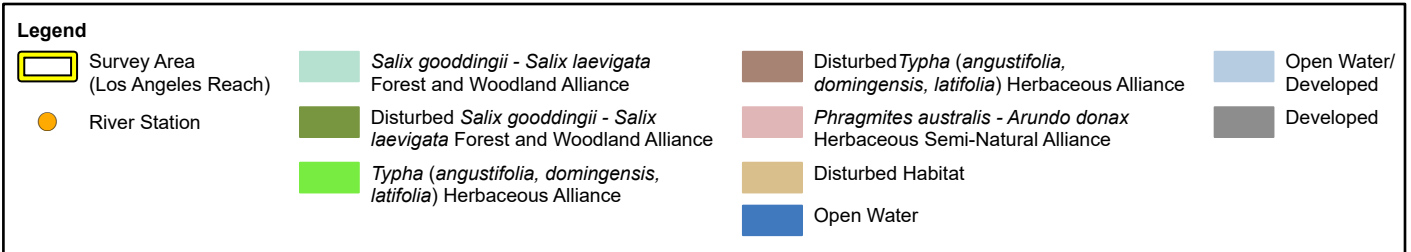
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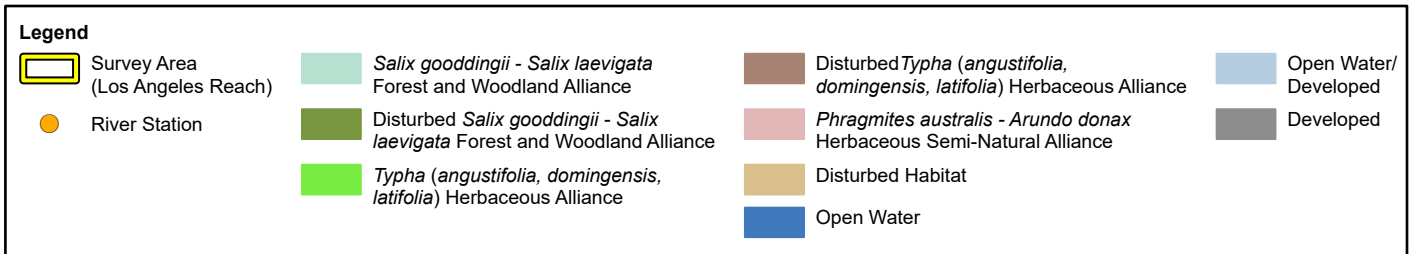
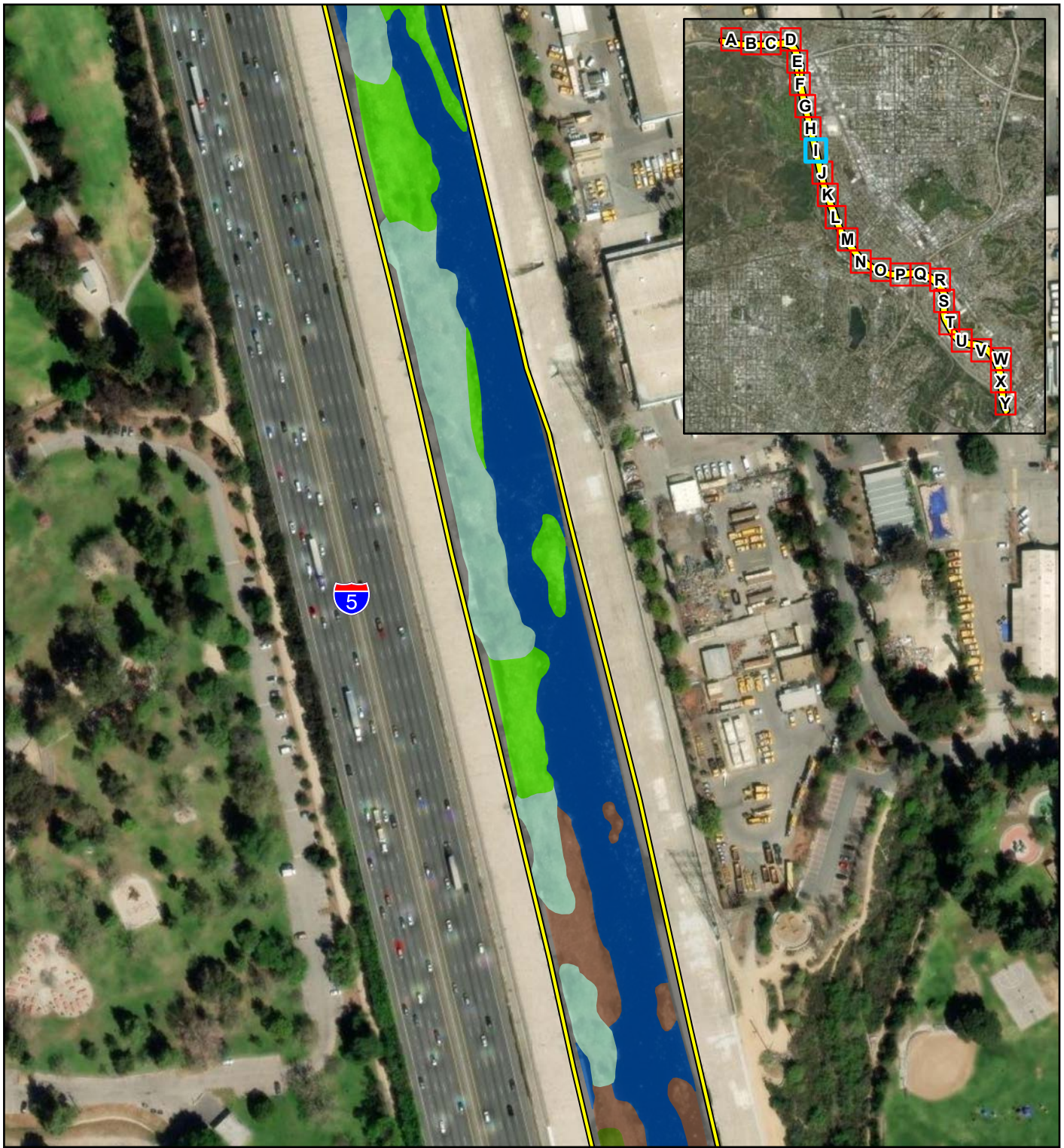


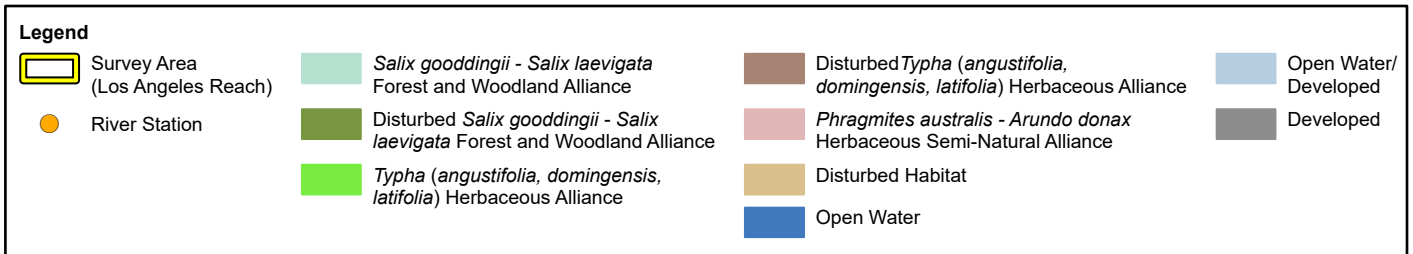
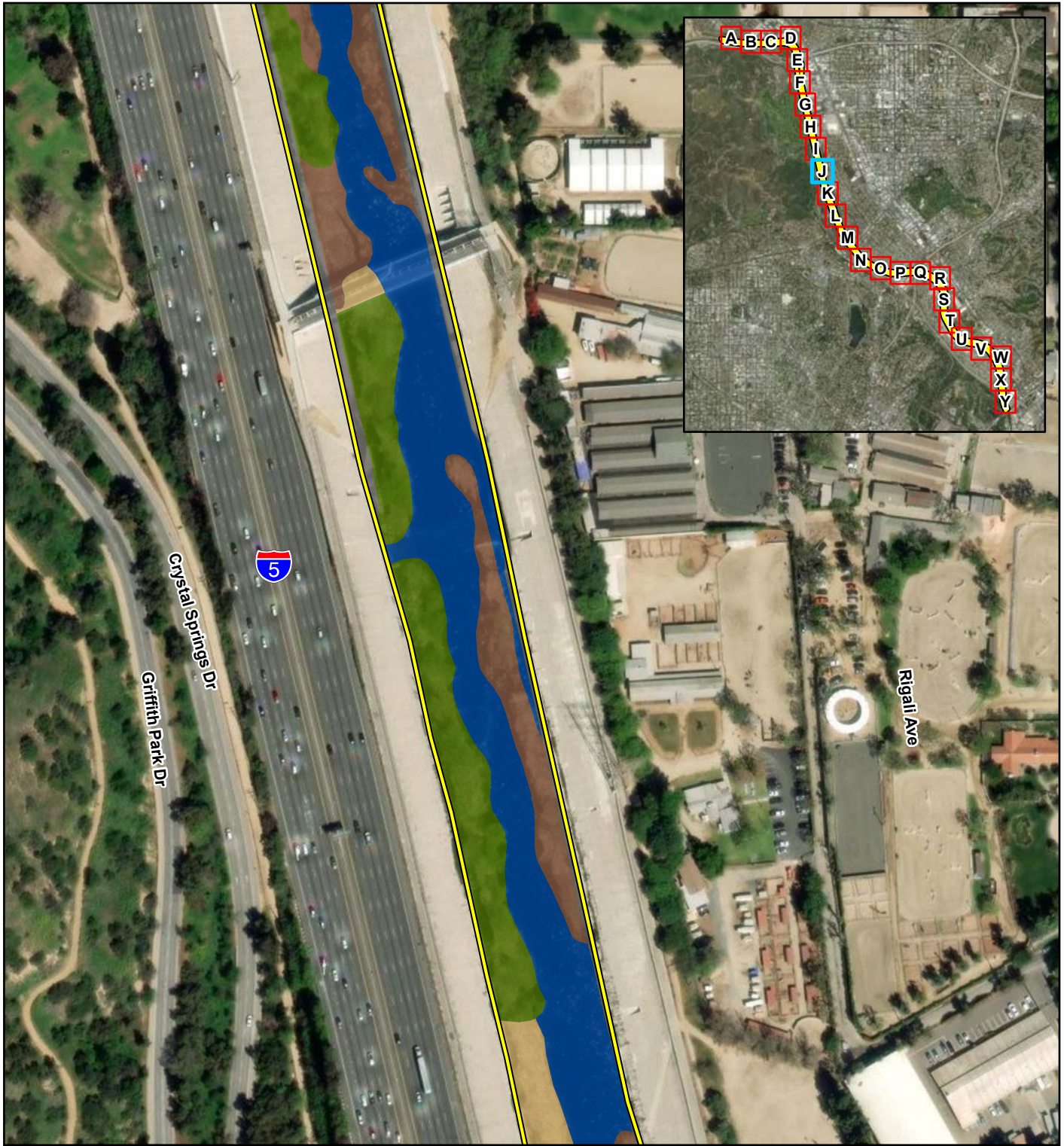


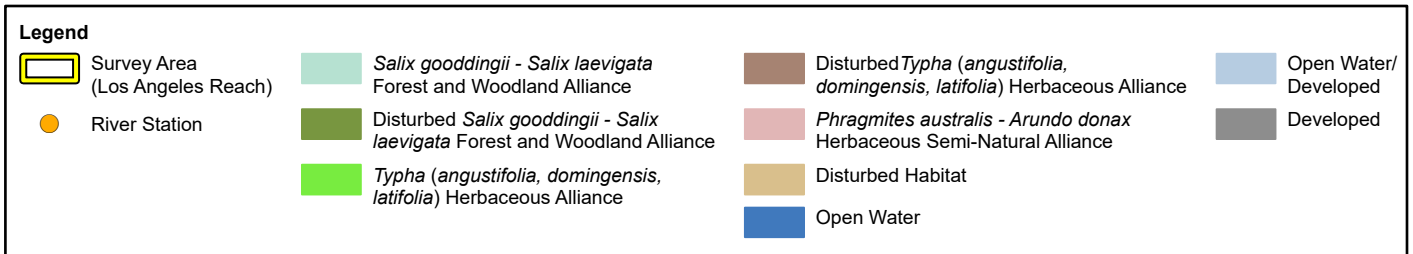
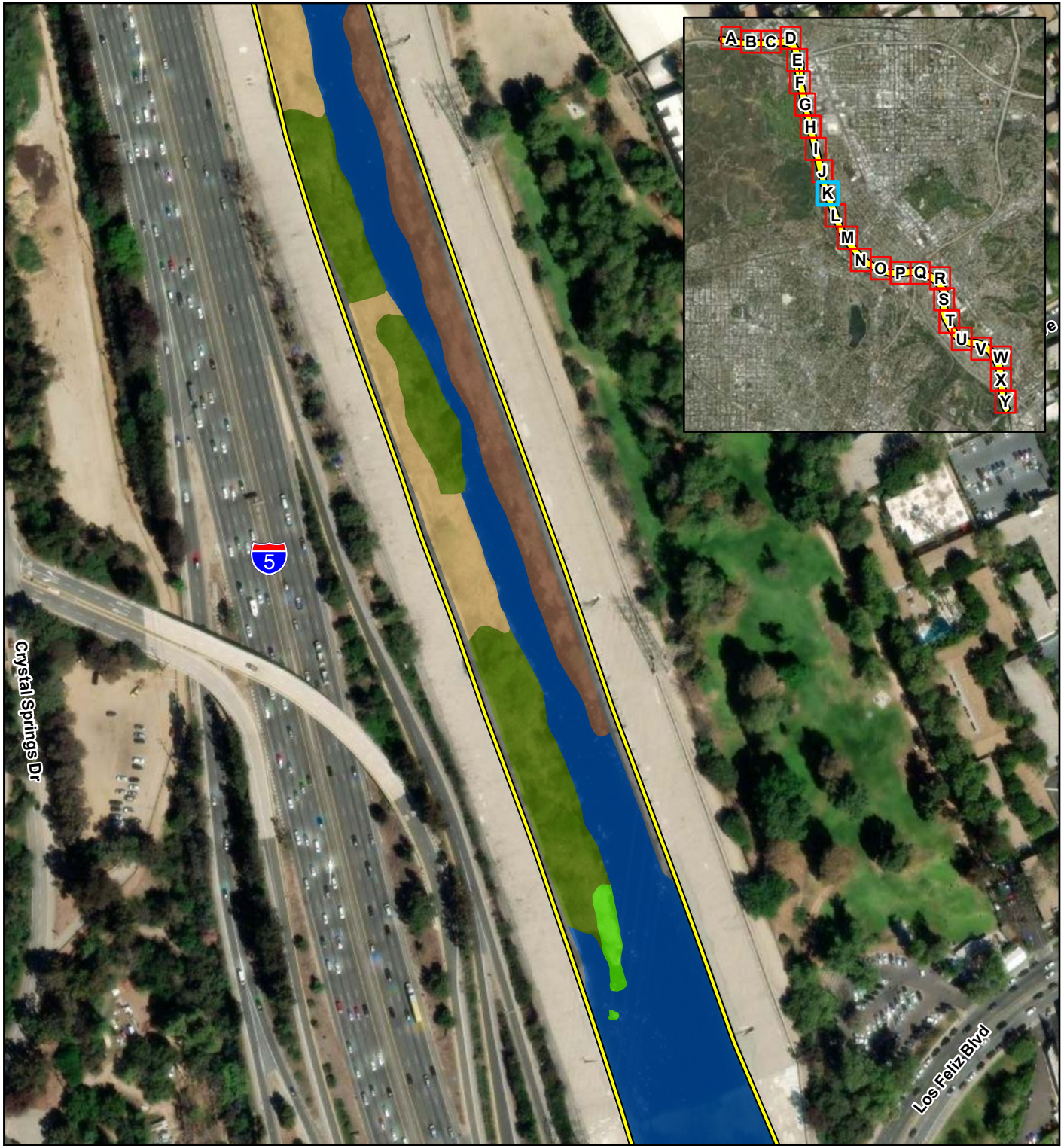


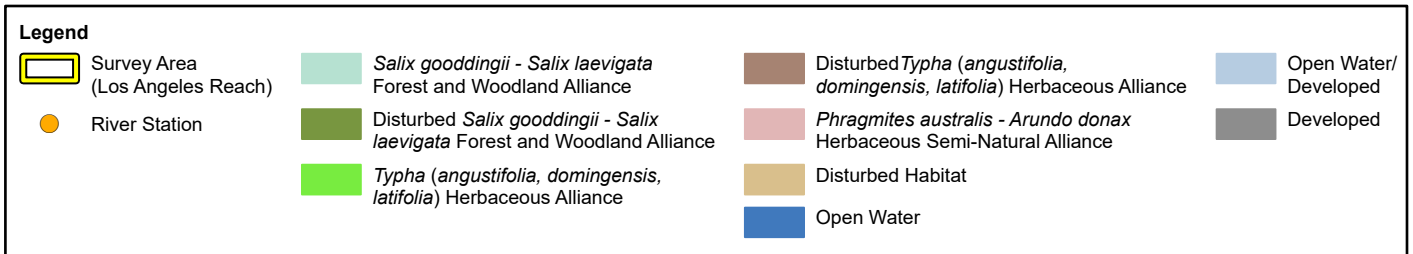
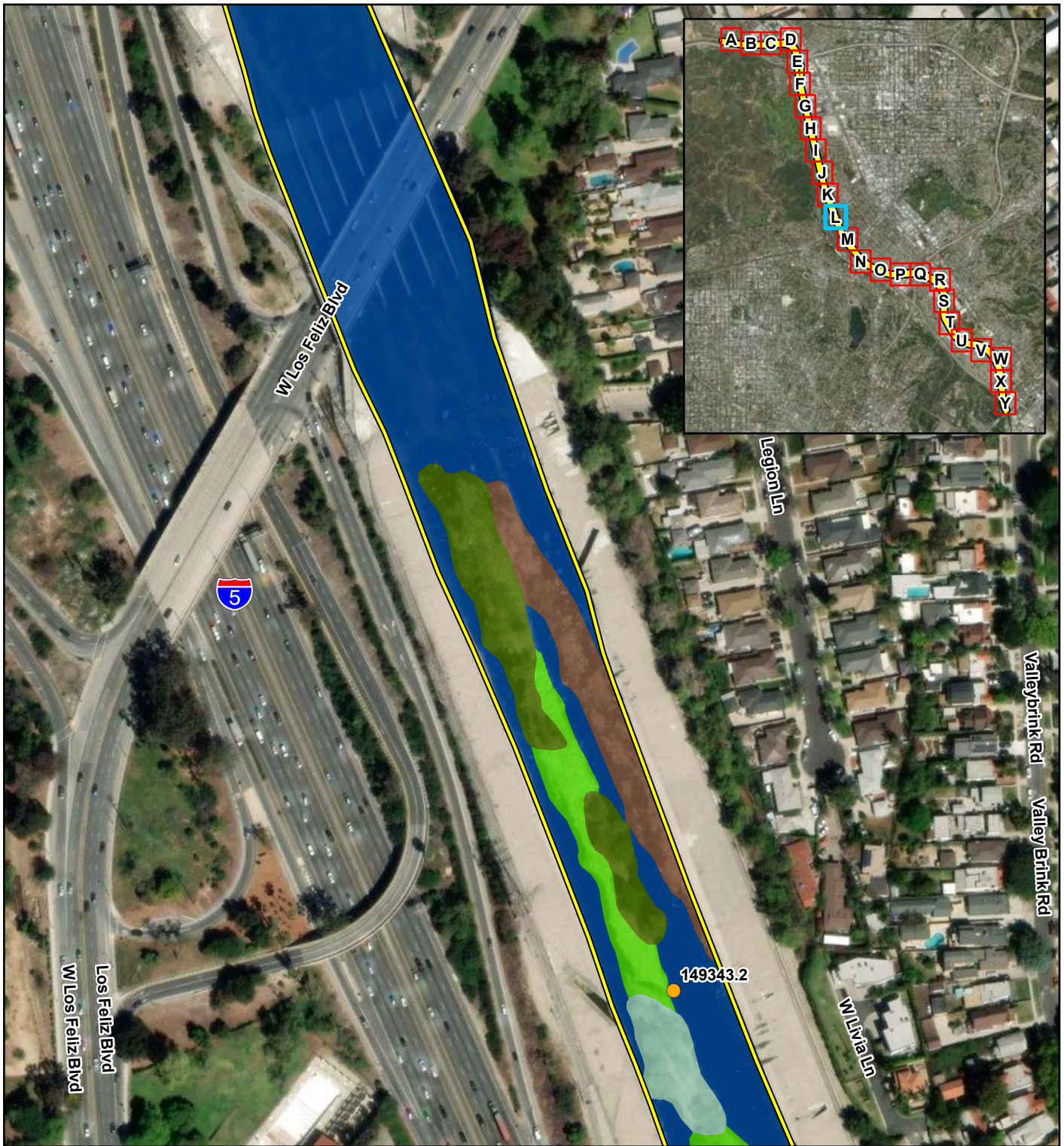


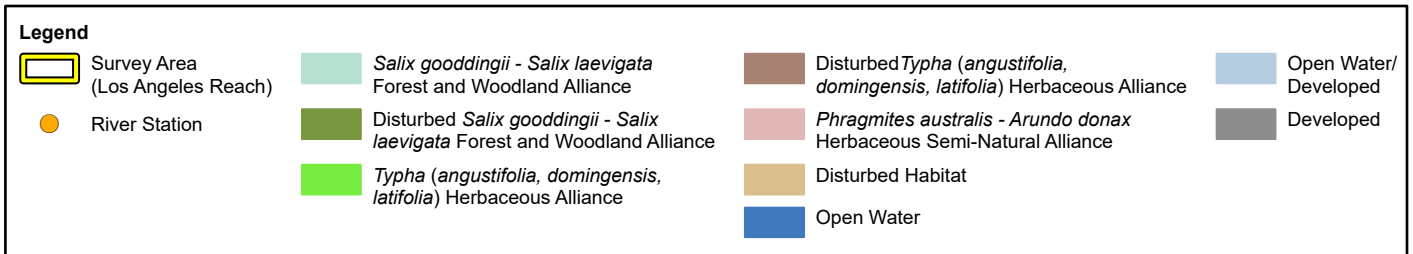


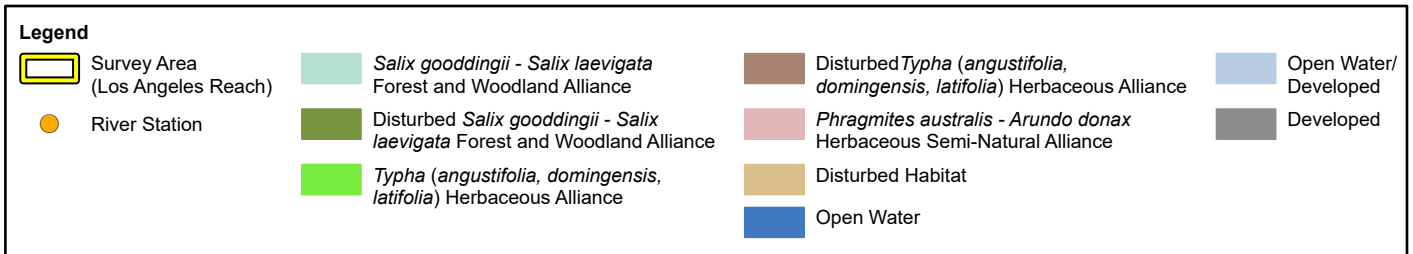
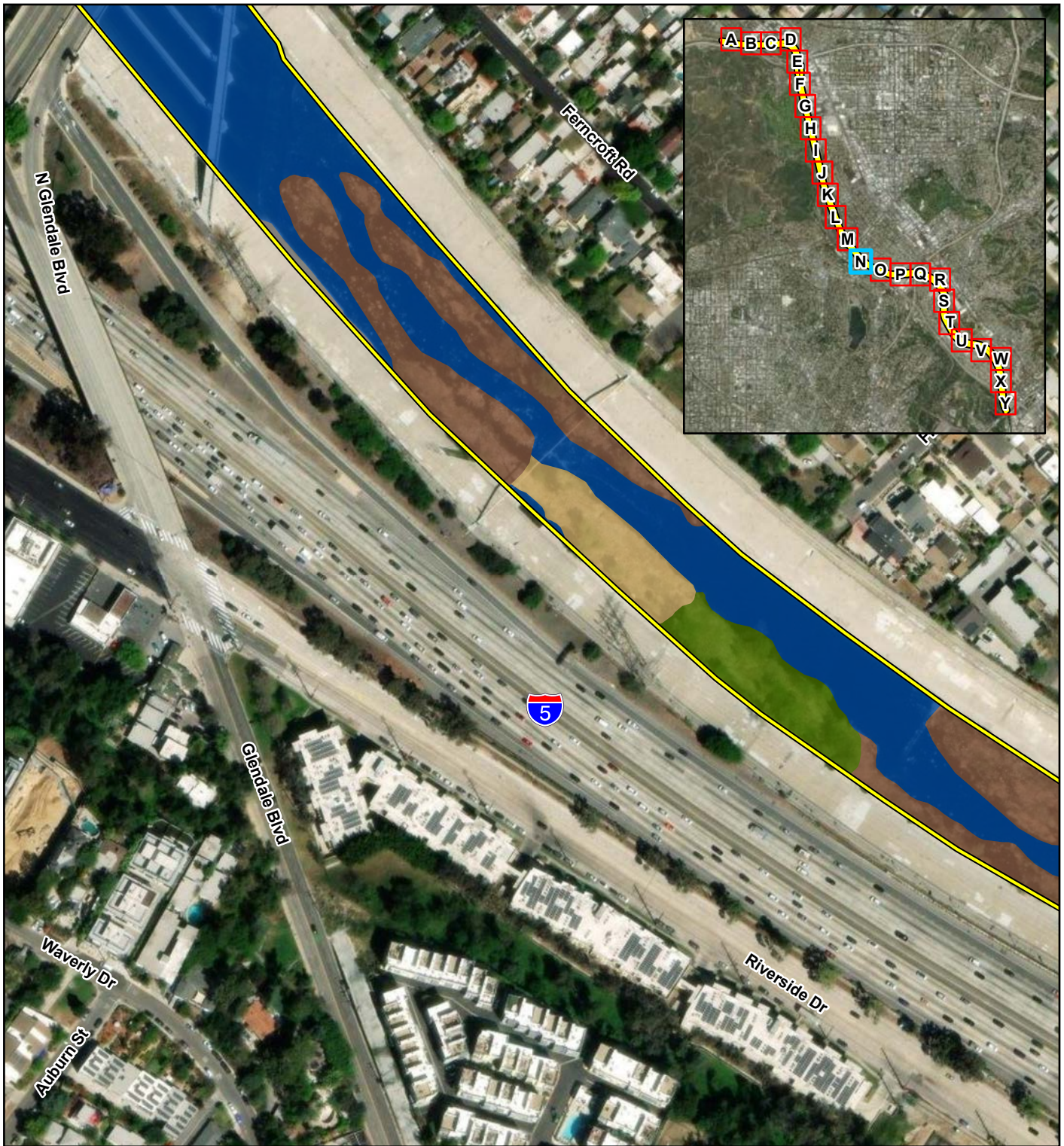








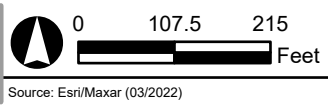


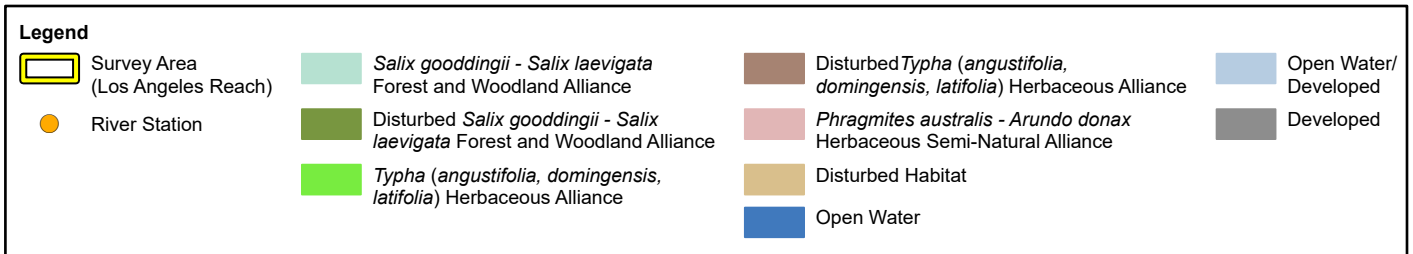
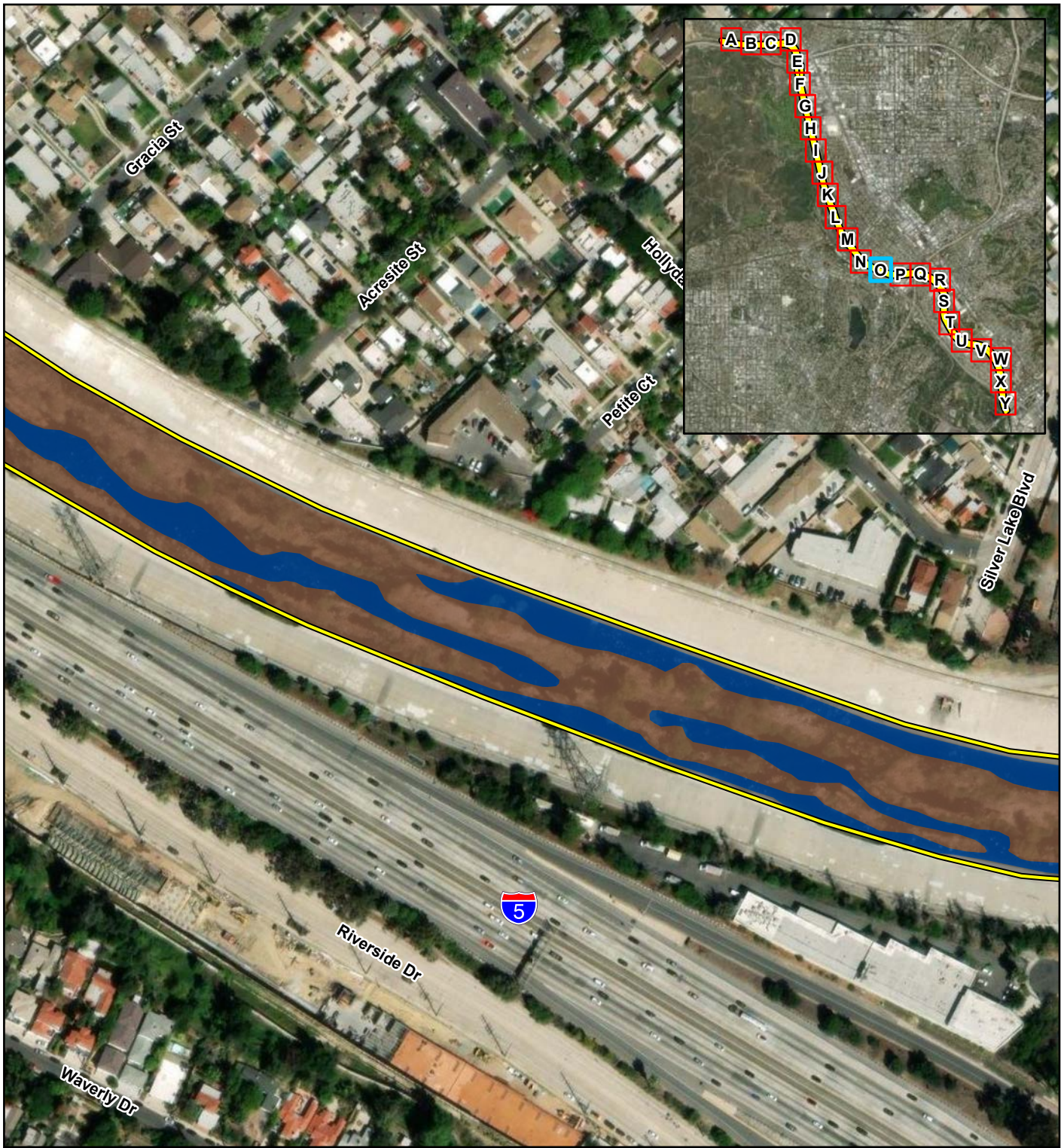


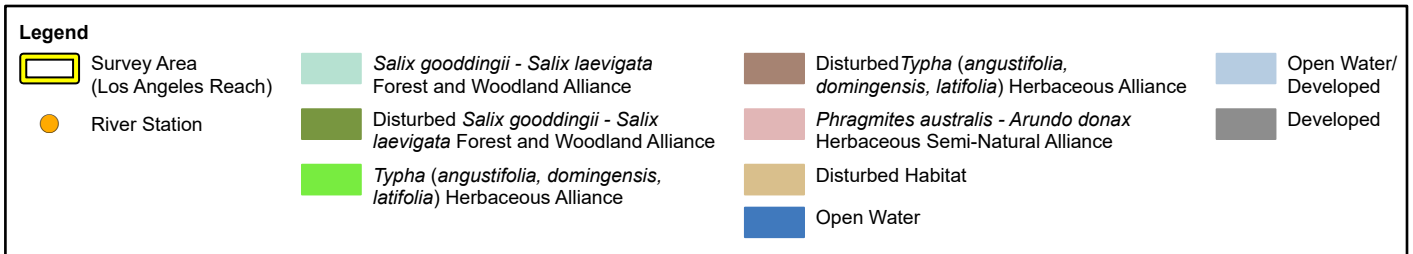
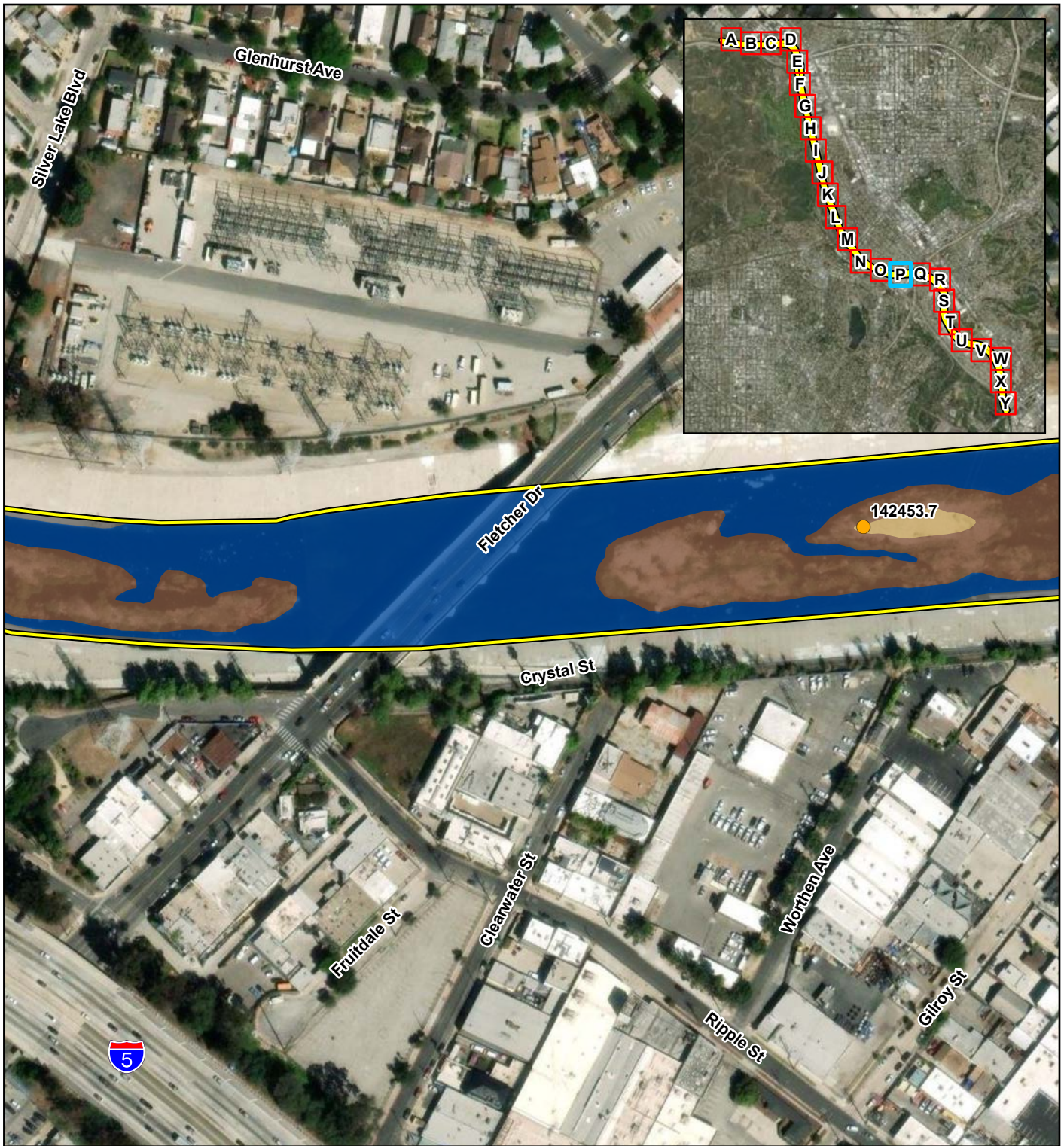
MODIFICATIONS TO LAGWR PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

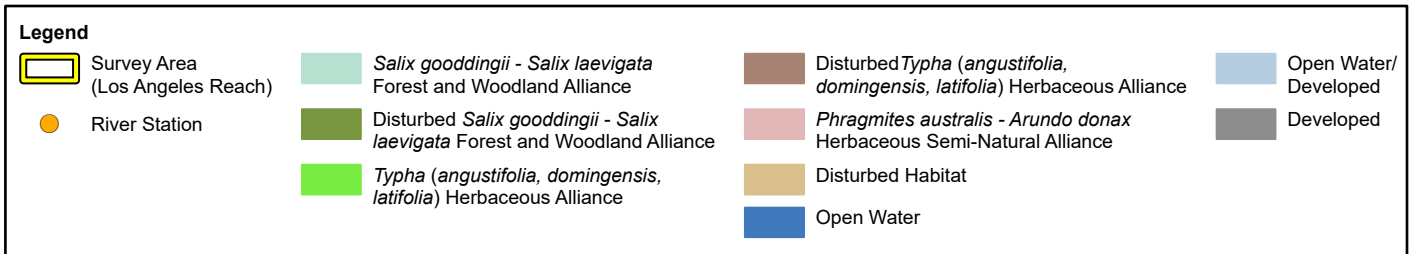
Vegetation Communities and Land Cover Types

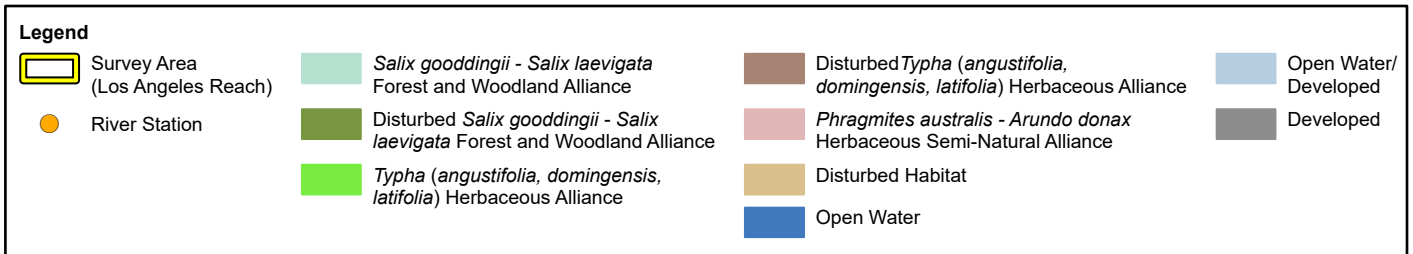
Figure 3N

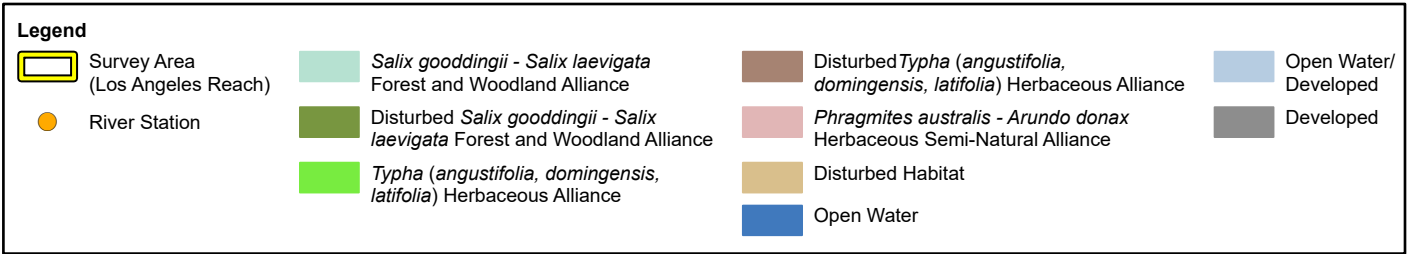


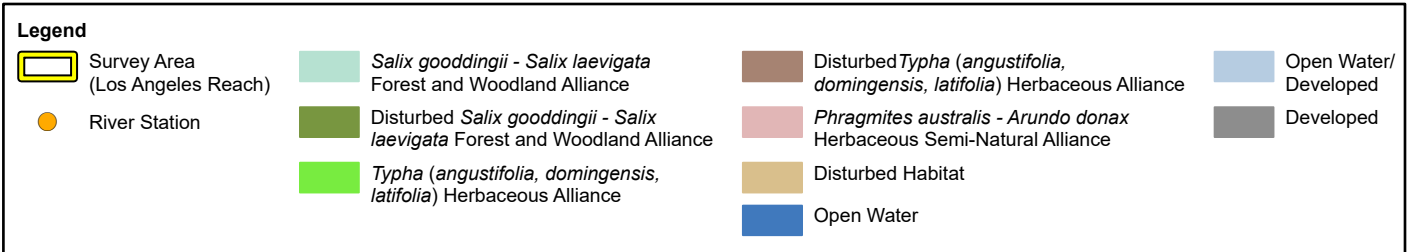








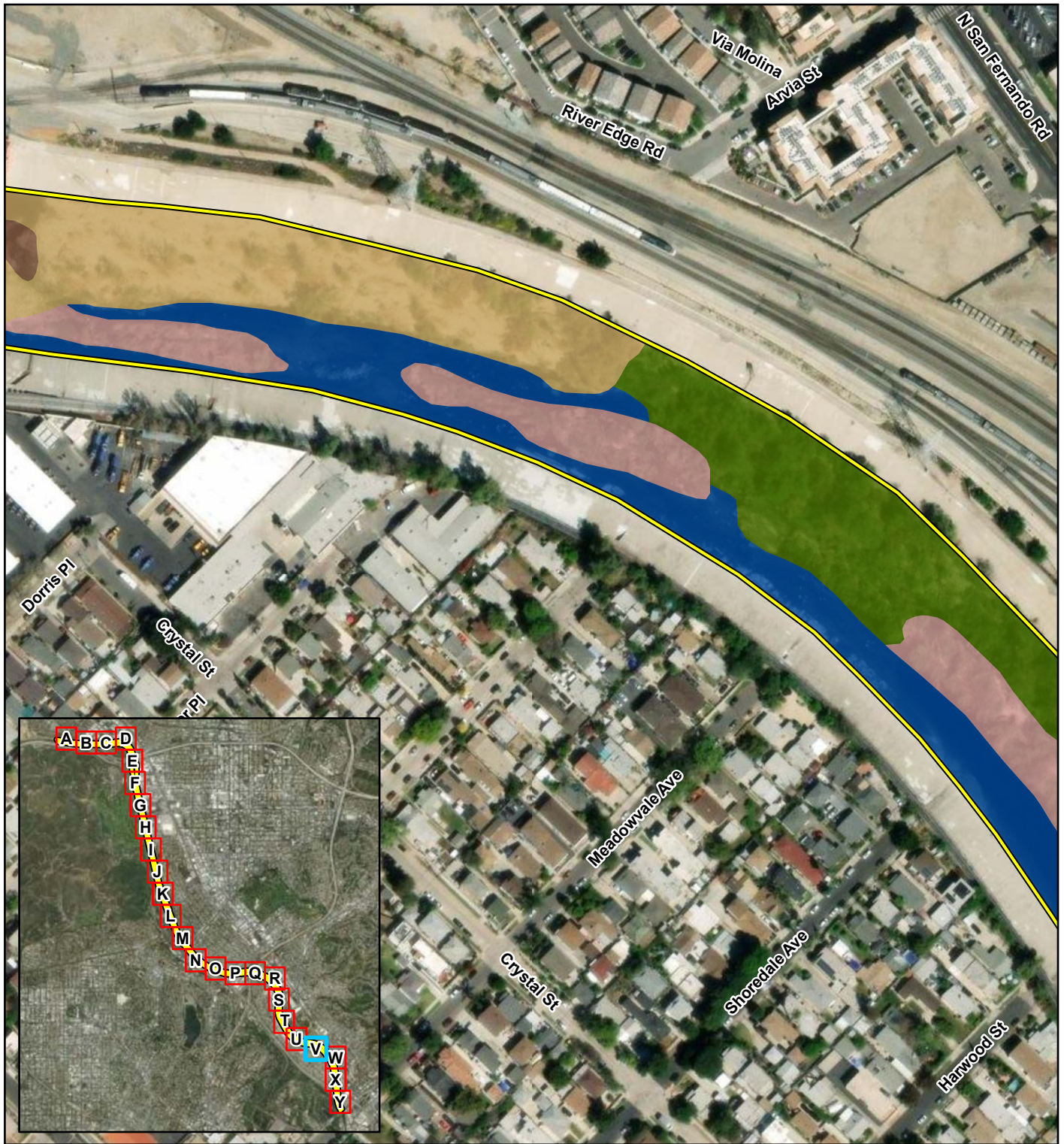






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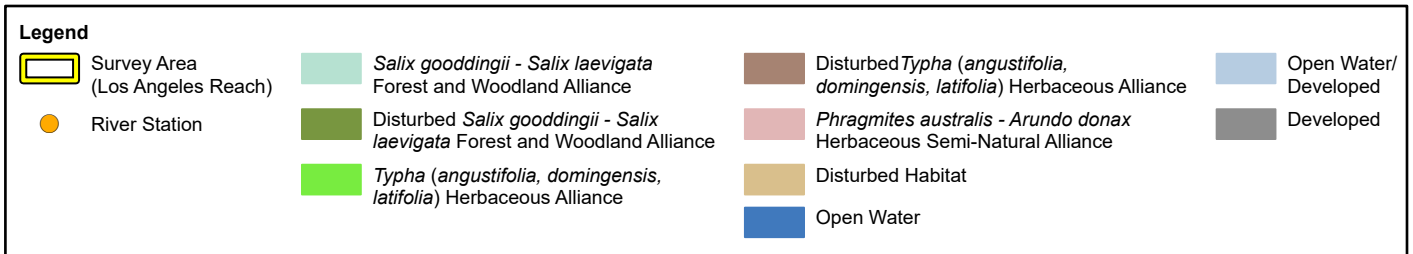
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|---------------------------------|--|--|----------------------|
| Survey Area (Los Angeles Reach) | <i>Salix gooddingii</i> - <i>Salix laevigata</i> Forest and Woodland Alliance | Disturbed <i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> , <i>latifolia</i>) Herbaceous Alliance | Open Water/Developed |
| River Station | Disturbed <i>Salix gooddingii</i> - <i>Salix laevigata</i> Forest and Woodland Alliance | <i>Phragmites australis</i> - <i>Arundo donax</i> Herbaceous Semi-Natural Alliance | Developed |
| | <i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> , <i>latifolia</i>) Herbaceous Alliance | Disturbed Habitat | |
| | | Open Water | |

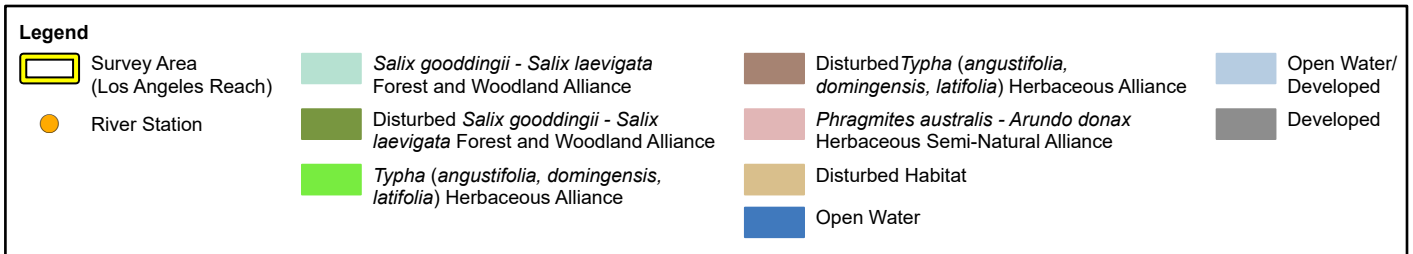
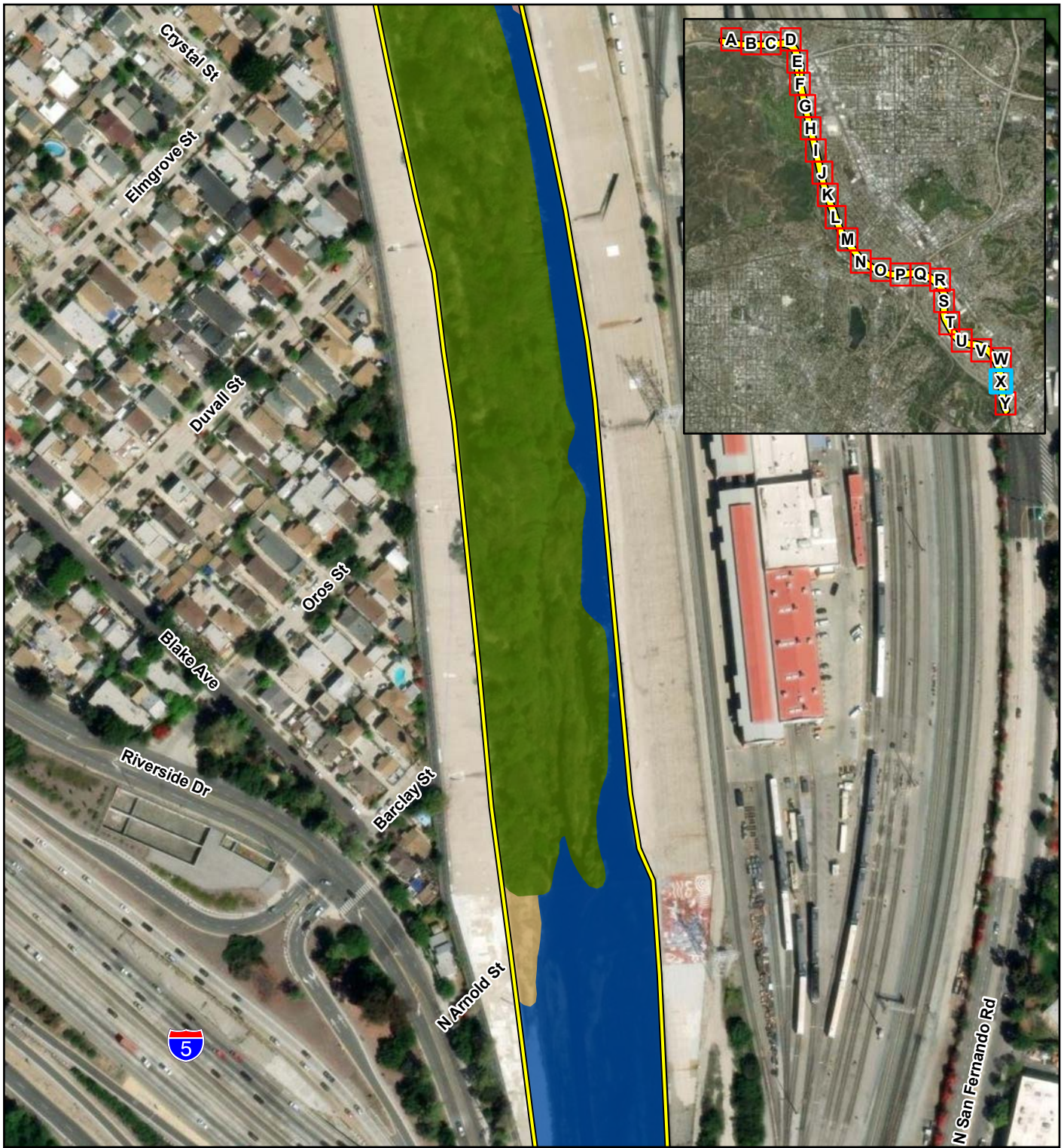


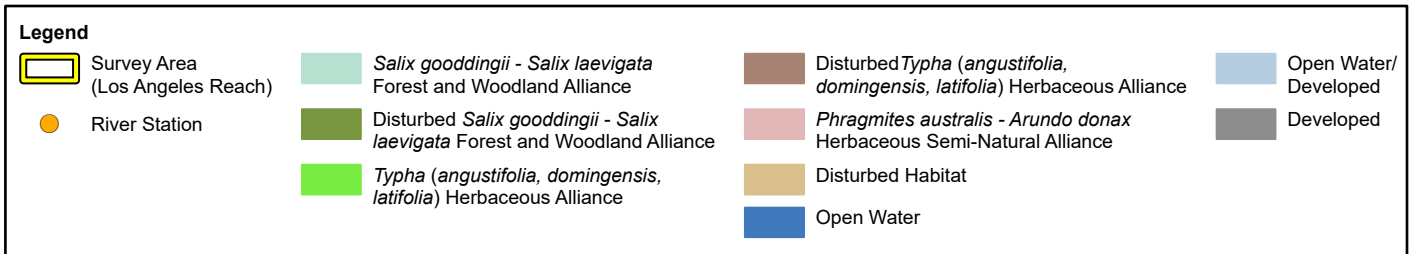
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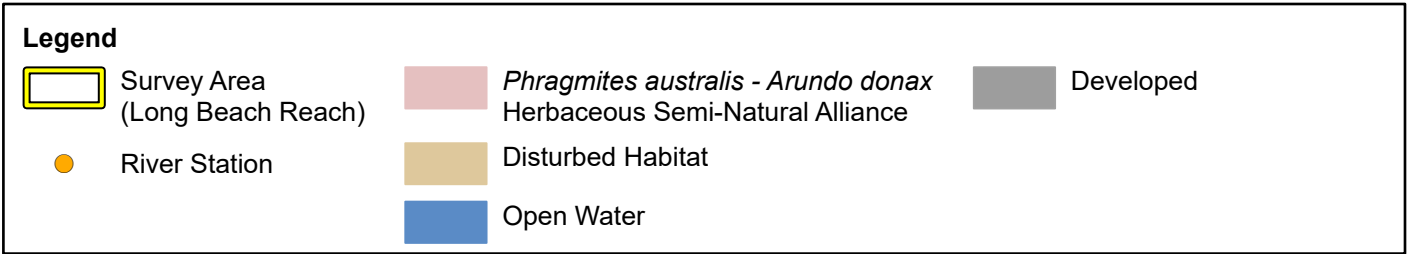
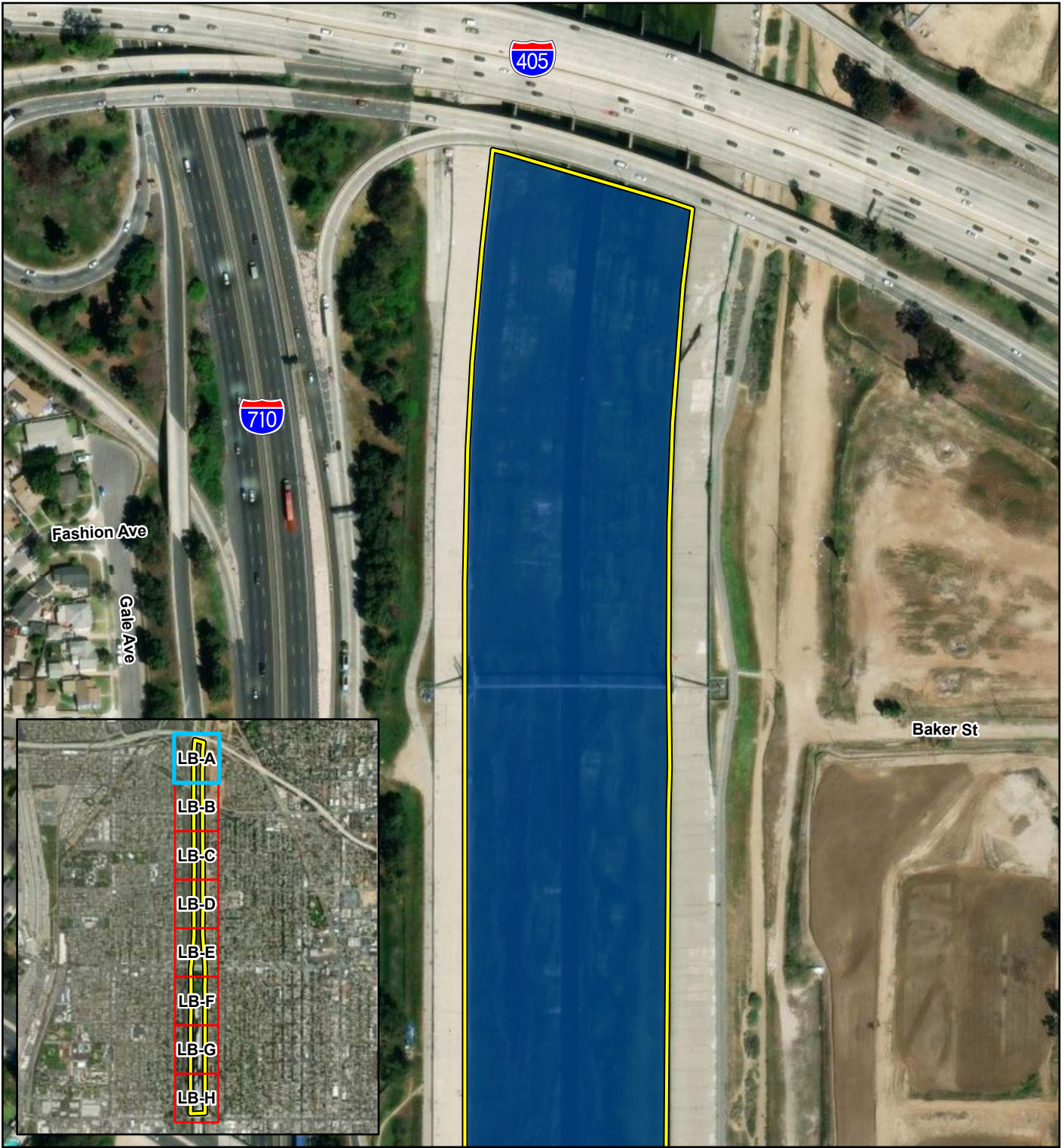
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|---------------------------------|--|--|----------------------|
| Survey Area (Los Angeles Reach) | <i>Salix gooddingii</i> - <i>Salix laevigata</i> Forest and Woodland Alliance | Disturbed <i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> , <i>latifolia</i>) Herbaceous Alliance | Open Water/Developed |
| River Station | Disturbed <i>Salix gooddingii</i> - <i>Salix laevigata</i> Forest and Woodland Alliance | <i>Phragmites australis</i> - <i>Arundo donax</i> Herbaceous Semi-Natural Alliance | Developed |
| | <i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> , <i>latifolia</i>) Herbaceous Alliance | Disturbed Habitat | |
| | | Open Water | |

MODIFICATIONS TO LAGWR PROJECT
BIOLOGICAL RESOURCES ASSESSMENT

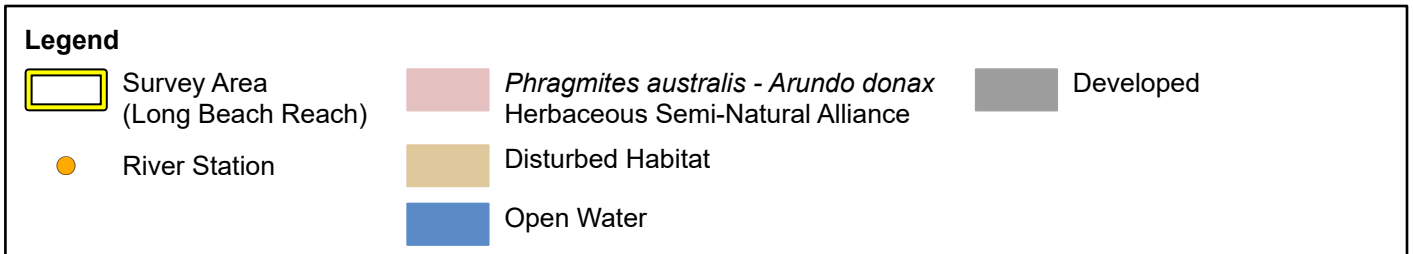
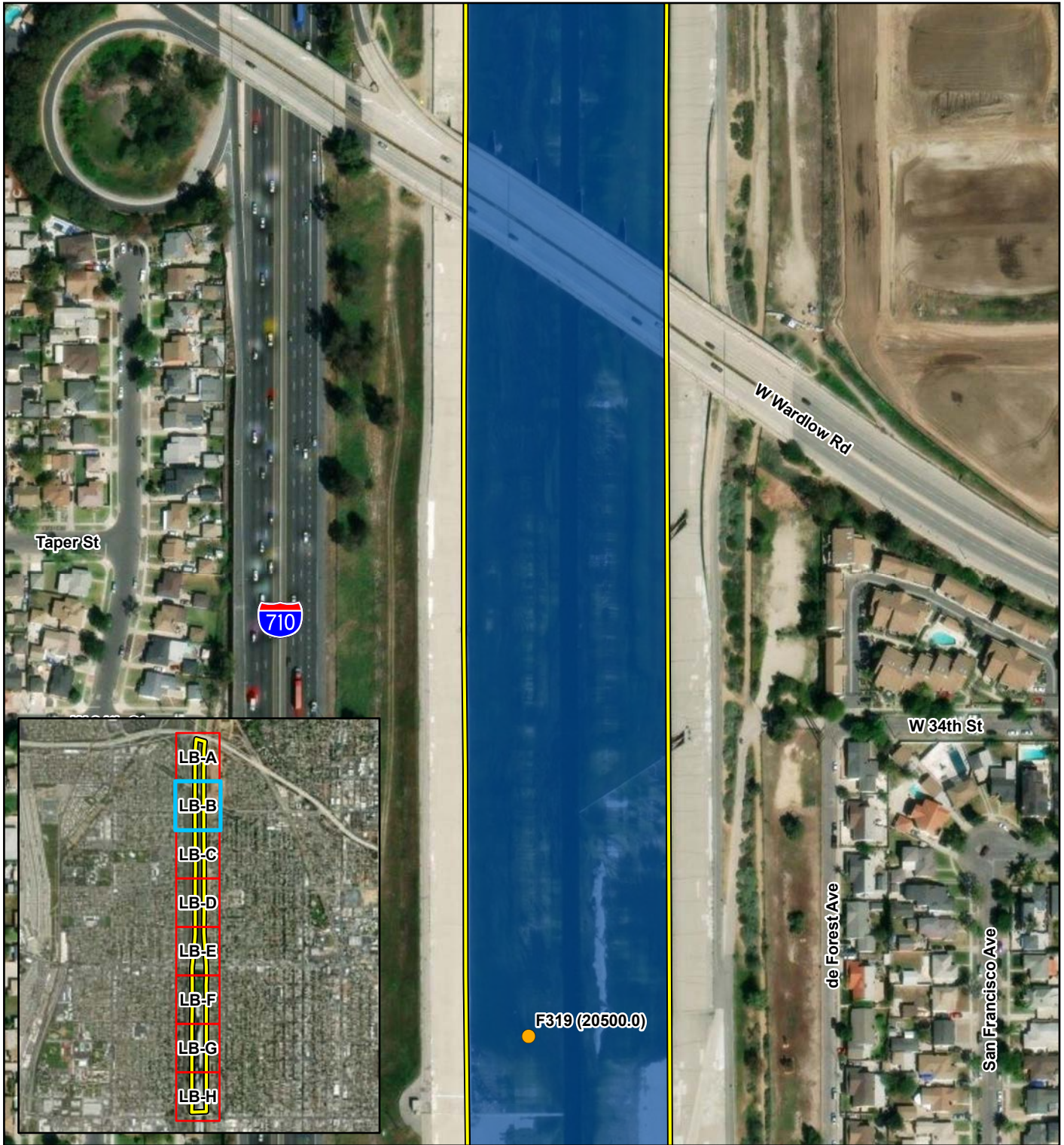




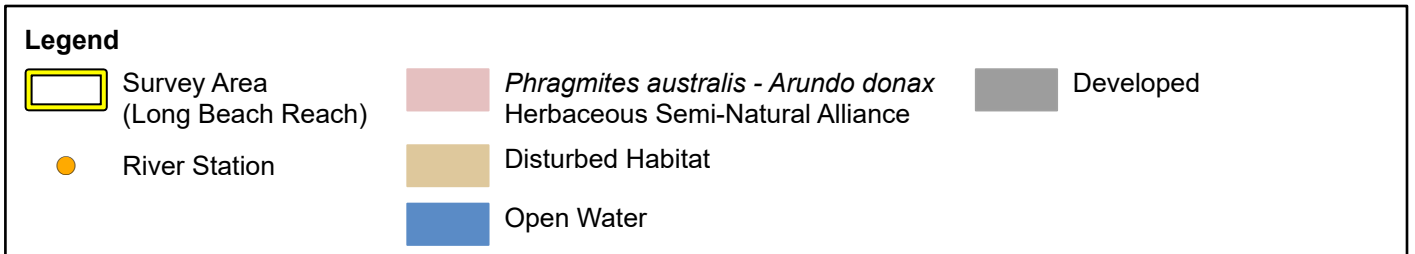
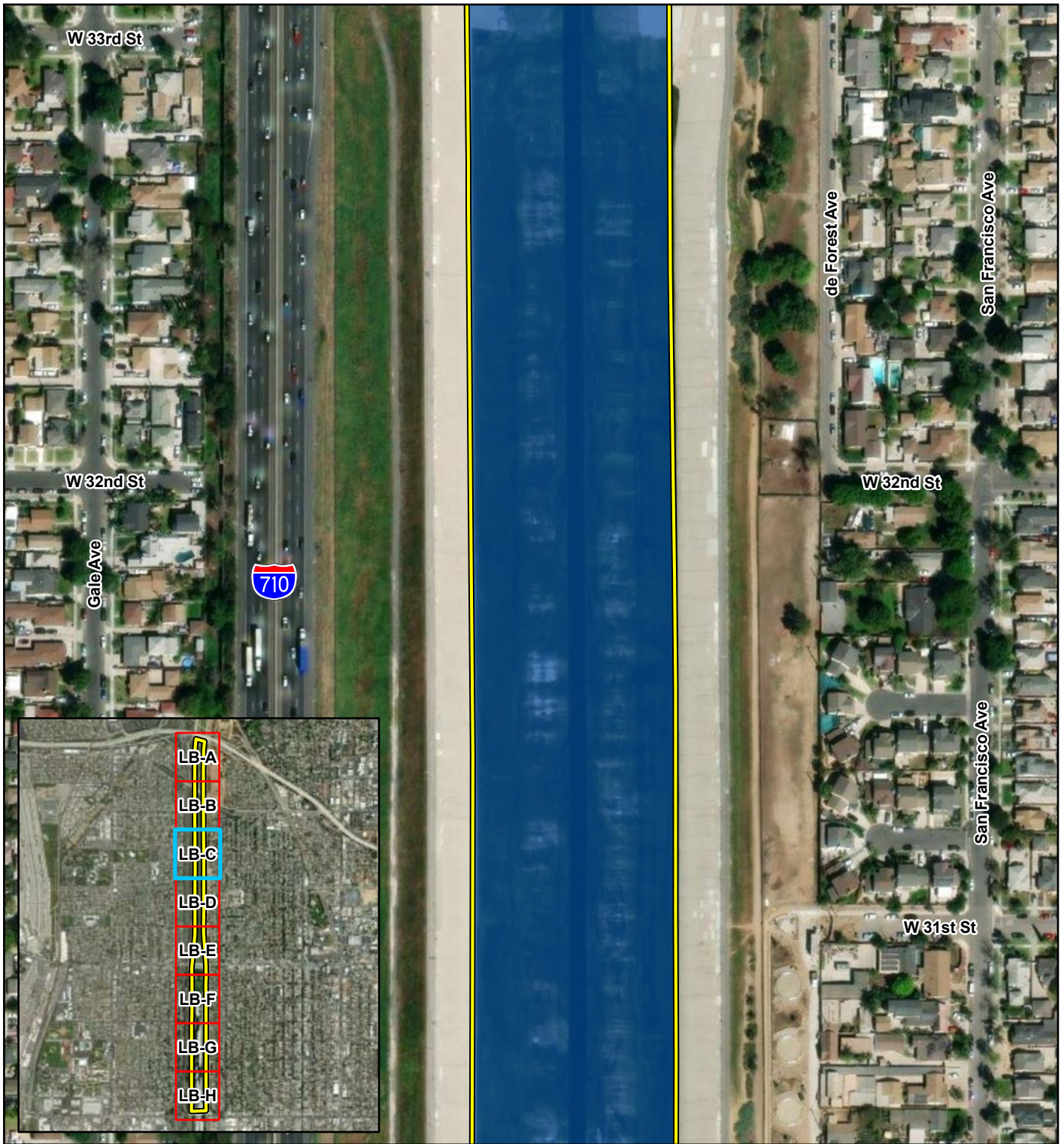




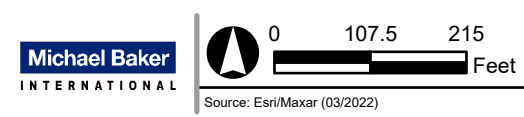
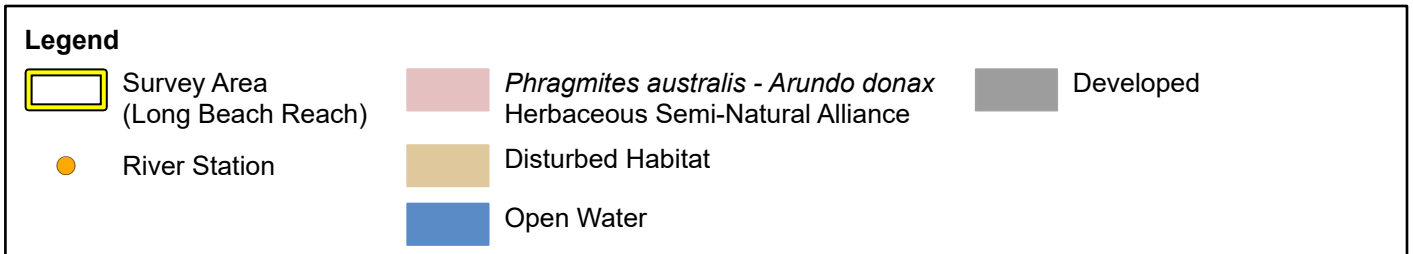
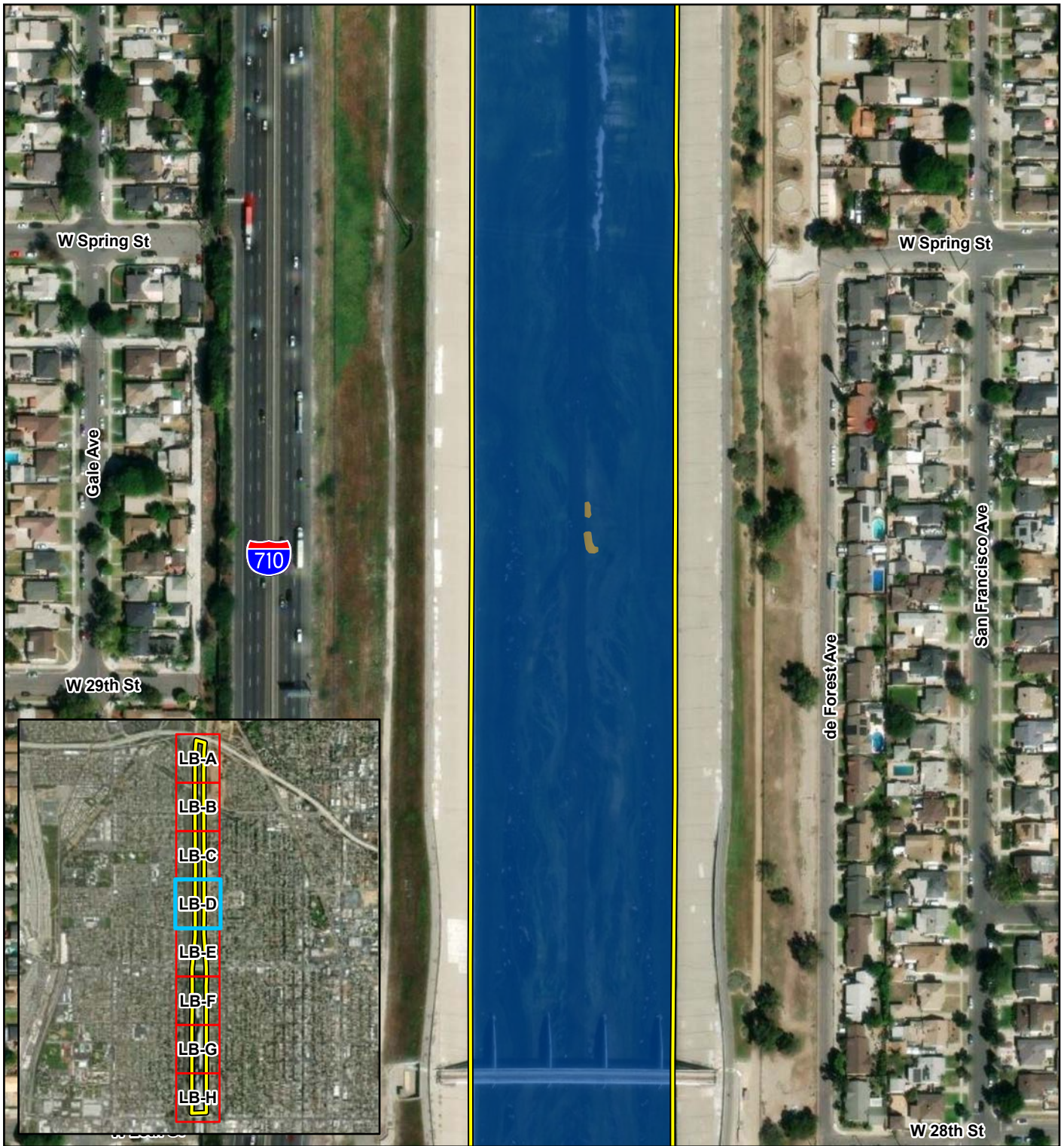
MODIFICATIONS TO LAGWR PROJECT
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MODIFICATIONS TO LAGWR PROJECT
 BIOLOGICAL RESOURCES ASSESSMENT
Vegetation Communities and Land Cover Types

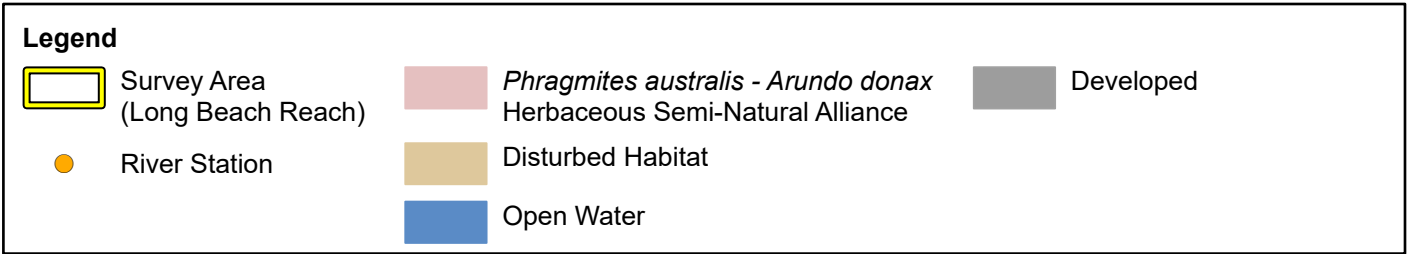
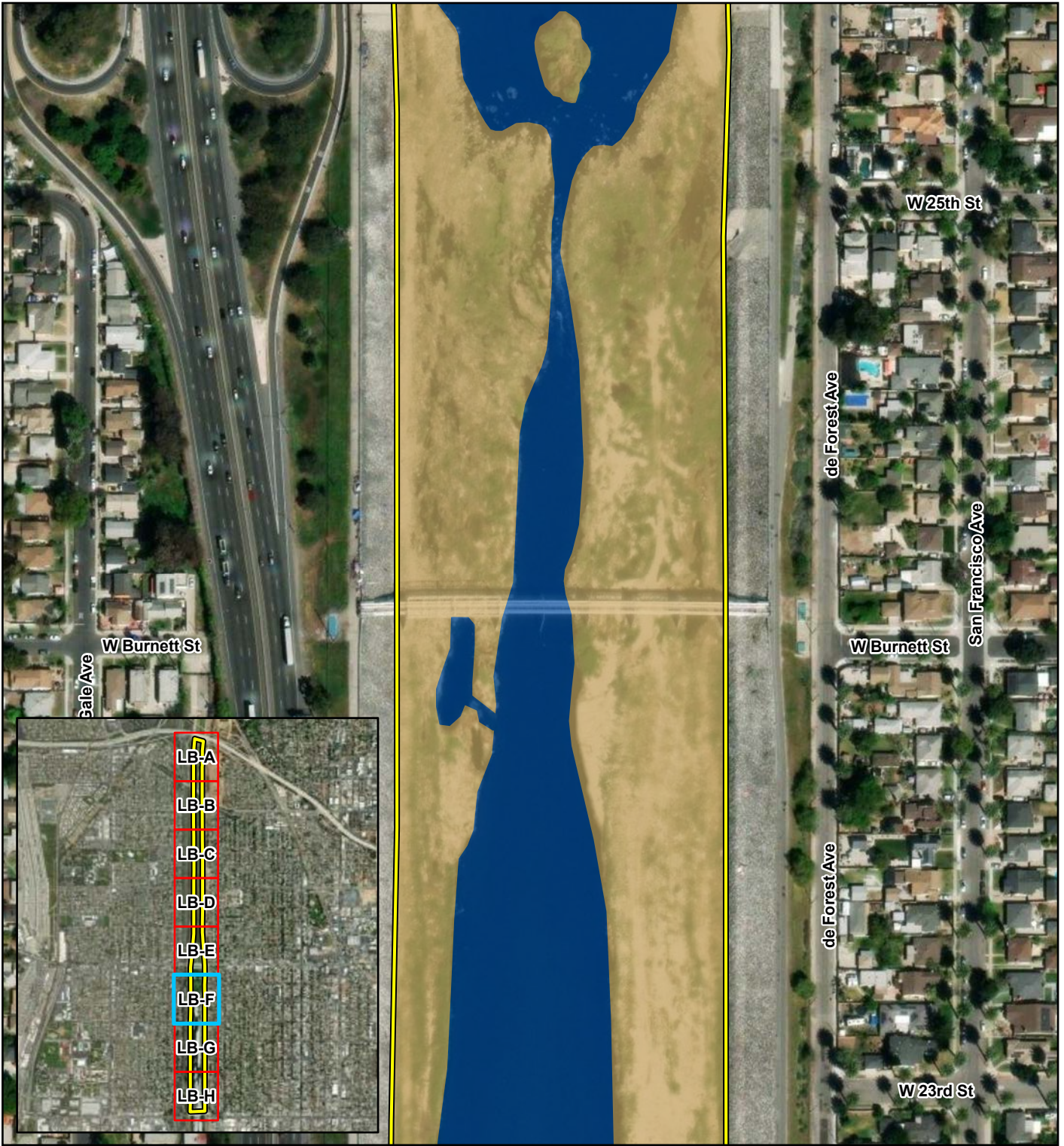
Figure 3LB-D



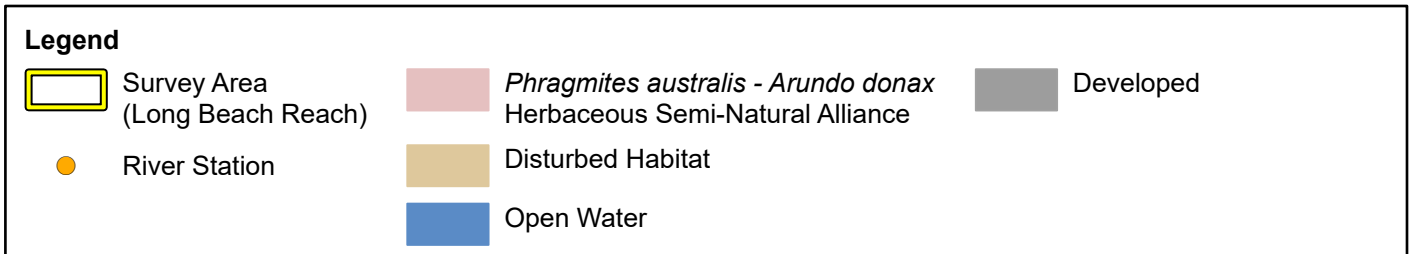
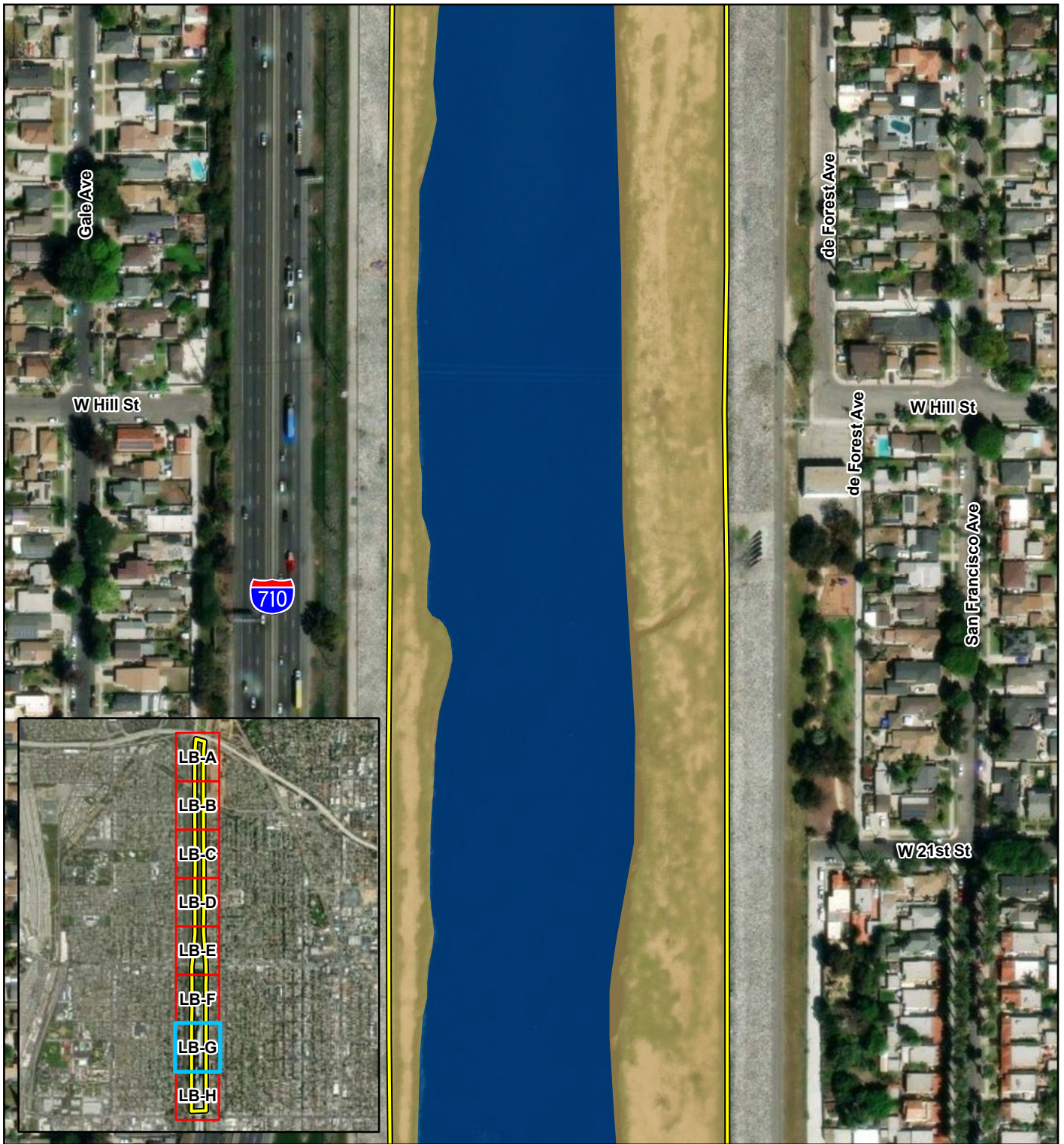
Legend

- | | | | | | |
|---|-----------------------------------|---|--|---|------------|
|  | Survey Area
(Long Beach Reach) |  | <i>Phragmites australis - Arundo donax</i>
Herbaceous Semi-Natural Alliance |  | Developed |
|  | River Station |  | Disturbed Habitat |  | Open Water |

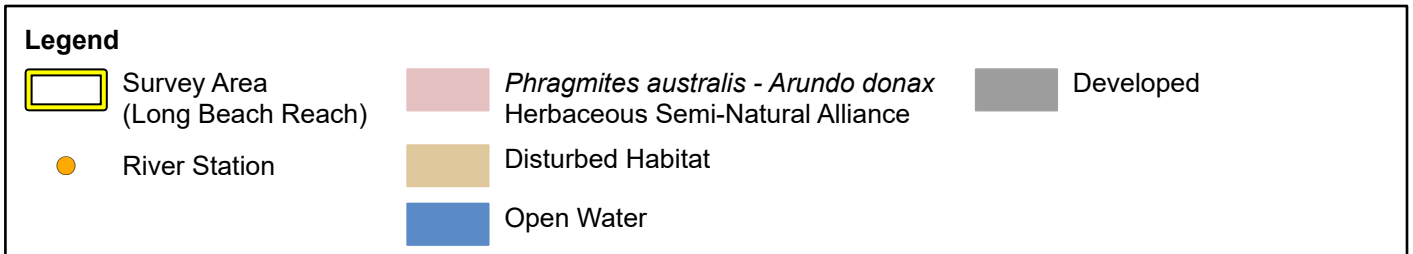
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3.3 WILDLIFE

This section provides a general discussion of those wildlife species that were observed during the field survey or that are expected to occur based on existing site conditions. The discussion is to be used as a general reference and is limited by the season, time of day, and weather conditions in which the field survey was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation. Observations of wildlife, primarily of bird species, were made from adjacent trails and other publicly accessible areas. Wildlife diversity within the survey area is limited by the urbanized nature of the river and surrounding environments.

3.3.1 FISH

No fish species were observed during the site visits. Species known to occur in the Glendale Narrows area include fathead minnow (*Pimephales promelas*), carp (*Cyprinus carpio*), black bullhead (*Ameiurus melas*), Amazon sailfin catfish (*Pteroplichthys pardalis*), green sunfish (*Lepomis cyanellus*), mosquito fish (*Gambusia affinis*), tilapia (*Oreochromis* sp.), and largemouth bass (*Micropterus salmoides*) (USACE 2024). These species may also occur within the Long Beach reach; however, the mostly concrete-lined nature of lower portions of the LA River severely limit the potential for fish to persist. None of these species are native to the LA River and none are special status species.

A number of special-status fish species were known to inhabit the LA River, such as southern California Distinct Population Segment of steelhead (*Oncorhynchus mykiss*; federally listed endangered, State candidate for listing as endangered), Santa Ana sucker (*Catostomus santaanae*; federally listed threatened), arroyo chub (*Gila orcuttii*; CDFW Species of Special Concern [SSC]), and Santa Ana speckled dace (*Rhinichthys osculus*; CDFW SSC) (USACE 2015); however, these species are no longer present in the LA River.

3.3.2 AMPHIBIANS

No amphibian species were observed during the site visits. Amphibians expected to occur in the survey area include western toad (*Bufo boreas*), Pacific tree frog (*Hyla regilla*), and bullfrog (*Rana catesbeiana*) (USACE 2024).

3.3.3 REPTILES

No reptile species were observed during the site visits. Reptiles expected to occur in the survey area include western whiptail (*Cnemidophorus tigris*), western skink (*Eumeces skiltonianus*), southern alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western rattlesnake (*Crotalus viridis*), ringneck snake (*Diadophis punctatus*), common kingsnake (*Lampropeltis getulus*), California whipsnake (*Masticophis lateralis*), gopher snake (*Pituophis melanoleucus*), and two-striped garter snake (*Thamnophis hammondi*) (USACE 2024).

3.3.4 BIRDS

A number of bird species typical of the region and habitats along the LA River were observed within the survey area and are listed below in Table 2.

Table 2. Bird Species Observed within the Survey Area

Scientific Name	Common Name
Birds	
Anatidae	Ducks, Geese, and Swans
<i>Alopochen aegyptiaca</i>	Egyptian Goose
<i>Anas platyrhynchos</i>	mallard
<i>Branta canadensis</i>	Canada Goose
Ardeidae	Hérons and Bitterns
<i>Ardea alba</i>	great egret
<i>Ardea herodias</i>	great blue heron
<i>Butorides virescens</i>	green heron
<i>Egretta thula</i>	snowy egret
<i>Nycticorax nycticorax</i>	black-crowned night-heron
Charadriidae	Plovers and Lapwings
<i>Charadrius vociferus</i>	killdeer
Columbidae	Pigeons and Doves
<i>Columba livia</i>	rock pigeon
Hirundinidae	Swallows
<i>Hirundo rustica</i>	barn swallow
Icteridae	Troupials and Allies
<i>Agelaius phoeniceus</i>	red-winged blackbird
Parulidae	New World Warblers
<i>Geothlypis trichas</i>	common yellowthroat
Phalacrocoracidae	Cormorants and Shags
<i>Nannopterum auritum</i>	double-crested cormorant
Picidae	New World Sparrows
<i>Colaptes auratus</i>	northern flicker
Rallidae	Rails, Gallinules, and Coots
<i>Fulica americana</i>	American coot
Recurvirostridae	Stilts and Avocets
<i>Himantopus mexicanus</i>	black-necked stilt
Tyrannidae	Tyrant Flycatchers
<i>Sayornis nigricans</i>	black phoebe

More than 200 species of birds have been observed and documented on eBirds along the LA River (Cooper 2011). eBirds (2024) is a publicly accessible online database of bird observations recording across the world. These observations reflect that diversity of bird species that utilize the LA River channel and adjacent environs for cover, resting, foraging, and nesting habitat.

3.3.5 MAMMALS

No mammal species were observed during the site visits. The survey area is routinely disturbed from anthropogenic activity and its constructed nature. Mammals that utilize the survey area consist of urban-adapted species including opossum (*Didelphis virginiana*), black rat (*Rattus rattus*), raccoon (*Procyon lotor*), California ground squirrel (*Spermophilus beecheyi*), fox squirrel (*Sciurus niger*), striped skunk (*Mephitis mephitis*), and coyote (*Canis latrans*) (USACE 2024).

No bats or evidence of the presence of bats (i.e. guano, urine staining) were observed during the field survey. Mines, caves, rock outcrops, deep rock crevices, and large abandoned buildings which may provide suitable colonial and/or maternity roosting habitat are absent from the survey area. However, multiple large bridges over the LA River provide roosting opportunities for bat species, while palm, eucalyptus, and western sycamore trees that occur within and along the LA River provide also provide suitable roosting habitat for individual or small groups of bats. Additionally, the LA River provides a source of water for bats. A number of bat species are known from Los Angeles County, with some common to the LA River, including California myotis (*Myotis californicus*), western mastiff bat (*Eumpos perotis*; a CDFW SSC), and Mexican free-tailed bat (*Tadarida brasiliensis*) (FOLAR 2023).

3.4 MIGRATORY CORRIDORS AND LINKAGES

Wildlife corridors and linkages are key features for wildlife movement between habitat patches. Wildlife corridors are generally defined as those areas that provide opportunities for individuals or local populations to conduct seasonal migrations, permanent dispersals, or daily commutes, while linkages generally refer to broader areas that provide movement opportunities for multiple keystone/focal species or allow for propagation of ecological processes (e.g., for movement of pollinators), often between areas of conserved land.

The LA River channel serves as a wildlife corridor through the urbanized environments of the cities of Los Angeles and Long Beach. While portions of the survey area contain a concrete bottom devoid of vegetation, limiting the river's function to provide cover, resting, foraging, and nesting opportunities for most wildlife, the soft-bottom channel, vegetation, and surface waters within the Los Angeles reach provide resources suitable to support wildlife movement, in particular bird species that migrate/move along the LA River. The LA River also provides movement opportunities for mammal species adapted to living in urban environments, such as coyotes, racoons, squirrels, skunks, and bats, which likely utilize the LA River corridor for movement between resting/roosting habitats and foraging areas. Concrete-lined portions of the channel likely also serve as wildlife movement corridors for birds and mammals. Surface waters in these reaches often support substantial algae within sheet flow in the channel that support attractive bird species that forage on the algae and associated invertebrates within the channel.

While the river channel provides suitable resources to support opportunities for localized wildlife movement, primarily for birds and mammals within an urbanized environment, its value as a wildlife linkage connecting significant open or green-space areas or natural habitats is limited by its urbanized

setting and modified (concrete-encased) channel. However, the Los Angeles reach of the survey area is adjacent to the Griffith Park Significant Ecological Area (SEA), located along the western side of the LA River. At its closest point, the survey area is approximately four hundred feet from the boundary of the Griffith Park SEA. The Griffith Park SEA consists of approximately 3,400 acres of open space, providing some opportunities for wildlife dispersal from the LA River corridor to this open space area. However, the survey area is separated from the Griffith Park SEA by the Interstate 5 freeway, limiting access to the SEA to primarily bird species. No significant open or conserved areas occur along the Long Beach reach; however, this reach connects to the Pacific Ocean, providing an opportunity for bird movement from coastal areas inland. Surface waters in this reach may also provide opportunities for aquatic species to migrate up into the LA River; however, upstream movement by such species is limited by the existing hydrologic conditions and physical barriers along the channel, limiting the migration of aquatic species up the LA River.

3.5 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDDB and CIRP were queried for reported locations of special-status plant and wildlife species as well as special-status natural vegetation communities occurring within the USGS *Canoga Park, Van Nuys, Burbank, Pasadena, Hollywood, Los Angeles, South Gate, and Long Beach* 7.5-minute quadrangles and those identified from a review of IPaC. The field survey was conducted to assess and evaluate existing conditions of the habitats within the boundaries of the field survey area to determine if the existing vegetation communities, at the time of the survey, have the potential to provide suitable habitat for special-status plant and wildlife species. Additionally, the potentials for special-status species to occur within the survey area were determined based on the reported locations in the CNDDDB and CIRP the following guidelines:

- **Present:** the species was observed or detected during the field survey.
- **High:** Occurrence records (within 20 years) indicate that the species has been known to occur on or within one mile of the survey area and the survey area is within the normal expected range of this species. Intact, suitable habitat preferred by this species occurs within the survey area and/or there is viable landscape connectivity to a local known extant population(s) or sighting(s).
- **Moderate:** Occurrence records (within 20 years) indicate that the species has been known to occur within one mile of the survey area and the survey area is within the normal expected range of this species. There is suitable habitat within the survey area, but the area is ecologically isolated from any local known extant populations or sightings.
- **Low:** Occurrence records (within 20 years) indicate that the species has been known to occur within five miles of the survey area, but the area is outside of the normal expected range of the species and/or there is poor quality or marginal habitat within the survey area.
- **Not Expected:** There are no occurrence records of the species occurring within five miles of the survey area, there is no suitable habitat within the survey area, and/or the survey area is outside of the normal expected range for the species.

The literature search identified sixty (60) special-status plant species, forty-four (44) special-status wildlife species, and six (6) sensitive vegetation communities as having been recorded within the eight-quad search of the CNDDDB and CIRP, and during a search of IPaC. Special-status plant and wildlife species were evaluated for their potential to occur within the survey area based on habitat requirements, availability and quality of suitable habitat, and known distributions. Special-status biological resources identified during the literature review are presented in Appendix B *Special-Status Plant and Wildlife Species and Sensitive Natural Vegetation Communities*.

3.5.1 SPECIAL-STATUS PLANT SPECIES

Special-status plant species include those listed as Endangered, Threatened, Rare or those species proposed for listing by the USFWS under the FESA and CDFW under the California Endangered Species Act (CESA) (CDFW 2024a). The CNPS inventory is sanctioned by the CDFW and serves essentially as the list of candidate plant species for state listing. CNPS's California Rare Plant Ranks (CRPR) 1B and 2 species are considered eligible for state listing as endangered or threatened.

Sixty (60) special-status plant species were identified during a review of the CNDDDB and CIRP to have been recorded within the USGS eight quadrant search area and from a review of IPaC. Each species' special-status ranking, preferred habitats, and potential to occur within the survey area are provided in Appendix B, Table 1. One special-status species, California black walnut, a CNPS-listed species with a CRPR of 4.2 was recorded within Giant and Common Reed Marsh habitat within the Los Angeles reach (refer to Section 3.2 of this report).

No CNDDDB records of any special-status plant species coincide with the survey area. CNDDDB records of two special-status plant species have been recorded in areas adjacent to the LA River, including mesa horkelia (*Horkelia cuneata* var. *puberula*; CRPR 1B.1) and Greata's aster (*Symphyotrichum greatae*; CRPR 1B.3). Mesa horkelia was collected in 1918 along the northern section of Griffith Park; however, habitats potentially suitable to support this species (maritime chaparral, cismontane woodland, coastal scrub) are not present within the survey area. Greata's aster (*Symphyotrichum greatae*) was collected in 1932 within Elysian Park, and while this species prefers riparian woodland habitat, this habitat type in the survey area is of poor quality and occurs outside of the known elevation range for this species (985-6,595 feet above mean sea level).

Based on the results of the literature review and field surveys, Michael Baker determined that special-status plant species are generally not expected to occur within the survey area, based on existing site conditions and a review of specific habitat requirements, occurrence records, and known distributions of each species. Only one species, Nevin's barberry (*Berberis nevinii*, federally and State-listed endangered), recorded from within the past 20 years and from within 5 miles of the survey area was identified to have a low potential to occur, based on the guidelines presented above in Section 3.6 (refer to Appendix B, Table 1). However, Nevin's barberry was not observed during the field survey.

3.5.2 SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species include those listed as Endangered, Threatened, Rare or those species proposed for listing by the USFWS under FESA and CDFW under the California Endangered Species Act (CDFW 2024b). Additional species receive federal protection under the Bald Eagle Protection Act (e.g., bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA), and state protection under CEQA Section 15380(d).

All birds, except European starlings, English house sparrows, rock doves (pigeons), and non-migratory game birds such as quail, pheasant, and grouse are protected under the MBTA. However, non-migratory game birds are protected under California Fish and Game Code (CFGF) Section 3503. Many other species are considered by CDFW to be California Species of Special Concern (SSC) and others are on a CDFW Watch List (WL). The CNDDDB tracks species within California for which there is conservation concern, including many that are not formally listed, and assigns them a CNDDDB Rank (CDFW 2024c). Although CDFW SSC and WL species and species that are tracked in the CNDDDB but not formally listed are afforded no official legal status, they may receive special consideration during the CEQA environmental review process. CDFW further classifies some species as "Fully Protected" (FP), indicating that the species may not be taken or possessed except for scientific purposes, under special permit from CDFW. Additionally, CFGC Sections 3503, 3505, and 3800 prohibit the take, destruction, or possession of any bird, nest, or egg of any bird except English house sparrows and European starlings unless authorization is obtained from CDFW.

One special-status wildlife species, double-crested cormorant (CDFW WL), was observed during field surveys (refer to Table 2). Individuals of this species, as well as great egret, snowy egret, great blue heron, and black-crowned night hawk, also observed during field surveys (refer to Table 2), are considered special-status species while nesting. These species are considered colonial nesters that are vulnerable to human disturbance while nesting.

Forty-four (44) special-status wildlife species were identified during a review of the CNDDDB to have been recorded within the USGS eight quadrant search area and from a review of IPaC. Each species' special-status ranking, preferred habitats, and potential to occur within the survey area are provided in Appendix B, Table 2. CNDDDB record(s) of five (5) special-status wildlife species coincide with the survey area, including:

- One record of Crotch bumble bee (*Bombus crotchii*, state candidate endangered) from 2020 near the LA River, 0.3 miles northwest of Eagle Rock Boulevard and San Fernando Road. No suitable habitat (open grasslands, shrublands, chaparral, desert margins including Joshua tree and creosote scrub, and semi-urban settings) for this species occurs in the survey area.
- Two records of western yellow-billed cuckoo (*Coccyzus americanus occidentalis*, federally-listed threatened and state-listed endangered) from 1921 and 1923, one near the intersection the 405 freeway and State Route 47 and another within an approximate 4-mile stretch of the LA River nears its mouth at the Pacific Ocean. Suitable riparian forest habitat for this species is present; however,

this species is considered extirpated from the area and is not expected to occur within the survey area.

- One record of southwestern willow flycatcher (*Empidonax traillii extimus*, federally- and state-listed endangered) from 1894 and recorded as a ten-mile diameter circle located in the City of Los Angeles. Suitable riparian forest habitat for this species is present; however, this species is not expected to occur in the survey area due to the lack of occurrence records within the last twenty years and within 5 miles of the survey area.
- One record of bank swallow (*Riparia riparia*, state-listed threatened) from 1894. This record was mapped as a ten-mile diameter circle located in the City of Los Angeles. No suitable habitat (vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, and ocean) for this species occurs in the survey area. This species is considered extirpated from the area and is not expected to occur within the survey area.
- Three records of least Bell's vireo (*Vireo bellii pusillus*, federally-listed endangered and State-listed endangered) from 1897, 1914, and 1922. These records generally overlay large portions of the City of Los Angeles and the northern reach of the survey area. Suitable riparian forest habitat for this species is generally absent, and this species is not expected to occur in the survey area and is considered extirpated from the area.

Although habitats suitable to support the special-status wildlife species identified during the database searches are generally absent from the survey area, American peregrine falcon (*Falco peregrinus anatum*), a species de-listed from FESA and CESA, is known to occur within Griffith Park, which is adjacent to the Los Angeles reach. As recently as 2020, a peregrine falcon attempted to fledge young at a nest site within the park (Cooper and McCammon 2020). This species is also known to occur and nest in areas of the ports of Long Beach and Los Angeles and other areas where tall structures such as bridges and oil refinery towers provide suitable nesting habitat. As a result, this species could occur across the survey area as a migrating or foraging transient; however, they are not expected to nest within the survey area. Additionally, mature trees within the survey area provide potentially suitable nesting habitat for Cooper's hawk (*Accipiter cooperii*; CDFW WL species), a special-status raptor species not identified during the database searches, but one known to successfully nest throughout urban environments within the Los Angeles Basin, including in nearby Griffith Park and the Glendale-Burbank area (Cooper and McCammon 2021). American peregrine falcon and Cooper's hawk have moderate potential to occur within the survey area.

Based on the results of the literature review and field surveys, Michael Baker determined that all remaining special-status wildlife species included in Appendix B, Table 2 are not anticipated to occur within the survey area or have a low potential to occur within the survey area based on existing site conditions and a review of specific habitat requirements, occurrence records, and known distributions of each species. Species with low potential included bats, such as hoary bat (*Lasurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), western yellow bat (*Lasiurus xanthinus*), and western mastiff bat (*Eumops perotis californicus*), and bird species known primarily from coastal areas that may forage in the Long Beach reach, such as California brown pelican (*Pelecanus erythrorhynchos*) and California least tern (*Sternula antillarum browni*).

Nesting birds are protected pursuant to the federal Migratory Bird Treaty Act (MBTA) of 1918 and the California Fish and Game Code (CFGC)⁴. Consequently, if an active bird nest is destroyed or if the project modifications result in indirect impacts (e.g., nest abandonment, loss of reproductive effort) to nesting birds, it is considered “take” and is potentially punishable by fines and/or imprisonment. Vegetation, bridges, and other structures within the survey area provide suitable nesting habitat for various year-round and seasonal bird species.

3.5.3 SPECIAL-STATUS VEGETATION COMMUNITIES

Six (6) special-status vegetation communities have been reported in the CNDDDB within the six quad search area: California Walnut Woodland, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Sycamore Alder Riparian Woodland, and Walnut Forest. These communities are identified in the CNDDDB from the nearby Santa Monica Mountains, Verdugo Mountains, and the Angeles National Forest, and do not coincide with the survey area. However, based on results of the field survey, one sensitive native vegetation community, Goodding’s willow – red willow riparian woodland and forest, was recorded within the survey area. Goodding’s willow – red willow riparian woodland and forest (Code: 61.216.00) is listed as sensitive in the California Sensitive Natural Communities List (CDFW 2023), with a state rarity rank of S3. Including non-disturbed and disturbed Goodding’s willow – red willow riparian woodland and forest, approximately 28.67 acres of this vegetation community occurs within the survey area. Vegetation communities with CDFW sensitivity ranks of S1 to S3 are considered sensitive natural communities that need to be considered for significant impacts during the CEQA review process.

3.5.4 POTENTIAL JURISDICTIONAL WATERS

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive natural communities that can fall under the jurisdiction of several regulatory agencies. The USACE Regulatory Branch regulates discharge of dredged or fill material into “waters of the United States” pursuant to Section 404 of the federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the Regional Water Quality Control Board (RWQCB) regulates discharges to surface waters pursuant to Section 401 of the CWA and Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter Cologne), and the CDFW regulates alterations to streambed and associated vegetation communities under Section 1600 *et seq.* of the CFGC.

The LA River is considered a jurisdictional aquatic feature pursuant to the CWA, Porter-Cologne, and the CFGC and as such, alterations to its bed or banks are regulated by USACE, RWQCB, and CDFW. Based on a review of the USFWS National Wetlands Inventory (NWI) (USFWS 2024c), several habitat types

⁴ Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or any regulation made pursuant thereto; Section 3503.5 makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey); and Section 3513 makes it unlawful to take or possess any migratory non-game bird except as provided by the rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act, as amended (16 U.S.C. § 703 *et seq.*).

were originally mapped by NWI within the LA River, including estuarine and marine deepwater, freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, and riverine habitats.

3.6 CRITICAL HABITAT

Under the definition included in the FESA, designated Critical Habitat refers to specific areas within the geographical range of a species that were occupied at the time it was listed and that contain the physical or biological features that are essential to the survival and eventual recovery of that species. Areas of Critical Habitat may require special management considerations or protection, regardless of whether the species is still extant in the area. Areas that were not known to be occupied at the time a species was listed can also be designated as Critical Habitat if they contain one or more of the physical or biological features that are essential to that species' conservation and if the occupied areas are inadequate to ensure the species' recovery.

The survey area does not coincide with any USFWS-designated Critical Habitat. The nearest Critical Habitat is located approximately 7 miles west of the survey area along the hillsides of the City of Rolling Hills Estates.

3.7 LOCAL AND REGIONAL CONSERVATION PLANS AND ORDINANCES

Additionally, the survey area does not fall within an approved local, regional, or state habitat conservation plans that protect biological resources within the survey area.

Section 4 Impact Analysis

Biological resources may be either directly or indirectly impacted. Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- **Direct:** Any alteration, physical disturbance, or destruction of biological resources that would result from the project modifications is considered a direct impact. Examples include clearing vegetation, loss of individual species and/or their habitats, and encroaching into wetlands or a river.
- **Indirect:** As a result of the project modifications, biological resources may also be affected in a manner that is ancillary to physical impacts. Examples include elevated noise and dust levels, soil compaction, increased human activity, and the introduction of invasive wildlife (domestic cats and dogs) and plants.
- **Permanent:** All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- **Temporary:** Any impacts considered to be reversible can be viewed as temporary. Examples include the generation of fugitive dust during construction, or removing vegetation to provide work areas, and either allowing the natural vegetation to recolonize or actively revegetating the impact area.

4.1 VEGETATION

The results of the field surveys were used to evaluate the potential for impacts to vegetation communities based the results of the Hydraulic Engineering Center’s River Analysis System (HEC-RAS) modeling data for the proposed diversion of the flows from the Japanese Garden Lake. The HEC-RAS model measured a projected change in dry-season flow discharge at a series of river stations located within the LA River channel. Several key outputs were modelled using the HEC-RAS model, including projected change in river velocity, water depth, and wetted channel top width during the dry-season (June – August). Several river stations were defined within the vegetation survey area (refer to Figure 3). The outputs from these locations were compared with vegetation mapping results within the survey area to help determine the potential impacts related to reductions in flow discharge to the LA River with implementation of the project modifications.

Riverine systems are by nature highly dynamic. Numerous factors are known to influence the health and establishment of native vegetation communities that inhabit riverine systems. Vegetation communities native to southern California are generally adapted to seasonal fluctuations in water availability, temperature, and other factors. This adaptability is evidenced in historical changes in landforms and vegetation seasonally within the LA River within a given year and between years, depending on conditions.

Open water was present at river station locations within the Long Beach reach; however, no native vegetation communities are present within this reach of the survey area. Due to the lack of native vegetation communities, significant adverse impacts to such communities within the Long Beach reach of the LA River are not expected.

Vegetation communities present at the HEC-RAS river station locations within the Los Angeles reach included Goodding's willow – red willow riparian woodland and forest, disturbed Goodding's willow – red willow riparian woodland and forest, cattail marshes, and disturbed cattail marshes. These vegetation communities were interspersed with areas of open water, which is typical of the flowing channel. Disturbed areas were also noted adjacent to the vegetation communities observed at several river station locations. Vegetated islands were frequently observed throughout the soft-bottom portions of the channel. The reduction in top width would be expected to occur at an even distribution between bank areas (including unvegetated banks and at the margins of vegetated islands within the channel). Given the relatively small reduction in water column depth, top width, and velocity at the river station locations listed in Table 3, impacts to the composition and distribution of the vegetation communities occurring within the Los Angeles reach of the LA River would be less than significant. Minor redistributions of the vegetation are possible, as channel banks and margins of vegetated areas become less saturated and more hospitable to sustained willow establishment, and other areas become likewise more hospitable for cattail establishment. However, redistributions of vegetation communities are common within a dynamic river system, which is subject to a wide variety of seasonal, annual, and longer duration fluctuations in water velocity and availability. This conclusion is based upon knowledge of local ecology and experience with the subject vegetation communities that are present in the LA River based on the field survey.

Table 3. HEC-RAS Comparison of Project Modifications Resultant Flow

River Station ^a	Vegetation Community / Land Cover	Expected Impacts	Change in Depth (Inches)	Change in Top Width (Inches)
LA14 (195289.1)	None (outside of soft-bottom and survey area)	NA	0.12	21.24
165671.8	Cattail marshes / open water	Significant adverse impacts not expected	0.48	21.12
LA13 (161377.1)	None / open water	Significant adverse impacts not expected	0.12	0.12
159029.2	Cattail marshes / open water	Significant adverse impacts not expected	0.48	33.72
GLEN (156292.5)	Cattail marshes, Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.36	48.36
149343.2	Cattail marshes, Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.48	47.52
142453.7	Disturbed cattail marshes / disturbed habitat / open water	Significant adverse impacts not expected	0.36	9.48
135461.4	Disturbed Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.48	9.39
F319 (20500)	None / open water	Significant adverse impacts not expected	0.24	0.84

^a. River Station for the LA River is designated by the number of feet upstream from the mouth of the river.

Table 4 provides a summary of the cumulative resultant flow, including the anticipated flow reductions resulting from the project modifications, as detailed in Table 3, and the flow reductions that the Los Angeles-Glendale Water Reclamation Plant (LAGWRP) is entitled to under current permits from SWRCB. The cumulative resultant flow reduction would only occur downstream of the GLEN river station, where LAGWRP discharges into the LA River. Given that the reductions in depth and top width would still be relatively small, impacts to the composition and distribution of the vegetation communities occurring within the Los Angeles reach of the LA River would be less than significant when considering the cumulative resultant flow.

Table 4. HEC-RAS Comparison of Cumulative Resultant Flow

River Station ^a	Vegetation Community / Land Cover	Expected Impacts	Change in Depth (Inches)	Change in Top Width (Inches)
LA14 (195289.1)	None (outside of survey area)	NA	0.12	21.24
165671.8	Cattail marshes / open water	Significant adverse impacts not expected	0.48	21.12
LA13 (161377.1)	None / open water	Significant adverse impacts not expected	0.12	0.12
159029.2	Cattail marshes / open water	Significant adverse impacts not expected	0.48	33.72
GLEN (156292.5)	Cattail marshes, Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.72	90.96
149343.2	Cattail marshes, Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.84	98.76
142453.7	Disturbed cattail marshes / disturbed habitat / open water	Significant adverse impacts not expected	0.60	16.08
135461.4	Disturbed Goodding's willow – red willow riparian woodland and forest / open water	Significant adverse impacts not expected	0.96	19.56
F319 (20500)	None / open water	Significant adverse impacts not expected	0.36	1.44

^a. River Station for the LA River is designated by the number of feet upstream from the mouth of the river.

4.2 SPECIAL-STATUS PLANT SPECIES

California black walnut was observed during the field survey; however, all other special-status plant species identified during database searches are not expected to occur, or have only low potential to occur within the survey area due to a lack of potentially suitable habitat (see Appendix B, Table 1). Additionally, no USFWS-designated critical habitat for any federally listed plant species coincides with the survey area. The reductions in depth and top width with implementation of the project modifications would be relatively small and would not noticeably change habitat conditions and species composition. Therefore, no impacts to California black walnut would occur with implementation of the project modifications and when considering the cumulative resultant flow.

4.3 SPECIAL-STATUS WILDLIFE SPECIES

One special-status wildlife species, double-crested cormorant (CDFW WL), was observed during the field surveys. All other special-status species identified during database searches are not expected to occur or have only low potential to occur within the survey area due to a lack of potentially suitable habitat (see Appendix B, Table 2).

As indicated in Section 3.5.2, American peregrine falcon may occur across the survey area as a migrating or foraging transient, and Cooper's hawk may nest in mature trees within the survey area. Additionally, bird species such as egrets and herons that are known as colonial nesters were observed during field surveys; however, no observations of colonial nesting in trees within the survey area was noted. Regardless of the suitability of the survey area to support nesting birds, reductions in water depth and top width would be relatively small. Therefore, impacts to the composition and distribution of the vegetation communities occurring within the LA River, including trees suitable for nesting, would be less than significant with implementation of the project modifications and when considering the cumulative resultant flow. Similarly, foraging habitat provided by vegetation in the survey area is anticipated to remain unchanged by the decreases in water depth and top width.

Although special-status bat species are not expected or have a low potential to occur within the survey area, bridges, large trees, and other vegetation in the survey area would not be impacted by the small changes in water depth and top width and would continue to provide suitable roosting and foraging habitat for bat species. Potentially suitable colonial maternity roosting sites do not occur within the survey area, as caves are absent and large suitable structures are limited in the vicinity. As a result, no direct impacts to colonial bat roosting habitat would occur.

Similarly, nesting by resident and migratory bird species would not be impacted by the small changes in water depth and top width. Existing vegetation and structures within the survey area would continue to provide nesting opportunities for the numerous bird species that have been identified along the LA River.

Special-status amphibian, reptile, fish, invertebrate, and non-bat mammal species are not anticipated to occur within the survey area, and as a result no impacts to such species would occur.

4.4 SENSITIVE NATURAL COMMUNITIES

Based on results of the field surveys and a review of CDFW’s current Sensitive Natural Communities List (CDFW 2023), one sensitive natural vegetation community, Goodding’s willow – red willow riparian woodland and forest (Code: 61.216.00), occurs within the survey area. The small decrease in water depth and top width resulting from implementation of the project modifications are not expected to alter the current composition of habitats within the survey area., As such, impacts to sensitive natural communities would be less than significant.

4.5 POTENTIAL JURISDICTIONAL WATERS

No construction activities would occur in the survey area and as a result, impacts to a jurisdictional water feature requiring permitting pursuant to the CWA, Porter-Cologne, and/or CFGC would occur. Further, the small change in water depth and top width would not affect the regulatory status of the LA River.

4.6 WILDLIFE MOVEMENT CORRIDOR

The LA River serves as a wildlife movement corridor, in particular for resident fish, birds, and bats. Minor changes in water depth and top width would not noticeably change habitat conditions or adversely affect biological communities within the survey area. As a result, impacts to the movement by wildlife species within the survey area would be less than significant.

4.7 CRITICAL HABITAT

No USFWS-designated critical habitat coincides with the survey area and as a result, no significant impacts to critical habitat would occur.

4.8 LOCAL AND REGIONAL CONSERVATION PLANS AND ORDINANCES

No local or regional habitat conservation plan coincides with the survey area. Further, minor changes in water depth and top width resulting from implementation of the project modifications would not significantly impact biological resources, such as trees protected by local ordinance. While the Griffith Park SEA occurs within close proximity of the Los Angeles reach, impacts to biological resources within this SEA would not occur.

Section 5 Conclusions

Implementation of the proposed project modifications at the DCTWRP is anticipated to result in small decreases in water depth and top width in the LA River downstream of DCTWRP. These changes are not anticipated to have a significant impact on the distribution and extent of existing vegetation communities. As a result, impacts to special-status plant and wildlife species, sensitive natural vegetation communities, wildlife movement, and the jurisdictional status of the LA River are anticipated to be less than significant. Further, these changes are not anticipated to conflict with local or regional ordinances or habitat conservation plans protecting biological resources within the LA River. No avoidance and minimization measures to reduce potential significant impacts are recommended.

Section 6 References

- Bradley, D.R., Ammerman, L.K., Baker, R.J., Bradley, L.C., Cook, J.A., Dowler, R.C., Jones, C., Schmidly, D.J., Stangl Jr., F.B., Van Den Bussche, R.A., and B. Würsig. 2014. Revised Checklist of North American Mammals North of Mexico, 2014. Occasional Papers of the Museum of Texas Tech University. 327. 1-27.
- California Native Plant Society (CNPS) 2024a. Inventory of Rare and Endangered Plants of California (online edition, v9.5). Accessed online at: <http://www.rareplants.cnps.org/>, February 26, 2024.
- CNPS. 2024b. A Manual of California Vegetation (online edition). California Native Plant Society, Sacramento, CA. Accessed online at: <https://vegetation.cnps.org/>
- California Department of Fish and Wildlife (CDFW). 2024a. RareFind 5, California Natural Diversity Data Base, California. Data base report on threatened, endangered, rare or otherwise sensitive species and communities for the *Canoga Park, Van Nuys, Burbank, Pasadena, Hollywood, Los Angeles, South Gate, and Long Beach* USGS 7.5-minute quadrangles. Generated February 26, 2024.
- CDFW. 2024b. *Special Animals List*. California Department of Fish and Wildlife. Sacramento, CA.
- CDFW. 2024c. *State and Federally Listed Endangered and Threatened Animals of California*. California Department of Fish and Wildlife. Sacramento, CA.
- CDFW. 2024d. *Special Vascular Plants, Bryophytes, and Lichens List*. California Department of Fish and Wildlife. Sacramento, CA.
- CDFW. 2024e. *State and Federally Listed Endangered, Threatened, and Rare Plants of California*. California Department of Fish and Wildlife. Sacramento, CA.
- CDFW. 2023. California Sensitive Natural Communities. June 1. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline>
- Chesser, R. T., S. M. Billerman, K. J. Burns, C. Cicero, J. L. Dunn, B. E. Hernández-Baños, R. A. Jiménez, A. W. Kratter, N. A. Mason, P. C. Rasmussen, J. V. Remsen, Jr., and K. Winker. 2023. Check-list of North American Birds (online). American Ornithological Society. <https://checklist.americanornithology.org/taxa/>
- Cooper, Daniel S. 2011. Los Angeles River. Top 20 Birds. Prepared for Los Angeles River Revitalization Corporation. Available at: <https://thelariver.com/guide/bird-watching/top-20-birds/>
- Cooper, Daniel S and Courtney McCammon (Cooper and McCammon). 2020. Nesting Raptors of Griffith Park and Surround Area. August 18. 35 pp.

- Cooper and McCammon. 2021. Los Angeles Raptor Study. Final Report. Prepared for Friends of Griffith Park. September 4. 31 pp.
- Crother, B. I. (ed.). 2017. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding* pp. 1–102. SSAR Herpetological Circular 43.
- Friends of the LA River (FOLAR). 2023. Bats of the Los Angeles River. Available at: <https://folar.org/batguide/>
- Harvey, M. J., J. S. Altenbach, and T.L. Best. 2011. *Bats of the United States and Canada*. John Hopkins University Press, Baltimore, Maryland.
- Jepson Flora Project. 2024. Jepson eFlora. Accessed online at: <http://ucjeps.berkeley.edu/eflora/>, February 26, 2024.
- Natural Resources Conservation Service (NRCS). 2024. Web Soil Survey. Accessed online at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.
- Reid, F.A. 2006. *A Field Guide to Mammals of North America, Fourth Edition*. Houghton Mifflin Company, New York, New York.
- Sibley, D.A. 2014. *The Sibley Guide to Birds, Second Edition*. Alfred A. Knopf, Inc., New York, New York.
- Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians, Third Edition*. Houghton Mifflin Company, New York, New York.
- United States Army Corps of Engineers. 2024. Los Angeles River. Accessed online at: <https://www.spl.usace.army.mil/Missions/Asset-Management/Los-Angeles-River/>, March 6, 2024.
- USACE. 2015. *Los Angeles River Ecosystem Restoration Final Integrated Feasibility Report: Final Feasibility Report and Environmental Impact Statement/Environmental Impact Report*. Available at: <https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/2343/>
- United State Fish and Wildlife Service (USFWS). 2024a. IPaC Information for Planning and Consultation. Accessed online at: <https://ecos.fws.gov/ipac/>, February 26, 2024.
- USFWS. 2024b. ECOS Environmental Conservation Online System: Threatened and Endangered Species Active Critical Habitat Report. Accessed online at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>.

USFWS. 2024c. National Wetland Inventory. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed online at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>, February 26, 2024.

Xerces Society for Invertebrate Conservation (Xerces). 2024. Western Monarch Count: Find an Overwintering Site. Accessed online at: <https://www.westernmonarchcount.org/find-an-overwintering-site-near-you/>

Appendix A Site Photographs



Photo 1. Southwest-facing view of cattail marsh habitat at the northern end of the Los Angeles reach.



Photo 2. Southeast-facing view of an area of open water in the northern portion of the Los Angeles reach.



Photo 3. Southeast-facing view of Goodding’s black willow – red willow riparian woodland and forest, with cattail marsh habitat adjacent in the northern portion of the Los Angeles reach.



Photo 4. West-facing view of disturbed cattail marsh habitat immediately upstream of the North Atwater Bridge in the northern-central portion of the Los Angeles reach.



Photo 5. South-facing view of disturbed Goodding’s willow – red willow riparin woodland and forest from the North Atwater Bridge in the northern-central portion of the Los Angeles reach.



Photo 6. Northeast-facing view of the central portion of the Los Angeles reach.



Photo 7. East-facing view of disturbed cattail marsh habitat with sporadic Gooddings black willow growth in the southern-central portion of the Los Angeles reach.



Photo 8. Northeast-facing view of common reed marsh habitat in the southern portion of the Los Angeles reach.



Photo 9. Northeast-facing view of common and giant reed marsh habitat in the southern portion of the Los Angeles reach.



Photo 10. Northeast-facing view of disturbed Goodding's black willow – red willow riparian forest and woodland habitat in the southern portion of the Los Angeles reach.



Photo 11. South-facing view of an open water area in the northern portion of the Long Beach reach.



Photo 12. West-facing view of disturbed areas (foreground) and common and giant reed marsh habitat surrounding the open water channel in the southern portion of the Long Beach reach.



Photo 13. Northwest-facing view of disturbed area and an open water portion of the channel in the southern portion of the Long Beach reach.



Photo 14. Northwest-facing view of a section of open water with concrete structures in the central portion of the Long Beach reach.

**Appendix B Special-Status Plant and Wildlife
Species and Sensitive Natural
Vegetation Communities Identified
During Database Reviews**

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
SPECIAL-STATUS PLANT SPECIES				
<i>Arctostaphylos glandulosa</i> ssp. <i>gabrielensis</i> San Gabriel manzanita	1B.2 G5T3 S3	Perennial evergreen shrub. Found in chaparral habitats. Occurs between 595-1500 meters (1,950-4,920 feet). Blooms in March.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Arenaria paludicola</i> marsh sandwort	FE SE 1B.1 G1 S1	Perennial stoloniferous herb. Prefers sandy openings in freshwater or brackish marshes and swamps. Occurs between 3-170 meters (10-560 feet). Blooms May-August.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Asplenium vespertinum</i> western spleenwort	4.2 G3? S4	Perennial rhizomatous herb. Prefers rocky areas in chaparral, cismontane woodland, and coastal scrub habitats. Occurs between 180-1,000 meters (590-3,280 feet). Blooms February-June.	No	Not expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Astragalus brauntonii</i> Braunton's milk-vetch	FE 1B.1 G2 S2	Perennial herb. Occurs in chaparral, coastal scrub, and valley and foothill grassland habitats. Prefers recent burns or disturbed areas, in sandstone with carbonate layers. Occurs between 4-640 meters (15-2,100 feet). Blooms January-August.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	1B.1 GUT1 S1	Annual herb. Prefers alkaline soils and lake margins in meadows and seeps and playas. Occurs between 60-850 meters (195-2790 feet). Blooms May-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Atriplex coulteri</i> Coulter's saltbush	1B.2 G3 S1S2	Perennial herb. Prefers alkaline or clay soils in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grassland habitats. Occurs between 3-460 meters (10-1,510 feet). Blooms March-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Atriplex parishii</i> Parish's brittle scale	1B.1 G1G2 S1	Annual herb. Found in alkaline chenopod scrub, playas, and vernal pools. Occurs between 25-1,900 meters (80-6,230 feet). Blooms June-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Atriplex serenana</i> var. <i> davidsonii</i> Davidson's salt scale	1B.2 G5T1 S1	Annual herb. Prefers alkaline soils in coastal bluff scrub and coastal scrub habitats. Occurs between 10-200 meters (30-655 feet). Blooms April-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Berberis nevinii</i> Nevin's barberry	FE SE 1B.1 G1 S1	Perennial evergreen shrub. Found in chaparral, cismontane woodland, coastal scrub, and riparian scrub habitats. Prefers steep, north-facing slopes or low-grade sandy washes. Occurs between 70-825 meters (230-2,705 feet). Blooms March-June.	No	Low. Potentially suitable riparian scrub habitat present in the survey area is of poor quality however, several records from 2010 occur approximately 1.06 miles west of the survey area.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Calochortus catalinae</i> Catalina mariposa lily	4.2 G3G4 S3S4	Perennial bulbiferous herb. Found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Occurs between 15-700 meters (50-2,295 feet). Blooms March–June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Calochortus clavatus var. gracilis</i> slender mariposa-lily	1B.2 G4T2T3 S2S3	Perennial bulbiferous herb. Found in chaparral, coastal scrub and valley and foothill grassland habitats. Occurs between 320-1,000 meters (1,050-3,280 feet). Blooms March–June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Calochortus plummerae</i> Plummer's mariposa-lily	4.2 G4 S4	Perennial bulbiferous herb. Found in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitats. Prefers rocky and sandy sites with granitic or alluvial material. Occurs between 100–1,700 meters (330-5,580 feet). Blooms May–July.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Calystegia felix</i> lucky morning-glory	1B.1 G1Q S1	Annual rhizomatous herb. Found in meadows and seeps (sometimes alkaline) and alluvial riparian scrub. Historically associated with wetland and marshy places, but possibly in drier situations as well. Possibly silty loam and alkaline. Occurs between 30-215 meters (100-705 feet). Blooms March-September.	No	Not Expected. Potentially suitable alluvial riparian scrub habitat present in the survey area is of poor quality and one record from 1899 (125 years ago) of this species occurs within 1 mile west of the survey area.
<i>Camissoniopsis lewisii</i> Lewis' evening-primrose	3 G4 S4	Annual herb. Prefers sandy or clay sites in coastal bluff scrub, cismontane woodland, coastal bluff scrub, coastal dune, coastal scrub, and valley and foothill grassland habitats. Occurs between 0-300 meters (0-985 feet). Blooms March-May.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Centromadia parryi</i> ssp. <i>australis</i> southern tarplant	1B.1 G3T2 S2	Annual herb. Found in marshes and swamps (margins), valley and foothill grassland (vernally mesic), and vernal pools. Occurs 0-480 meters (0-1,5675 feet). Blooms May-November.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Centromadia pungens ssp. laevis</i> smooth tarplant	1B.1 G3G4T2 S2	Annual herb. Prefers alkaline soils in chenopod scrub, meadow and seep, playas, riparian woodland, and valley and foothill grassland habitats. Occurs between 0-640 meters (0-2,100 feet). Blooms April-September.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Chloropyron maritimum ssp. maritimum</i> salt marsh bird's-beak	FE SE 1B.2 G4?T1 S1	Annual herb (hemiparasitic). Found in coastal dunes and coastal salt marshes and coastal salt swamps. Occurs between 0-30 meters (0-100 feet). Blooms May-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Chorizanthe parryi var. fernandina</i> San Fernando Valley spineflower	SE 1B.1 G2T1 S1	Annual herb. Found in sandy soils in coastal dunes and valley and foothill grassland habitats. Occurs between 150-1,220 meters (490-4,005 feet). Blooms April-June.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Chorizanthe parryi var. parryi</i> Parry's spineflower	1B.1 G3T2 S2	Annual herb. Found in sandy or rocky chaparral, cismontane woodland, coastal scrub, valley and foothill grassland habitats. Occurs 275-1,220 meters (900-4,005 feet). Blooms April – June.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Clinopodium mimuloides</i> monkey-flower savory	4.2 G3 S3	Perennial herb. Prefers mesic areas and streambanks within chaparral and north coast coniferous forest habitats. Occurs between 305-1,800 meters (1,000-5,905 feet). Blooms June-October.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Convolvulus simulans</i> small-flowered morning-glory	4.2 G4 S4	Annual herb. Prefers clay or serpentinite seeps in open areas within chaparral, coastal scrub and valley and foothill grassland habitats. Occurs between 30-740 meters (100-2,430 feet). Blooms March-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Deinandra minthornii</i> Santa Susana tarplant	CR 1B.2 G2 S2	Perennial deciduous shrub. Prefers rocky sites within chaparral and coastal scrub habitats. Occurs between 280-760 meters (920-2,495 feet). Blooms July-November.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Dodecahema leptoceras</i> slender-horned spineflower	FE SE 1B.1 G1 S1	Annual herb. Prefers sandy sites in chaparral, cismontane woodland, and alluvial fans of coastal scrub habitats. Occurs between 200-760 meters (665-2,495 feet). Blooms April-June.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i> Blochman's dudleya	1B.1 G3T2 S2	Perennial herb. Prefers clay or rocky soils in chaparral, coastal bluff scrub, coastal scrub, valley and foothill grassland habitats. Occurs between 5-450 meters (15-1,475 feet). Blooms April-June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Dudleya multicaulis</i> many-stemmed dudleya	1B.2 G2 S2	Perennial herb. Prefers clay soils in chaparral, coastal scrub, and valley and foothill grassland habitats. Occurs between 15-790 meters (50-2,590 feet). Blooms April-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Galium cliftonsmithii</i> Santa Barbara bedstraw	4.3 G4 S4	Perennial herb. Occurs within cismontane woodland habitats. Occurs between 200-1,220 meters (665-4,005 feet). Blooms May through July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	4.2 G4 S3	Annual herb. Prefers clay soils and openings in chaparral, coastal scrub, and valley and foothill grassland habitats. Occurs between 20-955 meters (65-3,135 feet). Blooms March-May.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i> Los Angeles sunflower	1A G5TX SX	Perennial rhizomatous herb. Found in coastal salt and freshwater marshes and swamps. Occurs between 10-1,525 meters (35-5,005 feet). Blooms August-October.	No	Not expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Hordeum intercedens</i> vernal barley	3.2 G3G4 S3S4	Annual herb. Found in coastal dunes, coastal scrub, valley and foothill grasslands in saline flats and depressions, and vernal pools. Occurs between 5-1,000 meters (15-3,280 feet). Blooms March – June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Horkelia cuneata</i> var. <i>puberula</i> mesa horkelia	1B.1 G4T1 S1	Perennial herb. Prefers sandy or gravelly sites in maritime chaparral, cismontane woodland, and coastal scrub habitats. Occurs between 70-810 meters (230-2,660 feet). Blooms February-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Isocoma menziesii</i> var. <i>decumbens</i> decumbent goldenbush	1B.2 G3G5T2T3 S2	Perennial shrub. Found in chaparral, and often disturbed and sandy areas of coastal scrub habitats. Occurs between 10-250 meters (35-820 feet). Blooms April-November.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Juglans californica</i> southern California black walnut	4.2 G4 S4	Perennial deciduous tree. Prefers alluvial sites in chaparral, cismontane woodlands, coastal scrub, and riparian woodland habitats. Occurs between 50-900 meters (165-2,955 feet). Blooms March-August	No	Present. This species was observed within giant and common reed marsh habitat within the Los Angeles reach.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Juncus acutus ssp. leopoldii</i> Southwestern spiny rush	4.2 G5T5 S4	Perennial rhizomatic herb. Found in mesic coastal dunes, coastal scrub, coastal salt marshes and swamps, and alkaline meadows and seeps. Occurs between 3-900 meters (10-2,955 feet). Blooms May-June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	1B.1 G4T2 S2	Annual herb. Found in coastal salt marshes and swamps, playas, and vernal pools. Occurs between 1-1,220 meters (5-4,005 feet). Blooms February-June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Lepechinia fragrans</i> fragrant pitcher sage	4.2 G3 S3	Perennial herb. Found in chaparral habitats. Occurs between 20-1,310 meters (65-4,300 feet). Blooms March-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Lepidium virginicum var. robinsonii</i> Robinson's pepper-grass	4.3 G5T3 S3	Annual herb. Found in chaparral and coastal scrub habitats. Occurs between 1-885 meters (5-2,905 feet). Blooms January-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Lilium humboldtii ssp. ocellatum</i> ocellated Humboldt lily	4.2 G4T4? S4?	Perennial bulbiferous herb. Prefers openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland habitats. Occurs between 30-1,800 meters (100-5,900 feet). Blooms March-July.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality and no records within 5 miles of the survey area were documented.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	1B.2 G2 S2	Perennial deciduous shrub. Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Occurs between 185-1,140 meters (605-3,740 feet). Blooms June-January.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality and the survey area occurs outside the known elevation range for this species.
<i>Monardella hypoleuca</i> ssp. <i>hypoleuca</i> white-veined monardella	1B.3 G4T3 S3	Perennial herb. Found in chaparral and cismontane woodland habitats. Occurs between 50-1,525 meters (165-5,005 feet). Blooms May-August.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Nasturtium gambelii</i> Gambel's water cress	FE ST 1B.1 G1 S1	Perennial rhizomatous herb. Found in freshwater or brackish marshes and swamps. Occurs between 5-330 meters (15-1,085 feet). Blooms April-October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	1B.2 G2 S2	Annual herb. Prefers mesic coastal scrub, meadows and seeps, alkaline valley and foothill grassland, and vernal pool habitats. Occurs between 3-1,210 meters (10-3,970 feet). Blooms April-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Nemacaulis denudata</i> var. <i>denudata</i> coast woolly-heads	1B.2 G3G4T2 S2	Annual herb. Found in coastal dune habitats. Occurs between 0-100 meters (0-330 feet). Blooms April-September.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Orcuttia californica</i> California Orcutt grass	1B.1 G1 S1	Annual herb. Found in vernal pool habitats. Occurs between 15-660 meters (50-2,165 feet). Blooms April-August.	No	No Expected. Potentially suitable habitat for this species is absent.
<i>Pelazoneuron puberulum var. sonorensis</i> Sonoran maiden fern	2B.2 G5T3 S2	Perennial rhizomatous herb. Occurs in seeps and streams within meadow and seep habitats. Found at elevations ranging from 50 to 610 meters (165-2,000 feet). Blooms January-September.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Pentachaeta lyonia</i> Lyon's pentachaeta	FE SE 1B.1 G1 S1	Annual herb. Found in clay and rocky soils within chaparral openings, coastal scrub, and valley and foothill grassland habitats. Found at elevations ranging from 30-690 meters (100-2,265 feet), Blooming period is March-August.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Phacelia hubbyi</i> Hubby's phacelia	4.2 G4 S4	Annual herb. Prefers gravelly, rocky, or talus sites in chaparral, coastal scrub, and valley and foothill grassland habitats. Occurs between 0-1,000 meters (0-3,280 feet). Blooms April-July.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Phacelia stellaris</i> Brand's star phacelia	1B.1 G1 S1	Annual herb. Found in coastal dune and coastal scrub habitats. Occurs between 1-400 meters (5-1,310 feet). Blooms March-June.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	2B.2 G4 S2	Perennial herb. Prefers sandy or gravelly sites in chaparral, cismontane woodland, coastal scrub, riparian woodlands habitats. Occurs between 0-2,100 meters (0-6,890 feet). Blooms August-November.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality and no records within the last twenty years and within 5 miles of the survey area were documented.
<i>Quercus dumosa</i> Nuttall's scrub oak	1B.1 G3 S3	Perennial evergreen shrub. Prefers sandy, clay or loamy sites in closed-cone coniferous forest, chaparral, and coastal scrub habitats. Occurs between 15-400 meters (50-1,310 feet). Blooms February-April.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Quercus durata</i> var. <i>gabrielensis</i> San Gabriel oak	4.2 G4T3 S3	Perennial evergreen shrub. Found in chaparral and cismontane woodland habitats. Occurs between 450-1,000 meters (1,480-3,280 feet). Blooms April-May.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Quercus engelmannii</i> Engelmann oak	4.2 G3 S3	Perennial deciduous tree. Found in chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland habitats. Occurs between 50-1,300 meters (165-4,265 feet). Blooms March-June.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality and no records within the last twenty years and within 5 miles of the survey area were documented.
<i>Ribes divaricatum var. parishii</i> Parish's gooseberry	1A G5TX SX	Perennial deciduous shrub. Found in riparian woodland habitats. Occurs between 65-300 meters (215-985 feet). Blooms February-April.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality no records within the last twenty years and within 5 miles of the survey area were documented.
<i>Romneya coulteri</i> Coulter's matilija poppy	4.2 G4 S4	Perennial rhizomatous herb. Found in chaparral and coastal scrub habitats. Occurs between 20-1,200 meters (65-3,940 feet). Blooms March-July.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Rupertia rigida</i> Parish' rupertia	4.3 G4 S4	Perennial herb. Found in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, and valley and foothill grassland habitats. Occurs between 700-2,500 meters (2,295-8,205 feet). Blooms June-August.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	1B.2 G3 S3	Perennial rhizomatous herb (emergent). Occurs in shallow freshwater within marsh and swamp habitats. Occurs between 0-650 meters (0-2,135 feet). Blooming period is May through October.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Sidalcea neomexicana</i> salt spring checkerbloom	2B.2 G4 S2	Perennial herb. Prefers alkaline or mesic sites in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playa habitats. Occurs between 15-1,530 meters (50-5,020 feet). Blooms March-June.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Spermolepis lateriflora</i> western bristly scaleseed	2A G5 SH	Annual herb. Found sometimes in rocky or sandy soils within Sonoran Desert scrub habitats. Occurs between 365-670 meters (1,200-2,200 feet). Blooms March-April.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Sueda esteroa</i> Estuary seablithe	1B.2 G3 S2	Perennial herb. Found in coastal salt marsh and swamp habitats. Occurs between 0-5 meters (0-15 feet). Blooms July-October.	No	Not Expected. Potentially suitable habitat for this species is absent and the survey area occurs outside the known elevation range for this species.
<i>Symphotrichum defoliatum</i> San Bernardino aster	1B.2 G2 S2	Perennial rhizomatous herb. Prefers sites near ditches, streams and springs in cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, meadows and seeps, and vernal mesic valley and foothill grassland habitats. Occurs between 2–2,040 meters (5-6,695 feet). Blooms July–November.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Symphotrichum greatae</i> Greata's aster	1B.3 G2 S2	Perennial rhizomatous herb. Prefers mesic sites in broad-leaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, and riparian woodland habitats. Occurs between 300-2,010 meters (985-6,595 feet). Blooms June-October.	No	Not Expected. Potentially suitable riparian woodland habitat present in the survey area is of poor quality and the survey area occurs outside the known elevation range for this species.

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
SPECIAL-STATUS VEGETATION COMMUNITIES				
<p><u>CNDDB/Holland (1986)</u> California Walnut Woodland <u>MCV (1995)</u> California Walnut Series <u>NVCS (2009)</u> <i>Juglans californica</i> woodland Alliance</p>	<p>G2 S2.1</p>	<p>Found at elevations ranging from 492 to 2,953 feet amsl along Riparian corridors, but most stands cover all hillslopes. Southern California black walnut (<i>Juglans californica</i>) is dominant or co-dominant in the tree canopy with white alder (<i>Alnus rhombifolia</i>), California ash (<i>Fraxinus dipetala</i>), toyon (<i>Heteromeles arbutifolia</i>), coast live oak (<i>Quercus agrifolia</i>), valley oak (<i>Quercus lobata</i>), red willow (<i>Salix laevigata</i>), arroyo willow (<i>Salix lasiolepis</i>), blue elderberry (<i>Sambucus nigra</i>) and California bay (<i>Umbellularia californica</i>). Trees are less than 49 feet tall; canopy is open to continuous. Shrub layer is sparse to intermittent. Herbaceous layer is sparse or grassy.</p>	<p>No</p>	<p>Absent: This vegetation community was not observed within the survey area.</p>

<p>CNDDDB/Holland (1986) Riversidian Alluvial Fan Sage Scrub MCV (1995) Scalebroom Series NVCS (2009) <i>Lepidospartum squamatum</i> intermittently flooded Shrubland Alliance</p>	<p>G1 S1.1</p>	<p>Found at elevations ranging from 164 to 4,922 feet amsl on intermittently or rarely flooded, low-gradient alluvial deposits along streams, washes, and fans. Scalebroom (<i>Lepidospartum squamatum</i>) is dominant, co-dominant, or conspicuous in the shrub canopy with burrobrush (<i>Ambrosia salsola</i>), California sagebrush, mule fat (<i>Baccharis salicifolia</i>), bladderpod (<i>Cleome isomeris</i>), California cholla (<i>Cylindropuntia californica</i>), brittlebush (<i>Encelia farinosa</i>), thick leaved yerba santa (<i>Eriodictyon crassifolium</i>), hairy yerba santa (<i>Eriodictyon trichocalyx</i>), California buckwheat (<i>Eriogonum fasciculatum</i>), chaparral yucca (<i>Hesperoyucca whipplei</i>), deerweed (<i>Acmispon glaber</i>), laurel sumac (<i>Malosma laurina</i>), prickly-pear cactus (<i>Opuntia littoralis</i>), lemonade berry (<i>Rhus integrifolia</i>), sugar bush (<i>Rhus ovata</i>), skunkbrush (<i>Rhus aromatica</i>), and poison oak (<i>Toxicodendron diversilobum</i>). Emergent trees or tall shrubs may be present at low cover, including mountain mahogany (<i>Cercocarpus minutiflorus</i>), southern California black walnut, California juniper (<i>Juniperus californica</i>),</p>	<p>No</p>	<p>Absent: This vegetation community was not observed within the survey area.</p>
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Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
		California sycamore (<i>Platanus racemosa</i>), Fremont cottonwood (<i>Populus fremontii</i>), or blue elderberry. Shrubs are less than 7 feet tall; canopy is open to continuous, and two tiered. Herbaceous is layer variable and may be grassy.		
<p><u>CNDDB/Holland (1986)</u> Southern Coast Live Oak Riparian Forest <u>MCV (1995)</u> Coast Live Oak Series <u>NVCS (2009)</u> <i>Quercus agrifolia</i> Woodland Alliance</p>	G4 S4	Found at elevations ranging from sea level to 3,937 feet amsl in alluvial terraces, canyon bottoms, stream banks, slopes, and flats, Soils are deep, sandy or loamy with high organic matter. Coast live oak is a dominant or co-dominant in the tree canopy with bigleaf maple (<i>Acer macrophyllum</i>), pacific madrone (<i>Arbutus menziesii</i>), southern California black walnut, California sycamore, Fremont cottonwood, blue oak (<i>Quercus douglasii</i>), Engelmann oak (<i>Quercus engelmannii</i>), California black oak (<i>Quercus kelloggii</i>), valley oak (<i>Quercus lobata</i>), and California bay. Trees are less than 98 feet tall; canopy is open to continuous or savanna-like. Shrub layer is sparse to intermittent. Herbaceous layer is sparse or grassy.	No	<p>Absent: This vegetation community was not observed within the survey area.</p>

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<p><u>CNDDDB/Holland (1986)</u> Southern Cottonwood Willow Riparian Forest <u>MCV (1995)</u> Fremont Cottonwood Series <u>NVCS (2009)</u> <i>Populus fremontii</i> seasonally flooded Woodland Alliance, <i>Populus fremontii</i> temporarily flooded Forest Alliance, <i>Populus fremontii</i> temporarily flooded Woodland Alliance</p>	<p>G3 S3.2</p>	<p>Found at elevations ranging from sea level to 7,874 feet amsl on floodplains, along low-gradient rivers, perennial or seasonally intermittent streams, springs, in lower canyons in desert mountains, in alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year. Fremont cottonwood is a dominant or co-dominant in the tree canopy with box elder, desert baccharis (<i>Baccharis sergiloides</i>), Oregon ash (<i>Fraxinus latifolia</i>), velvet ash (<i>Fraxinus velutina</i>), northern California black walnut (<i>Juglans hindsii</i>), California sycamore, coast live oak, narrowleaf willow (<i>Salix exigua</i>), Goodding's willow (<i>Salix goodingii</i>), polished willow (<i>Salix laevigata</i>), red willow, arroyo willow, pacific willow (<i>Salix lasiandra</i> var. <i>lasiandra</i>), and yellow willow (<i>Salix lutea</i>). Trees and less than 82 feet tall; canopy is continuous to open. Shrub layer is intermittent to open. Herbaceous layer is variable.</p>	<p>No</p>	<p>Absent: This vegetation community was not observed within the survey area.</p>

Table 1. Special-Status Plants and Sensitive Natural Communities

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<p><u>CNDDDB/Holland (1986)</u> Southern Sycamore Alder Riparian Woodland</p> <p><u>MCV (1995)</u> California Sycamore Series</p> <p><u>NVCS (2009)</u> <i>Platanus racemosa</i> temporarily flooded Woodland Alliance</p>	G4 S4	<p>Found at elevations ranging from sea level to 7,874 feet amsl in gullies, intermittent streams, springs, seeps, stream banks, and terraces adjacent to floodplains that are subject to high-intensity flooding. Soils are rocky or cobbly alluvium with permanent moisture at depth. California sycamore is a dominant or co-dominant in the tree canopy with white alder, southern California black walnut, Fremont cottonwood, coast live oak, valley oak, narrowleaf willow, Goodding's willow, red willow, arroyo willow, yellow willow, Peruvian pepper tree (<i>Schinus molle</i>), and California bay.</p>	No	<p>Absent: This vegetation community was not observed within the survey area.</p>
<p><u>CNDDDB/Holland (1986)</u> Walnut Forest</p> <p><u>MCV (1995)</u> Walnut Forest</p> <p><u>NVCS (2009)</u> Walnut Forest</p>	G1 S1.1		No	<p>Absent: This vegetation community was not observed within the survey area.</p>

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
<i>Actinemys pallida</i> southwestern pond turtle	FC SSC G3G4 S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	No	Not Expected. Potentially suitable habitat for this species is absent and no records within the last twenty years and within 5 miles of the survey area were documented.
<i>Agelaius tricolor</i> tricolored blackbird	ST SSC G1G2 S1S2	Highly colonial species, most numerous in Central Valley and vicinity and largely endemic to California. Resident of freshwater marsh, marsh and swamp, and wetland habitats.	No	Not Expected. Potentially suitable freshwater marsh habitat present in the survey area is of poor quality and no records within the last twenty years and within 5 miles of the survey area were documented.
<i>Aimophila ruficeps canescens</i> southern California rufous-crowned sparrow	WL G5T3 S3	Resident of southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Anaxyrus californicus</i> arroyo toad	FE SSC G2G3 S2	Prefers desert wash, riparian scrub, riparian woodland, south coast flowing waters, and south coast standing waters and in semi-arid regions near washes or intermittent streams.	No	Not Expected. This species has not been recorded in the CNDDDB from the LA River.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Anniella</i> spp. California legless lizard	SSC G3G4 S3S4	Prefers coastal dune, valley foothill grassland, chaparral, and coastal scrub habitats. Found primarily in areas with moist, loose sandy or organic soils where there is plenty of leaf litter for cover.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Anniella stebbinsi</i> southern California legless lizard	SSC G3 S3	Locally abundant specimens are found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. A large, protected population persists in the remnant of the once extensive El Segundo Dunes at Los Angeles International Airport.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Antrozous pallidus</i> pallid bat	SSC G4 S3	Locally common species in the Great Basin, Mojave, and Sonoran deserts (specifically Sonoran life zone) and grasslands throughout the western U.S. Also occurs in shrublands, woodlands, and forests from sea level to 8,000 feet. Prefers rocky outcrops, cliffs, and crevices for roosting with access to open habitats for foraging. May also roost in caves, mines, bridges, barns, porches, and bat boxes, and even on the ground under burlap sacks, stone piles, rags, baseboards, and rocks.	No	Not Expected. Potentially suitable habitat for this species is absent CNDDDB records of this species from the Los Angeles Basin are 50 plus years old.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Arizona elegans occidentalis</i> California glossy snake	SSC G5T2 S2	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Inhabits arid scrub, rocky washes, grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Athene cunicularia</i> burrowing owl	SSC G4 S2	Inhabits open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, California ground squirrel.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Bombus crotchii</i> Crotch bumble bee	SCE G2 S2	Found within Coastal California east to the Sierra-Cascade crest and south into Mexico. Inhabits open grasslands, shrublands, chaparral, desert margins including Joshua tree and creosote scrub, and semi-urban settings.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Bombus pensylvanicus</i> American bumblebee	G3S4 S2	Found in coastal prairie, Great Basin grassland, and valley and foothill grassland habitats. Forages on a wide variety of flowers including vetches (<i>Vicia</i> sp.), clovers (<i>Trifolium</i> sp.), thistles (<i>Cirsium</i> sp.), sunflowers (<i>Helianthus</i> sp.), etc. Nests above ground under long grass or underground. Queens overwinter in rotten wood or underground.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Buteo swainsoni</i> Swainson's hawk	ST G5 S4	Summer migrant in southern California. Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	Not Expected. Potentially suitable habitat for this species is absent and this species has not been recorded in the CNDDDB from the Los Angeles Basin for over 100 years.
<i>Cicindela hirticollis grandid</i> sandy beach tiger beetle	G5T2 S2	Found in coastal dune habitats. Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Cicindela latesignata</i> western beach tiger beetle	G2G3 S1	Found in mudflats, salt marshes, sand shore and beaches of coastal estuaries from San Diego County to Los Angeles County. Typically inhabit wet or dry sandy beaches and mud, sand, or salt flats.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	FT SE G5T2T3 S1	Found in riparian forests and nests along the broad, lower flood-bottoms of larger river systems.	No	Not Expected. CNDDDB records of this species from the vicinity of the LA River are 100 plus years old and this species is considered extirpated from the Los Angeles Basin.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Coturnicops noveboracensis</i> yellow rail	SSC G4 S2	Inhabits sedge marshes and meadows with moist soil or shallow standing water.	No	Not Expected. Potentially suitable habitat for this species is absent and a CNDDDB record from within 5 miles of the survey area is 70 plus years old.
<i>Danaus plexippus plexippus pop. 1</i> monarch - California overwintering population	FC G4T1T2Q S2	Winter roosts occur along California coast from Mendocino County, south to Baja California, Mexico. Roosts in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby.	No	Not Expected. Suitable stands of trees for winter roosts are not present and there are no known overwintering sites in the vicinity (Xerces 2024).
<i>Empidonax traillii extimus</i> southwestern willow flycatcher	FE SE G5T2 S3	Uncommon summer resident in southern California primarily found in lower elevation riparian habitats occurring along streams or in meadows. The structure of suitable breeding habitat typically consists of a dense mid-story and understory and can also include a dense canopy. Nest sites are generally located near surface water or saturated soils. The presence of surface water, swampy conditions, standing or flowing water under the riparian canopy are preferred.	No	Not Expected. Although riparian habitat in the survey area may be suitable for this species, CNDDDB records of this species from the Los Angeles Basin are 100 plus years old.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Eugnosta busckana</i> Busck's gallmoth	G1G3 S2S3	Inhabits coastal dunes and coastal scrub in southern California. Tiny micro-moth (1 cm) with larva forming galls on host plant <i>Encelia californica</i> (California brittlebush). Adult flight period is during winter, generally from November to February, and have been reported at UV lights and porch lights.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Eumops perotis californicus</i> western mastiff bat	SSC G4G5T4 S3S4	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	Low. This species has been identified as occurring along the LA River (FOLAR 2023); however, CNDDDB records identified during the database searches are generally 50 plus years old.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Falco peregrinus anatum</i> American peregrine falcon	G4T4 S3S4 (delisted from FESA and CESA)	Found near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	No	Moderate. Potentially suitable foraging habitat for this species is present in the survey area. One record from 2005 occurs approximately 1.1 miles east of the survey area. This species is not expected to nest in the survey area but likely foraging over the LA River.
<i>Glyptostoma gabrielse</i> San Gabriel Chestnut	G2 S3	Terrestrial snail found in the San Gabriel Mountains and foothills near Los Angeles, California.	No	Not Expected. Potentially suitable habitat for this species is absent and CNDDDB records from the Los Angeles Basin are 50 plus years old.
<i>Gonidea angulate</i> western ridged mussel	G3 S2	Aquatic mollusk primarily found in creeks and rivers and less often lakes. Originally in most of state, now extirpated from Central and Southern California.	No	Not Expected. Potentially suitable habitat for this species is present; however, CNDDDB records are 100 plus years old and this species is presumed extirpated.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Habroscelimorpha gabbii</i> western tidal-flat tiger beetle	G2G4 S1	Inhabits estuaries and mudflats along the coast of Southern California. Generally found on dark-colored mud in the lower zone; occasionally found on dry saline flats of estuaries.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Lasionycteris noctivagans</i> silver-haired bat	G3G4 S3S4	Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	No	Low. Potentially suitable foraging habitat for this species is present in the survey area. One record from 2005 occurs approximately 4.36 miles northeast of the survey area.
<i>Lasiurus cinereus</i> hoary bat	G3G4 S4	Found in broadleaved upland forest, cismontane woodland, lower montane coniferous forest, and north coast coniferous forest habitats. Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	No	Low. Potentially suitable foraging habitat for this species is present in the survey area.
<i>Lasiurus xanthinus</i> western yellow bat	SSC G4G5 S3	Uncommon in California, known only in Los Angeles and San Bernardino Counties. Occurs in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Prefers to roost and feed in, and near, palm oases and riparian habitats. Commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees.	No	Low. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Microtus californicus stephensi</i> south coast marsh vole	SSC G5T2T3 S2	Tidal marshes in Los Angeles, Orange and southern Ventura Counties.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	SSC G5T3T4 S3S4	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Found in a variety of shrub and desert habitats, primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth. Woodrats often are associated with cholla cactus which they use for water and dens or boulders and boulder piles. The most common natural habitats for records are chaparral, coastal sage scrub (including Riversidean sage scrub and Diegan coastal sage scrub) and grassland.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Nyctinomops macrotis</i> big free-tailed bat	SSC G5 S3	Low-lying arid hilly areas in Southern California to about 6,000 feet amsl. Roosts in crevices and cliffs, buildings, and cavities in trees.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<p><i>Oncorhynchus mykiss irideus pop. 10</i> steelhead - southern California DPS</p>	<p>FE SCE G5T1Q S1</p>	<p>Found in aquatic and south coast flowing waters. Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.</p>	<p>No</p>	<p>Not Expected. Anthropogenic disturbances related to armoring of the LA River channel over the past 100 years plus have severely degraded habitat suitability in the river channel for this species. Additionally, barriers to fish migration prevent upstream movement of this species into the Los Angeles River.</p>
<p><i>Onychomys torridus ramona</i> southern grasshopper mouse</p>	<p>SSC G5T3 S3</p>	<p>Common in arid desert habitats of the Mojave and southern Central Valley of California. Known elevation range is generally below 3,000 feet amsl. Little is known about habitat requirements; however, it is commonly found in scrub habitats with friable soils for digging in desert areas. It is believed that alkali desert scrub and desert scrub habitats are preferred, with somewhat lower densities expected in other desert habitats, including succulent shrub, wash, and riparian areas. Also occurs in coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush habitats.</p>	<p>No</p>	<p>Not expected. Potentially suitable habitat for this species is absent.</p>

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special- Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Pelecanus occidentalis californicus</i> California brown pelican	G4T3T4 S3 (ESA/CESA delisted)	Nests on coastal islands of small to moderate size just outside the surf line which afford immunity from attack by ground-dwelling predators. Roosts communally.	No	Low. May occur as a foraging transient in the Long Beach reach.
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	SSC G5T2 S1S2	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Perognathus longimembris pacificus</i> pacific pocket mouse	FE SSC G5T2 S2	Inhabits coastal scrub within the narrow coastal plains from the Mexican border north to El Segundo, Los Angeles County.	No	Not expected. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Phrynosoma blainvillii</i> coast horned lizard	SSC G4 S4	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. Its elevational range extends up to 4,000 feet in the Sierra Nevada foothills and up to 6,000 feet in the mountains of southern California. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (e.g. fire, floods, unimproved roads, grazing lands, and fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Polioptila californica californica</i> coastal California gnatcatcher	FT SSC G4G5T3Q S2	Yearlong resident of sage scrub habitats that are dominated by California sagebrush. This species generally occurs below 750 feet amsl in coastal regions and below 1,500 feet amsl inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Rana muscosa</i> southern mountain yellow-legged frog	FE SE WL G1 S2	The species inhabits ponds, lakes, and streams at moderate to high elevations. Usually associated with montane riparian habitats in lodgepole pine, ponderosa pine (<i>Pinus ponderosa</i>), sugar pine (<i>Pinus lambertiana</i>), white fir, whitebark pine (<i>Pinus albicaulis</i>), and wet meadow vegetation types. Occupied alpine lakes usually have margins that are grassy or muddy and inhabit sandy or rocky shores at lower elevations. Streams utilized vary from rocky, high gradient streams with numerous pools, rapids, and small waterfalls to those with marshy edges and sod banks. Species seems to prefer streams of low gradient and slow or moderate flow with very small, shallow streams being less frequently used.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Riparia riparia</i> bank swallow	ST G5 S3	Found in riparian scrub and riparian woodland habitats. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	No	Not Expected. Potentially suitable habitat for this species is absent. Opportunities for nesting have been eliminated with channelization of the river.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Spea hammondi</i> western spadefoot	SCT SSC G2G3 S3S4	Prefers open areas with sandy or gravelly soils, in a variety of habitats including vernal pools, mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools which do not contain American bullfrogs (<i>Lithobates catesbeianus</i>), predatory fish, or crayfish are necessary for breeding. Estivates in upland habitats adjacent to potential breeding sites in burrows approximating 3 feet in depth.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Sternula antillarum browni</i> California least tern	FE SE FP G4T2T3Q S2	Found in alkali playa and wetland habitats. Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	No	Low. May occur as a foraging transient in the Long Beach reach.
<i>Taricha torosa</i> coast range newt	SSC G4 S4	Found in coastal drainages from Mendocino to San Diego County. Lives in terrestrial habitats and will migrate over 1 kilometer to breed in ponds, reservoirs, and slow-moving streams.	No	Not Expected. Potentially suitable habitat for this species is absent.

Table 2. Special-Status Wildlife Species

<i>Scientific Name</i> Common Name	Special-Status Rank*	Habitat Preferences and Distribution Affinities	Observed On-site	Potential to Occur
<i>Taxidea taxus</i> American badger	SSC G5 S3	Occupies a wide variety of habitats. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	No	Not Expected. Potentially suitable habitat for this species is absent.
<i>Vireo bellii pusillus</i> least Bell's vireo	FE SE G5T2 S3	Summer resident in southern California. Breeding habitat generally consists of dense, low, shrubby vegetation in riparian areas, and mesquite brushlands, often near water in arid regions. Early successional cottonwood-willow riparian groves are preferred for nesting. The most critical structural component of nesting habitat in California is a dense shrub layer that is 2 to 10 feet above ground. The presence of water, including ponded surface water or moist soil conditions, may also be a key component for nesting habitat.	No	Not expected. Potentially suitable habitat for this species is generally absent and CNDDDB records coinciding with the survey area are over 100 years old.

* **U.S. Fish and Wildlife Service (USFWS)**

- FE Endangered – any species which is in danger of extinction throughout all or a significant portion of its range.
- FT Threatened – any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- FC Candidate – any species which has been designated as a candidate eligible for considering to be listed under the Federal Endangered Species Act.

California Department of Fish and Wildlife (CDFW)

- SE Endangered – any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
- ST Threatened – any native species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in

the absence of the special protection and management efforts required under the California Endangered Species Act.

- SCE State Candidate for listing as Endangered - The classification provided to a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered species.
- SCT State Candidate for listing as Threatened - The classification provided to a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of threatened species.
- FP Fully Protected – any native species or subspecies of bird, mammal, fish, amphibian, or reptile that were determined by the State of California to be rare or face possible extinction.
- SSC Species of Special Concern – any species, subspecies, or distinct population of fish, amphibian, reptile, bird, or mammal native to California that currently satisfies one or more of the following criteria:
- is extirpated from California or, in the case of birds, in its primary seasonal or breeding role;
 - is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed.
 - is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; or
 - has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.
- WL Watch List - taxa that were previously designated as “Species of Special Concern” but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.
- CR Rare - a native plant that is designated as “rare” under the California Fish and Game Code.
- SH Possibly Extirpated - Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the state, but not enough to state this with certainty.

California Native Plant Society (CNPS) California Rare Plant Rank

- 1A Presumed extirpated in California and either rare or extinct elsewhere.
- 1B Plants rare, threatened, or endangered in California and elsewhere.
- 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- 3 Plants about which more information is needed – Review List.
- 4 Plants of limited distribution – Watch List.

Threat Ranks

- .1 Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
- .2 Moderately threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat).
- .3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

NatureServe Conservation Status Rank

The Global Rank (G#) reflects the overall condition and imperilment of a species throughout its global range. The Intraspecific Taxon Rank (T#) reflects the global situation of just the subspecies or variety. The State Rank (S#) reflects the condition and imperilment of an element throughout its range within California. (G#Q) reflects that the element is very rare but there are

taxonomic questions associated with it; the calculated G rank is qualified by adding a Q after the G#. Adding a ? to a rank expresses uncertainty about the rank.

- G1/T1 Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2/T2 Imperiled— At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3/T3 Vulnerable— At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4/T4 Apparently Secure— Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5/T5 Secure – Common; widespread and abundant.
- GUT1 Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- S1 Critically Imperiled – Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.
- S2 Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or State.
- S3 Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

APPENDIX B

Hydrologic Engineering Center's River Analysis System (HEC-RAS) Memorandum

MEMORANDUM

To: Aiden Leong, Los Angeles Department of Water and Power

From: Ali Keyvani, Water Resources Engineer, Michael Baker International
Yaw Bangolame, Water Resources Engineer, Michael Baker International

Date: April 29, 2024

Subject: Results of the Hydrologic Engineering Center's River Analysis System (HEC-RAS) for the Modifications to Los Angeles Groundwater Replenishment (LAGWR) Project Supplemental EIR, City of Los Angeles, California

1 Introduction**1.1 Purpose**

The purpose of this report is to provide a hydraulic model at designated nodes in the Los Angeles River (LA River) downstream of the Donald C. Tillman Water Reclamation Plant (DCTWRP) Japanese Garden Lake river discharge point. The model describes the changes that would occur at the nodes in terms of water depth, top surface width, and velocity based on an average reduction in flow of approximately 4 million gallons per day (MGD) to the river resulting from the diversion of the current river discharges from the Japanese Garden Lake. This 4 MGD diversion would equate to a decreased flow in the river of 6.19 cubic feet per second (cfs).

1.2 Study Area

The study area generally encompasses the LA River, extending from the DCTWRP to Willow Street, located just upstream of the tidally influenced reach. The hydraulics within tributaries to the river in this reach have been excluded as the diversion of flows from the Japanese Garden Lake would not impact their conditions. Additionally, the evaluation does not encompass the tidal-influenced segments of the LA River due to the predominant influence of tides on habitat conditions.

Figure 1 provides an overview of the LA River and specific model nodes. It also illustrates the locations of wastewater reclamation plants (WRPs) discharging into the LA River. This study utilizes a HEC-RAS hydraulic model¹ which was originally developed to support the LA River Environmental Flows Project².

¹ HEC-RAS model accessed May 8, 2023

² Southern California Coastal Water Research Project. "Los Angeles River Environmental Flows Project", <https://www.sccwrp.org/about/research-areas/ecohydrology/los-angeles-river-flows-project/>. Accessed April 12, 2023.



Figure 1. Overview of the Area of Analysis

1.3 Summary of Modeling Approach

Hydraulic modeling of the project area was completed using the United States Army Corps of Engineers' Hydrologic Engineering Center River Analysis System (HEC-RAS) modeling software. HEC-RAS allows users to perform one-dimensional (1D) steady and unsteady flow³ analysis as well as two-dimensional (2D) unsteady flow analysis. HEC-RAS computes water surface profiles for 1D steady, gradually varied flow regimes by solving the 1D energy equation using a recursive procedure known as the standard step method.⁴ These profiles generated by the HEC-RAS depict the calculated water surface elevation (WSEL) along the length of the river channel. Cross sections are developed for channel and overbanks along the length of the river system. These cross sections are located at river stations (RS), which represent the distance from a cross section to the downstream end of the river system. The standard step method computes WSEL profiles from cross section to cross section moving downstream to upstream.

The hydraulics of structures within the channel such as bridges, culverts, dams, and other structures are incorporated using a modeling approach as specified by the modeler based on the structures present in the channel. For example, the modeler may specify the energy

³ A steady flow is one in which the conditions (velocity, pressure, and cross-section) may differ from point to point but do not change with time, while unsteady flow is one in which the conditions do change with time.

⁴ For additional details on the theoretical basis behind the model's computation procedures, please see the HEC-RAS Hydraulic Reference Manual: <https://www.hec.usace.army.mil/confluence/rasdocs/ras1dtechref/latest>

(standard step) method or the momentum method in low flow scenarios where the WSEL is below the highest point of the low chord of a bridge opening. Energy losses are evaluated using Manning's equation, which considers channel friction losses and changes in geometry through the bridge.

The required data inputs to run a HEC-RAS model include the components necessary to build one or more geometries (plan and cross-sectional layouts of the river system) and one or more flow files describing the hydrologic inputs to the system. These data may include digital elevation models (DEMs) or survey data to develop the geometry, aerial imagery, and soil and land use data to derive channel and overbank roughness, as well as stream gage data for model calibration purposes.

The hydraulic model employed in this study was originally developed by the Southern California Coastal Water Research Project (SCCWRP) to support the Los Angeles River Environmental Flows project. The SCCWRP HEC-RAS model was assembled from several existing 1D HEC-RAS models covering different parts of the river system. The various references include:

- HEC-RAS Model for Stormwater Management Plan (U.S. Army Corps of Engineers, 2004)
- HEC-RAS Model for Upper Los Angeles River and Tujunga Wash (U.S. Army Corps of Engineers, 2005)
- HEC-RAS Model for San Gabriel River, San Jose Creek, Compton Creek, Upper Rio Hondo, Coyote Creek, Verdugo Wash, Arroyo Seco' (HDR CDM, 2011)
- HEC-RAS Model for Glendale 2018 Wastewater Change Petition (Environmental Science Associates, 2018)

The SCCWRP hydraulic model, obtained in February 2021, served as the baseline hydraulic model for this analysis. The model was updated to the latest version of HEC-RAS, v6.4.1, and performed a 1D steady analysis for the affected area below the Japanese Garden Lake discharge point. The river system geometry used in the SCCWRP model was copied and used along with updated hydrologic inputs (steady flow data) as described below. Several assumptions were employed in the development of the SCCWRP model's geometry file and retained in this analysis.

The model integrated soft-bottom updates based on surveys conducted in July 2020, along with recalibrations of the Manning's roughness coefficient (n) completed in January 2021 (Stein 2021, personal communication). Certain segments of the LA River exhibit variations in the Manning's roughness coefficient (n) based on model calibration while otherwise remaining identical.

To ensure the accuracy of the channel geometry, validation was conducted using LiDAR⁵ data, as-built records, and Google Earth imagery, with a particular focus on incorporating the low-flow channel. The amalgamated pre-existing models were then expanded to encompass the Sepulveda Basin and the upper Rio Hondo regions, leveraging LiDAR data. In total, the model comprises approximately 3,000 nodes, encompassing both the channelized and soft-bottomed sections of the LA River, stretching from the estuary to Sepulveda Dam, Compton Creek, and Rio Hondo up to Whittier Narrows Dam.

⁵ LiDAR, which stands for Light Detection and Ranging, is a remote sensing technology used to create high-resolution models of ground elevation.

The existing geometry file was coupled with a new steady flow data consisting of three profiles. The first flow profile represents gage data averages, including discharge data from Los Angeles-Glendale Water Reclamation Plant (LAGWRP), for June through August for the water years 2019 to 2022. These average dry season flows for WY 2019 through WY 2022 constitute the existing condition of the LA River. The second flow profile includes reductions resulting from the diversion from water from the project modifications, and the third and final flow profile includes the cumulative reduction resulting from implementation of the project modifications as well as future reductions from LAGWRP.

The steady flow data consists of flow discharge inputs at the cross sections representing flow change locations. In the model, flow discharge remains constant from one flow change location to the next flow change location. All cross sections between two flow change locations will have the same input flow discharge applied. The flow change locations along the river system correspond to the river nodes shown in Figure 1.

2 Results

A 1D steady analysis was performed using HEC-RAS v6.4.1 to quantitatively assess the changes in flow resulting from the diversion of 4 MGD (6.19 cfs) flow to the LA River from the Japanese Garden Lake. Three flow profiles were created for analysis: (1) an existing flow profile based on gage data from the water years 2019 – 2022, (2) a project flow profile representing impacts from the project modifications, and (3) a cumulative flow profile representing reductions from both the project modifications and future reductions from the LAGWRP.

Running these profiles through a 1D steady HEC-RAS model allowed us to simulate the river's behavior under varying flow conditions. Several intermediate nodes beyond those originally identified in the SCCWRP study were included in the analysis to better characterize the changed conditions in the river at soft-bottom vegetated areas in the Glendale Narrows reach of the river.

Tables 1 through 3 summarize the results for flow discharge, velocity, and depth changes at each node due to the project modifications. Tables 4 and 5 summarize the results for flow discharge, velocity, and depth changes at each node due to the combined effects of the project modifications and future reductions from the LAGWRP.

Table 1. Existing Conditions, June – August WY 2019 – 2022							
Node	HEC-RAS River Sta	Flow Discharge (cfs)	Water Elevation (ft)	Velocity (ft/s)	Depth (ft)	Depth (in)	Top Width (ft)
SEP	225707.*	39.08	654.73	2.96	0.27	3.2	48.38
F300	195289.1	39.3	550.19	4.25	0.77	9.2	12.00
LA14	169312.4	42.47	456.81	1.50	0.15	1.8	198.60
165671.8	165671.8	42.47	442.33	0.73	0.84	10.1	136.67
LA13	161377.1	43.82	426.26	1.15	0.11	1.3	350.10
159029.2	159029.2	43.82	417.03	0.65	0.68	8.2	171.39
GLEN	156292.5	53.58	405.60	0.92	0.88	10.6	136.43
149343.2	149343.2	53.58	373.46	1.08	0.71	8.5	129.74
142453.7	142453.7	53.58	343.06	3.54	1.13	13.6	42.86
135461.4	135461.4	53.58	319.64	0.70	0.91	10.9	136.80
F57C	128608	53.14	295.62	4.29	0.71	8.5	18.84
F319	20500	69.37	15.25	1.02	1.14	13.7	300.61

Table 2. Future Conditions, DCTWRP Reduction							
Node	HEC-RAS River Sta	Flow Discharge (cfs)	Water Elevation (ft)	Velocity (ft/s)	Depth (ft)	Depth (in)	Top Width (ft)
SEP	225707.*	32.89	654.7	2.8	0.24	2.88	48.38
F300	195289.1	33.11	550.12	3.96	0.7	8.4	12
LA14	169312.4	36.28	456.8	1.42	0.14	1.68	196.83
165671.8	165671.8	36.28	442.29	0.68	0.8	9.6	134.91
LA13	161377.1	37.63	426.25	1.09	0.1	1.2	350.09
159029.2	159029.2	37.63	416.99	0.62	0.64	7.68	168.58
GLEN	156292.5	47.39	405.57	0.87	0.85	10.2	132.4
149343.2	149343.2	47.39	373.42	1.05	0.67	8.04	125.78
142453.7	142453.7	47.39	343.03	3.42	1.1	13.2	42.07
135461.4	135461.4	47.39	319.6	0.67	0.87	10.44	136.02
F57C	128608	46.95	295.57	4.1	0.66	7.92	18.64
F319	20500	63.18	15.23	1	1.12	13.44	300.54

Table 3. Change in Parameters, Existing to DCTWRP Reduction						
Node	HEC-RAS River Sta	Δ Vel (ft/s)	Δ Depth (ft)	Δ Depth (in)	Δ Top Width (ft)	Δ Top Width (in)
SEP	225707.*	-0.16	-0.03	-0.36	0	0
F300	195289.1	-0.29	-0.07	-0.84	0	0
LA14	169312.4	-0.08	-0.01	-0.12	-1.77	-21.24
165671.8	165671.8	-0.05	-0.04	-0.48	-1.76	-21.12
LA13	161377.1	-0.06	-0.01	-0.12	-0.01	-0.12
159029.2	159029.2	-0.03	-0.04	-0.48	-2.81	-33.72
GLEN	156292.5	-0.05	-0.03	-0.36	-4.03	-48.36
149343.2	149343.2	-0.03	-0.04	-0.48	-3.96	-47.52
142453.7	142453.7	-0.12	-0.03	-0.36	-0.79	-9.48
135461.4	135461.4	-0.03	-0.04	-0.48	-0.78	-9.36
F57C	128608	-0.19	-0.05	-0.6	-0.2	-2.4
F319	20500	-0.02	-0.02	-0.24	-0.07	-0.84

Node	HEC-RAS River Sta	Flow Discharge (cfs)	Water Elevation (ft)	Velocity (ft/s)	Depth (ft)	Depth (in)	Top Width (ft)
SEP	225707.*	32.89	654.7	2.8	0.24	2.88	48.38
F300	195289.1	33.11	550.12	3.96	0.7	8.4	12
LA14	169312.4	36.28	456.8	1.42	0.14	1.68	196.83
165671.8	165671.8	36.28	442.29	0.68	0.8	9.6	134.91
LA13	161377.1	37.63	426.25	1.09	0.1	1.2	350.09
159029.2	159029.2	37.63	416.99	0.62	0.64	7.68	168.58
GLEN	156292.5	41.01	405.54	0.82	0.82	9.84	128.85
149343.2	149343.2	41.01	373.39	1	0.64	7.68	121.51
142453.7	142453.7	41.01	343.01	3.16	1.08	12.96	41.52
135461.4	135461.4	41.01	319.56	0.63	0.83	9.96	135.17
F57C	128608	40.57	295.51	3.9	0.6	7.2	18.42
F319	20500	56.8	15.22	0.95	1.11	13.32	300.49

Node	HEC-RAS River Sta	Δ Vel (ft/s)	Δ Depth (ft)	Δ Depth (in)	Δ Top Width (ft)	Δ Top Width (in)
SEP	225707.*	-0.16	-0.03	-0.36	0	0
F300	195289.1	-0.29	-0.07	-0.84	0	0
LA14	169312.4	-0.08	-0.01	-0.12	-1.77	-21.24
165671.8	165671.8	-0.05	-0.04	-0.48	-1.76	-21.12
LA13	161377.1	-0.06	-0.01	-0.12	-0.01	-0.12
159029.2	159029.2	-0.03	-0.04	-0.48	-2.81	-33.72
GLEN	156292.5	-0.1	-0.06	-0.72	-7.58	-90.96
149343.2	149343.2	-0.08	-0.07	-0.84	-8.23	-98.76
142453.7	142453.7	-0.38	-0.05	-0.6	-1.34	-16.08
135461.4	135461.4	-0.07	-0.08	-0.96	-1.63	-19.56
F57C	128608	-0.39	-0.11	-1.32	-0.42	-5.04
F319	20500	-0.07	-0.03	-0.36	-0.12	-1.44

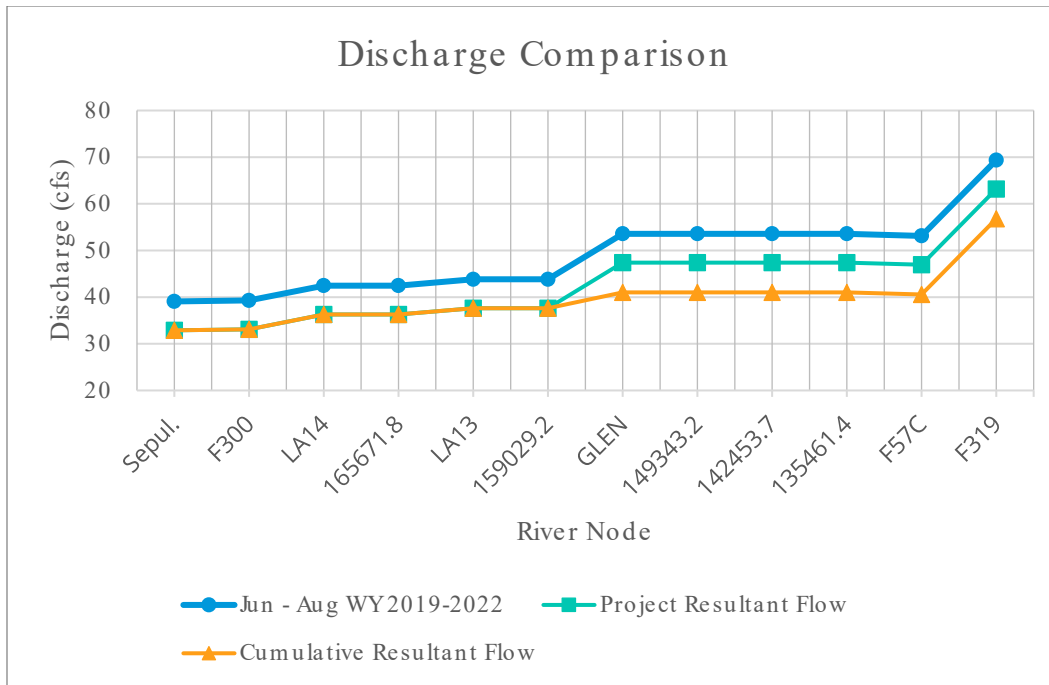


Figure 2. Discharge Comparison

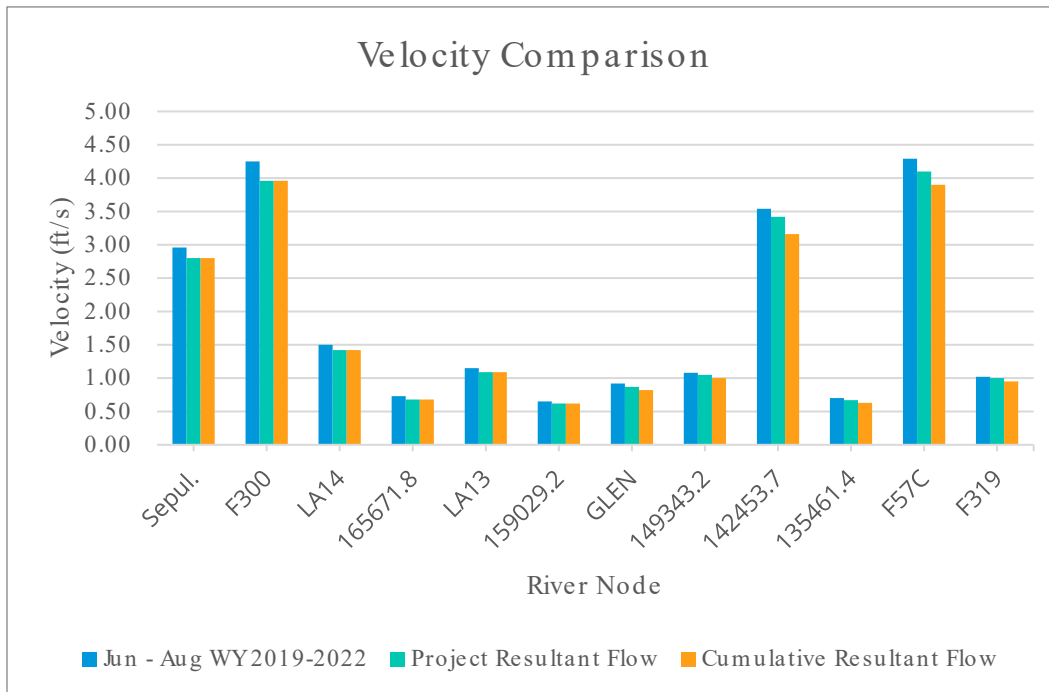


Figure 3. Velocity Comparison

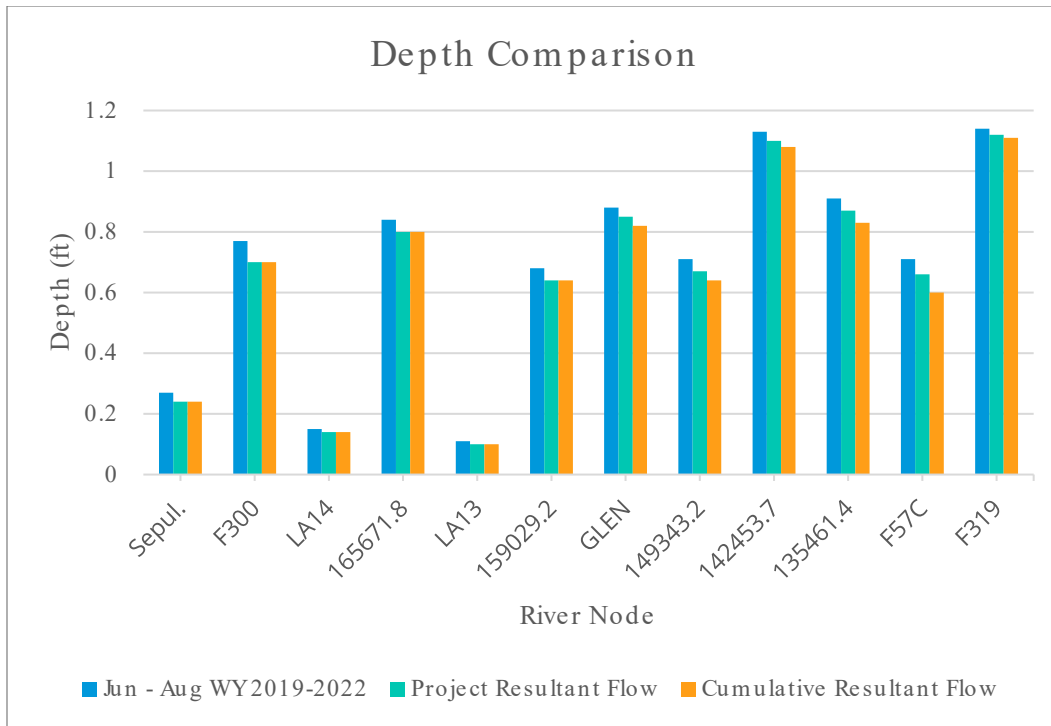


Figure 4. Depth Comparison

Cross section profiles for each river node are given below. The rectangular and trapezoidal cross sections represent concrete channels, while the irregularly shaped sections depict natural channel geometry.

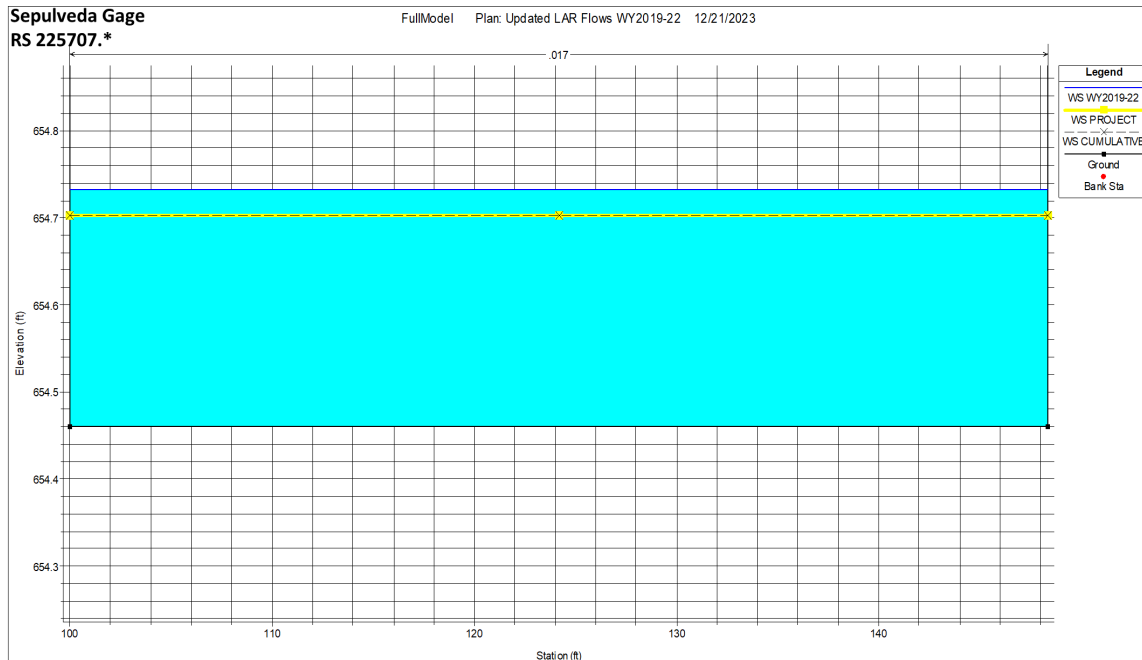


Figure 5. Cross section profile for Sepulveda Gage river node

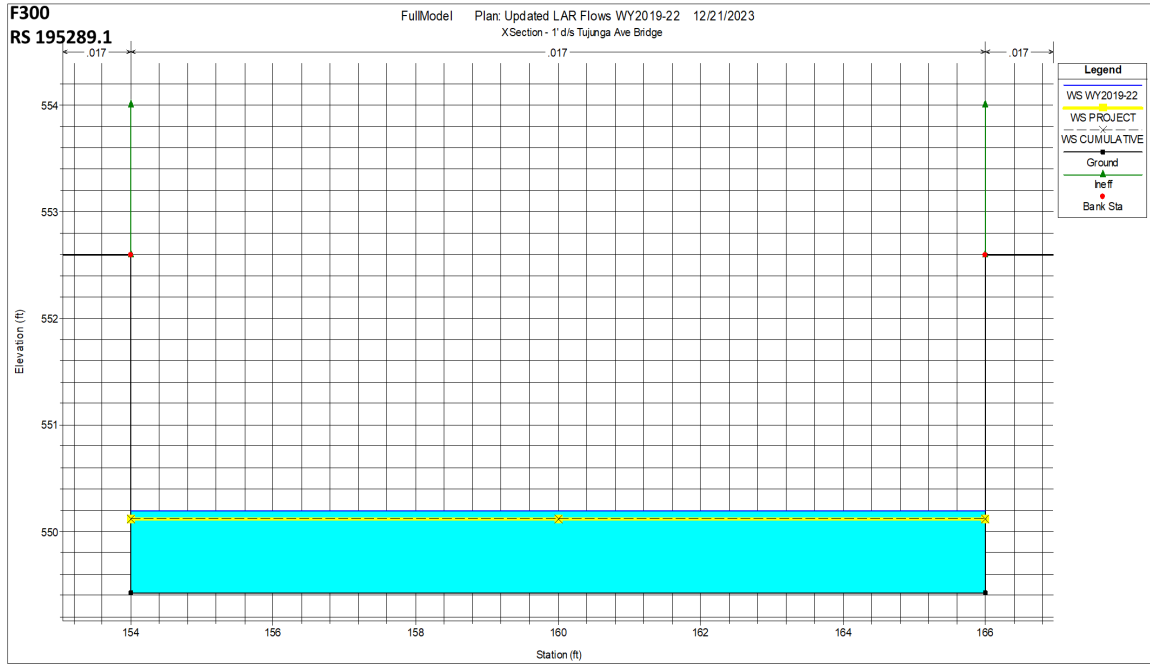


Figure 6. Cross section profile for F300 river node

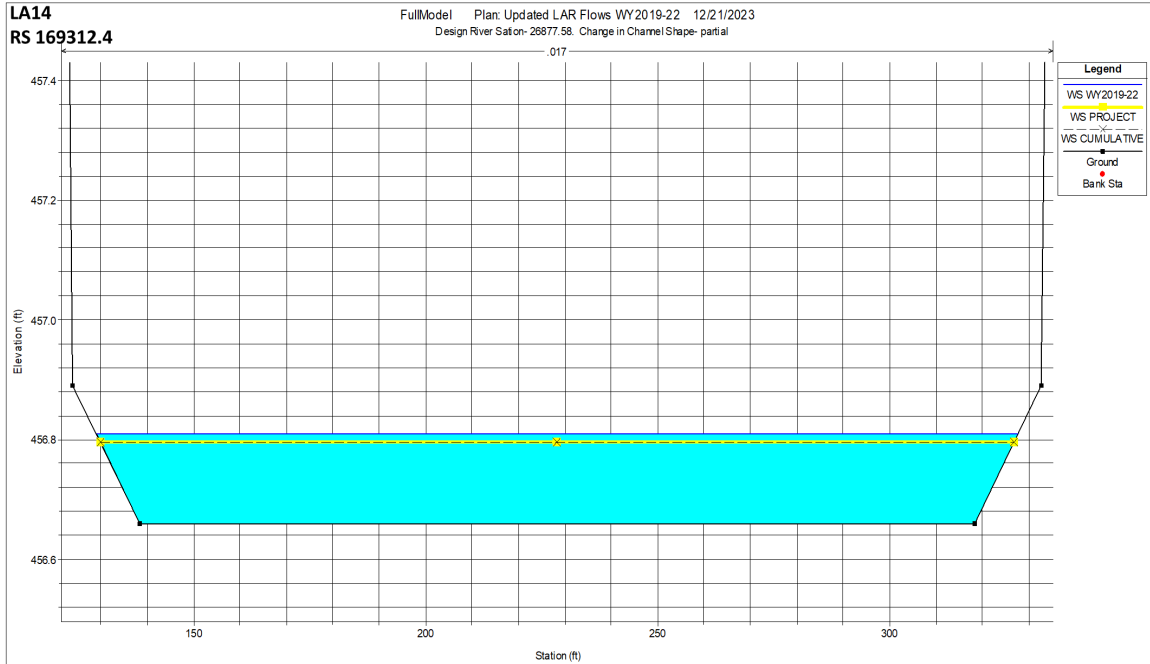


Figure 7. Cross section profile for LA14 river node

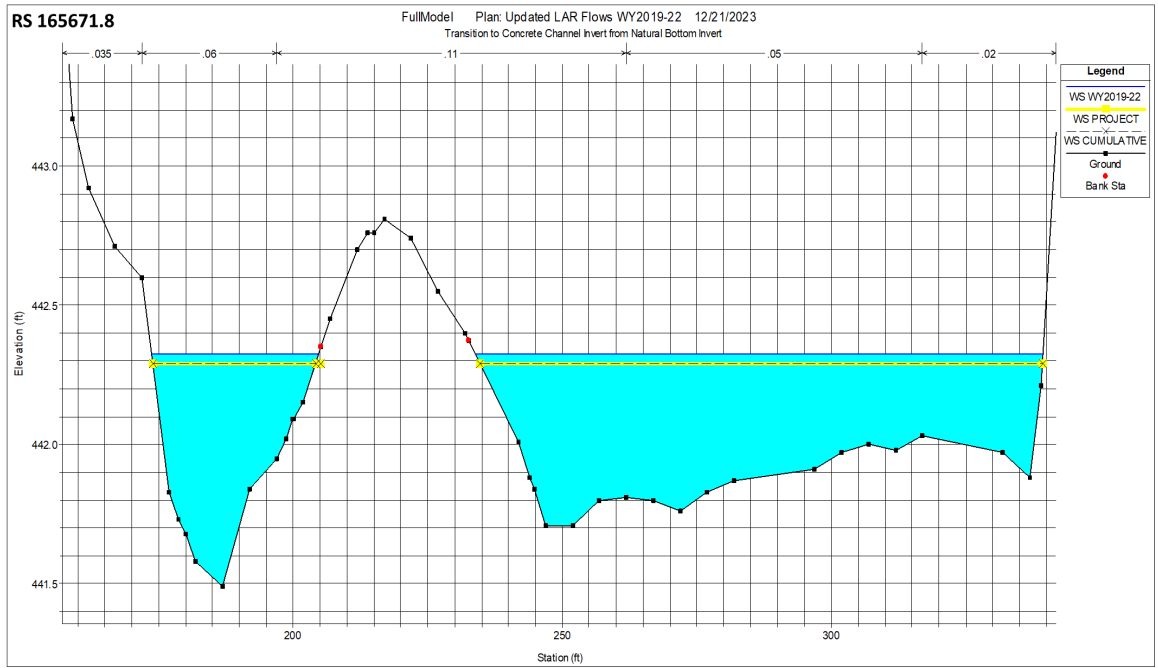


Figure 8. Cross section profile for intermediate river node at RS 165678.8

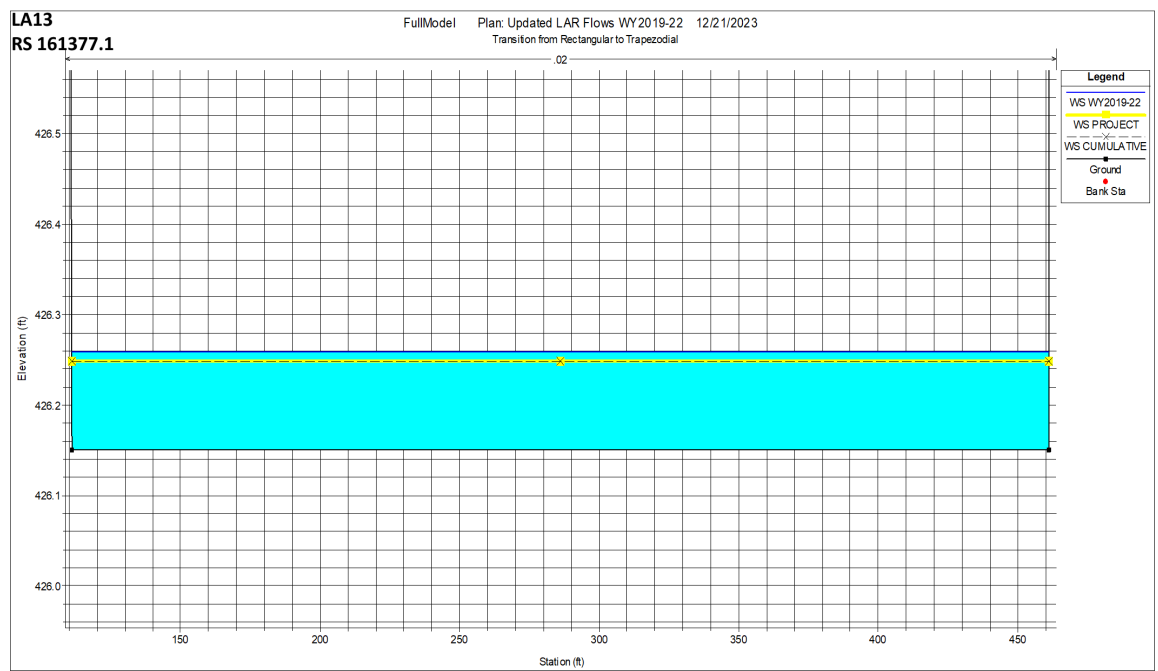


Figure 9. Cross section profile for LA13 river node

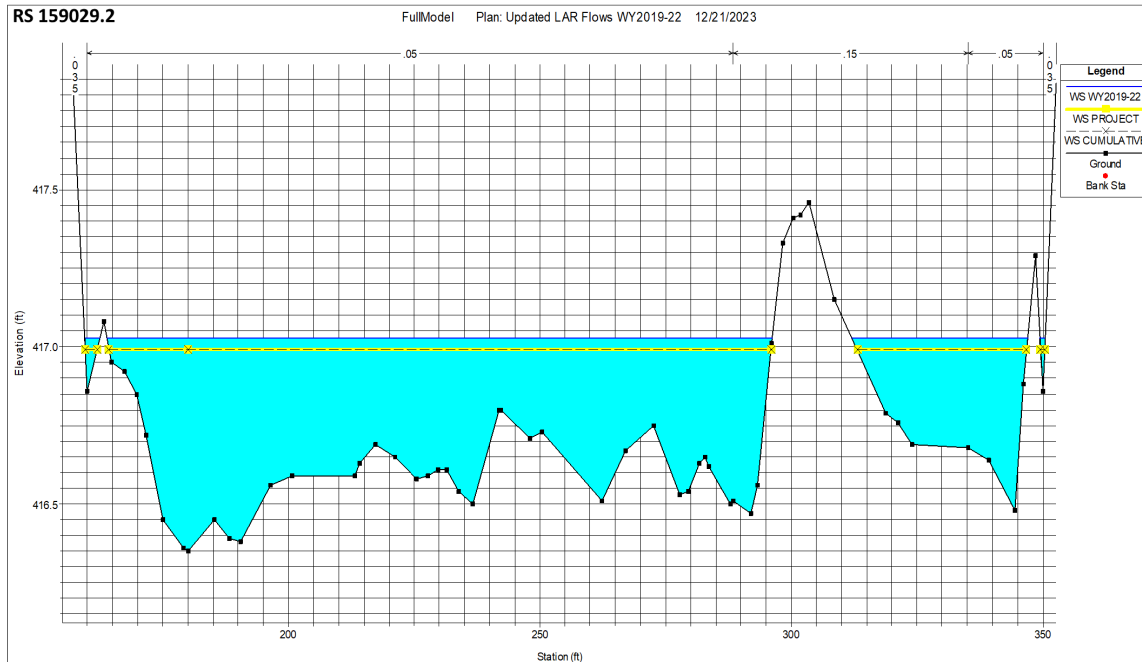


Figure 10. Cross section profile for intermediate river node at river station 159029.2

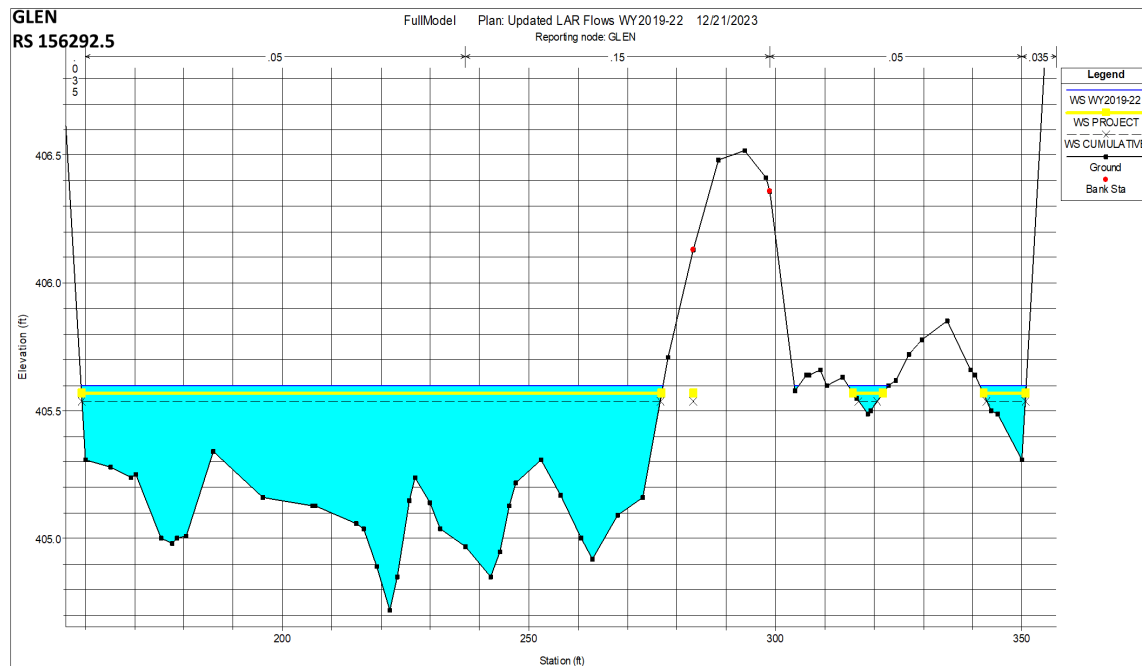


Figure 11. Cross section profile for GLEN river node

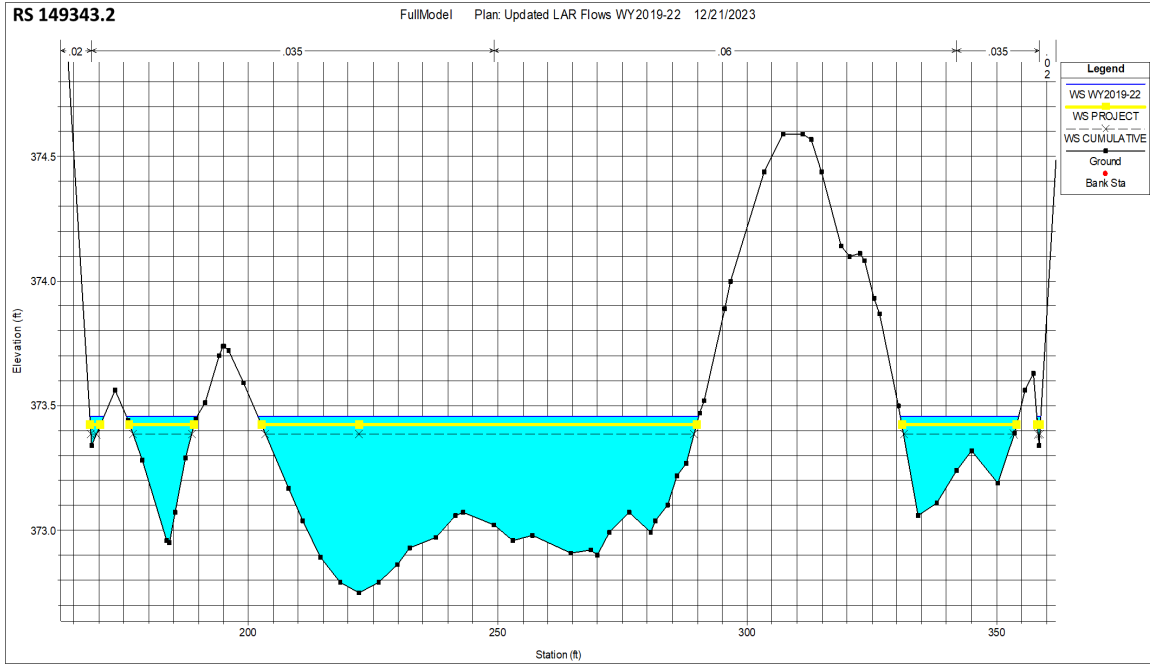


Figure 12. Cross section profile for intermediate river node at river station 149343.2

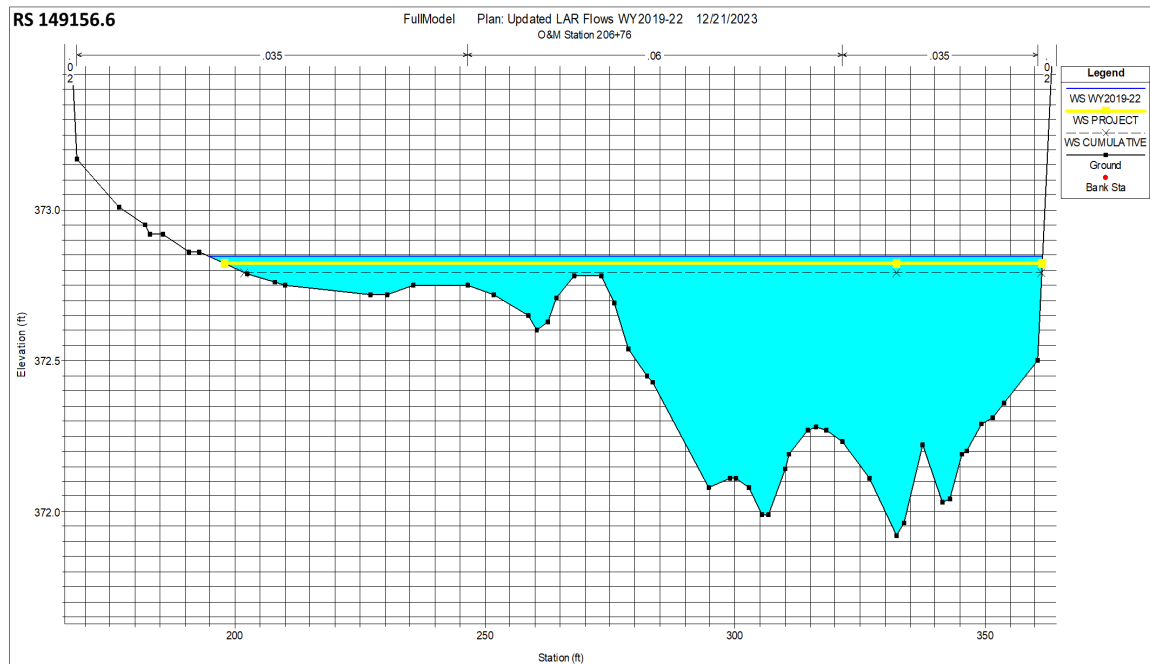


Figure 13. Cross section profile for intermediate river node at river station 149156.6

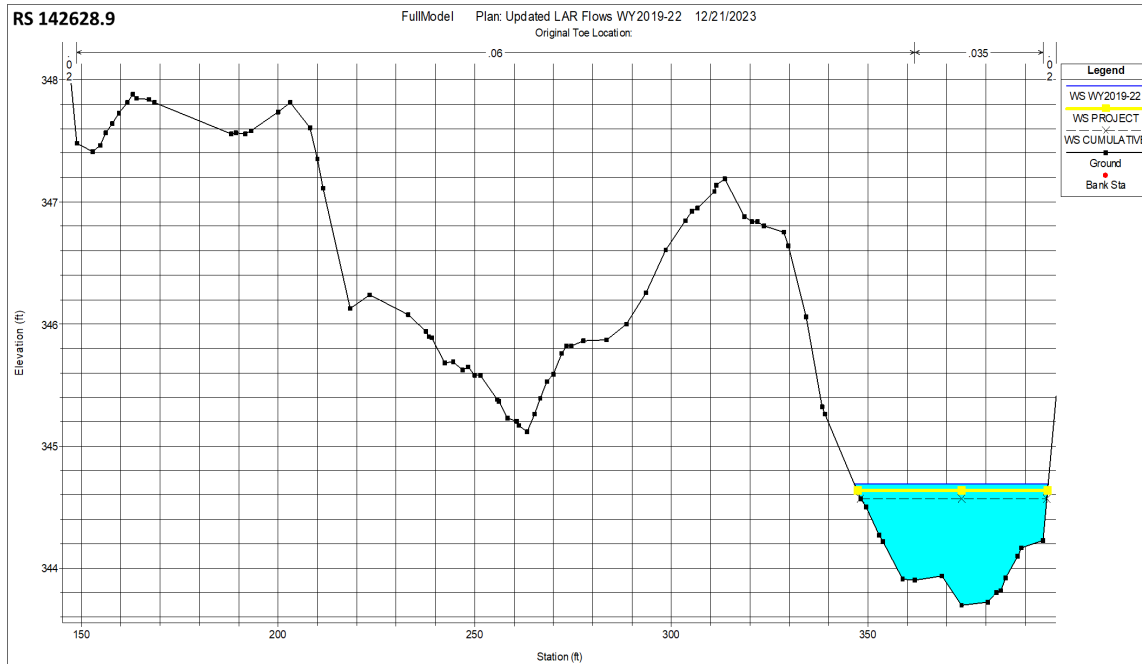


Figure 14. Cross section profile for intermediate river node at river station 142628.9

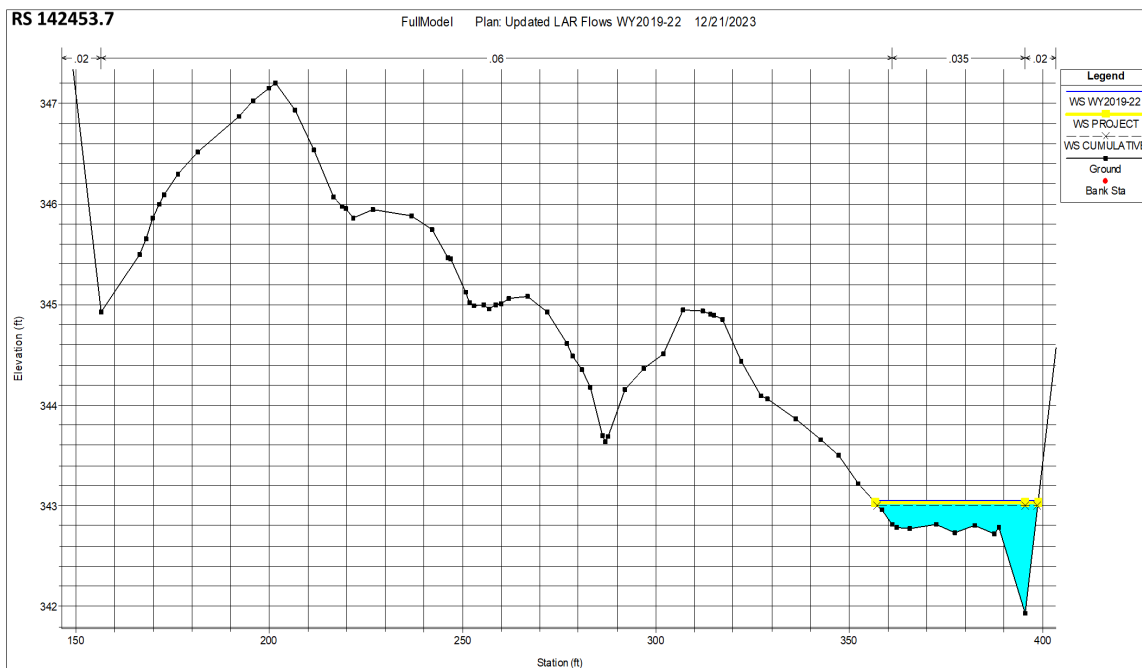


Figure 15. Cross section profile for intermediate river node at river station 142453.7

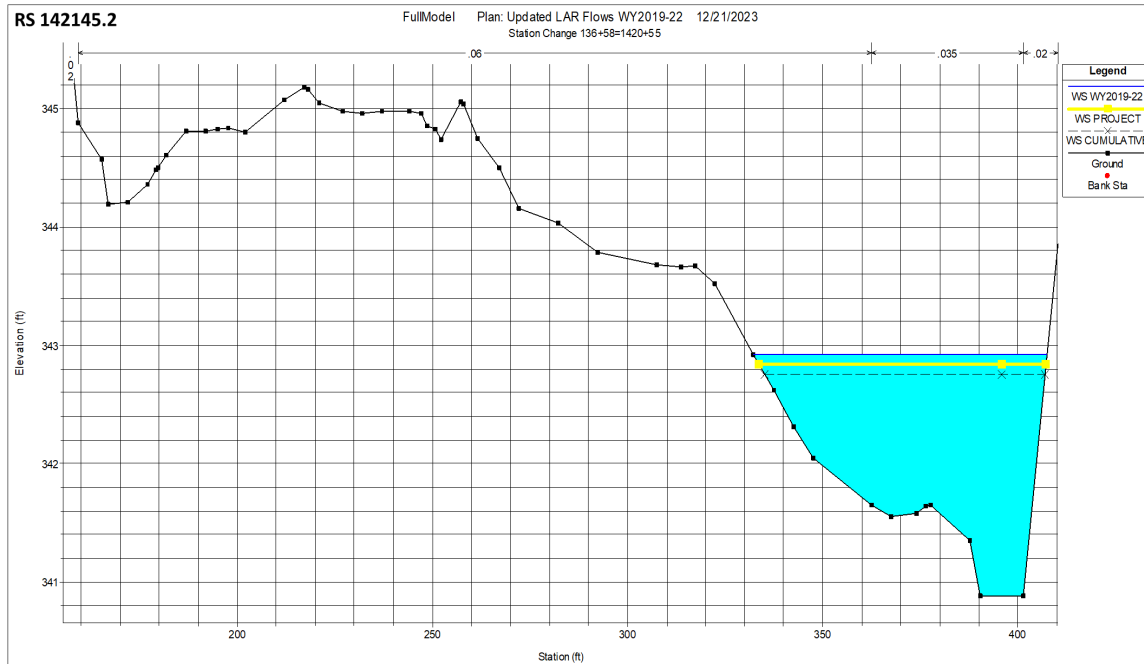


Figure 16. Cross section profile for intermediate river node at river station 142145.2

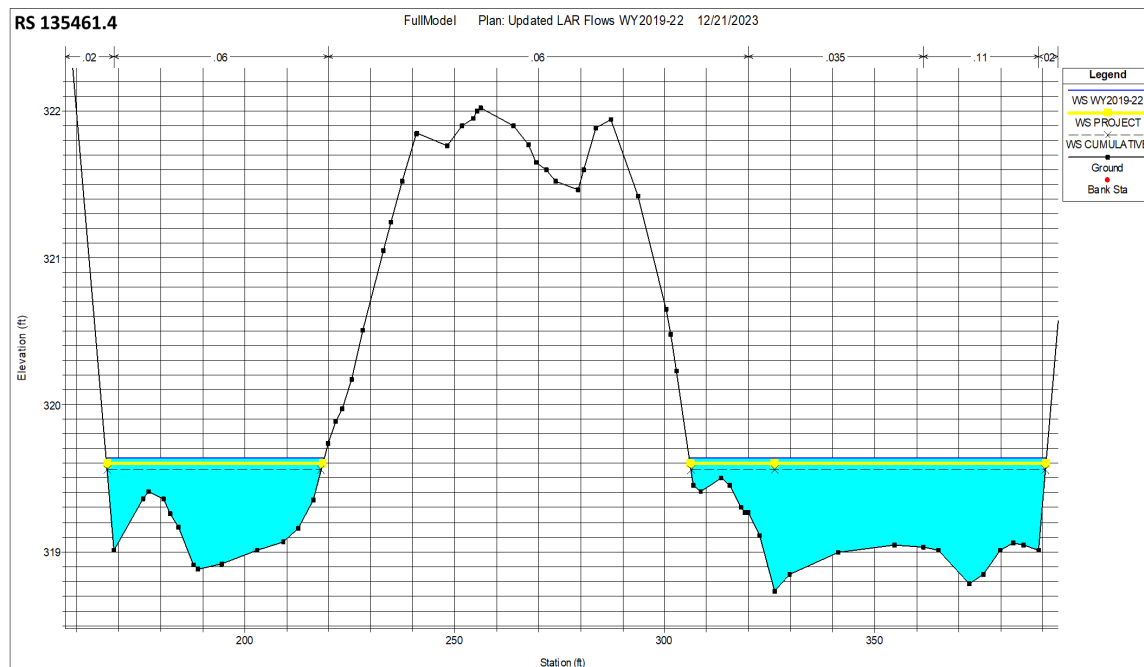


Figure 17. Cross section profile for intermediate river node at river station 135461.4

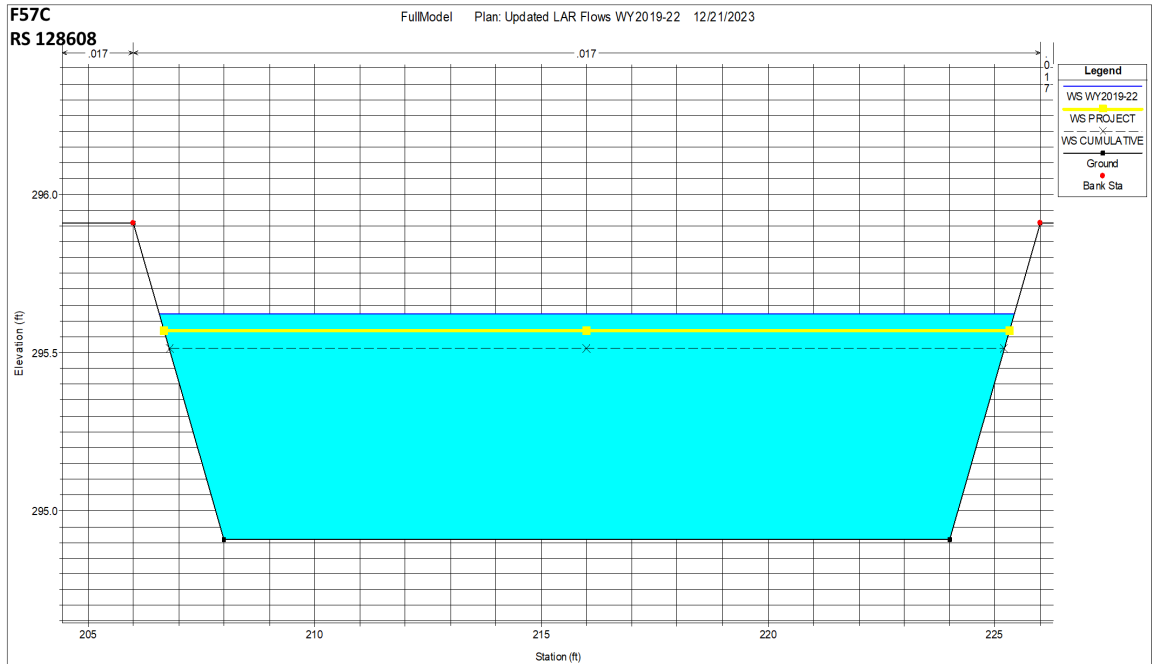


Figure 18. Cross section profile for F57C river node

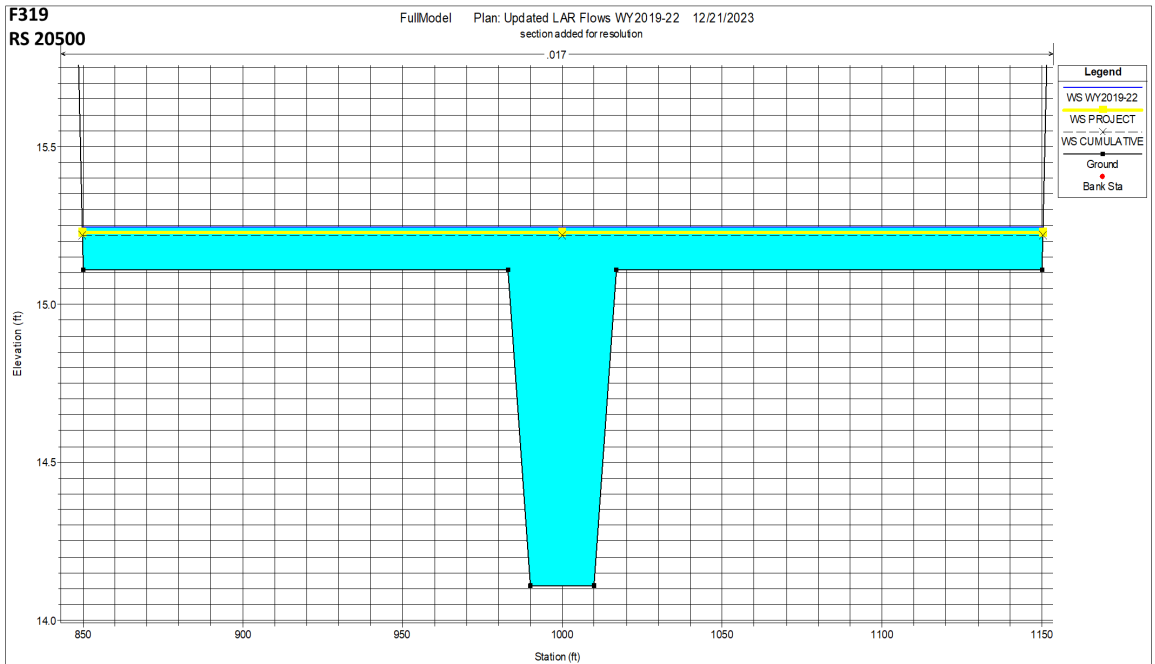


Figure 19. Cross section profile for F319 river node

5 References

Stein, E. D., J. Wolfand, R. Abdi, K. Irving, V. Hennon, K. Taniguchi-Quan, D. Philippus, A. Tinoco, A. Rust, E. Gallo, C. Bell, T. S. Hogue. 2021. Assessment of Aquatic Life Use Needs for the Los Angeles River: Los Angeles River Environmental Flows Project. Southern California Coastal Water Research Project Technical Report #1154.