Attachment A

County of San Diego
DEPARTMENT OF PARKS AND RECREATION
5500 OVERLAND AVENUE, SUITE 410, SAN DIEGO, CA 92123
www.sdparks.org

~~November 15, 2023~~February29, 2024

~~Draft~~ Final

CEQA Initial Study – Environmental Checklist Form
(Based on the State CEQA Guidelines, Appendix G)

STATE CLEARING HOUSE NO. 2023110494

1. Project Name:

   Tijuana River Valley Regional Park Habitat Restoration Plan (Proposed Project)

2. Lead agency name and address:
   County of San Diego, Department of Parks and Recreation
   5500 Overland Avenue, Suite 410
   San Diego, CA 92123-1239

3. Contacts:
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   ~~Email: MeganE.Doran@sdcounty.ca.gov~~

4. Project location:

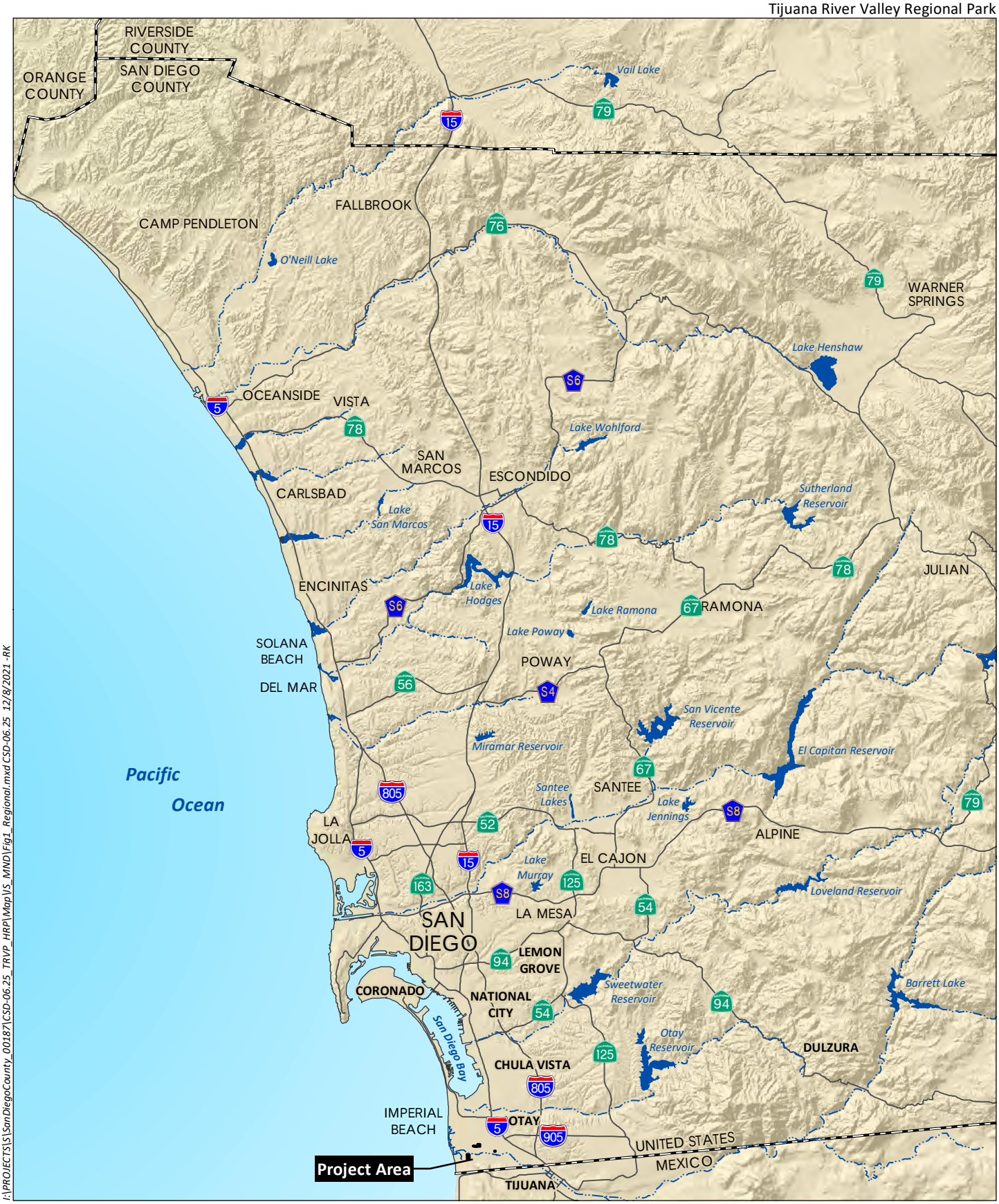
The Proposed Project area is the Tijuana River Valley Regional Park (TRVRP). The greater TRVRP encompasses 1,800 acres within the City of San Diego (City). Approximately 1,617 acres of the 1,800-acre TRVRP are owned by the County of San Diego (County), with the remaining other landowners consisting of the City, California Department of Fish and Wildlife (CDFW), U.S. Federal government, and private entities. TRVRP is found in southwestern San Diego County (Figure 1, *Regional Location*). The Proposed Project is a grant-funded Habitat Restoration Plan (HRP) for restoration activities on County parcels located within the TRVRP (Appendix A).

The area covered by the HRP (Proposed Project area) totals approximately 1,740 acres. The Proposed Project area is the combination of the approximately 1,617 acres of County-owned and County Department of Parks and Recreation (DPR)-managed lands and approximately 123 acres of City-owned land. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements.

The TRVRP is bound to the north by Sunset Avenue, to the south by the U.S.-Mexico International Border, to the west by Border Field State Park and the Tijuana River National Estuarine Research Reserve (TRNERR), and to the east by Dairy Mart Road and the residential community of San Ysidro (except for the part of the Dairy Mart Ponds that extend further east between the Interstate 5 (I-5) corridor and Camino de la Plaza). The Proposed Project area is situated within Sections 2, 3, 4, 5, 32, 33, 34, and 35, Townships 18 and 19 South, and Range 2 West of the U.S. Geological Survey (USGS) Imperial Beach topographic quadrangle map (Figure 2, *Project Vicinity [Aerial Photograph]*). The entire Proposed Project area is located within the coastal zone and portions of the Proposed Project area along the Tijuana River are designated by U.S. Fish and Wildlife Service (USFWS) as final critical habitat for the Federally listed endangered least Bell's vireo (*Vireo bellii pusillus*). Designated Federal and State open space is found next to the Proposed Project area and includes Border Field State Park, TRNERR, and the Tijuana Slough National Wildlife Refuge (TSNWR; Figure 3, *Regional Designations and Conserved Lands*).

The Proposed Project area is within the Coastal Zone, with portions in the Appealable Area and portions within the Deferred Certification Area. Appealable area means the area, as defined by California Public Resources Code Section 30603, within the coastal zone that constitutes the appeal jurisdiction of the California Coastal Commission (CCC). This area includes lands between the sea and the first public road paralleling the sea, or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; or within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff. Development within this zone is regulated under the City's approved Local Coastal Program (LCP), although the CCC retains appeal authority. Developments in deferred certification areas designated by the certified LCP require a permit or exemption issued by the CCC in accordance with the procedures specified by the Coastal Act.

The TRVRP is composed of 88 Assessor's Parcel Numbers (APNs) owned by the County, City, state of California, U.S. Federal government, and private landowners (Figure 3 and Table 1, *TRVRP Ownership Summary*).



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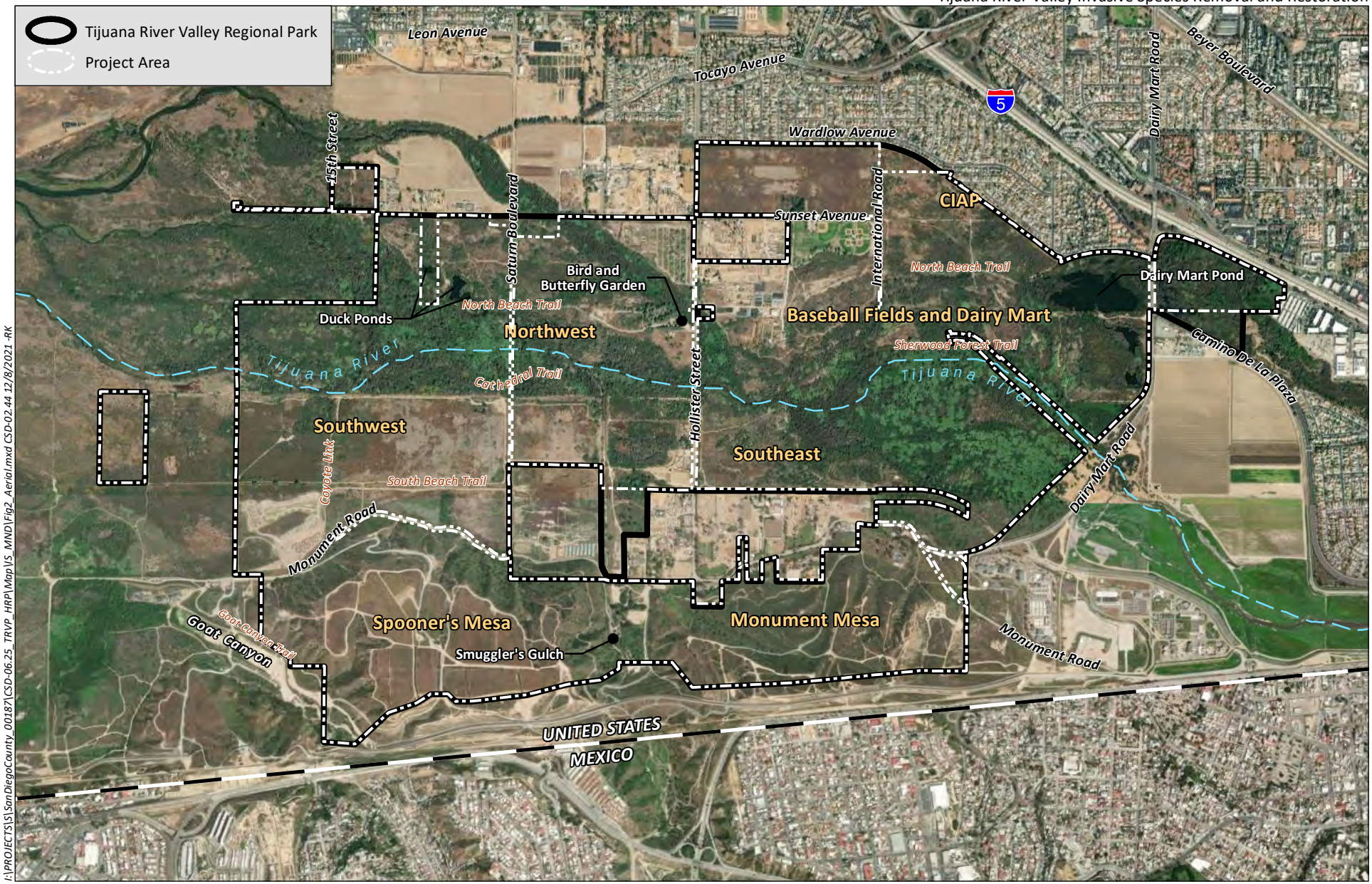
Source: Base Map Layers (SanGIS, 2016)

0 8 Miles

Regional Location

Figure 1



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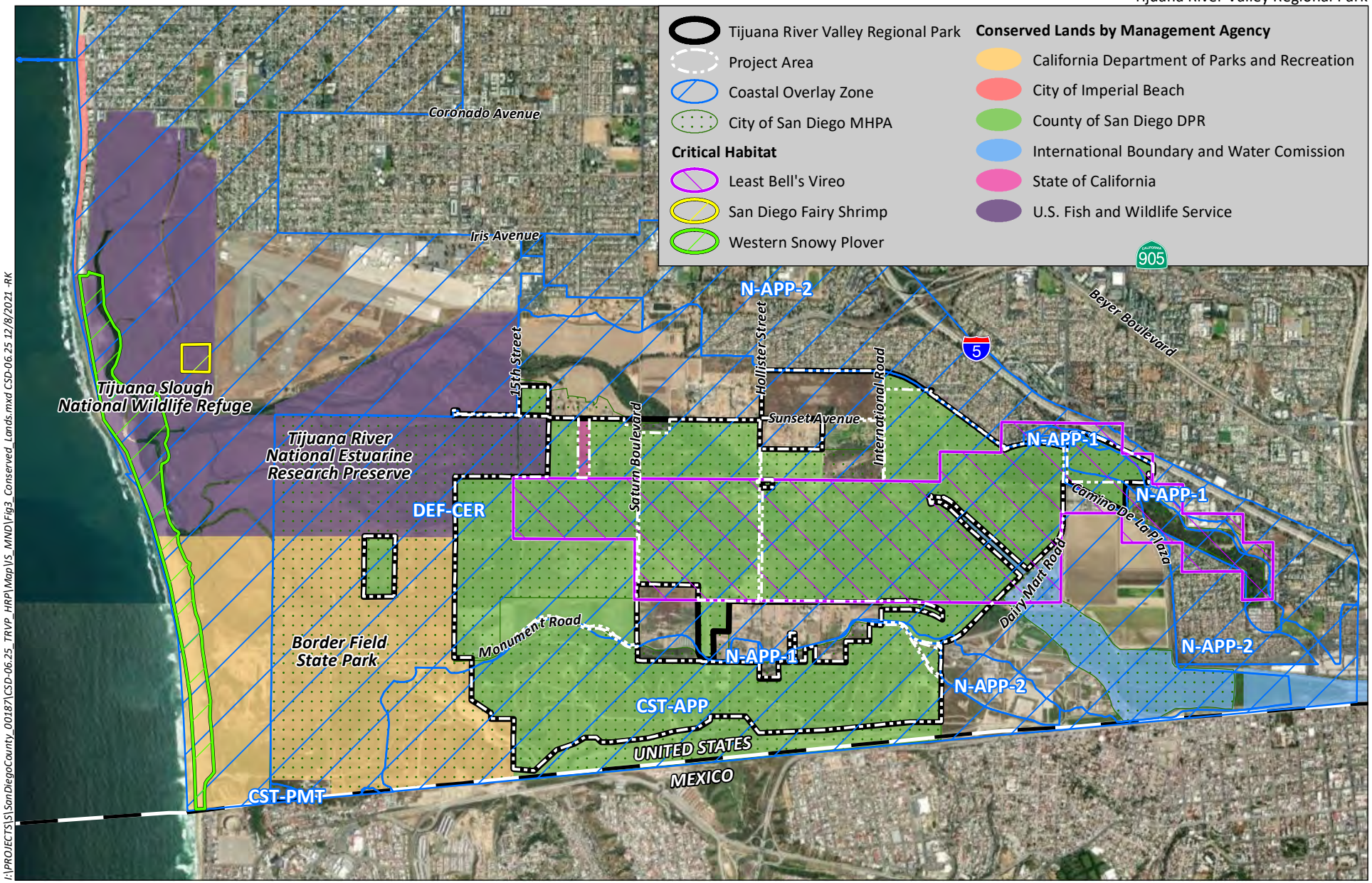
Source: Aerial Photo (Esri 2020)

0 2,000 Feet

Project Vicinity (Aerial Photograph)

Figure 2



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Source: Aerial Photo (Esri 2020); Conserved Lands (SANDAG Technical Services - GIS 2018); MHPA (SanGIS 2006); Critical Habitat (U.S. Fish and Wildlife Service 2020)

0 3,000 Feet

Regional Designations and Conserved Lands

Figure 3

TABLE 1: TRVRP OWNERSHIP SUMMARY

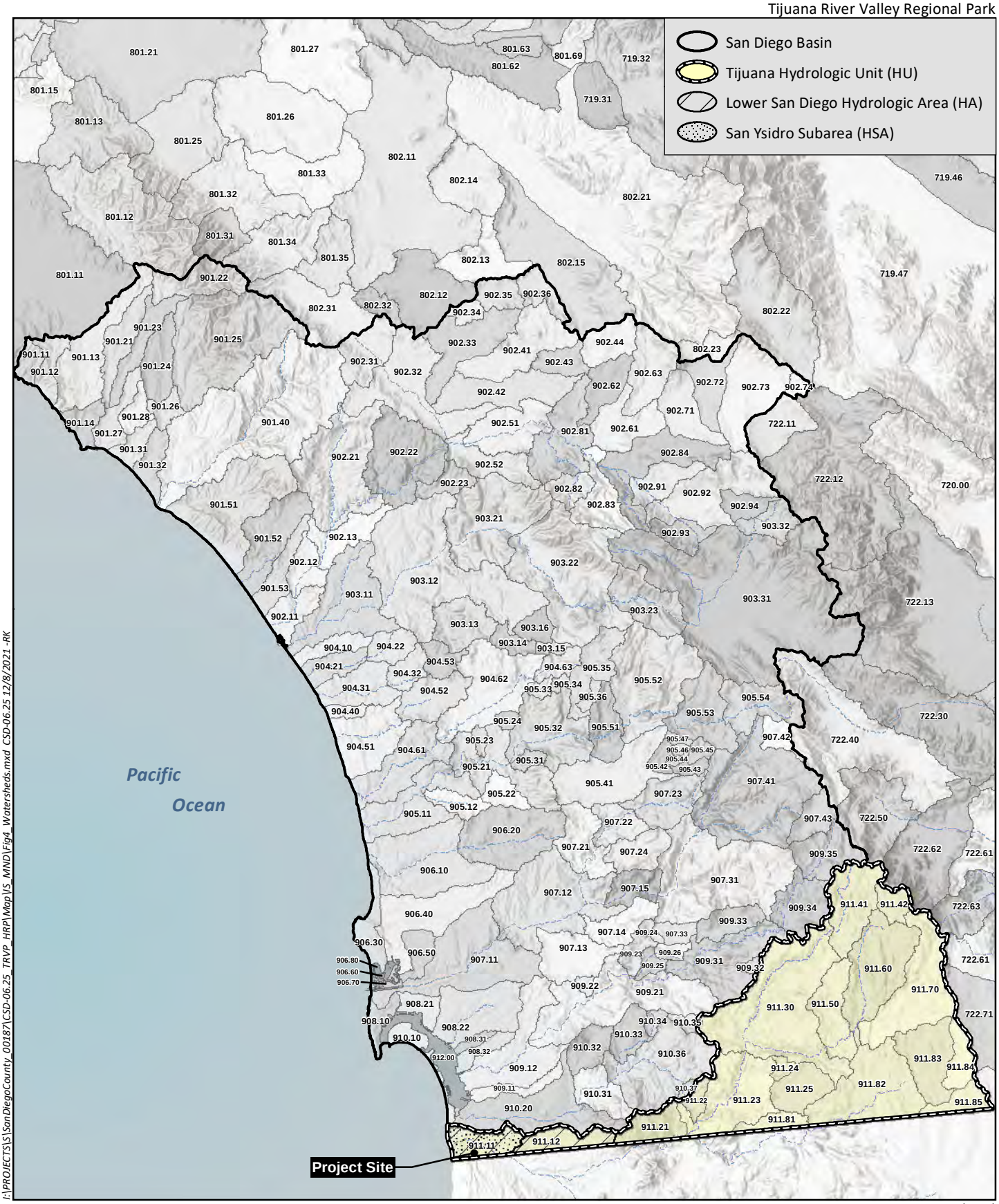
Landowner	Assessor's Parcel Numbers (APNs)[1]
County of San Diego	63601010, 63602020, 63602048, 63602059, 63602105, 63701007, 63701008, 63701009, 63701010, 63701011, 63701034, 63701036, 63701037, 63701067, 63701072, 63701073, 63704103, 63704104, 63808041, 66202005, 66202006, 66202009, 66202012, 66202013, 66202025, 66301044, 66301045, 66301048, 66301049, 66301050, 66301051, 66301052, 66301054, 66301104, 66301106, 66301112, 66303006, 66303008, 66401021, 66401026, 66401032, 66401033, 66401036, 66401037, 66401038, 66401040, 66401044, 66401045, 66401047, 66401048, 66401049, 66401050, 66401053, 66401054, 66401055, 66401057, 66401102, 66401103, 66401104, 66401105, 66402004, 66501001, 66501002, 66501045, 76010799, 76024201, 76024220, 76024221, 76024223
City of San Diego	63701074, 66202004, 66301011, 66301038, 66301101, 66301102, 66301103, 66301105, 66401035, 66501003
State of California	63602019
U.S. Fish and Wildlife Service	63602049, 63602104
Private	76010795, 76010797, 76024222, 76010793, 76024236, 76010787

[1] APNs are provided as eight-digit numbers, the last two numbers of each APN being 00.

The Proposed Project area occurs entirely within the City of San Diego Multiple Species Conservation Plan (MSCP) Subarea Plan Subregion (City 1997). Within the City's MSCP Subregion, the Proposed Project area occurs within the Tijuana Estuary/River Valley Biological Resource Core Area (BRCA), as identified in the Final MSCP Plan (County 1998). Within the City's MSCP Subregion, the City has delineated a 56,831-acre Multi-Habitat Planning Area (MHPA) that would serve to protect critical sensitive biological resources, and the City proposes to keep 94 percent of the Tijuana Estuary/River Valley BRCA within the MHPA. As such, the Proposed Project area lies almost entirely in the MHPA (Figure 3).

The topography of the Proposed Project area is bisected by the Tijuana River. The Tijuana River flows in a northwesterly direction originating in Mexico, flows through the TRVRP, continues west into the TRNERR, and drains into the Pacific Ocean just south of the TSNWR (Figure 4, *Watersheds/Hydrologic Designations*).

Formal areas within the TRVRP include the Coastal Impact Assistance Program (CIAP) area, the Baseball Fields, Dairy Mart, Spooner's Mesa, Monument Mesa, Duck Ponds, Bird and Butterfly Garden, TRVRP Campground, and Smuggler's Gulch. The Duck Ponds and Bird and Butterfly Garden are located in the northwest, north of Tijuana River, south of Sunset Avenue, and west of Hollister Street. The CIAP area is located to the east of Sunset Avenue and north of North Beach Trail. The Baseball Fields and Dairy Mart occur to the south of Sunset Avenue, north of Tijuana River, and west of Dairy Mart Road and contain the Southwest Little League baseball fields and Dairy Mart Pond. Spooner's Mesa and Monument Mesa are located south of Monument Road and separated by Smuggler's Gulch. Goat Canyon is located directly west of Spooner's Mesa outside of the TRVRP.



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Source: RWQCB (1999)

0 12 Miles

Watersheds/Hydrologic Designations

Figure 4

The Proposed Project area contains a formal 22.5-mile trail network, in addition to an existing informal network of unplanned and unauthorized dirt roads and pathways. The formal 22.5-mile trail network includes the following types of trails (Figure 5, *TRVRP Trails*):

- 13.9 miles of 6-foot wide multi-use trails (i.e., pedestrian/equestrian/bicycle) within existing dirt road and pathway alignments; and
- 8.6 miles of 4-foot wide pedestrian/equestrian trails within existing dirt road and pathway alignments.

Revegetation of 40.9 miles of existing informal trails and dirt roads was initiated in December 2015 and was designed to allow and facilitate native habitat re-growth resulting in the active and passive restoration of approximately 34.11 acres of riparian and upland vegetation communities. Several designated and maintained trails between four to six feet wide run throughout the Proposed Project area, which are frequently used by horseback riders, for recreational purposes, and may be used as access points by vehicles and U.S. Customs and Border Protection (CBP) agents. The Proposed Project does not impact any of these trails or existing recreational amenities within the TRVRP. The Proposed Project also does not involve creation of new trails or new recreational amenities within the TRVRP. Rather, the Proposed Project focuses on a comprehensive habitat restoration throughout the TRVRP in areas not currently used as trails/active recreation or proposed to be used as trails/active recreation in the future. Additionally, any future consideration for development of areas within the TRVRP as trails, active recreation, or other types of development are not covered under the Proposed Project and would be subject to separate review under local, state, and federal guidelines and regulations.

5. Project Applicant name and address:

   County of San Diego, Department of Parks and Recreation
   5500 Overland Avenue, Suite 410
   San Diego, CA 92123-1239

6. General Plan

   Community Plan: Tijuana River Valley Community Plan, San Ysidro Community Plan

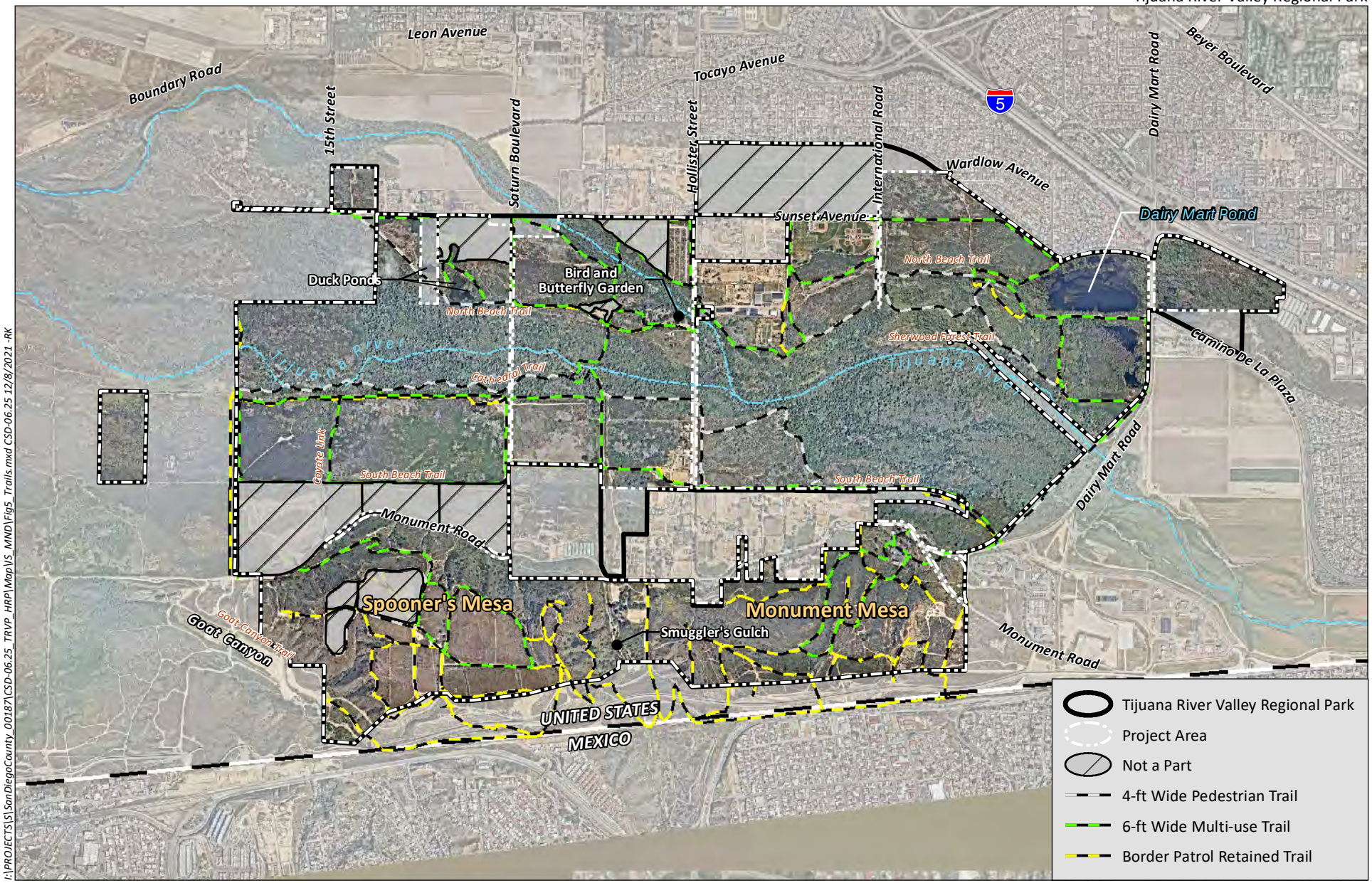
   Land Use Designation: Multi-Species Conservation Open Space and Other Community Open Space/Agriculture (Tijuana River Valley Community Plan); Open Space (San Ysidro Community Plan)

7. Zoning

   Use Regulation: Open Space – Floodplain (OF-1-1) and Agricultural – Residential (AR-1-1, AR-1-2)

   Minimum Lot Size: OF-1-1 – 10 acres; AR-1-1 – 10 acres; AR-1-1 – 1 acre

   Special Area Regulation: None



Source: Aerial Photo (Nearmap 2021)

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0 2,000 Feet

TRVRP Trails

Figure 5

8. Description of project:

Project Overview

This restoration effort, hereby referred to as the Proposed Project, is a conceptual HRP for restoration activities on primarily County-owned or managed parcels located within the TRVRP. The HRP is provided in full as Appendix A to this IS/MND (HELIX Environmental Planning, Inc. [HELIX] ~~2023a~~2024a). The Proposed Project is being performed per a grant that was obtained by DPR from the CDFW Prop 1 Watershed Restoration Grant Program. The activities detailed in this plan include an implementation, maintenance, and monitoring program addressing the restoration of approximately 1,740 acres of mixed wetland, riparian, and upland habitats. Specifically, the step-by-step process for phased implementation of this HRP would include (1) project identification/phasing; (2) Execution Plan development; (3) pre-restoration implementation activities; (4) restoration implementation activities; and (5) post-implementation maintenance activities.

The goal of the HRP (Appendix A) is to identify, prioritize, and implement phased large-scale restoration throughout County-owned and managed property within the TRVRP. By developing a comprehensive HRP, invasive non-native plant species would be targeted for removal, and native plant restoration would occur over several independent phases. Subsequent to this HRP (Appendix A), Execution Plans would be prepared for each individual phase. The required Execution Plans would provide detail on the physical extent of the phase and appropriate implementation practices, methods, timing, and expected restoration outcomes specific to that phase.

Within three years following implementation, the goal is that each phase of the Proposed Project would be approaching the functions and values of adjacent, preserved riparian and upland habitats found within the TRVRP. Restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. The restoration would also potentially supply suitable breeding and foraging habitat for special status species known to occur in the TRVRP, including Quino checkerspot butterfly (*Euphydryas editha quino*), western spadefoot toad (*Spea hammondii*), Baja California coachwhip (*Coluber fuliginosus*), Blainville's horned lizard (*Phrynosoma blainvillii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), yellow warbler (*Setophaga petechia*), and least Bell's vireo *(Vireo bellii pusillus*) (HELIX ~~2023a~~2024a). Following successful restoration, the entire site would continue to be preserved, managed, and maintained in perpetuity by the County.

While the Proposed Project area includes approximately 1,740 acres of land, invasive non-native plant treatment and restoration areas would not occur in the entirety of the Proposed Project area, as patches of native vegetation would not be treated/restored. Following treatment of the invasive non-native plant areas and point locations, the areas would be restored to native habitats. As the Proposed Project is implementation of the

HRP, including habitat restoration, impacts to biological resources incurred during implementation are considered temporary and would be self-mitigated through the completion of the Proposed Project itself. The HRP would be used during the submittal process relative to agency permitting, updated as necessary, and incorporated into final permit conditions.

Treatment of invasive non-native plants throughout the Proposed Project area is proposed to occur in twelve separate phases that would be implemented based on a variety of conditions such as timing, funding availability, and capacity of County staff. The restoration activities in each phase of the Proposed Project would be (a) consistent with the County's Area Specific Management Directives (ASMDs) for the TRVRP (County 2007b); (b) consistent with the City's Specific Management Policies and Directives for the Tijuana River Valley (City 1997); (c) implemented in conformance with the City's MHPA Guidelines (City 1997); (d) compatible with adjacent land uses and future uses in the TRVRP; and (e) preserved, managed, and maintained in perpetuity by DPR, helping to ensure the long-term viability of the habitat restoration effort. Phase prioritization and phase-specific implementation activities are described in more detail below.

HRP Implementation and Phasing

The purpose of the HRP (Appendix A) is to outline the methods for habitat restoration and revegetation of County-owned or managed portions of the TRVRP. Given the size and complexity of the Proposed Project, the HRP strives to provide a framework for activities that would be applied in a phased manner in identified locations, as funding becomes available. The methodologies used in the HRP are applicable in a broad set of conditions. Timing of implementation of the phases would be determined in the future, based on County priorities, site conditions, and funding. Prior to the implementation of each phase, the County would prepare an Execution Plan for that specific phase of work, drawing upon the information provided in the HRP and refining parameters. Phases may be sub-divided into smaller sub-phases as funding allows.

When work is proposed to commence in a specific phase of the Proposed Project, the existing conditions and constraints present in that phase of work would be identified, and the restoration activity and potential mitigation prescriptions corresponding to those conditions would be applied. A second level of prescription would also be enacted to accommodate for seasonally present conditions such as flooding or nesting birds. All applicable prescriptions would be outlined within the Execution Plan for that phase. An Execution Plan would be prepared and approved by DPR prior to beginning any new phase of work. If the Execution Plan is consistent with the prescriptions included in the HRP and the Mitigation Monitoring and Reporting Program (MMRP) adopted for the Proposed Project, no further Resource Agency approval is required. If the Execution Plan deviates from the prescription provided in the HRP or MMRP, additional Resource Agency approvals may be needed.

The following flow chart (Table 2, *Flow Chart Listing Step-by-Step Process for Implementation of the HRP*) and treatment matrix (Table 3, *Restoration Measures and Considerations for Implementation*) further describe the implementation process and

considerations for restoration activities to be prescribed in the future Execution Plans that would be developed as each phase is funded. A "Yes" response in Table 3 indicates the non-native control method could be used given the constraint, while a "No" response indicates that the treatment method would not be used given the constraint.

TABLE 2: FLOW CHART LISTING STEP-BY-STEP PROCESS FOR IMPLEMENTATION OF THE HRP

Project Identification/ Phasing	Ongoing, Dependent on funding Site Characterization/Baseline Surveys
Execution Plan development	Within 60 days of specific phase identification
Pre-Restoration Implementation Activities	
Vegetation Impact Avoidance and Minimization	Prior to contractor mobilization and throughout construction phase
Soil and Plant Salvage and Storage	Plants: Spring or Fall (or as proper for target species) Soil: At site grading initiation
Restoration Implementation Activities	
Trash and Debris Removal	Prior to soil work or planting activities
Weed Removal	Spring/Summer (or as proper for target species)
Soil Decompaction	Prior to planting or seeding
Soil Recontouring	Prior to planting or seeding
Spread of Salvaged Topsoil	Prior to planting or seeding
Seeding	Fall/Winter
Nursery Stock Planting	Fall/Winter
Watering	In conjunction with planting, and as needed throughout establishment and maintenance period
Erosion Control	Fall/Winter/Spring as needed
Post- Implementation Maintenance Activities	
Weed Removal	Spring/Summer (or as proper for target species) as needed
Erosion Control	Fall/Winter/Spring as needed
Watering	As needed in planted areas only for plant establishment

TABLE 3: RESTORATION MEASURES AND CONSIDERATIONS FOR IMPLEMENTATION[1]

Prescriptive Conditions	Herbicide Treatment	Hand Removal	Mowing	Mechanized Clearing	Topographic Modifications	Planting	Seeding	Erosion Control	Solarization
Constraint	**Primary (year-round)**								
Cultural Resource Site	Yes	Yes	Yes	Buffer	Buffer	Monitor	Yes	Yes	Yes
Sensitive Wildlife Species Presence	Yes	Yes	Buffer	Buffer	Buffer	Yes	Yes	Yes	Buffer
Invasive Non-native pest (i.e., insect/ pathogen)	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Existing Sensitive Vegetation	Yes	Yes	Yes	Buffer	Buffer	Yes	Yes	Yes	No
Limited Access	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes
Public access	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Active Flow Areas (Ordinary High Water Mark present)	Yes	Yes	Buffer	Yes	Yes	Yes	Yes	No	No
Constraint	**Secondary (seasonally present)**								
Nesting Birds	Yes	Yes	Buffer	Buffer	Buffer	Yes	Yes	Yes	Yes
Saturated soils	Yes	Yes	No	No	No	No	No	No	No
Contaminated water	Yes	No	No	No	No	No	No	No	No

[1] Certain activities may be allowed with established buffers and other impact avoidance and minimization measures that would ensure protection of the resource being buffered. Through development of Execution Plans, buffers and other impact avoidance and minimization measures may be identified for an activity that would yield desired results if site constraints were present. For a complete description of the avoidance and minimization measures associated with each restoration measure outlined, please see the HRP (Appendix A).

A. Phase Prioritization

Due to the size of the Proposed Project area, restoration would not occur within the entirety of the system in a single event under one Execution Plan. Rather the Proposed Project would be broken into phases with specific Execution Plans, based on a variety of conditions such as timing, funding availability, or capacity of County staff.

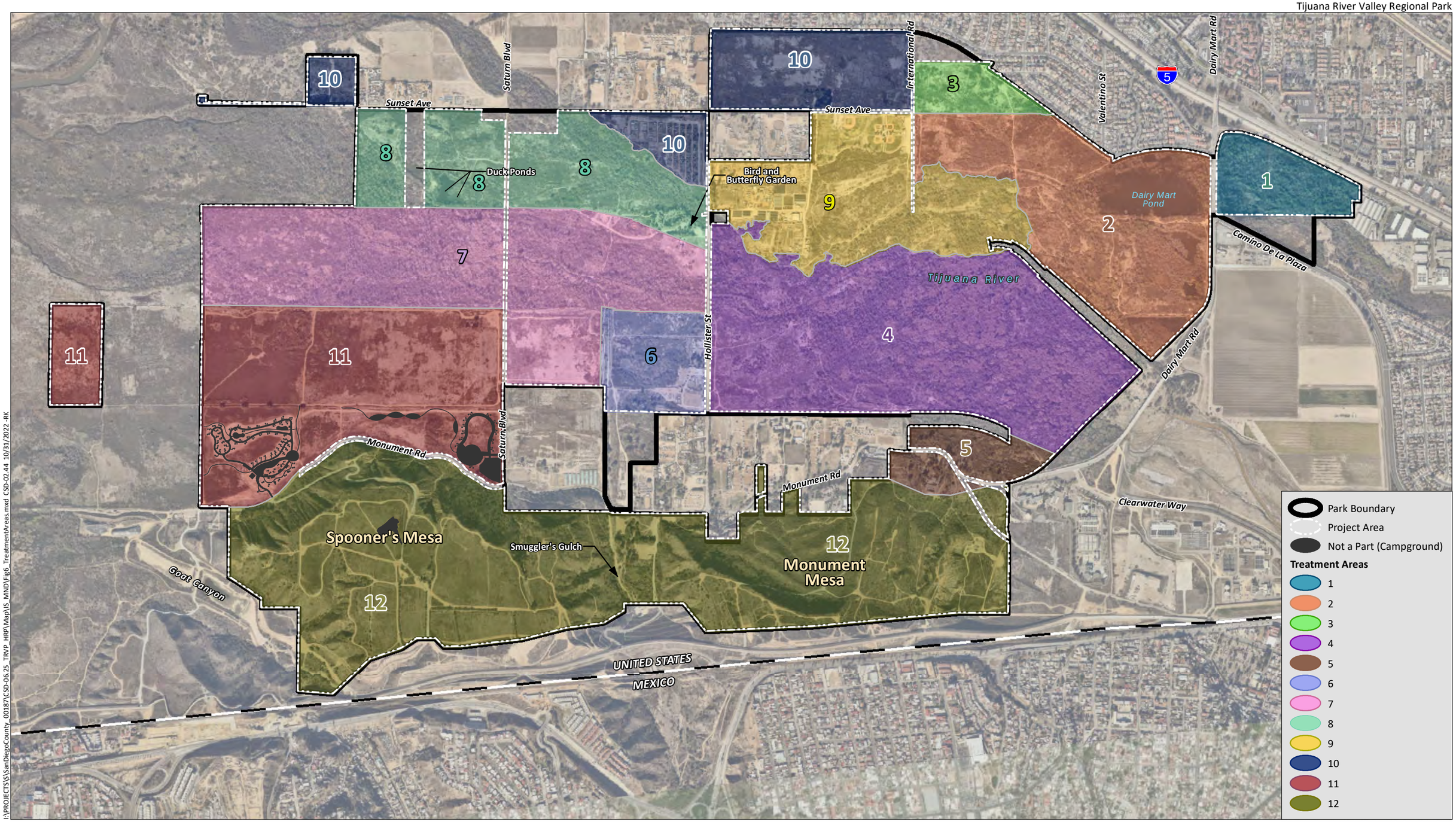
Sites identified for restoration activities would be prioritized based on a phase's overall ecological benefit that would achieve the greatest Proposed Project objectives, whether it be invasive species control, water quality, sensitive species habitat, or connectivity to adjacent resources. A restoration site may further be prioritized based on stakeholder preferences and partnerships, site access, land ownership, position in the watershed, habitat type and adjacency to sensitive resources, expansion of sensitive resource habitats, relative cost for implementation and maintenance, and other factors. In general, it would be most beneficial to initiate activities which are positioned furthest upstream, so they are not later disrupted by subsequent projects under the HRP (Appendix A).

B. Phase-Specific Planning Activities

The Proposed Project area includes twelve phases covering 1,740 acres (please refer to Figure 6, *Treatment Areas*). As described above, these phases may be subdivided into smaller phases, or merged, as budgets and prioritization allow and based on current site conditions. Phase boundaries may also be modified if a significant biological, cultural, or other resource is discovered during pre-construction surveys that would need to be permanently or temporally avoided. These potential phases are provided in no particular order, but initially, there would be a preference to implement the phases from upstream to downstream.

A description of each phase including location, constraints, and expected restoration strategies can be found in Table 4, *Phase Areas*. A matrix identifying key elements of each phase and prioritization components are included in Table 5, *Project Phases and Elements*. In all, it is expected that approximately 587.93 acres of disturbed and invasive non-native plant communities, would be treated and restored into native habitats. Additionally, 7.21 acres of invasive species point locations occurring within the phase areas' native habitat would be treated and restored into native habitats.

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

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Treatment Areas

Figure 6

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TABLE 4: PHASE AREAS

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
Phase 1	Upstream of Dairy Mart Road.	35.47 acres; 9.28 acres of invasive weed removal within Arundo-dominated and non-native riparian habitats as well as localized populations of eucalyptus and tamarisk.	Giant reed, salt cedar, eucalyptus, non-native invasive annual species.	This area is entirely fenced and can be accessed along the southern border from Camino de la Plaza. Special status plant species were not observed upstream of Dairy Mart Road during the 2018 biodiversity study and 2021 focused species surveys. Special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (Federally Endangered [FE], State Endangered [SE], County Group 1, MSCP Covered, MSCP Narrow Endemic [NE]), Cooper's hawk (State Watch List [WL], County Group 1, MSCP Covered), red-shouldered hawk (County Group 1), turkey vulture (County Group 1), and yellow warbler (Bird of Conservation Concern [BCC], State Species of Special Concern [SSC], County Group 2).	Hand removal of small stands, container planting, herbicide treatments of isolated individuals.
Phase 2	Downstream of Dairy Mart Road bridge and north of the South Bay Reclamation Plant property cut out.	154.98 acres; 39.83 acres of invasive weed removal in both upland (29.93 acres) and riparian (9.90 acres) habitat types	Giant reed, salt cedar, mustards, garland daisy, non-native invasive annual species.	Access occurs from Dairy Mart Road where two separate six-foot multi-use trails lead west. No Federally or State listed plant species were observed within this area during the 2018 biodiversity study. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2) and San Diego marsh elder (CRPR 2B.2, County List B). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), Cooper's hawk (WL, County Group 1, MSCP Covered), double-crested cormorant (WL, County Group 2),western mastiff bat (SSC, County Group 1), American white pelican (SSC, County Group 2), western red bat (SSC, County Group 2), and white-tailed kite (FP, County Group 2).	Hand removal of small stands and mowing (mastication) of contiguous large accessible stands, container planting, herbicide treatments of isolated individuals.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
				Additional special status species observed in this area included barn owl (County Group 2), gadwall (County Group 2), great blue heron (County Group 2), green heron (County Group 2), turkey vulture (County Group 1), western bluebird (County Group 2, MSCP Covered), and Yuma myotis (County Group 2).	
Phase 3	East of International Road and North of Sunset Avenue (CIAP area).	21.55 acres; 12.14 acres of invasive weed removal within upland (8.00 acres) and riparian (4.14 acres) habitat types	Salt cedar, mustards, garland daisy, non-native invasive annual species.	Access occurs from the eastern terminus of Sunset Avenue where a six-foot multi-use trail leads west into the CIAP area. Federally or State listed plant species were observed within this area during the 2018 biodiversity study. The following special status plant species were observed in this area: San Diego marsh elder (CRPR 2B.2, County List B). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), white-tailed kite (FP, County Group 2), and American white pelican (SSC, County Group 2). No additional special status species were observed in this area.	Hand removal of small stands and mowing (mastication) of contiguous large accessible stands, container planting, herbicide treatments of isolated individuals.
Phase 4	Central eastern portion of Proposed Project area, main river channel.	253.52 acres: 116.87 acres of invasive weed removal within upland (12.59 acres) and riparian (104.28 acres) habitat types	Giant Reed, salt cedar, eucalyptus, castor bean, non-native invasive annual species.	Access occurs from Dairy Mart Road where a single six-foot multi-use trail leads west, and from Hollister Street where single six-foot multi-use trail leads east. No Federally or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: San Diego marsh elder (CRPR 2B.2, County List B), single-whorl burrobrush (CRPR 2B.2) and San Diego sagewort (CRPR 4.2, County List D).	Mowing (mastication) large stands, hand removal of isolated populations, topographic recontouring, revegetation with container plantings.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
				Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), northern harrier (SSC, County Group 1, MSCP Covered), white-tailed kite (FP, County Group 2), and Cooper's hawk (WL, County Group 1, MSCP Covered). Additionally, turkey vulture (County Group 1) and red-shouldered hawk (County Group 1) was observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	
Phase 5	North of Monument Road and south of trail.	30.41 acres; 9.61 acres of invasive weed removal in both upland (7.48 acres) and riparian (2.13 acres) habitat types	Giant reed, salt cedar, eucalyptus, Brazilian peppertree, castor bean, Mexican fan palm, non-native invasive annual species	Access occurs from Dairy Mart Road where a single six-foot multi-use trail leads west. No Federally, State, or other listed special status plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. One special status plant species was observed in this area: single-whorl burrobrush (CRPR 2B.2). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), and Cooper's hawk (WL, County Group 1, MSCP Covered). Additionally, turkey vulture (County Group 1) and red-shouldered hawk (County Group 1) were observed in this area during 2021 focused species surveys.	Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.
Phase 6	West of Hollister Avenue, east of Arroyo Cañon Matadero, to main riparian corridor.	42.21 acres of mostly riparian habitat with 8.39 acres of invasive species in both upland (7.70 acres) and riparian (0.69-acre) habitat types	Giant reed, salt cedar, eucalyptus, tree tobacco, garland daisy, non-native invasive annual species	Access occurs from Hollister Street where a single six-foot multi-use trail and a single four-foot multi-use trail leads west. Additionally, a six-foot multi-use trail leads south into this area from the Bird and Butterfly Gardens. No Federally, State, or other listed special status plant species were observed within this area during	Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
				the 2018 biodiversity study and 2021 focused species surveys. One special status plant species was observed in this area: single-whorl burrobrush (CRPR 2B.2). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered) and yellow warbler (BCC, SSC, County Group 2). No other special status animal species were observed in this area.	
Phase 7	Central western portion of Proposed Project area, main riparian corridor.	223.13 acres; 57.93 acres of invasive weed removal in both upland (34.90 acres) and riparian (23.03 acres) habitat types	Giant reed, salt cedar, castor bean, Brazilian peppertree, mousehole tree (Myoporum laetum), mustards, non-native invasive annual species	Access occurs from Hollister Street where a single six-foot multi-use trail leads south from the Bird and Butterfly Garden. Additionally, a six-foot multi-use trail leads south into this area from Saturn Boulevard. No Federally or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), and Torrey pine (CRPR 1B.2, MSCP Covered). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), and yellow-breasted chat (SSC). Additionally, red-shouldered hawk (County Group 1), barn owl (County Group 2), were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	Mowing (mastication) large stands, hand removal of isolated populations, topographic modification, revegetation with container plantings. A small portion (0.37-acre) of this Phase, mapped as "disturbed habitat," is located along the North Beach Trail and west of the existing Bird and Butterfly Garden has been identified in the TRVRP Feasibility Study (AECOM 2017) as a potential site as a rentable venue facility (a majority of this feature is located in Phase 8). Any planned restoration activity within this Phase should coordinate with County to ensure it does not conflict with any planned future development.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
Phase 8	West of 19th street, south of Sunset Ave to main riparian corridor.	112.19 acres total, with approximately 3.0 acres identified in the 2017 Feasibility Study as a potential rentable venue; 19.31 acres of invasive weed removal in both upland (14.70 acres) and riparian (4.61 acres) habitat types, including scattered invasive weed point locations	Giant reed, eucalyptus, salt cedar, garland daisy, non-native invasive annual species.	Access occurs from Saturn Boulevard where a single six-foot multi-use trail leads south. Additionally, six-foot and four-foot multi-use trails lead south into this area from Sunset Avenue. No Federally or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), San Diego marsh elder (CRPR 2B.2, County List B), Southern California black walnut (CRPR 4.2, County List D), and Torrey pine (CRPR 1B.2, County List A, MSCP Covered). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County group 2), yellow-breasted chat (SSC), Lawrence's goldfinch (BCC), Cooper's hawk (WL, County Group 1, MSCP Covered), northern harrier (SSC, County Group 1, MSCP Covered), double crested cormorant (WL, County Group 2), Belding's orange-throated whiptail (WL, County Group 2, MSCP Covered), Baja California coachwhip (SSC), Blainville's horned lizard (SSC, County Group 2, MSCP Covered), western red bat (SSC, County Group 2). Additionally, barn owl (County Group 2), red-shouldered hawk (County Group 2), Yuma myotis (County Group 2), and monarch (County Group 1) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals. Portions of this Phase located along the North Beach Trail and west of the existing Bird and Butterfly Garden have been identified in the TRVRP Feasibility Study (AECOM 2017) as a potential site as a rentable venue facility. Any planned restoration activity within this Phase should coordinate with County to ensure it does not conflict with any planned future development.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
Phase 9	South of ballfields between Hollister Avenue and Dairy Mart Pond.	125.72 acres; 28.88 acres of invasive weed removal in both upland (19.20 acres) and riparian (9.68 acres) habitat types	Brazilian peppertree, castor bean, Mexican fan palm, garland daisy, mustards, giant reed, salt cedar, non-native invasive annual species	Access occurs from Sunset Avenue and International Road where multiple six-foot and four-foot multi-use trails lead into the area. No Federally or State listed plant species were observed within this area during the 2018 biodiversity study or 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), Torrey pine (CRPR 1B.2, County List A, MSCP Covered), and San Diego marsh elder (CRPR 2B.2, County List B). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), northern harrier (SSC, County Group 1, MSCP Covered), white-tailed kite (FP, County Group 2), Cooper's hawk (WL, County Group 1, MSCP Covered), and Belding's orange-throated whiptail (WL, County Group 2, MSCP Covered). Additionally, red-shouldered hawk (County Group 2) and turkey vulture (County Group 1) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
Phase 10	West of International Road, north of Sunset Avenue.	95.13 acres total, with 64 acres planned for a future Active Recreation Complex; 9.2 acres planned for a potential Community Garden and 16.2 acres for a planned Bike Skills Park. A total of 76.40 acres of invasive weed removal could occur within upland (75.50 acres) and riparian (0.90-acre) habitat types, including scattered invasive weed point locations.	Predominantly upland herbaceous non-native species within portions not proposed for future development.	Access occurs from Sunset Avenue and Hollister Street where multiple six-foot and four-foot multi-use trails lead into the area. No Federally listed, State listed, or special status plant species were observed within this area during the 2018 biodiversity study or 2021 focused species surveys. Federally or State listed special status animal species observed during the 2018 biodiversity study in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County group 2), northern harrier (SSC, County Group 1, MSCP Covered), Blainville's horned lizard (SSC, County Group 2, MSCP Covered). Additionally, barn owl (County Group 2) and red-shouldered hawk (County Group 2) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	The TRVRP Public Use Feasibility Study (AECOM 2017) identifies two future development Projects within this Phase: (1) an active Recreation Complex, and (2) a community garden. The more certain development project, the Active Recreation Complex, is a 64-acre multi-sport facility between International Road and Hollister Street, and north of Sunset Avenue. The venue will consist of soccer, baseball, tennis, basketball, and multi-use turf fields and courts, as well as a host of ancillary facilities associated with this amenity. The community garden would be a 9.2-acre community facility located west of Hollister Street and south of Sunset Avenue and serve as an expansion to the existing community garden to the east, which encompasses another approximate 10-acres. A Bike Skills Park (16.2 acres) is also proposed south of Sunset Avenue and west of 19th Street. The remaining portions of this restoration Phase that is not planned for future development is largely non-native upland and ruderal vegetation situated between the developed community garden and the Tijuana River riparian corridor. Beneficial restoration of these

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
					areas would include treatment of non-native annual weeds, followed by conversion of the disturbed areas into native upland buffer and transitional habitats through seeding and native plantings. If the community garden is not expanded, larger portions of this area would be available for restoration.
Phase 11	North of Monument Road, west of Hollister St. and extending to the western Proposed Project area boundary, and south of the Tijuana River channel.	218.45 acres total, with approximately 72.26-acres potentially available for restoration (57 acres planned for potential campgrounds and another 17.4 acres planned for a potential equestrian center); 115.87 acres of non-native weed removal within both upland (109.00 acres) and riparian (6.87 acres) habitat types.	Salt cedar, giant reed, mustards, non-native grasses, and annual weeds.	Access occurs from Monument Road where multiple six-foot and four-foot multi-use trails lead into the area. No Federally or State listed special status plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. Two special status plant species were observed in this area during the 2018 biodiversity study and 2021 focused species surveys: San Diego sagewort (CRPR 4.2, County list D) and southwestern spiny rush (CRPR 4.2, County List D). Federally or State listed special status animal species observed during the 2018 biodiversity study in this area included coastal California gnatcatcher (FT, SSC, County Group 1, MSCP Covered), western spadefoot (SSC, County Group 2), Northern harrier (SSC, County Group 1, MSCP Covered), and black-tailed jackrabbit (SSC, County Group 2). Additionally, barn owl (County Group 2), was observed in this area during the 2018 biodiversity study.	This restoration Phase is largely within upland areas of the Proposed Project area and restoration activities may include initial weed removal by mowing/discing, planting, seeding, and/or providing supplemental water. Portions of this Phase have been identified in the TRVRP Feasibility Study (AECOM 2017) as a potential site for future campground and equestrian facility, in addition to the campground facility already under construction. Any planned restoration activity within this Phase should coordinate with County to ensure it does not conflict with any planned future development. Although drainages and jurisdictional areas exist within this Phase which drain upland habitats and feed into TRV, all restoration work would be conducted outside of jurisdictional features.

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
					Restoration efforts in this Phase will focus on removal of non-native and invasive species, through line trimming and mowing large stands of invasive weeds, removing, or girdling large trees and removing new saplings, container planting, herbicide treatments of isolated individuals.
Phase 12	South of Monument Road to the park boundary and west, including Monument Mesa and Spooners Mesa, to Goat Canyon	427.99 acres total, with approximately 78.57-acres potentially available for restoration (21.3 acres planned for potential campgrounds and rentable venue within Spooner's Mesa); 100.63 acres of non-native weed removal within both upland (98.80 acres) and riparian (1.83 acres) habitat types.	Garland daisy, mustards, giant reed, non-native grasses, and annual weeds.	Access occurs from Monument Road where multiple six-foot and four-foot multi-use trails lead into the area. No Federally listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. One State listed plant species was observed within this area during the 2018 biodiversity study and 2021 surveys: Baja California bird brush (SE, CRPR 2B.1, County List B). The following special status plant species were additionally observed in this area: San Diego viguiera (County List D), wart-stemmed ceanothus (CRPR 2B.2, County List B, MSCP covered), Nuttall's scrub oak (CRPR 1B.1, County List A), San Diego barrel cactus (CRPR 2B.1, County List B, MSCP covered), ashy spike-moss (CRPR 4.1, County List D), sea dahlia (CRPR 2B.2, County List B), cliff spurge (CRPR 2B.2, County List B), golden-spined cereus (CRPR 2B.2, County List B), single-whorl burrobrush (CRPR 2B.2), western dichondra (CRPR 4.2, County List D), and San Diego bur-sage (CRPR 2.1, County List B). Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, SSC, County Group 1, MSCP Covered), coastal California gnatcatcher (FT, SSC, County Group 1, MSCP covered), peregrine falcon (BCC, FP, County Group 1, MSCP Covered),	This restoration Phase is largely within upland areas of the Proposed Project area and restoration activities may include initial weed removal by mowing/discing, planting, seeding, and/or providing supplemental water. Portions of this Phase within Spooner's Mesa have been identified in the TRVRP Feasibility Study (AECOM 2017) as a potential site for future campground and rentable venue. Any planned restoration activity within this Phase should coordinate with County to ensure it does not conflict with any planned future development. Although drainages and jurisdictional areas exist within this Phase which drain upland habitats and feed into TRV, all restoration work would be conducted outside of jurisdictional features. Restoration efforts in this Phase will focus on removal of non-native and invasive species, through line trimming and mowing large stands of invasive

Phase	Location	Size	Invasive Non-Native Target Species	Constraints	Restoration Strategy
				Coopers hawk (WL, County Group 1, MSCP covered), sharp-shinned hawk (WL, County Group 1), white-tailed kite (FP, County Group 2), southern California rufous-crowned sparrow (WL, County Group 1, MSCP Covered), northern harrier (SSC, County Group 1, MSCP covered), Costa's hummingbird (BCC), California horned lark (WL, County Group 2), merlin (WL, County Group 2), Belding's orange-throated whiptail (WL, County Group 2, MSCP covered), San Diego Bryant's woodrat (SSC, County Group 2), black-tailed jackrabbit (SSC, County Group 2), western mastiff bat (SSC, County Group 2), western red bat (SSC, County Group 2), and pocketed free-tailed bat (SSC, County Group 2). Additionally, barn owl (County Group 2), turkey vulture (County Group 1), red-shouldered hawk (County Group 1), and Yuma myotis (County Group 2) was observed in this area during the 2018 biodiversity study and 2021 focused species surveys.	weeds, removing, or girdling large trees and removing new saplings, container planting, herbicide treatments of isolated individuals.

TABLE 5: POTENTIAL PROJECT PHASES AND ELEMENTS

Phase	Invasive Species Control	Water Quality	Least Bell's Vireo Habitat Restoration	Other Sensitive Species	Corridor/ Habitat Connectivity	Watershed Position	Open Water Habitat	Southern Willow Scrub	Mule Fat Scrub	Other Habitats	Site Access	Seasonal Constraints
1	GR, SC, NNIS	Yes	Yes	No	Yes	Upper	No	Yes	No	No	Poor	Yes
2	GR, M, GD, NNIS	Yes	Yes	Yes	Yes	Upper	Yes	Yes	Yes	Yes	Fair	Yes
3	SC, M, GD, NNIS	No	Yes	No	No	Upper	No	Yes	Yes	Yes	Good	Yes
4	GR, SC, CB, NNIS	Yes	Yes	Yes	Yes	Middle	Yes	Yes	No	No	Poor	Yes
5	GR, SC, E, NNIS	No	Yes	Yes	Yes	Middle	No	Yes	Yes	Yes	Good	Yes
6	GR, SC, GD, NNIS	No	Yes	No	Yes	Lower	No	Yes	Yes	Yes	Good	No
7	GR, SC, CB, NNIS	Yes	Yes	Yes	Yes	Lower	Yes	Yes	No	No	Poor	Yes
8	E, SC, GD, NNIS	Yes	Yes	Yes	Yes	Lower	Yes	Yes	Yes	Yes	Good	Yes
9	GD, M, GR, SC, NNIS	No	Yes	Yes	Yes	Middle	No	Yes	Yes	Yes	Good	Yes
10	E	No	No	Yes	No	Middle	No	No	No	Yes	Good	No
11	M, NNIS, SC	No	No	Yes	Yes	Lower	No	No	Yes	Yes	Good	No
12	GD, M, SC, NNIS, E	No	No	Yes	Yes	Middle-Lower	No	Yes	No	Yes	Good	Yes

Species Code: GR = giant reed; SC = salt cedar; NNIS = non-native invasive species (annuals); M = mustards; CB = castor bean; GD = garland daisy; E = eucalyptus

Technical Approach to Initiating Each Phase

At the initiation of each phase, a general field survey would be conducted to confirm that field conditions within and immediately adjacent to the phase location are consistent with the baseline biological mapping in the HRP. The general field surveys will be used to refine and verify site-specific details, including existing trash, remnant building materials, and debris, dominant vegetation, cover and density of native vegetation, location of drainages or other potentially jurisdictional resources, site topography, and presence of any invasive non-native plant species and the extents of their populations. The field surveys will define the pre-disturbance baseline conditions on all temporary disturbance areas planned for restoration and revegetation efforts. The information collected from these efforts will be used to refine site-specific habitat restoration methods. Native species observed during botanical surveys of the Proposed Project will be used as a guide to site-specific plant selection for container plant and seed restoration palettes.

Additionally, a review of cultural resources information will be conducted to identify potential impacts to archaeological sites. The review will focus on the phased restoration activity areas that may involve ground disturbance and contain recorded cultural resources. All known cultural resources within the phased restoration activity areas will be mapped, and significant, or potentially significant, resources will be identified as 'high cultural resources sensitivity' areas. Phase boundaries may be modified, or ground disturbance limited, in these areas.

Execution Plan Development

Prior to initiating a phased restoration activity, an Execution Plan would be prepared by DPR. The Execution Plans would name the specific techniques in greater detail that would be used to revegetate and rehabilitate the area(s) described. The Execution Plans for each phase would be reviewed by DPR prior to implementation to ensure consistency with the HRP (Appendix A) and the adopted MMRP for the Proposed Project. Each Execution Plan would specify the site preparation, weed removal strategy, as well as necessary seeding, planting, irrigation, monitoring, and maintenance techniques that will be implemented at each restoration site identified. The Execution Plan would also include seed mixes, container plant lists, and an implementation schedule. An Execution Plan may also prohibit specific activities during restricted seasons or identify areas for avoidance (e.g., cultural, biological, or other).

Depending on the activity proposed, an Execution Plan may contain cross-sectional details or other project specifics to further describe the activity proposed. If any ground disturbance is anticipated, an additional explanation of the ecological benefit of the proposed activity will be provided. Site-specific figures would present anticipated temporary impacts and revegetation strategies and schedules following implementation activities.

Pre-Construction Activities

Each phase would involve specified pre-construction activities that may need to occur prior to implementation of an Execution Plan. These activities may not be restricted to the footprint of the Proposed Project area. Pre-construction activities are meant to prepare the Proposed Project site for implementation. In general, pre-construction activities are intended to be ~~no-impact, non~~minimal-soil disturbing measures, that have ~~benign~~ limited environmental impacts. As described in more detail in the HRP (Appendix A), pre-construction activities may include sensitive species surveys, seed collection, invasive non-native plant treatment (including the use of herbicides and plant removal), trash and debris removal, including removal of dilapidated remnants of small structures, such as outbuildings and sheds, and public notification and postings.

Construction Activities

As described in more detail in the HRP (Appendix A), several activities and protocols would be undertaken during implementation of each phase to avoid and minimize impacts to sensitive resources. These include biological and cultural resource monitoring; sensitive species avoidance and minimization measures; soil and plant salvage and storage, including vertical mulching; and invasive non-native plant treatment and biomass removal, including herbicide treatments, hand removal, mechanical mowing, discing and clearing, and solarization. As part of these activities, small topographic modifications and small surface recontouring (potentially up to 0.25-acre per occurrence) may be proposed to enhance hydrologic functions over larger swaths of vegetation communities. Examples of topographic modification within wetland and riparian areas may include the removal of an impediment to a low flow channel that has been caused by an accumulation of debris or rhizomatous root masses which are altering the natural topography of the floodplain. Topographic modification within upland areas may include the redirection of concentrated surface flows to reduce point source erosion and the creation of water bars along dirt roads/trails. A topographic modification project may be performed by a small skip-loader, skid-steer, or small bulldozer. Any impacts created from this activity would be temporary and then disturbed areas would be revegetated.

Seeding and Planting

Plant palettes would be created for specific revegetation sites from seed or other propagules (i.e., vegetative cuttings) collected near a Proposed Project area or purchased seeds collected from within 25 miles of the Proposed Project area or within the Jepson Herbarium California Floristic Province South Coast ecoregion (Jepson 2023), if feasible. Preference would be given to seed and plants sourced from southern coastal San Diego County, if available. If seed and plants are not available in the immediate counties, seed or plants may be acquired from other southern California counties or from commercial sources, as available and deemed appropriate. Representative species palettes for plantings, cuttings, and seedings are presented in the HRP (Appendix A). During development of the Execution Plans, these plant palettes would be customized for each phase according to target habitat type and adjacent dominant vegetation. Only native species would be used for planting and seeding. Appendix A includes a complete list of

native species observed within TRVRP, which may be used for restoration planting and seeding.

Post-Construction Activities

Following completion of the Proposed Project's construction activities, any trash and debris remaining within the Proposed Project area to be restored would be removed and hauled off-site for disposal. Decompaction of soils following construction activities is anticipated to be required for temporary disturbance areas that have been subjected to use by heavy machinery and where heavily compacted soils occur. Proposed Project sites that require topographic modifications would be contour-graded to mimic natural surface topographies prior to implementation of restoration activities. In areas where topsoil has been salvaged, the finished grade would be scarified to a minimum depth of six inches, and the salvaged soil spread over the restoration area to the maximum depth based on the availability of soil. In all areas where soil has been disturbed, erosion control devices would be installed to reduce erosion and sedimentation, bank stabilization, runoff management, and may also function to facilitate revegetation efforts. Supplemental watering would also likely occur. No matter what type of supplemental watering is implemented, the timing and frequency of watering events would be determined by seasonal conditions and/or at the direction of the restoration specialist with the goal of successful plant establishment.

Maintenance, Monitoring, and Reporting Requirements and Performance Criteria

Maintenance, monitoring, and reporting of the revegetation or restoration sites would begin with the implementation of the restoration and revegetation work at each of the Proposed Project's temporary disturbance areas and would continue until the defined success criteria are met or up to three years, whichever is shorter. Restored sites would be maintained per the schedule presented in Table 6, *Maintenance Schedule* and the methods outlined in the following subsections. More detail regarding the methods, success criteria, and reporting requirements to be used are included in the HRP (Appendix A).

TABLE 6: MAINTENANCE SCHEDULE

Maintenance Activity	Frequency
Watering (container plants, cuttings, or as deemed necessary as a remedial action)	• Once or twice weekly during the establishment period (the first three months after planting). • Once or twice monthly for the first year. • As deemed necessary by a qualified biologist for the second year or as a remedial action for under-performing sites. • Irrigation frequencies will be determined by precipitation patterns and site conditions.
Weed Control	Four times per year and additional times according to weed growth cycles. Frequency may be adjusted as needed on a site-by-site basis.
Erosion Control	Once per year in spring (February to April). More visits conducted as conditions (flood, fire, etc.) require.
Trash/ Debris Removal	Trash and debris removal will occur concurrent with other maintenance activities.
Vegetation Trimming	As needed to make safe passage for existing trail use

Contingency Measures

Contingency measures may be warranted in order to address changed circumstances within a specific phase of the Proposed Project or changed circumstances over several phases. For instance, in the event of a disease or insect outbreak, DPR may change courses and take measures to restore defoliated forest habitat by reprioritizing funds for forest restoration or tree thinning in lieu of planting and weed control. If DPR determines upon receipt of any of the annual monitoring reports that the habitat restoration effort is not meeting success standards due to changed circumstances, they may discuss the implementation of contingency measures with the restoration specialist.

Long-Term Management

Following completion of the Proposed Project, long-term maintenance and management of the restoration site would be executed by DPR. Specifically, the site would be part of the DPR Preserve, and as such, would be patrolled regularly by DPR rangers. Park rangers may hand pull any invasive non-native plants in the early stages of growth that are observed during patrols and communicate observations of new or problematic invasive non-native plant species infestations to DPR district managers and/or Resource Management Division staff. Follow-up treatment would then be organized and implemented through coordination with the DPR staff.

9. Surrounding land uses and setting:

   The surrounding land uses include recreation, open space, residential, public agency lands, and vacant/undeveloped land. Additionally, I-5 is located along the northeast boundary of the Proposed Project area and the border between the U.S. and Mexico is located to the south.

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):

Potential Permit/Approval	Responsible Agency
Clean Water Act Section 401 permit	Regional Water Quality Control Board
Clean Water Act Section 404 permit	Army Corps of Engineers
Streambed Alteration Agreement	California Department of Fish and Wildlife
Coastal Development Permit (potential)	City of San Diego

11. Have California Native American tribes traditionally and culturally affiliated with the Project Area requested consultation pursuant to Public Resources Code §21080.3.1? If so, has consultation begun?

YES ☒ NO ☐

Note: Conducting consultation early in the California Environmental Quality Act (CEQA) process allows tribal governments, public lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts on tribal cultural resources, and to reduce the potential for delay and conflict in the environmental review process (see Public Resources Code Section 21083.3.2). Information is also available from the Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(e) contains provisions specific to confidentiality.

AB 52 consultation with registered tribes was initiated between the County and each tribal contact on February 3, 2022, and the consultation request period ended March 12, 2022. On February 4, 2022, via certified mail and email, County staff provided project notification pursuant to AB 52 to seven tribes who have requested that the County provide, in writing, notification to the tribe of projects in the tribe's area of traditional and cultural affiliation. Notified tribes include the Barona Group of the Capitan Grande, Campo Band of Mission Indians, Jamul Indian Village (Jamul), Kwaaymii Laguna Band of Mission Indians, Manzanita Band of Kumeyaay Nation, San Pasqual Band of Mission Indians, Iipay Nation of Santa Ysabel, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians (Viejas).

On April 19, 2022, Jamul responded via email requesting consultation. County staff responded via email sent to Lisa Cumper on September 29, 2022, and again on December 14, 2022, requesting meeting availability for consultation. County staff met with Jamul on January 20, 2023, March 3, 2023, and April 7, 2023. Jamul requested a monitor be present during extensive grading and in known high-sensitivity areas. Ms. Cumper expressed the importance of the Tijuana River Valley to the Jamul Tribe and their history, in terms of cultural resources but also environmental, ethnographical, geographical, and biological resources. The Jamul

Tribe considers the entire valley as an important tribal cultural resource. This discussion on the importance of the Tijuana River Valley to Jamul and the tribal history has been included in the Tribal Cultural Resource section of the MND and the Cultural Resources Inventory and Assessment. Jamul's request for a monitor during extensive grading and in known culturally high-sensitivity areas is reflected in **MM-CUL-3.** Consultation closure was confirmed via email following the meeting on April 7, 2023.

Viejas responded via email on February 4, 2022, requesting that a cultural Native American monitor be present during ground disturbance; requesting a copy of the cultural report; and sharing that they are aware that there are TCRs in the Tijuana River Valley, but do not know specifically where they are located. County staff met with Viejas on September 21, 2022. County staff sent the cultural resources report to Viejas via email on December 14, 2022, and requested for a follow up phone call. County staff sent an additional email to Viejas on January 18, 2023 requesting a phone call. Viejas responded on January 18 asking if there would be any ground disturbing activities as part of the Proposed Project and if Jamul had been provided the same information. County staff responded via email that there may be ground disturbance and that Jamul had received the same information as Viejas. Viejas responded via email on January 18, 2023 that they defer to Jamul on this consultation. Consultation was closed via email on January 18, 2023. No responses or requests for consultation were received from the remaining tribes.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project and involve at least one impact that is a "Potentially Significant Impact" or a "Less Than Significant With Mitigation Incorporated," as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forest Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☒ Geology & Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology and Water Quality	☒ Land Use & Planning	☐ Mineral Resources
☒ Noise	☐ Population & Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities and Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ On the basis of this Initial Study, Department of Parks and Recreation finds that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ On the basis of this Initial Study, Department of Parks and Recreation finds that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ On the basis of this Initial Study, Department of Parks and Recreation finds that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Signature	11/15/2023 Date
Crystal Benham Printed Name	Chief, Resource Management Division Title

INSTRUCTIONS ON EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, Less Than Significant With Mitigation Incorporated, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

I. AESTHETICS

Except as provided in Public Resources Code Section 21009, would the project:

a) Have a substantial adverse effect on a scenic vista?

- ☐ Potentially Significant Impact
- ☒ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

A vista is a view from a particular location or composite views along a public roadway or trail. Scenic vistas often refer to views of natural lands but may also be compositions of natural and developed areas, or even entirely of developed and unnatural areas, such as a scenic vista of a rural town and surrounding agricultural lands. What is scenic to one person may not be scenic to another, so the assessment of what constitutes a scenic vista must consider the perceptions of a variety of viewer groups.

The features that can be seen within a vista are visual resources. Adverse impacts on individual visual resources or the addition of structures or developed areas may or may not adversely affect the vista. Determining the level of impact on a scenic vista requires both analyzing the changes to the vista as a whole and to individual visual resources.

Less Than Significant Impact. The Proposed Project occurs within the TRVRP, which has a visual character categorized by diverse vegetation and the Tijuana River. The Proposed Project involves habitat rehabilitation, which would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not construct permanent structures that would substantially alter the scenic quality in the region. Rather, the Proposed Project is anticipated to improve the scenic quality of the site by removing trash and debris and restore native vegetation. Therefore, impacts would be less than significant.

The Proposed Project would not result in cumulative impacts on a scenic vista based on an evaluation of the Proposed Project viewshed and past, present, and future projects within that viewshed to determine their cumulative effects. Refer to XXI, Mandatory Findings of Significance, for further discussion. Therefore, the Proposed Project would not result in adverse project, or cumulative-level impacts on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

- ☐ Potentially Significant Impact
- ☒ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

State scenic highways refer to those highways that are officially designated by the California Department of Transportation (Caltrans) as scenic (Caltrans - California Scenic Highway Program). Generally, the area defined within a State scenic highway is the land adjacent to and visible from the vehicular ROW. The dimension of a scenic highway is usually identified using a motorist's line of vision, but a reasonable boundary is selected when the view extends to the distant horizon. The scenic highway corridor extends to the visual limits of the landscape abutting the scenic highway.

Less Than Significant Impact: Scenic resources constitute the general visual appearance of a location or landscape, which is dependent on natural features such as geology, vegetation, landforms, and human developments. The Proposed Project is not near or visible within the composite viewshed of a State scenic highway and would not damage or remove visual resources within a State scenic highway. The nearest designated State scenic highway is a portion of State Route (SR-)75, which is located approximately 2.4 miles northwest of the Proposed Project site. The nearest eligible State scenic highway is a portion of I-5 located adjacent to the eastern portion of the Proposed Project site. Although the Proposed Project would be visible from the portion of I-5 that is eligible, the Proposed Project involves habitat restoration and would not substantially damage scenic resources. The Proposed Project involves the removal of invasive non-native vegetation, trash, and debris in the Proposed Project area, which would improve the scenic quality of the site. Therefore, impacts would be less than significant.

The Proposed Project would not result in cumulative impacts to scenic resources within a State scenic highway as the Proposed Project is not visible within the composite viewshed of a State scenic highway and would not damage or remove visual resources within a State scenic highway. No cumulative projects were identified within the vicinity of the Proposed Project. Refer to XXI, Mandatory Findings of Significance, for further discussion. Therefore, the Proposed Project would not result in any adverse project or cumulative level effect on a scenic resource within a State scenic highway.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: Visual character is the objective composition of the visible landscape within a viewshed. Visual quality is the viewer's perception of the visual

environment and varies based on exposure, sensitivity, and expectation of the viewers. The Proposed Project site is located within the TRVRP, which has a visual character categorized by diverse vegetation and the Tijuana River. The Proposed Project involves habitat rehabilitation, which would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. Following completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park. The Proposed Project is compatible with the existing visual environment's visual character and is anticipated to improve the visual quality of the site by removing existing trash and debris. Therefore, the Proposed Project would not substantially degrade the existing visual character and/or visual quality of the site or in the surrounding area.

The Proposed Project would not result in cumulative impacts on visual character or quality based on an evaluation of the existing viewshed. Refer to XXI, Mandatory Findings of Significance, for further discussion. Therefore, the Proposed Project would not result in any adverse project- or cumulative-level effect on visual character or quality on site or in the surrounding area.

d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant with Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project's habitat rehabilitation activities would occur during daytime hours. The Proposed Project would not construct permanent structures that would use lighting or materials with highly reflective properties such as highly reflective glass or high-gloss surface colors. Following the completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park and would have lighting identical to existing conditions. Therefore, the Proposed Project would not create a substantial source of light pollution that could adversely affect day or nighttime views in the area.

II. AGRICULTURE AND FORESTRY RESOURCES

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance (Important Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, or other agricultural resources, to non-agricultural use?

☐ Potentially Significant Impact ☒ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: According to the Farmland Mapping and Monitoring Program of the California Department of Conservation, the Proposed Project area includes land that is designated as Farmland of Local Importance, Prime Farmland, Unique Farmland, Urban and Built-Up Land, and Other Land (California Department of Conservation 2018). The Proposed Project area is not currently used for agricultural cultivation, and following successful restoration, the entire site would continue to be preserved, managed, and maintained in perpetuity by the County. Therefore, no potentially significant project- or cumulative-level conversion of agricultural resources to a non-agricultural use would result from implementation of the Proposed Project.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

☐ Potentially Significant Impact ☐ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project area includes land with several zoning designations, including Open Space – Floodplain (OF-1-1) and Agricultural – Residential (AR-1-1, AR-1-2) which is considered an agricultural zone. However, the Proposed Project would not result in an agricultural zoning conflict because it would not impact agricultural uses on or adjacent to the Proposed Project site. No agricultural cultivation presently occurs in the area. Following successful restoration, the Proposed Project would continue to be preserved, managed, and maintained in perpetuity by the County. Additionally, the Proposed Project site's land is not under a Williamson Act Contract. Further, the Proposed Project includes habitat restoration of the existing regional park and would not change existing uses of the land. Therefore, there would be no conflict with, or cumulatively significant impact on, existing zoning for agricultural use, or a Williamson Act contract.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), or timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

☐ Potentially Significant Impact ☐ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project site does not contain forest lands or timberland. The County does not have any existing Timberland Production Zones. In addition, the Proposed Project involves habitat restoration at the existing regional park and would not change the existing uses of the land. A rezone of the Proposed Project area is not proposed. Therefore, implementation of the Proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland production zones; or result in a cumulatively significant impact related to existing zoning of timberland.

d) Result in the loss of forest land, conversion of forest land to non-forest use, or involve other changes in the existing environment, which, due to their location or nature, could result in conversion of forest land to non-forest use?

☐ Potentially Significant Impact	☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project site does not contain any forest lands as defined in Public Resources Code Section 12220(g); therefore, implementation of the Proposed Project would not result in the loss or conversion of forest land to a non-forest use. In addition, the Proposed Project is not located in the vicinity of off-site forest resources. Therefore, implementation of the Proposed Project would not result in the disturbance, loss, or conversion of forest resources to a non-forest use.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Important Farmland or other agricultural resources, to non-agricultural use?

☐ Potentially Significant Impact	☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☒ No Impact

Discussion/Explanation:

No Impact: No agricultural uses exist on the Proposed Project site. The Proposed Project would involve habitat restoration activities to the existing regional park, which would not limit or prevent the Proposed Project site from being used for agricultural operations in the future. As a result, the Proposed Project would not have a significant adverse impact or cumulative impact related to the conversion of Prime Farmland, Unique Farmland, Farmland of Statewide or Local Importance, or active agricultural operations to a non-agricultural use.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the San Diego Regional Air Quality Strategy (RAQS) or applicable portions of the State Implementation Plan (SIP)?

- ☐ Potentially Significant Impact
- ☒ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project site is located within the San Diego Air Basin (SDAB), which is governed by the San Diego County Air Pollution Control District (SDAPCD). The SDAPCD develops and administers local regulations for stationary air pollutant sources within the SDAB, and also develops plans and programs to meet attainment requirements for both Federal and State ambient air quality standards (National Ambient Air Quality Standards [NAAQS] and California Ambient Air Quality Standards [CAAQS], respectively). The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the Ambient Air Quality Standards (AAQS) in the SDAB. The SDAPCD has developed a series of policies and guidelines collectively known as the Regional Air Quality Strategy (RAQS). The RAQS outlines the SDAPCD's plans and control measures designed to attain the state air quality standards, including applicable portions of the California State Implementation Plan (SIP).

Included in the RAQS are short- and long-term goals for those pollutants that the SDAB is designated as a "nonattainment" area because the SDAPCD does not meet the NAAQS or CAAQS. Criteria pollutants of primary concern include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (including both respirable particulate matter 10 microns or less in diameter [PM_{10}] and fine particulate matter 2.5 microns or less in diameter [$PM_{2.5}$]), sulfur dioxide (SO_2), and lead. The SDAB is currently designated as a basic nonattainment area for the 8-hour NAAQS for ozone. The SDAB is designated as being in attainment for all other applicable criteria pollutants under the NAAQS. The SDAB is currently classified as a nonattainment area under the CAAQS for ozone, PM_{10}, and $PM_{2.5}$. It is in attainment for CO, NO_2, SO_2, and lead relative to state air standards.

The Proposed Project includes habitat rehabilitation within an existing regional park. The Proposed Project would not include the construction of permanent structures and would not result in a permanent increase of guests or inhabitants on the site. Furthermore, construction and maintenance jobs for the Proposed Project would likely recruit from the local pool of labor and would not create conditions for employment growth that exceeds growth estimates for the area. Therefore, the Proposed Project would not generate growth

that would conflict with the RAQS, SIP, or an applicable General Plan. Construction activities would be short-term and anticipated to consist of approximately 20 construction workers. Operation of the Proposed Project would not generate emissions over existing conditions. Following completion of the Proposed Project, the Proposed Project would continue to operate as a regional park. The Proposed Project would not construct features that would generate operational emissions.

As discussed in the Air Quality and Greenhouse Gas Emissions Technical Analysis prepared for the Proposed Project, the Proposed Project would not generate criteria air pollutant emissions during construction activities that would exceed the screening level thresholds set by the SDAPCD (HELIX ~~2022~~2024; Appendix B). This analysis assumes standard construction BMPs will be in place to minimize dust, including reduced speed limits, watering, etc. Therefore, the Proposed Project would not conflict with implementation of applicable air quality plans and impacts would be less than significant.

Because the Proposed Project would not violate ambient air quality standards, it would also not result in a cumulatively considerable impacts on ambient air quality standards when combined with the cumulative projects listed in XVIII, Mandatory Findings of Significance, below.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project would generate criteria pollutants in the short-term during construction activities. Because the Proposed Project involves habitat restoration in a regional park, it would not increase long-term air pollutant emissions in the Proposed Project area, and therefore operational emissions were not modeled. To determine whether a project would result in emissions that would violate an air quality standard or contribute substantially to an existing or projected air quality violation, a project's emissions are evaluated based on the quantitative emission thresholds established by the SDAPCD.

The Proposed Project's criteria pollutant emissions were calculated using equipment emission factors from the California Emissions Estimator Model (CalEEMod) Version 2020.4.0. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association

(CAPCOA) in collaboration with the California air districts. Emissions resulting from worker commutes were quantified using emission factors from the California Air Resources Board's (CARB's) EMFAC Emissions Inventory (CARB 2021).

The Proposed Project would occur in 12 phases. Based on the current breakdown of phases, Phase 1 is anticipated to require handheld equipment such as chainsaws, leaf blowers, and trimmer/edgers. Phases 2-4 are anticipated to require the same equipment in addition to mowers and a tractor. Phases 5-12 are anticipated to require the same equipment as the previous phases, in addition to a chipper/grinder ~~and a bulldozer~~. A bulldozer has also been assumed for all phases.

Proposed Project phases would likely be constructed sequentially, but there is potential for two phases to overlap. This analysis conservatively estimates two phases to occur at a time, with each phase using separate construction equipment. As a conservative analysis, two phases (one of Phases 2-4 and one of Phases 5-12) are assumed to occur simultaneously at a given time. The analysis assumes that each of the 12 phases of the Proposed Project would last approximately 10 weeks. Each phase may also include additional pre-construction and post-construction activities (i.e., seed collection, plant treatment, trash/debris removal, including removal of dilapidated remnants of small structures), ~~but such activities would be minor and are not anticipated to require specialized equipment. As such, emissions associated with these activities were not modeled.~~

Construction of the Proposed Project would generate short-term criteria air pollutant emissions, including emissions of volatile organic compounds (VOCs), NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. An estimate of the maximum daily emissions of each criteria air pollutant during construction of the Proposed Project is presented in Table 7, *Maximum Daily Construction Emissions*.

TABLE 7: MAXIMUM DAILY CONSTRUCTION EMISSIONS

Construction Phases	Pollutant Emissions (pounds per day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Phase 1	~~20~~23	~~<1~~32	~~66~~92	<1	~~<1~~2	~~<1~~1
Each of Phases 2-4	~~27~~30	~~7~~39	~~206~~232	<1	~~1~~3	~~1~~1
Each of Phases 5-12	32	44	309	<1	4	4
Maximum Daily Emissions[1]	~~59~~62	~~51~~83	~~515~~542	<1	~~5~~7	~~5~~6
SDAPCD Thresholds	75	250	550	250	100	55
Significant Impact?	No	No	No	No	No	No

Source: HELIX ~~2022~~2024

Note: Emissions are rounded to the nearest whole number.

[1] It is assumed a maximum of two phases (one of Phases 2-4 and one of Phases 5-12) would be constructed at a single time. Therefore, maximum daily emissions are calculated as the sum of one of Phases 2-4 and one of Phases 5-12.

VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

As shown in Table 7, emissions of criteria pollutants related to construction of the Proposed Project, activities would be below the daily thresholds. Therefore, impacts from criteria pollutants generated during construction would be less than significant.

As discussed in section XXI, Mandatory Findings of Significance, the emissions associated with the Proposed Project would not create a cumulatively considerable impact nor a considerable net increase of PM_{10}, $PM_{2.5}$, NO_X, SO_X, CO, or VOCs.

c) Expose sensitive receptors to substantial pollutant concentrations?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Air quality regulators typically define sensitive receptors as schools (Preschool–Grade 12), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. The County also considers residences as sensitive receptors because they house children and the elderly.

Less Than Significant Impact: The Proposed Project would occur throughout approximately 1,740.75 acres within TRVRP. The nearest sensitive uses include the residences located adjacent to various areas of the Proposed Project site. However, the Proposed Project does not propose uses or activities that would result in exposure of sensitive receptors to significant pollutant concentrations and would not place sensitive receptors near carbon monoxide hotspots. Construction activities would be temporary and would require minimal equipment. As shown in item III b) above, the Proposed Project would not generate emissions that exceed the SDAPCD thresholds. Further, construction activities would occur throughout the Proposed Project site, with the majority of activities occurring amongst 578.93 acres so emissions would not be concentrated next to sensitive receptors. Following completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park that would not generate significant air quality emissions. In addition, the Proposed Project would not contribute to a cumulatively considerable exposure of sensitive receptors to substantial pollutant concentrations because no cumulative projects were identified within the vicinity of the Proposed Project. Refer to XXI, Mandatory Findings of Significance, for further discussion.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project could result in emissions during construction activities that produce objectionable odors, such as exhaust from

construction equipment. However, such odors would be a temporary source of nuisance that would not affect a substantial number of people and would be limited to areas closed during construction activities. Moreover, the effects of objectionable odors are localized to the immediate surrounding area and would not contribute to a cumulatively considerable odor. Following completion of the Proposed Project, the Proposed Project site would continue operating as a regional park that would not be a significant source of objectional odors. Refer to XXI, Mandatory Findings of Significance, for further discussion. As such, impacts as a result of odors generated by the Proposed Project would be less than significant.

IV. BIOLOGICAL RESOURCES

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less than Significant with Mitigation Incorporated: A Biological Resources Technical Report (BRTR) was prepared for the Proposed Project (HELIX ~~2023b~~2024b; Appendix C). The BRTR includes a comprehensive review of the biological resources present and potentially present at the Proposed Project site using methods such as literature review, vegetation mapping, habitat assessment, focused species surveys, and jurisdictional delineation.

According to the BRTR, the Proposed Project is intended to provide habitat restoration, and impacts incurred during implementation of the Proposed Project as described below are considered temporary and would be self-mitigated through the completion of the Proposed Project itself. In total, 17 special status plant species were observed within the study area during the BRTR surveys: San Diego bur-sage, singlewhorl burrobrush, San Diego sagewort, San Diego County viguiera, golden-spined cereus, wart-stemmed ceanothus, western dichondra, cliff spurge, San Diego barrel cactus, San Diego marsh-elder, southern California black walnut, southwestern spiny rush, sea dahlia Baja California birdbush, Torrey pine, Nuttall's scrub oak, and ashy spike-moss. The Proposed Project would potentially result in impacts to four special status plant species: San Diego marsh-elder, San Diego sagewort, southwestern spiny rush, and singlewhorl burrobrush. Impacts to San Diego sagewort and southwestern spiny rush are considered less than significant because these species occur within similar habitat adjacent to the study area and are widespread throughout the City MSCP Subarea Plan subregion (HELIX

~~2023b~~2024b). Potential significant impacts would occur to singlewhorl burrobrush and San Diego marsh-elder but would be mitigated to less than significant levels. Eleven special status plant species (Baja California birdbush, Nuttall's scrub oak, San Diego bur-sage, San Diego barrel cactus, golden-spined cereus, wart-stemmed ceanothus, cliff spurge, ashy spike-moss, western dichondra, southern California black walnut, and San Diego County viguiera) occur outside of proposed restoration areas where no impacts are proposed, and thus, Proposed Project impacts on these species are unlikely. Additionally, while Torrey pine occurs as planted individuals within the anticipated Proposed Project area in Phases 7 and 9, all individuals observed on-site would remain undisturbed and would not be impacted.

A total of 38 special status animal species were observed or detected on or within the study area, or observed flying over the study area, during biological surveys conducted for the BRTR, including 12 County Group 1 species, 20 County Group 2 species, one species that is not on the County Group lists, but is a state Species of Special Concern, one species that is not on the County Group lists, but is a state Watch List species, and two species that are not on County Group lists, but are a Federal Bird of Conservation Concern. The species include: monarch butterfly, Quino checkerspot butterfly, western spadefoot toad, Belding's orange-throated whiptail, Baja California coachwhip, Blainville's horned lizard, Cooper's hawk, sharp-shinned hawk, southern California rufous-crowned sparrow, great blue heron, red-shouldered hawk, green heron, Costa's hummingbird, northern cardinal, turkey vulture, northern harrier, white-tailed kite, California horned lark, merlin, American peregrine falcon, yellow-breasted chat, gadwall, osprey, American white pelican, double-crested cormorant, white-faced ibis, coastal California gnatcatcher, yellow warbler, western bluebird, Lawrence's goldfinch, barn owl, least Bell's vireo, western mastiff bat, western red bat, San Diego black-tailed jackrabbit, Yuma myotis, San Diego desert woodrat, and pocketed free-tailed bat (HELIX ~~2023b~~2024b). Most Proposed Project effects on wildlife species would be through the temporary reduction in suitable habitat used by that species, but because of the mobility of wildlife and the amount of habitat available in the area, most impacts would not be significant. However, the Proposed Project would have the potential to cause significant direct or indirect impacts to three special status animal species: least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly. The effects of the Proposed Project on these three species are discussed below.

Least Bell's vireo is a Federally and state listed endangered, County Group 1, and MSCP covered species. The least Bell's vireo was detected within the study area during the spring and summer months during multiple survey efforts in 2018 and 2021 in multiple locations. In total, the Proposed Project would temporarily impact a total of 176.52 acres of suitable habitat for this species (southern riparian forest [including disturbed], non-native riparian, southern willow scrub [including disturbed], mule fat scrub [including disturbed], tamarisk scrub, disturbed riparian scrub, and arundo-dominated riparian). The Proposed Project would also temporarily impact 221.42 acres of land within USFWS critical habitat for this species. Additionally, noise related to restoration activities adjacent to active nests could result in adverse indirect impacts. Following treatment and removal of invasive non-native plant species, the Proposed Project would restore additional, higher quality habitat for the species through the revegetation and restoration of

approximately 176.52 acres of native wetland/riparian habitat along the Tijuana River corridor.

Coastal California gnatcatcher is a Federally listed threatened, State Species of Special Concern, County Group 1 species, and MSCP covered species. The coastal California gnatcatcher was detected within the southern portion of the Study area during multiple HELIX survey efforts in 2018 and 2021 within the vicinities of Phases 11 and 12. In total, the Proposed Project would temporarily impact a total of 25.6 acres of suitable habitat for this species (Diegan coastal sage scrub [including disturbed], and Diegan coastal sage scrub: baccharis dominated [including disturbed]). Additionally, noise related to restoration activities adjacent to active nests could result in adverse indirect impacts. Following treatment and removal of invasive non-native plant species, the Proposed Project would restore additional, higher quality habitat for the species through the revegetation and restoration of a maximum of 418.6 acres of coastal sage scrub habitat. Phases 1, 3, 6, and 10 to 11 would not impact Diegan coastal sage scrub and would not pass within 500 feet of an observed coastal California gnatcatcher location documented during the 2021 protocol survey. Phases 2, 4, 5, 8, and 9 would impact Diegan coastal sage scrub but would not pass within 500 feet of an observed coastal California gnatcatcher location. Phase 12 would impact Diegan coastal sage scrub and occur within 500 feet of an observed coastal California gnatcatcher location.

Quino checkerspot butterfly were observed at three locations within Phase 12 during surveys conducted in 2019. Phase 12 would temporarily impact a total of 20.4 acres of suitable habitat for this species, comprising 20.4 acres of disturbed Diegan coastal sage scrub intermixed with the Quino's primary host plant dwarf plantain (*Plantago erecta*) and nectaring resources goldfields (*Lasthenia* spp.) and California buckwheat (*Eriogonum fasciculatum*). Proposed Project construction within on-site breeding habitat for this sensitive species could result in adverse impacts. These impacts would be considered significant.

The BRTR divides the potential impacts identified above and associated mitigation measures by phase. Potential impacts and associated mitigation measures required per phase are detailed below.

Phase 1: Phase 1 has the potential to significantly impact suitable habitat for least Bell's vireo, the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), nesting success of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1** and **MM-BIO-2**, impacts to least Bell's vireo and County Group 1 birds in Phase 1 would be less than significant.

Phase 2: Phase 2 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1** and **MM-BIO-2,** impacts to least Bell's vireo in Phase 2 would be less than significant. Phase 2 may also result in significant impacts to San Diego marsh elder and singlewhorl burrobrush; however, impacts to these species would be reduced to a less than significant level through implementation of mitigation measures **MM-BIO-3 and MM-BIO-4**, respectively.

Phase 2 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo, coastal California gnatcatcher, and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 through MM-BIO-4**, impacts in Phase 2 would be less than significant.

Phase 3: Phase 3 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1** and, **MM-BIO-2**, impacts to least Bell's vireo in Phase 3 would be less than significant. Phase 3 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 and MM-BIO-2**, impacts in Phase 3 would be less than significant.

Phase 4: Phase 4 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1** and **MM-BIO-2**, impacts to least Bell's vireo in Phase 4 would be reduced to less than significant. Phase 4 may also result in significant impacts to singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measure **MM-BIO-4**. Phase 4 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 and MM-BIO-2** and **MM-BIO-4**, impacts in Phase 4 would be less than significant.

Phase 5: Phase 5 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo in Phase 5 would be reduced to less than significant. Phase 5 may also result in significant impacts to singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measure **MM-BIO-4**. Phase 5 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1, MM-BIO-2 and MM-BIO-4,** impacts in Phase 5 would be less than significant.

Phase 6: Phase 6 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo in Phase 6 would be reduced to less than significant. Phase 6 may also impact the nesting success of County Group 1 birds and raptors (osprey,

Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 and MM-BIO-2**, impacts in Phase 6 would be less than significant.

Phase 7: Phase 7 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo in Phase 7 would be reduced to less than significant. Phase 7 may also result in significant impacts to singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measure **MM-BIO-4**. Phase 7 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1, MM-BIO-2, and MM-BIO-4**, impacts in Phase 7 would be less than significant.

Phase 8: Phase 8 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1and MM-BIO-2**, impacts to least Bell's vireo in Phase would be reduced to less than significant. Phase 8 may also result in significant impacts to singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measure **MM-BIO-4**. Phase 8 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1, MM-BIO-2, and MM-BIO-4**, impacts in Phase 8 would be less than significant.

Phase 9: Phase 9 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo in Phase 9 would be reduced to less than significant. Phase 9 may also result in significant impacts to San Diego march elder and singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measures **MM-BIO-3 and MM-BIO-4**, respectively. Phase 9 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 through MM-BIO-4**, impacts in Phase 9 would be less than significant.

Phase 10: Phase 10 has the potential to significantly impact suitable habitat for least Bell's vireo; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo in Phase 10 would be reduced to less than significant. Phase 10 may also impact the nesting success of County Group 1 birds and

raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 and MM-BIO-2**, impacts in Phase 10 would be less than significant.

Phase 11: Phase 11 has the potential to significantly impact suitable habitat for least Bell's vireo and coastal California gnatcatchers; however, with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to least Bell's vireo and coastal California gnatcatcher in Phase 11 would be reduced to less than significant. Phase 11 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo, coastal California gnatcatcher, and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1 and MM-BIO-2**, impacts in Phase 11 would be less than significant.

Phase 12: Phase 12 has the potential to significantly impact suitable habitat for least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly. Impacts to least Bell's vireo habitat would be reduced to a less than significant level with implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**. Impacts to coastal California gnatcatcher habitat would be reduced to a less than significant level with implementation of mitigation measures **MM-BIO-1** and **MM-BIO-2**. Impacts to Quino checkerspot butterfly habitat would be reduced to a less than significant level with implementation of mitigation measure **MM-BIO-5**. Phase 12 may also result in significant impacts to singlewhorl burrobrush; however, impacts would be reduced to a less than significant level through implementation of mitigation measure **MM-BIO-4**. Phase 12 may also impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), and of least Bell's vireo, coastal California gnatcatcher, and tree-nesting raptors. With implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to County Group 1 birds would be less than significant. Therefore, with implementation of **MM-BIO-1, MM-BIO-2**, **MM-BIO 4, and MM-BIO-5**, impacts in Phase 12 would be less than significant.

With implementation of the proposed mitigation measures, the Proposed Project would result in less than significant impacts to sensitive species and their habitats. As discussed in the BRTR (Appendix C), all other sensitive species with the potential to occur on the Proposed Project site would experience less than significant impacts. As the Proposed Project would ultimately be in conformance with the City MSCP Subarea Plan and any other projects proposed in the vicinity would also have to follow the City MSCP Subarea Plan, cumulative impacts would be considered fully mitigated.

To reduce impacts to sensitive species from the Proposed Project implementation, the following mitigation measures would be required:

MM-BIO-1 Grubbing or clearing of vegetation of any phase of the Proposed Project during the general avian breeding season (February 1 to September 15), least Bell's vireo breeding season (March 15 to September 15), coastal California gnatcatcher breeding season (March 1 to August 15), or raptor breeding season (January 15 to July 15) shall be avoided to the extent feasible. If grubbing, clearing, or grading would occur during the breeding season, a pre-construction survey shall be conducted by a qualified biologist no more than three days prior to the commencement of activities to determine if active bird nests are present in the affected areas. If there are no nesting birds (includes nest building or other breeding/nesting behavior) within 300 feet of the survey area (500 feet for raptors), clearing, grubbing, and grading shall be allowed to proceed in that area. Furthermore, if clearing, grubbing, or grading activities are to resume in an area where they have not occurred for a period of seven or more days during the breeding season, an updated survey for avian nesting will be conducted by a qualified biologist within three days prior to the commencement of clearing, grubbing, or grading activities in that area. If active nests or nesting birds are observed within 300 feet of the survey area (500 feet for raptors), the biologist shall flag a buffer around the active nests, and clearing, grubbing, or grading activities shall not occur within 300 feet of active nests (500 feet for raptors) until nesting behavior has ceased, nests have failed, or young have fledged as determined by a qualified biologist. If the qualified biologist determines that the species will not be impacted with a reduced buffer (i.e., less than 300 feet for general avian species and 500 feet for raptors), potentially with the implementation of avoidance measures to reduce noise, as necessary, and/or the qualified biologist monitors the active nest during clearing, grubbing, or grading to ensure no impacts to the species occur, these activities may occur outside the reduced buffer during the breeding season, as long as the species is not impacted.

MM-BIO-2 If heavy equipment would be in operation in any phase of the Proposed Project during the breeding season for least Bell's vireo (March 15 to September 15), coastal California gnatcatcher (March 1 to August 15), or raptors (January 15 to July 15), pre-construction survey(s) shall be conducted by a qualified biologist, as appropriate, to determine whether these species occur within the areas potentially impacted by noise. If pre-construction surveys determine that active nests belonging to these species are absent from the potential impact area (within 300 feet for vireo or gnatcatcher, 500 feet for raptors, or as otherwise determined by a qualified biologist), clearing, grubbing, and grading shall be allowed to proceed. If pre-construction surveys determine the presence of active nests belonging to these species, then clearing, grubbing, and grading within 300 feet of the nest location(s) for vireo or gnatcatcher and 500 feet for raptors, shall: (1) be postponed until a permitted biologist determines the nest is no longer active; (2) be allowed to continue if nest monitoring by a qualified biologist determines that noise levels are not adversely affecting the nesting birds; or (3) not occur until a temporary noise barrier or berm is constructed at the edge of the clearing, grubbing, or grading footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 A-weighted decibels (dBA) or ambient at the nest location. Decibel output for Item (3) will be confirmed by a qualified noise specialist and intermittent monitoring by a qualified biologist will be required to ensure that conditions have not changed.

MM-BIO-3 Mitigation for impacts occurring within all phases of the Proposed Project to six individuals of San Diego marsh elder, a CRPR 2B.2 and County List B plant species, shall occur through the inclusion of this species in the Proposed Project's restoration plant palette.

MM-BIO-4 Mitigation for impacts occurring within all phases of the Proposed Project to 68 individuals of singlewhorl burrobrush, a CRPR 2B.2 plant species, shall occur through the inclusion of this species in the Proposed Project's restoration plant palette.

MM-BIO-5 The following Quino conservation measures apply in Phase 12, shown as Quino Checkerspot Butterfly Avoidance Area on Figures 14a and 14e-14f of Appendix C to this IS/MND.

Step 1, Survey

- Additional Quino host plant mapping conducted prior to construction when host plants are blooming, in order to ensure host plant patches are delineated to the greatest extent feasible.

- During host plant mapping, host plant patches will be mapped using GPS so they can be flagged prior to construction.

Step 2, Avoidance and Minimization Measures

- Following host plant mapping, realign or leave potential restoration areas unimproved, as needed, to avoid direct impacts to host plants as much as possible.

- All construction within mapped Quino host plant patches will be prohibited during the Quino flight season (defined as the third week of February through the second Saturday in May).

- A qualified biologist will intermittently monitor construction within the Quino Avoidance Area to ensure that all flagged and mapped host plant locations planned for avoidance are avoided.

- The qualified biologist will conduct environmental awareness training for all contractors entering the site during the construction of the Proposed Project.

- Following restoration installation, maintenance activities in areas supporting Quino host plants within the Quino Avoidance Area shall either occur outside of the Quino flight season or be monitored, as appropriate, by a qualified biologist.

- Install signs and/or fencing along the avoided host plants stating, "Environmentally sensitive area. Please stay on trail," or similar language.

Step 3, Compensatory Mitigation

If the restoration cannot be redesigned to avoid impacts to all occupied Quino host plant patches, then in addition to the surveys and avoidance and minimization measures in Steps 1 and 2 above, consultation with USFWS will be required. Mitigation may consist of one or a combination of on- or off-site planting of host plants, providing long-term maintenance of existing host plants, preserving occupied Quino habitat, or similar measures to the satisfaction of the USFWS.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less than Significant with Mitigation Incorporated: According to the BRTR (Appendix C), the Proposed Project may result in significant, temporary effects on particular biological resources – such as special-status species. Following County Guidelines, 595.14 acres of the approximately 1,740.75 Proposed Project area would be considered temporarily impacted as part of the Proposed Project. Of which, temporary impacts to sensitive habitats at a maximum would total 216.94 acres. These temporarily impacted areas are described for each phase below.

As the intent of the Proposed Project is habitat restoration, impacts incurred during Proposed Project implementation are considered temporary and would be self-mitigated through the completion of the Proposed Project itself. The HRP would be used during the submittal process relative to agency permitting, updated as necessary, and incorporated into final permit conditions. Because of the nature of the Proposed Project being habitat restoration, the temporary impacts to special status species described below are considered self-mitigating and therefore less than significant.

Phase 1: Implementation of Phase 1 of the Proposed Project would result in direct impacts to approximately 8.50 acres of sensitive vegetation communities, including 6.24 acres of non-native riparian, 0.75 acre of tamarisk scrub, and 1.51 acres of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 2: Implementation of Phase 2 of the Proposed Project would result in direct impacts to approximately 10.13 acres of sensitive vegetation communities, including 0.01 acre of saltgrass grassland, less than 0.01 acre (0.003 acre) of coastal valley and freshwater marsh, 0.03 acre of emergent wetland, 0.86 acre of southern riparian forest,

0.16 acre of non-native riparian, 0.33 acre of southern willow scrub, 0.06 acre of mule fat scrub, 1.76 acres of tamarisk scrub, and 6.69 acres of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 3: Implementation of Phase 3 of the Proposed Project would result in direct impacts to approximately 4.14 acres of sensitive vegetation communities, including 0.03 acre of southern willow scrub, 0.02 acre of mule fat scrub, and 4.09 acres of tamarisk scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 4: Implementation of Phase 4 of the Proposed Project would result in direct impacts to approximately 105.37 acres of sensitive vegetation communities, including 0.32 acre of southern riparian forest, 2.14 acres of disturbed southern riparian forest, 6.04 acres of non-native riparian, 0.14 acre of southern willow scrub, 0.13 acre of mule fat scrub, 5.74 acres of tamarisk scrub, 89.77 acres of arundo-dominated riparian, 0.2 acre of Diegan coastal sage scrub: baccharis dominated, 0.6 acre of disturbed Diegan coastal sage scrub: baccharis dominated, less than 0.1 acre (0.09 acre) of disturbed Diegan coastal sage scrub, and 0.2 acre of chenopod scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 5: Implementation of Phase 5 of the Proposed Project would result in direct impacts to approximately 3.31 acres of sensitive vegetation communities, including 0.04 acre of southern riparian forest, 0.03 acre of southern willow scrub, 0.04 acre of mule fat scrub, 2.02 acres of arundo-dominated riparian, less than 0.1 acre (0.08 acre) of Diegan coastal sage scrub, and 1.1 acres of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 6: Implementation of Phase 6 of the Proposed Project would result in direct impacts to approximately 0.69 acre of sensitive vegetation communities, including 0.03 acre of southern riparian forest, 0.13 acre of southern willow scrub, 0.22 acre of mule fat scrub, 0.28 acre of tamarisk scrub, and 0.03 acre of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 7: Implementation of Phase 7 of the Proposed Project would result in direct impacts to approximately 23.73 acres of sensitive vegetation communities, including 2.35 acres of southern riparian forest, 0.12 acre of southern willow scrub, 0.03 acre of mule fat scrub, 4.24 acres of tamarisk scrub, 16.29 acres of arundo-dominated riparian,

and 0.7 acre of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 8: Implementation of Phase 8 of the Proposed Project would result in direct impacts to approximately 4.81 acres of sensitive vegetation communities, including 0.38 acre of southern riparian forest, 0.31 acre of southern willow scrub, 0.13 acre of mule fat scrub, 2.10 acres of tamarisk scrub, 1.69 acres of arundo-dominated riparian, and 0.7 acre of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 9: Implementation of Phase 9 of the Proposed Project would result in direct impacts to approximately 11.88 acres of sensitive vegetation communities, including 0.26 acre of southern riparian forest, 0.51-acre of disturbed southern riparian forest, 0.29 acre of southern willow scrub, 0.52-acre of disturbed southern willow scrub, 1.88 acres of disturbed mule fat scrub, 3.12 acres of tamarisk scrub, 3.10 acres of arundo-dominated riparian, 1.8 acres of disturbed Diegan coastal sage scrub, and 0.4 acre of non-native grassland. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 10: Implementation of Phase 10 of the Proposed Project would result in direct impacts to approximately 0.90 acre of sensitive vegetation communities, including 0.09 acre of disturbed southern willow scrub, 0.55 acre of tamarisk scrub, and 0.26 acre of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 11: Implementation of Phase 11 of the Proposed Project would result in direct impacts to approximately 11.57 acres of sensitive vegetation communities, including 0.02 acre of southern riparian forest, 0.41-acre of non-native riparian, 4.94 acres of disturbed southern willow scrub, 1.23 acres of tamarisk scrub, 0.27-acre of arundo-dominated riparian, and 4.7 acres of non-native grassland. These impacts would be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 12: Implementation of Phase 12 of the Proposed Project would result in direct impacts to approximately 31.93 acres of sensitive vegetation communities, including 0.13 acre of disturbed southern willow scrub, 0.48 acre of tamarisk scrub, 0.06 acre of disturbed riparian scrub, 1.16 acres of arundo-dominated riparian, 20.4 acres of disturbed Diegan coastal sage scrub, and 9.7 acres of non-native grassland. These impacts would

be temporary in nature and would be self-mitigated through the completion of the Proposed Project itself, as the intent of the Proposed Project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

The Proposed Project would result in impacts to jurisdictional wetlands and riparian habitats as defined by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), CDFW, CCC, and/or County. Impacts to jurisdictional waters and wetlands include 151.70 acres of wetland waters of the U.S., 151.70 acres of wetland waters of the State, 174.50 acres of riparian habitat under CDFW jurisdiction, and 174.50 acres of CCC coastal wetlands. These impacts would be considered potentially significant. These impacts would be reduced to a less than significant level through the implementation of mitigation measures **MM-BIO-6 and MM-BIO-7**, which require the Proposed Project to obtain wetland permits through the appropriate wetland permitting agencies and prepare a HRP and subsequent Execution Plans to offset Proposed Project impacts to wetland habitat and water resources to wetland habitat and jurisdictional waters.

Indirect impacts to adjacent jurisdiction waters and wetlands could occur through inadvertent intrusion into these adjacent areas by construction vehicles, equipment, and personnel. These impacts would be mitigated through the implementation of mitigation measures **MM-BIO-8 and MM-BIO-9**.

No groundwater withdrawals or activities that would result in lowering of the groundwater table are proposed. No significant impact would occur. Potentially significant indirect impacts to sensitive habitat resulting from human access, domestic animals, exotic plant species, and lighting would be avoided through the following Proposed Project design features: (1) signs precluding access to the restoration area shall be posted; (2) off-leash pets would not be allowed on trails or public areas and signs would be posted along trails notifying pet owners of this regulation; (3) only non-invasive, native plant species would be included in the landscape plan for the site (species not listed on the California Invasive Plant Inventory prepared by the California Invasive Plant Council); (4) if night lighting is utilized during construction, the Proposed Project would be required to direct all necessary lighting in a downward direction with appropriate shield and illumination technology to prevent adverse spillover of light; and (5) no operational project lighting is proposed; no significant impact would occur. The Proposed Project is exempt from the County's Resources Protection Ordinance (RPO) requirements, pursuant to Section 86.605(c) of the RPO. Therefore, no wetland buffer is required.

Impacts to jurisdictional wetlands and riparian habitats would require the following mitigation:

MM-BIO-6 Impacts to jurisdictional wetland and waterway resources require permits and authorizations by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife prior to impacts. The County shall acquire appropriate permits and approvals from the resource agencies prior to impacts.

MM-BIO-7 A Habitat Restoration Plan addressing impacts and subsequent restoration of wetland habitat and jurisdictional waters, as well as sensitive upland habitats, shall be submitted to the County for review and approval. The Plan shall also be submitted to the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) for review and approval, with scope of review limited to impacts within each Agency's jurisdictional extent, as applicable.

MM-BIO-8 To help ensure errant impacts to sensitive vegetation communities outside of the impact footprint are avoided during construction, temporary environmental fencing (including silt fencing where determined necessary by the Stormwater Pollution Prevention Plan [SWPPP]), would be installed at the edges of the impact limits prior to initiation of grading. All construction staging shall occur within the approved limits of construction.

MM-BIO-9 A qualified biologist shall monitor the installation of environmental fencing wherever it would abut sensitive vegetation communities, jurisdictional waters or wetlands, or open space. The biologist also would conduct a pre-construction environmental training session for construction personnel prior to all phases of restoration to inform them of the sensitive biological resources on-site and avoidance measures to remain in compliance with Proposed Project approvals. The biologist shall monitor the initial vegetation clearing, grubbing, and grading activities to ensure that activities occur within the approved limits of work and avoid impacts to nesting birds. The biologist shall periodically monitor the limits of construction and restoration to ensure that restoration and avoidance areas are delineated with temporary fencing and that the fencing remains intact. As part of the pre-construction survey and periodic monitoring, construction personnel will review trenches and holes for entrapped wildlife prior to construction including pipes, culverts, and similar construction materials. If sensitive wildlife species are observed during the pre-construction survey, a qualified biologist shall require additional measures to reduce potential impacts.

Implementation of the Proposed Project restoration activities and these mitigation measures would reduce Proposed Project-level impacts to sensitive communities to less than significant. Furthermore, as the Proposed Project would provide mitigation in accordance with County and regulatory agency guidelines, the Proposed Project's contribution to cumulative impacts would not be considered significant.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

☐ Potentially Significant Impact	☐ Less than Significant Impact
☒ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less Than Significant: According to the BRTR, implementation of the Proposed Project would result in impacts to 151.70 acres of wetland waters of the U.S. Impacts to wetland and non-wetland waters of the U.S. would be considered potentially significant. Impacts to USACE wetland and non-wetland waters would be mitigated through the implementation of mitigation measure **MM-BIO-6**, above. The Proposed Project would also result in potentially significant impacts to RWQCB wetland waters of the State, CDFW -jurisdictional habitat, and CCC wetlands. Impacts to jurisdictional areas would require permitting through the appropriate regulatory agencies, as discussed below. Securing necessary wetland permits prior to ground disturbance would be required. Anticipated wetland permits include a Nationwide Permit (NWP) number 27 permit from the USACE, CWA Section 401 Water Quality Certification or State Porter-Cologne Water Quality Control Act Waste Discharge requirements from the RWQCB, California Fish and Game Code (CFGC) Section 1602 Streambed Alteration Agreement from CDFW and either a Coastal Development Permit (CDP) from the California Coastal Commission or from the City of San Diego under their Local Coastal Program. Final permit requirements would be determined through consultation with the USACE, RWQCB, and CDFW, and would reduce impacts to less than significant.

The Proposed Project's temporary impacts to 151.70 acres of USACE jurisdictional areas, comprising wetland waters of the U.S., while significant at the Proposed Project level would be fully self-mitigated through completion of the Proposed Project itself. The Proposed Project is habitat restoration and would include one or a combination of the following: on-site establishment, re-establishment, rehabilitation, enhancement, and/or preservation. The Proposed Project would conform to the USACE's no net loss policy, which would also be a requirement of other projects with potential for impacts to jurisdictional wetlands; thus, no cumulatively significant impact would occur.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: Although the Proposed Project would temporarily impact areas used by species for foraging and breeding, the Proposed Project would not impede wildlife access to areas necessary for reproduction, as sufficient habitat to support these species occurs throughout the study area, vegetation impacts associated from restoration activities would be temporary, lines-of-sight would be maintained across restoration areas, wildlife may cross the restoration areas, and connections to off-site lands also

would be maintained. Similarly, wildlife may continue to access foraging habitat and water sources.

Access to these resources is expected to be maintained for a variety of species, including birds, terrestrial wildlife, and aquatic animals. Construction activities associated with the Proposed Project would not impede access or lessen the area available for terrestrial wildlife movement. Coyotes are not known to avoid restoration sites. Movement of other medium-sized mammals, such as bobcat, is more likely to follow riparian areas associated with the Tijuana River and other areas with sufficient vegetative cover. Small animals could also cross the proposed restoration areas. The Proposed Project would maintain a continuous connection of undeveloped land and native habitat, including connections to the TSNWR. The Proposed Project would also conform to the goals and requirements of the City MSCP Subarea Plan and County Biological Mitigation Ordinance (BMO), including effects on habitat linkages and wildlife corridors.

To the greatest extent practicable, the proposed activities would restore native habitat to areas that have become infested with invasive non-native species, and large expanses of native habitat would be maintained and improved. Additionally, because the restoration areas are not lighted, they would be available for wildlife usage outside of daylight hours. Potential impediments to movement from removal/treatment of invasive non-native plant species would not substantially interfere with natural movement patterns or access due to alternate travel routes throughout the local area. Adequate space and connectivity of habitat would remain in the local area, and local and regional movement functions would continue throughout. In conclusion, although the Proposed Project would introduce new temporary disturbances from treatment/removal of invasive non-native plant species that would potentially result in minor interruptions to local wildlife movement within the site, the effects would not be substantially adverse and no artificial corridors would be created. Impacts would be less than significant.

Wildlife movement in the area has already been impacted by the construction of roads through the TRVRP (including Monument Road and Hollister Road), adjacent residential and commercial development, and agriculture, as well as the presence of existing trails, maintenance, and access roads. The Proposed Project maintains connectivity within the core wildlife habitat, to adjacent linkages, and to adjacent, undeveloped habitat. With the Proposed Project's location within and adjacent to undeveloped areas, incorporation of design features, and implementation of habitat mitigation measures at the specified ratios, the contribution of the Proposed Project to the cumulative impact on wildlife movement would not be considerable and would be less than significant.

e) Conflict with the provisions of any adopted Habitat Conservation Plan, Natural Communities Conservation Plan, other approved local, regional, or state habitat conservation plan or any other local policies or ordinances that protect biological resources?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated: Implementation of the Proposed Project would have the potential to cause significant direct or indirect impacts to least Bell's vireo, coastal California gnatcatcher and other birds protected by CFGC 3503 and 3503.5 if vegetation clearing occurs during the general avian breeding season (February 1 to September 15), least Bell's vireo breeding season (March 15 to September 15), coastal California gnatcatcher breeding season (March 1 to August 15), or raptor breeding season (January 15 to July 15). Proposed Project construction activities could directly impact individuals or cause breeding birds to temporarily or permanently leave their territories, which could lead to reduced reproductive success and increased mortality. These impacts would be significant; however, mitigation measures **MM-BIO-1 and MM-BIO-2** would reduce impacts to less than significant.

As discussed in the BRTR (Appendix C), although the Proposed Project is located within the adopted City MSCP Subarea Plan, the Proposed Project would not interfere with the City MSCP Subarea Plan. The Proposed Project minimizes impacts to BRCAs in accordance with the MSCP. Additionally, all impacts would be temporary, and the Proposed Project would ultimately result in an increase in native habitat within the MSCP preserved lands. Additionally, implementation of the Proposed Project would be consistent with the ASMDs listed in the County's Resource Management Plan (RMP) for the TRVRP. No adopted Habitat Conservation Plan (HCP), Special Area Management Plan, Watershed Plan, or other regional planning efforts are applicable to the Proposed Project.

The Proposed Project area is located within a Biological Resource Core Area (BCRA). As part of the restoration process, the Proposed Project would substantially improve the condition of the existing BCRA by removing and treating invasive non-native vegetation and planting of native riparian or sage scrub habitat in its place. The Tijuana River riparian corridor would be maintained throughout the Proposed Project area, which would encourage and facilitate wildlife movement within the region. Therefore, the Proposed Project would ultimately conserve and enhance the functions and values of the BCRA in accordance with the MSCP and BMO. Impacts would be less than significant.

The Proposed Project would comply with the requirements of the CFGC, MBTA, BMO, and MSCP. All currently proposed and future projects within the cumulative study area would also be required to comply with these regulations; therefore, no significant cumulative impacts would occur.

V. CULTURAL RESOURCES

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to 15064.5?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated: A Cultural Resources Inventory and Assessment was prepared for the Proposed Project (HELIX ~~2023c~~2024c; Appendix D). The Cultural Resources Inventory and Assessment included a records search, Sacred Lands File search, a review of historic aerial photographs and maps, and pedestrian surveys of the Proposed Project area. The records search with the South Coastal Information Center (SCIC) identified 58 previously recorded cultural resources within the TRVRP, 57 of which occur within the Proposed Project area. Of the 58 resources identified, nine are historic-period resources consisting of historic structures, building remains, artifact scatters and isolates, terraces, and a bridge. There are also two multi-component sites recorded within TRVRP consisting of building remains and historic trash scatters with shell/lithic scatters also present.

HELIX completed two pedestrian surveys in March and November of 2021, with the March survey focusing on a preliminary Proposed Project area encompassing approximately 850 acres centered along the Tijuana River and the November survey focusing on the 587.93 acres within the specific phase areas of the Proposed Project. HELIX also completed a review of additional archival sources including historic topographic maps and aerial imagery. The surveys resulted in discovery of two newly identified prehistoric isolated finds within the Proposed Project area. However, both isolates were identified along an established trail and not in areas targeted for invasive non-native plant removal and restoration.

According to the Cultural Resources Inventory and Assessment, resources located outside of the 587.93 acres of phase areas would not experience significant adverse impacts resulting from the Proposed Project. Of the resources previously discussed, a total of 27 cultural resources, all previously recorded, are located within the areas identified as disturbed habitats or containing invasive non-native plant species that would be targeted for removal and restoration. These resources would have a greater risk of experiencing significant adverse impacts resulting from the Proposed Project. Of these 27 resources, two are multi-component (P-37-0008595, P-37-010488) and five are historic-period resources (P-37-011095, P-37-011096, P-37-025705, P-37-025924, P-37-033838). The historic-era resources primarily stem from the residential development of the Proposed Project region in the late nineteenth century or early twentieth century. The

historic site types present within the Proposed Project area primarily consist of the remains of residential homesteads, such as P-37-011096 and P-37-025705, or other residential trash/debris or infrastructure-related debris, such as at P-37-011095 and P-37-010488. P-37-008595, is the result of a trash dump/debris scatter, possibly resulting from a U.S. Navy mess hall on Spooner's Mesa.

Of the seven known historic resources occurring within the phase areas of the Proposed Project, one resource (Hollister Street Bridge, P-37-025924) has been previously evaluated as eligible for the National Register of Historic Places (NRHP). Two resources (P-37-0008595 and P-37-011095) have been previously evaluated as not eligible for NRHP, and one resource (P-37-025705) has been previously evaluated as not eligible for California Register of Historical Resources (CRHR). Two resources (P-37-010488 and P-37-011096) have not been evaluated. One resource (P-37-033838) does not meet the criteria for inclusion in the CRHR or the NRHP. The significant or unevaluated resources within the phase areas identified as disturbed habitats or as containing invasive non-native plant species that would be targeted for removal and restoration have been identified as 'high cultural resources sensitivity' areas, as indicated on Figure 8 of Appendix D. If the Proposed Project were to cause adverse impacts to the resource previously evaluated as eligible for the NRHP or the two resources that have not yet been evaluated, the Proposed Project would result in significant impacts to historical resources. However, due to natural alluvial erosion and human impacts that have occurred within the TRVRP, implementation of the Proposed Project phase activities involving invasive non-native plant treatments limited to herbicide treatment, hand removal, mowing, and solarization techniques would not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. In addition, shallow planting activities would also not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. However, mechanized discing/ clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) occurring during the implement of the HRP could result in soil disturbances that may cause an adverse impact to significant cultural resources. These potential impacts would be mitigated through the implementation of **MM-CUL-1 through MM-CUL-3** discussed below, and impacts would be reduced to a less than significant level.

MM-CUL-1: Prior to the finalization of each Execution Plan that will be prepared as implementation documents for the twelve phases under the guidance of the HRP, DPR will retain a cultural resource specialist who is a qualified archaeologist(s) meeting the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations, Title 36, Section 61. The supervision of the cultural resources avoidance and monitoring programs will be the responsibility of the cultural resource specialist. Once the specific location and size of each Proposed Project phase are identified, the cultural resource specialist will conduct a review of cultural resources information to confirm or identify any additional potential impacts to archaeological sites. The review will focus on the phased restoration activity areas that may involve mechanized clearing and topographic modification restoration techniques and contain recorded cultural resources. Known cultural resources within the phased restoration activity areas will be updated as appropriate, and significant, or potentially significant

(e.g., unevaluated) resources, identified as 'high cultural resources sensitivity' areas (see Figure 8 of Appendix D) will be confirmed. In order to minimize impacts to known cultural resources and disturbance of subsurface archaeological deposits, the cultural resource specialist will flag areas for avoidance per **MM-CUL-2** and provide oversite during the implementation of cultural resources monitoring (**MM-CUL-3**).

MM-CUL-2: Cultural resources 37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-011946, and P-37-025919 shall be identified as 'high cultural resources sensitivity' areas in order to ensure no adverse impacts to the resources occur. If the cultural resource review (MM-CUL-1) identifies any additional significant, or potentially significant resources, they shall also be identified as 'high cultural resources sensitivity' areas.

- The established 'high cultural resources sensitivity' area shall consist of the recorded site boundary and a 100-foot buffer and be established by the cultural resource specialist in consultation with DPR and the habitat restoration designer to ensure the resources are not adversely impacted directly or indirectly.

- The 'high cultural resources sensitivity' locations shall be provided to the habitat restoration designer during the preparation of the Execution Plan, and the locations shall be avoided by all Proposed Project design considerations for mechanized clearing and topographic modification restoration measures. If during the preparation of the Execution Plan, it is determined that avoidance of a 'high cultural resources sensitivity' location proves infeasible, additional measures are to be developed for inclusion in the Execution Plan to be approved by DPR, including appropriate methodologies to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects to significant cultural/historical resources.

- Prior to Proposed Project activities involving ground disturbance, the 'high cultural resources sensitivity' areas shall be temporarily flagged with oversight by the cultural resource specialist.

MM-CUL-3: DPR shall retain a qualified archaeologist/cultural resource specialist and a Native American representative to monitor ground-disturbing activities related to the implementation of the HRP (excluding shallow planting) occurring within the 'high cultural resources sensitivity' areas. The monitoring program shall include attendance by the cultural resource specialist and Native American monitor at a pre-construction meeting with construction personnel for the phase to provide environmental training to all personnel of the cultural resources sensitivity of the area; outline protocols to follow in the event inadvertent cultural resources are identified; and to discuss monitoring scheduling and coordination.

- Restoration activities involving ground-disturbance (excluding shallow planting) occurring within the 'high cultural resources sensitivity' areas (MM-CUL-2) shall be monitored by an archaeological monitor; in addition, restoration activities involving ground-disturbance within an 'high cultural resources sensitivity' area surrounding

prehistoric archaeological resources shall be monitored by a Native American monitor.

- Both archaeological and Native American monitors shall have the authority to temporarily halt or redirect grading and other ground-disturbing activity in the event that cultural resources are encountered. Isolates and non-significant deposits shall be minimally documented in the field and recorded on appropriate DPR site forms. If significant or potentially cultural material is encountered, appropriate actions shall be implemented according to the protocols outlined in the monitoring plan.

- If the archaeological monitor, in conjunction with the cultural resource specialist and Native American monitor, determines that monitoring of ground-disturbing activities related to the implementation of the HRP is no longer warranted within the 'high cultural resources sensitivity' due to the disturbances resulting from natural alluvial erosion and human impacts within the TRVRP, the DPR should be informed as such and will make the final determination on the necessity for additional monitoring.

With the implementation of mitigation measures **MM-CUL-1 through MM-CUL-3,** potential impacts to historic resources would be reduced to a less than significant level and would not contribute to a potentially cumulative impact on archaeological resources.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated: A Cultural Resources Inventory and Assessment was prepared for the Proposed Project (HELIX ~~2023c~~ 2024c Appendix D). As previously discussed, the records search with the SCIC identified 58 previously recorded cultural resources within the TRVRP, 57 of which occur within the Proposed Project area. Of the 58 resources identified, 47 are prehistoric resources consisting of lithic and shell scatters, quarry sites, and isolated artifacts. There are also two multi-component sites recorded within TRVRP consisting of building remains and historic trash scatters with shell/lithic scatters also present.

The pedestrian surveys and review of additional archival sources resulted in discovery of two newly identified isolated finds within the Proposed Project area: Isolate P-37-040176, consisting of a single metavolcanic flake with edge modification possibly indicating its use as a tool, and P-37-040177, consisting of a single metavolcanic secondary flake. However, these resources were identified along an established trail and not in areas targeted for invasive non-native plant removal and restoration. As discussed above in

item V a), resources located outside of the approximately 587.93 acres of phase areas would not experience significant adverse impacts resulting from the Proposed Project.

Of the resources previously discussed, a total of 27 cultural resources, all previously recorded, are located within the areas identified as disturbed habitats or containing invasive non-native plant species that would be targeted for removal and restoration. These resources would have a greater risk of experiencing significant adverse impacts resulting from the Proposed Project. Of these 27 resources, 2 are multi-component (P-37-0008595, P-37-010488) and 20 are prehistoric (P-37-008598, P-37-008599, P-37-008600, P-37-008602, P-37-008603, P-37-008604, P-37-008605, P-37-010487, P-37-010669, P-37-010967, P-37-011097, P-37-011099, P-37-011945, P-37-011946, P-37-013486, P-37-025919, P-37-033839, P-37-033840, P-37-033841, and P-37-033843).

Of the 22 known prehistoric cultural resources occurring within the Proposed Project area, one resource (lithic artifact scatter, P-37-011946) has been previously evaluated as eligible for the NRHP. Eleven resources (P-37-0008595, P-37-008598, P-37-008599, P-37-008600, P-37-008603, P-37-008604, P-37-008605, P-37-010967, P-37-011097, P-37-011945, P-37-013486) have been previously evaluated as not eligible for NRHP or CRHR. Six resources (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011099, P-37-025919) have not been evaluated. Four resources (P-37-033839, P-37-033840, P-37-033841, P-37-033843) do not meet the criteria for inclusion in the CRHR or the NRHP. If the Proposed Project were to cause adverse impacts to the resource previously evaluated as eligible for the NRHP or the six resources that have not yet been evaluated, the Proposed Project would result in significant impacts to archaeological cultural resources. However, as discussed above, due to natural alluvial erosion and human impacts that have occurred within the TRVRP, implementation of the Proposed Project involving invasive non-native plant treatments limited to herbicide treatment, hand removal, mowing, and solarization techniques would not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. In addition, shallow planting activities would also not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. Mechanized discing /clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) occurring during the implement of the HRP could result in soil disturbances that may cause an adverse impact to significant cultural resources. These potential impacts would be mitigated through the implementation of **MM-CUL-1 through MM-CUL-3** listed under item V a) above, and impacts would be reduced to a less than significant level and would not contribute to a potentially cumulative impact on archaeological resources.

c) Disturb any human remains, including those interred outside of formal cemeteries?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated: As previously discussed, a file search and field survey were conducted for the Proposed Project to determine the presence or potential presence of cultural resources, including human remains, within the Proposed Project site. The Cultural Resources Inventory and Assessment did not identify previously recorded sites with human remains within the Proposed Project site (HELIX ~~2023c~~2024c; Appendix D). However, due to the number of archaeological resources recorded in the region, there is a potential for unidentified human remains to be present within the Proposed Project site. If present, the human remains could be damaged by ground-disturbing activities associated with the Proposed Project. Mitigation measure **MM-CUL-4** would reduce impacts to a level less than significant.

MM-CUL-4: Should human remains be identified during ground-disturbing activities related to the implementation of the Proposed Project, whether during construction, maintenance, or any other activity, State Public Resources Code Section 5097.98, CEQA Section 15064.5 and Health & Safety Code Section 7050.5 and County-mandated procedures will be followed for the treatment and disposition of those remains, as follows.

- A County (DPR) official is contacted.
- Upon identification of human remains, there will be no further excavation or disturbance in the area of the find or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner has made the necessary findings as to origin. If the human remains are to be taken offsite for evaluation, they shall be accompanied by the Kumeyaay Native American monitor.
- If the remains are determined to be of Native American origin, the coroner will contact the NAHC within 24 hours. The NAHC will identify a Most Likely Descendant (MLD), the person or persons it believes to be most likely descended from the deceased Native American.
- The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation with the MLD regarding their recommendations as required by Public Resources Code Section 5097.98 has been conducted.
- The MLD, as identified by the NAHC, shall be contacted by DPR or their representative in order to determine proper treatment and disposition of the remains. The MLD may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in Public Resources Code Section 5097.98.

Implementation of mitigation measure **MM-CUL-4** would protect potential human remains that could be encountered at the Proposed Project site. Therefore, the Proposed Project

would not result in significant impacts or cumulatively considerable impacts on human remains.

VI. ENERGY

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

San Diego County is served by San Diego Gas and Electric (SDG&E), which provides energy service to over 3.4 million customers (with 1.4 million accounts) in the County and portions of southern Orange County. The utility has a diverse power production portfolio, composed of a variety of renewable and non-renewable sources. Energy production typically varies by season and by year. Regional electricity loads also tend to be higher in the summer because the higher summer temperatures drive increased demand for air conditioning. In contrast, natural gas loads are higher in the winter because the colder temperatures drive increased demand for natural gas heating.

Less Than Significant Impact: The Proposed Project would provide habitat restoration within an existing regional park. The Proposed Project would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. During construction activities, energy consumption would be in the form of fuel consumed for construction equipment and motor vehicles used to access the site. Ongoing operation of the Proposed Project would not generate additional energy usage over existing conditions as the Proposed Project does not propose permanent structures, lighting, or other features requiring energy use. The Proposed Project would not expand capacity of TRVRP, so energy usage at the park would not increase with implementation of the Proposed Project. The Proposed Project would generate a small demand on local and regional fuel supplies during construction activities that would be easily accommodated. Moreover, this demand for fuel would have no noticeable effect on peak or baseline demands for energy. Therefore, the Proposed Project would not result in a wasteful, inefficient, or unnecessary usage of direct or indirect energy.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

☐ Potentially Significant Impact ☐ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The applicable renewable energy plan for the Proposed Project area would be the State Renewables Portfolio Standard (RPS), which requires utility agencies to ensure a certain percentage of the electricity they sell is from a renewable source. Senate Bill (SB) 350 requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Moreover, the County has installed renewable energy at many of its facilities. The County itself produces almost 19,620,591 kWh each year, which provides clean and renewable energy for 22.56 percent of the County's annual energy usage. (County Department of General Services 2019).

Construction activities related to implementation of the Proposed Project would consume energy in the form of fuel for construction equipment and motor vehicles to access the site. However, operation of the Proposed Project would not require energy in excess of the existing usage. As previously described in item VI a), energy usage associated with construction would be minimal. Therefore, the Proposed Project would not obstruct the implementation of the RPS, nor would it result in energy consumption that would require the County to install more production. The continuation of the use of the Proposed Project as a recreational site would not result in cumulatively considerable impacts on applicable State renewable energy plans.

VII. GEOLOGY AND SOILS

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

☐ Potentially Significant Impact ☐ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project is not located within or adjacent to a fault rupture hazard zone identified by the Alquist-Priolo Earthquake Fault Zoning Act, Special

Publication 42, Revised 1997, Fault-Rupture Hazards Zones in California, or located within a County Special Study Zone (County of San Diego 2007). The nearest Alquist-Priolo earthquake fault zone is the Newport-Inglewood-Rose Canyon fault zone, approximately 7.5 miles north of the Proposed Project. Additionally, the Proposed Project would not introduce new inhabitants to the site. Therefore, there would be no direct or indirect impact from a known fault-rupture hazard zone as a result of this Proposed Project.

ii. Strong seismic ground shaking?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The County is located within a seismically active region, and the entire County could be subject to seismic ground shaking. While the Proposed Project site could be exposed to strong seismic ground shaking during a seismic event, this would not differ from existing conditions with implementation of the Proposed Project. The Proposed Project involves habitat rehabilitation at an existing regional park. The Proposed Project would not construct new structures at the site or add new residents to the region. The Proposed Project would not increase risks associated with strong seismic ground shaking. Impacts would be less than significant.

iii. Seismic-related ground failure, including liquefaction?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: According to the County Guidelines for Determining Significance for Geologic Hazards (2007), the Proposed Project region is located within a “Potential Liquefaction Area”. However, the Proposed Project would not increase potential risks related to ground failure, including liquefaction. The Proposed Project does not propose structures for human occupancy that would be affected by liquefaction. Although the Proposed Project does include ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/recontouring, minor topographic modifications to enhance stream and flood flows), such activities would not result in ground failure. Rather, the Proposed Project is anticipated to improve the existing integrity of the Proposed Project site. The Proposed Project would not include features that would exacerbate the liquefaction potential at the Proposed Project site and, thus, would not result in a cumulatively considerable impact.

iv. Landslides?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: According to the County Guidelines for Determining Significance for Geologic Hazards (2007), portions of the Proposed Project site may be located within a "Landslide Susceptibility Area," or areas where slopes are greater than 25 percent. Landslide Susceptibility Areas were developed based on landslide risk profiles included in the *Multi-Jurisdictional Hazard Mitigation Plan, San Diego, CA* (URS 2004). Landslide risk areas from this plan were based on data including steep slopes (greater than 25 percent); soil series data (SANDAG based on United State Geological Survey 1970s series); soil-slip susceptibility from United State Geological Survey; and Landslide Hazard Zone Maps (limited to western portion of the County) developed by the California Department of Conservation, Division of Mines and Geology. However, the Proposed Project would not increase landslide hazards at the site. The Proposed Project involves habitat rehabilitation in an existing regional park and would include multiple ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/recontouring, minor topographic modifications to enhance stream and flood flows). The Proposed Project would not add new slopes at a high risk for landslide susceptibility. Furthermore, the Proposed Project does not include the construction of structures that could experience landslide hazards. Therefore, there would be no potentially significant impact, or cumulatively considerable impact, from the exposure of people or structures to adverse effects of landslides.

b) Result in substantial soil erosion or the loss of topsoil?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project would include topsoil salvage and storage in some regions when appropriate and feasible to preserve the existing seed bank. Topsoil would be carefully removed by an experienced operator using a dragline, excavator, scraper, or dozer and would be stockpiled in uncompacted piles less than four feet tall. Stockpiled soils would be placed within temporary disturbance areas. Topsoil stockpiles would be stabilized by spraying with a tackifier (soil stabilizer) or covered with a permeable natural material, such as jute or coconut fiber blankets. Additionally, no equipment would be allowed to travel over or park on the salvaged soil stockpiles. If soils were to be stockpiled, it would occur outside of the rainfall season and for a short duration, not more than six months. In areas where topsoil had been salvaged, the finished grade

would be scarified to a minimum depth of six inches, and the salvaged soil spread over the restoration area to the maximum depth based on the availability of soil. The loose topsoil would then be tamped into the scarified surface by track walking the area with a dozer, sheep-foot roller, or similar equipment. Such precautions would minimize potential soil erosion or loss of topsoil during topsoil salvage and storage activities.

The Proposed Project would also include soil decompaction and soil recontouring activities. When necessary, soils within the work areas would be decompacted by ripping and cross-ripping to a depth of up to 6 to 12 inches with ripper teeth mounted to the back of a bulldozer or skip loader. If a work area was found to be dominated by native plants prior to construction activities, soils would be lightly ripped or scarified to retain their abundance and contribute to the restoration. Soil recontouring would involve a small earth-moving activity to correct, improve, or expand stream and flood flows within a phase of the Proposed Project.

In all areas where soil has been disturbed, erosion control devices would be considered. Erosion control devices would be installed to reduce erosion and sedimentation, bank stabilization, runoff management, and may also function to facilitate revegetation efforts. As discussed in the HRP, the Execution Plan would contain details for recommended erosion control devices and their locations and/or erosion control devices would be detailed in the SWPPP, if applicable (Appendix A; HELIX ~~2023a~~2024a). Erosion control devices would typically include hydroseeding with a mulch and tackifying agent, fiber rolls, gravel bags, jute netting, or another device. All erosion control devices would be installed per manufacturer's recommendations for the application type. Given the dynamic present in an active floodplain, the prescription for erosion control would attempt to balance the need for site stabilization with the reality of natural sediment transport within a dynamic river system. Such methods would minimize potential soil erosion or loss of topsoil. Impacts would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: Refer to the discussion in item VII a), above. Although the Proposed Project involves ground disturbance, the Proposed Project would not create unstable soil conditions that may result in landslides, lateral spreading, liquefaction, or collapse. Additionally, subsidence is most commonly caused by the removal of water, oil, natural gas, or mineral resources out of the ground by pumping, fracking, or mining activities, none of which are proposed by the Proposed Project. Following construction, the restored habitat conditions would not exacerbate existing landslide, lateral spreading,

subsidence, or liquefaction susceptibility conditions on the Proposed Project site. Impacts would be less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

☐ Potentially Significant Impact ☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: According to the County Guidelines for Determining Significance for Geologic Hazards (2007), the Proposed Project site is not located in a "Potential Expansive Soil Area". Additionally, the Proposed Project does not propose to construct structures on the site or introduce new inhabitants to the area. Therefore, the Proposed Project would not create direct or indirect substantial risks to life or property related to expansive soil, nor would the Proposed Project result in impacts that would be cumulatively considerable.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

☐ Potentially Significant Impact ☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project does not include the installation of septic tanks or alternative wastewater disposal systems. Therefore, no impacts would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

☐ Potentially Significant Impact ☐ Less than Significant Impact
☒ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

San Diego County has a variety of geologic environments and geologic processes that generally occur in other parts of the state, country, and the world. However, some features stand out as being unique in one way or another within the boundaries of the County. High paleontological resource sensitivity is assigned to geologic formations known to contain paleontological localities with rare, well preserved, critical fossil materials for

stratigraphic or paleoenvironmental interpretation, and fossils providing important information about the paleoclimatic, paleobiological and/or evolutionary history of animal and plant groups.

Less Than Significant With Mitigation Incorporated: The Proposed Project would include ground disturbance during habitat rehabilitation activities. As discussed in the TRVRP ASMD, there are three paleontologically sensitive geologic units within the TRVRP: marine sedimentary rocks of the late Pliocene (1.5 to 3 million years old) San Diego Formation, the early Pleistocene (500,000 to 1.5 million years old) Lindavista Formation, and the late Pleistocene (220,000 years old) Bay Point Formation (County of San Diego Department of Parks and Recreation 2007). Ground-disturbing activities included in the Proposed Project would have the potential to adversely impact a paleontological resource. However, with implementation of mitigation measures **MM-PAL-1a through MM-PAL-1g**, impacts would be reduced to a less than significant level.

MM-PAL-1a. A qualified paleontologist shall be at the pre-construction meeting(s) to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques and safety issues. A qualified paleontologist is defined as an individual having an M.S. or Ph.D. degree in paleontology or geology who is familiar with paleontological procedures and techniques, is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the County for at least one year.

MM-PAL-1b. A qualified paleontological monitor shall be on site on a full-time basis during the original cutting of previously undisturbed deposits of the San Diego Formation, Lindavista Formation, and Bay Point Formation to inspect exposures for contained fossils. A qualified paleontological monitor is defined as an individual having experience in the collection and salvage of fossil materials. The paleontological monitor shall work under the direction of a qualified paleontologist. If the qualified paleontologist or paleontological monitor ascertains that observed exposures of the San Diego Formation, Lindavista Formation, and Bay Point Formation are not fossil-bearing, the qualified paleontologist shall have the authority to terminate the monitoring program.

MM-PAL-1c. If fossils are discovered during monitoring of the San Diego Formation, Lindavista Formation, and Bay Point Formation, they shall be recovered by the qualified paleontologist or paleontological monitor. In most cases, fossil salvage can be completed in a short period of time, although some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances, the paleontologist (or paleontological monitor) shall be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for recovering small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screen-washing operation on the recovery site.

If a fossil of greater than 12 inches in any dimension, including circumference, is encountered during excavation or grading of the San Diego Formation, Lindavista Formation, and Bay Point Formation, all excavation operations in the area where the fossil

was found shall be suspended immediately, the County Planning and Development Services (PDS) Permit Compliance Coordinator shall be notified, the Proposed Project Paleontologist shall assess the significance of the find and, if the fossil is significant, the Proposed Project Paleontologist shall oversee the salvage program, including salvaging, cleaning, and curating the fossil(s), and documenting the find (as outlined below).

MM-PAL-1d. If any sub-surface bones or other potential fossils are found anywhere within the Proposed Project impact footprint by construction personnel in the absence of a qualified paleontologist or paleontological monitor, the qualified paleontologist shall be notified immediately to assess their significance and make further recommendations.

MM-PAL-1e. Fossil remains collected during monitoring and salvage shall be cleaned, repaired, sorted, and cataloged as part of the mitigation program.

MM-PAL-1f. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall be deposited (as a donation) in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum. Donation of the fossils shall be accompanied by financial support from the applicant for initial specimen storage.

MM-PAL-1g: A final summary report outlining the results of the mitigation program shall be prepared by a qualified paleontologist and submitted to the County of San Diego for concurrence. This report shall include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

The State of California has developed guidelines to address the significance of climate change impacts based on Appendix G of the CEQA Guidelines, which contains two significance criteria for evaluating greenhouse gas (GHG) emissions of a project. CEQA Guidelines Section 15064.4 states that the "determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."

Section 15064.4(b) further states that a lead agency should consider the following nonexclusive list of factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

2. The extent to which project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

3. The extent to which the project complies with regulations or requirements adopted to implement statewide, regional, or local plans for the reduction or mitigation for GHG emissions.

CEQA Guidelines Section 15064(h)(1) states that "the lead agency shall consider whether the cumulative impact is significant and whether the effects of the Proposed Project are cumulatively considerable." A cumulative impact may be significant when the Proposed Project's incremental effect, though individually limited, is cumulatively considerable.

GHGs include carbon dioxide, methane, hydrofluorocarbons, and nitrous oxide, among others. Human-induced GHG emissions are a result of energy production and consumption, and personal vehicle use, among other sources.

Less than Significant Impact: GHG emissions associated with the Proposed Project would result from construction activities. Because the Proposed Project involves habitat restoration in a regional park, it would not increase long-term air pollutant or GHG emissions in the Proposed Project area.

A set of project-specific implementing thresholds are included in the County's Guidelines for Determining Significance and are used to ensure project consistency with the County's General Plan.

The County of San Diego adopted the 2018 County of San Diego Climate Action Plan (CAP) on February 14, 2018. The CAP outlined strategies and measures to reduce the County's contribution to GHG emissions and to meet the state's 2020 and 2030 emissions targets, as well as ensure progress towards the 2050 reduction goal. The CAP identifies 11 strategies and 26 measures plus numerous supporting efforts to reduce GHG emissions in the largely rural, unincorporated county as well as within County government operations (County of San Diego 2023). These strategies and measures would focus on energy efficiency, developing renewable sources of energy, improving waste recycling, and improving access to sustainable transportation. Measures relevant to the Proposed Project include:

- Measure T-3.4: Reduce the County's Fleet Emissions
- Measure W-1.2: Reduce Outdoor Water Use

On September 30, 2020, the County of San Diego Board of Supervisors voted to set aside the approval of the CAP because a court found a portion of the Supplemental

Environmental Impact Report (EIR) was out of compliance with CEQA. The County has prepared a Draft CAP Update to revise the 2018 CAP and associated EIR in response to the court's direction. The Draft CAP update and Supplemental EIR process included a 71-day public review period extending through January 5, 2024. In accordance with the State CEQA Guidelines, consistency with the CAP cannot be relied upon for determination of project-related GHG emissions impact significant until the CAP Update is approved in compliance with CEQA.

Therefore, a screening level based on the California Air Pollution Control Officers Association's (CAPCOA) report *CEQA & Climate Change* is being used to determine whether further analysis would be needed to examine the GHG impacts of a proposed project (CAPCOA 2008). CAPCOA developed a screening threshold of 900 metric tons (MT) of carbon dioxide equivalents (CO_2e). Direct and cumulative impacts would be potentially significant and require further analysis if the Proposed Project results in emissions that exceed this threshold beyond current baseline emissions. Because the Proposed Project would be completed ~~during or~~ after 2020, the 900 MT CO_2e screening threshold would no longer be applicable. Senate Bill (SB) 32 sets a GHG emission reduction target of 40 percent below 1990 levels by 2030, or 540 MT CO_2e.

The Proposed Project's Air Quality and Greenhouse Gas Technical Analysis prepared by HELIX (Appendix B; HELIX ~~2022~~2024) analyzed construction of the 12 phases of the Proposed Project. The analysis assumes that each of the 12 phases of the Proposed Project would last approximately 10 weeks. Proposed Project construction would generate GHG emissions associated with construction equipment exhaust and from construction worker vehicle trips to and from the Proposed Project site. The primary GHG emissions would be CO_2 from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of N_2O and CH_4. Additionally, GHG would be amortized over 30 years in accordance with County guidance. Total GHG emissions during Proposed Project construction are presented in Table 8, *Construction Greenhouse Gas Emissions*.

TABLE 8: CONSTRUCTION GREENHOUSE GAS EMISSIONS

Construction Phase	Emissions (MT CO_2e)[2]
Phase 1	~~6~~79
Phases 2-4 Total	~~128~~346
Phases 5-12 Total	1,169
TOTAL	**~~1,303~~1,593**
Amortized Construction Emissions[1]	~~43~~53

Source: HELIX ~~2022~~2024
[1] Construction emissions are amortized over 30 years in accordance with County guidance.
[2] Numbers may not total due to rounding
MT = metric tons; CO_2e = carbon dioxide equivalents

The Proposed Project would result in GHG emissions from construction of 1,~~303~~ 593 MT CO_2e. Averaged over 30 years, the proposed construction activities would contribute approximately ~~43~~ 53 MT CO_2e emissions per year. This would be well below the 2030 screening threshold of 540 MT CO_2e. Additionally, once restoration activity is completed,

the Proposed Project would not result in a permanent change to the existing use that would result in an ongoing increase in emissions. Therefore, the Proposed Project would not hinder the County in their efforts to achieve the statewide emissions reduction targets and GHG impacts from the Proposed Project would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The State passed the Global Warming Solutions Act of 2006, commonly referred to as Assembly Bill (AB) 32, which set the GHG emissions reduction goal for the State of California into law. The law requires that by 2020, State emissions must be reduced to 1990 levels by reducing GHG emissions from significant sources via regulation, market mechanisms, and other actions. The State subsequently passed SB 32, which set an additional GHG emissions reduction goal for the State of California into law. The law requires that by 2030, State emissions must be reduced to 40 percent below 1990 levels by reducing GHG emissions from significant sources via regulation, market mechanisms, and other actions.

To implement State mandates to address climate change in local land use planning, local land use jurisdictions are generally preparing GHG emission inventories and reduction plans and incorporating climate change policies into local general plans to ensure development is guided by a land use plan that reduces GHG emissions. The County's General Plan incorporates various climate change goals and policies. These policies provide direction for individual development projects to reduce GHG emissions.

As noted above in item VIII a), the Proposed Project would generate ~~1,303~~1,593 MT CO_2e from construction, or approximately ~~43~~ 53 MT CO_2e emissions per year when averaged over 30 years. Therefore, the Proposed Project would not exceed the 2030 screening threshold of 540 MT CO_2e as set by SB 32. The Proposed Project involves habitat restoration in a regional park, and therefore would not result in significant operational GHG emissions.

The Proposed Project's incremental contribution to cumulative GHG emissions is determined to not be cumulatively considerable because GHG emissions would be approximately ~~43~~ 53 MT CO_2e emissions per year, an amount far below any relevant numerical thresholds. The Proposed Project's GHG emissions are, therefore, determined to be consistent with the County's General Plan which together are the most applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, storage, use, or disposal of hazardous materials or wastes or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

☐ Potentially Significant Impact
☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project proposes habitat rehabilitation within an existing regional park. The use of hazardous materials (e.g., fuels, lubricants, solvents) would be required during ~~construction~~ implementation of the Proposed Project. However, the Proposed Project would not result in a significant hazard to the public or environment because all storage, handling, transport, emission, and disposal of hazardous substances during pre-construction and construction activities, including trash and debris removal, would be in full compliance with applicable regulations such as the Federal Resource Conservation and Recovery Act (RCRA), Department of Transportation (DOT) Hazardous Materials Regulations, and the local Certified Unified Program Agency (CUPA) regulations. These regulations provide tracking methods, standards and procedures for the management of hazardous materials, as well as spill response measures. Because compliance with these regulations is mandatory, pre-construction and construction activities are not anticipated to create a significant hazard to the public through use, transport, or disposal of hazardous materials.

The Proposed Project also includes the use of herbicides to control invasive non-native plants. The proper method of chemical application varies based on species and with the degree of infestation, time of year, temperature, and environmental conditions. Herbicides would be used to control invasive non-native plants by a qualified applicator licensed by the State of California Department of Pesticide Regulation, and only where directed by biologists experienced in habitat restoration. Only herbicides approved by the California Department of Pesticide Regulations (CADPR) and the local agricultural commissions office would be used within or next to the Proposed Project area. The environmental risks of using herbicides would be minimized by using marker dyes to make the herbicide visible in areas where it has been applied. Higher visibility is desirable because it allows personnel to protect themselves more effectively against contamination, prevents unintended multiple application to a particular area or plant, ensures complete coverage of the target area and plants, and informs personnel of overspray and wind drift issues, which protects non-target plants. In addition, herbicides would be used in accordance with the guidelines and regulations in the HRP (Appendix A). Therefore, the Proposed Project would not result in significant impacts related to the use of herbicides.

Following implementation of the HRP, the Proposed Project would continue to operate as a regional park and would not involve an increase of the routine use and storage of hazardous materials over existing conditions. Therefore, due to the limited use of hazardous materials during construction, the Proposed Project would not result in potentially significant, or cumulatively considerable, impacts related to the routine transport, use, and disposal of hazardous substances or related to the accidental explosion or release of hazardous substances.

b) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

☐ Potentially Significant Impact ☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact. The Proposed Project is not located within one-quarter mile of an existing or proposed school. The nearest school is Sunset Elementary School, located approximately 0.29 mile northeast of the Proposed Project. Additionally, as stated in item IX a) above, the use of hazardous materials required during Proposed Project implementation would comply with applicable regulations. The Proposed Project would not involve the routine use, storage, disposal, and/or transport of hazardous materials. Therefore, the Proposed Project would not result in any potentially significant, or cumulatively considerable impacts on an existing or proposed school.

c) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, or is otherwise known to have been subject to a release of hazardous substances and, as a result, would it create a significant hazard to the public or the environment?

☐ Potentially Significant Impact ☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: A regulatory database search was conducted for the Proposed Project's study area using the Department of Toxic Substances Control (DTSC) Envirostor Database, compiled pursuant to Government Code Section 65962.5, and the State Water Resources Control Board's Geotracker database. One site was found in the DTSC Envirostor database as located within the Proposed Project site. The listing is categorized as a "Military Evaluation" but has been listed as inactive and in need of evaluation since 2005. Additionally, the listing does not include an address and is generally listed as "Mexican Border". The Geotracker database identified two sites within the Proposed Project Area, both of which consist of a leaking underground storage tank

(LUST) cleanup site. One site is located at 2468 Saturn Street, and has been designated as completed with the case closed since 1992. The second site is located at 2308 Hollister Street, and has been designated as completed with the case closed since 1994. The Proposed Project would not create a significant hazard to the public or the environment related to sites listed on hazardous materials databases. Therefore, impacts to the public or environment or result in cumulatively considerable impacts related hazardous materials sites would be less than significant.

d) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project Area?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project site is located as close as approximately 0.26 mile from the Naval Outlying Landing Field Imperial Beach (NOLF IB). As shown in the NOLF IB Airport Land Use Compatibility Plan (ALUCP), the Proposed Project is located within NOLF IB's Overflight Area Boundary. Additionally, portions of the Proposed Project are located within the 60-65 decibel (dB) Community Noise Equivalent Level (CNEL) and 65 to 70 dB CNEL noise exposure contours for the flight operations (San Diego County Regional Airport Authority 2015). However, the Proposed Project does not propose construction of habitable or above-ground structures that extend above the surrounding grade. The Proposed Project would include habitat restoration to the existing regional park and would continue operating as a regional park following completion of the Proposed Project. The Proposed Project would not constitute a safety hazard or excessive noise for people residing or working in the vicinity of the Proposed Project and would not result in a cumulatively considerable impact related to such a safety hazard.

e) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

The following sections summarize the Proposed Project's consistency with applicable emergency response plans or emergency evacuation plans.

i. Operational Area Emergency Plan and Multi-Jurisdictional Hazard Mitigation Plan

Less Than Significant Impact: The County-wide Operational Area Emergency Plan is a comprehensive emergency plan that defines responsibilities, establishes an emergency organization, defines lines of communications, and is designed to be part of the Statewide Standardized Emergency Management System. The Operational Area Emergency Plan provides guidance for emergency planning and requires subsequent plans to be established by each jurisdiction that has responsibilities in a disaster situation. The Multi-Jurisdictional Hazard Mitigation Plan includes an overview of the risk assessment process, identifies hazards present in the jurisdiction, hazard profiles, and vulnerability assessments. The plan also identifies goals, objectives, and actions for each jurisdiction in San Diego County, including all cities and the County unincorporated areas. The Proposed Project would not interfere with these plans because it would not prohibit subsequent plans from being established or prevent the goals and objectives of existing plans from being carried out. Impacts to the Operational Area Emergency Plan and Multi-Jurisdictional Hazard Mitigation Plan would be less than significant.

ii. San Diego County Nuclear Power Station Emergency Response Plan

No Impact: The nearest operating or formerly operating nuclear power station is the San Onofre Nuclear Generating Station, approximately 62 miles northwest of the Proposed Project. The Proposed Project would not interfere with the San Diego County Nuclear Power Station Emergency Response Plan due to its location and the specific requirements of the plan. The emergency plan for the San Onofre Nuclear Generating Station includes an emergency planning zone within a 10-mile radius. The Proposed Project is not within 10 miles of the plant and as such would not interfere with any response or evacuation.

iii. Oil Spill Contingency Element

No Impact: The Oil Spill Contingency Element relates to oil spills along the coastal zone or coastline. The Proposed Project would not interfere with the Oil Spill Contingency Element because the Proposed Project is not located along the coastline. Additionally, the Proposed Project would require the usage of minimal amounts of oil during temporary construction activities.

iv. Emergency Water Contingencies Annex and Energy Shortage Response Plan

No Impact: The Proposed Project would not interfere with the Emergency Water Contingencies Annex and Energy Shortage Response Plan because the Proposed Project does not propose altering major water or energy supply infrastructure, such as the California Aqueduct or the connection between Loveland Reservoir and Sweetwater Reservoir, both of which are potable water reservoirs.

v. Dam Evacuation Plan

Less Than Significant Impact: The Proposed Project would be located along the Tijuana River, which is downstream from the Rodriguez and El Carrizo Dams, both of which are located in Tijuana, Mexico, controlling portions of the flow of the Tijuana River. Dam evacuation plans are maintained by the County Office of Emergency Services. These plans contain information concerning the physical situation, affected jurisdictions, evacuation routes, unique institutions, and event responses. The Proposed Project does not propose the construction of unique institutions such as hospitals, schools, retirement facilities, or childcare facilities. Following completion of the Proposed Project, the Proposed Project area would continue to operate similar to existing conditions. As such, the Proposed Project would not require the evacuation of large concentrations of people.

Due to the Proposed Project's consistency with all applicable emergency response plans or emergency evacuation plans, the Proposed Project would not have the potential to result in cumulatively considerable impacts related to emergency planning.

f) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The majority of the Proposed Project site is within a Very High Fire Hazard Severity Zone as designated by the California Department of Forestry and Fire Protection (CAL FIRE) in the "Very High Fire Hazard Severity Zones in LRA" (CAL FIRE 2009). However, the Proposed Project would not exacerbate existing conditions on or surrounding the Proposed Project site. The Proposed Project involves habitat restoration to an existing regional park. Such activities would include removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not introduce new structures or people to the area that may be exposed to wildland fires. Implementation of the Proposed Project would not increase wildland fire risk or expose people or structures to hazards related to wildland fires. Impacts would be less than significant.

g) Propose a use, or place residents adjacent to an existing or reasonably foreseeable use that would substantially increase current or future resident's exposure to vectors, including mosquitoes, rats or flies, which are capable of transmitting significant public health diseases or nuisances?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project would occur within TRVRP, which consists primarily of vegetated open space and may support vectors such as mosquitoes, rats, or flies. Additionally, water sources, including the Tijuana River, are included in the Proposed Project site. Standing water is a potential breeding ground for mosquitoes. The County Vector Control program (VCP), managed by DEH, implements vector management activities to protect public health from the impacts of vector-borne diseases. DEH regularly inspects and treats as necessary, mosquito-breeding sources. Treatment of County water sources, if needed, may include biological control, such as fish, or chemical control.

The Proposed Project would not increase the presence of vectors in the region. The Proposed Project would involve habitat rehabilitation through activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not construct uses that allow water to stand for a period of 72 hours (3 days) or more. Additionally, as discussed in the HRP, the accumulation of the existing trash becomes embedded in sediments and facilitates a vector breeding environment. The Proposed Project would remove the existing trash and debris, and therefore would minimize vector breeding environments at the site. Furthermore, the Proposed Project does not propose construction of structures and would not introduce inhabitants to the site that may be impacted by vectors. Therefore, the Proposed Project would not substantially increase exposure to vectors, including mosquitoes, rats, or flies or create a cumulatively considerable impact because no uses on site would produce significant sources of vectors.

X. HYDROLOGY AND WATER QUALITY

Would the project:

a) Violate any water quality or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project involves habitat rehabilitation in an existing regional park and would include multiple ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/ recontouring, minor topographic modifications to enhance stream and flood flows). In all areas where soil has been disturbed, erosion control devices would be considered. Erosion control devices would be installed to reduce erosion and sedimentation, bank

stabilization, runoff management, and may also function to facilitate revegetation efforts. As discussed in the HRP (Appendix A), the Execution Plan would contain details for recommended erosion control devices and their locations and/or erosion control devices would be detailed in the SWPPP, if applicable. Erosion control devices would typically include hydroseeding with a mulch and tackifying agent, fiber rolls, gravel bags, jute netting, or another device. All erosion control devices would be installed per manufacturer's recommendations for the application type. Following completion of the Proposed Project, the Proposed Project would continue to operate as a regional park. As discussed in the HRP, restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. Therefore, the Proposed Project would not violate waste discharge requirements or substantially degrade surface or ground water quality. In addition, the Proposed Project would not create cumulatively considerable water quality impacts related to waste discharge because the Proposed Project would conform to Countywide watershed standards in the BMP Design Manual, derived from State regulation to address water quality concerns. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact on water quality from waste discharges.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

☐ Potentially Significant Impact	☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project involves habitat restoration within an existing regional park. The Proposed Project would require the use of minimal water during construction activities and post-construction activities. Water usage during implementation would primarily occur from watering in conjunction with planting activities, and supplemental watering during maintenance activities. However, the Proposed Project would not interfere with groundwater supplies. According to the HRP (Appendix A), irrigation may be used on sites where container plants or cuttings are installed (if container planting occurs). Irrigation and supplemental watering would be considered in conjunction with other restoration treatments on a site-by-site basis. Germination at seeded areas would rely on natural precipitation. Where irrigation is needed, accessible sites would have either overhead, drip- or bubbler-type irrigation systems installed that would be fed by either on-site water connection, tanks, or a water truck connection. Hand watering may also occur in small sites or sites with difficult access. Specific schedules and quantities of irrigation would depend on weather patterns and site conditions consistent with the HRP. Additionally, the Proposed Project would not introduce impervious surfaces that would interfere substantially with groundwater recharge. The Proposed Project would not

require water usage that would significantly deplete groundwater supplies. Therefore, no impact on groundwater resources is anticipated.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site?

☐ Potentially Significant Impact
☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project involves habitat rehabilitation in an existing regional park and would include topographic modifications consisting of small surface recontouring activities that would enhance Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. No large-scale topographic modifications would be proposed under this Proposed Project, but small topographic modifications (potentially up to 0.25-acre per occurrence) may be proposed to enhance hydrologic functions over larger swaths of vegetation communities. Details of any topographic modification activity would be described in an Execution Plan and would also include expected post modification topographic conditions and overall benefits of the Proposed Project. A topographic modification may be performed by a small skip-loader, skid-steer, or small bulldozer. Any impacts created from this activity would be temporary and disturbed areas would be revegetated upon completion.

Examples of topographic modification activities within wetland and riparian areas may include the removal of an impediment to a low flow channel that has been caused by an accumulation of debris or rhizomatous root masses which are altering the natural topography of the floodplain. Topographic modification within upland areas may include the redirection of concentrated surface flows to reduce point source erosion and the creation of water bars along dirt roads/trails (i.e., Customs and Border Protection dirt roads/trails on Spooners Mesa and Monument Mesa). However, the Proposed Project would incorporate erosion control measures. Erosion control devices would typically include hydroseeding with a mulch and tackifying agent, fiber rolls, gravel bags, jute netting, or another device. All erosion control devices would be installed per manufacturer's recommendations for the application type. In all areas where soil has been disturbed, erosion control devices would be considered. Erosion control devices would be installed to reduce erosion and sedimentation, bank stabilization, runoff management, and may also function to facilitate revegetation efforts. As discussed in the HRP, the Execution Plan would contain details for recommended erosion control devices and their locations and/or erosion control devices would be detailed in the SWPPP, if applicable. Erosion control devices would typically include hydroseeding with a mulch and tackifying agent, fiber rolls, gravel bags, jute netting, or another device. All erosion control devices

would be installed per manufacturer's recommendations for the application type. Furthermore, the Proposed Project upon completion would not introduce impervious surfaces that would redirect water flows. Due to these factors, the Proposed Project would not result in significantly increased erosion or sedimentation potential and would not significantly alter any drainage patterns of the site or area on- or off site. In addition, because erosion and sedimentation would be controlled within the Proposed Project area, the Proposed Project would not contribute to a cumulatively considerable impact.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

☐ Potentially Significant Impact
☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project involves habitat rehabilitation in an existing regional park and would include multiple ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/ recontouring, minor topographic modifications to enhance stream and flood flows). Such activities may alter runoff patterns at the site. However, the Proposed Project would not increase runoff or result in flooding. Rather, the Proposed Project would include topographic modifications consisting of small surface recontouring activities that would enhance Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. As discussed above in item X c i), implementation pf the Proposed Project would improve flood flows at the site. Restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. Additionally, the Proposed Project would not substantially increase impervious surfaces that would contribute to runoff or increased flooding. Moreover, the Proposed Project would not contribute to a cumulatively considerable increase in the rate or amount of runoff because the Proposed Project would not substantially increase water surface elevation or runoff exiting the site.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

☐ Potentially Significant Impact
☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project would not create or contribute significant runoff water which would exceed the capacity of stormwater drainage systems or provide substantial additional sources of polluted runoff. There are no planned stormwater drainage systems proposed by the Proposed Project, nor does the Proposed Project require such systems. The Proposed Project would involve habitat rehabilitation in an existing regional park. the Proposed Project would include topographic modifications consisting of small surface recontouring activities that would enhance Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. As discussed above in item X c i), implementation of the Proposed Project would improve flood flows at the site. Restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. The Proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, the Proposed Project would not result in significant impacts related to stormwater drainage systems and would not have the potential for cumulatively considerable impacts.

iv. Impede or redirect flood flows?

☐ Potentially Significant Impact ☒ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: Refer to the discussion under item X (c) (i). The Proposed Project would not impede or redirect flood flows. The Proposed Project would involve topographic modifications consisting of small surface recontouring activities that would enhance Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. However, such activities would improve flood flows. There are no existing or planned stormwater drainage systems proposed by the Proposed Project, nor does the Proposed Project require such systems. Additionally, the Proposed Project would not add impervious surfaces that would contribute towards flood flows. Therefore, the Proposed Project would not include features that would result in a significant impact, or potentially cumulatively considerable impact, on flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

☐ Potentially Significant Impact ☒ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

i. Flood Hazard

Less Than Significant Impact: Refer to the discussion under items X (c) (i) and X (c) (iv). The Proposed Project would involve topographic modifications consisting of small surface recontouring activities that would enhance Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. Such activities would improve flood flows. As discussed in the HRP (Appendix A), restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. Impacts would be less than significant.

ii. Tsunami

Less Than Significant Impact: The Proposed Project site is located approximately 1.1 miles east of the Pacific Ocean and would therefore be unlikely to experience severe impacts related to tsunamis. In the event the Proposed Project site did experience impacts related to tsunamis, implementation of the proposed project would not exacerbate potential hazards. The Proposed Project involves habitat restoration within an existing regional park, and would continue to operate as a regional park following completion of the Proposed Project. The Proposed Project would not introduce new structures or inhabitants to the region that may be subject to tsunami hazards. Impacts would be less than significant.

iii. Seiche

No Impact: The Proposed Project site is located in the vicinity of Tijuana River and Dairy Mart Pond. The Proposed Project does not propose large-scale construction activity that would lead to a disturbance or oscillation in the water level of Tijuana River, Dairy Mart Pond, or other nearby water bodies that could produce a seiche.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: As discussed under item X (a), the Proposed Project would include multiple ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/ recontouring, minor topographic modifications to enhance stream and flood flows). In all areas where soil has been disturbed, erosion control devices would be considered. As discussed in the HRP, the Execution Plan would contain details for recommended erosion control devices and their

locations and/or erosion control devices would be detailed in the SWPPP, if applicable. As discussed in the HRP, restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. Therefore, the Proposed Project would not be in conflict with or obstruct implementation of the applicable water quality management plans for the region. In addition, such measures would ensure the Proposed Project would not have the potential for cumulatively considerable impacts to potentially conflict with or obstruct implementation of applicable plans.

XI. LAND USE AND PLANNING

Would the project:

a) Physically divide an established community?

- ☐ Potentially Significant Impact
- ☐ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project does not propose the introduction of new infrastructure such as major roadways or other features that would interfere with, or physically divide, nearby residences. Therefore, the Proposed Project would not divide the established community. Similarly, the Proposed Project would not result in cumulatively considerable impacts on an established community. Rather, the Proposed Project involves removal of invasive non-native plants and native plant restoration entirely within the boundaries of the existing TRVRP. Impacts related to dividing an established community would not occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

- ☐ Potentially Significant Impact
- ☐ Less than Significant Impact
- ☒ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact with Mitigation Incorporated: The Proposed Project site is zoned as Open Space – Floodplain (OF-1-1) and Agricultural – Residential (AR-1-1, AR-1-2). The Proposed Project site has a land use designation of Multi-Species Conservation Open Space and Other Community Open Space/Agriculture in the TRV Community Plan, and Open Space in the San Ysidro Community Plan. The Proposed

Project would be in compliance with those land uses. Additionally, the Proposed Project would not change the existing uses at the site. Following Proposed Project completion, the Proposed Project site would continue to operate as a regional park. As discussed in item IV (e), the Proposed Project activities have the potential to conflict with the MBTA; however, mitigation measures **MM-BIO-1 and MM-BIO-2** would reduce impacts to less than significant. Additionally, the Proposed Project would comply with the requirements of the BMO, CFGC, and MSCP. Thus, with the implementation of **MM-BIO-1 and MM-BIO-2** land-use related impacts would be less than significant in relation to this issue.

The Proposed Project would not result in a potential cumulative impact related to an environmental effect due to a conflict with an applicable plan because the Proposed Project would not conflict with existing land use plans. Refer to XXI, Mandatory Findings of Significance, for further discussion.

XII. MINERAL RESOURCES

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

☐ Potentially Significant Impact ☒ Less Than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project area been classified by the California Department of Conservation – Division of Mines and Geology as MRZ-2 and MRZ-3 (California Department of Conservation 1996). The MRZ-2 designation is applied to lands where mineral deposits are present or where it is judged that a high likelihood for their presence exists. The MRZ-3 designation is applied to lands where the presence and significance of mineral deposits cannot be determined from the available data. No mining operations are presently occurring in the Proposed Project area. The Proposed Project would not change existing land uses or prevent the area from being used for mining operations in the future. Therefore, no potentially significant loss of availability of a known mineral resource of value to the region and the residents of the State would result from implementation of the Proposed Project.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

☐ Potentially Significant Impact ☒ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not result in the permanent loss of availability of locally important mineral resource(s), and there would be no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan, or other land use plan would result from implementation of the Proposed Project. The Proposed Project would not result in a loss of a known mineral resource; thus, it would not contribute to the cumulative loss of a mineral resource. Impacts would be less than significant.

XIII. NOISE

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated: The Proposed Project involves habitat rehabilitation within an existing regional park. The Proposed Project does not propose permanent noise-generating features and noise at the site would be similar to existing conditions. Under existing conditions, noise within the Proposed Project area is primarily from trail usage. Several of the trails that run throughout the Proposed Project area are frequently used by horseback riders, for recreational purposes, and may be used as access points by vehicles and CBP agents. The Proposed Project would not incorporate additional trails or pathways, which currently provide the greatest source of operational noise on the Proposed Project site due to trail users. Operation of the Proposed Project would therefore not generate direct noise impacts on existing or planned noise-sensitive land uses.

Temporary or periodic increases in ambient noise levels associated with the Proposed Project would be limited to noise from construction activity. General construction noise would comply with the construction noise limits of the County Noise Ordinance (Section 36.409), defined as an excess of 75 A-weighted decibels (dBA) for more than 8 hours during a 24-hour period.

Temporary construction noise increases may exceed 60 dBA L_{EQ} (one hour) during a single hour. As discussed in the BRTR (Appendix C) prepared for the Proposed Project,

noise generated by construction of the Proposed Project would have the potential to disturb the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Additionally, construction noise has the potential to impact nesting birds and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo, coastal California gnatcatchers, and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 dB or ambient could be significantly impacted.

Construction may occur during the general avian breeding season (February 1 to September 15), least Bell's vireo breeding season (March 15 to September 15), coastal California gnatcatcher breeding season (March 1 to August 15), or raptor breeding season (January 15 to July 15). If construction occurs during these periods, noise from noise-generating equipment such as excavators, dozers, or backhoes would potentially exceed 60 dBA L_{EQ} (one hour), and impacts would be potentially significant. However, implementation of mitigation measures **MM-BIO-1 and MM-BIO-2** would require pre-construction surveys for active nests within the potential impact areas and the potential use of noise-attenuation materials or avoidance measures to reduce noise impacts to a less than significant level. Upon implementation of mitigation measures **MM-BIO-1 and MM-BIO-2**, impacts to nesting bird species due to construction noise would be less than significant. Refer to XXI, Mandatory Findings of Significance, for a discussion of cumulative impacts.

b) Generation of excessive ground borne vibration or ground borne noise levels?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact: Construction of the Proposed Project would not involve equipment or activities that would generate elevated vibration levels or ground borne noise levels such as a vibratory roller or pile driving, and the public's use of the Proposed Project site would not result in excessive ground borne vibration or ground borne noise levels. Following completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park, which would not generate excessive ground borne vibration or ground borne noise levels.

Additionally, the Proposed Project does not propose major, new, or expanded infrastructure such as mass transit, highways or major roadways, or intensive extractive

industry that could generate excessive operational ground borne vibration or ground borne noise levels on site or in the surrounding area.

Therefore, the Proposed Project would not generate excessive ground borne vibration or ground borne noise levels on a project or cumulative level.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?

☐ Potentially Significant Impact ☒ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project site is located as close as approximately 0.26 mile from the NOLF IB. According to the NOLF IB ALUCP, portions of the Proposed Project are located within the 60-65 dB CNEL and 65-70 dB CNEL noise exposure contours for the flight operations (San Diego County Regional Airport Authority 2015). Therefore, the Proposed Project site may experience noise associated with operation of the NOLF IB. However, the Proposed Project involves habitat restoration within an existing regional park. The Proposed Project would not include the construction of permanent structures that would introduce new inhabitants to the site that may be exposed to noise associated with the NOLF IB. Therefore, the Proposed Project would not expose people residing or working in the Proposed Project area to excessive airport related noise levels. Impacts would be less than significant.

XIV. POPULATION AND HOUSING

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

☐ Potentially Significant Impact ☐ Less than Significant Impact

☐ Less Than Significant With Mitigation Incorporated ☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project would not induce substantial population growth because it does not propose a physical or regulatory change that would remove a restriction to or encourage population growth in an area including, but limited to, the

following: new or extended infrastructure or public facilities that would serve additional development; new commercial or industrial facilities; large-scale residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes such as General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations, or Local Agency Formation Commission (LAFCO) annexation actions. Therefore, the Proposed Project would not induce substantial unplanned population growth in the Proposed Project area, nor would it result in cumulative impacts related to unplanned population growth when considered in combination with the cumulative projects in the area.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: No existing housing occurs within the Proposed Project site and the Proposed Project would not displace any existing people or housing. Therefore, no impact to existing people or housing would occur.

XV. PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?
ii. Police protection?
iii. Schools?
iv. Parks?
v. Other public facilities?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project involves habitat restoration activities within an existing regional park. The Proposed Project would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. Following completion of the Proposed Project, long-term maintenance and management of the restoration site would be executed by DPR. Specifically, the site would be part of the DPR Preserve, and as such, would be patrolled regularly by DPR rangers. The Proposed Project would not cause a direct or indirect increase in population that would require public services. Implementation of the Proposed Project would not require the new of physically altered fire protection facilities, police protection facilities, schools, parks, or other public facilities. No impacts would occur.

XVI. RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: Although the Proposed Project would occur within a regional park, the Proposed Project would not expand or create new recreational facilities. The Proposed Project involves habitat restoration which would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control (HELIX ~~2023a~~2024a). Implementation of the Proposed Project would not increase the use of existing parks and would not cause physical deterioration of a recreational facility to be accelerated. Impacts would not occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: Refer to item XVI a), above. Although the Proposed Project would occur within a regional park, the Proposed Project does not include recreational facilities or require the construction or expansion of recreational facilities. Impacts would not occur.

XVII. TRANSPORTATION

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the performance of the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

- ☐ Potentially Significant Impact
- ☒ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The County Guidelines for Determining Significance for Traffic and Transportation (Guidelines) establish measures of effectiveness for the performance of the circulation system. These Guidelines incorporate standards from the County of San Diego Public Road Standards and Mobility Element, the County of San Diego Transportation Impact Fee Program, and the Congestion Management Program.

The Proposed Project would not conflict with a program plan, ordinance, or policy addressing the performance of the circulation system. The Proposed Project involves habitat rehabilitation within an existing regional park, and would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not close roads or access points for the Proposed Project site during temporary rehabilitation activities. Additionally, the Proposed Project would not construct any structures or introduce inhabitants to the region that would result in a permanent increase in usage of roadways or bicycle/pedestrian pathways. Therefore, the Proposed Project would not conflict with a program plan, ordinance or policy addressing the performance of the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision(b)?

- ☐ Potentially Significant Impact
- ☒ Less than Significant Impact
- ☐ Less Than Significant With Mitigation Incorporated
- ☐ No Impact

Discussion/Explanation:

Less than Significant Impact: CEQA Guidelines Section 15064.3, Subdivision(b) describes specific considerations for evaluating a project's transportation impacts. This section provides specific criteria for determining significance of transportation impacts, including guidelines for evaluating land use projects and transportation projects, for performing a qualitative analysis, and for choosing an appropriate methodology. The

Proposed Project involves habitat rehabilitation activities within an existing regional park. The Proposed Project would result in a minimal increase in vehicle trips on local roadways during implementation of the Proposed Project due to worker commutes. Following completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park. Therefore, the Proposed Project would not result in transportation impacts, it would not conflict with the guidelines provided in CEQA Guidelines Section 15064.3, Subdivision(b). Impacts would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project involves habitat rehabilitation within an existing regional park. The Proposed Project would include activities such as removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The Proposed Project would not introduce permanent structures or new uses that may cause hazards. Following completion of the Proposed Project, the Proposed Project site would continue to operate as a regional park. Therefore, the Proposed Project would not increase hazards due to a geometric design feature or incompatible use. Impacts would be less than significant.

d) Result in inadequate emergency access?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less than Significant Impact: The Proposed Project involves habitat restoration in an existing regional park. The Proposed Project would not close roads or access points for the Proposed Project site during temporary rehabilitation activities. Once the Proposed Project is complete, the Proposed Project area would continue to operate as a regional park. The Proposed Project would not include residences or institutions that would attract large numbers of people to the area. Additionally, the Proposed Project would not interfere with the Operational Area Emergency Plan, Multi-Jurisdictional Hazard Mitigation Plan, or Dam Evacuation Plan. No impact to emergency access would occur.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code §21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of Historical Resources as defined in Public Resources Code §5020.1(k), or

☐ Potentially Significant Impact
☐ Less than Significant Impact
☒ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated. Tribal Cultural Resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the CRHR or included in a local register of historical resources, as defined in subdivision (k) of Public Resources Code Section 5020.1.

As discussed in Section V of this IS/MND, the Cultural Resources Inventory and Assessment prepared for the Proposed Project (Appendix D) identified 58 previously recorded cultural resources within the TRVRP, 57 of which occur within the Proposed Project area. Of the 58 resources identified, 47 are prehistoric cultural resources and 2 are multi-component sites. However, impacts to resources located outside of the 587.93 acres of phase areas would not occur. A total of 22 prehistoric cultural resources, all previously recorded, are located within the areas identified as disturbed habitats or containing invasive non-native plant species that would be targeted for removal and restoration. These resources would have a greater risk of experiencing significant adverse impacts resulting from the Proposed Project. One of the resources has been previously evaluated as eligible for the NRHP, and six resources have not been evaluated. Therefore, if the Proposed Project were to adversely impact these seven resources, impacts would be significant.

HELIX contacted the NAHC on March 11, 2021, for a Sacred Lands File search for the Proposed Project area. The NAHC indicated in a response dated April 5, 2021, that the results of the search were positive, and that the Kwaaymii Laguna Band of Mission Indians should be contacted for further information. HELIX contacted Ms. Carmen Lucas of the Kwaaymii Laguna Band of Mission Indians on March 7, 2023 regarding the positive Sacred Lands File search results. Ms. Lucas indicated that there is no specific Traditional

Cultural Properties (TCP) or tribal cultural resource within the TRVRP but that the entire Tijuana River Valley is extremely sensitive for cultural resources and for human remains. As such, she recommended that a knowledgeable Native American monitoring firm or tribal monitor be present during ground disturbance within the TRVRP. This conversation with Ms. Lucas was considered, and the cultural resources recommendations included in the IS/MND and Cultural Report (Appendix D) reflect this conversation.

The County initiated Assembly Bill (AB) 52 consultation with registered tribes on February 4, 2022 and the consultation request period ended on March 12, 2022.

On February 4, 2022, via certified mail and email, County staff provided project notification pursuant to AB 52 to seven tribes who have requested that the County provide, in writing, notification to the tribe of projects in the tribe's area of traditional and cultural affiliation. Notified tribes include the Barona Group of the Capitan Grande, Campo Band of Mission Indians, Jamul Indian Village (Jamul), Kwaaymii Laguna Band of Mission Indians, Manzanita Band of Kumeyaay Nation, San Pasqual Band of Mission Indians, Iipay Nation of Santa Ysabel, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians (Viejas).

On April 19, 2022, Jamul responded via email requesting consultation. County staff responded via email sent to Lisa Cumper on September 29, 2022, and again on December 14, 2022, requesting meeting availability for consultation. County staff met with Jamul on January 20, 2023, March 3, 2023, and April 7, 2023. Consultation meetings resulted in Jamul requesting for a monitor during extensive grading and in known culturally high-sensitivity areas (reflected in **MM-CUL-3**). Ms. Cumper expressed the importance of the Tijuana River Valley to the Jamul Tribe and their history, in terms of cultural resources but also environmental, ethnographical, geographical, and biological resources. The Jamul Tribe considers the entire valley as an important tribal cultural resource. Consultation closure was confirmed via email following the meeting on April 7, 2023.

Viejas responded via email on February 4, 2022, requesting that a cultural Native American monitor be present during ground disturbance (reflected in **MM-CUL-3**); that a copy of this cultural report would be provided to Viejas; and that Viejas is aware that there are TCRs in the Tijuana River Valley, but do not know specifically where they are located. County staff met with Viejas on September 21, 2022, and it was requested for the cultural resources report to be sent for review when ready. County staff sent the cultural resources report to Viejas via email on December 14, 2022, and requested for a follow up phone call. County staff sent an additional email to Viejas on January 18, 2023 requesting a phone call. Viejas responded on January 18 asking if there would be any ground disturbing activities as part of the Proposed Project and if Jamul had been provided the same information. County staff responded via email that there may be ground disturbance and that Jamul had received the same information as Viejas. Viejas responded via email on January 18, 2023 that they defer to Jamul if they wish to monitor or coordinate on cultural issues. Consultation was closed via email on January 18, 2023. No responses or requests for consultation were received from the remaining tribes.

Due to the number of cultural resources located in the Proposed Project area, positive Sacred Lands File search, and cultural importance of the region to the Native American community, the Proposed Project may result in significant impacts to tribal cultural resources.

However, due to natural alluvial erosion and human impacts that have occurred within the TRVRP, implementation of the Proposed Project involving invasive non-native plant treatments limited to herbicide treatment, hand removal, mowing, and solarization techniques would not be expected to cause a substantial adverse change in the significance of a tribal cultural resource. In addition, shallow planting activities would also not be expected to cause a substantial adverse change in the significance of a tribal cultural resource. However, mechanized discing /clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) occurring during the implement of the HRP could result in soil disturbances that may cause an adverse impact to significant tribal cultural resources. Mitigation measures **MM-CUL-1** through **MM-CUL-4** would be implemented, reducing potential impacts to a less than significant level. Therefore, the Proposed Project would not impact a tribal cultural resource as defined in subdivision (k) of Public Resources Code Section 5020.1

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code §5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code §5024.1, the Lead Agency shall consider the significance of the resource to a California Native American tribe.

☐	Potentially Significant Impact	☐	Less than Significant Impact
☒	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated. AB-52 consultation with appropriate tribes was initiated between the County and each tribal contact, which occurred between February 4, 2022 and March 12, 2022.

On February 4, 2022, via certified mail and email, County staff provided project notification pursuant to AB 52 to seven tribes who have requested that the County provide, in writing, notification to the tribe of projects in the tribe's area of traditional and cultural affiliation. Notified tribes include the Barona Group of the Capitan Grande, Campo Band of Mission Indians, Jamul Indian Village (Jamul), Kwaaymii Laguna Band of Mission Indians, Manzanita Band of Kumeyaay Nation, San Pasqual Band of Mission Indians, Iipay Nation of Santa Ysabel, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians (Viejas).

On April 19, 2022, Jamul responded via email requesting consultation. County staff responded via email sent to Lisa Cumper on September 29, 2022 and again on December 14, 2022, requesting meeting availability for consultation. County staff met with Jamul on January 20, 2023, March 3, 2023, and April 7, 2023. Consultation meetings resulted in Jamul requesting for a monitor during extensive grading and in known culturally high-sensitivity areas (reflected in **MM-CUL-3**). Ms. Cumper expressed the importance of the Tijuana River Valley to the Jamul Tribe and their history, in terms of cultural resources, environmental, ethnographical, geographical, and biological resources, and communicated that the Jamul Tribe considers the entire valley as an important tribal cultural resource. Consultation closure was confirmed via email following the meeting on April 7, 2023.

Viejas responded via email on February 4, 2022, requesting that a cultural Native American monitor be present during ground disturbance (reflected in **MM CUL-3**); that a copy of this cultural report would be provided to Viejas; and that Viejas is aware that there are TCRs in the Tijuana River Valley, but do not know specifically where they are located. County staff met with Viejas on September 21, 2022, and it was requested for the cultural resources report to be sent for review when ready. County staff sent the cultural resources report to Viejas via email on December 14, 2022, and requested for a follow up phone call. County staff sent an additional email to Viejas on January 18, 2023 requesting a phone call. Viejas responded on January 18 asking if there would be any ground disturbing activities as part of the Proposed Project and if Jamul had been provided the same information. County staff responded via email that there may be ground disturbance and that Jamul had received the same information as Viejas. Viejas responded via email on January 18, 2023 that they defer to Jamul if they wish to monitor or coordinate on cultural issues. Consultation was closed via email on January 18, 2023. No responses or requests for consultation were received from the remaining tribes.

Due to the number of cultural resources located in the Proposed Project area, positive Sacred Lands File search, and cultural importance of the region to the Native American community, the Proposed Project may result in significant impacts to tribal cultural resources. However, mitigation measures **MM-CUL-1** through **MM-CUL-4** would be implemented, reducing potential impacts to a less than significant level.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

a) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less than Significant Impact. The Proposed Project includes habitat restoration of a regional park. The Proposed Project would require the use of minimal water during construction activities and post-construction activities. Water usage during Proposed Project implementation would primarily occur from watering in conjunction with planting activities, and supplemental watering during maintenance activities. According to the HRP, irrigation may be used on sites where container plants or cuttings are installed (if container planting occurs). Irrigation and supplemental watering would be considered in conjunction with other restoration treatments on a site-by-site basis. Germination at seeded areas would rely on natural precipitation. Where irrigation is needed, accessible sites would have either overhead, drip- or bubbler-type irrigation systems installed that would be fed by either on-site water connection, tanks, or a water truck connection. Hand watering may also occur in small sites or sites with difficult access. Specific schedules and quantities of irrigation would depend on weather patterns and site conditions (Appendix A). The Proposed Project would not require water usage that would significantly deplete water supplies. Impacts would be less than significant.

b) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

☐ Potentially Significant Impact	☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project does not propose permanent restroom facilities. Portable restroom facilities would be provided for workers during implementation of the Proposed Project. Wastewater generated at the portable restroom facilities would be minimal and not be disposed of at the Proposed Project site, but would be hauled away, and disposed of at an appropriate facility in accordance with applicable regulations. Therefore, the Proposed Project would not interfere with a wastewater treatment provider's service capacity.

c) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: Implementation of the Proposed Project would include the removal of existing trash and debris within the TRVRP during pre-construction, construction, and post-construction. All trash and debris removed during pre-construction activities would be hauled off-site and disposed of in an approved landfill.

Records would be kept detailing the tonnage, type, and dates of trash removed from the site and would be included in project reporting documents.

The Proposed Project would generate minimal solid waste, and solid waste generated would primarily consist of organic waste from invasive non-native plant removal and soil decompaction/recontouring. Organic materials, including wood debris, plant material, straw, and sand, may be incorporated into the site soils prior to soil decompaction. However, this would be evaluated case-by-case to ensure that the fundamental characteristics of the underlying soil are not altered to favor non-native over native plant species. Waste generated by the Proposed Project would be minimal and would not exceed applicable standards.

Proposed Project implementation would not generate significant solid waste during operation. The Proposed Project involves habitat restoration; following completion of the Proposed Project, long-term maintenance and management of the restoration site would be executed by DPR. Specifically, the site would be part of the DPR Preserve, and as such, would be patrolled regularly by DPR rangers. Park rangers may hand pull any invasive non-native plants in the early stages of growth that are observed during patrols. Such activities would not generate significant amounts of solid waste. Additionally, all solid waste facilities, including landfills, require solid waste facility permits to operate. In San Diego County, the County Department of Environmental Health, Local Enforcement Agency issues solid waste facility permits with concurrence from the California Integrated Waste Management Board (CIWMB) under the authority of the Public Resources Code (Sections 44001-44018) and California Code of Regulations Title 27, Division 2, Subdivision 1, Chapter 4 (Section 21440 et seq.). Therefore, there is sufficient existing permitted solid waste capacity to accommodate the Proposed Project's solid waste disposal needs.

d) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

☐ Potentially Significant Impact	☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated	☐ No Impact

Discussion/Explanation:

Less than Significant Impact: Implementation of the Proposed Project would generate minimal solid waste during implementation of the Proposed Project. Disposal of waste materials related to the Proposed Project would be legally disposed of at regulated

disposal sites. No refuse bins would be provided, and operational waste would be carried out for legal disposal, similar to existing conditions.

XX. WILDFIRE

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

☐ Potentially Significant Impact ☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: As discussed in item IX e), the Proposed Project would not conflict with the Operational Area Emergency Plan, the Multi-Jurisdictional Hazard Mitigation Plan, the San Diego County Nuclear Power Station Emergency Response Plan, the Oil Spill Contingency Element, the Emergency Water Contingencies Annex and Energy Shortage Response Plan, or the Dam Evacuation Plan for the County. The Proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. The Proposed Project would not contribute to a cumulatively considerable impact because future projects are required to comply with the County Codes and emergency evacuation plans. Potential impacts related to conflict with an adopted emergency response or emergency evacuation plan would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

☐ Potentially Significant Impact ☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated ☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The majority of the Proposed Project area is located within a Very High Fire Hazard Severity Zone as designated by CAL FIRE in their *Very High Fire Hazard Severity Zones in LRA, San Diego* (CAL FIRE 2009). The climate and vegetation make the area suitable for potential wildland fires. However, the Proposed Project would not exacerbate wildfire risk at the Proposed Project site. The activities included in the Proposed Project include the removal of invasive non-native plant species, weed removal, trash/debris removal, seeding, watering, and erosion control. The

Proposed Project would not introduce significant slopes or unstable slope conditions that would increase wildfire risk. Additionally, the Proposed Project does not include the construction of structures that would introduce occupants to the site that would be exposed to wildfire hazards. Impacts would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☒ No Impact

Discussion/Explanation:

No Impact: The Proposed Project includes habitat restoration within an existing regional park. The Proposed Project does not include the installation of infrastructure such as roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Therefore, the Proposed Project would not include activities related to infrastructure that would result in direct or cumulatively considerable impacts on the environment.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

☐ Potentially Significant Impact
☒ Less than Significant Impact
☐ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant Impact: The Proposed Project site is located in a climate and topography that is prone to wildfires and has natural habitats of vegetation that could be a fuel source for wildfires, especially during droughts or dry periods. Wildfire risk tends to be high in locations where dense vegetation occurs on a steep slope. Post-wildfire risks associated with slopes, including mudflow or landslides, could occur when the vegetation that anchors soils to the hillside has burned, increasing the potential for mudflow or landslide in the event of heavy rains (CAL FIRE 2018). The Proposed Project site is at risk for this situation to occur; however, the Proposed Project does not include features that would alter or exacerbate these existing conditions on the Proposed Project site. As discussed under item VII a), the Proposed Project does include ground-disturbing activities (i.e., soil salvage, mechanical mowing of invasive non-native plants, soil decompaction/recontouring, minor topographic modifications to enhance stream and flood flows), but such activities would not result in instable ground conditions. Rather, the

Proposed Project would improve flood flows through soil recontouring to correct, improve, or expand stream and flood flows within the Proposed Project area. Therefore, the Proposed Project would not expose more people to the risk of post-wildfire hazards, including mudflow, landslide, or other forms of slope instability from existing conditions.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

☐ Potentially Significant Impact
☐ Less than Significant Impact
☒ Less Than Significant With Mitigation Incorporated
☐ No Impact

Discussion/Explanation:

Less Than Significant With Mitigation Incorporated. Per the instructions for evaluating environmental impacts in this Initial Study, the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in sections IV, V, and XVIII of this form. In addition to impacts specific to the Proposed Project, this evaluation considered the Proposed Project's potential for significant cumulative effects. Resources that have been evaluated as significant would be potentially impacted by the Proposed Project, particularly biological resources, cultural resources, and tribal cultural resources. However, mitigation has been included that clearly reduces these effects to a level below significance. Compliance with the MMRP would occur with DPR review and approval of each Execution Plan required to be prepared for each phase of the Proposed Project. This mitigation includes mitigation measures **MM-BIO-1 through MM-BIO-9** to reduce potential impacts to biological resources; **MM-CUL-1 through MM-CUL-3** to avoid potential impacts on historic or buried cultural resources; **MM-CUL-4** to protect human remains; and **MM-PAL-1a through MM-PAL-1g** to avoid potential impacts to paleontological resources. As a result of this evaluation, there is no substantial evidence that, after mitigation, significant effects associated with this Proposed Project would result. Therefore, this Proposed Project has been determined not to meet this Mandatory Finding of Significance.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Past, present, and future projects were compiled to assess impacts by the Proposed Project in conjunction with cumulative projects in the vicinity. However, no cumulative projects that would have adverse effects on the environment were found within one mile of the Proposed Project.

Less Than Significant Impact. Per the instructions for evaluating environmental impacts in this Initial Study, the potential for adverse cumulative effects were considered in the response to each question in sections I through XX of this form. In addition to Proposed Project specific impacts, this evaluation considered the Proposed Project's potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there is no substantial evidence that there are cumulative effects associated with this Proposed Project. Therefore, this Proposed Project has been determined not to meet this Mandatory Finding of Significance.

c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

☐	Potentially Significant Impact	☒	Less than Significant Impact
☐	Less Than Significant With Mitigation Incorporated	☐	No Impact

Discussion/Explanation:

Less Than Significant Impact. In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts on human beings were considered in the response to certain questions in sections I. Aesthetics; III. Air Quality; VII. Geology and Soils; VIII. Greenhouse Gas Emissions; IX. Hazards and Hazardous Materials; X. Hydrology and Water Quality; XIII. Noise; XIV. Population and Housing; XVII. Transportation; and XX. Wildfire. As a result of this evaluation, there is no substantial evidence of adverse effects to human beings associated with this Proposed Project. Therefore, this Proposed Project has been determined not to meet this Mandatory Finding of Significance.

XXII. REFERENCES USED IN THE COMPLETION OF THE INITIAL STUDY CHECKLIST

All references to Federal, State, and local regulations are available on the Internet. For Federal regulations, refer to https://www.law.cornell.edu/uscode/text. For State regulations, refer to http://www.leginfo.ca.gov/. For County regulations, refer to https://www.amlegal.com/. All other references are available upon request.

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CULTURAL RESOURCES

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California Public Resources Code §5024.1, Register of Historical Resources. (https://leginfo.legislature.ca.gov/)

California Public Resources Code. §5097-5097.6, Archaeological, Paleontological, and Historic Sites. (https://leginfo.legislature.ca.gov/)

California Public Resources Code. §5097.9-5097.991, Native American Heritage. (https://leginfo.legislature.ca.gov/)

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U.S. Code including: American Antiquities Act (16 USC §431-433) 1906. Historic Sites, Buildings, and Antiquities Act (16 USC §461-467), 1935. Reservoir Salvage Act (16 USC §469-469c) 1960. National Historic Preservation Act (16 USC §470 et seq.) 1966. National Environmental Policy Act (42 USC §4321) 1969. Archaeological and Historical Preservation Act (16 USC §469-469c) 1974. Federal Land Policy and Management Act (43 USC §35) 1976. American Indian Religious Freedom Act (42 USC §1996 and 1996a) 1978. Archaeological Resources Protection Act (16 USC §470aa-mm) 1979. Native American Graves Protection and Repatriation Act (25 USC §3001-3013) 1990. Intermodal Surface Transportation Efficiency Act (23 USC §101, 109) 1991. American Battlefield Protection Act (16 USC 469k) 1996. (www4.law.cornell.edu)

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XXIII. LIST OF APPENDICES

Appendix A Habitat Restoration Plan
Appendix B Air Quality and Greenhouse Gas Emissions Technical Analysis
Appendix C Biological Resources Technical Report
Appendix D Cultural Resources Inventory and Assessment

Appendix A

Habitat Restoration Plan

Tijuana River Valley Invasive Species Removal and Restoration

Habitat Restoration Plan

~~November 2023~~ January 2024 | 00187.00006.025

Prepared for:

County of San Diego
Department of Parks and Recreation
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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
ASMD	Area Specific Management Directives
BCC	Birds of Conservation Concern (USFWS designation)
BMO	Biological Mitigation Ordinance
BMP	Best Management Practice
CADPR	California Department of Pesticide Regulations
Cal-IPC	California Invasive Plant Council
CCA	California Coastal Act
CCC	California Coastal Commission
CCMP	California Coastal Management Program
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CIAP	Coastal Impact Assistance Program
City	City of San Diego
CNPS	California Native Plant Society
County	County of San Diego
CRA	Core Resource Area
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DPR	Department of Parks and Recreation
ESA	Environmentally Sensitive Area
ESHA	Environmentally Sensitive Habitat Area
ESL	Environmentally Sensitive Lands
FE	Federal Endangered
FESA	Federal Endangered Species Act
FP	Federal Protected
FT	Federal Threatened
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
HRP	Habitat Restoration Plan

ACRONYMS AND ABBREVIATIONS (cont.)

I	Interstate
KSHB	Kuroshio Shot Hole Borer
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
NADB	North American Development Bank
NCCP	Natural Communities Conservation Plan
NE	
NPPA	Native Plant Protection Act
PLS	pure live seeds
RGP	Regional General Permit
RMP	Resource Management Plan
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SANDAG	San Diego Association of Governments
SCo	South Coast (floristic province)
SE	State Endangered
SSC	Species of Special Concern (CDFW designation)
SWPPP	Stormwater Pollution Prevention Plan
TRNERR	Tijuana River National Estuarine Research Reserve
TRVRP	Tijuana River Valley Regional Park
TSNWR	Tijuana Slough National Wildlife Refuge
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCM	Vegetation Classification Manual
WL	Watch List

1.0 INTRODUCTION

This report presents a conceptual Habitat Restoration Plan (HRP) for the Tijuana River Valley Invasive Species Removal and Restoration Project (project). The development of this HRP, permitting for activities included in this HRP, and California Environmental Quality Act (CEQA) review is being performed per a grant obtained by the County of San Diego (County) Department of Parks and Recreation (DPR) from the California Department of Fish and Wildlife (CDFW) Prop 1 Watershed Restoration Grant Program. The restoration activities proposed in this HRP will occur on lands within the Tijuana River Valley Regional Park (TRVRP) that are County-owned and managed by DPR, as well as those lands that are owned by the City of San Diego (City). City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements. Specifically, this HRP details a comprehensive approach for an Invasive Species Removal and Restoration Project located in southwestern San Diego County, California. The activities detailed in this plan include an implementation, maintenance, and monitoring program addressing the restoration of a Project Area totaling 1,740.75 acres comprising mixed wetland, riparian, and upland habitats. Specifically, the step-by-step process for implementation of this HRP will include (1) project identification/phasing, (2) Execution Plan development, (3) pre-restoration implementation activities, (4) restoration implementation activities, and (5) post-implementation maintenance activities. This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans (County 2007). The framework of this HRP was adopted from Southern California Edison's programmatic restoration practices for temporary impacts following transmission line construction (CH2M 2018).

Since the late 1800s, the Tijuana River Valley has been modified for agricultural practices and plagued by increasing populations of invasive non-native plants. These non-native and invasive species populations displace native habitats with monotypic stands which are inhospitable to native wildlife, alter riverine hydrology, impair water quality, hinder water filtration capabilities, trap sediments, and degrade habitat for wildlife species. Invasive non-native plant populations have been observed forming as dense stands of vegetation that retain water in stagnant ponds, leading to odor and vector issues. In recent years, trash, sediment, and invasive non-native plant species within the Tijuana River Valley have posed an increasingly serious threat to the overall health of the watershed and the ecosystems that depend on it. Accumulation of sediment, debris, and thick non-native vegetation have compounded and contributed to serious flooding in the valley. The overall condition of the TRVRP is such that a large-scale effort is warranted to fend off further damage and orient the environmental trajectory in a positive direction. Full remediation of the Valley is a large undertaking that will require a concerted effort from many stakeholders and persistence toward overarching goals; this HRP supports that larger effort through a focus on non-native species control and removal. Through the removal of invasive non-native species populations, many of the negative trends may be reversed while restoring the riverine and upland ecosystem that once existed. To restore portions of the TRVRP, the County DPR has adopted this HRP for implementation.

The goal of this HRP is to identify, prioritize through phasing, and implement, large-scale restoration throughout the TRVRP on properties that are County-owned and managed by DPR, in addition to those properties that are owned by the City. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements. Through

the implementation of this comprehensive HRP, invasive non-native plant species will be targeted for removal, and native plant restoration would occur over several independent phases. Subsequent to this HRP, Execution Plans would be prepared for each individual project phase. The Execution Plans would choose from methodologies identified in this HRP and provide specificity to implementation practices, methods, and expected project outcomes in that project phase.

Within three years following implementation, the goal is that each proposed project phase is expected to be approaching the functions and values of adjacent, preserved riparian and upland habitats found within the TRVRP. Restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions, such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. The restoration will also potentially supply suitable breeding and foraging habitat for special status species known to occur in the TRVRP, including quino checkerspot butterfly (*Euphydryas editha quino*), western spadefoot toad (*Spea hammondii*), Baja California coachwhip (*Coluber fuliginosus*), Blainville's horned lizard (*Phrynosoma blainvillii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), yellow warbler (*Setophaga petechia*), and least Bell's vireo *(Vireo bellii pusillus*) (HELIX Environmental Planning, Inc. [HELIX] 2019). Following successful restoration, the entire site would continue to be preserved, managed, and maintained in perpetuity by the County.

Nomenclature used in this report generally comes from Holland (1986), Oberbauer et al. (2008), the Vegetation Classification Manual for Western San Diego County (San Diego Association of Governments [SANDAG] 2011), Jepson eFlora (2021), and Baldwin et al. (2012) for plants, North American Butterfly Association (2021) for butterflies, Society for the Study of Amphibians and Reptiles (2021) for reptiles and amphibians, American Ornithological Society (2021) for birds, and Bradley et al. (2014) for mammals. Plant species status is from the CNPS's Rare Plant Inventory (CNPS 2021), CDFW (2021a), County (2010a), and City (1997). Animal species status is from the CDFW (2021b), County (2010a), and City (1997).

1.1 PROJECT OVERVIEW

The project is being undertaken by the County DPR utilizing grant funds awarded through the CDFW Watershed Restoration Grant Program. The CDFW developed the Watershed Restoration Grant Program in response to the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1). Proposition 1 amended the California Water Code to add Section 79737, authorizing the Legislature to appropriate funds to CDFW to fund multi-benefit ecosystem and watershed restoration and protection projects. This restoration effort is not being undertaken in response to any compensatory mitigation requirements associated with any other project; however, the County reserves the right to supplement the effort with any compensatory mitigation needs that may arise in the future.

The project includes restoration of degraded habitats on County-owned and City-owned lands throughout the TRVRP (Project Area). This HRP presents a long-term restoration framework to remove many of the invasive non-native plant species that have taken hold in the greater TRVRP. Expected benefits of the project include removal and maintained control of invasive, non-native plant species in the area, successful treatment and removal of invasive non-native plants, reestablishment of native plant species and communities, trash removal, **including the potential removal of remnant building materials,** enhanced water quality and flow, reduced concentration of chemicals and pollutants,

improved sediment deposition regimes, reduced risk of flooding, increased ecosystem diversity and species abundance, and improved recreational experience. These expected benefits are significant as the current condition of the TRVRP is critical, and the ecosystems and habitat dependent on this area are rapidly degrading (Boland 2016). They are further significant because several sensitive, threatened, and endangered species, such as the federally and state endangered least Bell's vireo, rely on the Tijuana River Valley for its abundant, early to mid-successional riparian habitat, which provides a structurally diverse canopy and dense shrub cover required for nesting and foraging, and as it is one of the last coastal estuaries in southern California that remains undeveloped (Safran et al. 2017). The likelihood that the beneficial outcomes of the project will be realized is high, as this project was designed to address County-owned and City-owned land within the TRVRP, which covers a large area; approximately 1,740 acres of the 1,800-acre park. The project's inclusion of all County-owned and City-owned lands will decrease the chance that invasive non-native plants would easily reestablish, which may occur if restoration were only focused on a small scale.

The greater TRVRP encompasses 1,800 acres within the City of San Diego. Approximately 1,740 acres of the 1,800-acre TRVRP are owned by the County and/or City (herein referred to as the Project Area), with the remaining other landowners consisting of the CDFW, U.S. Federal government, and private entities. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements. The greater TRVRP is one of the closest areas to where the Tijuana River crosses the U.S.-Mexico border and, as a result, is one of the first areas impacted during periods of high flow and waste discharge. The geographic location, compounded by the nature of large river valley estuaries to act as a catching basin for upstream inputs, leads to threats from both invasive non-native species and trash (North American Development Bank [NADB], 2019).

Threats to native vegetative communities in the region have been exacerbated within the past five years due to the invasion of the Kuroshio Shot Hole Borer (KSHB; *Euwallacea* sp.) beetles (described in more detail in Section 2.5). The KSHB is an invasive beetle from Asia that has been recently introduced within southern California and was first detected within San Diego County in 2012 (Eskalen et al. 2013; Umeda et al. 2016). The species has been documented residing within the TRVRP since 2015 (Boland 2016). The KSHB creates a gallery of tunnels in the trunk of native and invasive non-native tree species, laying eggs and depositing the tunnels with a fungus (*Fusarium* sp.) that is used as a food resource (Biedermann et al. 2009). The fungus diseases the trees, stopping the flow of water and nutrients to the host plant, which causes individual branch death, or in severe cases, mortality to the entire tree. This process is generally referred to as Fusarium dieback. Reproductive host plants include a wide range of native and invasive non-native trees, with the species having been documented utilizing at least 63 different species (Eskalen 2018). The presence of the KSHB within the TRVRP and the surrounding area has caused extensive damage to native riparian vegetation, resulting in damage and mortality to a large number of trees along the Tijuana River (Boland 2018). The invasion of KSHB, and subsequent damage to native trees, has caused a reduction in the willow canopy along the Tijuana River floodplain, particularly in wetter areas. This has led to an increase in the presence and cover of invasive non-native plant species, such as giant reed (*Arundo donax*) and castor bean (*Ricinus communis*), in areas previously dominated by native vegetation. This project aims to reverse the trend from non-native plant species invasion of KSHB infested areas towards a native vegetation community that existed prior to KSHB infestation. Vegetation infested by KSHB was observed to be concentrated in riparian woodland and riparian forest communities rather than riparian scrub communities. The damaged trees responded by resprouting, with less than 10 percent of resprouts observed to show signs of KSHB infestation. Overall, the KSHB infestation resulted in dieback of mature riparian trees, but they did not die. Implementation of

restoration and perpetual management of restored areas in the TRVRP would help control re-infestation and spread of KSHB, as the infestation only affects a small portion of new tree growth (Boland 2018). Control of KSHB at the onset of signs of infestation would prevent large-scale re-infestation and spread of the infestation.

Based on the HELIX Environmental Planning, Inc. (HELIX) 2018 biodiversity study encompassing the greater TRVRP (HELIX 2019) and focused surveys conducted by HELIX in 2021, wetland, riparian, upland, and disturbed invasive non-native plant vegetation communities/habitats existing within the Project Area cover a total area of 1,740.75 acres. Within the Project Area, disturbed and invasive non-native plant vegetation communities/habitats total approximately 587.93 acres. These disturbed and invasive non-native plant species targeted for removal occur as dense patches of vegetation, as well as point locations[1] intermixed throughout areas of mapped native riparian and upland vegetation. Additionally, within these twelve phases, 7.24 acres of invasive species point locations occurring within native habitat will be treated and restored into native habitats.

While the Project Area includes approximately 1,740 acres of County-owned and/or managed land, invasive non-native plant treatment and restoration areas would not occur in the entirety of the Project Area, as patches of native vegetation would not be treated/restored. Following treatment of the invasive non-native plant areas and point locations, treatment areas and point locations would be restored to native habitats. Treatment of invasive non-native plants throughout the Project Area is proposed to occur in twelve separate phases based on a variety of conditions such as timing, funding availability, and capacity of County staff. Phase prioritization is detailed below in Section 4.1, and phase-specific planning activities are detailed below in Section 4.2. Restoration of upland habitats that is not contingent on aquatic resource agency permitting, may be initiated by DPR first. This plan does not include brown-headed cowbird (*Molothrus ater*) trapping, which is implemented separately by DPR as part of the County's Area Specific Management Directives (ASMDs) for the TRVRP (County 2007).

1.2 CONCURRENT PLANNING AND RESTORATION EFFORTS

In addition to the proposed project discussed in this HRP, there are several other ongoing projects and studies for future projects within TRVRP and region that are being addressed by others, concurrent with this report. A summary of projects and technical studies which could affect the implementation of this HRP is provided below.

Tijuana River Valley Public Use Feasibility Study (AECOM 2017)

- Comprehensive feasibility document that will help guide future recreation, camping, and trail enhancement decisions within TRVRP
- Assesses the economic feasibility for revenue-generating opportunities for select potential recreational opportunities.
- Includes recommendations that focus on improving the current visitor experience at TRVRP
- Analyzes gaps in the regional trail network, focusing on supporting connections between TRVRP trails and the larger regional trail network.

[1] Point locations are singular or grouped individuals of non-native and invasive trees or shrubs, or herbaceous species that occupy a patch size of 1,256 square feet, or less, which is equal to a point with a 20' radius. All mapped point locations were given a patch size of 1,256 square feet.

- Presents conceptual site plans and location profiles for a number of potential recreational improvements.

Tijuana River Valley Needs and Opportunities Assessment (HDR 2020)

- Provides a comprehensive review and assessment of current and potential management strategies that could be implemented on the United States (U.S.) side of the border to address transboundary flows of sewage, trash, and sediment into the Tijuana River Valley.
- Focuses on analyzing potential projects to identify their potential benefits to addressing transboundary flows as well as planning-level costs for both capital investment and ongoing operations and maintenance expenses.
- Provides decision-makers in both countries with a list of potential projects that can be implemented on the U.S. side of the border to protect human and environmental health in the Tijuana River Watershed and coastal waters.
- Stakeholder-driven process using the Recovery Team as the core stakeholder group for ongoing input and feedback.

Tijuana River Diversion Study Flow Analysis, Infrastructure Diagnostic and Alternative Development (ARCADIS 2019)

- The study was directed by the NADB, in coordination with the U.S. Environmental 38 Protection Agency (USEPA), USIBWC, CILA, Comisión Nacional del Agua, and CESPT.
- The study was initiated in the spring of 2018 and completed in July 2019.
- The study consists of transboundary flow analysis, diversion infrastructure and operations diagnostics, and an evaluation of technical alternatives identified for potential infrastructure improvements in Mexico, the U.S., or both countries for mitigation of transboundary flows.
- The study provides a summary of the treaty minutes that apply to the transboundary flows in the Tijuana River Valley.
- The study did not result in a recommendation for a single solution. The recommendations focused on the need for analysis through preliminary engineering and a feasibility study for any of the proposed investment options.

Tijuana River Valley Recovery Team Recovery Strategy (Tijuana River Valley Recovery Team 2012)

- The study was completed in collaboration with more than 30 federal, state, and local agencies (including California State Parks, USEPA, U.S. Customs and Border Protection, TRNERR, Regional Board, USIBWC, County of San Diego, City of San Diego, City of Imperial Beach, etc.), as well as other stakeholders on both sides of the border (including Coastal Conservancy, Surfrider, San Diego Coastkeeper, Tijuana River Valley Equestrian Association, etc.).
- The strategy plan was initiated in June 2008.
- The Recovery Strategy was completed in January 2012, and the Five-Year Action Plan was completed in March 2015.

- The objective of the Recovery Strategy is to document the existing conditions related to sediment and trash issues in the Tijuana River Valley and outline solutions that will allow beneficial uses of the Tijuana River Valley and its resources to be achieved.
- The objective of the Five-Year Action Plan is to maintain collaborative momentum and implement priority projects that advance Recovery Team goals as described in the Recovery Strategy.

Tijuana Estuary Tidal Restoration Project (TETRP 2011)

- Initially developed in 1991 for the California Coastal Conservancy and U.S. Fish and Wildlife Service (lead agencies), the Tijuana Estuary Tidal Restoration Program (TETRP) is a large, multi-phased wetland restoration program involving up to 500 acres of restoration. Its primary objective is to restore habitat values that have been lost and increase the exchange of water in a tidal cycle, which will, in turn, enhance flushing, improve water quality, and control sedimentation.
- The study was followed by the Tijuana Estuary – Friendship Marsh Restoration Feasibility and Design Study prepared in March 2008 for the California Coastal Conservancy and Southwest Wetlands Interpretive Association (SWIA).
- This feasibility and design study reexamines the potential for restoration of the southern arm of the Tijuana River and updates and refines the 1991 design/ plan to include a programmatic level feasibility analysis and engineering plans.

TRVRP Brown Fill Restoration Project

- The County of San Diego is the landowner and project lead.
- Grant funding was secured for planning, environmental analysis and permitting, and design.
- The Hydraulic and Sediment Transport Analysis for the Brown Property Fill Removal was completed in 2019.
- Four conceptual fill removal alternatives were considered. The hydraulic results indicate that the alternatives will not significantly lower the water surface elevations or provide flood inundation benefits near the project over the range of flow events studied. The reductions vary depending on the alternative, flow event, and cross-section, and the maximum reduction is less than five inches.
- The County of San Diego is currently looking at revising the project scope and costs in consultation with key stakeholders.

Disney Property Rehabilitation (Pending Funding)

- This Project seeks to remove structures from the TRVRP floodplain and restore habitat adjacent to the County trails and the river parkway.
- The 2.5-acre disturbed land will then be restored through the removal of invasive non-native plant species, and planted with native riparian shrubs, trees, and salt-tolerant species to encourage native plant recruitment similar to the adjacent riparian vegetation and other restoration work occurring throughout the River Valley.
- Includes park trail realignment to provide one contiguous restoration area.

Nelson Sloan Quarry Restoration and Beneficial Reuse of Sediment Project (DUDEK 2021)

- California State Parks is the project lead in partnership with the County of San Diego and the City of San Diego.
- California State Parks secured grant funding for planning, environmental, and the development of operational agreements. A draft environmental document for the project was released in 2021. A final environmental document is expected to be released publicly in 2023.
- The study was initiated in 2010 (URS 2010), followed by the Nelson Sloan Management and Operations Plan and Cost Analysis in 2016 (AECOM 2016).
- The purpose of this plan is to provide stakeholders with sediment management responsibilities in the valley a description of how the quarry might be managed and operated as a location for the placement of sediment and concurrently meet the requirements of the conditional use permit and Restoration Plan.
- The project will also require the preparation of a multijurisdictional agreement that details roles and responsibilities during the operation of the proposed project.

Hydraulics and Hydrology Model, Phase 1 (USACE LA District 2017)

- This was developed by USACE in coordination with the City of San Diego.
- In September 2018, the USACE completed a Phase 1 Hydrology, Floodplain and Sediment Transport Study extending from the international border to the Pacific Ocean.
- The USACE initiated Phase 2 of the study in July 2018, which is still underway. It is anticipated that Phase 1 modeling will be extended into Mexico and include the operation of the reservoirs in Mexico.
- The overall study goals are to determine flow rates and flood risks for a range of storm events; plan for future flow management activities that may be used to mitigate flood risk in the U.S. Mexico border area; and help inform future flood, sediment, and trash management activities (including watershed conservations, preservation, and restoration management strategies).

Border Impact Bond

- 4 Walls, a registered 501(c)(3) nonprofit, has proposed a financing strategy (Border Impact Bond) to focus on the need for upstream source control to reduce the transboundary flow of trash and sediment across the U.S. Mexico border.
- The means of investing in and providing 3rd party financial support for such a bond are being examined at present.
- The Border Impact Bond would create value for plastics and repurpose trash in parts of Tijuana with the goal of developing a blueprint that can be employed more broadly across various parts of the border.

Tijuana River Valley Regional Park Trails and Habitat Enhancement Project

- Formally designates additional miles of trails in the TRVRP. After completion of the project, TRVRP now has 22.5 miles of trails.

- Constructs approximately 5,000 linear feet of new trail; widen, narrow, and resurface existing trails in specific areas, and repairs erosion.
- Installs 12 culverts to allow runoff to flow under the trail.
- Trims vegetation overhanging the trail in select areas and install trail markers, signage, and lodge pole fencing.
- Maintains the formal trail system, including repair, rehabilitation, or replacement of permitted culverts and removal of accumulated sediments and debris in the vicinity of existing trail-related structures, including intake and outfall structures.
- Decommissions 18.9 miles of informal trails, including active and passive restoration, and restores of 2.5 acres of riparian habitat in a currently ruderal area near the Butterfly Garden.

Tijuana River Valley Channel Maintenance Project (DUDEK 2016)

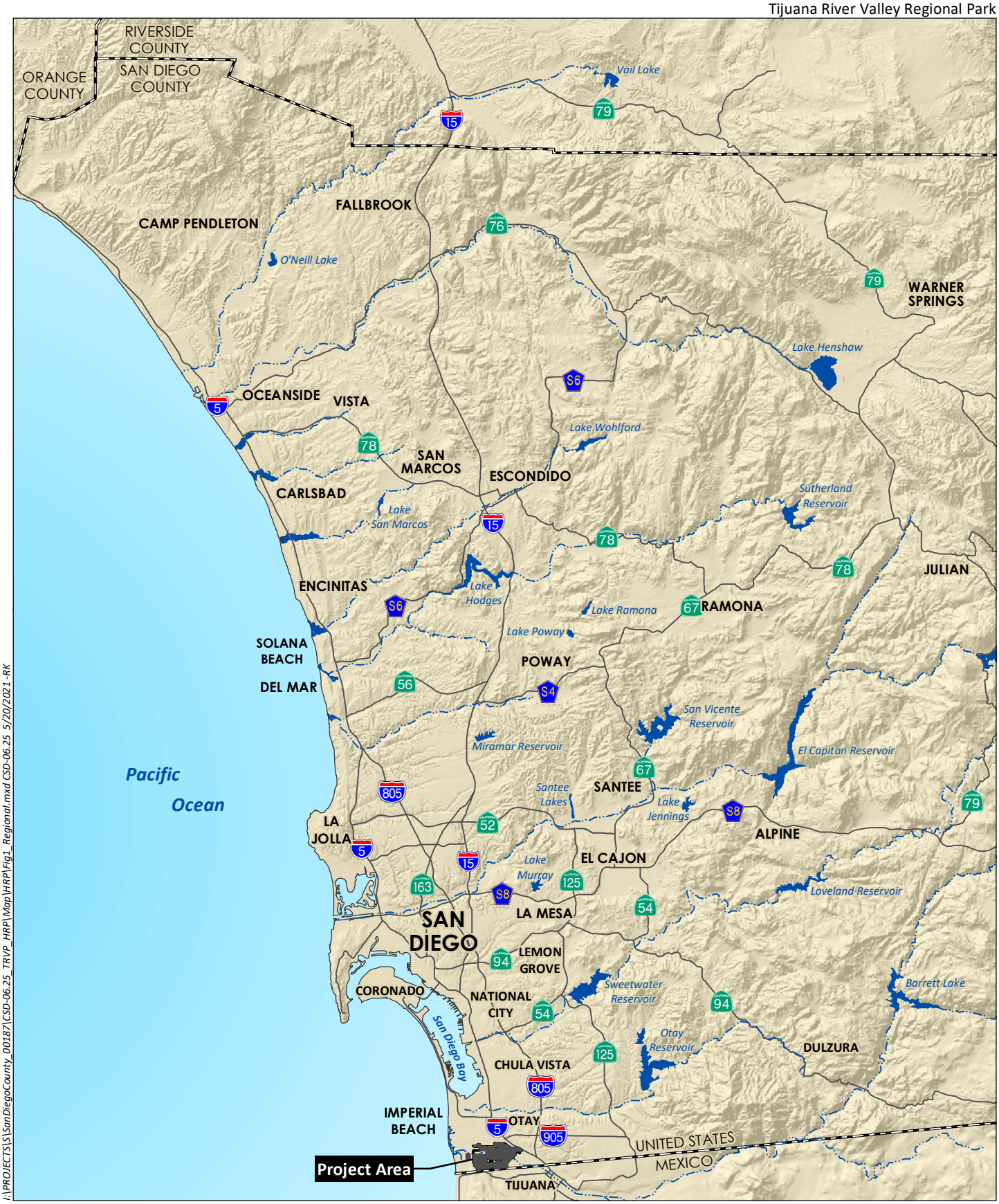
- As part of the City's Master Storm Water System Maintenance Program, the City maintains the Smuggler's Gulch channel and the Tijuana River Pilot Channel.
- Maintenance includes the excavation of sediment, which facilitates channel flows and prevents flooding.
- Activities in 2013 – 2014 also repaired previously built turnarounds within the Tijuana River Pilot Channel, repaired the previously built access ramp into Smuggler's Gulch, and established a third turnaround in the eastern section of the Tijuana River Pilot Channel.

1.3 PROJECT LOCATION

The TRVRP is found within the boundaries of the City of San Diego in southwestern San Diego County (Figure 1, *Regional Location*). Approximately 1,617 acres of the 1,800-acre TRVRP are owned by the County, while other landowners in the area consist of the City, CDFW, U.S. federal government, and private landowners. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements.

The TRVRP is bound to the north by Sunset Avenue, to the south by the U.S.-Mexico International Border, to the west by Border Field State Park and the Tijuana River National Estuarine Research Reserve (TRNERR), and to the east by Dairy Mart Road and the residential community of San Ysidro (except for the part of the Dairy Mart Ponds that extend further east between the Interstate [I-] 5 corridor and Camino de la Plaza). The area is situated within Sections 2, 3, 4, 5, 32, 33, 34, and 35, Townships 18 and 19 South, and Range 2 West of the U.S. Geological Survey (USGS) Imperial Beach topographic quadrangle map (Figure 2, *Park/Preserve Vicinity Map*). The entire Project Area is located within the coastal zone, and portions of the Project Area along the Tijuana River are designated by U.S. Fish and Wildlife Service (USFWS) as final critical habitat for the federally listed endangered least Bell's vireo (*Vireo bellii pusillus*). Designated federal and state open space is found next to the Project Area and includes Border Field State Park, TRNERR, and the Tijuana Slough National Wildlife Refuge (TSNWR; Figure 3, *Regional Designations and Conserved Lands*).

The Project Area is within the Coastal Zone, with portions in the Appealable Area and portions within the Deferred Certification Area. Appealable area means the area, as defined by California Public



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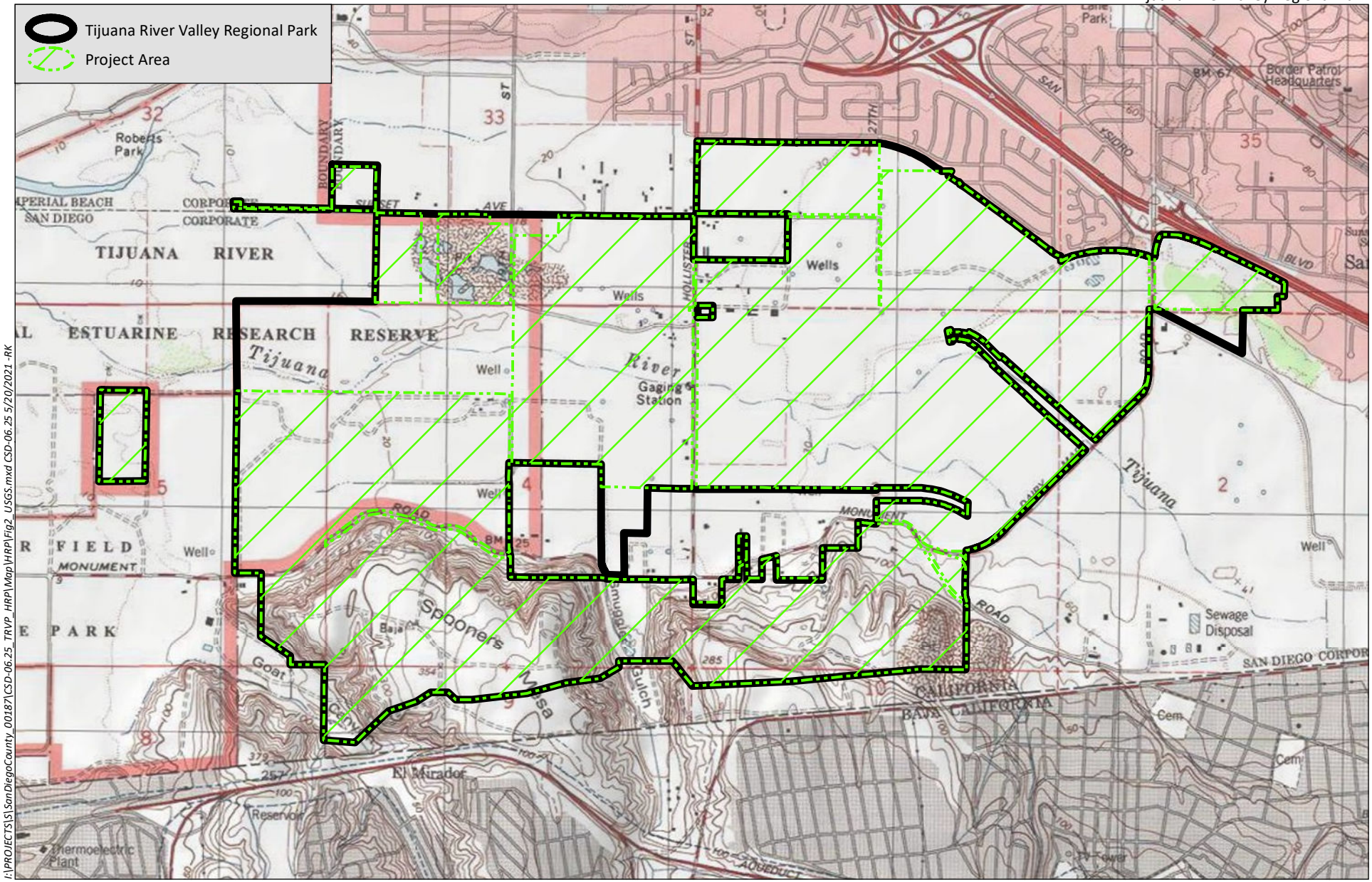
Source: Base Map Layers (SanGIS, 2016)

0 8 Miles

Regional Location

Figure 1

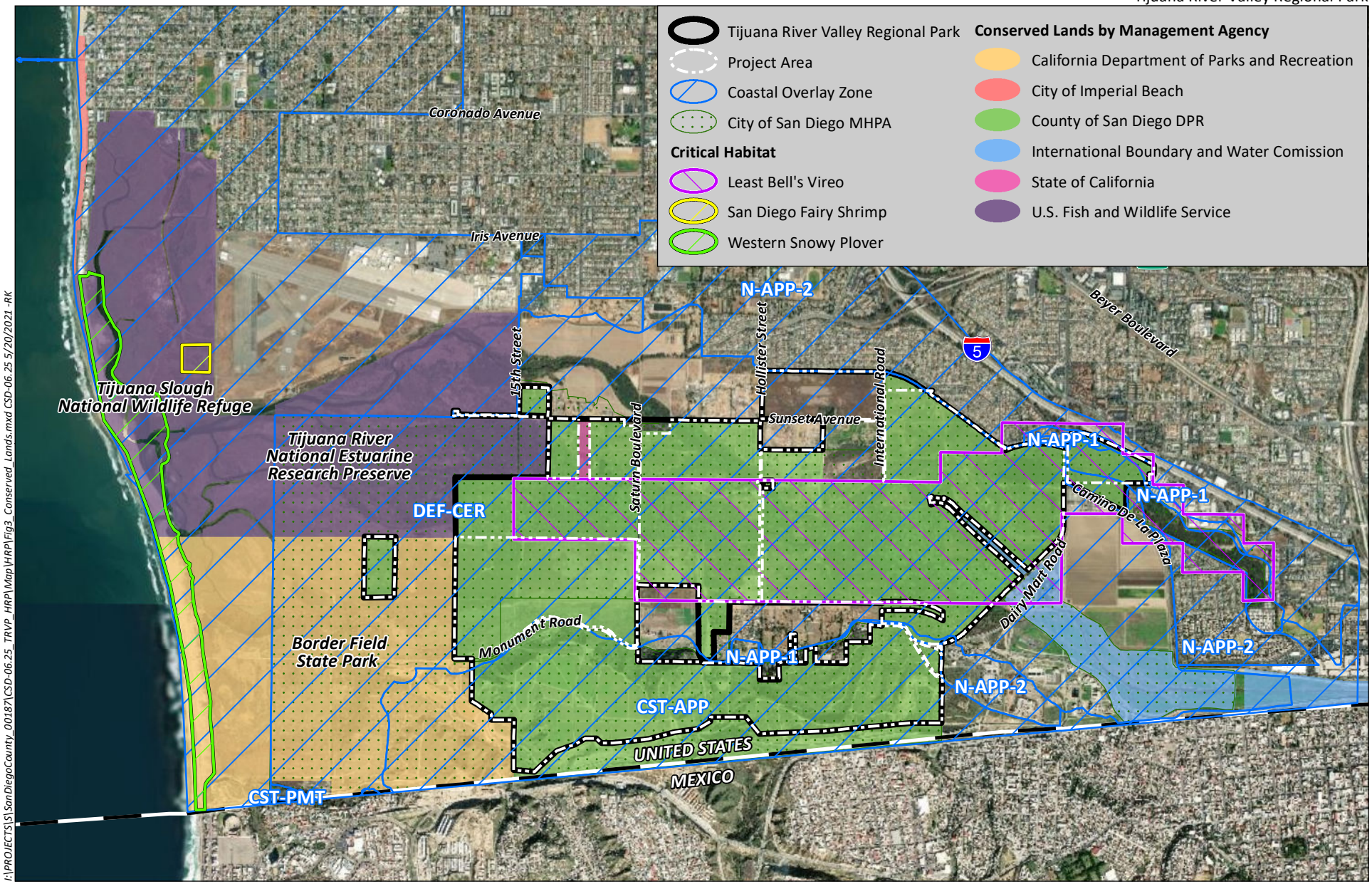


Source: Imperial Beach 7.5' Quad (USGS)

0 2,000 Feet

Park/Preserve Vicinity Map

Figure 2



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Source: Aerial Photo (Esri 2020); Conserved Lands (SANDAG Technical Services - GIS 2018); MHPA (SanGIS 2006); Critical Habitat (U.S. Fish and Wildlife Service 2020)

0 3,000 Feet

Regional Designations and Conserved Lands

Figure 3

Resources Code Section 30603, within the coastal zone that constitutes the appeal jurisdiction of the California Coastal Commission (CCC). This area includes lands between the sea and the first public road paralleling the sea, or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; or within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff. Development within this zone is regulated under the City's approved Local Coastal Program (LCP), although the CCC retains appeal authority. Developments in deferred certification areas designated by the certified LCP require a permit or exemption issued by the CCC in accordance with the procedure as specified by the Coastal Act.

The TRVRP is comprised of 88 Assessor's Parcel Numbers (APNs) owned by the County, City, state of California, U.S. federal government, and private landowners (Table 1, *Tijuana River Valley Regional Park Ownership Summary,* Figure 4, *Tijuana River Valley Regional Park Land Ownership*). The County owns the largest portion of the TRVRP, approximately 91 percent; this is the Project Area described in this plan. The City owns 10 parcels that total approximately seven percent of the area, the state of California owns one parcel, the U.S. federal government owns two parcels that each total approximately one-half percent of the area, and private landowners own six parcels that total approximately one percent of the area.

Table 1
TIJUANA RIVER VALLEY REGIONAL PARK OWNERSHIP SUMMARY

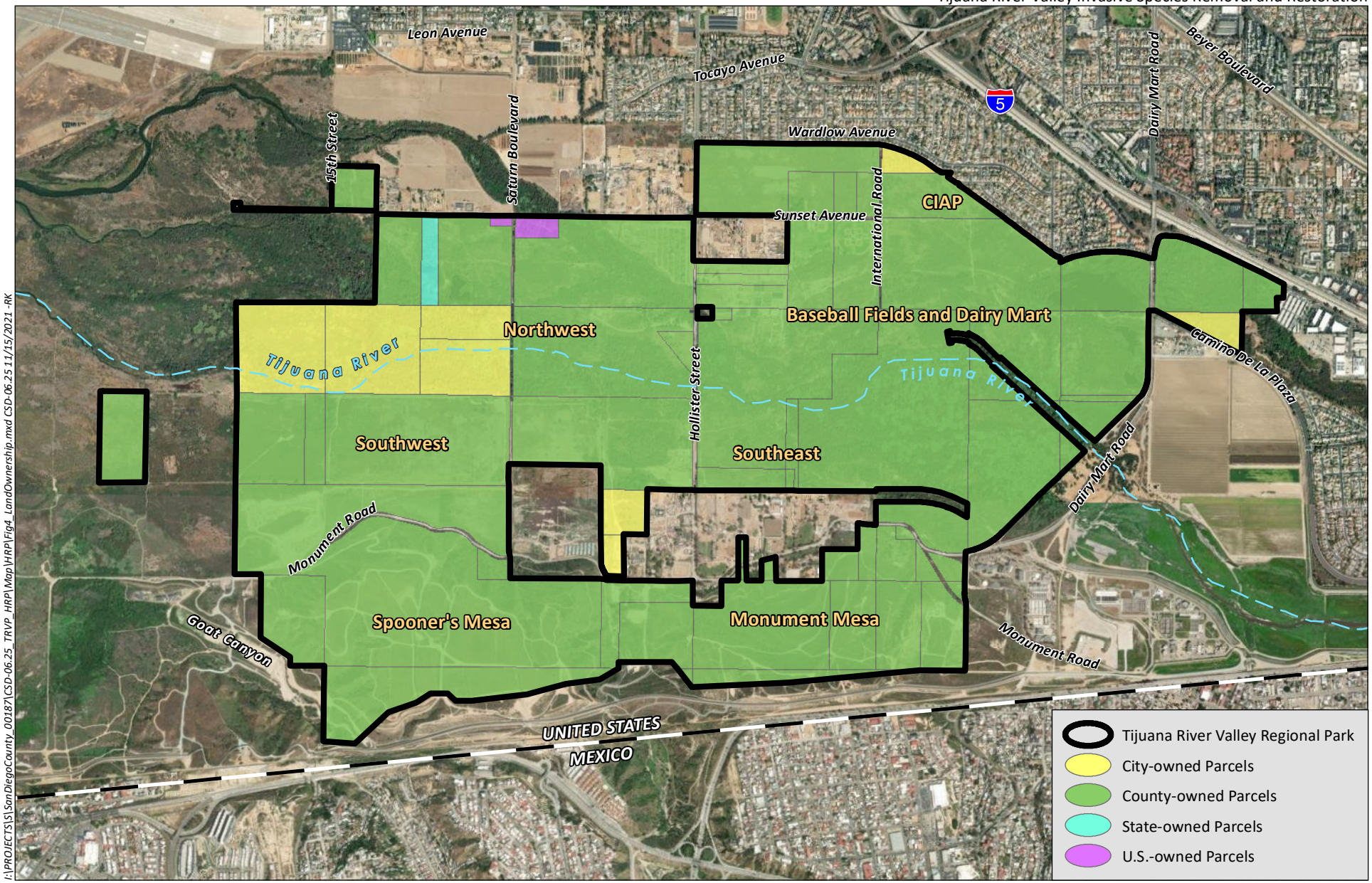
Landowner	Assessor's Parcel Numbers (APNs)[1, 2]
County of San Diego	63601010, 63602020, 63602048, 63602059, 63602105, 63701007, 63701008, 63701009, 63701010, 63701011, 63701034, 63701036, 63701037, 63701067, 63701072, 63701073, 63704103, 63704104, 63808041, 66202005, 66202006, 66202009, 66202012, 66202013, 66202025, 66301044, 66301045, 66301048, 66301049, 66301050, 66301051, 66301052, 66301054, 66301104, 66301106, 66301112, 66303006, 66303008, 66401021, 66401026, 66401032, 66401033, 66401036, 66401037, 66401038, 66401040, 66401044, 66401045, 66401047, 66401048, 66401049, 66401050, 66401053, 66401054, 66401055, 66401057, 66401102, 66401103, 66401104, 66401105, 66402004, 66501001, 66501002, 66501045, 76010799, 76024201, 76024220, 76024221, 76024223
City of San Diego	63701074, 66202004, 66301011, 66301038, 66301101, 66301102, 66301103, 66301105, 66401035, 66501003
State of California	63602019
U.S. Fish and Wildlife Service	63602049, 63602104
Private	76010795, 76010797, 76024222, 76010793, 76024236, 76010787

SOURCE: *San Diego Association of Governments [SANDAG] 2018*

[1] APNs are provided as eight-digit numbers, the last two numbers of each APN being 00.

[2] Data provided in SanGIS includes multiple APNs for some parcel boundaries and recorded acreages that do not reflect Geographic Information System calculated acreages for an APN.

The Project Area occurs entirely within the City of San Diego Multiple Species Conservation Plan (MSCP) Subarea Plan (City 1997). Within the City's MSCP Subregion, the Project Area was identified as a



Source: Aerial Photo (Esri 2020)

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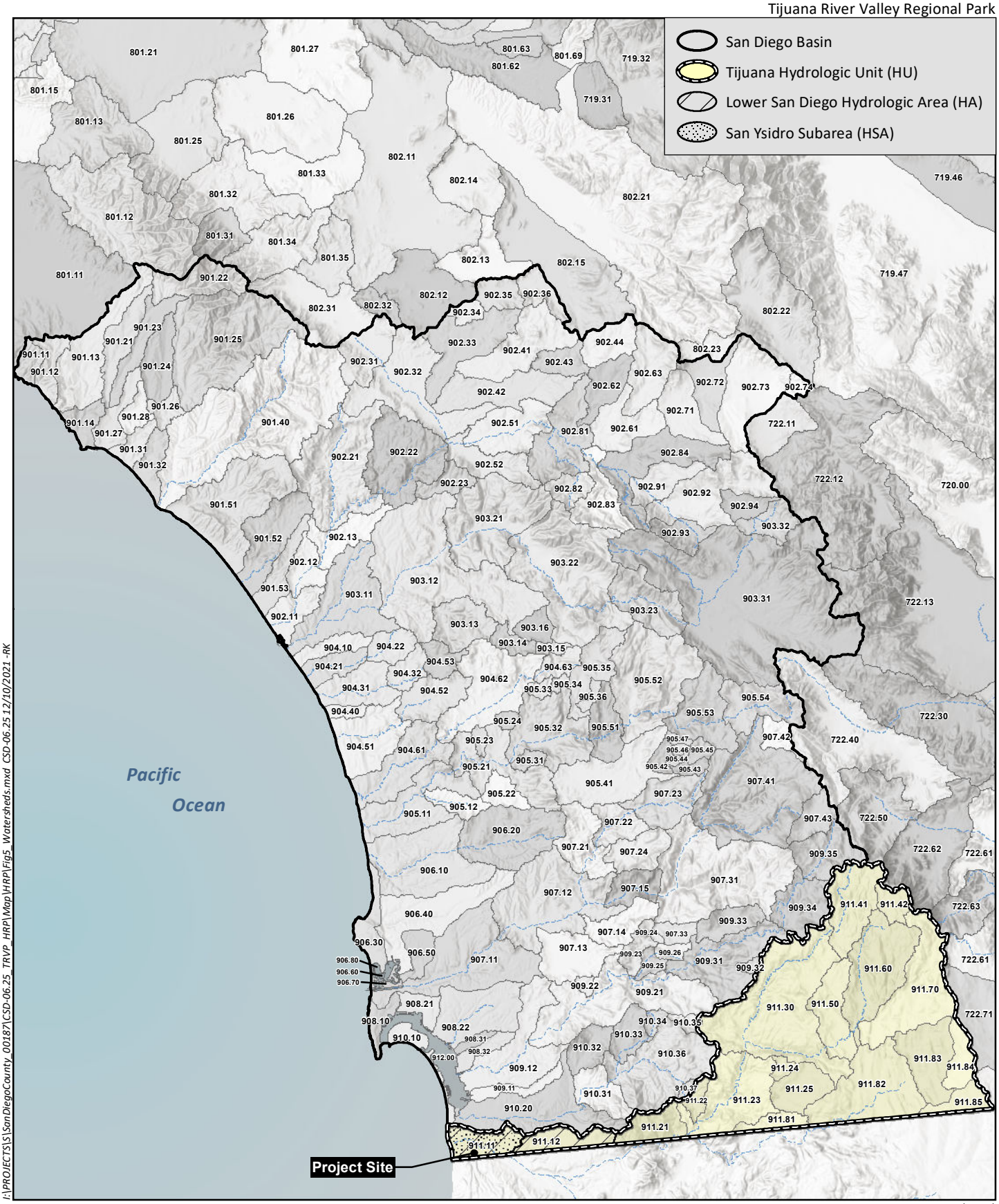
0 2,000 Feet

Tijuana River Valley Regional Park Land Ownership

Figure 4



Source: RWQCB (1999)

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\HRP\Fig5_Watersheds.mxd CSD-06.25 12/10/2021 - RK

0 12 Miles

1 in = 12 miles

Watersheds/Hydrologic Designations

Figure 5

biological Core Resource Area in the Final MSCP Plan (County 1998). Within the City's MSCP Subregion, the City has delineated a 56,831-acre Multi-Habitat Planning Area (MHPA), which would serve to protect critical sensitive biological resources, and the City proposes to keep 94 percent of the Tijuana River Valley core area within the MHPA. As such, the Project Area lies almost entirely in the MHPA (Figure 3).

The topography of the Project Area is bisected by the Tijuana River. The Tijuana River flows in a northwesterly direction, originating in Mexico, flows through the TRVRP, continues west into the TRNERR, and drains into the Pacific Ocean just south of the TSNWR (Figure 5, *Hydrology Map*). The Brown Property was the site of unauthorized fill activities in the 1980s. The property was once privately owned, and over 16,000 cubic yards of fill was placed in a special flood hazard area (along the southern and western property boundaries) without a grading permit from the City. Following flooding events in the 1980s, the fill was used to create a berm to protect the property from future flooding. Introduction of the fill (estimated at between 10 to 12 feet in height) resulted in a large portion of the property becoming isolated from the Tijuana River floodplain, contributed to a 0.9-foot rise in water surface elevation (height) in the adjacent river for a 25-year or 100-year flood event, obstructed the river channel, and diverted the floodwaters in a more northerly direction eventually requiring the construction of a new bridge along Hollister Street. Upland areas within the Brown Property are targeted for upland restoration under a separate habitat restoration plan.

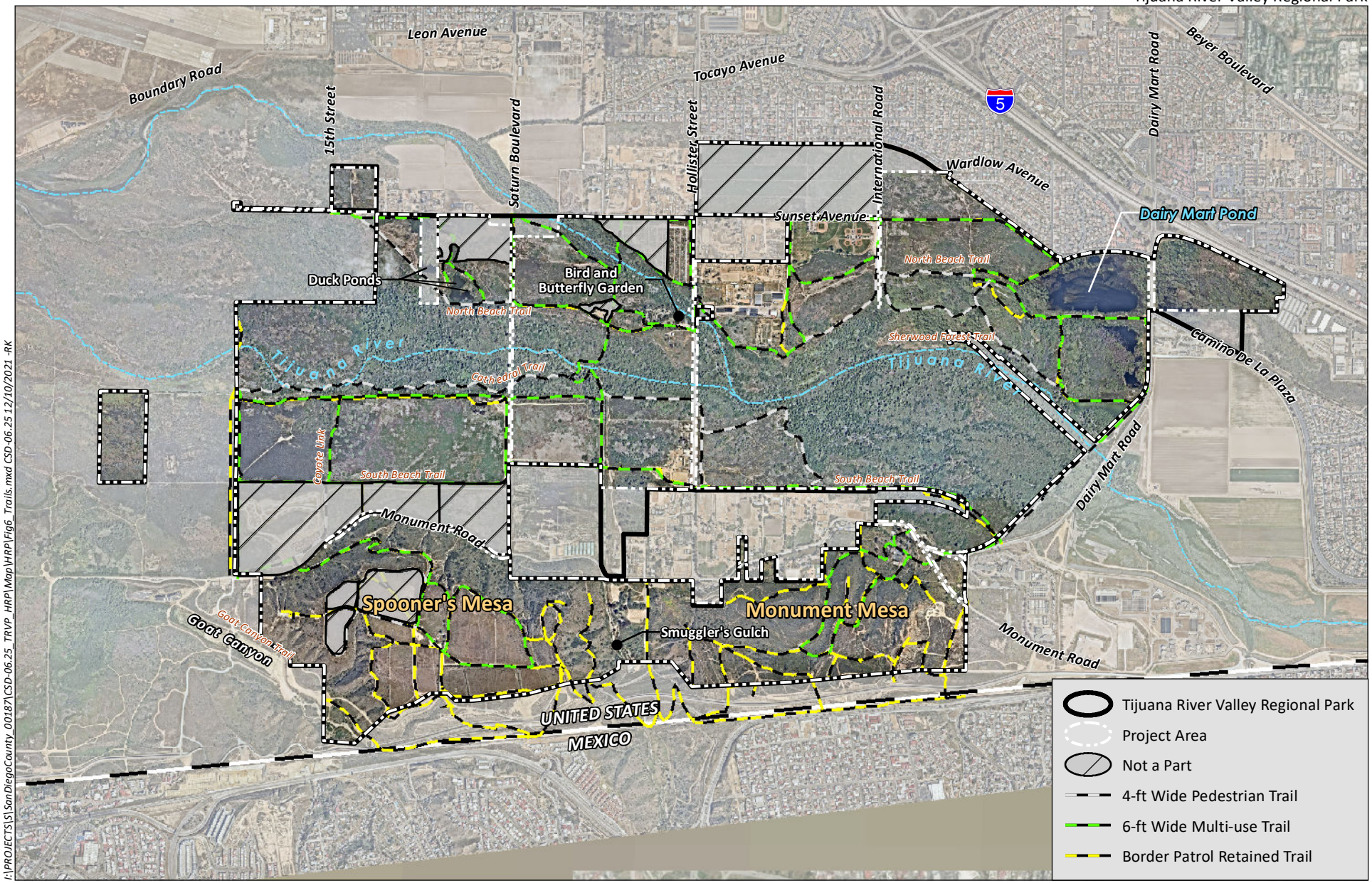
Formal areas within the TRVRP include the Coastal Impact Assistance Program (CIAP) area, the Baseball Fields, Dairy Mart, Spooner's Mesa, Monument Mesa, Duck Ponds, Bird and Butterfly Garden, and Smuggler's Gulch. The Duck Ponds and Bird and Butterfly Garden are located in the northwest, north of Tijuana River, south of Sunset Avenue, and west of Hollister Street. The CIAP area is located to the east of Sunset Avenue and north of North Beach Trail. The Baseball Fields and Dairy Mart occur to the south of Sunset Avenue, north of Tijuana River, and west of Dairy Mart Road and contain the Southwest Little League baseball fields and Dairy Mart Pond. Spooner's Mesa and Monument Mesa are located south of Monument Road and separated by Smuggler's Gulch. Goat Canyon is located directly west of Spooner's Mesa outside of the TRVRP.

The Project Area contains a formal 22.5-mile trail network, in addition to an existing informal network of unplanned and unauthorized dirt roads and pathways. The unplanned and unauthorized dirt roads and pathways total approximately 71.5 miles. The 22.5-mile formal trail network includes the following types of trails (Figure 6, *TRVRP Trails*):

- 21.19 miles of multi-use trails (i.e., pedestrian/equestrian/bicycle) within existing dirt road and pathway alignments; and

- 1.31 miles of multi-use trails (i.e., pedestrian/equestrian) within existing dirt road and pathway alignments.

Revegetation of 40.9 miles of existing informal trails and dirt roads has been ongoing since December 2015 and is designed to allow and facilitate native habitat re-growth resulting in the active and passive restoration of approximately 34.11 acres of riparian and upland vegetation communities. The U.S. Customs and Border Protection will retain 8.1 miles of existing informal trails. Several designated and maintained trails between four to six feet wide run throughout the Project Area, which are frequently used by horseback riders, for recreational purposes, and may be used as access points by vehicles and Border Patrol agents.



Source: Aerial Photo (Nearmap 2021)

0 2,000 Feet

TRVRP Trails

Figure 6

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1.4 PLAN GOALS AND OBJECTIVES

The purpose of the plan is to outline the methods for habitat restoration and revegetation of County-owned portions of the TRVRP. Given the size and complexity of the Project Area, this plan strives to provide a framework for activities that would be applied in a phased manner, as funding becomes available. The methodologies described in this plan are applicable in a broad set of conditions; this document prescribes which methodologies are to be used in which conditions, to affect the desired outcome.

Given that phasing of plan implementation will be determined in the future, based on County priorities, site conditions, and funding, this plan is not intended to provide phase-specific details regarding the exact timing of implementation of each defined phase. As project phase parameters become known (site location, size, timing), and prior to the implementation of each phase, the County will prepare a brief Execution Plan for that specific phase of work, drawing upon the information provided in this plan and refining parameters. Additionally, the phases presented in this plan do not need to be implemented as an entire phase; rather, phases may be sub-divided into smaller sub-phases as funding allows. DPR will review the Execution Plans to confirm consistency with this HRP.

Restoration would be (a) consistent with the County's ASMDs for the TRVRP (County 2007), (b) consistent with the City's Specific Management Policies and Directives for the Tijuana River Valley (City 1997), (c) implemented in conformance with the City's MHPA Guidelines (City 1997), consistent with the ASMDs for the TRVRP (d) compatible with adjacent land uses and future uses in the TRVRP, and (e) preserved, managed, and maintained in perpetuity by County DPR, helping to ensure the long-term viability of the habitat restoration effort.

Successful implementation of this Plan will result in a net gain of native habitats within the Project Area and is expected to result in a greater diversity of native flora. This shift in habitat structure will then foster a greater diversity of native faunal species. The benefits of greater diversity within an ecosystem is well documented (Shah 2014, U.S. Environmental Protection Agency [USEPA] 2021, Benkwitt 2020). With greater biodiversity, the restored ecosystem will (1) gain a greater capacity for nutrient storage and recycling; (2) give added protection of water resources; (3) allow a greater ability to recover from unpredictable events; (4) provide population reservoirs for sensitive species; (5) contain greater genetic diversity; (6) yield higher biomass and productivity; (7) provide ecosystem balance and sustainability; (8) provide greater recreational benefits over what currently exists, among several other benefits.

The County has prepared a Resource Management Plan (RMP) for the TRVRP (County 2007) with ASMDs as a condition of the Trails and Habitat Enhancement Project (County 2006). These ASMDs provide the management framework for the monitoring and managing of the TRVRP's resources while balancing the need to provide appropriate passive recreation opportunities. The RMP includes ASMDs, including maintenance, monitoring, and reporting directives that will be implemented within the biological open space in perpetuity.

The proposed restoration sites are considered compatible with the adjacent land uses, which are predominantly undeveloped open space and agricultural lands. Uses within the actively managed portions of the TRVRP are primarily open space and recreation. As required for off-trail areas in the TRVRP, lands adjacent to the restoration site, recreational uses, and encroachment of any kind will be prohibited, unless for maintenance and management reasons. The location of the restoration within the

County TRVRP ensures the long-term preservation and management of the site by the County. Future access for maintenance and management activities will be facilitated by existing access roads/trails.

Additionally, the Project Area lies almost entirely in the MHPA. Restoration of the Tijuana River Valley and adjacent uplands to a natural floodplain, with upland buffers that contain appropriate habitats for endangered, threatened, and other special status species and vegetation communities, would help achieve and maintain the conservation goals of the City of San Diego Subarea Plan. Explicit management policies and directives have been outlined for the Project Area, where the primary concerns include maintenance of human use areas, non-sustainable agriculture, vandalism, illegal dumping, water quality, control of invasive species introduction, and management of land use adjacent to habitat for special status species. Specific management policies and directives that pertain to the MHPA within the TRVRP include:

- Maintain existing Reserve (estuary) and park uses;
- Maintain buffers around all wetland areas;
- Maintain existing agricultural uses on Spooner's Mesa, with the long-term goal of phased restoration to coastal sage scrub, maritime succulent scrub, or native grassland habitat;
- Maintain agricultural use on County-owned lands, with the long-term goal of restoration to native vegetation where possible, consistent with the County's Framework Management Plan (County 1998); and
- Retain and enhance, where possible, existing riparian habitat along the Tijuana River.

1.5 RESPONSIBILITIES

1.5.1 PROJECT OWNER/COUNTY OF SAN DIEGO

The Project Area, including the proposed restoration sites, is owned and/or managed by County DPR. County DPR is responsible for overseeing the installation, maintenance, and monitoring of the Project Area habitat restoration effort. Contact information for County DPR is provided below. As part of the monitoring program, annual reports prepared by the restoration specialist will be submitted to the County, CDFW, Regional Water Quality Control Board (RWQCB), and U.S. Army Corps of Engineers (USACE). The County will review these reports for completeness and will determine the success of the restoration effort together with the regulatory agencies with jurisdiction over this project.

Contact: Ms. Kiran Kaur, Land Use/Environmental Planner
County of San Diego
Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123
(619) 209-9922

1.5.2 PROJECT BIOLOGIST

The overall supervision of construction activities (prior to installation, maintenance, and monitoring of the restoration project) will be the responsibility of a qualified project biologist with at least five years of experience monitoring native habitat restoration projects. The project biologist will oversee the installation of environmental boundary markers at the edges of the impact limits prior to initiation of construction activities, monitor the fencing (or flagging/high visibility rope) wherever it would abut sensitive vegetation communities, jurisdictional waters or wetlands, open space, or areas that will not be impacted. The project biologist also will conduct a pre-construction environmental training session for construction personnel for each Phase to inform them of the sensitive biological resources on-site and avoidance measures to remain in compliance with project approvals. The biologist will conduct any environmental pre-construction surveys and will monitor vegetation clearing, grubbing, and grading activities, at least weekly, to help ensure compliance with project approvals.

1.5.3 CULTURAL RESOURCE SPECIALIST

The supervision of the cultural resources avoidance and monitoring programs will be the responsibility of the cultural resource specialist who is a qualified archaeologist(s) meeting the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations, Title 36, Section 61. In order to minimize impacts to known cultural resources and disturbance of subsurface archaeological deposits, the cultural resource specialist will mark areas for avoidance and provide oversite during the implementation of cultural resources monitoring as noted in Section 4.4.1. The cultural resource specialist also will conduct a pre-construction environmental training session for construction personnel for each Phase to inform them of the cultural resources sensitivity of the area and protocols to follow in the event inadvertent cultural resources are identified.

1.5.4 RESTORATION DESIGNER

Habitat restoration design is based on grant requirements, site visits conducted by HELIX biologists, and coordination with a senior restoration specialist. The habitat restoration designer should have at least five years of experience designing and implementing habitat restoration projects within upland and riparian habitats of Southern California and similar projects in size and scope. The restoration designer will be responsible for the preparation of Execution Plans that will be prepared as implementation documents for each of the twelve phases, or subphases, under the guidance of this HRP. The restoration designer will be responsible for applying selected methods described in this plan to each project phase, including phase-specific planting and seeding plant palettes, maintenance measures, and the detailed approach of how the Execution Plans will be implemented.

1.5.5 RESTORATION SPECIALIST

Overall supervision of the installation, maintenance, and monitoring of this restoration project will be the responsibility of a qualified restoration specialist with at least five years of experience with successful native upland native habitat restoration in southern California. The restoration specialist will oversee the efforts of the installation and maintenance contractor(s) for the duration of the restoration effort. Specific tasks of the restoration specialist include educating all participants about habitat restoration goals and requirements; directly overseeing the delineation of the restoration areas and installation of plants; and monitoring/providing guidance for maintenance activities. The restoration specialist will explain to the contractor(s) how to avoid impacts to existing sensitive habitat and sensitive

species. When necessary, to keep the restoration effort on track to meet final success criteria, the restoration specialist will email County DPR and the maintenance contractor recommendations for the restoration area. The restoration specialist will provide quarterly memos summarizing maintenance and monitoring conducted within the restoration areas, will conduct annual assessments of the restoration effort, and will prepare and submit an annual report to County DPR each year during the maintenance and monitoring period, which may last up to three years.

1.5.6 INSTALLATION CONTRACTOR

The installation contractor will have at least five years of experience in successful native riparian habitat restoration in Southern California and be under the direction of the restoration specialist, who will assist the contractor with project installation. Specific prior work experience must include the clearing and removal of invasive non-native plants within the restoration area, de-compacting soil, installation of temporary above-ground irrigation lines, installation of container plants and cuttings, and installation of seed material. Given the unique conditions potentially present in the Project Area, the installation contractor must have experience working in dynamic river systems where access may be seasonally limited. If the use of equipment is proposed as part of the work phase, the installation contractor must have experience using equipment in active streams or river systems.

1.5.7 MAINTENANCE CONTRACTOR

The maintenance contractor will have at least five years of experience in successful native habitat restoration in Southern California and be under the direction of the restoration specialist, who will assist the contractor with the maintenance of the target vegetation type. The contractor will service the entire restoration area as required, meet the restoration specialist at the site when requested, and perform all checklist items in a timely manner as directed by County DPR. The maintenance contractor will be knowledgeable regarding the maintenance of native habitat and the difference between native and non-native plants. Specific prior work experience must include: invasive non-native plant species control, trash removal, watering, and potentially re-planting/re-seeding. The maintenance contractor must have staff with Qualified Applicator Licenses, as all herbicide application work will be completed under the supervision of an individual with an active license.

1.5.8 NURSERY (SEED/PLANT PROCUREMENT)

Plants and seed may be contract grown or purchased from a nursery or supplier specializing in native plants. Plant material should be locally propagated (similar climatic conditions and elevation), and seed materials sourced from within 25 miles of the Project Area or within the Jepson Herbarium California Floristic Province South Coast ecoregion (SCo, Jepson 2023), if feasible. To the extent feasible, plants and seed, including source locations, will be approved by the restoration specialist prior to installation. The restoration specialist will additionally approve plant and seed substitutions if species are unable to be locally sourced within 25 miles of the Project Area or within the SCo ecoregion.

1.6 RELEVANT LAWS, REGULATIONS, AND MANAGEMENT POLICIES

The regulations applicable to the Plan are summarized in this section. The federal and state regulations provide the regulatory framework for the HRP and its implementation.

1.6.1 FEDERAL LAWS AND REGULATIONS

1.6.1.1 FEDERAL ENDANGERED SPECIES ACT

Administered by USFWS, the Federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the FESA. Section 9(a) of the FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is a term defined and used in the FESA and refers to specific geographic areas that contain features considered necessary for endangered or threatened species to recover. Critical habitat designations can include areas that are not currently occupied by the species, as the ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat. Only activities that involve a federal permit, license, or funding require consultation with the USFWS.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation (formal or informal) is required when there is a nexus between endangered species' use of a site, and there is an associated federal action for a proposed impact (e.g., USACE would initiate a Section 7 consultation with the USFWS for impacts proposed to USACE jurisdictional areas that may also affect listed species or their critical habitat). Section 10(a) allows issuance of permits for incidental take of endangered or threatened species with the preparation of a Habitat Conservation Plan (HCP) when there is no federal nexus. The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized, and how the taken steps would ensure the species' survival, must be submitted for issuance of Section 10(a) permits. The MSCP is a regional HCP that was developed pursuant to Section 10(a) of the ESA.

1.6.1.2 MIGRATORY BIRD TREATY ACT

All migratory bird species that are native to the United States or its territories are protected under the federal Migratory Bird Treaty Act (MBTA), as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on the disturbance of active bird nests during the nesting season (generally February 1 to September 15; beginning January 15 for raptors).

1.6.1.3 CLEAN WATER ACT AND RIVERS AND HARBORS ACT

Federal wetland regulation (non-marine issues) is guided by Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA). The Rivers and Harbors Act deals primarily with

discharges into tidally influenced navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of non-tidally influenced waters. The USACE regulates activities that may result in temporary or permanent dredge, fill, or discharge into aquatic resources that qualify as waters of the U.S. Regulated activities are authorized by the USACE pursuant to several permitting instruments available to them under the Rivers and Harbors Act and CWA, including (Standard) Individual Permits, Nationwide Permit verifications, and Regional General Permit (RGP) verifications. Depending on the scope and size of the activities within waters of the U.S., habitat restoration projects may be authorized by the USACE under either an Individual Permit, Nationwide Permit verification, or RGP verification. This section will be updated following the initial permitting consultation with USACE.

1.6.1.4 COASTAL ZONE MANAGEMENT ACT

The federal Coastal Zone Management Act of 1972 (CZMA) is administered by the National Oceanic and Atmospheric Administration and provides for the management of the nation's coastal resources. Federal consistency with the CZMA is required when federal agency activities have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone. Federal projects must be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program. California's coastal management program is the California Coastal Management Program (CCMP), administered and enforced by the CCC. The enforceable policies of the CCMP are contained in Chapter 3 of the California Coastal Act (CCA).

1.6.2 STATE LAWS AND REGULATIONS

1.6.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

1.6.2.2 CALIFORNIA ENDANGERED SPECIES ACT

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

1.6.2.3 NATIVE PLANT PROTECTION ACT

Sections 1900–1913 of the CFG Code (Native Plant Protection Act; NPPA) direct the CDFW to carry out the state legislature's intent to "…preserve, protect, and enhance endangered or rare native plants of

this state." The NPPA gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

1.6.2.4 CALIFORNIA FISH AND GAME CODE

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

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

1.6.2.5 PORTER-COLOGNE WATER QUALITY CONTROL ACT

This statute regulates surface waters and wetlands within the State and is governed by the RWQCB. Features that support aquatic resources (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology), but are isolated (i.e., lack downstream connectivity to waters of the U.S.) could be subject to regulation pursuant to the State Porter-Cologne Water Quality Control Act (Porter-Cologne). Impacts to isolated wetlands and/or waters of the State require a Waste Discharge Requirement Permit from the RWQCB.

1.6.2.6 CALIFORNIA COASTAL ACT

The CCC, through provisions of the CCA, is authorized to issue a Coastal Development Permit (CDP) for projects located within the Coastal Zone. Projects proposed within the Coastal Zone may require the issuance of a CDP by the CCC depending on the specifics of the project proposal and location of the project with respect to coastal resources and any certified LCP boundaries.

Further, Section 30240 of the CCA includes policy for the protection of Environmentally Sensitive Habitat Areas (ESHAs). Section 30107.5 defines ESHA or Environmentally Sensitive Areas (ESAs) as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments".

Vegetation communities that are isolated, small in size, subject to existing disturbances, do not support California Rare Plant Rank (CRPR) 1 or 2 plant species, do not support sensitive animal species, and/or have greater than 50 percent of the species composition made up of non-native plant species, may not meet the definition of ESHA if it is determined that such areas are not rare or especially valuable and do

not have a special nature or role in the ecosystem that could be easily disturbed or degraded by human activities and developments.

Potential wetland boundaries, as defined by the CCC for areas occurring within the Coastal Zone, including the Coastal Zone Appealable Area, are determined based on the "one-parameter" definition, which only requires evidence of a single parameter to establish wetland conditions: "Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity, or high concentrations of salts or other substances in the substrate" (California Code of Regulations, Title 14, Section 13577).

The Project Area is within the Coastal Zone, with portions of the Project Area within the Coastal Zone Appealable Area and portions within the Deferred Certification Area. Appealable area means the area, as defined by California Public Resources Code Section 30603, within the Coastal Zone that constitutes the appeal jurisdiction of the CCC. This area includes lands between the sea and the first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; or within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff. Development within this zone is regulated under the City's approved LCP, although the CCC retains appeal authority. Developments in deferred certification areas designated by the certified LCP require a permit or exemption issued by the CCC in accordance with the procedure as specified by the Coastal Act.

1.6.2.7 NATURAL COMMUNITIES CONSERVATION PLANNING ACT

The NCCP program is a cooperative effort to protect habitats and species. It began under the state's NCCP Act of 1991, legislation broader in its orientation and objectives than the CESA or FESA. These laws are designed to identify and protect individual species that have already declined significantly in number. The NCCP Act of 1991 and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003.

The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by a species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

This voluntary program allows the state to enter into planning agreements with landowners, local governments, and other stakeholders to prepare plans that identify the most important areas for a threatened or endangered species, and the areas that may be less important. These NCCP plans may become the basis for a state permit to take threatened and endangered species in exchange for conserving their habitat. The CDFW and USFWS worked to combine the NCCP program with the federal HCP process to provide take permits for state and federal listed species. Under the NCCP, local governments, such as the County, can take the lead in developing these NCCP plans and become the recipients of state and federal take permits.

1.6.3 LOCAL

The County regulates natural resources (among other resources) via the MSCP, Biological Mitigation Ordinance (BMO), and Resource Protection Ordinance (RPO), as discussed below.

1.6.3.1 COUNTY OF SAN DIEGO

Multiple Species Conservation Program

The California NCCP Act of 1991 (Section 2835) allows the CDFW to authorize take of species covered by plans in agreement with NCCP guidelines. An NCCP initiated by the State of California focuses on conserving coastal sage scrub, and in concert with the USFWS and the FESA, is intended to avoid the need for future federal and state listing of coastal sage scrub-dependent species.

The San Diego Multiple Species Conservation Program (MSCP) Plan for the southwestern portion of San Diego County was approved in August 1998 and covers 85 species (County 1998). The City of San Diego, portions of the unincorporated County, and 10 additional City jurisdictions make up the San Diego MSCP Plan area. It is a comprehensive, long-term HCP that addresses the needs of multiple species by identifying key areas for preservation as open space in order to link core biological areas into a regional wildlife preserve.

Biological Mitigation Ordinance

The BMO is the ordinance by which the County implements the MSCP at the project level in order to attain the goals set forth in the County's MSCP Subarea Plan. The BMO contains design criteria and mitigation standards that, when applied to projects requiring discretionary permits, protect habitats and species and ensure that a project does not preclude the viability of the MSCP Preserve System. In this way, the BMO promotes the preservation of lands that contribute to contiguous habitat core areas or linkages.

While DPR is exempt from the BMO, pursuant to Section 86.503(a)(8) of the BMO, the proposed project would additionally be exempt from the BMO:

Section 86.503(a)(8): A public facility or public project, determined to be essential by the County, including but not limited to a County Park or County recreational facility, provided that the County decision making body considering an application for such a project makes the following findings:

(a) The facility or project is consistent with the County General Plan, the MSCP Plan, and the Subarea Plan, as approved by the Board of Supervisors;

(b) All feasible mitigation measures have been incorporated into the facility or project, and there are no feasible, less environmentally damaging locations, alignments, or non-structural alternatives that would meet project objectives;

(c) Where the facility or project encroaches into a wetland or floodplain, mitigation measures are required that result in a net gain in wetland and/or riparian habitat;

(d) Where the facility or project encroaches into steep slopes, native vegetation will be used to revegetate and landscape cut and fill areas;

(e) No mature riparian woodland is destroyed or reduced in size due to otherwise allowed encroachments; and

(f) All Critical Populations of Sensitive Plant Species Within the MSCP Subarea, (Attachment C of Document No. 0769999 on file with the Clerk of the Board); Rare, Narrow Endemic Animal Species Within the MSCP Subarea, (Attachment D of Document No. 0769999 on file with the Clerk of the Board); Narrow, Endemic Plant Species Within the MSCP subarea, (Attachment E of Document No. 0769999 on file with the Clerk of the Board); and San Diego County Sensitive Plant Species, as defined herein will be avoided as required by, and consistent with, the terms of the Subarea Plan

Resource Protection Ordinance

The County regulates sensitive biological resources (among other resources) via the RPO (County 2011). The RPO covers wetlands, wetland buffers, special status plant and animal species, sensitive vegetation communities/habitat types, and habitats containing special status animals or plants. Sensitive habitat lands are identified by the RPO as lands that "support unique vegetation communities, or habitats of rare or endangered species or sub-species of animals or plants as defined by Section 15380 of the CEQA Guidelines." It is the intent of the RPO to increase the preservation and protection of the County's unique topography, natural beauty, biological diversity, and natural and cultural resources. Pursuant to Section 86.603(a) of the RPO, where any portion of a parcel contains Environmentally Sensitive Lands (ESL), this section would be applicable to the portions of the parcel containing the sensitive lands, and to the remainder of the parcel, only to the extent necessary, to achieve the purpose and intent of the RPO.

Pursuant to Section 86.604(a), the proposed project would be consistent with the RPO:

SEC. 86.604. PERMITTED USES AND DEVELOPMENT CRITERIA. Within the following categories of sensitive lands, only the following uses shall be permitted and the following development standards and criteria shall be met provided, however, that where the extent of environmentally sensitive lands on a particular legal lot is such that no reasonable economic use of such lot would be permitted by these regulations, then an encroachment into such environmentally sensitive lands to the minimum extent necessary to provide for such reasonable use may be allowed:

(a) Wetlands. The following permitted uses shall be allowed:

(3) Removal of diseased or invasive exotic plant species as identified and quantified in writing by a qualified biologist and approved in writing by the Director of Planning and Development Services, and removal of dead or detached plant material.

(4) Wetland creation and habitat restoration, revegetation, and management projects where the primary goal is to restore or enhance biological values of the habitat, and the activities are carried out pursuant to a written management/enhancement plan approved by the Director of Planning and Development Services.

Pursuant to Section 86.605(c) of the RPO, the proposed project would additionally be exempt from RPO:

SEC. 86.605. EXEMPTIONS. This Chapter shall not apply to the following:

(c) Any essential public facility or project, or recreational facility which includes public use when the authority considering an application listed at Section 86.603(a) above makes the following findings:

(1) The facility or project is consistent with adopted community or subregional plans;

(2) All possible mitigation measures have been incorporated into the facility or project, and there are no feasible less environmentally damaging location, alignment, or non-structural alternatives that would meet project objectives;

(3) Where the facility or project encroaches into a wetland or floodplain, mitigation measures are required that result in any net gain in the wetland and/or riparian habitat;

(4) Where the facility or project encroaches into steep slopes, native vegetation will be used to revegetate and landscape cut and fill areas; and

(5) No mature riparian woodland is destroyed or reduced in size due to otherwise allowed encroachments.

The project is a habitat restoration project within a recreational facility that includes public use and meets the above findings for exemption from RPO requirements.

1.6.3.2 CITY OF SAN DIEGO

Multiple Species Conservation Program Subarea Plan

The City's MSCP Subarea Plan was prepared to protect sensitive species and habitats within the County and to meet the requirements of the California NCCP Act of 1992. The MSCP Subarea Plan describes the implementation of the City's program, including how preserve areas (i.e., MHPA), including 85 covered species, will be conserved and how the final MSCP Preserve will be assembled within the MHPA. Adopted by the City in March 1997, the Subarea Plan provides the framework for the MSCP Implementing Agreement. The Implementing Agreement is the contract between the City, USFWS, and CDFW to ensure implementation of the Subarea Plan and allow the City to issue "take" permits under the federal and State ESAs to address impacts at the local level.

Environmentally Sensitive Lands

The City's Land Development Code includes regulation of ESL (Chapter 14, Division 1, Section 143.0101 et seq.). The ESL ordinance defines sensitive biological resources as those lands included in the MHPA as identified in the City's MSCP Subarea plan, and other lands outside of the MHPA that contain wetlands, vegetation communities classified as Tier I, II, IIIA, or IIIB, habitat for rare, endangered or threatened species, or narrow endemic species.

Wetlands are differentiated in the ESL regulation from uplands and further differentiated between naturally occurring wetland areas and those created by humans. According to the City Municipal Code, Chapter 11, Section 113.0103:

"Wetlands are defined as areas which are characterized by any of the following conditions:

(1) All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;

(2) Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats;

(3) Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands;

(4) Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone)."

It is intended for this definition to differentiate for the purposes of delineating wetlands, between naturally occurring wetlands and wetlands intentionally created by human actions, from areas with wetlands characteristics unintentionally resulting from human activities in historically non-wetland areas. With the exception of wetlands created for the purpose of providing wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating wetland characteristics, which are artificially created, are not considered wetlands by this definition. Taking into account regional precipitation cycles, all adopted scientific, regulator, and technological information available from the State and Federal resource agencies shall be used for guidance on the identification of hydrophytic vegetation, hydric soils and wetland hydrology."

The City's Land Development Code Biology Guidelines (City 2018) describe wetlands as:

"Wetlands support many of the species included in the MSCP (i.e., Covered Species). The definition of wetlands in ESL is intended to differentiate uplands (terrestrial areas) from wetlands and, furthermore, to differentiate naturally occurring wetland areas from those created by human activities. Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub, and vernal pools. Common to all wetland vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils).

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e., ephemeral/ intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute 'waters of the U.S.', which are regulated by the USACE and/or the CDFW."

Local Coastal Program and Land Use Plan

The CCC and the local governments along the coast share responsibility for managing the State's coastal resources mandated by the CCA. Through coordination with the CCC, coastal cities and counties develop LCPs. These programs are the primary means for carrying out the policies of the CCA at the local level. Following approval by the CCC, the LCP is certified, and the local governments implement the programs. LCPs include two main components, a Land Use Plan and an Implementation Plan. The City's LCP Amendment #2-90 (certified in September 1990) included all of the Tijuana River Valley rezoning needed to make the zoning consistent with the certified Land Use Plan. Once these rezoning were certified by the CCC, CDP authority was delegated to the City.

1.7 RESPONSIBLE AGENCIES

Biological resources in the Project Area are subject to regulatory review by federal, state, and local agencies. Under CEQA, impacts associated with a proposed project or program are assessed with regard to significance criteria determined by the CEQA Lead Agency (in this case, the County) pursuant to CEQA Guidelines. Biological resources-related laws and regulations that apply include FESA, MBTA, CWA, CEQA, CESA, and CFG Code.

With respect to the proposed project, the USFWS will be responsible for reviewing issues related to migratory birds pursuant to the MBTA and project consistency with the adopted City's MSCP Subarea Plan. The USACE and RWQCB will be responsible for reviewing issues related to Waters of the U.S./State pursuant to the CWA. The CDFW will be responsible for reviewing issues related to riparian habitat and streambeds pursuant to the CFG Code, nesting birds and raptors pursuant to CFG Code, and project consistency with the adopted City's MSCP Subarea Plan. The CCC, through provisions of the CCA, is authorized to issue a CDP for projects located within the Coastal Zone.

The County is the lead agency for the CEQA environmental review process, in accordance with state law and local ordinances. During CEQA review, the County is responsible for reviewing the project, per the Guidelines for Determining Significance for Biological Resources (County 2010b). The County will also be responsible for reviewing the project with respect to consistency with the County BMO (County 2010c) and adopted City of San Diego MSCP Subarea Plan.

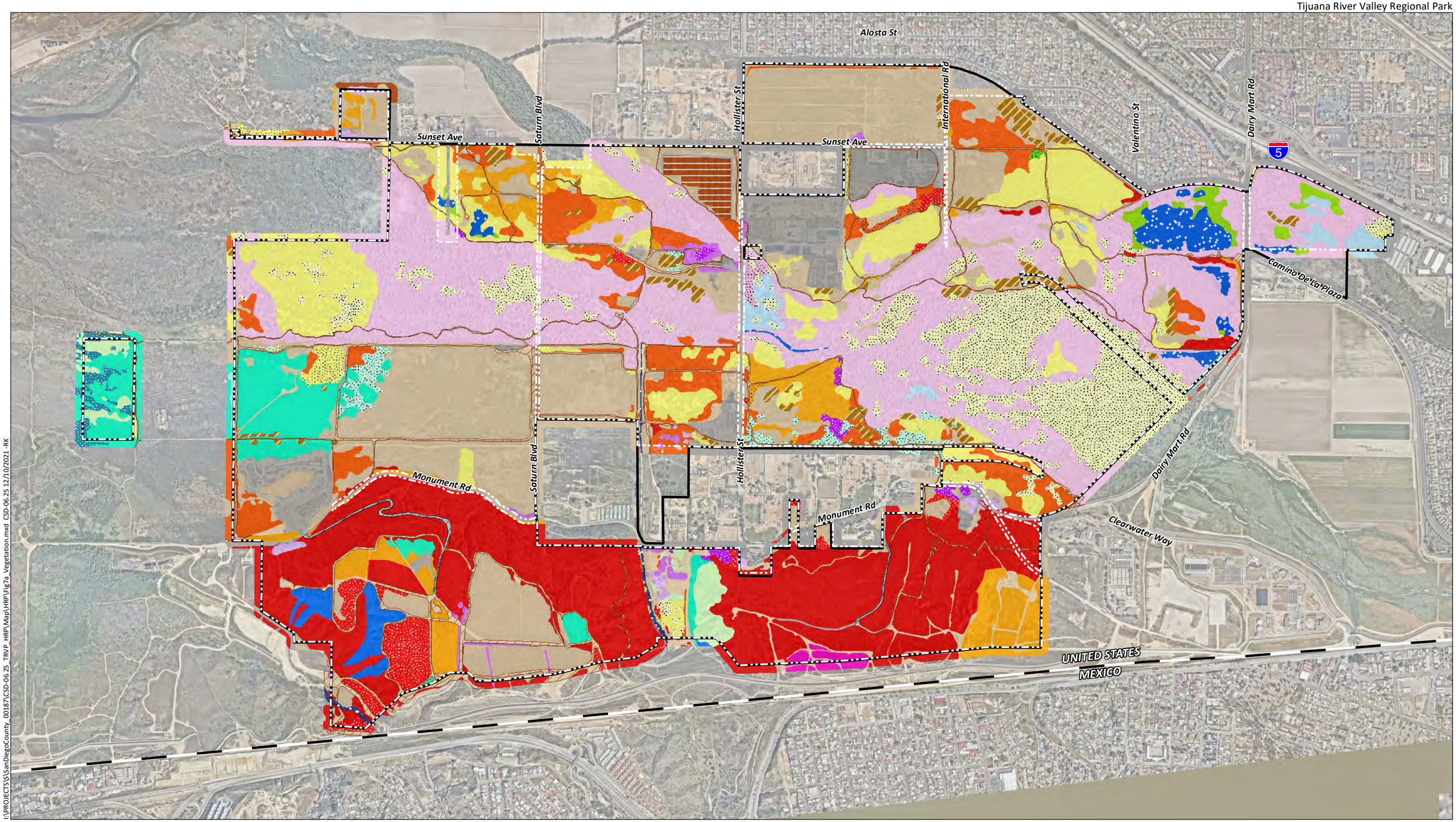
This HRP is intended to provide the federal and/or state Resource Agencies (USFWS, CDFW, RWQCB, and CCC) with information relative to the project and the proposed mitigation relative to any project impacts. As the intent of this project is habitat restoration, impacts incurred during project implementation are considered temporary and would be self-mitigated through the completion of the project itself. This Draft HRP will be used during the submittal process relative to agency permitting, updated as necessary, and incorporated into final project permit conditions.

2.0 EXISTING PLANT COMMUNITIES, SPECIAL-STATUS SPECIES, AND JURISDICTIONAL RESOURCES

2.1 EXISTING VEGETATION COMMUNITIES AND LAND COVER TYPES

HELIX conducted baseline biological resources surveys for DPR to identify and map existing biological resources within the TRVRP in spring, summer, and fall of 2018 (HELIX 2019). Baseline surveys conducted in 2018 included habitat/vegetation mapping. A general biological survey of the Project Area was conducted by HELIX biologists according to County requirements (2010a) on March 4 and 5, 2021 to verify and update the previous vegetation mapping effort completed in 2018. Additionally, vegetation mapping within the Project Area was verified and updated following focused species surveys conducted in 2021 (HELIX 2023).

Thirty-five vegetation communities/land use types occur in the Project Area (Table 2, *Vegetation Communities and Land Covers within the Project Area)*; Figures 7a-7f, *Vegetation Communities/Habitats [Holland/Oberbauer]*). The numeric codes in parentheses following each community/land use type name



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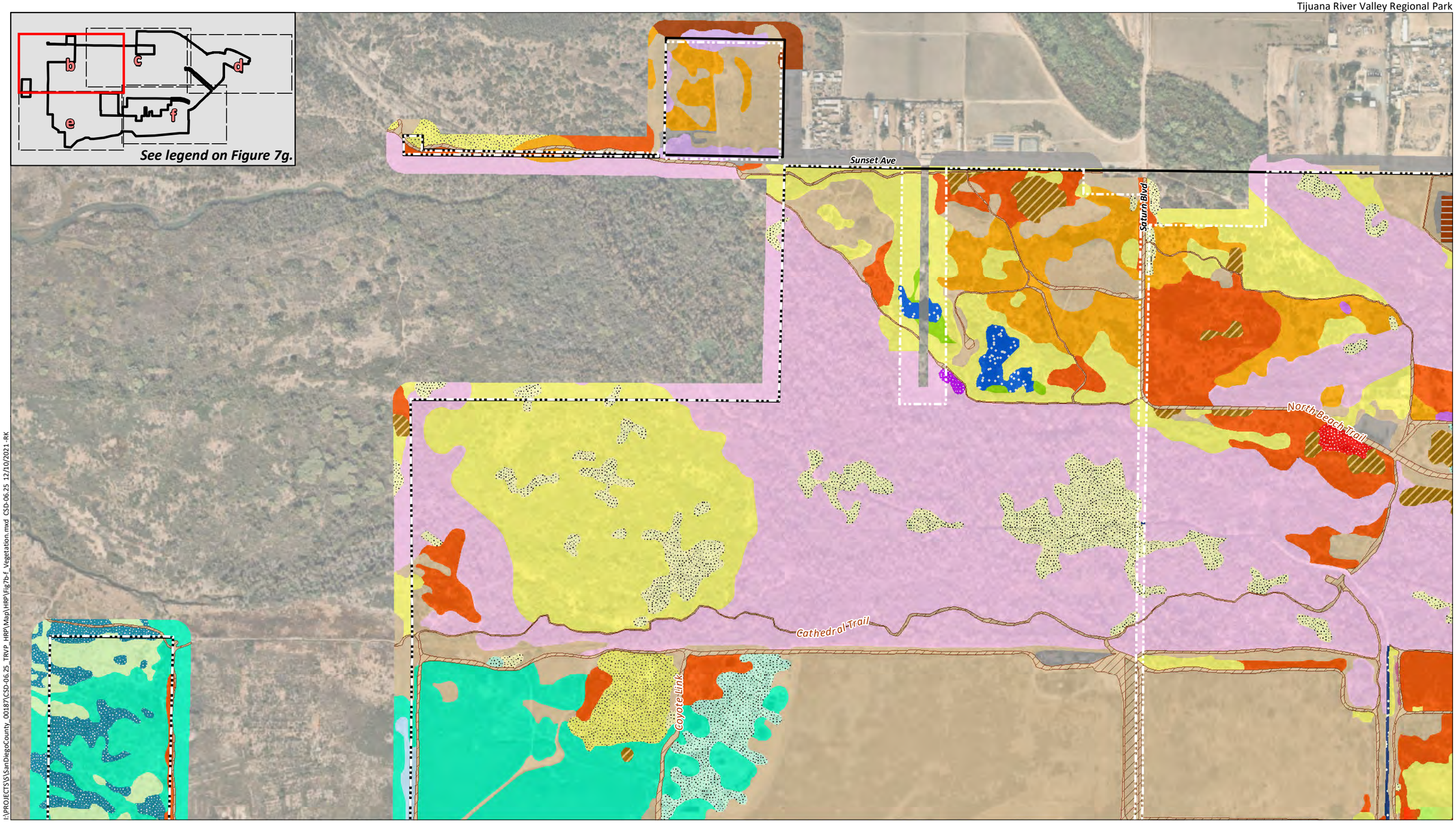
See Figure 7g for Legend.

Aerial Photo: Nearmap (2021)

0 1,200 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7a



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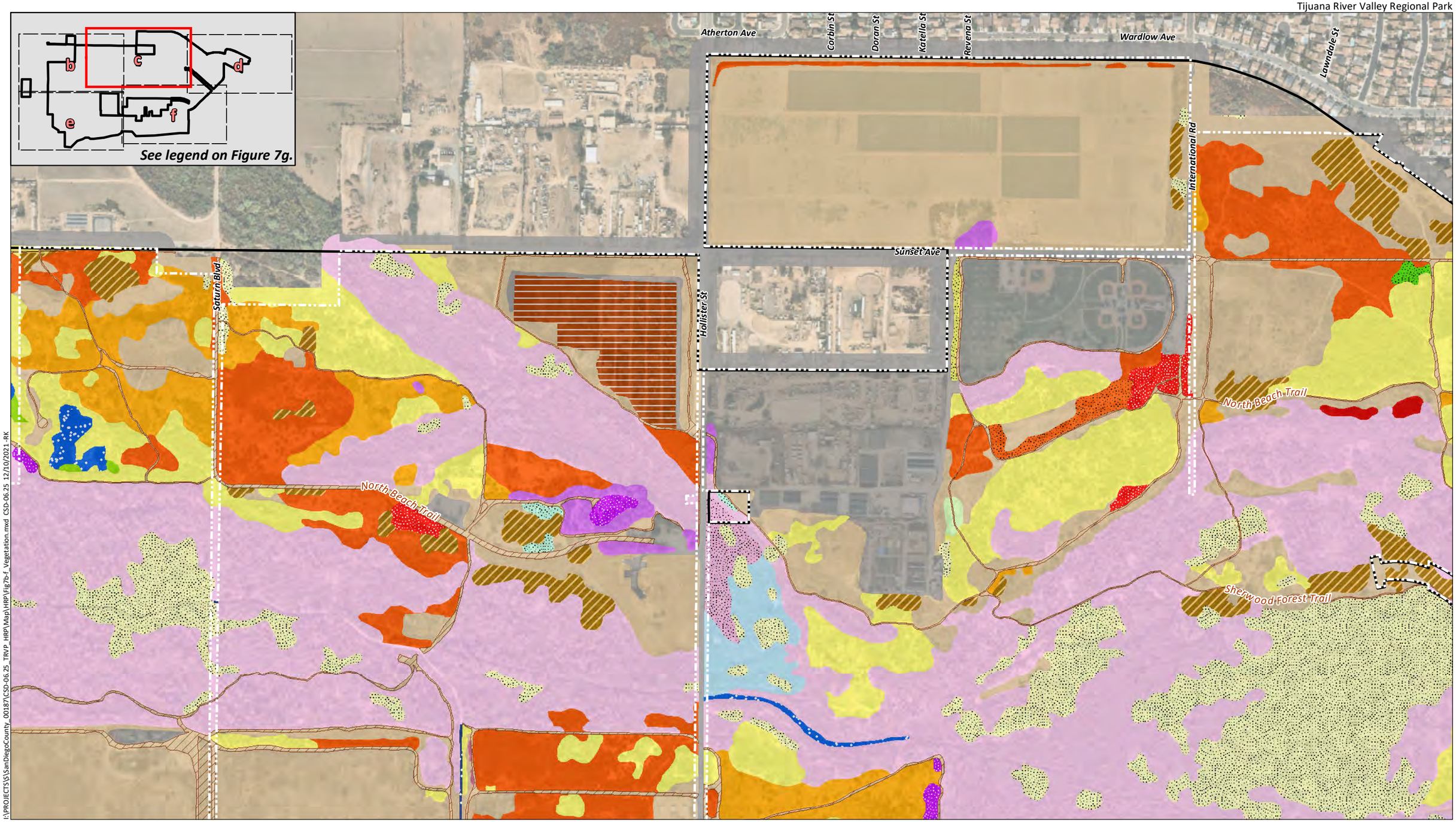
Aerial Photo: Nearmap 2021

0 500 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7b



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Aerial Photo: Nearmap 2021

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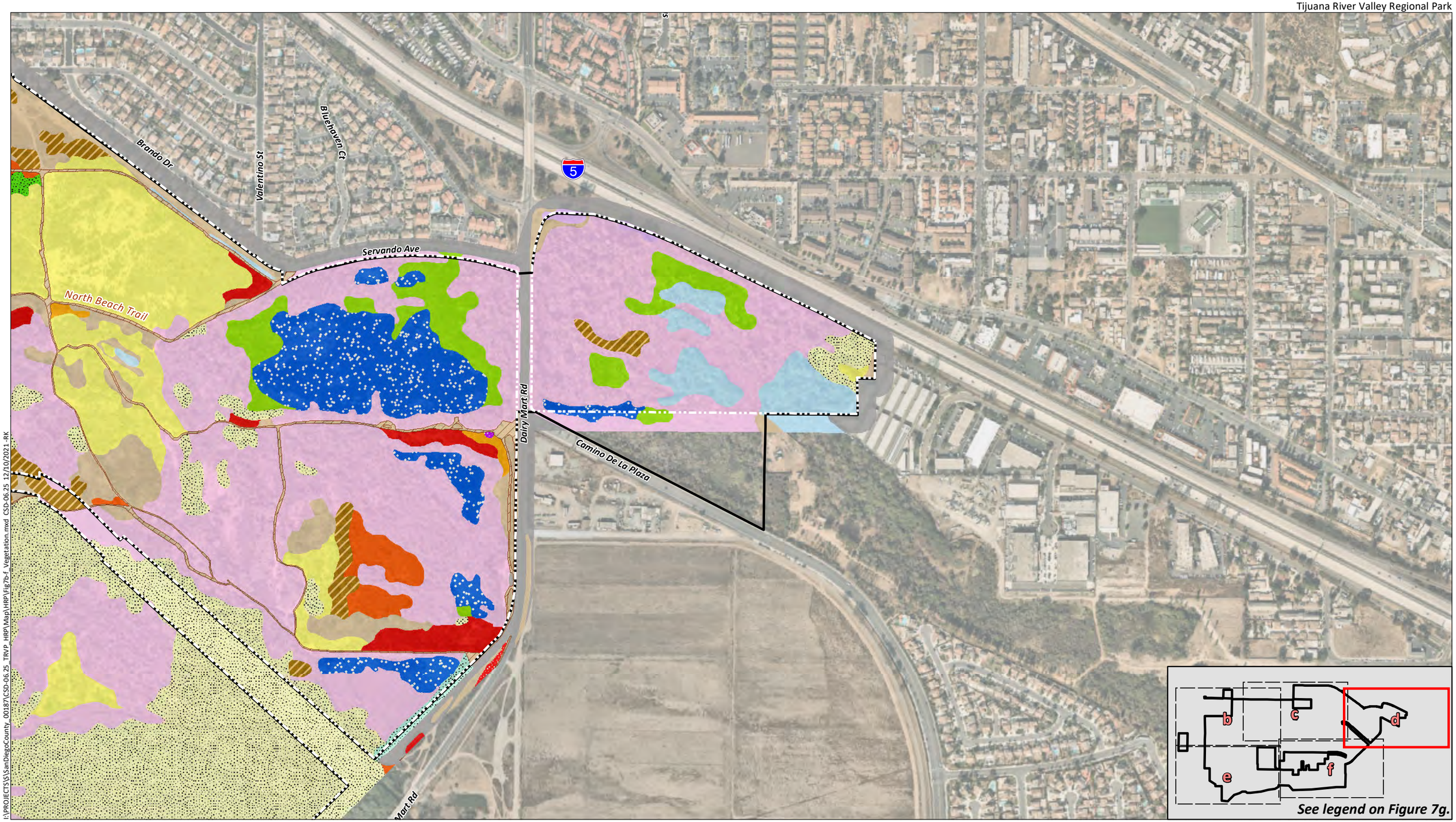
Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7c



Aerial Photo: Nearmap 2021

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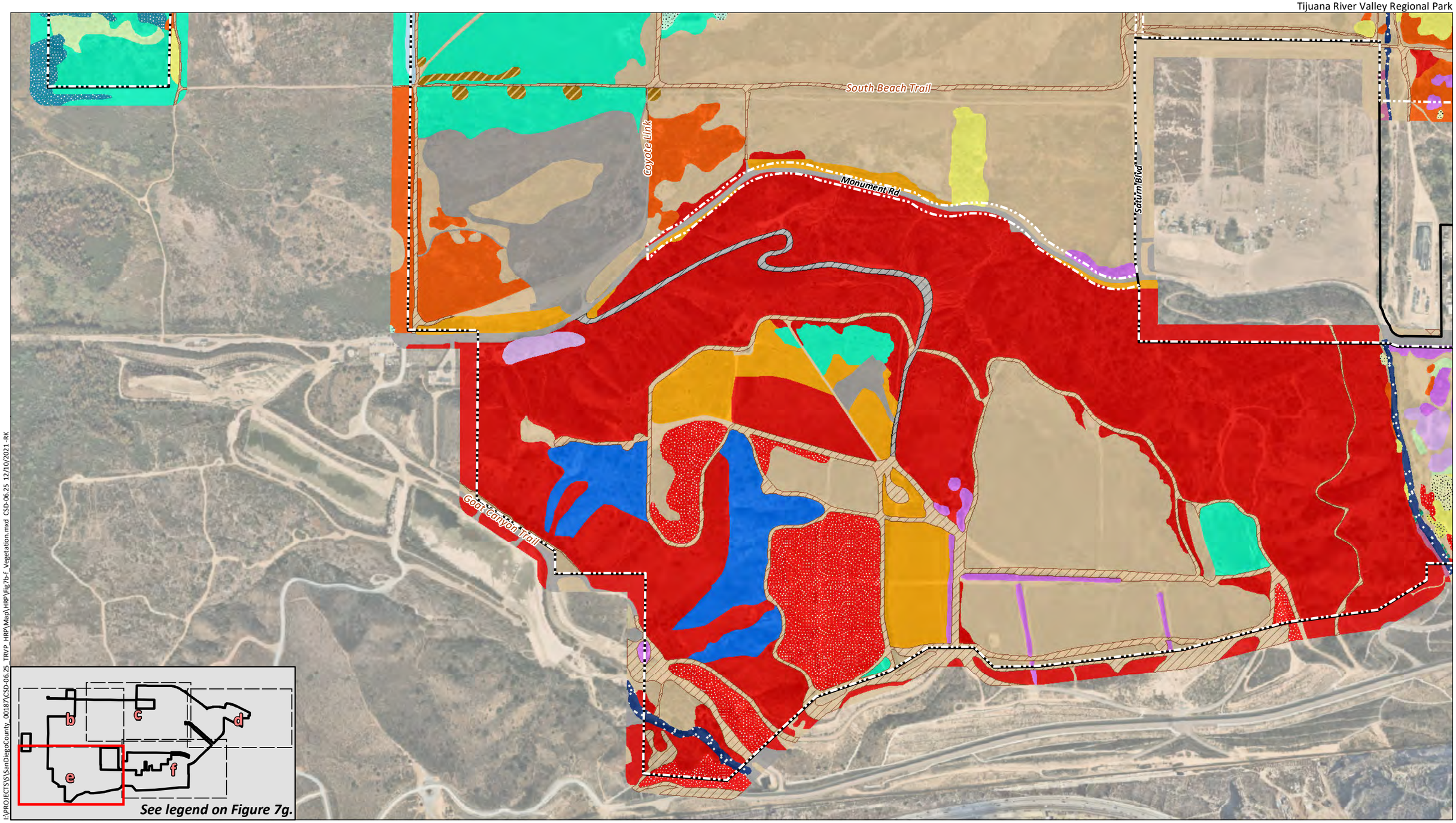
Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7d



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Aerial Photo: Nearmap 2021

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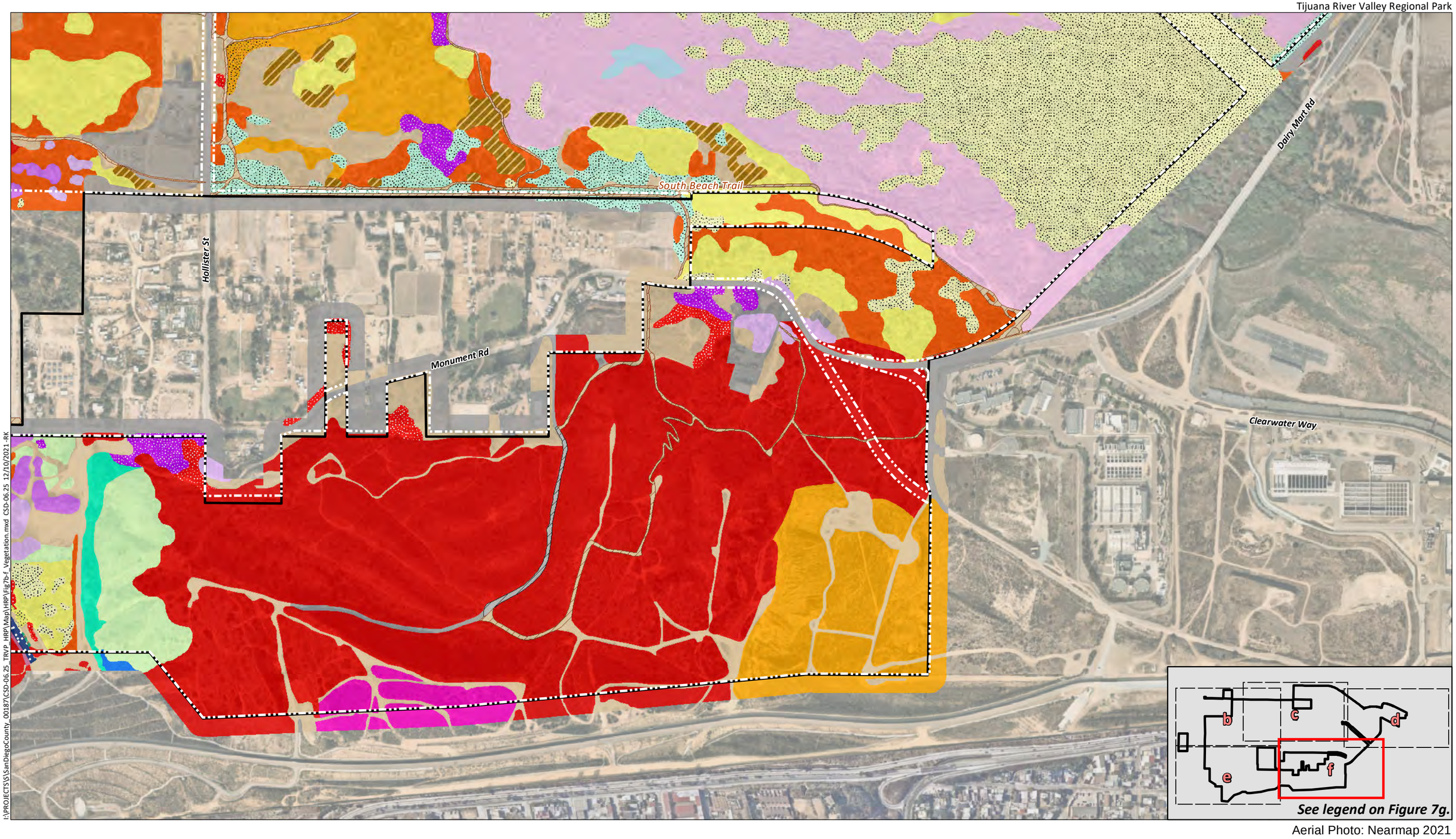
Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7e

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

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0 500 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7f

Tijuana River Valley Regional Park

Project Area

Holland/Oberbauer Classification

Riparian Forests and Woodlands

(61300) Southern Riparian Forest*

(61300) Southern Riparian Forest (Disturbed)*

(62500) Southern Riparian Woodland*

(65000) Non-native Riparian*

Riparian Shrublands

(63320) Southern Willow Scrub*

(63320) Southern Willow Scrub (Disturbed)*

(63310) Mule Fat Scrub*

(63310) Mule Fat Scrub (Disturbed)*

(63810) Tamarisk Scrub*

(63000) Riparian Scrub (Disturbed)*

Hydrophytic Herbaceous Vegetation

(52410) Coastal and Valley Freshwater Marsh*

(52120) Southern Coastal Salt Marsh*

(42130) Saltgrass Grassland*

(52440) Emergent Wetland*

(65110) Arundo-Dominated Riparian*

Upland Forests and Woodlands

(79000) Non-native Woodland

(79100) Eucalyptus Woodland

Sclerophyllous, Evergreen Shrubs

(37C30) Southern Maritime Chaparral*

Soft-Leaved, Drought-Deciduous Shrublands

(36000) Chenopod Scrub*

(32000) Coastal Scrub*

(32400) Maritime Succulent Scrub*

(32530) Diegan Coastal Sage Scrub: Baccharis-dominated*

(32530) Diegan Coastal Sage Scrub: Baccharis-dominated (Disturbed)*

(32500) Diegan Coastal Sage Scrub*

(32500) Diegan Coastal Sage Scrub (Disturbed)*

Upland Herbaceous Vegetation

(11300) Disturbed Habitat

(42200) Non-native Grassland*

(N/A) Non-native Vegetation

General Agriculture

(18000) Agriculture

(18320) Row Crops

Unvegetated

(11300) Disturbed Habitat - Trail

(12000) Developed

(12000) Developed - Trail

(64000) Unvegetated Habitat (Streambed)*

(64100)Open Water*

**Sensitive vegetation communities per Attachment K of the BMO.*

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Legend

Figure 7g

are from the Holland classification system (Holland 1986), as added to by Oberbauer (2008) and as presented in the County's Biology Guidelines (County 2010b). The Project Area supports lands within the Coastal Zone that may be considered ESHA by the CCC; however, some areas of sensitive vegetation communities may not meet the definition of ESHA based on a variety of factors, including small size, lack of connectivity to other habitats, lack of sensitive species, a high percentage of invasive non-native plant species, existing disturbances, or a combination thereof.

Table 2
VEGETATION COMMUNITIES AND LAND COVERS WITHIN THE PROJECT AREA

Vegetation Community[1]	Acres[2]
Tier I	
Maritime Succulent Scrub (32400)	12.3
Southern Maritime Chaparral (37C30)	3.2
Saltgrass Grassland (42130)	0.39
Southern Coastal Salt Marsh (52120)	4.35
Coastal and Valley Freshwater Marsh (52410)	9.37
Emergent Wetland (52440)	0.25
Southern Riparian Forest (61300)	355.58
Southern Riparian Forest – Disturbed (61300)	2.65
Southern Riparian Woodland (62500)	0.23
Southern Willow Scrub (63320)	142.18
Southern Willow Scrub – Disturbed (63320)	5.68
Mule Fat Scrub (63310)	84.67
Mule Fat Scrub - disturbed (63310)	1.88
Tamarisk Scrub (63810)	24.32
Riparian Scrub – Disturbed (63000)	0.06
Non-native Riparian (65000)	12.85
Unvegetated Habitat – Streambed (64000)	2.27
Open Water (64100)	20.71
Arundo-Dominated Riparian (65100)	122.79
Tier II	
Coastal Scrub (32000)	55.3
Diegan Coastal Sage Scrub (32500)	255.6
Diegan Coastal Sage Scrub – disturbed (32500)	24.1
Diegan Coastal Sage Scrub - Baccharis dominated (32530)	68.7
Diegan Coastal Sage Scrub – Baccharis dominated, disturbed (32530)	0.6
Chenopod Scrub (36000)	14.6
Tier III	
Non-native Grassland (42200)	14.8
Tier IV	
Non-Native Vegetation (11000)	4.8
Disturbed Habitat (11300)	350.9
Disturbed Habitat – Trail (11300)	43.12
Agriculture (18000)	<0.1 (0.03)
Row Crops (18320)	10.3
Non-Native Woodland (79000)	8.2
Eucalyptus Woodland (79100)	5.9

Vegetation Community[1]	Acres[2]
N/A	
Developed Land (12000)	75.6
Developed Land – Trail (12000)	2.9
TOTAL	**1740.75**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008) and are listed by Habitats and Tiers within Attachment K of the BMO.

[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.

Maritime Succulent Scrub (32400, Tier I)

Maritime succulent scrub is a low open scrub community that is dominated by a mixture of stem and leaf succulent species and drought-deciduous species that also occur within sage scrub communities. This vegetation community occurs on thin, rocky or sandy soils, on steep slopes of coastal headlands and bluffs. The dominant species typically found within this vegetation community include coast barrel cactus (*Ferocactus viridescens*), prickly pear cactus (*Opuntia littoralis*), cliff spurge (*Euphorbia misera*), dudleya (*Dudleya* spp.), California box-thorn (*Lycium californicum*), and California encelia (*Encelia californica*; Beauchamp 1986).

There are 12.3 acres of Maritime succulent scrub mapped within Treatment Area 12. It is found on Spooner's and Monument Mesa (Figures 7a and 7e-7g). Maritime succulent scrub makes up less than one percent of the Project Area.

Southern Maritime Chaparral (37C30, Tier I)

Southern maritime chaparral is restricted to the weathered sands within the coastal fog belt in the County from La Jolla to Carlsbad, with some scattered patches to the south; Point Loma, Spooner's Mesa, and Peñasquitos Canyon. This low, fairly open, chaparral is dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and thick-leaved Eastwood's manzanita (*Arctostaphylos glandulosa* ssp.) Additional species include mission manzanita (*Xylococcus bicolor*), chamise (*Adenostoma fasciculatum*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), scrub oak (*Quercus dumosa*), and summer holly (*Comarostaphylis diversifolia* ssp *diversifolia*). Similar to other chaparral communities, fire is necessary for the reproduction of many of the constituent species which generally resprout from underground root crowns (Conrad 1987).

There are 3.2 acres of southern maritime chaparral mapped within Treatment Area 12. It is found on the southern edge of Monument Mesa (Figures 7a and 7f-7g). Southern maritime chaparral makes up less than one percent of the Project Area.

Saltgrass Grassland (42130, Tier I)

Saltgrass grassland may be composed of low (less than 20 centimeters in height) grassland dominated by saltgrass (*Distichlis spicata*). It is usually found on fine-textured, alkaline soils that are also often poorly drained. Saltgrass grassland may co-occur and intergrade with alkali meadow and various riparian habitats.

A total of 0.39-acre of saltgrass grassland is mapped within Treatment Area 2. It occurs as a single stand of habitat in the northeast portion of the Project Area (Figures 7a, 7c-7d, and 7g). Saltgrass grassland makes up less than one percent of the Project Area.

Southern Coastal Salt Marsh (52120, Tier I)

Southern coastal salt marsh is a highly productive community composed of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a dense cover of up to one meter tall. This plant community is found along sheltered inland margins of bays, lagoons, and estuaries where the hydric soils are subjected to regular tidal inundation by salt water (Holland 1986). Dominant species include alkali-heath (*Frankenia salina*) and pickleweed (*Salicornia* sp.).

A total of 4.35 acres of southern coastal salt marsh is mapped within Treatment Area 11. Within the Project Area, southern coastal salt marsh is limited to portions of the disjunct western parcel. Characteristic species observed include alkali-heath, pickleweed, and saltgrass (*Distichlis spicata*; Figures 7a-7b,7e, and 7g). Southern coastal salt marsh makes up less than one percent of the Project Area.

Coastal Valley and Freshwater Marsh (52410, Tier I)

Coastal and valley freshwater marsh is dominated by perennial, emergent monocots, five to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.), along with umbrella sedges (*Cyperus* spp.), rushes (*Juncus* spp.), and spike-sedge (*Eleocharis* spp.).

A total of 9.37 acres of coastal and valley freshwater marsh is mapped within Treatment Areas 1, 2, and 8. It is found around the edges of Dairy Mart Pond and Duck Ponds in the northwest and northeast portions of the study area and just west of the intersection of Dairy Mart Road and Camino de la Plaza (Figures 7a-7d and 7g). Coastal valley and freshwater marsh make up less than one percent of the Project Area.

Emergent Wetland (52440, Tier I)

Emergent wetland is a low-growing, herbaceous community that is dominated by a variety of native wetland species. It typically occurs in seasonally wet areas with heavy soils. These can be found in channels, seeps and springs, floodplains, margins of lakes and rivers, and various basins such as pools and ponds. In San Diego County, these are often in previously disturbed areas where wetlands are emerging, but have not yet established a full suite of species; however, disturbance is not a necessary element of this vegetation community.

A total of 0.25-acre of emergent wetland is mapped within Treatment Area 2. Emergent wetland in the study area is characterized by cattail, yerba mansa (*Anemopsis californica*), and annual beardgrass (*Polypogon monspeliensis*). It occurs as a small, linear area at the toe of a manufactured slope along the park boundary in the northeast portion of the study area (Figures 7a, 7d, and 7g). Emergent wetland makes up less than one percent of the Project Area.

Southern Riparian Forests – including disturbed (61300, Tier I)

Southern riparian woodlands and forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), cottonwood (*Populus* spp.), and western sycamore (*Platanus racemosa*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp.

holosericea), and wild grape (*Vitis girdiana*; Beauchamp 1986). Disturbed southern riparian forest contains many of the same shrub species as undisturbed southern riparian forest but is sparser and has a higher proportion of non-native perennial and annual species.

A total of 355.58 acres of southern riparian forest is mapped within Treatment Areas 1-2 and 4-11. A total of 2.65 acres of disturbed southern riparian forest is mapped within Treatment Areas 4 and 9. Southern riparian forest is found along the Tijuana River, and characteristic species in this habitat within the study area include black willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), and mule fat (*Baccharis salicifolia*). Riparian forest comprises large stands of contiguous habitat associated with the Tijuana River (Figures 7a-7d and 7f). Disturbed southern riparian forest is found bordering the eastern edge of Hollister Street, between Sunset Avenue and Saturn Avenue (Figures 7a and 7c). Southern riparian forest makes up 20 percent of the Project Area. Disturbed southern riparian forest makes up less than one percent of the Project Area.

Southern Riparian Woodland (62500, Tier I)

Southern riparian woodlands are composed of winter-deciduous trees that require water near the soil surface. Willows, cottonwood (*Populus* spp.), and western sycamore form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*; Beauchamp 1986).

A total of 0.23-acre of southern riparian woodland is mapped within Treatment Area 6 and 12. Within the Project Area, southern riparian woodland is made up of small stands of black willow scattered along the banks of the Smuggler's Gulch channel (Figures 7a-7c). Southern riparian woodland forest makes up less than one percent of the Project Area.

Riparian Scrub - Disturbed (63000, Tier I)

Riparian scrub is a generic term for several shrub-dominated communities that occur along drainages and/or riparian corridors, including components of southern willow scrub, mule fat scrub, and tamarisk scrub.

There are 0.06-acre of disturbed riparian scrub in Treatment Area 12. Within the Project Area, disturbed riparian scrub contains a mixture of arroyo willow, mule fat, single-whorl burrobush (*Ambrosia monogyra*), and sandbar willow, with a high percentage of castor-bean (*Ricinus communis*). It occurs as three small stands along the southern reach of Smuggler's Gulch channel (Figures 7a, 7e, and 7g). Riparian scrub – disturbed makes up less than one percent of the Project Area.

Mule Fat Scrub – Including Disturbed (63310, Tier I)

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986). In some environments, limited hydrology may favor the persistence of mule fat.

There are 84.67 acres of mule fat scrub in Treatment Areas 2-12. There are 1.88 acres of disturbed mule fat scrub in Treatment Area 9. Numerous stands of mule fat occur in the Project Area along the Tijuana River corridor as well as in other locations on the valley floor (e.g., adjacent to the campground; Figures 7a-7g). Mule fat scrub makes up approximately 4.8 percent of the Project Area. Disturbed mule fat makes up less than one percent of the Study Area.

Southern Willow Scrub – Including Disturbed (63320, Tier I)

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat, and with scattered emergent cottonwood and western sycamores. This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest.

There are 142.18 acres of southern willow scrub within Treatment Areas 1-12. There are 5.68 acres of disturbed southern willow scrub mapped within Treatment Areas 9-12. Characteristic species in southern willow scrub in the study area include arroyo willow, mule fat, and sandbar willow (*Salix exigua*). This habitat occurs in a scattered distribution along the Tijuana River, as well as in smaller, disjunct stands near Smuggler's Gulch and Monument Road (Figures 7a-7f). Southern willow scrub makes up 8.2 percent of the Project Area. Disturbed southern willow scrub makes up less than one percent of the Project Area.

Tamarisk Scrub (63810, Tier I)

Tamarisk scrub is typically comprised of shrubs and/or small trees of exotic tamarisk species (*Tamarix* spp.) but may also contain willows (*Salix* spp.), salt bushes (*Atriplex* spp.), catclaw acacia (*Acacia greggii*), and salt grass (*Distichlis spicata)*. This habitat occurs along intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a drainage (Holland 1986).

There are 24.32 acres of tamarisk scrub in Treatment Areas 1-4 and 6-11. It occurs as several small stands spread throughout the river valley (Figures 7a-7g). Tamarisk scrub makes up 1.3 percent of the Project Area.

Unvegetated Habitat – Streambed (64000, Tier I)

Unvegetated habitat (streambed) includes areas that are unvegetated and within the corridor of a stream or river. The stream or river may be ephemeral or intermittent, making open water an inappropriate name for this habitat type at the time vegetation mapping was conducted; however, these areas may contain water depending on the time of year.

A total of 1.80 acres of streambed were mapped within the Project Area. The drainage that flows north from Smuggler's Gulch was mapped as unvegetated habitat (streambed). Unvegetated habitat (streambed) makes up less than one percent of the Project Area.

Open Water (64100, Tier I)

Open water is an unvegetated habitat. It is made up of year-round bodies of saline or fresh water. Fresh water bodies include lakes, streams, ponds, or rivers.

There are 20.71 acres of open water in Treatment Areas 1-2, 4, and 8. Open water in the Project Area consists of several ponds in the northeastern and northwestern portions of the Project Area, including Dairy Mart Pond and the Duck Ponds. (Figures 7a-7d and 7g). Open water makes up 1.2 percent of the Project Area.

Non-Native Riparian (65000, Tier I)

Non-native riparian habitats are densely vegetated and dominated by invasive non-native plant species. Invasive non-native plant species must make up 50 percent cover or greater. This community is often found in areas that have experienced disturbance. It is common in many of the river channels in the County. Species often encountered include tamarisk (*Tamarix* spp.), giant reed (*Arundo dona*x), eucalyptus (*Eucalyptus* spp.), palms (*Washingtonia* spp., *Phoenix* spp.), Bermuda grass (*Cynodon dactylon*), and castor bean (*Ricinus communis*). Associated native plant species include arrow weed (*Pluchea sericea*), cottonwoods (*Populus* spp.), and willows (*Salix* spp.).

A total of 12.85 acres of non-native riparian is mapped within Treatment Areas 1 and 4. It is found along the Tijuana River east of Hollister Road, as well as in riparian habitat east of Dairy Mart Road (Figures 7a-7d and 7f). Non-native riparian habitat makes up less than one percent of the Project Area.

Arundo-dominated Riparian (65100, Tier I)

The arundo-dominated riparian stands contain densely vegetated riparian thickets dominated almost exclusively by giant reed. This designation is used where giant reed accounts for greater than 50 percent of the total vegetative cover within a mapping unit. This plant may form dense floating mats in riparian areas, streams, ditches, and coastal marshes. Propagation occurs when the rhizomes and culms detach from the plant and are carried downstream. Fragmented stem nodes and rhizomes can take root and establish as new plant clones (Bell, *no date*). Stands may be up to eight meters in height and will exclude many native trees, especially willows. This community is less dominant in drier riparian systems that may be dominated by mule fat or arrow weed.

A total of 122.79 acres of arundo-dominated riparian occurs within Treatment Areas 1-2 and 4-12. This community is found in many areas of the Tijuana River corridor and in the vicinity of Smuggler's Gulch; however, the largest stands are found in the eastern portion of the Project Area. (Figures 7a-7g). Arundo dominated riparian makes up approximately seven percent of the Project Area.

Coastal Scrub (32000, Tier II)

Coastal scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Coastal scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within coastal scrub include goldenbush and deerweed (*Acmispon glaber*).

A total of 55.3 acres of coastal scrub occurs within Treatment Areas 11-12. It is found north of Monument Road, to the north and south of the Tijuana River, Spooner's Mesa, Monument Mesa, and in

the western portion of the Project Area (Figures 7a-7b and 7e-7g). Coastal scrub makes up approximately 3.2 percent of the Project Area.

Diegan Coastal Sage Scrub – Including Disturbed (32500, Tier II)

Diegan coastal sage scrub (including disturbed) is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within Diegan coastal sage scrub include California sagebrush, California buckwheat, laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*).

There are 255.6 acres of Diegan coastal sage scrub within Treatment Areas 2, 5-6, 9, and 11-12. There are 24.1 acres of disturbed Diegan coastal sage scrub mapped within Treatment Areas 4-5, 7, 9, and 12. Diegan coastal sage scrub (including disturbed) is found on the slopes of Spooner's Mesa and Monument Mesa and upland areas in the southern portion of the study area (Figures 7a and 7c-7g). Diegan coastal sage scrub makes up approximately 14.7 percent of the Project Area. Disturbed Diegan coastal sage scrub makes up approximately 1.4 percent of the Project Area.

Diegan Coastal Sage Scrub: Baccharis Dominated – Including Disturbed (32530, Tier II)

Within Diegan coastal sage scrub: baccharis dominated, coyote brush is the dominant species in the shrub canopy. Associated species include California sagebrush (*Artemisia californica*), California buckwheat, and goldenbush. The herbaceous layer contains codominant species, which include bromes (*Bromus* spp.), barleys (*Hordeum* spp.), Bermuda grass, giant wild rye (*Elymus condensatus*), purple needlegrass (*Stipa pulchra*), and deergrass (*Muhlenbergia rigens*). Diegan coastal sage scrub: baccharis dominated is usually open and often occurs on floodplains as a transition between riparian and upland habitat types. Disturbed Diegan coastal sage scrub: baccharis dominated contains many of the same shrub species as undisturbed Diegan coastal sage scrub: baccharis dominated but is sparser and has a higher proportion of non-native perennial and annual species.

There are 68.7 acres of Diegan coastal sage scrub: baccharis dominated within Treatment Areas 2-4 and 8-12. There are 0.6-acre of disturbed Diegan coastal sage scrub: baccharis dominated mapped within Treatment Area 4. Diegan coastal sage scrub: baccharis dominated is found throughout the Project Area in upland areas that have revegetated with baccharis scrub following past disturbances (Figures 7a-7g). Disturbed Diegan coastal sage scrub: baccharis dominated is found on the east side of Hollister Road along to the north of South Beach trail (Figures 7a and 7f-7g). Diegan coastal sage scrub: baccharis dominated makes up approximately 3.9 percent of the Project Area. Disturbed Diegan coastal sage scrub: baccharis dominated makes up less than one percent of the Project Area.

Chenopod Scrub (36000; Tier II)

Chenopod scrub describes a shrub-dominated community that occurs with low, grayish microphyllous shrubs with some succulent species. Stands are typically dominated by saltbush species (*Atriplex* spp.) but site factors and characteristic species that would further classify the area as desert salt scrub or desert sink are absent.

There are 14.6 acres of chenopod scrub within Treatment Areas 2, 4, 7-8, and 11. It is found north of Monument Road, to the north and south of the Tijuana River, Spooner's Mesa, Monument Mesa, and in

the western portion of the study area (Figures 7a-7b and 7e-7g). Chenopod scrub makes up less than one percent of the Project Area.

Non-Native Grassland (42200, Tier III)

Non-native grassland may be composed of dense to sparse cover of annual grasses. It is 0.2 to one meter tall. In years of high rainfall, it can be associated with native wildflowers. In the County, associated species include oats (*Avena* spp.), bromes (*Bromus* spp.), filaree (*Erodium* spp.), mustards (*Brassica* spp.), tocalote (*Centaurea melitensis*), California poppy (*Eschscholzia californica*), lupines (*Lupinus* spp.), and plantain (*Plantago* spp.), among others. In some areas, depending on rainfall, forbs can be dominant. Gemination often occurs with the onset of fall rains and occurs through the spring. Grass species are often dead in the summer and fall. It is usually found on fine-textured to clay soils.

There are 14.8 acres of non-native grassland within Treatment Areas 9, 11, and 12, and 0.5-acre occurs within the survey buffer. Non-native grassland occurs in the western and southern portion of the study area, south of the Tijuana River, on the west facing slope of Monument Mesa and to the north of Monument Road, north of Spooner's Mesa (Figures 7a-7b and 7e-7f). Non-native grassland makes up less than one percent of the Project Area.

Non-Native Vegetation (11000, Tier IV)

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* sp.] and peppertree [*Schinus* sp.]), many of which are also used in landscaping.

There are 4.8 acres of non-native vegetation within Treatment Areas 2, 4-5, 8, and 12. This habitat type occurs throughout the study area (Figures 7a-7g). Non-native vegetation makes up less than one percent of the Project Area. .

Disturbed Habitat – Including Trail (11300, Tier IV)

Disturbed habitat includes those areas that have been disturbed and are no longer considered native habitat, but still have a soil substrate. Vegetation is usually made up of invasive non-native species and ornamentals, and in particular, those species that take advantage of disturbed areas. Commonly associated species include thistles (*Sonchus* spp.), Russian thistle (*Salsola tragus*), mustards (*Brassica* spp.), pampas grass (*Cortaderia selloana*), and fountain grass (*Pennisetum setaceum*). The habitat no longer provides animal species with any beneficial uses, other than for dispersal. Examples of areas that are considered disturbed habitat include graded pads, areas actively managed for fuels, dirt parking lots, firebreaks, off-road vehicle trails, and home sites.

There are 350.9 acres of disturbed habitat within Treatment Areas 1-12. There are 43.1 acres of disturbed habitat – trail mapped within Treatment Areas 2-12. This habitat type occurs throughout the study area (Figures 7a-7g). Disturbed habitat makes up approximately 20.2 percent of the Project Area. Disturbed habitat – trail makes up approximately 2.5 percent of the Project Area.

Agriculture (Holland Code 18000, Tier IV)

Agricultural is defined broadly as land used primarily for the production of food and fiber. On satellite imagery, the chief indications of agricultural activity are distinctive geometric field and road patterns on the landscape and the traces produced by livestock or mechanized equipment. However, pasture and

other lands where such equipment is used infrequently may not show as well-defined shapes as other areas. The number of building complexes is smaller, and the density of the road and highway network is much lower in Agriculture than in developed land.

There is 0.03-acre of agriculture within Treatment Area 10. This habitat type occurs in the northern portion of the Project Area, east of Hollister Street and south of Sunset Avenue (Figures 7a-7b and 7g). Agriculture makes up less than one percent of the Project Area.

Row Crops (18320, Tier IV)

Row crops include annual and perennial crops grown in rows with open space between the rows. The species composition within the row crops frequently changes by season and year. Row crops often occur in floodplains or upland areas with high soil quality. Row crops are nearly always artificially irrigated.

There are 10.3 acres of row crops within Treatment Area 10. This habitat type occurs in the northern portion of the study area, east of Hollister Street and south of Sunset Avenue (Figures 7a-7c and 7g). Row crops make up less than one percent of the Project Area.

Non-Native Woodland (79000, Tier IV)

Non-native woodland includes woodland of exotic trees, usually intentionally planted, which are not maintained or artificially irrigated. This habitat does not usually apply where these trees have naturalized or occur in riparian woodlands.

There are 8.2 acres of non-native woodland within Treatment Areas 6-12, and 0.4-acre occurs within the survey buffer. This habitat type occurs throughout the study area, mainly as planted windrows of athel tamarisk (*Tamarix aphylla*; Figures 7a-7g). Non-native woodland makes up less than one percent of the Project Area.

Eucalyptus Woodland (79100, Tier IV)

Eucalyptus woodland is dominated by eucalyptus, an introduced species that has often been planted purposely for wind-blocking, ornamental, and hardwood production purposes. Most groves are monotypic, with the most common species being either the blue gum (*Eucalyptus gunnii*) or red gum (*E. camaldulensis* ssp. *obtusa)*. The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter.

There are 5.9 acres of eucalyptus woodlands within Treatment Areas 1, 5-6, 10, and 12, and 2.4 acres occur within the survey buffer. It is found throughout the study area (Figures 7a and 7g). Eucalyptus woodland makes up less than one percent of the Project Area.

Developed Land – including Trail (12000, Tier IV)

Developed areas are those that have been built on or physically altered to the extent that native vegetation is not supported. Developed land is often characterized by permanent or semi-permanent structures, pavement, hardscape, or landscaped areas that require irrigation. Areas where no natural land is evident due to large quantities of debris, or other material being placed upon it, are also considered developed. Usually, plants in these areas are invasive non-native plants or ornamental.

Developed (Trail) indicates trails that are established and open to the public as part of the formal trail network within the park (Figure 6). These trails are maintained by the County DPR.

There are 75.6 acres of developed lands within Treatment Areas 2-12. There are 2.9 acres of developed lands – trail mapped within Treatment Area 12. This habitat type occurs throughout the Project Area (Figures 7a-7g). Developed land makes up approximately 4.3 percent of the Project Area. Developed land – trail makes up less than one percent of the Project Area.

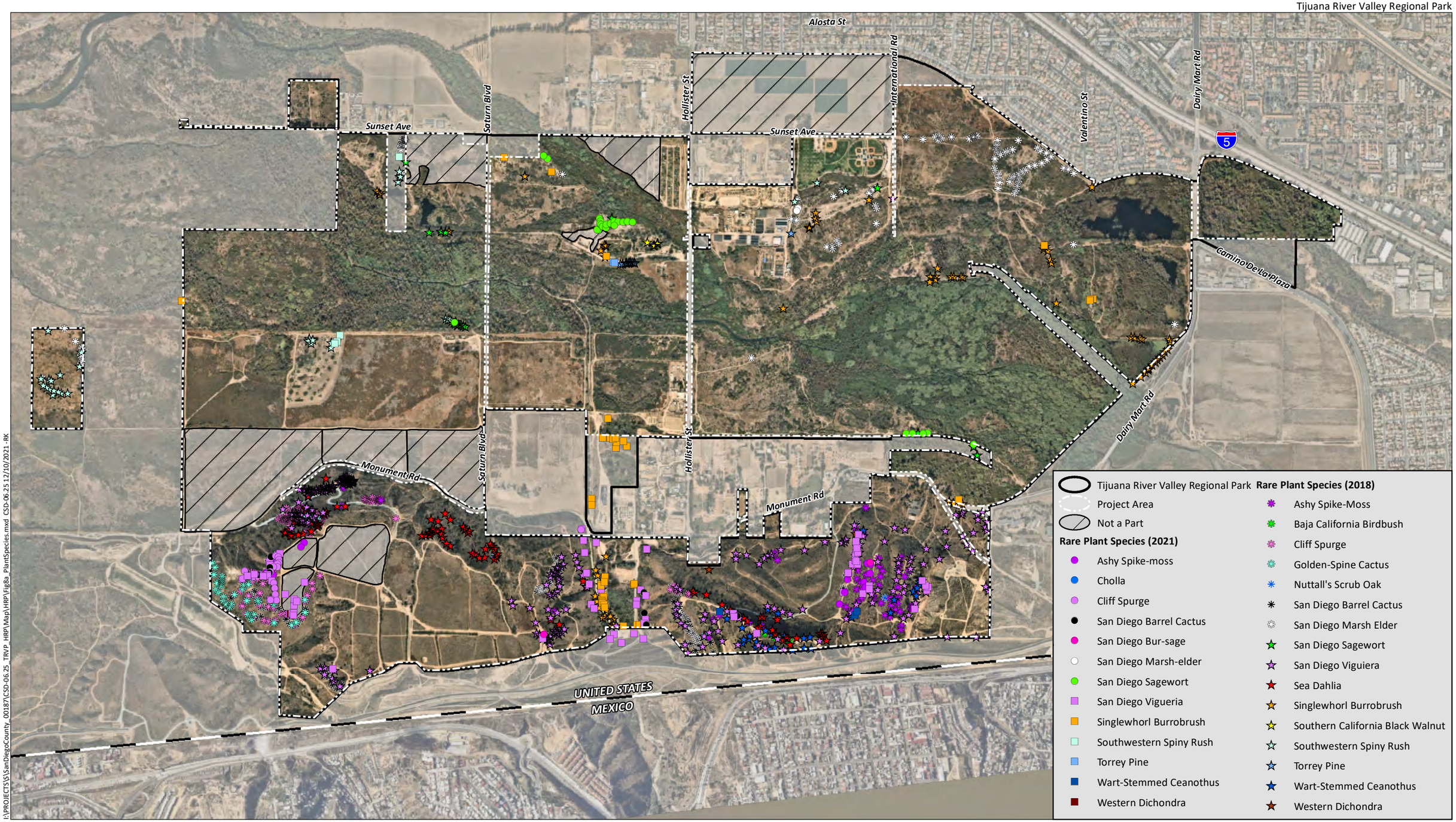
2.2 SPECIAL-STATUS SPECIES

2.2.1 PLANTS

Special status plant species include species that are listed as threatened or endangered, proposed for listing, or are candidate species by the federal (USFWS) or state (CDFW) governments; those with a CRPR 1 through 4 as designated by the California Native Plant Society (CNPS) (CNPS 2020); those that are listed as sensitive by the County (2010a); and those covered by the City's MSCP Subarea Plan (City 1997, Figure 3). In total, 17 special status plant species were identified within the Project Area during 2018 baseline biological surveys and focused surveys conducted in 2021 (HELIX 2019; HELIX 2023; Figures 8a-8f, *Special Status Plant Species*), including three species covered under the City's MSCP Subarea Plan (City 1997). Special status plant species observed were San Diego bur-sage (*Ambrosia chenopodiifolia*; CRPR 2.1, County List B), singlewhorl burrobrush (*Ambrosia monogyra*; CRPR 2B.2), San Diego sagewort (*Artemisia palmeri*; CRPR 4.2, County List D), San Diego County viguiera (CRPR 4.3, County List D), golden-spined cereus (*Bergerocactus emoryi*; CRPR 2B.2, County List B), wart-stemmed ceanothus (*Ceanothus verrucosus*; CRPR 2B.2, County List B, MSCP covered), western dichondra (*Dichondra occidentalis*; CRPR 4.2, County List D), cliff spurge (*Euphorbia misera*; CRPR 2B.2, County List B), San Diego barrel cactus (*Ferocactus viridescens*; CRPR 2B.1, County List B, MSCP Covered), San Diego marsh-elder (*Iva hayesiana*; CRPR 2B.2, County List B), Southern California black walnut (*Juglans californica*; CRPR 4.2, County List D), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*; CRPR 4.2, County List D), sea dahlia (*Leptosyne maritima*; CRPR 2B.2, County List B), Baja California birdbush (*Ornithostaphylos oppositifolia*; SE, CRPR 2B.1, County List B), Torrey pine (*Pinus torreyana* ssp. *torreyana*; CRPR 1B.2, County List A, MSCP Covered), Nuttall's scrub oak (*Quercus dumosa*; CRPR 1B.1, County List A), and ashy spike-moss (*Selaginella cinerascens*; CRPR 4.1, County List D). Plant descriptions are from the Jepson eFlora (Jepson 2021), Rare Plants of San Diego County (Reiser 2001), and Calflora (2021).

Based on an analysis of elevation, soils, vegetation communities, previous rare plant surveys conducted within the Project Area, and recorded observations of special status plant species in and near the Project Area, 22 special status plant species have a high potential to occur in the Project Area: Nuttall's acmispon (*Acmispon prostratus*), aphanisma (*Aphanisma blitoides*), Coulter's saltbush (*Atriplex coulteri*), south coast saltscale (*Atriplex pacifica*), San Diego goldenstar (*Bloomeria* [*Muilla*] *clevelandii*), Lewis' evening-primrose (*Camissoniopsis lewisii*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), seaside calandrinia (*Cistanthe maritima*), Orcutt's bird's-beak (*Dicranostegia orcuttiana*), Orcutt's dudleya (*Dudleya attenuata* ssp. *attenuata*), Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*), variegated dudleya (*Dudleya variegata*), Palmer's frankenia (*Frankenia palmeri*), California box-thorn (*Lycium californicum*), spreading navarretia (*Navarretia fossalis*), Brand's star phacelia (*Phacelia stellaris*), Santa Catalina Island currant (*Ribes viburnifolium*), chaparral ragwort (*Senecio aphanactis*), estuary seablite (*Suaeda esteroa*), woolly seablite (*Suaeda taxifolia*), and California screw moss (*Tortula californica*).

Tijuana River Valley Regional Park



Aerial Photo: Nearmap (2021)

0 1,200 Feet

Special Status Plant Species

Figure 8a

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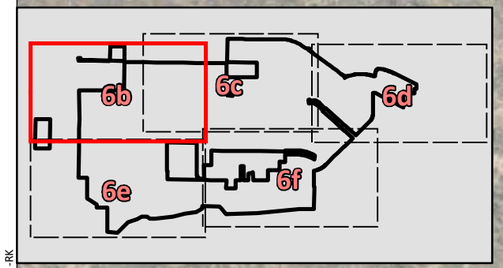
Tijuana River Valley Regional Park
Project Area
Not a Part

Rare Plant Species (2021)

San Diego Sagewort
Singlewhorl Burrobrush
Southwestern Spiny Rush
Torrey Pine

Rare Plant Species (2018)

San Diego Marsh Elder
San Diego Sagewort
Singlewhorl Burrobrush
Southwestern Spiny Rush



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

Aerial Photo: Nearmap 2021

0 500 Feet

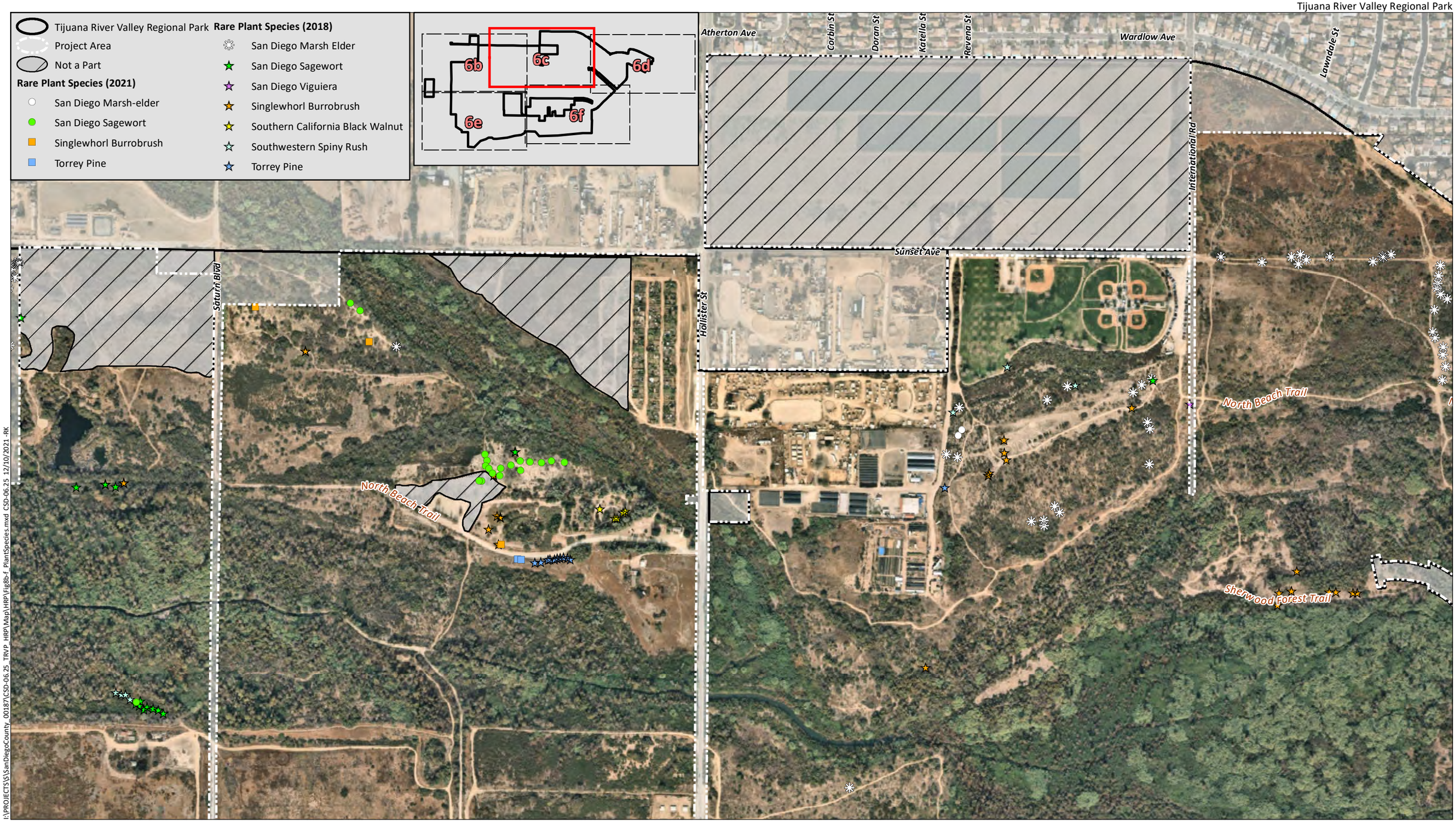
Special Status Plant Species

Figure 8b

Tijuana River Valley Regional Park
Project Area
Not a Part

Rare Plant Species (2021)
San Diego Marsh-elder
San Diego Sagewort
Singlewhorl Burrobrush
Torrey Pine

Rare Plant Species (2018)
San Diego Marsh Elder
San Diego Sagewort
San Diego Viguiera
Singlewhorl Burrobrush
Southern California Black Walnut
Southwestern Spiny Rush
Torrey Pine



Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Plant Species

Figure 8c

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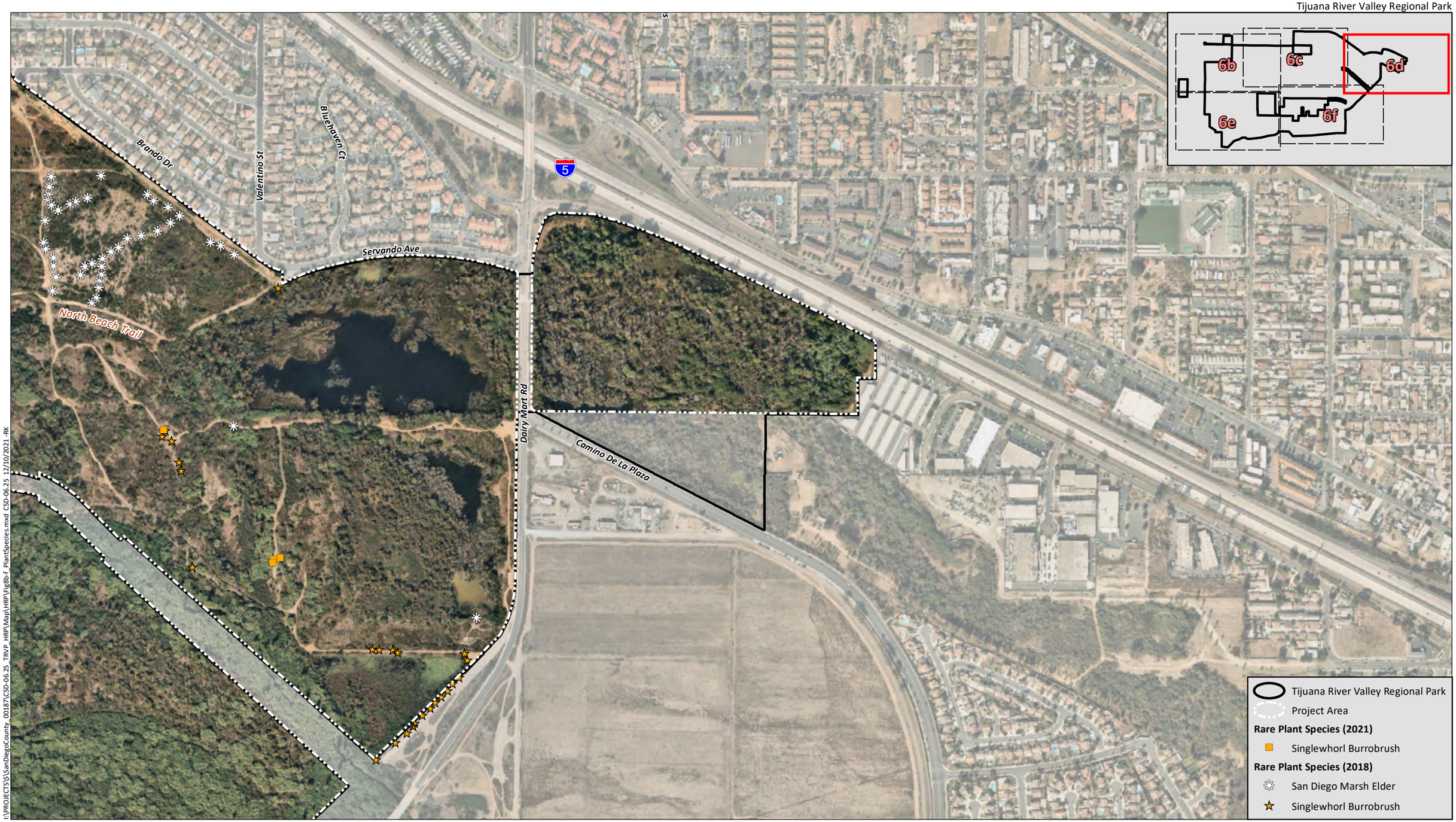
Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

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Special Status Plant Species

Figure 8d

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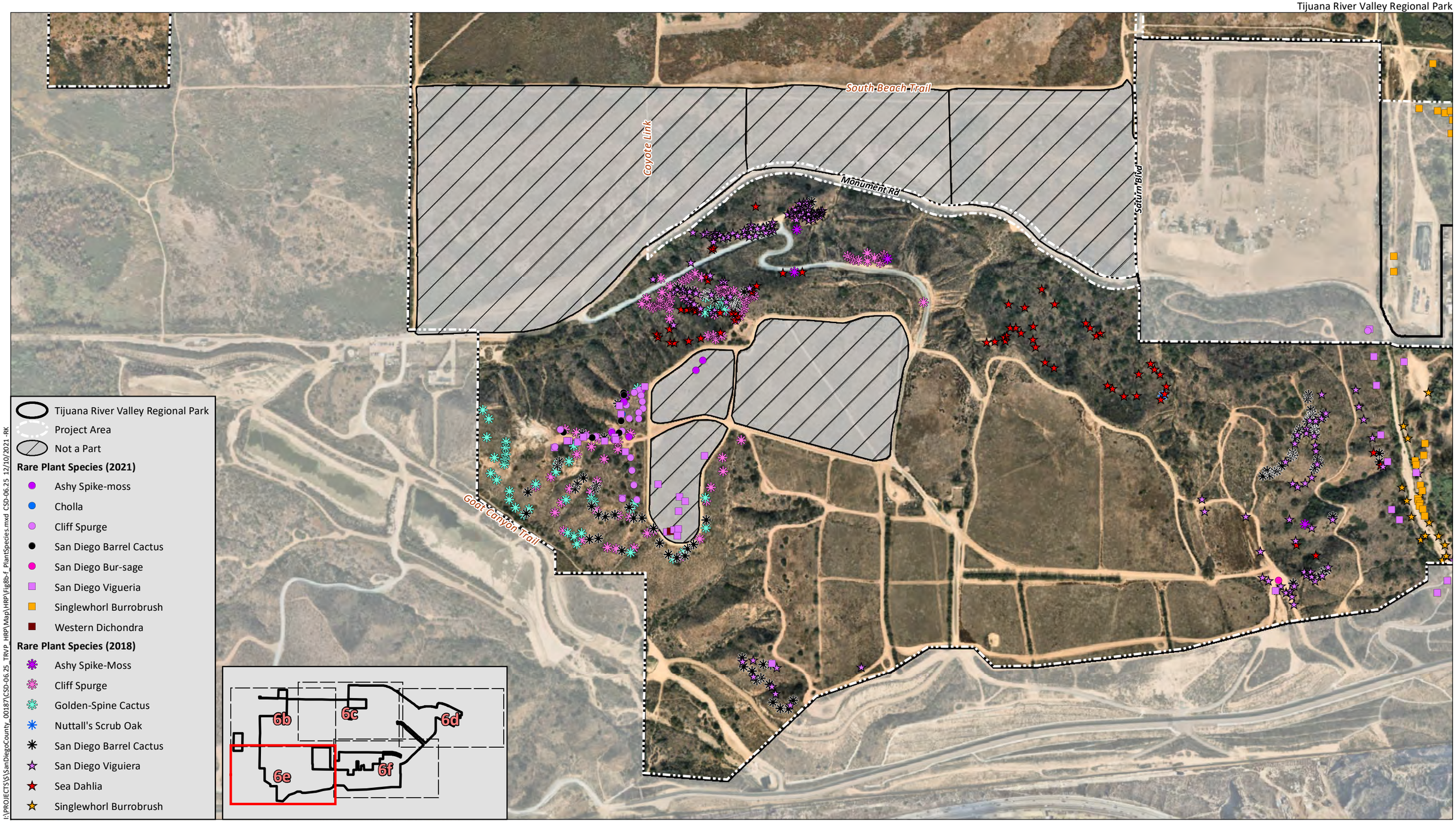

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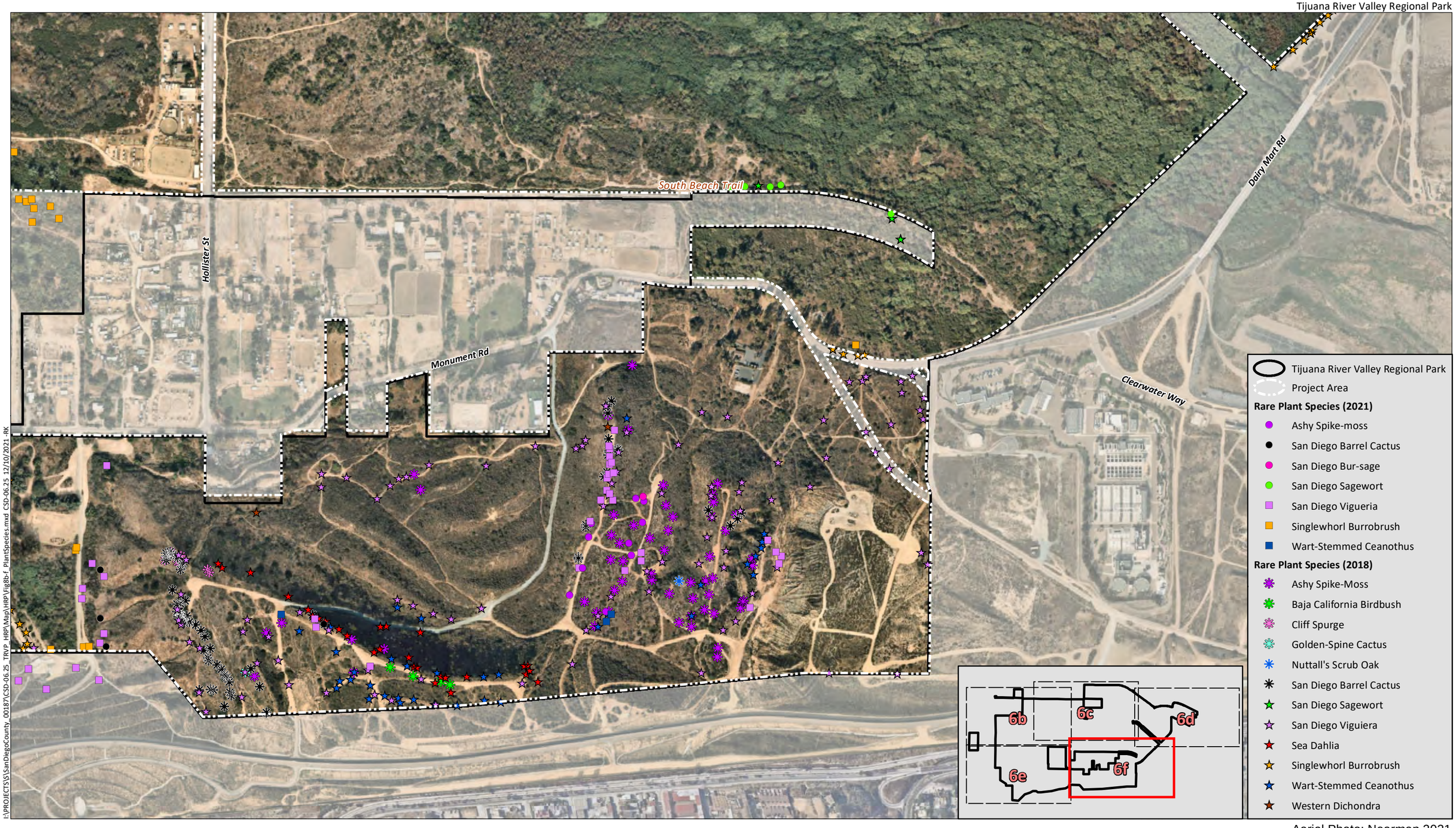
Aerial Photo: Nearmap 2021

Special Status Plant Species

Figure 8e

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Project Area

Rare Plant Species (2021)
- Ashy Spike-moss
- San Diego Barrel Cactus
- San Diego Bur-sage
- San Diego Sagewort
- San Diego Vigueria
- Singlewhorl Burrobrush
- Wart-Stemmed Ceanothus

Rare Plant Species (2018)
- Ashy Spike-Moss
- Baja California Birdbush
- Cliff Spurge
- Golden-Spine Cactus
- Nuttall's Scrub Oak
- San Diego Barrel Cactus
- San Diego Sagewort
- San Diego Viguiera
- Sea Dahlia
- Singlewhorl Burrobrush
- Wart-Stemmed Ceanothus
- Western Dichondra

Aerial Photo: Nearmap 2021

0 500 Feet

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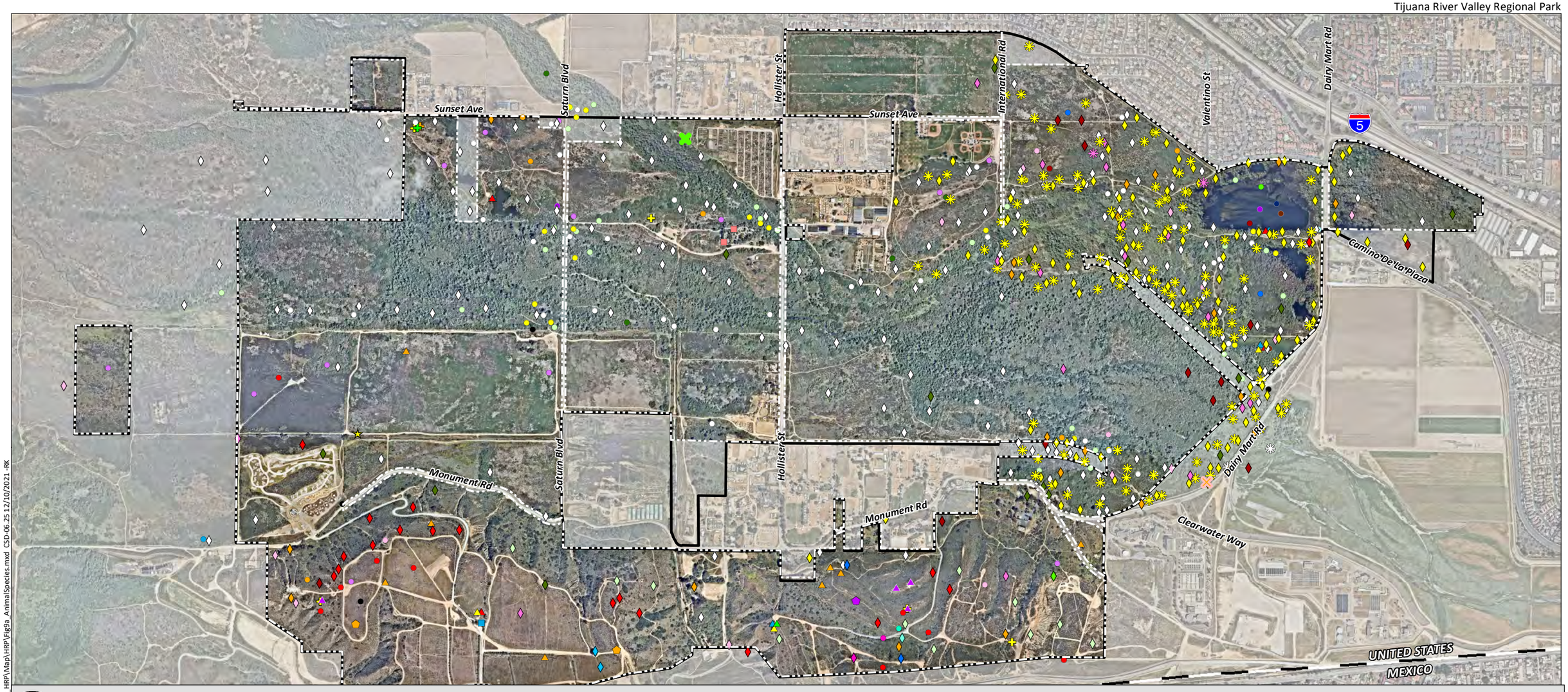
Special Status Plant Species

Figure 8f

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Reptiles
- Belding's Orange-throated Whiptail
- Coast Horned Lizard

Birds
- California Horned Lark
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Least Bell's Vireo
- Merlin
- Northern Cardinal
- Northern Harrier
- Peregrine Falcon
- Red-shouldered Hawk
- Sharp-shinned Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-faced Ibis
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Mammal
- San Diego Black-tailed Jackrabbit
- Wood Rat Nest

Special Status Animal Species (2018)

Amphibians
- Western Spadefoot

Invertebrates
- Quino Checkerspot Butterfly
- Monarch

Reptiles
- Baja California Coachwhip
- Belding's Orange-throated Whiptail
- Blainville's Horned Lizard

Birds
- American White Pelican
- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Double-crested Cormorant
- Gadwall
- Great Blue Heron
- Green Heron
- California Horned Lark
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Sharp-shined Hawk
- Turkey Vulture
- Western Bluebird
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Pocketed Free-tailed Bat
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Western Red Bat
- Yuma Myotis

Aerial Photo: Nearmap (2021)

0 1,200 Feet

Special Status Animal Species

Figure 9a

I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\HRP\Fig9a_AnimalSpecies.mxd CSD-06.25 12/10/2021 -RK

Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Reptiles

- Coast Horned Lizard

Birds

- Cooper's Hawk
- Least Bell's Vireo
- Turkey Vulture

Special Status Animal Species (2018)

Reptiles

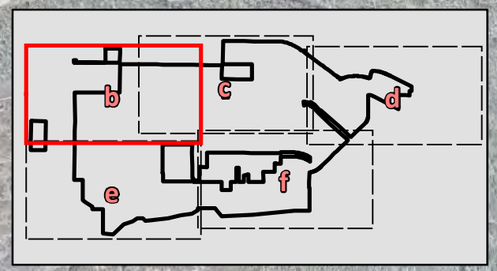
- Baja California Coachwhip
- Belding's Orange-throated Whiptail
- Blainville's Horned Lizard

Birds

- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Double-crested Cormorant
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Yellow Warbler
- Yellow-breasted Chat

Mammals

- San Diego Black-tailed Jackrabbit
- Western Red Bat
- Yuma Myotis



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

Aerial Photo: Nearmap 2021

0 500 Feet

N

Special Status Animals Species

Figure 9b

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Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Reptiles
- Coast Horned Lizard

Birds
- Cooper's Hawk
- Least Bell's Vireo
- Northern Cardinal
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Special Status Animal Species (2018)

Invertebrates
- Monarch

Reptiles
- Belding's Orange-throated Whiptail

Birds
- American White Pelican
- Barn Owl
- Cooper's Hawk
- Double-crested Cormorant
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Western Red Bat
- Yuma Myotis

Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
Sherwood Forest Trail
a
b
c
d
e
f

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Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Animals Species

Figure 9c

Tijuana River Valley Regional Park

Brando Dr
Valentino St
Bluehaven Ct
Servando Ave
North Beach Trail
Dairy Mart Rd
Camino De La Plaza
5

Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Birds

- Coastal California Gnatcatcher
- Cooper's Hawk
- Least Bell's Vireo
- Northern Cardinal
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

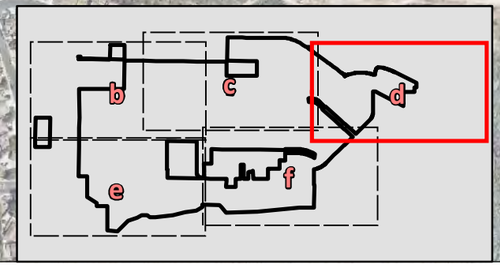
Special Status Animal Species (2018)

Birds

- American White Pelican
- Barn Owl
- Cooper's Hawk
- Double-crested Cormorant
- Gadwall
- Great Blue Heron
- Green Heron
- Least Bell's Vireo
- Turkey Vulture
- Western Bluebird
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals

- Western Mastiff Bat
- Western Red Bat
- Yuma Myotis



Aerial Photo: Nearmap 2021

0 500 Feet

N

Special Status Animals Species

Figure 9d

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Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Birds

- Coastal California Gnatcatcher
- Cooper's Hawk
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Sharp-shinned Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-tailed Kite

Mammal

- San Diego Black-tailed Jackrabbit

Special Status Animal Species (2018)

Amphibians

- Western Spadefoot

Invertebrates

- Quino Checkerspot Butterfly

Reptiles

- Belding's Orange-throated Whiptail

Birds

- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Northern Harrier
- Sharp-shined Hawk
- Turkey Vulture

Mammals

- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Western Red Bat

Aerial Photo: Nearmap 2021

0 500 Feet

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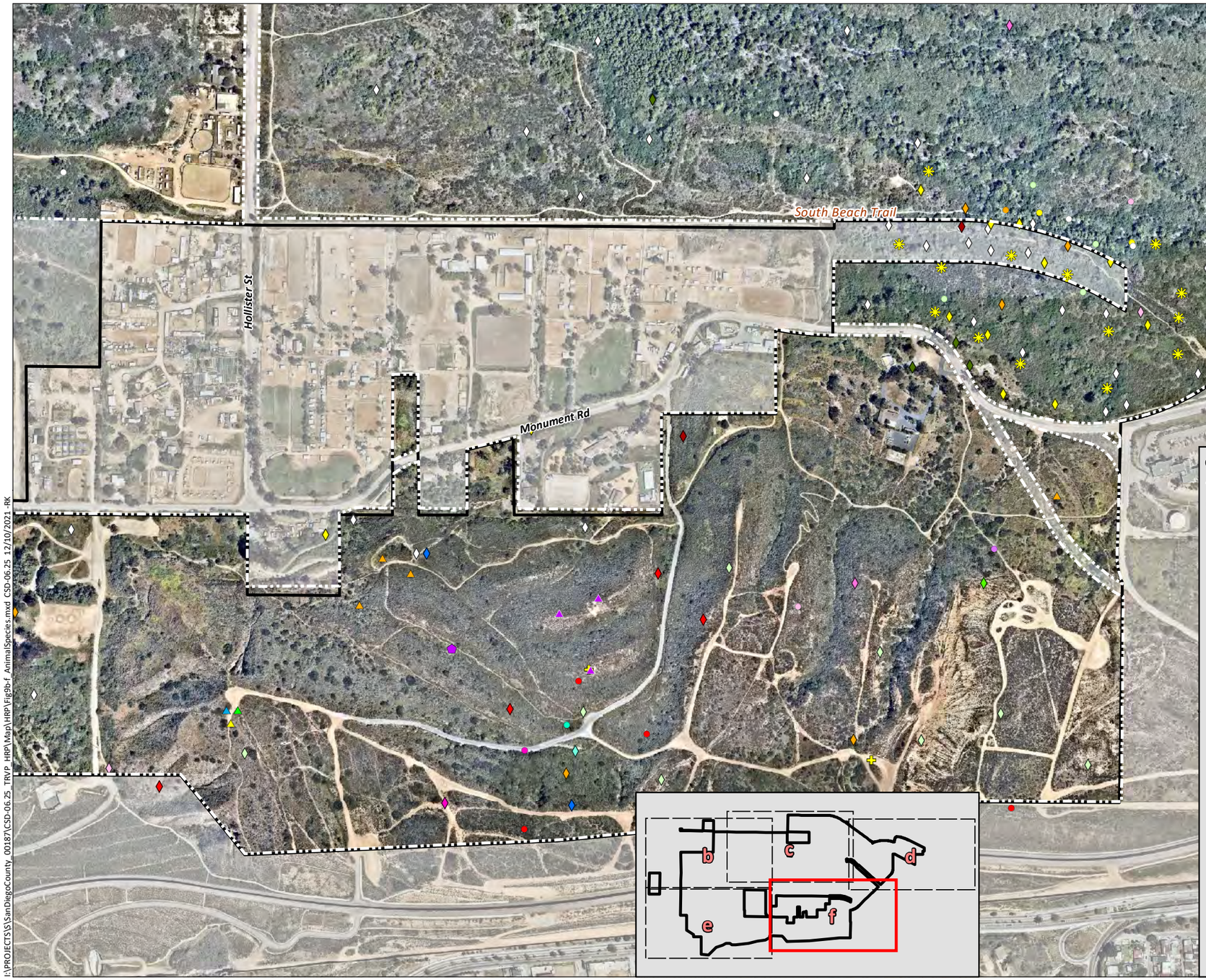
Special Status Animals Species

Figure 9e

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Project Area

Special Status Animal Species (2021)

Reptiles
- Belding's Orange-throated Whiptail

Birds
- California Horned Lark
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Least Bell's Vireo
- Merlin
- Northern Harrier
- Peregrine Falcon
- Red-shouldered Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-faced Ibis
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Mammal
- Wood Rat Nest

Special Status Animal Species (2018)

Reptiles
- Belding's Orange-throated Whiptail

Birds
- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- California Horned Lark
- Least Bell's Vireo
- Northern Harrier
- Turkey Vulture
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Pocketed Free-tailed Bat
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Yuma Myotis

Aerial Photo: Nearmap 2021

0 500 Feet

N

Special Status Animals Species

Figure 9f

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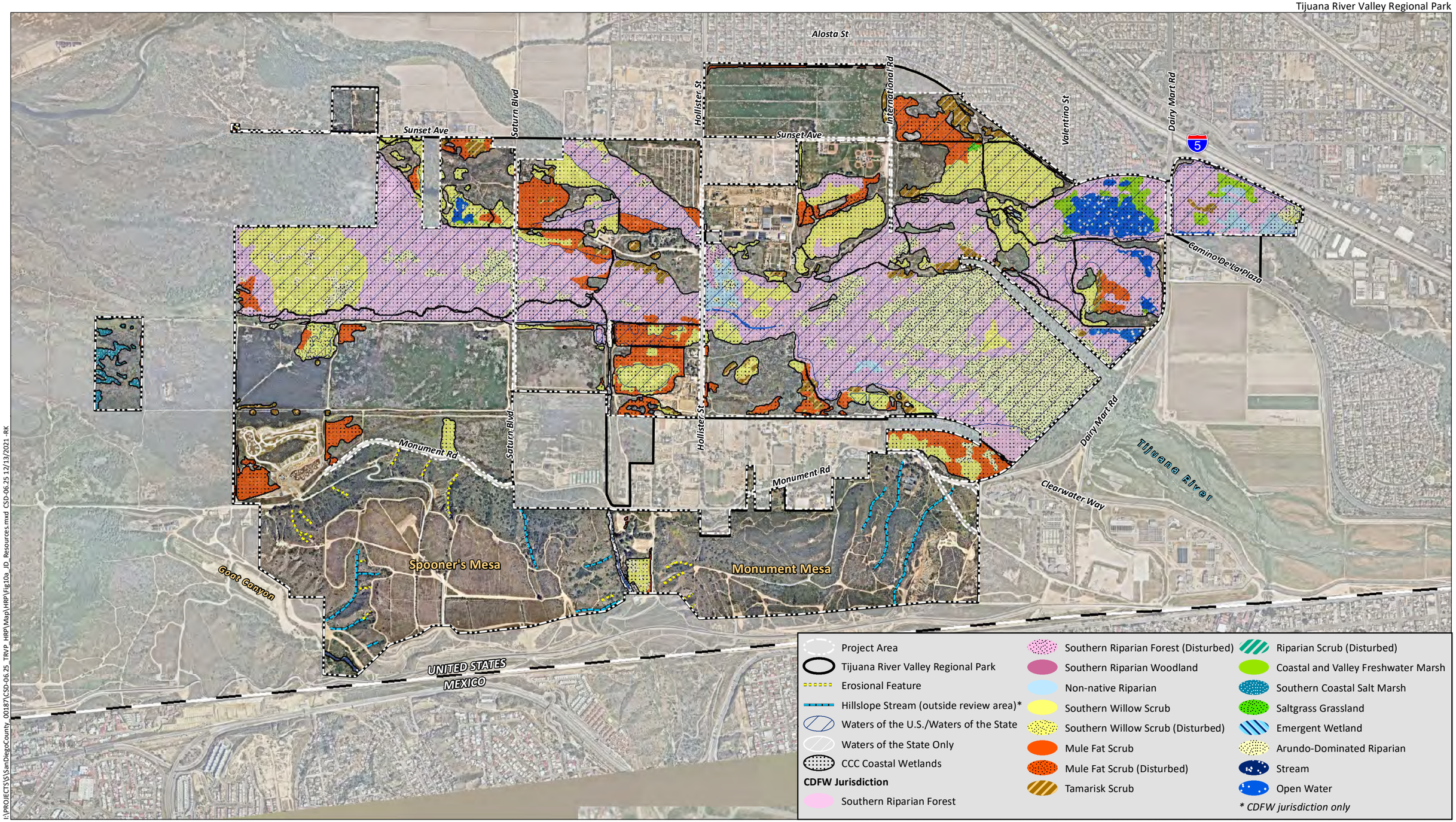
2.2.2 WILDLIFE

Special status wildlife species are those listed as endangered, threatened, or rare, or a candidate for those listings by the federal government (USFWS) or State of California (CDFW); included on the County's Sensitive Animal List (County 2010a); or covered by the City's MSCP Subarea Plan (City 1997). In total, 31 special status wildlife species were identified within the Project Area during 2018 baseline biological surveys and focused surveys conducted in 2021 (HELIX 2019; HELIX 2023; Figures 9a-f, *Special Status Wildlife Species*), including seven species covered under the City's MSCP Subarea Plan (City 1997). Special status wildlife species observed were monarch (*Danaus plexippus*; County Group 2), Quino checkerspot butterfly (*Euphydryas editha quino*; Federally Endangered [FE], County Group 1, western spadefoot toad (State Species of Special Concern [SSC], County Group 2), Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*; WL, County Group 2, MSCP Covered), Baja California coachwhip (*Coluber fuliginosus*; SSC), Blainville's horned lizard (*Phrynosoma blainvillii*; SSC, County Group 2, MSCP Covered), Cooper's hawk (*Accipiter cooperii*; State Watch List [WL], County Group 1, MSCP Covered), Sharp-shinned hawk (*Accipiter striatus*; WL, County Group 1), Great blue heron (*Ardea herodias*; County Group 2), Red-shouldered hawk (*Buteo lineatus*; County Group 1), green heron (*Butorides virescens*; County Group 2), Costa's hummingbird (*Calypte costae*; Federal Bird of Conservation Concern [BCC]), turkey vulture (*Cathartes aura*; County Group 1), northern harrier (*Circus hudsonius*; SSC, County Group 1, MSCP Covered), white-tailed kite (Federal Fully Protected [FP], County Group 1), California horned lark (*Eremophila alpestris actia*; WL, County Group 2), yellow-breasted chat (*Icteria virens*; SSC, County Group 1), gadwall (*Mareca strepera*; County Group 2), American white pelican (*Pelecanus erythrorhynchos*; SSC, County Group 2), double-crested cormorant (*Phalacrocorax auritus*; WL, County Group 2), coastal California gnatcatcher (*Polioptila californica californica*; Federally Threatened [FT], SSC, County Group 1, MSCP Covered), yellow warbler (*Setophaga petechia*; BCC, SSC, County Group 2), western bluebird (*Sialia mexicana*; County Group 2, MSCP Covered), barn owl (*Tyto alba*; County Group 2), least Bell's vireo (FE, State Endangered [SE], County Group 1, MSCP Covered), western mastiff bat (*Eumops perotis*; SSC, County Group 2), western red bat (*Lasiurus blossevillii*; SSC, County Group 2), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*; SSC, County Group 2*),* Yuma myotis (*Myotis yumanensis*; County Group 2), San Diego desert woodrat (*Neotoma lepida intermedia*; SSC, County Group 2), and pocketed free-tailed bat (*Nyctinomops femorosaccus*; SSC, County Group 2).

2.3 JURISDICTIONAL RESOURCES

Potential jurisdictional resources within the Project Area include wetlands and waters of the U.S. subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the CWA, waters subject to regulation by the RWQCB pursuant to Section 401 of the CWA, and waters of the state pursuant to the Porter-Cologne Act, streambed and associated riparian habitats subject to the regulatory jurisdiction of the CDFW pursuant to Section 1600 of the California Fish and Game Code (CFGC), riparian habitat subject to the regulatory jurisdiction of the CCC, and wetlands pursuant to the City's ESL regulations (Attachment A, *Aquatic Resources Delineation Report*). The extent of aquatic resources jurisdiction within the Project Area varies by agency and is provided in Table 3, *Potential Jurisdictional Resources within the Project Area*, and depicted in Figure 10a-f. *Jurisdictional Resources within Tijuana River Valley Regional Park*. Only jurisdictional resources within the valley floodplain have been assessed as part of this HRP, while drainages that occur within uplands are omitted from this document and will be completely avoided (see Section 4.7). The USACE review area excludes the Spooner's Mesa and Monument Mesa areas in the southern part of the Project Area. These areas do not support wetland or



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Aerial Photo: Nearmap (2021)

0 1,300 Feet

Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10a

Project Area
Tijuana River Valley Regional Park
Waters of the U.S./Waters of the State
Waters of the State Only
CCC Coastal Wetlands

CDFW Jurisdiction

Southern Riparian Forest
Southern Riparian Woodland
Non-native Riparian
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Mule Fat Scrub
Tamarisk Scrub
Coastal and Valley Freshwater Marsh
Southern Coastal Salt Marsh
Arundo-Dominated Riparian
Stream
Open Water

b
c
d
e
f

Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

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Aerial Photo: Nearmap 2021

0 500 Feet

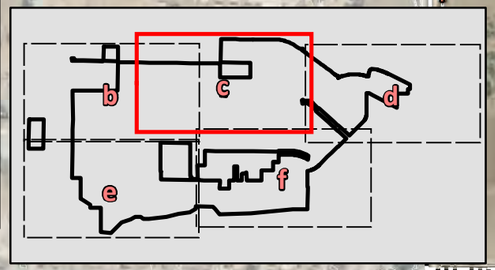
Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10b

Project Area
Tijuana River Valley Regional Park
Waters of the U.S./Waters of the State
Waters of the State Only
CCC Coastal Wetlands

CDFW Jurisdiction

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Southern Riparian Woodland
Non-native Riparian
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Mule Fat Scrub
Mule Fat Scrub (Disturbed)
Tamarisk Scrub
Coastal and Valley Freshwater Marsh
Saltgrass Grassland
Arundo-Dominated Riparian
Stream
Open Water



Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
Sherwood Forest Trail

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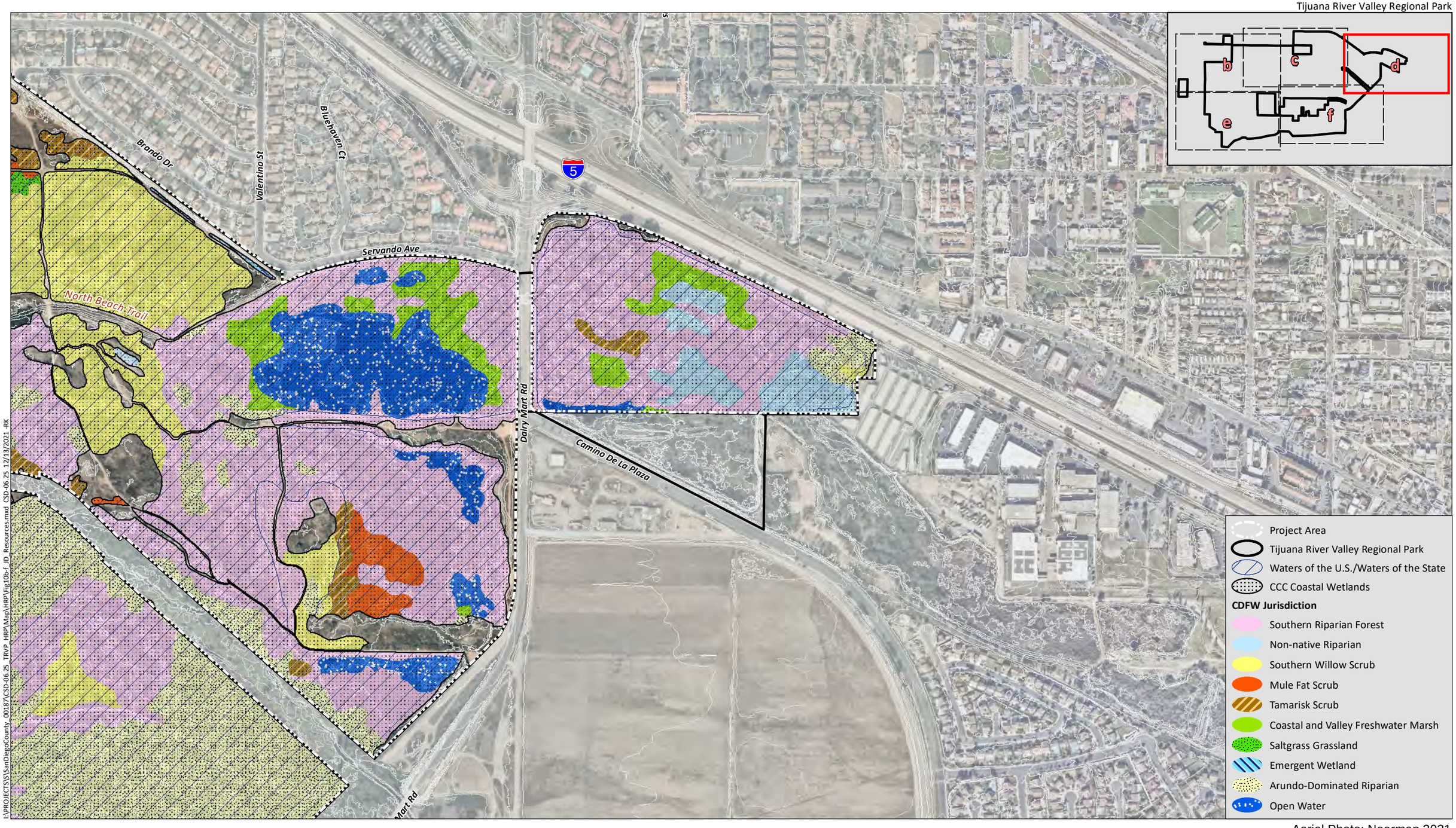
Aerial Photo: Nearmap 2021

0 500 Feet

Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

N

Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10d

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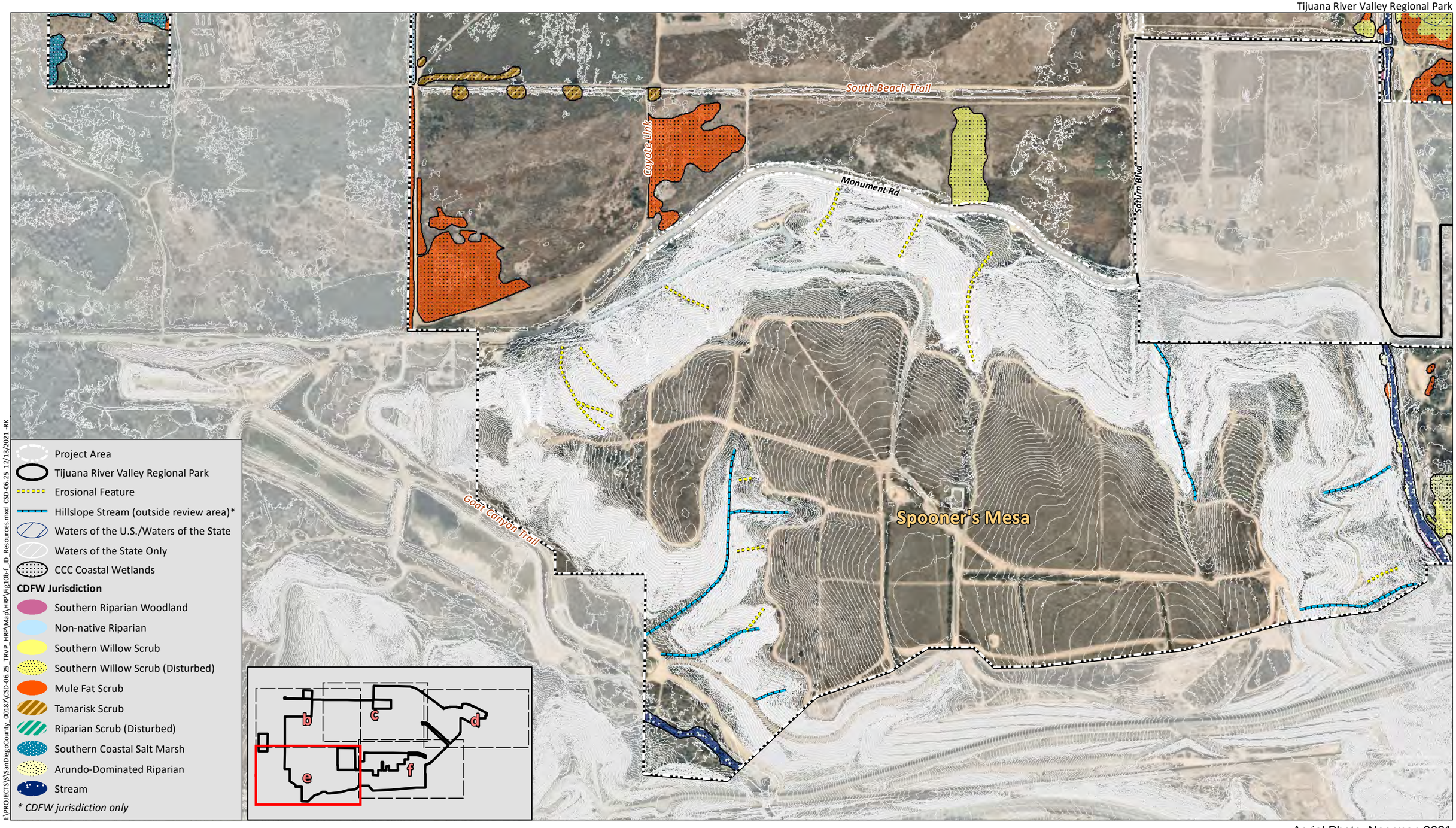


Aerial Photo: Nearmap 2021

0 500 Feet

Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10e

Tijuana River Valley Regional Park

South Beach Trail

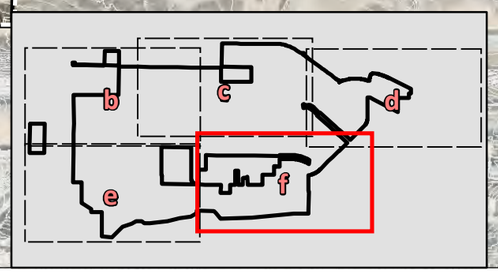
Hollister St

Monument Rd

Dairy Mart Rd

Clearwater Way

Monument Mesa



- Project Area
- Tijuana River Valley Regional Park
- Erosional Feature
- Hillslope Stream (outside review area)*
- Waters of the U.S./Waters of the State
- Waters of the State Only
- CCC Coastal Wetlands

CDFW Jurisdiction

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Riparian Scrub (Disturbed)
- Arundo-Dominated Riparian
- Stream

** CDFW jurisdiction only*

Aerial Photo: Nearmap 2021

0 500 Feet

N

Jurisdictional Resources within Tijuana River Valley Regional Park

Figure 10f

I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\HRP\Fig10b-f_JD_Resources.mxd CSD-06.25 12/13/2021 -RK

riparian vegetation communities but may contain ephemeral waters on steep hillslopes coming off the mesas.

Table 3
POTENTIAL JURISDICTIONAL RESOURCES WITHIN THE PROJECT AREA[1]

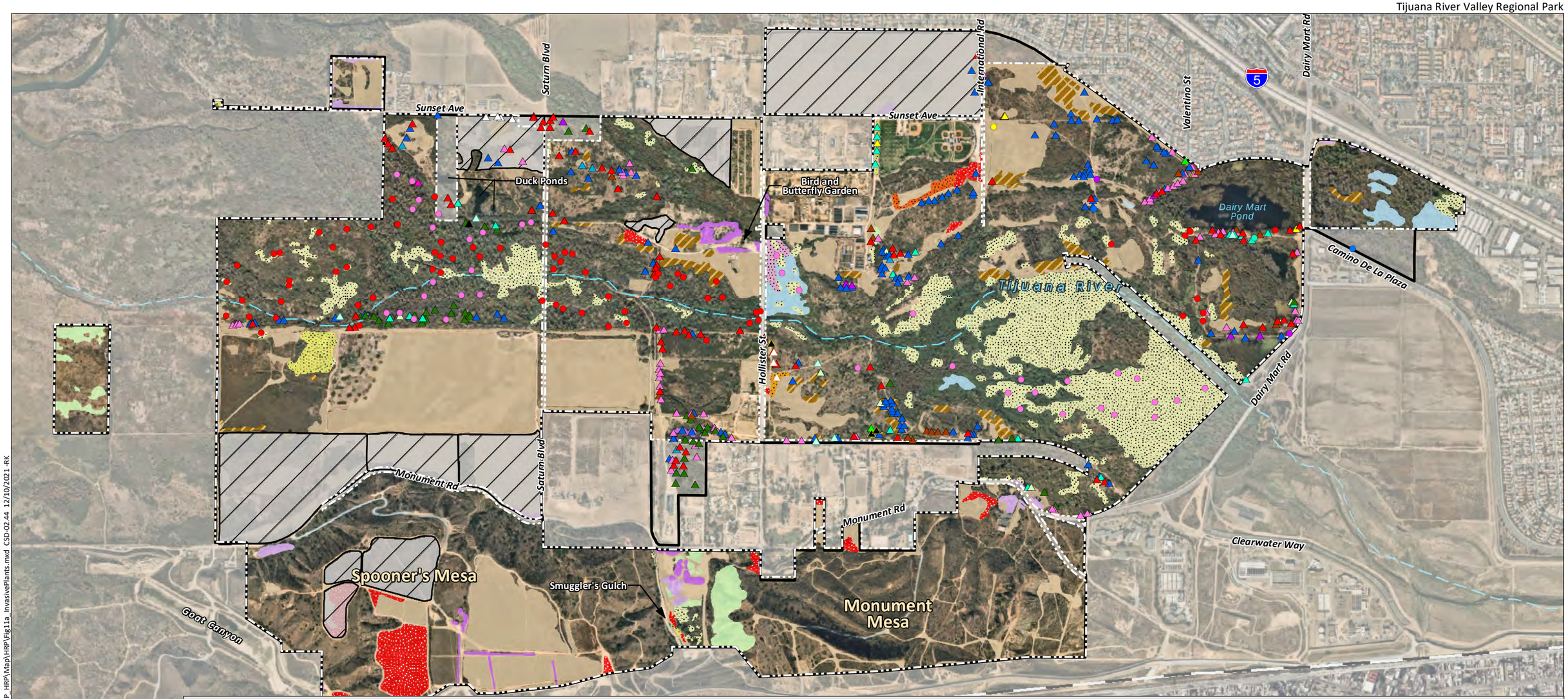
Vegetation Community	Resource Agency Jurisdiction			
	USACE	RWQCB	CDFW	CCC
Wetland				
Southern Riparian Forest (including disturbed)	332.83	332.83	357.81	357.81
Southern Riparian Woodland	--	--	0.22	0.22
Southern Willow Scrub (including disturbed)	96.15	96.15	147.96	147.96
Mule Fat Scrub (including disturbed)	24.13	24.13	86.65	86.65
Coastal and Valley Freshwater Marsh	9.34	9.34	9.37	9.37
Emergent Wetland	0.25	0.25	0.25	0.25
Southern Coastal Salt Marsh	4.35	4.35	4.35	4.35
Saltgrass Grassland	0.39	0.39	0.39	0.39
Arundo-dominated Riparian	117.35	117.35	122.82	122.82
Non-native Riparian	12.16	12.16	12.85	12.85
Tamarisk Scrub	13.65	13.65	23.33	23.33
Subtotal	*610.60*	*610.60*	766.06	766.06
Non-Wetland				
Open Water	20.71	20.71	20.71	20.71
Stream Channel	2.39	3.18	2.77	2.77
Subtotal	*23.10*	*23.89*	*23.48*	*23.48*
TOTAL	**633.70**	**634.49**	**789.54**	789.54

[1] Areas are presented in acre(s) rounded to the nearest 0.01.
USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission.

2.4 INVASIVE NON-NATIVE PLANT SPECIES

A total of 106 invasive non-native plant species were identified in the Project Area during the 2018 baseline botanical surveys and 2021 focused surveys (HELIX 2019; HELIX 2023; Figures 11a-f, *Invasive Plant Species*). Of the 106 invasive non-native plant species, 22 of those species were identified and mapped as invasive non-native plant target species of concern in need of removal and control. While multiple species of invasive non-native plants were observed in the Project Area, most were sporadically observed and not prevalent throughout the Project Area. Invasive non-native plant species that were observed sporadically are not considered target species of concern in need of removal and control. Additionally, many of these species are considered to have become "naturalized" in southern California.

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Project Area
Potential Future Recreational Amenity

Invasive Plants (2021)
- Artichoke Thistle
- Brazilian Peppertree
- Peruvian Pepper Tree
- Caster Bean and Arundo
- Castor Bean
- Curly Dock
- Eucalyptus
- Fan Palm
- Fennel
- Giant Reed
- Golden Wattle
- Ice plant
- Mousehole Tree
- Palm
- Pokeweed
- Radish
- Tamarisk
- Tree Tobacco
- Washington Palm

- (61300) Southern Riparian Forest (Disturbed)
- (65000) Non-native Riparian
- (63320) Southern Willow Scrub (Disturbed)
- (63310) Mule Fat Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (63000) Riparian Scrub (Disturbed)
- (65110) Arundo-Dominated Riparian
- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated (Disturbed)
- (32500) Diegan Coastal Sage Scrub (Disturbed)
- (11300) Disturbed Habitat
- (42200) Non-native Grassland

Invasive Plants (2018)
- Giant Reed
- Black Mustard
- Brazilian Peppertree
- Castor Bean
- Garland Daisy
- Tamarisk

Aerial Photo: Nearmap 2021

0 1,200 Feet

Invasive Plant Species

Figure 11a

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\HRP\Fig11a_InvasivePlants.mxd CSD-02.44 12/10/2021 -RK

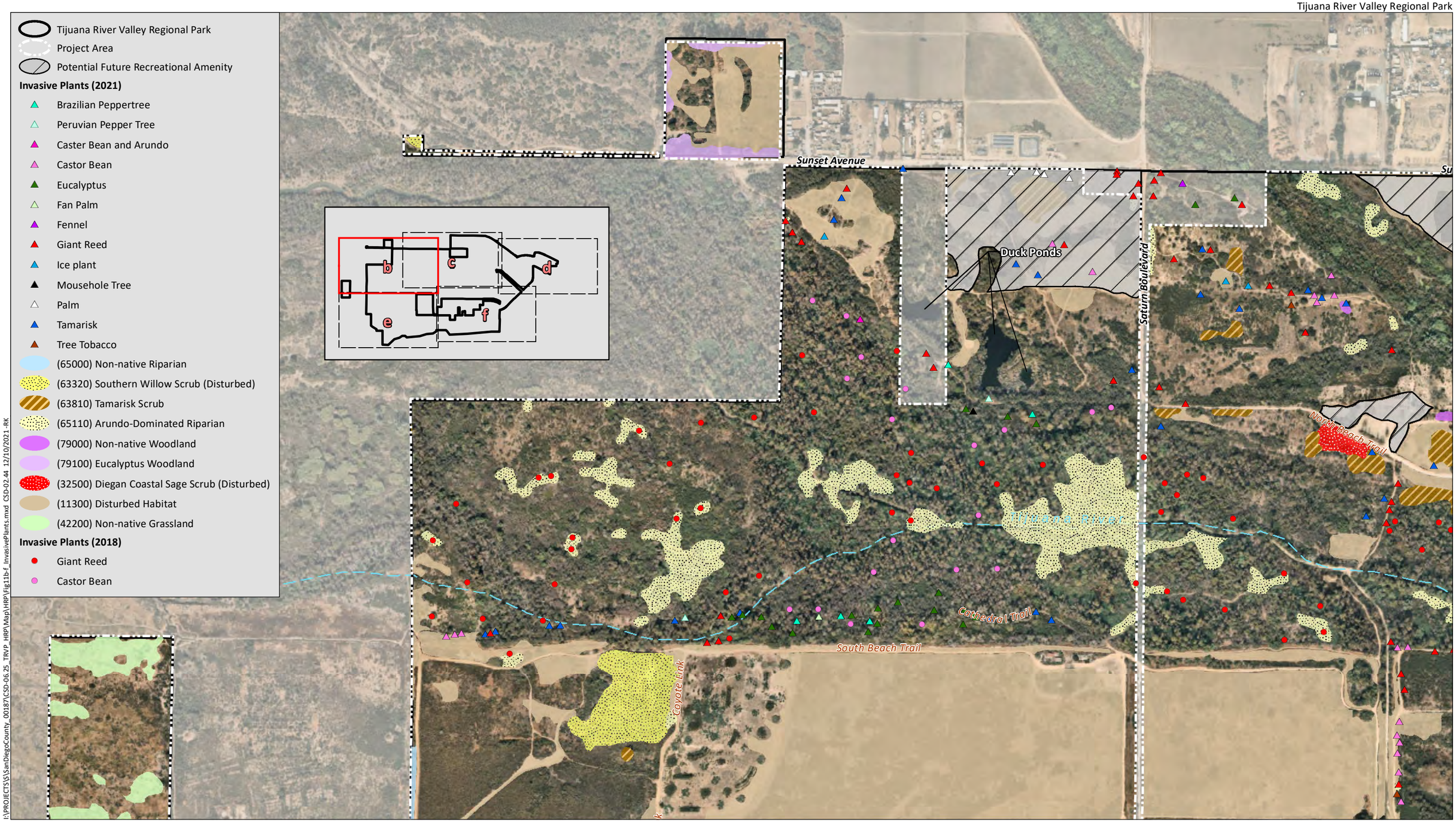
Tijuana River Valley Regional Park
Project Area
Potential Future Recreational Amenity

Invasive Plants (2021)

- Brazilian Peppertree
- Peruvian Pepper Tree
- Caster Bean and Arundo
- Castor Bean
- Eucalyptus
- Fan Palm
- Fennel
- Giant Reed
- Ice plant
- Mousehole Tree
- Palm
- Tamarisk
- Tree Tobacco
- (65000) Non-native Riparian
- (63320) Southern Willow Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (65110) Arundo-Dominated Riparian
- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland
- (32500) Diegan Coastal Sage Scrub (Disturbed)
- (11300) Disturbed Habitat
- (42200) Non-native Grassland

Invasive Plants (2018)

- Giant Reed
- Castor Bean



Aerial Photo: Nearmap 2021

0 500 Feet

Invasive Plant Species

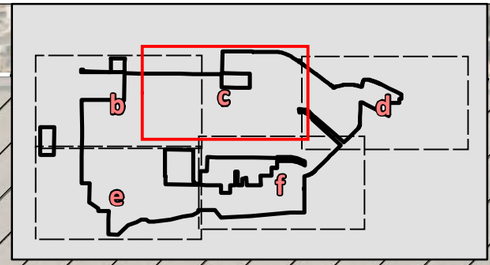
Figure 11b

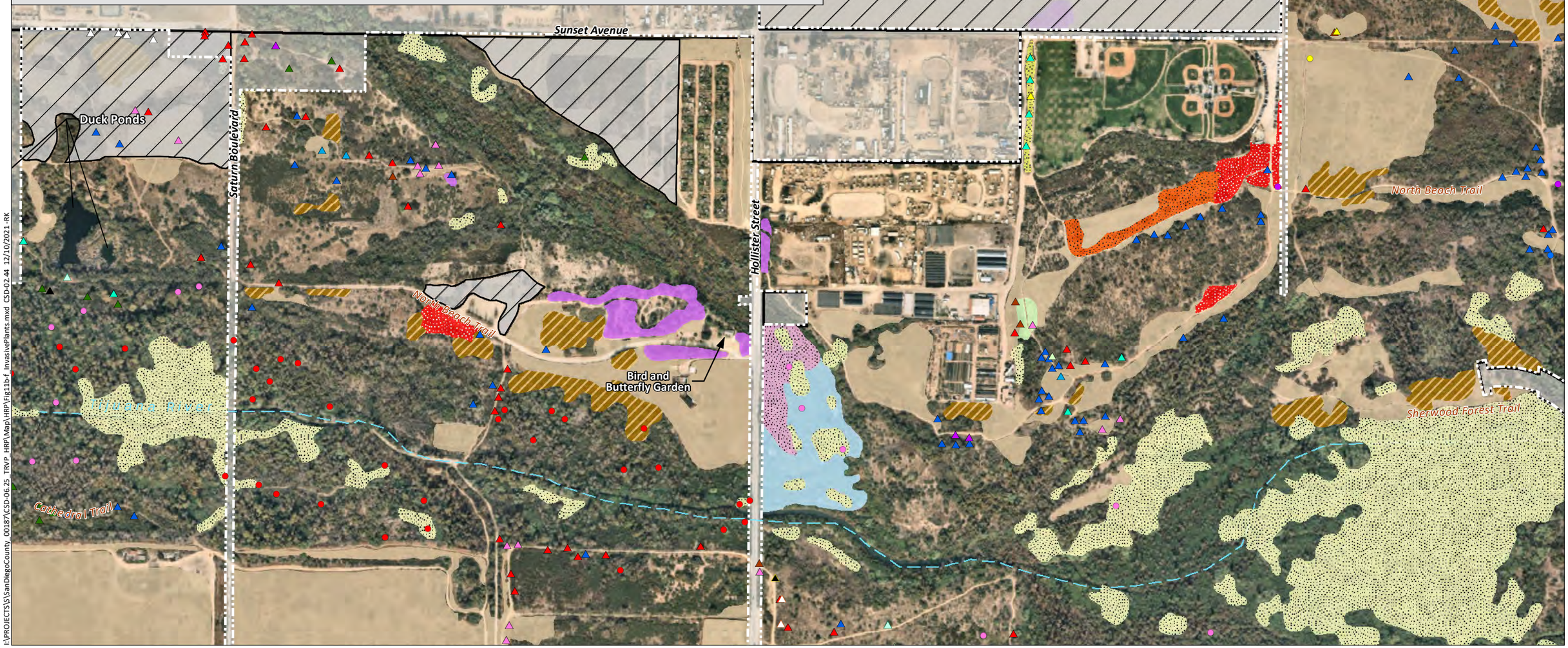
Tijuana River Valley Regional Park
Project Area
Potential Future Recreational Amenity

Invasive Plants (2021)
- Artichoke Thistle
- Brazilian Peppertree
- Peruvian Pepper Tree
- Castor Bean
- Eucalyptus
- Fan Palm
- Fennel
- Giant Reed
- Golden Wattle
- Ice plant
- Mousehole Tree
- Palm
- Pokeweed
- Tamarisk
- Tree Tobacco

- (61300) Southern Riparian Forest (Disturbed)
- (65000) Non-native Riparian
- (63320) Southern Willow Scrub (Disturbed)
- (63310) Mule Fat Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (65110) Arundo-Dominated Riparian
- (79000) Non-native Woodland
- (32500) Diegan Coastal Sage Scrub (Disturbed)
- (11300) Disturbed Habitat
- (42200) Non-native Grassland

Invasive Plants (2018)
- Giant Reed
- Black Mustard
- Castor Bean
- Garland Daisy
- Tamarisk





Aerial Photo: Nearmap 2021

0 500 Feet

Invasive Plant Species

Figure 11c

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Tijuana River Valley Regional Park

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Aerial Photo: Nearmap 2021

0 500 Feet

N

Invasive Plant Species

Figure 11d

Tijuana River Valley Regional Park
Project Area
Potential Future Recreational Amenity

Invasive Plants (2021)

- Castor Bean
- Eucalyptus
- Giant Reed
- Ice plant
- Tamarisk
- (65000) Non-native Riparian
- (63320) Southern Willow Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (63000) Riparian Scrub (Disturbed)
- (65110) Arundo-Dominated Riparian
- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland
- (32500) Diegan Coastal Sage Scrub (Disturbed)
- (11300) Disturbed Habitat
- (42200) Non-native Grassland

Coyote Link
Monument Road
Saturn Boulevard
Goat Canyon
Goat Canyon Trail
Smuggler's Gulch
UNITED STATES
MEXICO
b
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Aerial Photo: Nearmap 2021

0 500 Feet

Invasive Plant Species

Figure 11e

Tijuana River Valley Regional Park

Hollister Street

Monument Road

Dairy Mart Road

Tijuana River

UNITED STATES

MEXICO

Tijuana River Valley Regional Park

Project Area

Invasive Plants (2021)

- Artichoke Thistle
- Brazilian Peppertree
- Peruvian Pepper Tree
- Castor Bean
- Eucalyptus
- Fan Palm
- Giant Reed
- Golden Wattle
- Ice plant
- Tamarisk
- Tree Tobacco
- Washington Palm
- (65000) Non-native Riparian
- (63320) Southern Willow Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (63000) Riparian Scrub (Disturbed)
- (65110) Arundo-Dominated Riparian
- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated (Disturbed)
- (32500) Diegan Coastal Sage Scrub (Disturbed)
- (11300) Disturbed Habitat
- (42200) Non-native Grassland

Invasive Plants (2018)

- Castor Bean

b c d e f

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Aerial Photo: Nearmap 2021

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N

Invasive Plant Species

Figure 11f

Of the 106 invasive non-native plant species observed in the Project Area in 2018 and 2021, 22 target invasive non-native plant species were selected as a high priority for removal based on their invasive potential, prevalence throughout the Project Area, and the ability for management (Table 4, *Invasive Non-Native Plant Species of Concern Within the Project Area*). Non-native grasses were not included as target invasive non-native plant species because they are abundant both within the Project Area and in the surrounding habitat and remain between six to 12 inches in height such that they do not pose a risk to native vegetation. Invasive non-native plant species occur throughout the Project Area, with the highest concentration in the eastern portion along the Tijuana River and in the southeastern portion including, Spooner's Mesa (Figure 11a-f). The source populations for the invasive non-native plants that have been identified should also be controlled, as eradication of these plants from the Project Area would only be temporary. Invasive non-native plants that were mapped within the Project Area and determined as target species of concern in need of removal are presented below with their associated California Invasive Plant Council (Cal-IPC) Inventory Ranking (Table 4). The definitions for the Cal-IPC ratings are as follows:

- **High**: Species have severe ecological impacts, are conducive to moderate to high rates of dispersal/establishment, and most are widespread;

- **Moderate**: Species have substantial and apparent, but not severe, ecological impacts; are conducive to moderate to high rates of dispersal, though the establishment is dependent on ecological disturbance; and distribution may range from limited to widespread;

- **Limited**: Species are invasive, but their ecological impacts are minor on a State-wide level, or there was not enough information to justify a higher score; have low to moderate rates of invasiveness; and are limited but may be locally persistent and problematic; and

- **None**: Species have not been listed by Cal-IPC.

A comprehensive list of all invasive non-native plants observed, and their removal/management priority is also located in Section 5.1.1 (Invasive Non-Native Plant Control).

Table 4
INVASIVE NON-NATIVE PLANT SPECIES OF CONCERN
WITHIN THE PROJECT AREA[1]

Common Name	Scientific Name
Cal-IPC Ranking High[2]	
giant reed	*Arundo donax*
hottentot fig/iceplant	*Carpobrotus edulis*
poison hemlock	*Conium maculatum*
Fennel	*Foeniculum vulgare*
perennial pepperweed	*Lepidium latifolium*
Tamarisk	*Tamarix ramosissima*
Cal-IPC Ranking Moderate[1]	
Italian thistle	*Carduus pycnocephalus*
tocalote / star thistle	*Centaurea melitensis*
Stinkwort	*Dittrichia graveolens*
garland daisy	*Glebionis coronaria*
short pod mustard	*Hirschfeldia incana*

Common Name	Scientific Name
crystalline ice plant	*Mesembryanthemum crystallinum*
London rocket	*Sisymbrium irio*
Mexican fan palm	*Washingtonia robusta*
Cal-IPC Ranking Limited[1]	
five-hook bassia	*Bassia hyssopifolia*
Canary island date palm	*Phoenix canariensis*
castor bean	*Ricinus communis*
Russian thistle	*Salsola tragus*
Peruvian peppertree	*Schinus molle*
Brazilian peppertree	*Schinus terebinthifolius*
milk thistle	*Silybum marianum*

[1] Invasive species to be controlled will be determined on a case-by-case basis depending on the degree of invasiveness, impact, and compatibility with overall project goals.

[2] Source: Cal-IPC 2020. Overall rating listed for southwest region, factoring impact, invasiveness, distribution, and documentation level.

2.5 KUROSHIO SHOT HOLE BORER AND RESTORATION PRACTICES

The Kuroshio Shot Hole Borer (KSHB; *Euwallacea kuroshio*) belongs to a family of ambrosia beetles that makes tiny holes in trees as part of their life cycle. Although relatives of the beetle were detected a decade earlier, the KHSB was first detected in the TRVRP around 2013. The insect likely originated in Taiwan and quickly became a nuisance pest once it arrived in the United States and TRVRP, with no natural enemies to keep their populations in check.

The KSHB are detrimental to native habitats in the TRVRP because the females of the species carry and transmit a fungus which then flourishes within a host plant. The fungus spreads within the host plant and produces a food source for both adult and larvae of the species. As a way of expanding the fungal food source, the beetles bore throughout the host plant forming “galleries” of fungus. The fungus then inhibits the host plant’s ability to transport water and nutrients throughout the host’s trunk, limbs, and branches, eventually killing the entire tree or causing limb dieback of the affected region. When the host plant health declines and is no longer producing an adequate supply of fungus, the beetles move to a new host plant. Host pants for KHSB are typically mature and stressed native riparian trees commonly found throughout TRVP.

The spread of KHSB and dieback of native tree populations within the Project Area have been well-studied and documented (Boland 2017, 2018, 2019, 2020). The five native tree species most impacted by KSHB include arroyo willow, black willow, red willow, western cottonwood, and California sycamore (Boland 2016). The effects from KSHB infestation in TRVRP were initially alarming because it caused a quick, dramatic collapse of the tall willow canopy in the main riparian corridor nearest Dairy Mart Road Bridge and downstream. Several years later, some areas initially infested with KHSB, native riparian forests have recovered and are nearly indistinguishable from pre-infestation conditions, while other areas lag in recovery since invasive species have outcompeted native species for available resources.

The initial wave of mass KHSB infestation and native tree dieback has subsided, and it is now evident as a cyclical event over the last five-year period. The fifth year of the study revealed a few key observations that will help direct management actions within this HRP (Boland 2020):

(1) **The KSHB in TRVRP went through a rapid boom-and-bust cycle**. The infestation rates peaked in Fall 2016, and the canopy damage was greatest between 2016 and 2017. The KSHB population decline appears to be due to the KSHB depleting their preferred host trees and not reinvading the recovering host trees. This boom-and-bust cycle occurred naturally, with no management interventions to control the spread or severity of the outbreak.

(2) **The willow forests that were extensively damaged by the KSHB are responding with vigorous regrowth.** Some of the forests have recovered so much in just four years that they are now similar to their pre-KSHB stature.

(3) **The KSHB has not substantially reinfested the recovering willow forests.** After the peak of KHSB infestations, only three percent of mature trees, two percent of the resprouting trees, one percent of the young trees, and none of the seedlings were infested with KSHB in 2019.

(4) **The invasive non-native plant, *giant reed*, is now a major problem.** Willow trees are giant reed's only competitors in the valley, and when the KSHB attacked and heavily damaged the willows, it allowed giant reed to flourish more than ever before.

Furthermore, the Year 5 report by Boland provides two recommended management actions for recovery of native habitats throughout TRVRP; these include (1) aggressive management of giant reed to allow for the natural restoration of riparian forests; and (2) despite current management actions, infested trees should not be removed as a means to curb KHSB spread. Instead, heavily infested trees were found to be able to withstand heavy infestations and survive and/or resprout.

With regards to these findings, trees infested with KHSB should be left in place. If the trees ultimately die, they will serve as snags for birds, and if they recover, they will add to the native diversity of TRVRP. The damaged trees additionally responded by resprouting, with less than 10 percent of resprouts observed to show signs of KSHB infestation (Boland 2018). Control of KSHB at the onset of signs of infestation would prevent large-scale re-infestation and spread of the infestation. If trimming of dead limbs is warranted treatment of invasive non-native stands (Section 4.4.4), then all cut material should be left on-site. As part of Best Management Practices (BMPs), tools used to cut limbs would also be disinfected with 70 percent ethanol, 5 percent bleach solution, or Lysol cleaning solution, prior to re-use to prevent the spread of the pest (UCANR 2020, UCIPM 2021).

3.0 PROJECT IMPACTS

Impacts associated with this restoration project are anticipated to be temporary in nature and would result from those activities deemed necessary to implement the restoration prescriptions included in this HRP and subsequent Execution Plans. The impacts described in this HRP are inclusive of all impacts to be detailed in subsequent Execution Plans, and the Execution Plans will not contain impacts to new areas not covered in this HRP.

Direct impacts may occur during construction as a result of mechanized and non-mechanized removal and trimming of vegetation, including both native and non-native vegetation, in order to safely access and treat target locations of non-native species. Direct impacts may also occur as a result of re-construction/restoring natural contours and flow patterns once non-native vegetation is removed, including impacts to areas adjacent to treatment locations that may require modification to ensure hydrologic connectivity of the restoration area. Potential indirect impacts may occur during construction

and post-construction activities, including those associated with water quality (e.g., erosion, sedimentation, pollutant release from mechanized equipment), noise, fugitive dust, and inadvertent attraction and/or spread of non-native invasive and pest species.

Implementation of the HRP is specifically planned to avoid direct impacts to special status species. Sensitive species known to occur within the anticipated Project Area include those listed in Section 2.2, Figures 8a-f, and Figures 9a-f. Although direct impacts are planned to be avoided, inadvertent indirect impacts could occur if certain removal and maintenance activities are undertaken adjacent to the species' locations and/or during the species' breeding seasons. Execution Plan development would include identification of special status species known to occur within each of the proposed project phases based on the descriptions and mapping contained in the 2018 TRVRP baseline biodiversity study and 2021 focused species surveys and will include avoidance and minimization measures for those impacts. If additional sensitive species surveys are recommended as a minimization and avoidance measure, these surveys may be conducted as a pre-construction activity (Section 4.3.1).

Implementation of the HRP is also intended to avoid permanent impacts and minimize the temporal loss of sensitive resources (i.e., waters, wetlands, and sensitive natural communities, rare plant and wildlife species individuals/habitats) as a result of invasive plant species removal and maintenance activities. Sensitive aquatic (i.e., jurisdictional) resources known to occur within the Project Area include those listed in Section 2.3 and depicted on Figure 4 of this Plan, sensitive vegetation communities are presented on Figures 7a-f, and rare plant and wildlife species individuals include those listed in Section 229 and depicted on Figures 8a-f and 9a-f. This HRP identifies the general potential impact areas and places limits on the amount of jurisdictional aquatic resources that can be impacted over the entire project footprint (Table 5, *Impacts to Potential Jurisdictional Resources within the Project Area*).

Table 5
IMPACTS TO POTENTIAL JURISDICTIONAL RESOURCES WITHIN THE PROJECT AREA[1]

Resource	Resource Agency Jurisdiction (acres)			
	USACE	RWQCB	CDFW	CCC
Wetland				
Phase 1	7.83	7.83	8.43	8.43
Phase 2	8.81	8.81	9.72	9.72
Phase 3	4.17	4.17	4.17	4.17
Phase 4	98.41	98.41	104.18	104.18
Phase 5	--	--	2.10	2.10
Phase 6	0.04	0.04	0.71	0.71
Phase 7	21.27	21.27	22.60	22.60
Phase 8	1.85	1.85	4.32	4.32
Phase 9	6.00	6.00	9.14	9.14
Phase 10	0.90	0.90	0.91	0.91
Phase 11	2.42	2.42	6.87	6.87
Phase 12	--	--	1.35	1.35
Subtotal	*151.70*	*151.70*	*174.50*	*174.50*
Non-Wetland				
Phase 1	--	--	--	--
Phase 2	--	--	--	--
Phase 3	--	--	--	--
Phase 4	--	--	--	--
Phase 5	--	--	--	--

Resource	Resource Agency Jurisdiction (acres)			
	USACE	RWQCB	CDFW	CCC
Phase 6	--	--	--	--
Phase 7	--	--	--	--
Phase 8	--	--	--	--
Phase 9	--	--	--	--
Phase 10	--	--	--	--
Phase 11	--	--	--	--
Phase 12	--	--	--	--
Subtotal	--	--	--	--
TOTAL	**151.70**	**151.70**	**174.50**	**174.50**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; CCC = California Coastal Commission.

Similarly, implementation of the HRP is specifically planned to avoid direct impacts to sensitive cultural resources. Sensitive cultural resources known to occur within the Project Area would be identified in the Cultural Resources Assessment described in Section 4.2.3. Execution Plan development would include the identification of cultural resources within each of the proposed phases based on previous cultural resource surveys and descriptions and maps obtained from the South Coastal Information Center and include avoidance and mitigation measures for those impacts such as the implementation of a cultural resource monitoring program.

4.0 HABITAT RESTORATION AND REVEGETATION METHODS

TRVRP supports a dynamic and diverse system. In addition to supporting a multitude of habitats, environmental conditions can vary significantly during any single year, as well as between years. The variability that makes this system unique and special is also the variability that makes restoration planning challenging. As stated previously, the goal of this plan is to provide a framework of habitat restoration prescriptions to be applied to a variety of situations in the Project Area, accounting for both general landscape variability as well as seasonal variability. The flow chart described below may be applied by Execution Plans in the Project Area, based on baseline biological data as well as a working knowledge of seasonal conditions.

As project phases are identified, the landscape conditions present in that phase of work will be identified, and the prescriptions corresponding to those landscape conditions will be applied. A second level of prescription is provided to accommodate for seasonally present conditions, such as flooding or nesting birds. The forum for the accumulation of the proper prescriptions will be an Execution Plan. An Execution Plan will be prepared and approved by DPR prior to beginning any new phase of work. If the Execution Plan is consistent with the prescriptions included in this document, no further Resource Agency approval is required. If the Execution Plan deviates from the prescription provided here, additional Resource Agency approval may be needed.

The following flow chart (Table 6, Flow Chart Listing Step-by-Step Process for Implementation of this HRP) and treatment matrix (Table 7, Restoration Measures and Considerations for Implementation) summarize the restoration activities described in the sections that follow and the considerations for treatments to be prescribed in Execution Plans that will be developed as each Phase is funded. A “Yes”

response in Table 7 indicates that the non-native control method could be used given the constraint, while a "No" response indicates that the treatment method would not be used given the constraint. The estimated cost per acre of the individual restoration activities is included in Appendix B.

Table 6
FLOW CHART LISTING STEP-BY-STEP PROCESS FOR IMPLEMENTATION OF THIS HRP

Flow Chart Listing Step-by-Step Process for Implementation of this HRP	
Project Identification/ Phasing	Ongoing, Dependent on funding Site Characterization/ Baseline Surveys
Execution Plan development	Within 60 days of project Identification/ Phase development
Pre-Restoration Implementation Activities	
Vegetation Impact Avoidance and Minimization	Prior to contractor mobilization and throughout construction phase
Soil and Plant Salvage and Storage	Plants: Spring or Fall (or as proper for target species) Soil: At site grading initiation
Restoration Implementation Activities	
Trash and Debris Removal	Prior to soil work or planting activities
Weed Removal	Spring/Summer (or as proper for target species)
Soil Decompaction	Prior to planting or seeding
Soil Recontouring	Prior to planting or seeding
Spread of Salvaged Topsoil	Prior to planting or seeding
Seeding	Fall/Winter
Nursery Stock Planting	Fall/Winter
Watering	In conjunction with planting, and as needed throughout establishment and maintenance period
Erosion Control	Fall/Winter/Spring as needed
Post- Implementation Maintenance Activities	
Weed Removal	Spring/Summer (or as proper for target species) as needed
Erosion Control	Fall/Winter/Spring as needed
Watering	As needed in planted areas only for plant establishment

Table 7
RESTORATION MEASURES AND CONSIDERATIONS FOR IMPLEMENTATION[1]

Prescriptive conditions	Herbicide treatment	Hand removal	Mowing	Mechanized clearing	Topographic modifications	Planting	Seeding	Erosion control	Solarization
Constraint	**Primary (year-round)**								
Cultural Resource Site	Yes	Yes	Yes	Buffer	Buffer	Monitor	Yes	Yes	Yes
Sensitive Wildlife Species Presence	Yes	Yes	Buffer	Buffer	Buffer	Yes	Yes	Yes	Buffer
Invasive Non-native pest (i.e., insect/ pathogen)	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Existing Sensitive Vegetation	Yes	Yes	Yes	Buffer	Buffer	Yes	Yes	Yes	No

Prescriptive conditions	Herbicide treatment	Hand removal	Mowing	Mechanized clearing	Topographic modifications	Planting	Seeding	Erosion control	Solarization
Limited Access	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes
Public access	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Active flow areas (Ordinary High Water Mark present)	Yes	Yes	Buffer	Yes	Yes	Yes	Yes	No	No
Constraint	**Secondary (seasonally present)**								
Nesting Birds	Yes	Yes	Buffer	Buffer	Buffer	Yes	Yes	Yes	Yes
Saturated soils	Yes	Yes	No	No	No	No	No	No	No
Contaminated water	Yes	No	No	No	No	No	No	No	No

[1] Certain activities may be allowed with established buffers that will ensure protection of the resource being buffered. Through development of Execution Plans, buffers may be identified for an activity that would yield desired results if site constraints are present.

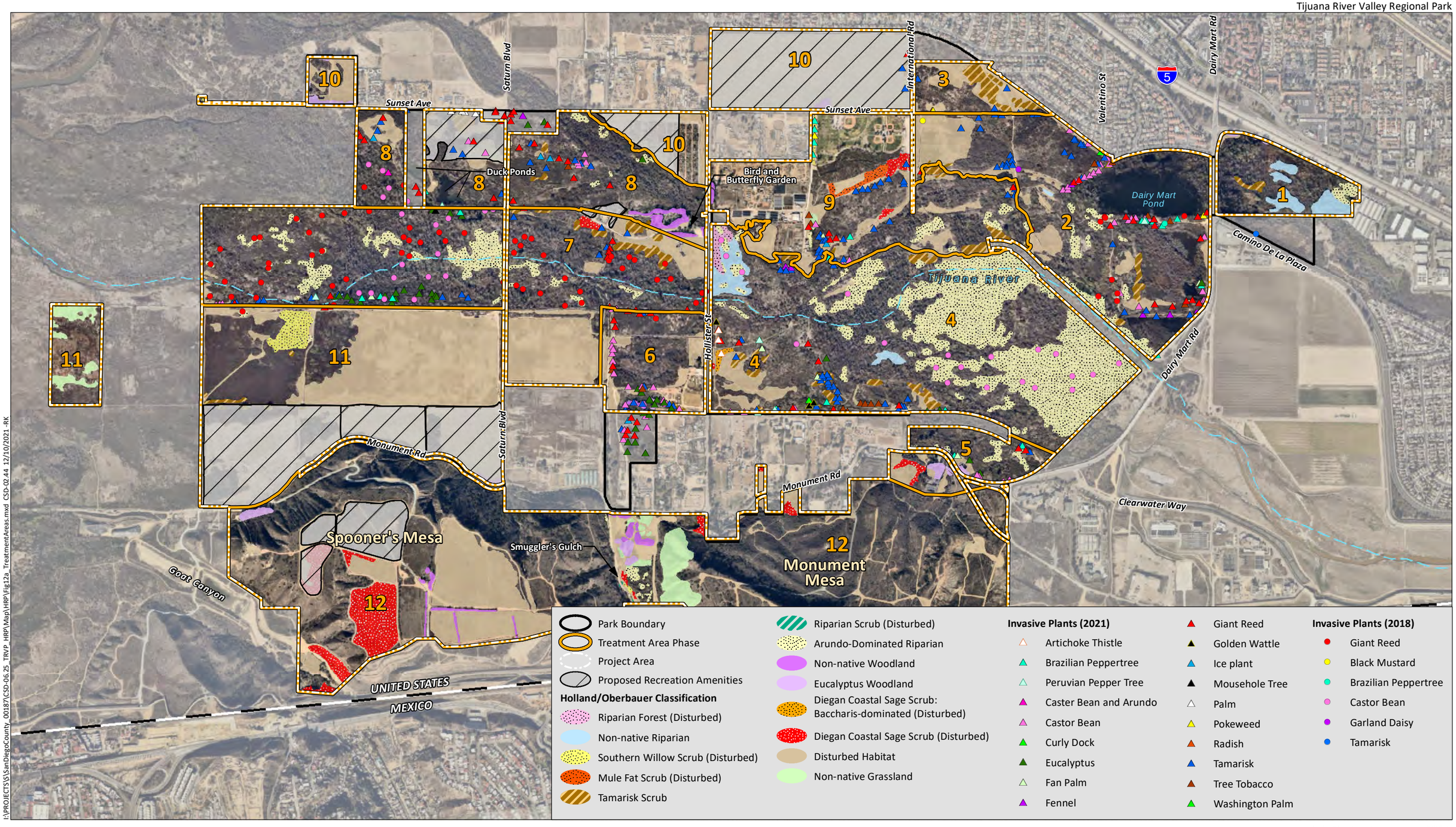
4.1 PHASE PRIORITIZATION

Due to the size of the Project Area, it is unlikely that the restoration would occur within the entirety of the system in a single event under one Execution Plan, rather the Project will be broken into phases with specific Execution Plans, based on a variety of conditions such as timing, funding availability, or capacity of County staff.

Sites identified for restoration activities will be prioritized based on a phase's overall ecological benefit that will achieve the greatest project objectives, whether it be invasive species control, water quality, sensitive species habitat, or connectivity to adjacent resources. A restoration site may further be prioritized based on stakeholder preferences and partnerships, site access, land ownership, position in the watershed, habitat type and adjacency to sensitive resources, expansion of sensitive resource habitats, relative cost for implementation and maintenance, and other factors. In general, it would be most beneficial to initiate activities that are positioned furthest upstream, so they are not later disrupted by subsequent projects under this program.

4.2 PHASE-SPECIFIC PLANNING ACTIVITIES

The Project Area proposed by this HRP includes twelve potential phases covering 1,740.75 acres, from which specific Execution Plans will be developed in accordance with this HRP and approved by DPR prior to execution (Figures 12a-f, *Treatment Areas*). Within these twelve phases, 587.93 acres of disturbed and invasive non-native habitats may be treated and restored into native habitats. Additionally, within these twelve phases, 7.24 acres of invasive species point locations occurring within native habitat will be treated and restored into native habitats. These phased projects may be subdivided into smaller phases, or merged, as budgets and prioritization allow and based on current site conditions. Phase boundaries may also be modified if a significant biological, cultural, or other resource is discovered during pre-construction surveys (Section 4.3.1) that would need to be permanently or temporally avoided. These potential phased projects are provided in no particular order, but initially, there would be a preference to implement these projects from upstream to downstream if there is an anticipated lag time (more



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Aerial Photo: Nearmap 2021

0 1,200 Feet

Treatment Areas

Figure 12a

- Park Boundary
- Treatment Area Phase
- Project Area
- Proposed Recreation Amenities

Holland/Oberbauer Classification

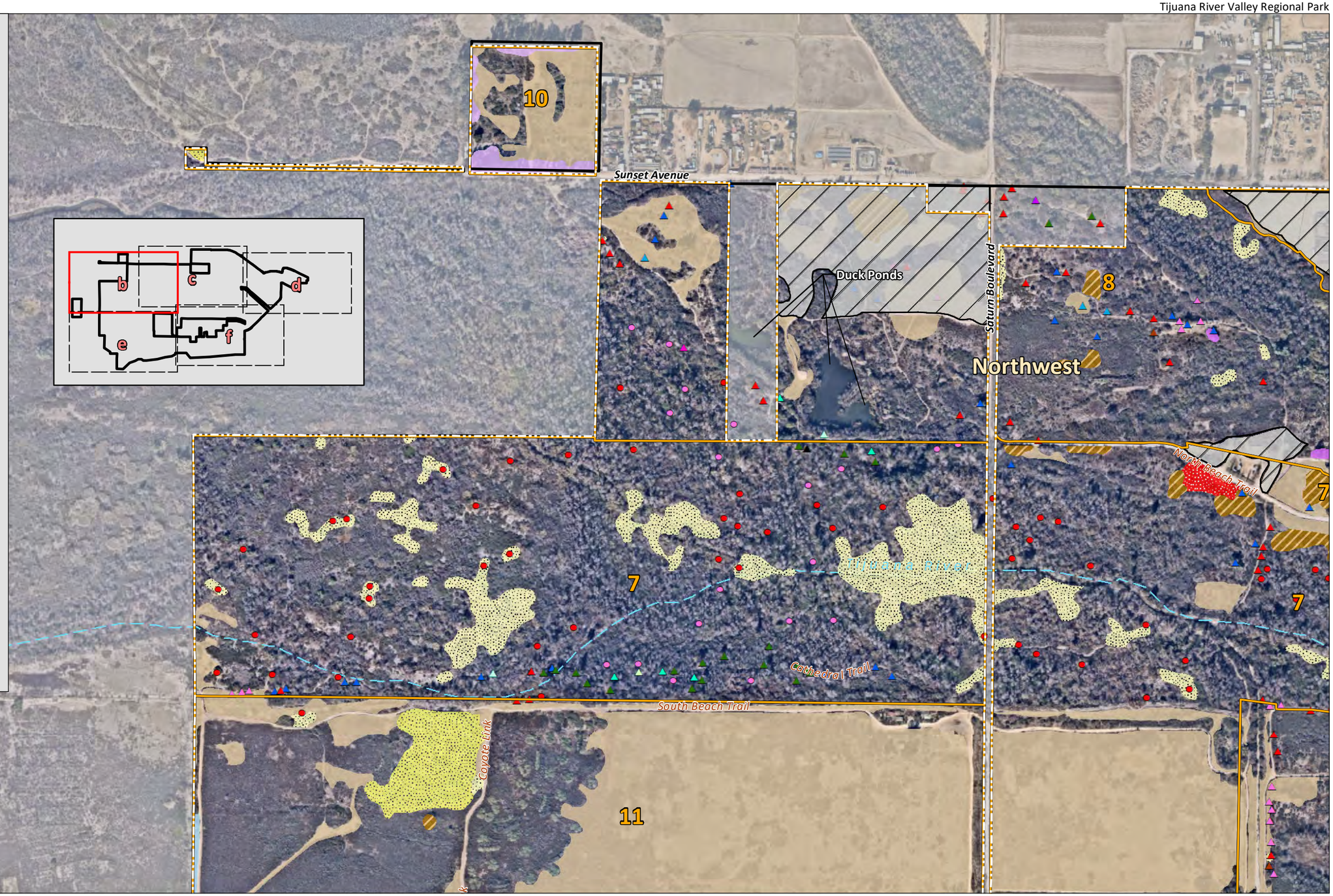
- Non-native Riparian
- Southern Willow Scrub (Disturbed)
- Tamarisk Scrub
- Arundo-Dominated Riparian
- Non-native Woodland
- Eucalyptus Woodland
- Diegan Coastal Sage Scrub (Disturbed)
- Disturbed Habitat
- Non-native Grassland

Invasive Plants (2018)

- Giant Reed
- Castor Bean

Invasive Plants (2021)

- Brazilian Peppertree
- Peruvian Pepper Tree
- Caster Bean and Arundo
- Castor Bean
- Eucalyptus
- Fan Palm
- Fennel
- Giant Reed
- Ice plant
- Mousehole Tree
- Palm
- Tamarisk
- Tree Tobacco



Aerial Photo: Nearmap 2021

0 500 Feet

Treatment Areas

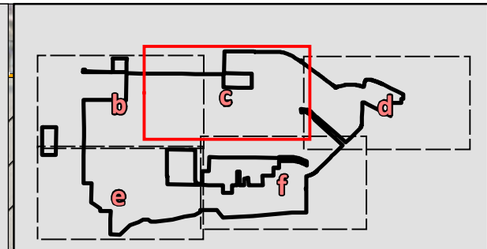
Figure 12b

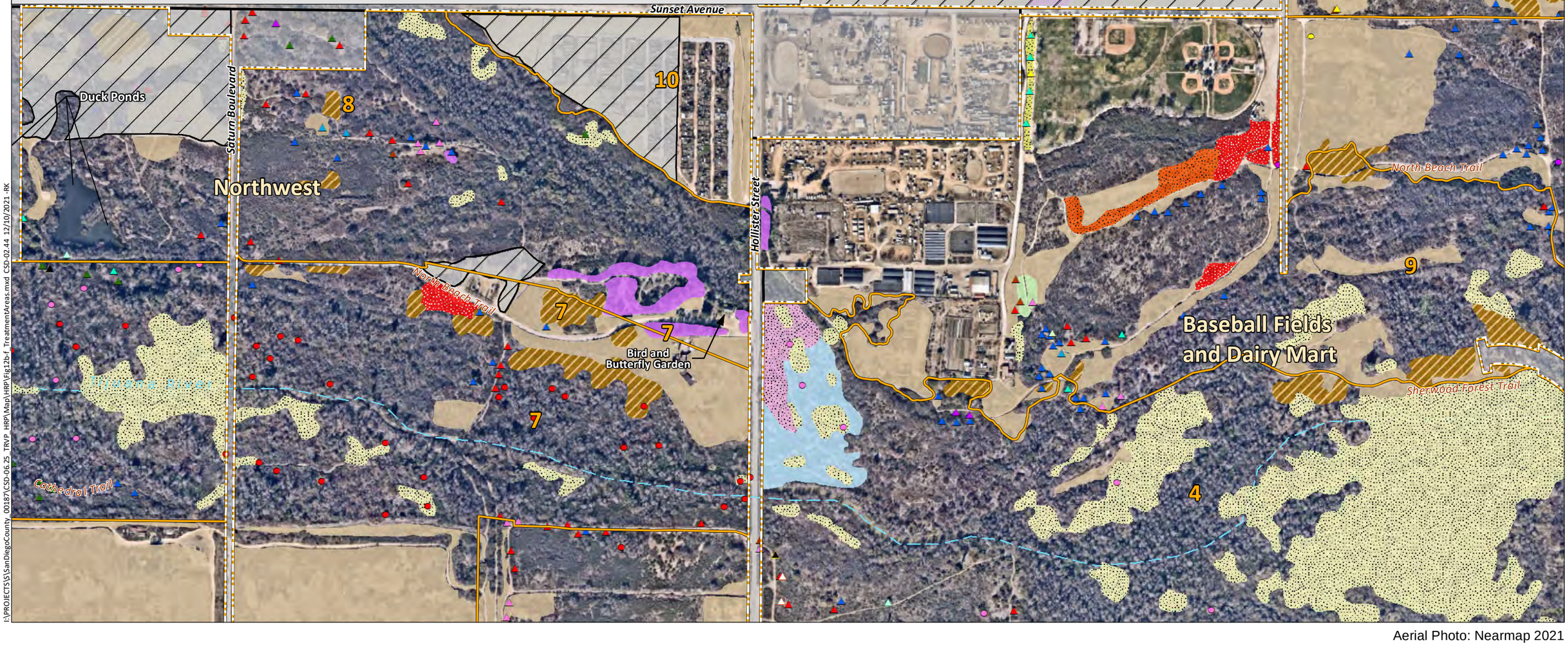
Park Boundary
Treatment Area Phase
Project Area
Proposed Recreation Amenities

Holland/Oberbauer Classification
Riparian Forest (Disturbed)
Non-native Riparian
Southern Willow Scrub (Disturbed)
Mule Fat Scrub (Disturbed)
Tamarisk Scrub
Arundo-Dominated Riparian
Non-native Woodland
Diegan Coastal Sage Scrub (Disturbed)
Disturbed Habitat
Non-native Grassland

Invasive Plants (2018)
Giant Reed
Black Mustard
Castor Bean
Garland Daisy
Tamarisk

Invasive Plants (2021)
Artichoke Thistle
Brazilian Peppertree
Peruvian Pepper Tree
Castor Bean
Eucalyptus
Fan Palm
Fennel
Giant Reed
Golden Wattle
Ice plant
Mousehole Tree
Palm
Pokeweed
Tamarisk
Tree Tobacco





Aerial Photo: Nearmap 2021

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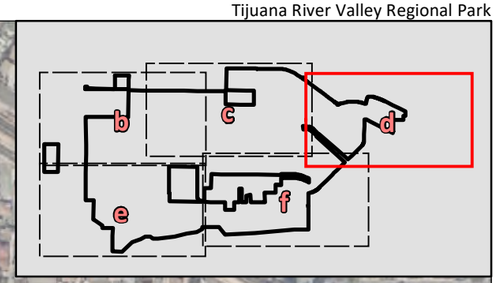
Treatment Areas

Figure 12c

Tijuana River Valley Regional Park



Valentino Street

Dairy Mart Road

Dairy Mart Pond

Camino De La Plaza

Tijuana River

1

2

5

Park Boundary
Treatment Area Phase
Project Area

Holland/Oberbauer Classification

Non-native Riparian
Tamarisk Scrub
Arundo-Dominated Riparian
Eucalyptus Woodland
Disturbed Habitat

Invasive Plants (2018)

Giant Reed
Brazilian Peppertree
Castor Bean
Garland Daisy
Tamarisk

Invasive Plants (2021)

Brazilian Peppertree
Peruvian Pepper Tree
Castor Bean
Curly Dock
Eucalyptus
Fan Palm
Fennel
Giant Reed
Pokeweed
Radish
Tamarisk
Tree Tobacco

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Aerial Photo: Nearmap 2021

0 500 Feet

N

Treatment Areas

Figure 12d

Park Boundary
Treatment Area Phase
Project Area
Proposed Recreation Amenities

Holland/Oberbauer Classification

Non-native Riparian
Southern Willow Scrub (Disturbed)
Tamarisk Scrub
Riparian Scrub (Disturbed)
Arundo-Dominated Riparian
Non-native Woodland
Eucalyptus Woodland
Diegan Coastal Sage Scrub (Disturbed)
Disturbed Habitat
Non-native Grassland

Invasive Plants (2021)

Castor Bean
Eucalyptus
Giant Reed
Ice plant
Tamarisk

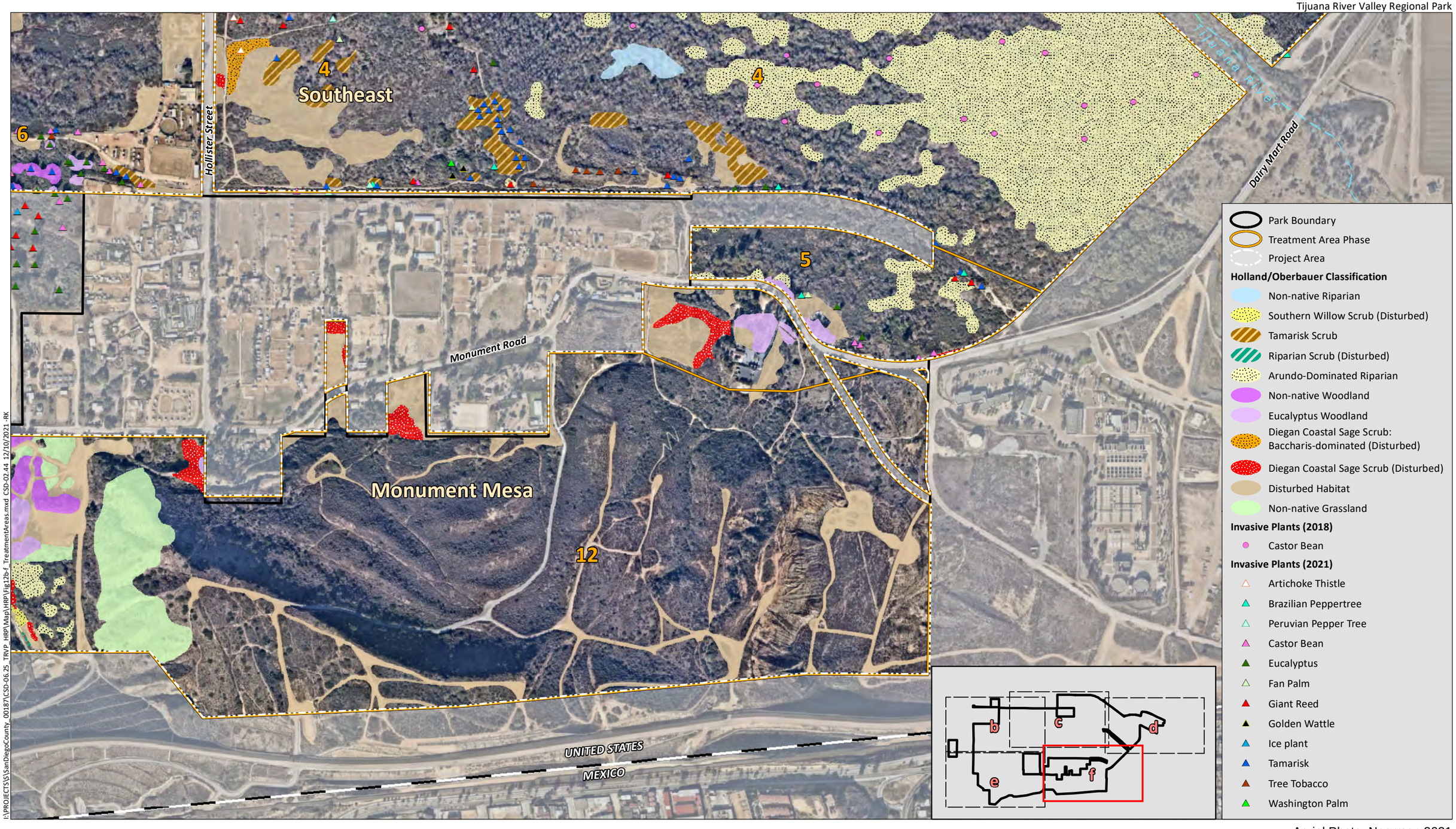
Aerial Photo: Nearmap 2021

0 500 Feet

Treatment Areas

Figure 12e

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap 2021

0 500 Feet

N

Treatment Areas

Figure 12f

than five years) between the implementation of all phases. A matrix identifying key elements of each phase and prioritization components are included in Table 8, *Potential Project Phases and Elements*. A general summary of each proposed phase is included below. Locations of special status plant and animal species observed on-site during the 2018 biodiversity study (HELIX 2019) and 2021 focused species surveys are depicted on Figures 8a-f and 9a-f.

(1) **Location**: Upstream of Dairy Mart Road.

Size: 35.47 acres; 9.30 acres of invasive weed removal within Arundo-dominated and non-native riparian habitats as well as localized populations of eucalyptus and tamarisk.

Invasive Non-Native Target Species: Giant reed, salt cedar, eucalyptus, Brazilian peppertree, non-native invasive annual species.

Constraints: This area is entirely fenced and can be accessed along the southern border from Camino de la Plaza.

Special status plant species were not observed upstream of Dairy Mart Road during the 2018 biodiversity study and 2021 focused species surveys. Special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), Cooper's hawk (WL, County Group 1, MSCP Covered), red-shouldered hawk (County Group 1), turkey vulture (County Group 1), and yellow warbler (BCC, SSC, County Group 2).

Restoration Strategy: Hand removal of small stands, container planting, herbicide treatments of isolated individuals.

(2) **Location**: Downstream of Dairy Mart Road bridge and north of the South Bay Reclamation Plant property cut out.

Size: 154.98 acres; 39.83 acres of invasive weed removal in both upland (29.93 acres) and riparian (9.90 acres) habitat types.

Invasive Non-Native Target Species: Giant reed, tamarisk, salt cedar, castor bean, eucalyptus, tree tobacco, mustards, garland daisy, non-native invasive annual species.

Constraints: Access occurs from Dairy Mart Road, where two separate six-foot multi-use trails lead west.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2) and San Diego marsh elder (CRPR 2B.2, County List B).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), Cooper's hawk (WL, County Group 1, MSCP Covered), double-crested cormorant (WL, County Group 2), western mastiff bat (SSC, County Group 1), American white pelican (SSC, County Group 2), western red bat (SSC, County Group 2), and white-tailed kite (FP, County

Group 2). Additional special status species observed in this area included barn owl (County Group 2), gadwall (County Group 2), great blue heron (County Group 2), green heron (County Group 2), turkey vulture (County Group 1), western bluebird (County Group 2, MSCP Covered), and Yuma myotis (County Group 2).

Restoration Strategy: Hand removal of small stands and mowing (mastication) of contiguous large accessible stands, container planting, herbicide treatments of isolated individuals.

(3) **Location**: East of International Road and North of Sunset Avenue (CIAP area).

Size: 21.55 acres; 12.14 acres of invasive weed removal within upland (8.00 acres) and riparian (4.14 acres) habitat types.

Invasive Non-Native Target Species: Salt cedar, mustards, garland daisy, non-native invasive annual species.

Constraints: Access occurs from the eastern terminus of Sunset Avenue, where a six-foot multi-use trail leads west into the CIAP area.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study. The following special status plant species were observed in this area: San Diego marsh elder (CRPR 2B.2, County List B).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), white-tailed kite (FP, County Group 2), and American white pelican (SSC, County Group 2). No additional special status species were observed in this area.

Restoration Strategy: Hand removal of small stands and mowing (mastication) of contiguous large accessible stands, container planting, herbicide treatments of isolated individuals.

(4) **Location**: Central eastern portion of Project Area, main river channel.

Size: 253.52 acres: 116.87 acres of invasive weed removal within upland (12.59 acres) and riparian (104.28 acres) habitat types.

Invasive Non-Native Target Species: Giant Reed, salt cedar, Brazilian peppertree, Peruvian peppertree, Mexican fan palm, eucalyptus, castor bean, non-native invasive annual species.

Constraints: Access occurs from Dairy Mart Road, where a single six-foot multi-use trail leads west, and from Hollister Street, where a single six-foot multi-use trail leads east.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: San Diego marsh elder (CRPR 2B.2, County List B), single-whorl burrobrush (CRPR 2B.2), and San Diego sagewort (CRPR 4.2, County List D).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), northern harrier (SSC, County Group 1, MSCP Covered), white-tailed kite (FP, County Group 2), and Cooper's hawk (WL, County Group 1, MSCP Covered). Additionally, turkey vulture (County Group 1) and red-shouldered hawk (County Group 1) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: Mowing (mastication) large stands, hand removal of isolated populations, topographic recontouring, revegetation with container plantings.

(5) **Location**: North of Monument Road and south of the trail.

Size: 30.41 acres; 9.61 acres of invasive weed removal in both upland (7.48 acres) and riparian (2.13 acres) habitat types.

Invasive Non-Native Target Species: Giant reed, salt cedar, eucalyptus, Brazilian peppertree, castor bean, Mexican fan palm, non-native invasive annual species.

Constraints: Access occurs from Dairy Mart Road, where a single six-foot multi-use trail leads west.

No federal, State, or other listed special status plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. One special status plant species was observed in this area: single-whorl burrobrush (CRPR 2B.2).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), and Cooper's hawk (WL, County Group 1, MSCP Covered). Additionally, turkey vulture (County Group 1) and red-shouldered hawk (County Group 1) were observed in this area during 2021 focused species surveys.

Restoration Strategy: Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.

(6) **Location**: West of Hollister Avenue, east of Arroyo Cañon Matadero, to main riparian corridor.

Size: 42.21 acres of mostly riparian habitat with 8.39 acres of invasive species in both upland (7.70 acres) and riparian (0.69 acre) habitat types.

Invasive Non-Native Target Species: Giant reed, salt cedar, eucalyptus, tree tobacco, garland daisy, non-native invasive annual species.

Constraints: Access occurs from Hollister Street, where a single six-foot multi-use trail and a single four-foot multi-use trail lead west. Additionally, a six-foot multi-use trail leads south into this area from the Bird and Butterfly Gardens.

No federal, State, or other listed special status plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. One special status plant species was observed in this area: single-whorl burrobrush (CRPR 2B.2).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered) and yellow warbler (BCC, SSC, County Group 2). No other special status animal species were observed in this area.

Restoration Strategy: Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.

(7) **Location**: Central western portion of Project Area, main riparian corridor.

Size: 223.13 acres; 57.93 acres of invasive weed removal in both upland (34.90 acres) and riparian (23.03 acres) habitat types.

Invasive Non-Native Target Species: Giant reed, salt cedar, castor bean, Brazilian peppertree, mousehole tree, mustards, non-native invasive annual species.

Constraints: Access occurs from Hollister Street, where a single six-foot multi-use trail leads south from the Bird and Butterfly Garden. Additionally, a six-foot multi-use trail leads south into this area from Saturn Boulevard.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), and Torrey pine (CRPR 1B.2, MSCP Covered).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), and yellow-breasted chat (SSC). Additionally, red-shouldered hawk (County Group 1), barn owl (County Group 2), were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: Mowing (mastication) large stands, hand removal of isolated populations, topographic modification, revegetation with container plantings. A small portion (0.37-acre) of this phase, mapped as "disturbed habitat", is located along the North Beach Trail and west of the existing Bird and Butterfly Garden has been identified in the TRVRP Feasibility Study (AEOM 2017) as a potential site as a rentable venue facility (a majority of this feature is located in Phase 8). Any planned restoration activity within this phase should coordinate with County DPR to ensure it does not conflict with any planned future development.

(8) **Location**: West of 19th street, south of Sunset Ave to main riparian corridor.

Size: 112.19 acres total, with approximately 3.0 acres identified in the 2017 Feasibility Study as a potential rentable venue; 19.31 acres of invasive weed removal within upland (14.79 acres) and riparian (4.61 acres) habitat types, including scattered invasive weed point locations.

Invasive Non-Native Target Species: Giant reed, eucalyptus, salt cedar, garland daisy, non-native invasive annual species.

Constraints: Access occurs from Saturn Boulevard, where a single six-foot multi-use trail leads south. Additionally, six-foot and four-foot multi-use trails lead south into this area from Sunset Avenue.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), San Diego marsh elder (CRPR 2B.2, County List B), Southern California black walnut (CRPR 4.2, County List D), and Torrey pine (CRPR 1B.2, County List A, MSCP Covered).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County group 2), yellow-breasted chat (SSC), Lawrence's goldfinch (BCC), Cooper's hawk (WL, County Group 1, MSCP Covered), northern harrier (SSC, County Group 1, MSCP Covered), double-crested cormorant (WL, County Group 2), Belding's orange-throated whiptail (WL, County Group 2, MSCP Covered), Baja California coachwhip (SSC), Blainville's horned lizard (SSC, County Group 2, MSCP Covered), western red bat (SSC, County Group 2). Additionally, barn owl (County Group 2), red-shouldered hawk (County Group 2), Yuma myotis (County Group 2), and monarch (County Group 1) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals. Portions of this phase located along the North Beach Trail and west of the existing Bird and Butterfly Garden have been identified in the TRVRP Feasibility Study (AEOM 2017) as a potential site as a rentable venue facility. Within this planned facility, there are 1.47 acres of non-native invasive species and another 4.88 acres of disturbed habitat. Any planned restoration activity within this phase should coordinate with County DPR to ensure it does not conflict with any planned future development.

(9) **Location**: South of ballfields between Hollister Avenue and Dairy Mart Pond.

Size: 125.72 acres; 28.88 acres of invasive weed removal in both upland (19.20 acres) and riparian (9.68 acres) habitat types.

Invasive Non-Native Target Species: Brazilian peppertree, castor bean, Mexican fan palm, garland daisy, mustards, giant reed, salt cedar, non-native invasive annual species.

Constraints: Access occurs from Sunset Avenue and International Road, where multiple six-foot and four-foot multi-use trails lead into the area.

No federal or State listed plant species were observed within this area during the 2018 biodiversity study or 2021 focused species surveys. The following special status plant species were observed in this area: single-whorl burrobrush (CRPR 2B.2), San Diego sagewort (CRPR 4.2,

County List D), southwestern spiny rush (CRPR 4.2, County List D), Torrey pine (CRPR 1B.2, County List A, MSCP Covered), and San Diego marsh elder (CRPR 2B.2, County List B).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County Group 2), yellow-breasted chat (SSC), northern harrier (SSC, County Group 1, MSCP Covered), white-tailed kite (FP, County Group 2), Cooper's hawk (WL, County Group 1, MSCP Covered), and Belding's orange-throated whiptail (WL, County Group 2, MSCP Covered). Additionally, red-shouldered hawk (County Group 2) and turkey vulture (County Group 1) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: Hand removal of small stands, remove or girdle large trees and remove new saplings, container planting, herbicide treatments of isolated individuals.

(10) **Location**: West of International Road, north of Sunset Avenue.

Size: 95.13 acres total, with 64 acres planned for a future Active Recreation Complex; 9.2 acres planned for a potential Community Garden and 16.2 acres for a planned Bike Skills Park. A total of 76.40 acres of invasive weed removal could occur within upland (75.50 acres) and riparian 0.90 acre) habitat types including scattered invasive weed point locations.

Invasive Non-Native Target Species: Predominantly upland herbaceous non-native species within portions not proposed for future development.

Constraints: Access occurs from Sunset Avenue and Hollister Street, where multiple six-foot and four-foot multi-use trails lead into the area.

No federally listed, State listed, or special status plant species were observed within this area during the 2018 biodiversity study or 2021 focused species surveys.

Federally or State listed special status animal species observed during the 2018 biodiversity study in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), yellow warbler (BCC, SSC, County group 2), northern harrier (SSC, County Group 1, MSCP Covered), Blainville's horned lizard (SSC, County Group 2, MSCP Covered). Additionally, barn owl (County Group 2) and red-shouldered hawk (County Group 2) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: The TRVRP Public Use Feasibility Study (AECOM 2017) identifies three future development projects within this phase: (1) an active Recreation Complex, (2) a community garden, and (3) a bike skills park. The more certain development project, the Active Recreation Complex, is a 64-acre multi-sport facility between International Road and Hollister Street, and north of Sunset Avenue. The venue will consist of soccer, baseball, tennis, basketball, and multi-use turf fields and courts, as well as a host of ancillary facilities associated with this amenity. The community garden would be a 9.2-acre community facility located west of Hollister Street and south of Sunset Avenue and serve as an expansion to the existing community garden to the east, which encompasses another approximately 10-acres. A Bike Skills Park (16.2 acres) is also proposed south of Sunset Avenue and west of 19th Street. A total

of 1.44 acres of non-native and invasive weeds are located within these planned amenity areas and another 65.26 acres are occupied by disturbed habitat.

The remaining portions of this restoration phase that is not planned for future development are largely non-native upland and ruderal vegetation situated between the developed community garden and the Tijuana River riparian corridor. Beneficial restoration of these areas would include treatment of non-native annual weeds, followed by conversion of the disturbed areas into native upland buffer and transitional habitats through seeding and native plantings. If the community garden is not expanded, and the bike skills park is not developed, larger portions of this area would be available for enhancement or restoration.

(11) **Location**: North of Monument Road, west of Hollister St. and extending to the western Project Area boundary, and south of the Tijuana River channel.

Size: 218.45 acres total, with approximately 72.26 acres potentially available for restoration (57 acres planned for potential campgrounds and another 17.4 acres planned for a potential equestrian center); 115.87 acres of non-native weed removal within both upland (109.00 acres) and riparian (6.87 acres) habitat types.

Invasive Non-Native Target Species: Salt cedar, giant reed, mustards, non-native grasses, and annual weeds.

Constraints: Access occurs from Monument Road, where multiple six-foot and four-foot multi-use trails lead into the area.

No federally listed or State listed special status plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. Two special status plant species were observed in this area during the 2018 biodiversity study and 2021 focused species surveys: San Diego sagewort (CRPR 4.2, County list D) and southwestern spiny rush (CRPR 4.2, County List D).

Federally or State listed special status animal species observed during the 2018 biodiversity study in this area included coastal California gnatcatcher (FT, SSC, County Group 1, MSCP Covered), western spadefoot (SSC, County Group 2), Northern harrier (SSC, County Group 1, MSCP Covered), and black-tailed jackrabbit (SSC, County Group 2). Additionally, barn owl (County Group 2), was observed in this area during the 2018 biodiversity study.

Restoration Strategy: This restoration phase is largely within upland areas of the Project Area, and restoration activities may include initial weed removal by mowing/discing, planting, seeding, and/or providing supplemental water. Portions of this phase have been identified in the TRVRP Feasibility Study (AEOM 2017) as a potential site for future campground and equestrian facility, in addition to the campground facility already under construction. Within these planned amenities, a total of 1.1 acres of invasive non-native weeds exist as well as 38.06 acres of disturbed habitat. Any planned restoration activity within this phase should coordinate with the County of San Diego to ensure it does not conflict with any planned future development. Although drainages and jurisdictional areas exist within this Phase that drain upland habitats and feed into the Tijuana River Valley, all restoration work would be conducted outside of jurisdictional features. Restoration efforts in this Phase will focus on removal of non-native and invasive species, through line trimming and mowing large stands of invasive weeds,

removing or girdling large trees, and removing new saplings, container planting, herbicide treatments of isolated individuals.

(12) **Location**: South of Monument Road to the park boundary and west, including Monument Mesa and Spooners Mesa, to Goat Canyon.

Size: 427.99 acres total, with approximately 78.57-acres potentially available for restoration (21.3 acres planned for potential campgrounds and rentable venue within Spooner's Mesa); 100.63 acres of non-native weed removal within both upland (98.80 acres) and riparian (1.83 acres) habitat types.

Invasive Non-Native Target Species: Garland daisy, mustards, giant reed, non-native grasses, and annual weeds.

Constraints: Access occurs from Monument Road, where multiple six-foot and four-foot multi-use trails lead into the area.

No federal listed plant species were observed within this area during the 2018 biodiversity study and 2021 focused species surveys. One State listed plant species was observed within this area during the 2018 biodiversity study and 2021 surveys: Baja California bird brush (SE, CRPR 2B.1, County List B). The following special status plant species were additionally observed in this area: San Diego viguiera (County List D), wart-stemmed ceanothus (CRPR 2B.2, County List B, MSCP covered), Nuttall's scrub oak (CRPR 1B.1, County List A), San Diego barrel cactus (CRPR 2B.1, County List B, MSCP covered), ashy spike-moss (CRPR 4.1, County List D), sea dahlia (CRPR 2B.2, County List B), cliff spurge (CRPR 2B.2, County List B), golden-spined cereus (CRPR 2B.2, County List B), single-whorl burrobrush (CRPR 2B.2), western dichondra (CRPR 4.2, County List D), and San Diego bur-sage (CRPR 2.1, County List B).

Federally or State listed special status animal species observed during the 2018 biodiversity study and 2021 focused species surveys in this area included least Bell's vireo (FE, SE, County Group 1, MSCP Covered), coastal California gnatcatcher (FT, SSC, County Group 1, MSCP covered), peregrine falcon (BCC, FP, County Group 1, MSCP Covered), Coopers hawk (WL, County Group 1, MSCP covered), sharp-shinned hawk (WL, County Group 1), white-tailed kite (FP, County Group 2), southern California rufous-crowned sparrow (WL, County Group 1, MSCP Covered), northern harrier (SSC, County Group 1, MSCP covered), Costa's hummingbird (BCC), California horned lark (WL, County Group 2), merlin (WL, County Group 2), Belding's orange-throated whiptail (WL, County Group 2, MSCP covered), San Diego Bryant's woodrat (SSC, County Group 2), black-tailed jackrabbit (SSC, County Group 2), western mastiff bat (SSC, County Group 2), western red bat (SSC, County Group 2), and pocketed free-tailed bat (SSC, County Group 2). Additionally, barn owl (County Group 2), turkey vulture (County Group 1), red-shouldered hawk (County Group 1), and Yuma myotis (County Group 2) were observed in this area during the 2018 biodiversity study and 2021 focused species surveys.

Restoration Strategy: This restoration phase is largely within upland areas of the Project Area, and restoration activities may include initial weed removal by mowing/discing, planting, seeding, and/or providing supplemental water. Portions of this phase within Spooner's Mesa have been identified in the TRVRP Feasibility Study (AEOM 2017) as a potential site for a future campground and a rentable venue. Within this planned amenity, there are 1.33 acres of disturbed habitat. Any planned restoration activity within this phase should coordinate with

County DPR to ensure it does not conflict with any planned future development. Although drainages and jurisdictional areas exist within this Phase that drain upland habitats and feed into the Tijuana River Valley, all restoration work would be conducted outside of jurisdictional features. Restoration efforts in this Phase will focus on removal of non-native and invasive species, through line trimming and mowing large stands of invasive weeds, removing or girdling large trees, and removing new saplings, container planting, herbicide treatments of isolated individuals.

Table 8
POTENTIAL PROJECT PHASES AND ELEMENTS

Phase	Invasive Species Control	Water Quality	Least Bell's Vireo Habitat Restoration	Other Sensitive Species	Corridor/ Habitat Connectivity	Watershed Position	Open Water Habitat	Southern Willow Scrub	Mulefat Scrub	Other Habitats	Site Access	Seasonal Constraints
1	GR, SC, NNIS	Yes	Yes	No	Yes	Upper	No	Yes	No	No	Poor	Yes
2	GR, M, GD, NNIS	Yes	Yes	Yes	Yes	Upper	Yes	Yes	Yes	Yes	Fair	Yes
3	SC, M, GD, NNIS	No	Yes	No	No	Upper	No	Yes	Yes	Yes	Good	Yes
4	GR, SC, CB, NNIS	Yes	Yes	Yes	Yes	Middle	Yes	Yes	No	No	Poor	Yes
5	GR, SC, E, NNIS	No	Yes	Yes	Yes	Middle	No	Yes	Yes	Yes	Good	Yes
6	GR, SC, GD, NNIS	No	Yes	No	Yes	Lower	No	Yes	Yes	Yes	Good	No
7	GR, SC, CB, NNIS	Yes	Yes	Yes	Yes	Lower	Yes	Yes	No	No	Poor	Yes
8	E, SC, GD, NNIS	Yes	Yes	Yes	Yes	Lower	Yes	Yes	Yes	Yes	Good	Yes
9	GD, M, GR, SC, NNIS	No	Yes	Yes	Yes	Middle	No	Yes	Yes	Yes	Good	Yes
10	E	No	No	Yes	No	Middle	No	No	No	Yes	Good	No
11	M, NNIS, SC	No	No	Yes	Yes	Lower	No	No	Yes	Yes	Good	No
12	GD, M, SC, NNIS, E	No	No	Yes	Yes	Middle-Lower	No	Yes	No	Yes	Good	Yes

Species Code: GR = giant reed, SC = salt cedar, NNIS = non-native invasive species (annuals), M = mustards, CB = castor bean, GD = garland daisy, E = eucalyptus

4.2.1 SITE CHARACTERIZATION/ BASELINE SURVEYS

Once the location and size of the Project phase are identified, a general field survey will be initiated to confirm that field conditions within and immediately adjacent to the phase location are consistent with the biological mapping of the TRVRP. If site conditions have changed, the baseline mapping will be updated. The site will also be evaluated for its ability to support special status species identified in the baseline mapping. If conditions have changed such that special species previously identified as present, or with the potential to occur, are no longer likely to occur, baseline mapping will be updated. Similarly, if conditions have changed such that new special status species are present or have the potential to occur, similar updates will be made. Any updates to site conditions will follow the nomenclature identified in the Baseline report (HELIX 2019) and this document.

The general field surveys will be used to refine and update site-specific details, including dominant vegetation, cover and density of native vegetation, location of drainages or other potentially jurisdictional resources, site topography, and presence of any invasive non-native plant species and the extents of their populations. The field surveys will define the pre-disturbance baseline conditions on all temporary disturbance areas planned for restoration and revegetation efforts. The information collected from these efforts will be used to refine site-specific habitat restoration methods. Native species observed during botanical surveys of the Project will be used as a guide to site-specific plant selection for container plant and seed restoration palettes. The data will be collected on standardized forms and maps. Plant and seed palettes will be included in the Execution Plan for each phase, which will be approved by the Restoration Specialist and DPR prior to implementation to ensure consistency with this HRP.

4.2.2 VEGETATION MAPPING VERIFICATION

Vegetation mapping to categorize major vegetation communities within the Project Area has been completed (HELIX 2019). The general field survey will be conducted as part of Execution Plan preparation and Site Characterization/Baseline Surveys prior to phase implementation and confirm that conditions have not changed substantially from those mapped baseline conditions. If conditions have changed, this effort will include making any necessary adjustments to the existing mapped conditions, including the addition of any point locations for non-native species planned for treatment and the identification of any new weed species not yet identified.

Once vegetation mapping has been updated, a map figure set will be produced for inclusion with the Execution Plan that depicts the locations of all temporary disturbance and restoration areas.

4.2.3 CULTURAL RESOURCES ASSESSMENT

Once the location and size of the Project phase are identified, a review of cultural resources information will be conducted by the Project archaeologist to identify potential impacts to archaeological sites. The review will focus on the phased restoration activity areas that may involve ground disturbance and contain recorded cultural resources. All known cultural resources within the phased restoration activity areas will be mapped, and significant, or potentially significant, resources will be identified as ‘high cultural resources sensitivity’ areas. Potential adverse impacts to cultural resources will be taken into consideration and Phase boundaries may be modified or ground disturbance limited in these areas.

4.2.4 EXECUTION PLAN DEVELOPMENT

Prior to initiating a phased restoration activity, an Execution Plan will be prepared and approved by DPR. The Execution Plans will draw from the information provided in this HRP and name the specific techniques, in greater detail, which will be used to revegetate and rehabilitate the area(s) in that phase. Each Execution Plan will specify the site preparation, weed removal strategy, as well as necessary seeding, planting, irrigation, monitoring, and maintenance techniques that will be implemented at each restoration site identified. The Execution Plan will also include seed mixes, container plant lists, and an implementation schedule. An Execution Plan may also prohibit specific activities during restricted seasons or identify areas for avoidance (e.g., cultural, biological, or other). A simplified example of an Execution Plan has been included in Appendix D, *Sample Execution Plan*.

Depending on the activity proposed, an Execution Plan may contain cross-sectional details or other specifics to further describe the activity proposed and provide sufficient direction to implementation personnel, ensuring that activities are consistent with the parameters of this HRP. If any ground disturbance is anticipated, an additional explanation of the ecological benefit of the proposed activity will be provided. Site-specific figures will present anticipated temporary impacts and revegetation strategies and schedules following implementation activities.

As Execution Plans are developed for each phase, the County will provide a copy to tribal liaisons from Viejas Band of Kumeyaay Indians (Viejas) and Jamul Indian Village (Jamul) if monitoring is identified.

4.3 PRE-CONSTRUCTION ACTIVITIES

This section describes activities that may occur prior to the implementation of an Execution Plan and may not be restricted to the footprint of the project phase. As the name implies, pre-construction activities are meant to prepare the work area within a project phase (work area) site for implementation and will help buffer against delays to the expected schedule and, in some cases, may shorten the construction schedule. Pre-construction tasks will be found in the Execution Plan(s) and may begin up to a year or more prior to implementation and once the Execution Plans have been completed. In general, pre-construction activities are intended to be no-impact, non-soil disturbing measures that have benign environmental impacts. Pre-construction activities may or may not be implemented due to seasonal restrictions, potential hazards, or the seasonality of weed treatment windows and seed availability.

4.3.1 PRE-CONSTRUCTION SENSITIVE SPECIES SURVEY

Minimization and avoidance measures identified in the 2019 TRVRP baseline biodiversity study (HELIX 2019) may recommend additional special status and/or protected species surveys in order to implement minimization and avoidance measures that will ensure there are no direct impacts to special status and protected species. If additional special status species surveys are recommended, these surveys would be performed as a pre-construction activity. From these survey results, additional minimization and avoidance measures may be implemented during project construction, including but not limited to, temporal delays in work, establishing avoidance buffers, biological monitoring during implementation activities, and/or minimizing noise volume and duration. In addition, any sensitive plant species that may be impacted as part of a project phase, that species may be incorporated into the revegetation program through the incorporation of cuttings, seed, salvage and transplantation, and/or container plantings to ensure the persistence of that species within the region.

4.3.2 SEED COLLECTION

Availability of local seed varies annually in response to weather patterns. Seed for direct seeding and container plant production will be sourced as locally as possible. Seed may be obtained from on-site seed collection or from commercial vendors. Upon assessment of seed availability by year, various seed sourcing options will be considered to acquire sufficient seed for restoration at the start of the restoration, including local collection, seed bulking, and acquisition of regionally appropriate seed through commercial seed suppliers (with verified source information). Seed acquisition would begin as early as feasible and ideally one year, or more, before seeding and planting activities (Section 4.6).

For seed that is collected within the Project vicinity, care will be taken to ensure that collection sites are not located in areas occupied by invasive non-native plant species that are prolific seed producers to reduce the threat of seed contamination (i.e., salt cedar). The specific number and distribution of collection sites will vary according to size, density, continuity of populations, as well as the desired quantity of seed to be obtained.

Close monitoring is required to match the timing of seed collection activities to the distribution of seed maturation. Multiple trips to a site may be required for determining when the seed is mature and for collecting. Collecting at multiple times throughout the maturation period can help prevent unintended selection against either early or late maturing genotypes.

Seed will be collected within and adjacent to the Project Area or seed originating from the appropriate source area will be obtained from a native plant nursery or native seed supplier. Seed collected from within the Project Area will yield the best results for seeding and nursery stock production. Native seed collections should be weed-free and stored in cool dry conditions until ready for use. Collection efforts will follow the characterization of potential revegetation sites and the determination of seed mixes. Collection will target as many native annual and perennial species as are available during each collection phase.

Native seed collected in the field requires cleaning. Removing detritus and chaff from seed helps maintain seed vigor and health and will reduce seed bulk during storage (Vallentine 1979). A sieve screen will facilitate cleaning in the field. Pulpy seed will be dried and cleaned prior to storage. Seed storage in paper bags, burlap, or polypropylene seed bags will prevent seed molding, particularly when seeds are stored in cool, dry conditions. All seeds should be stored, by species, and labeled according to collection date, location, and collector. This information may be used to determine which seeds to use for plant propagation, seeding, and order of use.

If a project phase under this HRP is found to impact any sensitive plant species, collection of seed from that species will be incorporated into the revegetation program to ensure the persistence of that species within the region.

4.3.3 INVASIVE NON-NATIVE PLANT TREATMENT

Pre-construction invasive non-native plant treatments may be a useful and economic strategy for restoration practices depending on the weed species within a given Project phase and the method of invasive non-native plant treatment recommended by the Execution Plan. An example of this may be the treatment of a stand of pampas grass or iceplant (*Carpobrotus* spp.), or other perennial invasive non-native plant species. Prior to the physical removal of these species, an effective method of control is

to treat individuals/populations with a prescribed herbicide up to six months (or longer) before removal. Although the efficacy of these prescribed herbicides is extremely high, it takes time for the herbicides to take effect and kill the target plant. In the case of iceplant, after herbicide treatment, the iceplant will shed water, making the dead biomass lighter and more economical for manual or mechanical removal. Similarly, pampas grass will dry and begin to break down its fibrous leaves and roots, making it easier for removal.

In any case, pre-construction invasive non-native plant treatments consist of singular or multiple treatment events in which herbicide is applied and then the treatment area is left to take effect with no additional disturbance. Pre-construction invasive non-native plant treatments would be planned to avoid adverse impacts to surrounding vegetation, wildlife species, or resource.

Records will be kept detailing the type of invasive non-native plants treated, dates and method of treatment, herbicide type and quantity applied, and will be included in project reporting documents.

4.3.4 TRASH AND DEBRIS REMOVAL

Trash is a well-documented and recurring problem within TRVRP (HDR 2020, STANTEC 2019, Surfrider Foundation 2019, URS 2010). The TRVRP water quality issues are primarily related to transboundary flows originating in Mexico, although there are contributions from the United States. Water quality issues include sewage, industrial waste, trash, and sediment transported across the border during both dry- and wet-weather conditions. Trash can cause water quality impairments, degrade habitats, affect aesthetics, and potentially cause flooding when congestion results from an accumulation of trash at a fence, water impoundment, or other obstruction (HDR 2020). While several trash collection structures within TRVRP currently exist (trash capture devices within Goat Canyon and Smugglers Gulch), trash routinely escapes, especially during high flow events, where it comes to rest in locations downstream or eventually makes itself into the open ocean. The accumulation of trash becomes embedded in sediments, facilitates a vector breeding environment, and impacts the aesthetics in the valley.

The Execution Plan will identify any pre-construction trash and debris removal, as necessary, prior to construction activities. Trash and debris removal will endeavor to remove trash that is not deeply embedded in sediments and can upend itself and mobilize during a flood event. Buried trash such as shopping carts, construction debris, metal, furniture, appliances, and hazardous materials, etc., would be left in place and removed during construction, as possible. All trash and debris removed during pre-construction activities would be sorted, hauled off-site, and disposed of in an approved landfill.

Records will be kept detailing the tonnage, type, and dates of trash removed from the site and will be included in project reporting documents.

4.3.5 PUBLIC NOTIFICATION/POSTING

A public notice or posting is the primary method for advising all interested parties of a proposed activity. A posting may solicit comments and information necessary to evaluate the impacts a project may have on the public interest. All project phases which are near or border adjacent property owners will be posted with signage that will include a brief description of the proposed activity, any dates of closure or dates the Project Area should be avoided, and a contact phone number and email address for more information. The contact information may also provide an outlet for public comment on the proposed activity. If encampments of unhoused individuals are known to exist within the area, the posting may

also include police codes for trespassing so that trespassers may be legally removed from the premises prior to construction. In these cases, coordination with local law enforcement will be necessary and homeless sweeps would be coordinated prior to any activity.

4.4 CONSTRUCTION ACTIVITIES

4.4.1 BIOLOGICAL AND CULTURAL RESOURCE MONITORING

Biological Resource Monitoring

To help ensure errant impacts to sensitive vegetation communities outside of the impact footprint are avoided during construction, an environmental boundary would be installed at the edges of the impact limits prior to the initiation of construction activities. A qualified biologist will monitor the installation of boundary markers (fencing, flagging, high visibility rope) wherever it would abut sensitive vegetation communities, jurisdictional waters or wetlands, or open space. Similarly, the biologist will work with construction personnel to identify and demarcate access paths through native vegetation. In areas where project activities may include the treatment of singular individuals, the biologist will identify the individuals to be removed by flagging that individual rather than the avoidance area. The biologist also will conduct a pre-construction environmental training session for construction personnel for each Phase to inform them of the sensitive biological resources on-site and avoidance measures to remain in compliance with project approvals. The biologist will monitor vegetation clearing, grubbing, and grading activities at least weekly to help ensure compliance with project approvals. All construction staging shall occur within the approved limits of construction.

Cultural Resources Monitoring

To ensure the protection and preservation of cultural resources, as well as the avoidance of inadvertent impacts to significant cultural resources, cultural resources monitoring will occur during implementation of all mechanized discing/clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) within the impact footprint and within (or near) known cultural resource locations. The monitoring program will include pre-construction environmental training by the cultural resource specialist and Kumeyaay Native American monitor for construction personnel for each Phase to inform them of the cultural resources sensitivity of the area and protocols to follow in the event inadvertent cultural resources are identified, and the presence of an archaeological monitor and Kumeyaay Native American monitor full-time during all ground disturbance within upland areas of the impact footprint and within (or near) known cultural resource locations, including vegetation clearing, grubbing, and grading activities. If intact subsurface deposits are identified during construction, the archaeological and Native American monitors will be empowered to divert ground disturbing activities away from the find to investigate the find and determine its significance.

4.4.2 SENSITIVE RESOURCE IMPACT AVOIDANCE AND MINIMIZATION

During restoration activities, impacts to native vegetation will be avoided and/or minimized as follows:

- Execution Plan details will designate ESAs to minimize the extent of disturbance and removal of native vegetation, to the extent feasible. This includes orienting activities to avoid sensitive plants and plant communities to the maximum extent practicable.

- Execution Plan details will also designate cultural resources ESAs to minimize impacts to known cultural resources. This includes orienting activities to avoid significant cultural resources.
- Access to project phases sites will be via pre-existing access routes to the greatest extent possible.
- Construction yards and staging areas will be in previously disturbed areas to the extent feasible to minimize impacts to native vegetation.
- Work areas will be conspicuously staked, flagged, or otherwise marked to clearly identify the work area boundaries and ESAs.
- All work activities, vehicles, and equipment will be limited to approved roads, staging areas, and marked work areas.
- Removal of perennial, native vegetation will be avoided to the maximum extent practicable.
- To the extent feasible, stockpiling of spoils and salvaged topsoil will be in previously disturbed areas and will avoid native vegetation and known cultural resource locations.
- Jurisdictional resources to be avoided will be flagged for avoidance prior to beginning work, with adequate buffers established to ensure sensitive resources are protected. Boundary flagging will be checked throughout implementation activities to ensure protection by the Project Biologist (Section 1.4.2).
- Cultural resources to be avoided will be flagged for avoidance prior to beginning work, with adequate buffers established to ensure significant cultural resources are protected.

4.4.3 SOIL SALVAGE AND STORAGE

Topsoil Salvage

In some areas, topsoil salvage may be appropriate and feasible to preserve the existing seed bank. This seed has advantages over the subsequently sown seed in that it is preconditioned to the existing soil environment. However, topsoil salvage may not be feasible at many sites due to the presence of invasive non-native species and trash.

The following are the criteria for identifying potentially suitable sites for topsoil salvage:

- Location is a previously undisturbed area and/or areas where desirable vegetation is dominant;
- Construction activities include topographic reconstruction, or other excavation activities where natural soil horizons are disrupted;
- Salvage activities can be executed safely and feasibly (topographic limitations);
- Stockpile locations can be identified in safe locations within existing approved disturbance areas and in compliance with other environmental and visual restrictions.

Topsoil salvage will not occur under the following circumstances:

- Slopes greater than 25 percent;
- Locations where ground disturbing activities are limited due to environmental resources (e.g., sensitive habitats, cultural resources);
- Locations with high densities of invasive non-native plant species;
- Locations with low availability of substrate material (thin soils or rocky);
- Topographical or geographical constraints that preclude safe execution of construction activities.

Topsoil will be carefully removed by an experienced operator using a dragline, excavator, scraper, or dozer and will be stockpiled in uncompacted piles less than four feet tall. Stockpiled soils will be placed within temporary disturbance areas. Topsoil stockpiles will be stabilized by spraying with a tackifier (soil stabilizer) or covered with a permeable natural material, such as jute or coconut fiber blankets. To minimize compaction, no equipment will be allowed to travel over or park on the salvaged soil stockpiles.

Care will be taken to limit the potentially adverse effects of stockpiling topsoil. For example, stockpiling has been shown to reduce organic carbon (especially at the surface) and reduce microbial activity and mycorrhizal inoculum potential for vesicular arbuscular mycorrhizae (Bainbridge 2007). Wet stockpiles show a greater reduction of vesicular arbuscular mycorrhizae propagules than dry stockpiles (Bainbridge 2007). Therefore, topsoil stockpiles will be maintained in a dry condition as much as possible. Nutrients, organic matter, and the seed bank will be diluted if the topsoil is mixed with subsoil material, so care will be taken to ensure a minimum thickness of topsoil is removed and stockpiled, and that topsoil remains segregated from the subsoil.

If soils are stockpiled, it would occur outside of the rainfall season and for a short duration, not more than six months. Soil stockpiles will be monitored for invasive non-native plants, and invasive non-native plants will be removed if present. Grubbed native vegetation not used as vertical mulch may be included in the stockpiled soil. Once stockpiled, soils will not be disturbed until they are re-spread to initiate revegetation of disturbed areas.

Vertical Mulch

Vertical mulching will be incorporated into revegetation efforts where feasible and may also be used in select areas for trail closures and to create a visual barrier to deter trespassing into revegetation areas. Materials for vertical mulch include rocks, boulders, and natural organic debris (e.g., shrub branches, logs, and other plant materials). In some areas, vertical mulch may be salvaged, as feasible, during vegetation removal activities and will be used to restore those impacted habitats. Woody plant material generated during vegetation removal operations will be preserved (windrowed) on-site as mulch for later use in soil rehabilitation of temporary disturbance areas. If non-native materials are used for vertical mulching, only inert portions of the plant will be used (i.e., logs and branches), while the seeds and portions of plants capable of regenerating (i.e., root balls and rhizomes) will be hauled off-site or dried and effectively made inert prior to use.

4.4.4 INVASIVE NON-NATIVE PLANT TREATMENTS/BIOMASS REMOVAL

Herbicide Treatment

Chemical means of controlling invasive non-native plants consist of the application of herbicides. Herbicides can be a highly effective method in controlling invasive non-native plant species by killing or inhibiting plant growth. The proper method of chemical application varies based on species and with the degree of the infestation, time of year, temperature, and environmental conditions. Herbicides will be used to control invasive non-native plants under the supervision of an individual with a Qualified Applicator License from the State of California Department of Pesticide Regulation (CADPR), herbicide application will be performed in accordance with any Pest Control Advisor recommendations, and only where directed by biologists experienced in habitat restoration. Only herbicides approved by the CADPR and the local agricultural commission's office will be used within or next to the Project Area. The environmental risks of using herbicides will be minimized by using marker dyes to make the herbicide visible in areas where it has been applied. Higher visibility is desirable because it allows personnel to protect themselves more effectively against contamination, prevents unintended multiple applications to a particular area or plant, ensures complete coverage of the target area and plants, and informs personnel of overspray and wind-drift issues, which protects non-target plants.

Hand Removal

Physical invasive non-native plant control methods are labor intensive and will be used to control small populations of invasive non-native plants or used in sensitive habitats where wildlife may be indirectly affected by invasive non-native plant removal activities. The invasive non-native plant control methods may provide an advantage in native habitats where desirable species are left in place while removing surrounding invasive non-native plants. Recommended physical control methods are as follows:

- Hand pulling will be used to remove localized and discrete populations of annual and biennial species that have a single-root mass and will be timed to occur prior to seed set. Hand pulling will minimize soil disturbance. Cutting will be used to remove shrub and tree species. This method will require follow-up herbicide applications to kill the root system and prevent re-sprouting.

Mechanical Mowing and Discing

For large monotypic stands of invasive non-native plants such as giant reed and salt cedar, biomass reduction is an effective restoration strategy for invasive non-native plant removal. Biomass reduction involves using large mowers to mulch plant material and leave it in place. The mowers are large tractors (up to 50,000 pounds) with fixed teeth mowing heads mounted in front of enclosed cabs with either rubber tires or tracks. The mulched material left by mowers is typically fragmented and splintered material no more than three to five inches in length and two inches in diameter.

This mowing process (mastication) can be performed either before or after herbicide application, but in either case, follow-up herbicide treatments would be needed to ensure the targeted species does not repopulate the treated area. The mulched biomass left behind acts as a mulch layer which may reduce subsequent non-native plant invasions.

To avoid impacts to native vegetation, prior to mowing, stands of vegetation to be treated may be separated from native stands of vegetation by hand crews who separate the canopies of native and non-native vegetation that overlap. By employing this preparation step, native vegetation is preserved.

However, to create a native/non-native mowing buffer, native material (limbs/branches) up to four inches in diameter at breast height may be trimmed to help separate native and non-native stands.

In some instances where access for large mowers is impractical, such as steep banks, hand crews using chainsaws will cut the target weed species, which is then hauled to mowed areas and masticated with mowers. Mowing would also occur away from flowing water such that mowed biomass is not left or deposited in low flow channels.

For moderate to small sized populations of non-native weeds, line trimmers, tillers, or walk-behind brush mowers may be used by hand crews to reduce vegetation. These apparatuses provide more detailed work and may be more appropriate around edges of treated areas where they adjoin sensitive resources or where access with larger equipment would result in undesired impacts. In some areas where container planting and/or seeding is planned, trimmed/mowed vegetation may be raked into piles, or de-thatched, and removed prior to these activities.

In upland areas that contain dense stands of non-native vegetation, particularly fallow agricultural fields, discing may be an effective strategy to reduce non-native weeds and incorporate surface thatch into the soil. Discing can also loosen the surface soils, which can improve plant establishment, water infiltration, and soil roughness.

Mechanical Clearing

Like mowing, alternate mechanical treatments may be used in conjunction with herbicide control to control invasive non-native plants. Alternate mechanical control ranges from the use of chain and brush saws to bulldozers and excavators, and specialized logging equipment to remove woody plants. Machinery, such as excavators with long reach arms may be useful in removing individual invasive non-native plant species such as eucalyptus or palm trees, while bulldozers may be used to remove large swaths of invasive non-native vegetation at the expense of some soil disturbances.

Unlike mowing, mechanical clearing will result in biomass removal, which may be the desired outcome in many situations where an invasive non-native plant species is slow to break down and decompose, when removal of invasive non-native plant species would remove a large invasive non-native plant seed bank, when plant mulch left behind would yield allelopathic effects, or where it is not desirable for the material to become mobile in flood situations.

Although ineffective by themselves to achieve eradication, mechanical treatments can increase mortality of herbicide weakened plants and be a useful tool in an integrated pest management program. The stumps and stems of non-native trees, shrubs, and bamboos can be treated with herbicides immediately after cutting, allowing for direct uptake of herbicide into the plant. The resulting mortality further leads to drying and rotting in-situ.

Solarization

Soil solarization is the technique of placing a film (usually black or transparent plastic) over the soil surface to trap solar radiation and cause an increase in soil temperatures to levels that kill plants, seeds, plant pathogens, and insects. In addition, when black plastic or other opaque materials are used, sunlight is blocked, prohibiting photosynthesis and plant growth. However, soil solarization can cause significant biological, physical, and chemical changes in the soil that can last up to two years and deter the growth of desirable native species (The Nature Conservancy 2001).

The effectiveness of soil solarization depends, in part, on how susceptible invasive non-native plant seeds are to temperature increases. Solarization is most effective against winter annual invasive non-native plants that germinate under cool conditions (Elmore 1990), while summer annuals and other species adapted to higher temperatures, which germinate during warmer parts of the year, are less susceptible. Soil solarization is most effective during the summer months when there may be higher temperatures and longer hours of direct sunlight. Solarization is effective only if done in wet soil. Where soils are typically dry, they must first be irrigated until soil from the surface to 50 to 60 cm (about half the length of a baseball bat) deep is at field capacity (Grinstein and Hetzroni 1991).

Polyethylene plastic film is used most often for soil solarization efforts and is usually applied over one season, or longer, to obtain the desired results. Thinner plastic film tends to work more favorably than thicker film; however, it can be more easily damaged. Either clear or black films may be used; each has advantages over the other depending on the target weed being treated. In any case that solarization techniques are applied, seeding, planting, and ongoing maintenance activities would be necessary to prevent the solarized area from weed re-infestation or recruitment by an alternate non-desirable weed species.

4.4.5 TOPOGRAPHIC MODIFICATIONS

Topographic modifications include small surface recontouring activities that would enhance the Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. No large-scale topographic modifications would be proposed under this project, but small topographic modifications (potentially up to 0.25-acre per occurrence) may be proposed to enhance hydrologic functions over larger swaths of vegetation communities. Details of any topographic modification activity would be described in an Execution Plan and would also include expected post modification topographic conditions and overall project benefits. A topographic modification may be performed by a small skip-loader, skid-steer, or small bulldozer. Any impacts created from this activity would be temporary and disturbed areas would be revegetated upon completion.

Examples of topographic modification activities within the wetland and riparian areas may include the removal of an impediment to a low flow channel that has been caused by an accumulation of debris or rhizomatous root masses, which are altering the natural topography of the floodplain. Topographic modification within upland areas may include the redirection of concentrated surface flows to reduce point source erosion and the creation of water bars along dirt roads/trails (i.e., Customs and Border Protection dirt roads/trails on Spooners Mesa and Monument Mesa, see Figure 6).

4.5 POST-CONSTRUCTION ACTIVITIES

This section describes general methods that will be used to revegetate and restore vegetation communities and habitats temporarily impacted by construction activities. A list of the BMPs applicable to each project phase and the measures that incorporate the BMPs will be provided in the Execution Plans. Restoration and revegetation of temporary disturbance areas following construction will occur as soon as practical after the completion of construction activities in the affected area. To the extent feasible, seeding will occur in the fall following the completion of construction activities to take advantage of the full seasonal rainfall year (October to March).

Prior to initiating restoration/revegetation activities, Execution Plans will be prepared that specify site-specific techniques from those named in this Plan to be used in the revegetation of temporary

impact areas. The Execution Plan(s) will specify the site preparation, seeding, planting, irrigation, monitoring, and maintenance techniques that will be implemented at each project phase and will include refined seed mixes and container plant lists proper for the specific work areas, and an implementation schedule. The Execution Plan(s) will be developed prior to project phase construction and will follow procedures and methods described in this Plan.

4.5.1 TRASH AND DEBRIS REMOVAL

Following the completion of project phase construction activities, any trash and debris remaining within the Project Area to be restored will be removed and hauled off-site for disposal. Organic materials, including wood debris, plant material, straw, and sand, may be incorporated into the site soils prior to soil decompaction. However, this will be evaluated case-by-case to ensure that the fundamental characteristics of the underlying soil are not altered to favor non-native over native plant species.

4.5.2 SOIL DECOMPACTION

Decompaction of soils following construction activities is anticipated to be required for temporary disturbance areas that have been subjected to use by heavy machinery and where unauthorized trails to be removed have heavily compacted soils. Decompaction of soils will improve water infiltration and allow for plant root growth in restoration areas. In these instances, the Work Area will be decompacted by ripping and cross-ripping to a depth of up to six to 12 inches with ripper teeth mounted to the back of a bulldozer or skip loader. For some sites, decompaction may be limited by the Execution Plan, Cultural, and/or biological requirements. If a Work Area was found to be dominated by native plants (including bulb plants) prior to construction activities, soils will be lightly ripped or scarified to retain their abundance and contribute to the restoration.

4.5.3 SOIL RECONTOURING

Similar to topographic modifications (Section 4.4.5), soil recontouring would involve a small earth-moving activity to correct, improve, or expand stream and flood flows within a project phase. However, in this instance, the soil recontouring activity would not originally be proposed at the Project phase outset but became necessary once construction activities have been implemented, and the soil obstruction has become exposed. In this instance, soil recontouring would be an activity determined to be necessary in order to provide a hydromorphic enhancement to a work area and would be ancillary to the scope and purpose of the Project itself. Project phases that require soil recontouring and topographic modifications will be contour-graded to mimic natural surface topographies prior to implementation of restoration activities, with soil recontouring details included in an as-built report for the respective Execution Plan. Soil recontouring activities are intended to be comparatively small activities, at less than 0.1 acre, in each location where soil recontouring is determined to be necessary. If a soil recontouring activity is undertaken, all sensitive resource impact avoidance and minimization measures will be followed (Section 4.4.2).

The following landform grading techniques will be incorporated during recontouring to return the topography of the sites to a condition that blends with the surrounding undisturbed habitat areas:

- Varying slope ratios will be used to avoid the regularity and linearity of straight graded 2:1 slopes throughout the work area. Slope ratios will vary in the horizontal planes, and both steep and flat gradients should be incorporated.

- In areas where recontouring activities will be utilized to reconnect disrupted hydrology, elevational data will be collected from both upstream and downstream of the recontouring area to inform proper site elevations.

4.5.4 SPREADING OF SALVAGED SOIL

In areas where topsoil has been salvaged, the finished grade will be scarified to a minimum depth of six inches, and the salvaged soil spread over the restoration area to the maximum depth based on the availability of soil. The loose topsoil will then be tamped into the scarified surface by track walking the area with a dozer, sheep-foot roller, or similar equipment. Track walking should be perpendicular to the contours on any slope. Topsoil surfaces will be left in a roughened (scarified) condition suitable for planting.

4.5.5 EROSION CONTROL

In all areas where the soil has been disturbed, erosion control devices will be considered. Erosion control devices will be installed to reduce erosion and sedimentation, bank stabilization, runoff management, and may also function to facilitate revegetation efforts. The Execution Plan will contain details for recommended erosion control devices; the locations and/or types of erosion control devices will be detailed in the Stormwater Pollution Prevention Plan (SWPPP), if applicable. Erosion control devices will typically include hydroseeding with a mulch and tackifying agent, fiber rolls, gravel bags, jute netting, or another device. All erosion control devices will be installed per the manufacturer's recommendations for the application type. Given the dynamic present in an active floodplain, the prescription for erosion control will attempt to balance the need for site stabilization with the reality of natural sediment transport within a dynamic river system.

4.5.6 SUPPLEMENTAL WATERING

One of the goals of this HRP is to restore, enhance, and establish native habitats that persist over time and are self-supporting. Although mature plants are able to survive on natural sources of water (often through times of drought), young plants typically require supplemental water during the establishment period. A young plant's water demand is expected to be highest during the first one or two growing seasons, tapering off gradually until no supplemental water is necessary. The amount of watering initially needed will be variable for the different habitats on-site and the proximity to groundwater.

Watering of the container plants may be required to establish an ecological system that can eventually maintain and support itself. However, overwatering shall be avoided because native plant species require significantly less watering for healthy plant growth, and too much water may result in the establishment of undesirable weed species. In addition, the installation of plant materials during the recommended time of year can greatly reduce the amount of watering needed.

Based on previous restoration projects implemented by HELIX within the TRVRP, it is known that surface soils within the region are high in salts which inhibit the ability of the target plant community to become established. In these instances, the application of supplemental water has been beneficial in remediating these highly saline soils to a level where they are tolerated by target plant species (J. Fischbeck, personal communication, December 16, 2020). Leaching is the process of adding low-salt water to the soil surface to dissolve salts and move them below the root zone. Leaching works well on saline soils that have good structure and internal drainage. If leaching is implemented in highly saline areas, soil tests will determine how much water is needed to correct a particular soil.

Supplemental water may be provided by one of several methods, and the method selected is largely dependent on the availability and proximity of a water source, site access, site protection, and the size and number of container plants to be watered, among other factors. The Execution Plans will consider these factors and may prescribe a strategy for supplemental watering if container plantings are included in the scope.

In areas that have reasonable access to a water source, temporary above-ground irrigation may be used for plant establishment. In these instances, following initial non-native plant control, temporary, above-ground irrigation would be installed. If no point of connection is available, an irrigation system may be charged via a water truck and hose, or all plants may be hand-watered by truck and hose. In other areas, a tank-fed drip irrigation system may be used where the tanks are filled by water trucks, as needed. In the most remote areas, maintenance crews may need to carry in water for container plants.

No matter what type of supplemental watering is implemented, the timing and frequency of watering events will be determined by seasonal conditions and/or at the direction of the restoration specialist, with the goal of successful plant establishment.

4.5.7 ROAD/TRAIL VEGETATION MANAGEMENT

Passive recreation is a major component of TRVRP. As such, there are approximately 20 miles of designated non-motorized multi-use trails for hikers, bikers, and equestrians, and another 2.5 miles of trails for non-motorized trails for hikers and equestrians only. Vegetation growing alongside designated trails and roads will need to be maintained in order to comply with trail and road safety design requirements. Vegetation maintenance along roads and trails may occur annually, biannually, or on an as-needed basis, depending on the type and amount of vegetation overgrowth. It is likely that vegetation maintenance along roads and trails would not be needed until sometime into the long-term maintenance period if planting activities take proper trail spacing into account.

Vegetation maintenance along roads and trails will generally include the trimming of branches and limbs of overgrowth into the trail/road, rather than full removal of an individual shrub or tree, unless visibility requirements are needed for road/trail safety. In these instances, all cut biomass would be hauled off-site and properly disposed of or mulched and left as groundcover in-situ.

4.6 SEEDING AND PLANTING

4.6.1 NATIVE PLANT PALETTES

Plant palettes will be created for specific revegetation sites from seed or other propagules (i.e., vegetative cuttings) collected near the Project Area, sourced from within 25 miles of the Project Area, or sourced from within the Jepson Herbarium California Floristic Province South Coast ecoregion (SCo; Jepson 2023), if feasible. Preference will be given to seed and plants sourced from southern coastal San Diego County, if available. If seed and plants are not available in the immediate counties, seed or plants may be acquired from other southern California counties or from commercial sources, as available and deemed appropriate. Representative species palettes for plantings, cuttings, and seedings are presented below for major habitat types within TRVRP and do not include sensitive plant species, which may be incorporated into planting palettes if sensitive species are found to be impacted by a Project phase's activities. During the development of the Execution Plans, these plant palettes will be customized for each Project phase according to target habitat type and adjacent dominant vegetation. Only native

species will be used for planting and seeding. Appendix C includes a complete list of native species observed within TRVRP, which may be used for restoration Planting and Seeding. Example container plant and seed palettes are included as Table 9, *Riparian Woodland and Forests Plant and Seed Palette,* Table 10, *Riparian Shrubland Plant and Seed Palette*, and Table 11*, Diegan Coastal Sage Scrub Plant and Seed Palette*.

Table 9
RIPARIAN WOODLAND AND FORESTS PLANT AND SEED PALETTE

CONTAINER PLANTINGS [1]					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Notes**
Baccharis salicifolia	mule fat	6	3	200	Drier areas
Distichlis spicata	saltgrass	8	5	150	Saline soils
Juncus acutus ssp. *leopoldii*	spiny rush	20	3	100	Wet areas
Platanus racemosa	western sycamore	50	2	100	Drier areas
Populus fremontii ssp. *fremontii*	Fremont cottonwood	12	3	50	
Salix exigua	sandbar willow	12	5	150	Sandy soils
Salix gooddingii	Goodding's black willow	12	3	100	Wet areas
Salix laevigata	red willow	12	3	100	
Salix lasiolepis	arroyo willow	12	5	300	
Sambucus nigra ssp. *Caerulea*	blue elderberry	12	3	50	Drier areas
Vitis girdiana	wild grape	15	2	100	
			TOTAL	**1400**	

SEED MIXTURE			
Scientific Name	**Common Name**	**% Purity / Germin.**	**Application Rate[1]2 (lbs./acre)**
Ambrosia psilostachya	western ragweed	20/30	2
Amsinckia intermedia	rancher's fiddleneck	45/65	2
Artemisia douglasiana	nugwort	15/50	3
Baccharis salicifolia	mule fat	10/20	2
Isocoma menziesii	goldenbush	40/30	0.5
		TOTAL	**9.5**

[1] All plantings will be in one-gallon sized containers, D-40 container, and/or cuttings.

[2] If seed is sourced locally, approximations may be made in order to apply the quantity of pure live seeds (PLS) reflected in the assumed % purity/germination column

Table 10
RIPARIAN SHRUBLAND PLANT AND SEED PALETTE

CONTAINER PLANTINGS [1]					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Notes**
Ambrosia monogyra	singlewhorl burrobrush	10	3	50	Drier areas
Baccharis salicifolia	mule fat	6	5	600	Drier areas
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	30	2	50	Drier areas
Croton californica	California croton	12	3	150	Dry sandy areas
Distichlis spicata	saltgrass	8	5	150	Saline soils
Iva hayesiana	San Diego marsh elder	6	3	150	Drier areas
Pluchea sericea	arrow weed	12	3	150	Drier areas
Quercus agrifolia	coast live oak	20	1	50	Dry deep soils
Salix exigua	sandbar willow	12	5	150	Sandy soils
Salix lasiolepis	arroyo willow	12	5	100	
Sambucus nigra ssp. *Caerulea*	blue elderberry	12	3	50	Drier areas
			TOTAL	**1450**	

SEED MIXTURE			
Scientific Name	**Common Name**	**% Purity / Germin.**	**Application Rate[2] (lbs./acre)**
Ambrosia monogyra	singlewhorl burrobrush	40/30	0.5
Ambrosia psilostachya	western ragweed	20/30	2
Amsinckia intermedia	rancher's fiddleneck	45/65	2
Artemisia douglasiana	mugwort	15/50	3
Baccharis salicifolia	mule fat	10/20	4
Corethrogyne filaginifolia var. incana	San Diego sand aster	15/30	1
Isocoma menziesii	goldenbush	40/30	0.5
Iva hayesiana	San Diego marsh elder	30/30	2
		TOTAL	**12.5**

[1] All plantings will be in one-gallon sized containers, D-40 container, and/or cuttings.

[2] If seed is sourced locally, approximations may be made in order to apply the quantity of PLS reflected in the assumed % purity/germination column.

Table 11
DIEGAN COASTAL SAGE SCRUB PLANT AND SEED PALETTE

CONTAINER PLANTINGS [1]				
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**
Acmispon glaber	deerweed	4	4	100
Artemisia californica	California sagebrush	5	6	300
Baccharis pilularis	coyote brush	6	3	30
Cylindropuntia prolifera	coast cholla	3	5	250
Encelia californica	California encelia	4	4	100
Eriogonum fasciculatum	California buckwheat	4	5	200
Euphorbia misera	cliff spurge	4	3	30
Isocoma menziesii	goldenbush	4	4	100
Malosma laurina	laurel sumac	4	3	30
Opuntia littoralis	coast prickly pear	4	5	250
Rhus integrifolia	lemonadeberry	8	3	30
Salvia apiana	white sage	5	4	80
Salvia mellifera	black sage	5	4	100
Stipa pulchra	purple needlegrass	3	5	200
			TOTAL	**1800**

SEED MIXTURE			
Scientific Name	**Common Name**	**% Purity / Germin.**	**Application Rate[2] (lbs./acre)**
Acmispon glaber	deerweed	95/80	1.5
Artemisia californica	California sagebrush	15/60	2
Baccharis pilularis	coyote brush	2/40	0.5
Castilleja exserta	purple owl's clover	50/50	2
Encelia californica	California encelia	40/60	1
Eriogonum fasciculatum	California buckwheat	50/20	2
Isocoma menziesii	goldenbush	40/30	1.5
Lasthenia californica	California goldfields	70/50	2
Plantago erecta	dot seed plantain	90/80	2
Salvia apiana	white sage	70/30	0.5
Salvia mellifera	black sage	70/50	1
Stipa pulchra	purple needlegrass	90/80	2
		TOTAL	**18**

[1] All plantings will be in one-gallon sized containers, D-40 container, and/or cuttings.

[2] If seed is sourced locally, approximations may be made in order to apply the quantity of PLS reflected in the assumed % purity/germination column.

4.6.2 PLANTING

Container planting will be used, where appropriate, in conjunction with seed application. The size and shape of the containers should match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs). The numbers, species, sizes, and spacing of container plants will be decided in conjunction with the development of site-specific seed mixes and seeding approach in the Execution Plan. Container plants would be installed between October and March.

Container stock installation requires supplying supplemental irrigation through the first one to two years, at a minimum, until the plantings have become established and can sustain themselves on natural rainfall. Supplemental irrigation may be provided by the use of a water truck/water buffalo and hose (for small and remote sites) or a temporary above-ground irrigation system (for larger sites and when a water source is available).

For planting, holes will be excavated to diameters twice that of the root ball (but not deeper than the root ball, to avoid settling). Planting holes will be filled with water and let to drain prior to placement of container plants. During the installation of container stock, care will be taken to minimize disturbance of the root system while extracting the plants from their containers. The plants will be placed in the holes, and loose native soil will be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. For deep pots, the soil will be backfilled and packed in lifts of a few inches at a time to discourage the settling of plants. Berms or basins may be constructed to aid in retaining water provided by supplemental irrigation, but particular care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered immediately after installation.

4.6.3 CUTTINGS

Willows, cottonwoods, sycamores (*Platanus* spp.), and other riparian trees species can thrive from live cuttings provided by a donor source or specimen. “Cuttings” can refer to leaves, stems, or roots and may be rooted or unrooted (Newton and Claassen 2003). Installing cuttings of woody species that reproduce vegetatively (e.g., willow and cottonwood species) can be a successful revegetation method within riparian areas and along stream channels. As the cuttings flourish, they offer erosion control along banks, fast-growing native vegetation, and, when mature, create a source for future vegetative diversity.

When using woody stems of donor trees, cuttings should be of a minimum size (0.75-inch diameter) and should be long enough so that eight inches are at the lowest annual point of the water table and at least one-half of the length of the stem is in the ground (Hoag 2004), typically three to four feet in length. If used, unrooted cuttings will be:

(1) Collected from as many individuals as possible and not more than 20 percent of any one individual;

(2) Free of insect infestation, insect damage, cankers, decay, or excessive fungal intrusion (loppers used to cut poles will be sprayed with alcohol in between collections made from different plants);

(3) Collected and planted during the dormant season;

(4) Oriented in the planting area as from the collection site (bottom versus top);

(5) Trimmed to one primary piece/stem with a 45^{o} angle bottom and flat top cut;

(6) Soaked in buckets of water containing liquid kelp for no longer than two weeks from cutting to planting; and

(7) Watered when planted and planted deeply enough to contact adequate soil moisture for rooting (Newton and Claassen 2003).

The Execution Plan will evaluate the potential to utilize this method of planting on a site-by-site basis by evaluating upstream and downstream conditions of these riparian species and bank conditions on a site.

4.6.4 SEEDING

Seeding may be used in conjunction with container planting, when appropriate. The seeding methodology and seed mix will be described in the Execution Plan. Recommendations and seeding specifications (if any) will be based on site-specific conditions, which may include soil structure, the potential for water to infiltrate the soil, soil texture, fertility, organic matter, lack of topsoil, a significant percentage of rocks, and vulnerability to weed invasions. In some instances, seeding may also be delayed until after problematic weeds have been controlled.

Seeding mixes and rates will be developed based on the location of revegetation and, therefore, will be site-specific. To calculate the number of pounds of seed needed for seeding, it is necessary to calculate the number of pure live seeds (PLS) per pound. This will vary depending on which species and even within each batch of seed.

PLS calculations consider the purity (number of actual seed of the species) and the germination rate of that batch of seed. So, for any given batch of seed, the PLS equals:

% purity x % germination/100 = PLS

The amount of PLS is then used to calculate the actual seeding rate needed. To do this, divide the PLS figure into the recommended seeding rate to get the actual seeding rate:

recommended seeding rate/% PLS = actual seeding rate needed

Seed will be collected from species that exist within the adjacent native plant communities and in accordance with the seed palette listed in Section 4.6.1. These seed mixes include dominant species for each vegetation community, species known to be successful during planting/seeding, uncommon species (for example, characteristic species within special status vegetation communities), and species known to provide habitat for target wildlife species. Additionally, species in the seed palettes have a mix of species with differing rooting strategies (Newton and Claassen 2003). These example seed mixes do not include sensitive plant species, which may be incorporated into seeding palettes if sensitive species are found to be impacted by a project phase.

Total seed application rates will include a minimum of 9 to 19 PLS pounds per acre, but specific rates will be determined at the time of seeding. To promote diversity and site stabilization, seed mixes will have at least five to 10 native species.

Seeding will only be applied to areas that are generally weed free and where soils are accessible to seed installation and proper seed-to-soil contact can be reasonably expected. Areas that contain a layer of mulch or chipped material on the soil surface would not be target seeding sites since seed to soil contact is essential for seed germination.

4.6.4.1 SEEDING METHODS

One or a combination of three available methods of seed application may be used depending on the specific restoration area conditions. The methods include imprint seeding, broadcast (or hand-

broadcast) seeding, and hydroseeding. Restoration seeding will be completed in the fall, as it is practical to take advantage of the full seasonal rainfall year (October to March). If seeding must be delayed due to construction schedule impacts, sites will be stabilized as per methods in Section 4.5.5 until seeding can occur.

Imprint Seeding

Imprinting may be used on areas larger than 0.5 acre (about four times the area of a basketball court) where soils are neither too loose nor heavily compacted. In appropriate soils, imprinting facilitates the successful establishment of seed into the soil and eliminates the need for mulch, soil irrigation, and soil binding. Imprinting also increases rainwater infiltration, improves gas exchange between the soil and atmosphere, reduces erosion, and improves contact between seeds and soil water (Barnes 1950; Gintzburger 1987; Oliveira et al. 1987; Slayback and Cable 1970). In addition, imprinting may create microsites that catch and hold wind-dispersed seed, encouraging germination and plant establishment.

Imprinting is accomplished via a mechanical imprinter that is pulled behind a tractor and simultaneously spreads and buries pre-developed seed mixes in V-shaped depressions three to five inches deep. Imprinting under most conditions results in plant establishment within one to three years. However, imprinting achieves the best results when accomplished during, or immediately following, the rainy season. Imprinting is recommended for friable soils that are likely to maintain their shape once treated.

Hand Seeding/ Broadcast Seeding

Hand seeding or broadcast seeding will be used where other seeding methods are deemed infeasible because of substrate, location, or disturbance area size. In general, application of hand- (or mechanical-) broadcasted seed will be reserved for areas 0.5 acre and up to five acres, where lesser amounts of seed are needed. Hand broadcasting involves field crews who distribute the seed by hand or belly grinder while mechanical broadcast seeding may be performed by a mechanical seed spreader. In these instances, an inert seed bulking agent, such as rice hulls, may be added to the seed mix to facilitate even distribution of seed.

Hand-seeded and broadcast seeded sites will be raked or harrowed before seeding to break up the soil surface and after seeding to facilitate seed-to-soil contact. Raking or other post-seeding treatment to lightly cover seed will also be completed to enhance germination likelihood, provide even distribution of seed, and reduce losses to granivores. This procedure will also help retain moisture for germination. Hand and broadcast seeding will be timed to occur in the late fall prior to rains.

Hydroseeding

Hydroseeding is an effective method of reseeding that can be used in a variety of settings and with diverse seed mixes. Hydroseeding is ideal for steeply sloped or erosive areas, rocky substrates, or large, flat features that require substantial amounts of material cover. Because hydroseeding requires trucks or trailers to haul, mix, and apply the hydroseed, some accessibility is required near a site; however, hoses may be used to broadcast seed in more remote areas. Hydroseeding does not break apart the soil surface; therefore, a site should be prepared by decompaction, scraping, or raking prior to application of the hydroseed. Each hydroseed mix contains seeds, water, and a small amount of mulch. Additional hydromulch or a tackifying agent may be added to the hydroseed mixture or implemented as a separate step for immediate soil stabilization and to enhance erosion control.

When hydroseeding is used in a work area, a four-step process will be implemented;:

- First, the soil will be prepared. If it is determined by a biologist experienced in habitat restoration that the soil is too compacted, then a site will be decompacted, scraped, or raked prior to application of the hydroseed.

- Just before the hydroseed is applied, the soil will be moistened to allow the seed to stick to the soil surface (Newton and Claassen 2003). However, if significant rainfall has occurred within 24 hours, pre-wetting may not be necessary and may be determined by the biologist on-site.

- The hydroseed mixture will then be applied across the site.

- Lastly, the hydromulch (organic fiber, soil amendments, and tackifier) will be applied.

Separating the hydroseed and hydromulch into separate layers helps ensure that the seed meets the soil rather than being bound up in the mulch or exposed to air where it can dry up without germinating (Newton and Claassen 2003). A typical rate of application in arid California is 500 pounds per acre of wood fiber mulch for hydroseed-only sites and 1,500 to 2,000 pounds per acre of wood fiber mulch and a tackifier for the hydromulch method (Newton and Claassen 2003); however, the restoration contractor will determine the specific rate of application on a site-by-site basis, and as directed by the Execution Plan and SWPPP (if applicable).

4.7 RIPARIAN AND JURISDICTIONAL DRAINAGE RESTORATION

Potential impacts to riparian and jurisdictional habitats identified within Phases 1-12 (Figures 10a-f) and located within the Tijuana River valley will be avoided and minimized to the greatest extent feasible, but some impacts, due to the nature of some invasive non-native species targeted for removal, may be unavoidable. All activities under this HRP program are intended to be self-mitigating and impacts, if any, would be temporary disturbances that would be revegetated to a greater habitat value than what previously existed. Furthermore, temporary impacts would result in no net loss of USACE, RWQCB, CDFW, and/or CCC wetland acreage or wetland/riparian habitat value, either directly or indirectly, because of project execution and downstream or upstream effects to channels or their associated habitat.

To restore jurisdictional areas, a combination of recontouring, seeding, and installation of cuttings may be used to restore/replant temporarily disturbed wetland/riparian areas. Seeds and cuttings from riparian trees and shrubs will be collected on or near the Project site (when feasible).

Temporary impacts to riparian and jurisdictional resources within Phases 1-12 are expected to occur, as these phases generally lie within the floodplain of the Tijuana River. Potential impacts to jurisdictional wetlands and waterways, by phase, are listed in Table 12a-12b, *Temporary Impacts to Jurisdictional Wetlands and Waterways* and *Temporary Impacts to Jurisdictional Wetlands and Waterways by Phase*.

Table 12a
TEMPORARY IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS (acre[s])[1]

Habitat	Waters of U.S.	Waters of the State	CDFW	CCC
Wetland Waters/Riparian				
Coastal and Valley Freshwater Marsh	<0.01 (0.003)	<0.01 (0.003)	<0.01 (0.003)	<0.01 (0.003)
Emergent Wetland	0.03	0.03	0.03	0.03
Saltgrass Grassland	0.01	0.01	0.01	0.01
Southern Riparian Forest	3.46	3.46	4.07	4.07
Disturbed Southern Riparian Forest	2.14	2.14	2.14	2.14
Non-native Riparian	12.12	12.12	12.78	12.78
Southern Willow Scrub	0.58	0.58	1.40	1.40
Disturbed Southern Willow Scrub	2.50	2.50	5.69	5.69
Mule Fat Scrub	0.15	0.15	0.63	0.63
Disturbed Mule Fat Scrub	--	--	1.88	1.88
Tamarisk Scrub	13.62	13.62	23.30	23.30
Disturbed Riparian Scrub	--	--	0.06	0.06
Arundo-dominated Riparian	117.09	117.09	122.50	122.50
Subtotal:	*151.70*	*151.70*	*174.50*	*174.50*
Non-Wetland Waters				
Open Water	0.03	0.03	0.03	0.03
Subtotal:	*0.03*	*0.03*	*0.03*	*0.03*
TOTAL	**151.73**	**151.73**	**174.53**	**174.53**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

Table 12b
TEMPORARY IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS BY PHASE (acre[s])[1]

Resource	Resource Agency Jurisdiction (acres)			
	USACE	RWQCB	CDFW	CCC
Wetland				
Phase 1	7.83	7.83	8.43	8.43
Phase 2	8.81	8.81	9.72	9.72
Phase 3	4.17	4.17	4.17	4.17
Phase 4	98.41	98.41	104.18	104.18
Phase 5	--	--	2.10	2.10
Phase 6	0.04	0.04	0.71	0.71
Phase 7	21.27	21.27	22.60	22.60
Phase 8	1.85	1.85	4.32	4.32
Phase 9	6.00	6.00	9.14	9.14
Phase 10	0.90	0.90	0.91	0.91
Phase 11	2.42	2.42	6.87	6.87
Phase 12	--	--	1.35	1.35
Subtotal	*151.70*	*151.70*	*174.50*	*174.50*

Resource	Resource Agency Jurisdiction (acres)			
	USACE	RWQCB	CDFW	CCC
Non-Wetland Waters				
Phase 1	--	--	--	--
Phase 2	0.03	0.03	0.03	0.03
Phase 3	--	--	--	--
Phase 4	--	--	--	--
Phase 5	--	--	--	--
Phase 6	--	--	--	--
Phase 7	--	--	--	--
Phase 8	--	--	--	--
Phase 9	--	--	--	--
Phase 10	--	--	--	--
Phase 11	--	--	--	--
Phase 12	--	--	--	--
Subtotal	0.03	0.03	0.03	0.03
TOTAL	**151.73**	**151.73**	**174.53**	**174.53**

Areas are presented in acre(s) rounded to the nearest 0.01.

Impacts to riparian and jurisdictional resources within Phases 10-12 (Figures 10a-f) that are surrounded by upland habitats will be avoided with buffers established prior to implementation to prevent any potential impacts. Jurisdictional areas within these phases are generally deeply incised, unstable, erosion gullies which would require additional environmental and engineering studies, bank stabilization and grade control structures, and regulatory agency permitting in order to stabilize and restore these features. Although restoring highly eroded drainages would be beneficial to the entire TRVRP, for these reasons, any activity within these jurisdictional resources is not part of this restoration program.

5.0 MAINTENANCE, MONITORING, AND REPORTING REQUIREMENTS AND PERFORMANCE CRITERIA

Maintenance, monitoring, and reporting of the revegetation or restoration sites will begin with the implementation of the restoration and revegetation work at each of the Project's temporary disturbance areas and will continue until the defined success criteria are met or up to three years, whichever is shorter.

5.1 MAINTENANCE ACTIVITIES AND SCHEDULE

Restored sites will be maintained per the schedule presented in Table 13, *Maintenance Schedule*, and the methods outlined in the following subsections.

Table 13
MAINTENANCE SCHEDULE

Maintenance Activity	Frequency
Watering (container plants, cuttings, or as deemed necessary as a remedial action)	• Once or twice weekly during the establishment period (the first three months after planting). • Once or twice monthly for the first year. • As deemed necessary by a qualified biologist for the second year or as a remedial action for under-performing sites. • (Irrigation frequencies will be determined by precipitation patterns and site conditions).
Weed Control	• Four times per year and times accordingly with weed growth cycles. Frequency may be adjusted as needed on a site-by-site basis.
Erosion Control	• Once per year in spring (February to April). More visits conducted as conditions (flood, fire, etc.) require.
Trash/ Debris Removal	• Trash and debris removal will occur concurrent with other maintenance activities.
Vegetation Trimming	• As needed to make safe passage for trail use

5.1.1 WEED CONTROL

For the purposes of this HRP, weed control methods have been organized into two categories: physical control and chemical control. Physical control methods include manual removal using hand tools and mechanical removal using motorized tools. Chemical control methods include herbicide application.

These methods are described further in the following sections and in Table 14, *Maintenance Period and Invasive Non-Native Plant Control Methods*. Invasive non-native plant control should be based on the invasive non-native plant species, location of invasive non-native plants, and the time of year that invasive non-native plant control operations occur and may include more than one treatment method. Table 15, *Control Methods for Invasive Non-Native Plants Likely to Occur in the Project Area*, describes the control methods applicable for treating specific species both known to already occur within the Project Area, and those species expected to occur throughout the maintenance period. Alternative treatment methods are not included here because they are either not practical to implement at this stage or are not appropriate for the area.

Table 14
MAINTENANCE PERIOD AND INVASIVE NON-NATIVE PLANT CONTROL METHODS

Control Method	Description	Appropriate Target	Key Considerations
Physical Control			
Manual Removal			
Pulling	Removing the plant from the ground by hand or using hand tools (e.g., weeder, pry bar, Weed Wrench).	Taprooted and shallow rooted plants (annuals and some perennials) unable to re-sprout from roots or other vegetative organs.	Plants need to be large enough to be grasped, and soils should be damp or loose enough to release roots. Labor intensive may need to be repeated. Minimal Disturbance

Control Method	Description	Appropriate Target	Key Considerations
Hoeing	Scraping seedlings at the soil line or cutting off small plants just below the ground surface.	Annual and perennial plants (seedlings and small plants) unable to re-sprout from roots or other vegetative organs.	Applicable for seedlings and small plants. Labor intensive may need to be repeated. Moderate disturbance.
Digging	Removing a plant from the ground using trowels, spades, picks, or other tools to loosen the plant's roots from the soil. Often combined with pulling.	Taprooted and shallow rooted plants (annuals and some perennials) unable to re-sprout from roots or other vegetative organs.	Labor intensive may need to be repeated. Moderate disturbance.
Mechanical Removal			
Trimming/Brush Cutting	Using handheld line trimmers or other motorized tools to cut off plants at the ground surface.	Plants that reproduce primarily by seed. Effective on plants less than two inches in stem diameter.	Conduct during the bolting/budding stage of target plants, before seed development. Labor intensive. Can also affect interspersed native individuals.
Mowing	Using mechanized equipment (walk behind, tractor or skid steer) to cut off plants near ground level	Plants that reproduce primarily by seed.	Conduct during the bolting/budding stage of target plants, before seed development. Non-selective and may result in damage to interspersed native individuals
Discing	Using agricultural type equipment to remove herbaceous weeds and biomass an incorporate into soil. Break up compacted soil surface.	Fallow agricultural fields dominated by non-native forbs and grasses.	Will create soil disturbance and may facilitate flush of additional weeds needing to be treated.
Chemical Control			
Herbicide Application			
Foliar Treatment	Applying herbicide to the leaves of plants using a spray bottle, backpack applicator, skid-mounted sprayer (spot application); by wiping using a hand, trail, or vehicle mounted wick.	Low-growing annual and perennial plants, shrubs, and saplings where little non- target vegetation exists.	Apply when plants are actively growing, and after full leaf expansion. Requires complete coverage to be effective. Ineffective on plants with waxy cuticles. May require several applications. Overspray /wind drift may affect adjacent desirable plants. Spot spraying and hand wicking are labor intensive.

Control Method	Description	Appropriate Target	Key Considerations
Basal Bark	Applying herbicide in a band encircling the base of the trunk.	Woody vines, shrubs, and trees.	Can be conducted at any time of year. Little chance of impacting adjacent desirable plants. Labor intensive.
Hack and Squirt	Cutting the bark using an axe, or similar tool, at selected points around the base of the stem/trunk. Cuts should angle downward, be less than one inch apart, and extend into the sapwood. Apply herbicide to each cut.	Woody vines, shrubs, and trees.	Can be conducted at any time of year. Little chance of impacting adjacent desirable plants. Labor intensive.
Cut Stump	Painting herbicide on the stump immediately after a tree or shrub has been cut. Herbicide must be applied within five minutes of being cut.	Woody vines, shrubs, and trees.	Delayed treatment may reduce effectiveness. Labor intensive.

Sources: Bell and Lehman 2005, Cal-IPC 2020.

5.1.1.1 PHYSICAL CONTROL

Physical removal of invasive non-native plants is employed for localized, discrete control. Typically, physical control methods uproot, girdle, or cut plants through manual hand-pulling or use of power tools. Several types of physical removal techniques are recommended, including the following: hand-pulling, lever arms, weed whipping, hoeing, and mowing.

Hand-pulling should be focused on discrete populations of invasive non-native plant species that have a single-root mass. Hand-pulling is particularly effective to remove annual species after germination and prior to seed set, when the stems are not as easily broken, so that no root mass is left behind. Broken root pieces and other fragments of invasive non-native plant species can resprout and recolonize cleared areas. Hand-pulling is less effective in large areas and with invasive non-native plant species that spread through an underground root system (for example, tamarisk).

The Weed Wrench and Root Jack are types of lever arm devices that secure stems. They are readily procured at plant nurseries and can be used to pull out and remove woody shrubs such as salt cedar. This effort should be focused on invasive non-native plant species that have a single-root mass.

Hoeing and weed whipping may be used to control herbaceous invasive non-native plants in limited discrete areas before seed has set. Care must be taken not to damage adjacent native plants. Hoeing and weed whipping are most effective on small invasive non-native plants with single root masses. Larger invasive non-native plants are more likely to regenerate from cut roots. Methods below should be implemented following physical control activities to help prevent the spread of target species.

- Cover all loads while removing vegetation using a tarpaulin. Caution must be taken to contain all plant stem and root fragments because they may recolonize cleared areas and can invade new areas if not disposed of properly.

- Avoid contact with established native species.

- Cut plant material will be bagged and removed to prevent resprout and seed maturation. Seed heads and plants will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility.

5.1.1.2 CHEMICAL CONTROL

Herbicide applications are widely used to control or eradicate infestations of invasive non-native plant species. Herbicides may be used selectively to control discrete but significant infestations where manual and mechanical control methods are deemed ineffective. Where herbicides are applied, all treated areas must be identified and mapped to record treatment type and extent and to allow future monitors to compare or verify treatment effectiveness.

All herbicides will be applied following applicable laws, regulations, permit conditions, and USEPA label instructions. Only herbicides and adjuvants approved by the CADPR and the local agricultural commissioner's office will be used within the Project Area.

Herbicide Use and Regulations

Control of some invasive non-native plants may be most effectively accomplished through herbicide application. The application of these general use herbicides will follow all federal, state, and local laws and regulations.

Most chemical invasive non-native plant treatment would take place with glyphosate-based herbicides. Glyphosate is a polar compound that works to kill target plant material by disrupting a plant enzyme, which is not present in humans or animals. This nonselective herbicide provides effective control of many species, including grasses, forbs, vines, shrubs, and trees.

The following additional herbicides would be used in a limited fashion for control of invasive non-native plants in specific cases, as follows:

- Chlorsulfuron has a specific mode of action: the inhibition of the amino acid acetolactate synthase. This herbicide is broad-leaved selective and has a negligible effect on grasses and other monocots.

- Clopyralid is an auxin-mimicking herbicide that stimulates rapid cell elongation, which destroys cell walls by rupturing them. It is a selective post-emergent herbicide that is often used to control members of the sunflower family (for example, thistles).

- Imazapyr works by inhibiting the synthesis of branched-chain amino acids. Imazapyr is used for the control of terrestrial annual and perennial grasses and woody species. It also has limited activity on some broad-leaved herbs. Imazapyr is a selective systemic herbicide used to control woody and herbaceous broad-leaf plants but does not harm monocots (grasses).

- Triclopyr works by mimicking the plant hormone auxin, causing uncontrollable growth in targeted weeds. It is typically used to control annual and perennial broad-leaf plants, particularly woody species (i.e., shrubs and trees).

- Pelargonic Acid is a chemical substance that is found in almost all species of animals and plants. Because it contains nine carbon atoms, it is also called nonanoic acid. It is found at low levels in many of the common foods and is readily broken down in the environment. As an herbicide, pelargonic acid causes extremely rapid and non-selective burn-down of green tissues (desiccates) but does not prevent regrowth from buds or basal meristems. Pelargonic acid has no residual soil activity.

- Fluazifop-P-butyl is a post-emergent organic compound that is used as a monocot-specific herbicide, meaning it is an effective treatment of annual and perennial grasses while doing little to no harm to broad-leaved plants. It kills grasses by inhibiting lipid synthesis (lipids are necessary components of cell membranes), particularly at the sites of active growth. In the environment, Fluazifop-p-butyl is degraded primarily through microbial metabolism and hydrolysis. It is not degraded readily by sunlight.

- Aminopyralid is a selective herbicide used for the control of broad-leaved weeds, especially thistles and clovers. Aminopyralid can also provide residual weed control activity controlling re-infestations and reducing the need for re-treatment depending on the rate applied and the target weeds.

Each herbicide proposed for use is registered with the USEPA for weed control.

Herbicide treatment would be implemented by a Licensed Qualified Applicator. Treatment crews would be familiar with the detailed requirements for invasive non-native plant control. All herbicide applications would follow EPA label instructions and be in accordance with federal, state, and local laws and regulations. Herbicides would be applied using backpack sprayers to treat invasive non-native plant species. A backpack sprayer is typically a five-gallon backpack worn by the applicator and used for spot application of herbicides to allow for an accurate application process. This method would be used to target individual invasive non-native plant occurrences, or to apply herbicide to small or scattered invasive non-native plant populations. Truck-mounted spray rigs would not be used.

Herbicide Use Guidelines

Only approved herbicides will be used as needed to control invasive non-native plant infestations. The following environmental protection measures will be followed to minimize the adverse impacts to biological resources:

- Herbicide treatments would be conducted under the direction of a Licensed Qualified Applicator to minimize both environmental and personal risk. The applicator should be familiar with all safety and environmental regulations, as well as be able to identify target plant species.

- A biological monitor would be used to minimize impact to sensitive resources such as special-status plant species and jurisdictional waters. The biological monitor will flag avoidance areas ahead of personnel applying herbicide.

- Only aquatic approved herbicide and associated adjuvants will be used in riparian areas or within channels where they could run off into downstream areas. The biological monitor also determines when to choose manual treatment methods (such as hand pulling) in areas with abundant sensitive native vegetation.

- Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species.

- Use timing restrictions (for example, do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.

- Crews that conduct invasive non-native plant treatment will have experience working on sensitive habitats and with special status species. Crews would be trained in the identification of invasive non-native and native plant species. Methods of chemical treatment utilize spot application of herbicide on individual plants. This approach avoids broad chemical application to avoid any non-target species. These activities would be supervised by a qualified biologist or experienced monitor.

- High winds or precipitation events occurring during the application of herbicide could result in drift or runoff and chemical contact with non-target vegetation. Herbicide applications would be suspended if any of the following conditions occur:

    - Sustained wind more than six miles per hour,

    - Precipitation is occurring or predicted within 72 hours (about three days),

    - Any other weather requirements as stated on the label.

- Crews would use spray bottles with water to immediately douse non-target vegetation or immediately clip/remove the affected leaves in the case of drift or mistaken chemical application. Systemic absorption of herbicide typically takes a few hours depending on the properties of the chemical and the plants being treated; thus, an application of water only would dilute the herbicide and minimize the damage from accidental non-target application. Immediate removal of the affected plant material would prevent the herbicide from moving into other non-affected parts of the plant, thus preventing accidental mortality.

Table 15
CONTROL METHODS FOR INVASIVE NON-NATIVE PLANTS LIKELY TO OCCUR IN THE PROJECT AREA

Scientific Name	Common Name	Control/Avoidance Strategy	Control Methods
Ailanthus altissima	tree-of- heaven	Eradication/Suppression. Monitor for occurrence year-round and treat for eradication/suppression as required.	Pulling, Cut Stump: Pull small saplings; cut stems of mature trees as low to the ground as possible early in the Spring and a second time at the end of the growing season around June or July. Apply herbicide on the stump immediately after cutting.
Arundo donax	giant reed	Eradication/Suppression. Monitor for occurrence year-round and treat for eradication/suppression as required.	Pulling, Digging, Foliar Treatment, Cut Stump: Pull or dig plants after heavy rains loosen the soil; cut the stems and dig up the roots using hand tools or heavy equipment (only works on seedling/sapling sprouts in isolated conditions); apply herbicide (foliar spray) after the plant has flowered but before summer dormancy; cut and treat the cut stems with herbicide (Bell No Date).

Scientific Name	Common Name	Control/Avoidance Strategy	Control Methods
Bassia hyssopifolia	five-hook bassia	Eradication/Suppression. Monitor for occurrence year-round and treat for eradication/suppression as required.	Pulling, Foliar Treatment: Small infestations can be removed by hand and mowing before seeding can reduce seed production. For stands, spray with post-emergent herbicide (glyphosate) during the early growth phase. A pre-emergent herbicide (chlorsulfuron) may also be effective but may inhibit restoration goals until herbicide metabolizes.
Bromus sp. (and other non-native grasses)	annual brome grasses	Containment. Treat known occurrences so that populations of brome grasses do not expand. Monitor for occurrence and eradicate new populations if found.	Pulling, Foliar Treatment: Small infestations can be removed by hand and mowing before seeding can reduce seed production. For stands, spray with post-emergent herbicide (glyphosate) during the early growth phase. A monocot-specific herbicide (Fluazifop-P-butyl) may also be effective as non-native grasses tend to emerge before native annuals.
Carduus pycnocephalus	Italian thistle	Containment. Treat known occurrences so that sizes do not increase. Monitor for occurrence and eradicate new populations if found.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and dig out roots. Bag for proper disposal. For stands, spray with post-emergent herbicide in the spring during the early bloom phase.
Carpobrotus chilensis	iceplant	Eradication/Suppression. Monitor for occurrence year-round and treat for eradication/suppression as required.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root and bag for proper disposal. For stands, spray with post-emergent herbicide. Remove and bag for disposal after senescence.
Centaurea melitensis	tocalote	Suppression. Monitor for occurrence between February and April and treat as feasible.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root and bag for proper disposal. For stands, spray with post-emergent herbicide. Remove and bag for disposal after senescence.
Cirsium vulgare	bull thistle	Eradication/Suppression. Monitor for occurrence between March and August and treat as required.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root prior to flowering and bag for proper disposal. For stands, apply herbicide during the bolting phase or at the onset of flowering.
Conium maculatum	poison hemlock	Eradication/Suppression. Monitor between February and August and treat as feasible.	Pulling, Trimming, Foliar Treatment: For select occurrences, pull out entire plant and root prior to flowering and bag for proper disposal. Mowing or slashing of the plants prior to flowering is also effective. For stands, spray with post-emergent herbicide in late spring.

Scientific Name	Common Name	Control/Avoidance Strategy	Control Methods
Cynodon dactylon	Bermuda grass	Eradication/Suppression. Monitor year-round and treat as required.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root and bag for proper disposal. For stands, spray with post-emergent, systemic, selective (Fluazifop-P-butyl) herbicide. After senescence, remove plants and bag for disposal.
Dittrichia graveolens	stinkwort	Eradication/Suppression. Monitor year-round and treat as required.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root and bag for proper disposal. For stands, spray with post-emergent glyphosate or triclopyr herbicide. After senescence, remove plants and bag for disposal.
Eucalyptus camaldulensis, and other eucalyptus species	river red gum and other eucalyptus species	Suppression, Containment. Monitor for occurrence. May provide important habitat feature. Consult with biologist prior to removal. Remove occurrences without habitat value. Remove new saplings.	Pulling, Digging, Cut Stump: Pull/dig out seedlings and young trees. Cut mature trees and treat stump with herbicide.
Foeniculum vulgare	sweet fennel	Eradication/Suppression. Monitor between February and August and treat as required.	Pulling, Trimming, Foliar Treatment: For select occurrences, pull entire plant and root by hand or with weed wrench and bag for proper disposal. For stands, cut as low to the ground as possible and spray with post-emergent herbicide.
Glebionis coronaria (Chrysanthemum coronarium)	garland daisy	Suppression. Monitor for occurrence and treat in areas where habitat value is impacted.	Pulling, Foliar Treatment: For select occurrences, pull entire plant and root before seed pods develop and bag for proper disposal. For stands, apply post-emergent herbicide to leaves before flowering.
Hirschfeldia incana, Brassica spp.	Mediterranean mustard, other mustards	Suppression. Monitor for occurrence and treat in areas where habitat value is impacted.	Pulling, Foliar Treatment: For select occurrences, pull entire plant and root before seed pods develop and bag for proper disposal. For stands, apply post-emergent herbicide to leaves before flowering.
Lepidium latifolium	perennial pepper weed	Eradication. Monitor between March and July for occurrence and treat as required.	Mechanical, Foliar, Cut Stump: Herbicide treatment is the preferred method for this species because it easily resprouts from roots. Foliar can be used on young plants. Use cut stump on large or mature stands. Broad-leaf specific herbicides are more successful. Mechanical removal may be used in small, isolated population by ensuring that all plant material, especially roots, are dug up and removed.

Scientific Name	Common Name	Control/Avoidance Strategy	Control Methods
Marrubium vulgare	white horehound	Eradication/Suppression. Monitor for occurrence between February and July and treat as required.	Pulling, Hoeing, Foliar Treatment: For select occurrences, hand pull or hand hoe entire plant and root before seed set and bag for proper disposal. For stands, spray with post-emergent herbicide when plant is actively growing.
Medicago polymorpha	California burclover	Suppression. Monitor for occurrence and treat in areas where habitat value is impacted.	Pulling, Foliar Treatment: For select occurrences, pull entire plant and root before and bag for proper disposal. For stands, spray with either pre-emergent or post-emergent herbicide.
Mesembryanthemum crystallinum, M. nodiflorum	crystalline iceplant, slender leaved iceplant	Suppression. Monitor for occurrence and treat in areas where habitat value is impacted.	Pulling, Foliar treatment: Small isolated patches can be pulled by hand during spring and early summer. Herbicide can be used to control dense patches and application is recommended before seed set.
Nicotiana glauca	tree tobacco	Suppression, Containment. Monitor for occurrence and treat in areas where habitat value is impacted. Eradicate new, small populations.	Pulling, Digging, Cut Stump: For seedling/smaller trees, pull, dig, or weed wrench by hand and bag for proper disposal. For larger trees, cut stems close to the ground surface and apply herbicide to cut stems.
Pennisetum setaceum	South African fountain grass	Eradication/Suppression. Monitor for occurrence year-round and treat as required.	Digging, Foliar Treatment: For select occurrences, cut close to the ground, and dig up tufts using hand tools or heavy equipment and bag for proper disposal. For stands; spray with foliar herbicide.
Phoenix canariensis	Canary Island date palm	Eradication/Suppression. Monitor for occurrence year-round and treat for eradication/suppression as required.	Pulling, Digging, Cut Stump: For saplings, pull/ dig up entire plant and root and bag for proper disposal. For larger trees, cut as low to the ground as possible and apply herbicide to cut stumps.
Polypogon monspeliensis	annual beardgrass	Eradication/Suppression. Monitor for occurrence between March and June and treat as required.	Pulling, Digging, Foliar Treatment: For select occurrences, pull/dig up entire plant and root when soils are moist/loose. For stands, spray with post-emergent herbicide.
Raphanus sativus	wild radish	Eradication/Suppression. Monitor for occurrence between January and June and treat as required.	Pulling, Foliar Treatment: For select occurrences, pull up entire plant and root prior to flowering and bag for proper disposal. For stands, spray with post-emergent herbicide.
Ricinus communis	castor bean	Eradication/Suppression. Monitor for occurrence year-round and eradicate if found.	Pulling, Digging, Cut Stump: For select occurrences, pull or dig up entire plant and root when soils are moist/loose and bag for proper disposal. For stands, cut near the crown and treat cut stems with foliar herbicide.

Scientific Name	Common Name	Control/Avoidance Strategy	Control Methods
Schinus molle	Peruvian peppertree	Suppression, Containment. Monitor for occurrence and eradicate if found. May provide important habitat feature. Consult with biologist prior to removal. Remove new, small saplings.	Pulling, Digging, Cut Stump: For small saplings, pull/dig up entire plant and root and bag for proper disposal. For larger trees, cut as low to the ground as possible and apply herbicide to cut stumps.
Schinus terebinthifolius	Brazilian peppertree	Suppression, Containment. Monitor for occurrence and eradicate if found. May provide important habitat feature. Consult with biologist prior to removal. Remove new, small saplings.	Pulling, Digging, Cut Stump: For small saplings, pull/dig up entire plant and root and bag for proper disposal. For larger trees, cut as low to the ground as possible and apply herbicide to cut stumps.
Silybum marianum	milk thistle	Eradication/Suppression. Monitor for occurrence year-round and treat as required.	Pulling, foliar application: mowing mature plants before flowers can help control stands. For foliar control, spray plants when in rosette stage or actively bolting with aminopyralid or clopyralid
Sisymbrium irio	London rocket	Eradication/Suppression. Monitor for occurrence between November and May and treat as required.	Pulling, Foliar Treatment: For select occurrences, pull out entire plant and root prior to seed set and bag for proper disposal. For monotypic stands, spray with post-emergent herbicide and remove plants after senescence.
Tamarix ramosissima, and other *Tamarix* spp.	saltcedar, and other tamarisk species	Eradication/Suppression. Monitor for occurrence between August and February and treat as required. May provide important habitat feature. Consult with biologist prior to removal.	Pulling, Cut Stump: For saplings, pull out entire plant and root. For mature trees, cut and apply herbicide to cut stem and spray new shoots.
Washingtonia robusta	Mexican fan palm	Suppression, Containment. May provide valuable habitat for roosting bats and nesting birds. Consult with biologist prior to removal. Remove new, small saplings.	Pulling, Digging, Cut Stump: For saplings, pull/ dig up entire plant and root and bag for proper disposal. For larger trees, cut as low to the ground as possible and apply herbicide to cut stumps.

5.1.2 SUPPLEMENTAL WATERING

Irrigation may be used on sites where container plants or cuttings are installed (if container planting occurs). Irrigation and supplemental watering will be considered in conjunction with other restoration treatments on a site-by-site basis. Germination at seeded areas will rely on natural precipitation. Where irrigation is needed, accessible sites will have either overhead, drip- or bubbler-type irrigation systems installed that will be fed by either on-site water connection, tanks, or a water truck connection. Hand watering may also occur in small sites or sites with difficult access. Specific schedules and quantities of irrigation will depend on weather patterns and site conditions.

5.1.3 EROSION CONTROL

Temporary disturbance areas will be monitored for erosion. Any erosion issues observed will be immediately reported for remediation and repair by maintenance crews. Also, installed erosion control devices such as fiber rolls will be routinely inspected and maintained, as needed, to maintain efficacy. If still needed, degraded erosion control devices will be replaced. Erosion control during the maintenance period may involve recontouring, installation of additional fiber rolls, gravel bags, and/or jute materials, and potentially reseeding.

5.1.4 TRASH/DEBRIS REMOVAL

Trash will be removed from the restoration areas by hand during routine maintenance visits. Trash consists of all human-made materials, trash, or debris dumped, thrown, washed, or blown, and come to lay within the restoration areas. Deadwood and leaf litter of native trees and shrubs will not be removed. If illegal dumping within the site becomes a recurring issue, additional measures to prevent trespassing may be recommended, such as signage or fencing to protect the restoration area.

5.2 MONITORING AND REPORTING ACTIVITIES AND SCHEDULE

Monitoring and annual assessments will be carried out under the direction of the restoration specialist for each project phase implemented. Monitoring will begin the first spring after each phase of restoration and continue annually to assess whether the success criteria have been achieved and whether corrective measures need to be employed. To ensure the successful establishment of the sites, monitoring may be conducted more frequently as deemed appropriate for site-specific situations and during the initial establishment period. Restoration and revegetation sites will be monitored for up to three years, or less, until established success criteria are met (whichever is first). Monitoring will include an assessment of the progress and identification of potential problems with the revegetated site. If necessary, remedial action, such as additional planting, invasive non-native plant removal, supplemental watering, or erosion control, will be taken. If the restored habitat mitigation does not meet the established performance criteria after a three-year maintenance and monitoring period, then monitoring may extend beyond the three-year period until the criteria are met. The suggested monitoring schedule is presented in Table 16, *Monitoring Schedule*.

Table 16
MONITORING SCHEDULE

Monitoring Frequency	Submittals
Year 1-2 Qualitative assessments monthly during the growing season (November through June) and every other month during the dry season (July through October). No quantitative Monitoring unless Success Criteria (Section 5.2.6) is predicted to have been achieved by Year 2	Assessment Report
Years 3 Biannual qualitative assessments Quantitative monitoring will be conducted in spring as the restoration sites begin approaching final Success Criteria (Section 5.2.6).	Annual Report

5.2.1 DOCUMENT PRE-INSTALLATION SITE CONDITIONS

Prior to the start of installation of each project phase, the restoration specialist will document existing site conditions by taking photographs, listing all plants and animals present within the areas proposed for restoration, and noting any special conditions within the proposed restoration areas. To document the progress of the restoration effort, the restoration specialist will identify photographic documentation locations. Photo stations will be mapped with a sub-meter accuracy Global Positioning System (GPS) and plotted on a map. Photos will be used for future comparison with post-installation and annual assessment photos.

5.2.2 SITE PREPARATION/INSTALLATION MONITORING

The restoration specialist will coordinate with the installation contractor of each phase regarding all plant and seed orders and any necessary contract growing.

Prior to the start of installation, the restoration specialist will delineate the designated restoration areas in the field using a GPS with submeter accuracy to determine restoration area limits and conduct a contractor education session during the pre-construction meeting to address the sensitivity of the Project Area's resources.

To ensure that restoration is being conducted per this Plan, the restoration specialist will inspect the restoration area before installation (to authorize planting), on the first day of planting, and after all installation has been completed.

5.2.3 DOCUMENT POST-INSTALLATION SITE CONDITIONS

Following installation, the restoration specialist will document post-installation site conditions of each phase by taking photographs, listing all plants and animals present within the restoration site, and noting any special conditions within the proposed restoration site. To document the progress of the restoration effort, the restoration specialist will take photos from the previously identified photographic documentation locations. Photos will be used for future comparison with post-installation and annual assessment photos. The restoration specialist will prepare a brief as-built report summarizing any deviations from the Execution Plan and the as-built status of the restoration site.

5.2.4 MAINTENANCE MONITORING

Maintenance monitoring on each phase of the restoration area will consist of general site inspections focused on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, erosion, etc.). Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided following each monitoring visit to the maintenance contractor and the County DPR.

5.2.5 YEAR THREE TECHNICAL MONITORING

Prior to site disturbance, the absolute cover of native perennial species from a nearby reference site will be measured for each habitat type being restored and each project phase. Year 3 technical monitoring sampling will occur by relevé, which will include approximately two percent of the work area. If the

reference data from a prior project phase is applicable to the current project phase, the same data may be used.

Technical monitoring of each restoration site will include qualitative and, in Year 3, quantitative sampling. In Years 1 and 2, sampling will include assessments of container plant survivorship, visual estimates of native cover, non-native plant cover, target invasive plant cover, and native plant recruitment, as well as lists of all plant species observed on-site. In addition, wildlife observed or detected during the annual assessment will be documented. The success of the restoration effort will be evaluated by comparing the habitat development with the established success criteria. If final performance criteria are predicted to have been achieved by the end of Year 2, a final technical quantitative monitoring may be performed.

In Year 3, quantitative sampling of vegetation cover will be used to determine cover and the percent contribution of a species to plant community composition. Species data will be collected along each transect using the point intercept line transect or relevé sampling method (California Native Plant Society's Field Sampling Protocol; Sawyer and Keeler-Wolf 1995). Locations and numbers of relevé points and line transects will be pre-determined using stratified random selection with Geographic Information Systems and marked in the field with PVC pipes. If the number and/or location of sampling relevés or transects do not provide an accurate representation of the vegetation on-site, as determined by the restoration specialist conducting the sampling (i.e., the site contains some native perennial species, but none of the stratified randomly located relevé points/transects contain the native perennial species), then the method will be adjusted using professional judgment to sample locations that accurately represent the site conditions. The sampling restoration specialist will use the data gathered in transect and relevé sampling to estimate the percent cover of native and invasive non-native vegetation for each subsequent site.

In addition to the quantitative sampling, qualitative notes will be taken, as necessary, such as the majority of native annual species or invasive non-native plant species, species recruitment, or recommended adaptive measures to facilitate achieving success criteria. Observations of wildlife within the restoration area will be documented and included in each annual report. No focused wildlife surveys will be conducted. The photo documentation stations established at the start of the restoration effort will be re-photographed each year during the annual assessment to further document the development of the restoration area.

5.2.6 SUCCESS CRITERIA AND ADAPTIVE MANAGEMENT

Monitoring and adaptive management of each revegetation site are necessary to ensure long-term native plant community establishment. Data collected prior to site development will support the long-term evaluation of revegetation targets and results.

Plant communities cannot be immediately revegetated to target mature vegetation communities with equivalent composition; therefore, the criteria for revegetation success needs to be established based on *successional* plant associations rather than mature climax vegetation (CH2M 2008). Successional stages can be identified to the extent that the initial stage of colonization, intermediate successional stage(s), and final stage or climax vegetation are predictable.

This means that instead of planning for climax vegetation that physically cannot become established and mature for some time, successional plant communities composed of species native to the area will be

the preferred target for success. By accelerating a restoration site's initial establishment and growth in terms of diversity, density, and stature, a restoration site may be set on the correct trajectory to achieve target mature vegetation communities over a greater timeframe than the restoration program. Therefore, even when revegetation is successful, plant communities established are typically composed of pioneer and successional species adapted to disturbed substrate.

The initial species richness (often called "diversity") of the revegetated sites will generally not be as great as any reference site. Success will be realistically linked to seedling establishment and survival, increase in the cover and species richness of perennial shrubs, and evolution of the site toward a "mature" community dominated by late-successional plant species.

Table 17, *Success Criteria for Restored/Revegetated Project Temporary Disturbance Areas*, presents the success criteria for restoration/revegetation of the Project Area for up to a three-year monitoring period. An explanation of the success criteria follows Table 17.

Table 17
SUCCESS CRITERIA FOR RESTORED/REVEGETATED PROJECT TEMPORARY DISTURBANCE AREAS

<table>
<tr><th></th><th colspan="4">Success Criteria</th></tr>
<tr><th>Vegetation Type</th><th>Native Vegetation</th><th>Absolute Native Plant Cover</th><th>Native Shrub/ Tree Species Density</th><th>Maintenance</th></tr>
<tr><td>Giant reed dominated</td><td rowspan="4">Native perennial species should be established with increasing total cover each year.</td><td rowspan="4">NA</td><td rowspan="4">NA</td><td rowspan="4">Perennial invasive non-native plant species should be reduced to less than five percent total cover. Annual invasive non-native plant species should be reduced to less than 20 percent of total relative cover.
Patches of non-native species should not exceed 200 square feet.</td></tr>
<tr><td>Salt cedar dominated</td></tr>
<tr><td>Annual invasive non-native plant dominated</td></tr>
<tr><td>Temporary disturbance areas that cannot be effectively revegetated</td></tr>
<tr><td>Disturbed native habitats</td><td>80 percent of vegetation cover shall be native species that occur naturally in local native habitats. Criteria will be adjusted to account for pre-disturbance non-native grass cover.</td><td rowspan="7">40 percent of reference vegetation</td><td rowspan="7">40 percent of reference vegetation</td><td rowspan="7">The site shall have persisted successfully without irrigation or remedial planting for a minimum of one year prior to completion of monitoring.</td></tr>
<tr><td>Southern willow scrub</td><td rowspan="6">80 percent of vegetation cover or equivalent to pre-disturbance or reference cover, whichever is greater, shall be native species that occur naturally in local native habitats.</td></tr>
<tr><td>Southern cottonwood willow riparian forest</td></tr>
<tr><td>Southern riparian Woodland</td></tr>
<tr><td>Mulefat scrub</td></tr>
<tr><td>Coastal and valley freshwater marsh</td></tr>
<tr><td>Valley sacaton grassland</td></tr>
</table>

	Success Criteria			
Vegetation Type	**Native Vegetation**	**Absolute Native Plant Cover**	**Native Shrub/ Tree Species Density**	**Maintenance**
Native upland habitats (Diegan coastal sage scrub, Maritime succulent scrub, Southern maritime chaparral				

The intent of the success criteria is to (1) prevent the sites from becoming overrun by invasive non-native plants, and (2) set meaningful and feasible criteria for replacement of native plant species (and the associated habitat values). Both criteria are based on aerial cover estimates where the sum of native plant cover, non-native plant cover, and bare ground is 100 percent (however, it should be noted that some vegetation sampling methods can produce total cover values greater than 100 percent).

The first criterion (Native vegetation) refers to the relative amounts of native and non-native cover within a given revegetation area. The criterion requires that native species make up the majority (80 percent) of vegetation cover while recognizing the fact that invasive non-native plant species will invade the site and will realistically comprise a portion (limited to 20 percent or less) of the total cover. This criterion compares native and non-native cover within a site, but it does not compare a revegetation site to reference sites or pre-disturbance conditions. However, it allows for adjustment in disturbed plant communities, where the pre-disturbance condition is dominated by non-native species.

For example, if a 10,000-square-foot revegetation site has a total (i.e., absolute) vegetation cover of 60 percent (i.e., 6,000 square feet [about twice the area of a tennis court] of the site covered by plants), comprising 4,800 square feet (about the area of a basketball court) of native plants and 1,200 square feet of non-native plants, this criterion would be met.

The second criterion (Absolute Native Plant Cover) refers to the absolute native plant cover and density within the site, as compared to reference sites or pre-disturbance conditions. It requires that native plant cover in revegetation sites reach 40 percent of the pre-disturbance or reference native plant cover, and that the density (i.e., number per acre extrapolated from a sample) of native shrubs and trees reach 40 percent. This criterion requires that revegetated sites provide meaningful native habitat values and native species cover (compared to the reference or pre-disturbance condition), while recognizing that more stringent requirements (e.g., 80 percent or higher) may not be feasible.

For example, if the pre-disturbance or reference condition is 80 percent native plant cover, with the remaining 20 percent comprised of non-natives or bare ground, the example above would apply. The revegetation site must achieve 40 percent of 80 percent (i.e., 32 percent) cover of native plants. Using the example above, a 10,000-square-foot revegetation site should have 3,200 square feet covered by native plants. Additionally, if the reference site supports 1,000 native shrubs per acre (Native Tree / Shrub Species Density), then the revegetation site must support 40 percent of that density (i.e., 400 native shrubs/acre). The site may also include some cover of non-native plants, per the first criterion, but the non-natives do not count toward the native plant cover and must not exceed 800 square feet of the site.

Together the two criteria ensure that revegetation is deemed successful when sites have (1) at least 40 percent native species cover and density compared to pre-disturbance or reference vegetation, and (2) no more than 20 percent relative cover of non-native plants within the site.

Table 18, *Success Criteria Scenarios*, includes example scenarios of the success criteria calculations.

Table 18
SUCCESS CRITERIA SCENARIOS

Revegetation Site Absolute Cover			
Reference Site Absolute Native Cover	**Total Absolute Cover[2]**	**Required Minimum Native Cover (40% x Reference Native Cover)**	**Maximum Non-Native Cover[1]**
100%	50%	40%	10%
90%	45%	36%	9%
80%	40%	32%	8%
70%	35%	28%	7%
60%	30%	24%	6%
50%	25%	20%	5%
40%	20%	16%	4%
30%	15%	12%	3%
20%	10%	8%	2%
10%	5%	4%	1%

[1] Assumes minimum required native cover from column 2.
[2] Assumes minimum native cover + 20% max non-native relative cover. For all rows, the ratio of native to non-native cover is 80:20.

Impacted areas will be inspected for species on the Cal-IPC list of invasive non-native plants. If found, measures will be implemented to ensure they are treated and removed.

If plant survival or vegetation cover is not meeting success criteria, remedial planting, and maintenance measures, such as irrigation or weeding, will occur.

During the initial establishment period, erosion-control measures may be implemented. The measures are incorporated as part of the overall restoration plan; however, inspections and repairs may be necessary and should be completed as soon as problems occur.

If the restoration efforts fail to meet the success criteria, adaptive management may be required. Adaptive management may include re-planting/reseeding, drainage repairs, adjustments to irrigation or weeding schedule, or extension of maintenance beyond the original schedule to repair or remediate sites not on track to meet, or not meeting, success criteria by the end of the monitoring period. Any sites not meeting success criteria within three years will be evaluated for alternative actions.

Additional reference data may be collected and analyzed throughout the duration of the monitoring period and the results applied to modify restoration techniques or success criteria as a component of the adaptive management approach as appropriate.

Though the ultimate long-term goal will be to re-establish native perennial species in scrub or woodland habitats, the cover of woody perennial species (especially in arid environments) can be slow to increase. As such, if a site is not meeting the quantitative success standard listed in Table 18 at the end of the

monitoring period, the site may be evaluated using additional measures to determine if the site has achieved a positive trajectory toward a stable, native community. For example, if shrub cover is low but the density of shrub seedlings indicates species are becoming established, then the site may be considered on a trajectory toward success. Remedial measures may be needed, and the monitoring period will be extended until the site achieves success. In herbaceous vegetation (but not shrubland or woodland vegetation), if native annual species cover is high and stays high for well after the initial seeding, then the site may be considered successful as it has reached an early successional status of native species that are successfully regenerating.

For herbaceous habitats being restored within a matrix of non-native species, establishing native perennials can be difficult even under the best circumstances. If a site is not meeting the relative cover criteria but has an absolute cover of all plant species (including non-natives present in the undisturbed community, but not including invasive non-native species targeted for control) that is near the absolute cover of the adjacent or reference community, then it may be considered successful.

For all revegetation or restoration areas, if a fire, flood, or other disturbance beyond control damages a revegetation area within the monitoring period, then the County DRP shall be responsible for a one-time replacement. If a second event occurs, then no replanting is required, unless the event is caused by the County's activity (based upon the maintenance of erosion control measures; fencing, gates, or other site control; or investigation by a firefighting agency).

5.2.7 REPORTING

The restoration specialist will document each phased restoration effort in a post-installation letter report, maintenance monitoring memos during the maintenance/monitoring period, and in up to three annual reports.

The post-installation letter report will describe site preparation, installation methods, and the post-installation status of the restoration areas. To document the implementation of the HRP and baseline site conditions, the letter will include a graphic or an aerial photo base, as well as photos taken from the designated photo stations before and after restoration activities have been conducted. It will be submitted to County DPR within six weeks of the completion of installation.

Maintenance monitoring memos will summarize all maintenance and monitoring dates, activities, and observations, will include recommendations, if needed, to keep the restoration on track to meeting final success criteria, and will include a photo log. Memos will be submitted following monitoring events. If any issues are observed during monitoring events, they will be communicated to County DPR and the maintenance contractor within a few days of the site visit via email. Any significant issue or contingency that arises on the job site (e.g., major plant survival issues, fire, or flooding) shall be reported in writing to County DPR within two weeks from the date of the incident. If necessary, County DPR and the restoration specialist will prepare a plan for remediation, including an implementation schedule and monitoring schedule.

A single annual report will be prepared and submitted to the County within 90 days (about three months) after completion of each year of revegetation and restoration work, which would then be submitted to the pertinent regulatory agencies. The first year of site development will generally be defined as when the site has completed a full growing season (spring through summer for riparian habitats and fall to spring for upland habitats). Each annual report will include results of quantitative and

qualitative monitoring efforts for all active phases and address success standards and measures to correct underperformance, as needed.

The annual monitoring reports will be based on field observations and measurements and will record the condition of the restoration and revegetation areas. The monitoring period will begin after the completion of the revegetation effort. The monitoring reports will include, but may not be limited to, the following information:

- Total vegetation acreage subject to temporary disturbance.
- Dates and descriptions of reclamation, revegetation, and monitoring activities conducted during the reporting period, including the timing and frequency of data collection, invasive non-native plant control, and maintenance activities.
- Description of the general health and vigor of the plants.
- Description of any pests or circumstances affecting the plants.
- Description of any changes in the physical environment of the plants since the end of the previous reporting period and since the beginning of the monitoring period.
- Presentation of monitoring data and discussion of whether success criteria for the year were met.
- If it is determined that the restoration has not been successful, then the suspected causes of failure and identification of any adaptive management measures necessary for the success of the restoration effort will be noted.

5.2.8 NOTIFICATION OF COMPLETION AND AGENCY CONFIRMATION

Restoration activities will be considered complete when the final success criteria have all been met according to each project phase. The County DPR will be notified of the completion of each phase of the habitat restoration effort through the submittal of a final (Year 3) monitoring report by the restoration specialist, which will then be submitted to the pertinent regulatory agencies. After receipt of the final monitoring report, County DPR and regulatory agencies may inspect the habitat restoration area to determine the success of the restoration effort, which will be based on the restoration area meeting all success standards included in this Plan. If these standards are not met by the end of Year 3, the maintenance and monitoring program may be extended until the standards are met, subject to County DPR discretion. Specific remedial measures (approved by County DPR and regulatory agencies) will be used during any extension. Monitoring extensions will be done only for restoration areas that fail to meet final success criteria. This process will continue until all Year 3 success criteria are attained or until County DPR and regulatory agencies determine that remedial measures are appropriate. Should the habitat restoration effort meet all goals prior to the end of an up to three-year monitoring period, County DPR and regulatory agencies, at their discretion, may terminate the maintenance and monitoring effort. If requested, a site visit may be conducted with County DPR and regulatory agencies to verify site conditions.

Criteria to evaluate such sites may include qualitative observations such as whether the soils are stable and weeds are under control, signs of successful natural recruitment such as perennial seedlings that may not provide significant cover but are becoming established and will eventually provide higher cover, successful establishment of native annual populations that appear self-sustaining, or other potential measures. For these sites, remedial measures will be taken as needed using adaptive-management

strategies. The monitoring periods will be extended as needed to document the achievement of the established success criteria.

6.0 CONTINGENCY MEASURE

6.1 INITIATING CONTINGENCY MEASURES

Where adaptive management has tightly structured measures to be implemented based upon observed results, contingency measures are more loosely structured changes in project direction. Contingency measures may be warranted in order to address changed circumstances within a project phase or changed circumstances over several project phases. For instance, in the event of a disease or insect outbreak, such as the rapid explosion of KSHB within the Tijuana River Valley (Section 2.5), the County DPR may change courses and take measures to restore defoliated forest habitat by reprioritizing funds for forest restoration or tree thinning in lieu of planting and weed control.

If County DPR determines upon receipt of any of the annual monitoring reports that the habitat restoration effort is not meeting success standards due to changed circumstances, they may discuss the implementation of contingency measures with the restoration specialist.

6.2 FUNDING

County DPR shall be responsible for all costs associated with any remedial measures beyond the grant budget.

7.0 LONG TERM MANAGEMENT

Following completion of the Project, long-term maintenance and management of the restoration site will be executed by County DPR. Specifically, the site will be part of the DPR Preserve, and as such, will be patrolled regularly by County DPR rangers. Park rangers may hand pull any invasive non-native plants in the early stages of growth that are observed during patrols and communicate observations of new or problematic invasive non-native plant species infestations to County DPR district managers and/or Resource Management Division staff. Follow-up treatment will then be organized and implemented through coordination with the County of San Diego Department of Agriculture, Weights, and Measures, which has licensed invasive non-native plant control staff.

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Appendix B

Air Quality and Greenhouse Gas Emissions Technical Analysis

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January ~~21~~5, ~~2022~~2024 00187.00006.025

Kiran ~~Kaur~~Seibel
Department of Parks and Recreation
County of San Diego
5500 Overland Avenue, Suite 410
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Subject: **Air Quality and Greenhouse Gas Emissions Technical Analysis for the Tijuana River Valley Regional Park Habitat Restoration Project**

Dear Ms. ~~Kaur~~Seibel:

This letter summarizes the air quality and greenhouse gas (GHG) emissions for the proposed Tijuana River Valley Regional Park Habitat Restoration Project (project). The County of San Diego Department of Parks and Recreation (DPR) is proposing the project, which involves identifying, prioritizing, and implementing phased large-scale restoration throughout the Tijuana River Valley Regional Park (TRVRP) through implementation of the Habitat Restoration Plan (HRP) prepared for the TRVRP. The HRP largely focuses on removal of invasive non-native species populations and restoration of native plants within the approximately 1,740.75-acre site; see Figure 1, *Regional Location*, and Figure 2, *Project Vicinity (Aerial Photograph)*.

Restoration of the 1,740.75 acres is divided into 12 phases by location, numbered Phases 1 through 12. Phase 1 would consist of manual labor to accomplish hand removal of small stands, container planting, and herbicide treatments of isolated individuals. Phases 2 through 4 would generally consist of the manual labor described in Phase 1, in addition to mowing (mastication) of large stands. Phases 5 through 12 would generally consist of the manual labor described in Phase 1, hand removal of tree stands, and large tree removal. The location and size of each phase is provided in Table 1, *Habitat Restoration Plan Phases*.

Table 1
HABITAT RESTORATION PLAN PHASES

Phase	Location	Total Size (acre)	Size of Weed Removal (acre)
1	Upstream of Dairy Mart Road	35.46	9.28
2	Downstream of Dairy Mart Road bridge and north of the South Bay Reclamation Plant property cut out	154.9	44.72
3	East of International Road and North of Sunset Avenue	21.56	12.32
4	Central eastern portion of TRVRP, main river channel	253.48	134.91
5	North of Monument Road and south of trail	30.32	8.66
6	West of Hollister Avenue, east of Arroyo Cañon Matadero, to main riparian corridor	42.19	10.03
7	Central western portion of TRVRP, main riparian corridor	223.10	125.04
8	West of 19th street, south of Sunset Ave to main riparian corridor	112.13	20.05
9	South of ballfields between Hollister Avenue and Dairy Mart Pond	125.27	26.87
10	West of International Road, north of Sunset Avenue	95.05	9.98
11	North of Monument Road, west of Hollister St. and extending to the western TRVRP boundary, and south of the Tijuana River channel	218.76	72.26
12	South of Monument Road to the park boundary and west, including Monument Mesa and Spooners Mesa, to Goad Canyon	427.87	78.57

An exact construction timeline is unknown at this point in project design. Project phases would likely be constructed sequentially, but there is potential for two phases to overlap. This analysis conservatively estimates two phases to occur at a time, with each phase using separate construction equipment~~. Activities are assumed to commence in 2022 and each phase is assumed to use the listed equipment for~~ and lasting approximately 10 weeks. Minor pre-construction and post-construction activities may occur at the site but would not require the use of equipment and would therefore generate negligible emissions. No large-scale import or export of material is anticipated. This analysis assumes a total of 20 workers for each phase, carpooling to and from the site each day with 4 individuals per truck.

METHODOLOGY AND ASSUMPTIONS

Criteria air pollutant and GHG emissions resulting from equipment used during construction of the proposed project were quantified using equipment emission factors from the California Emissions Estimator Model (CalEEMod) Version 2020.4.0, listed in Appendix D of the CalEEMod User Manual (California Air Pollution Control Officers Association [CAPCOA] 2021). Emissions resulting from worker commutes were quantified using emission factors from the California Air Resources Board's (CARB's) EMFAC Emissions Inventory (CARB 2021). Because the proposed project involves habitat restoration in a regional park, it would not increase long-term air pollutant or GHG emissions in the project area, and therefore operational emissions were not modeled.

The analysis assumes that each of the 12 project phases would last approximately 10 weeks. Each phase may also include additional pre-construction and post-construction activities (i.e., seed collection, plant treatment, trash/debris removal, including removal of small, dilapidated, remnants of structures, such as outbuildings and sheds). To account for potential equipment needed for debris removal, a bulldozer has been assumed for each of the 12 phases~~, but such activities would be minor and are not anticipated to require specialized equipment~~. Additionally, the project would include up to three years of

maintenance and monitoring which would require workers commuting to and from the project site. However, the number of worker trips would be nominal and would not generate significant emissions. As such, emissions associated with these activities were not modeled.

As a conservative analysis, two phases (one of Phases 2-4 and one of Phases 5-12) are assumed to occur simultaneously at a given time. Sources of construction air pollutant and GHG emissions include handheld landscaping equipment, off-road diesel equipment exhaust, and worker commuting.

Table 2, *Construction Equipment Assumptions by Phase*, presents the type and amount of construction equipment and vehicles that would be used during each phase of project construction. A complete listing of the assumptions used in the analysis and the model outputs are provided in Appendix A, *Modeling Outputs*.

Table 2
CONSTRUCTION EQUIPMENT ASSUMPTIONS BY PHASE

Phase	Construction Activity and Equipment/Vehicle Type	Number of Pieces	Horsepower[1]
Phase 1	Chainsaw	2	2
	Leaf Blower	3	2
	Trimmer/Edger	3	2
	Bulldozer	1	500
Phases 2-4	Chainsaw	2	2
	Leaf Blower	3	2
	Trimmer/Edger	3	2
	Mower	2	15
	Tractor	1	15
	Bulldozer	1	500
Phases 5-12	Chainsaw	2	2
	Leaf Blower	3	2
	Trimmer/Edger	3	2
	Mower	2	15
	Tractor	2	15
	Chipper/Grinder	1	15
	Bulldozer	1	500

[1] Equipment horsepower assumption provided in Appendix A.

For the purposes of this analysis, the duration of each phase is assumed to take approximately 10 weeks ~~beginning in 2022~~, with up to two phases occurring simultaneously. The quantity, duration, and the intensity of construction activity affects the amount of construction emissions and their related pollutant concentrations that occur at any one time. Additionally, it is unlikely that phases would have considerable overlap in construction periods; rather, phases would likely be constructed sequentially. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the construction scenario wherein a relatively large amount of construction is occurring in an intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If phases are constructed sequentially, emissions could be reduced because of a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

CRITERIA AIR POLLUTANT EMISSIONS

Significance Criteria

To determine whether a project would (a) result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or (b) result in a cumulatively considerable net increase of particulate matter less than 10 microns (PM_{10}) or exceed quantitative thresholds for ozone precursors (i.e., nitrogen oxides [NO_X] and volatile organic compound [VOCs]), project emissions may be evaluated based on the quantitative emission thresholds established by the San Diego Air Pollution Control District (SDAPCD). As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIAs). In the absence of a SDAPCD adopted threshold for particulate matter less than 2.5 microns ($PM_{2.5}$), the SCAQMD's screening threshold of 55 pounds per day or 10 tons per year is used. The Rule 20.2 screening thresholds were designed to attain the National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency (USEPA) and the California Ambient Air Quality Standards (CAAQS) established by CARB. The NAAQS and CAAQS were designed to protect the health of the most susceptible individuals. Therefore, by not exceeding the Rule 20.2 screening thresholds, it is numerically demonstrated that a project's total emissions would not result in a significant impact to air quality for CEQA purposes, and that there would be no potential for adverse health effects to the public. The screening thresholds are included in Table 3, *Screening Level Thresholds for Air Quality Impact Analysis*.

Table 3
SCREENING-LEVEL THRESHOLDS FOR AIR QUALITY IMPACT ANALYSIS

Pollutant	Total Construction Emissions (Pounds per Day)
Respirable Particulate Matter (PM_{10})	100
Fine Particulate Matter ($PM_{2.5}$)	55
Oxides of Nitrogen (NO_X)	250
Oxides of Sulfur (SO_X)	250
Carbon Monoxide (CO)	550
Volatile Organic Compounds (VOCs)	75

Source: SDACPD Rule 20.2 and Rule 1210

Project Emissions

Construction of the proposed project would generate short-term criteria air pollutant emissions, including emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. An estimate of the maximum daily emissions of each criteria air pollutant during project construction is presented in Table 4, *Maximum Daily Construction Emissions*.

Table 4
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Construction Phases	VOC*	NO_X*	CO*	SO_X*	PM_{10}*	$PM_{2.5}$*
Phase 1	~~20~~23	~~<1~~32	~~66~~92	<1	~~<1~~2	~~<1~~1
Each of Phases 2-4	~~27~~30	~~7~~39	~~206~~232	<1	~~1~~3	~~1~~3
Each of Phases 5-12	32	44	309	<1	4	4
Maximum Daily Emissions[1]	~~59~~62	~~51~~83	~~515~~542	<1	~~5~~7	~~5~~6
SDAPCD Thresholds	***75***	***250***	***550***	***250***	***100***	***55***
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: CAPCOA 2021, CARB 2021 (calculations provided in Appendix A)
Note: Emissions are rounded to the nearest whole number.
* Pollutant Emissions (pounds per day)
[1] It is assumed a maximum of two phases (one of Phases 2-4 and one of Phases 5-12) would be constructed at a single time. Therefore, maximum daily emissions are calculated as the sum of one of Phases 2-4 and one of Phases 5-12.
VOC = volatile organic compound; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides;
PM_{10} = particulate matter 10 microns or less in diameter; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

As shown in Table 4, emissions of criteria pollutants related to project construction would be below the daily thresholds. Therefore, impacts from criteria pollutants generated during construction would be less than significant.

GREENHOUSE GAS EMISSIONS

Significance Criteria

Emissions of GHGs are presented in carbon dioxide equivalents (CO_2e), which is a metric used to compare the emissions from various GHGs based on their global warming potential. The CO_2e of a gas is determined by multiplying the tons of that gas by its global warming potential.

The California Global Warming Solutions Act of 2006, widely known as AB 32, requires CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. CARB is directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. Signed into law by Governor Brown on September 8, 2016, Senate Bill (SB) 32 (Amendments to the California Global Warming Solutions Action of 2006) codified the targets established by EO B-30-15 for 2030~~, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.~~. Approved by Governor Newsom on September 16, 2022, AB 1279, The California Climate Crisis Act, declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels.

The County of San Diego adopted the 2018 County of San Diego Climate Action Plan (CAP) on February 14, 2018. The CAP outlined strategies and measures to reduce the county's contribution to GHG emissions and to meet the state's 2020 and 2030 emissions targets~~, as well as ensure progress towards the 2050 reduction goal~~. The CAP identifies 11 strategies and 26 measures plus numerous supporting efforts to reduce GHG emissions in the largely rural, unincorporated county as well as within County government operations (County of San Diego 2021). These strategies and measures would focus

on energy efficiency, developing renewable sources of energy, improving waste recycling, and improving access to sustainable transportation. Measures relevant to the proposed project include:

- Measure T-3.4: Reduce the County's Fleet Emissions
- Measure W-1.2: Reduce Outdoor Water Use

On September 30, 2020, the County of San Diego Board of Supervisors voted to set aside the approval of the CAP because a portion of the Supplemental Environmental Impact Report (EIR) was found to be out of compliance with CEQA. The County is currently preparing a CAP Update to revise the 2018 CAP and associated EIR in response to the court's direction. In accordance with the State CEQA Guidelines, consistency with the 2018 CAP cannot be relied upon for determination of project-related GHG emissions impact significant until it is reapproved in compliance with CEQA.

Although the court ruling stuck down part of the 2018 CAP EIR, the court did not find fault with its 26 GHG reduction measures. Therefore, while the 2018 CAP may not be used for project impact significance determination, the relevant GHG reducing measures may be used to mitigate project-specific GHG impacts (County of San Diego 2021).

Therefore, for the purpose of this analysis, a screening level based on the CAPCOA's report CEQA & Climate Change is used to determine whether further analysis would be needed to examine the GHG impacts of a proposed project (CAPCOA 2008). CAPCOA developed a 900 MT CO_2e per year screening threshold by analyzing the capture of 90 percent or more of future discretionary development for residential and commercial projects across the state. Direct and cumulative impacts would be potentially significant and require further analysis if the project results in emissions that exceed 900 MT CO_2e beyond current baseline emissions. Because the project would be completed after 2020, the 900 MT CO_2e screening threshold would no longer be applicable. Senate Bill (SB) 32 sets a GHG emission reduction target of 40 percent below 1990 levels by 2030, or 540 MT CO_2e. To achieve this target, a regression trajectory was projected reducing the operational year emissions target from the 900 MT CO_2e target in 2020 to the 540 MT CO_2e target in 2030. This trajectory is outlined in Table 5, *GHG Significance Thresholds Trajectory*.

Table 5
GREENHOUSE GAS SIGNIFICANCE THRESHOLDS TRAJECTORY

Year	Emissions Threshold (MT CO_2e)
2020	900
2021	855
2022	813
2023	722
2024	734
2025	697
2026	662
2027	629
2028	598
2029	568

2030	540

Source: CAPCOA 2008; Senate Bill 32
Note: Emissions thresholds reduce by 4.98 percent each year to achieve Senate Bill 32's 2030 target.
MT = metric tons; CO_2e = carbon dioxide equivalents

Project Emissions

Project construction would generate GHG emissions associated with construction equipment exhaust and from construction worker vehicle trips to and from the project site. The primary GHG emissions would be CO_2 from gasoline and diesel combustion, with more limited vehicle tailpipe emissions of N_2O and CH_4. Total GHG emissions during project construction are presented in Table 6, *Construction Greenhouse Gas Emissions*.

Table 6
CONSTRUCTION GREENHOUSE GAS EMISSIONS

Construction Phase	Emissions (MT CO_2e)[2]
Phase 1	~~6~~79
Phases 2-4 Total	~~128~~346
Phases 5-12 Total	1,169
TOTAL	**~~1,303~~1,593**
Amortized Construction Emissions[1]	~~43~~53

Source: CAPCOA 2021, CARB 2021 (calculations provided in Appendix A)
[1] Construction emissions are amortized over 30 years in accordance with County guidance.
[2] Numbers may not total due to rounding
MT = metric tons; CO_2e = carbon dioxide equivalents

CONCLUSION

The project would result in GHG emissions from construction of ~~1,303~~1,593 MT CO_2e. Averaged over 30 years, the proposed construction activities would contribute approximately ~~43~~ 53 MT CO_2e emissions per year. This would be well below the screening threshold for any year along the trajectory described in Table 6, including the 2030 threshold of 540 MT CO_2e; therefore, GHG impacts from the project would be less than significant.

Sincerely,

Joanne M. Dramko, AICP
County-approved Air Quality Consultant

Victor Ortiz
Senior Air Quality Specialist

Attachments

Figure 1, Regional Location
Figure 2, Project Vicinity (Aerial Photograph)
Appendix A, Modeling Outputs

REFERENCES

California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model User's Guide, Version 2020.4.0. May.

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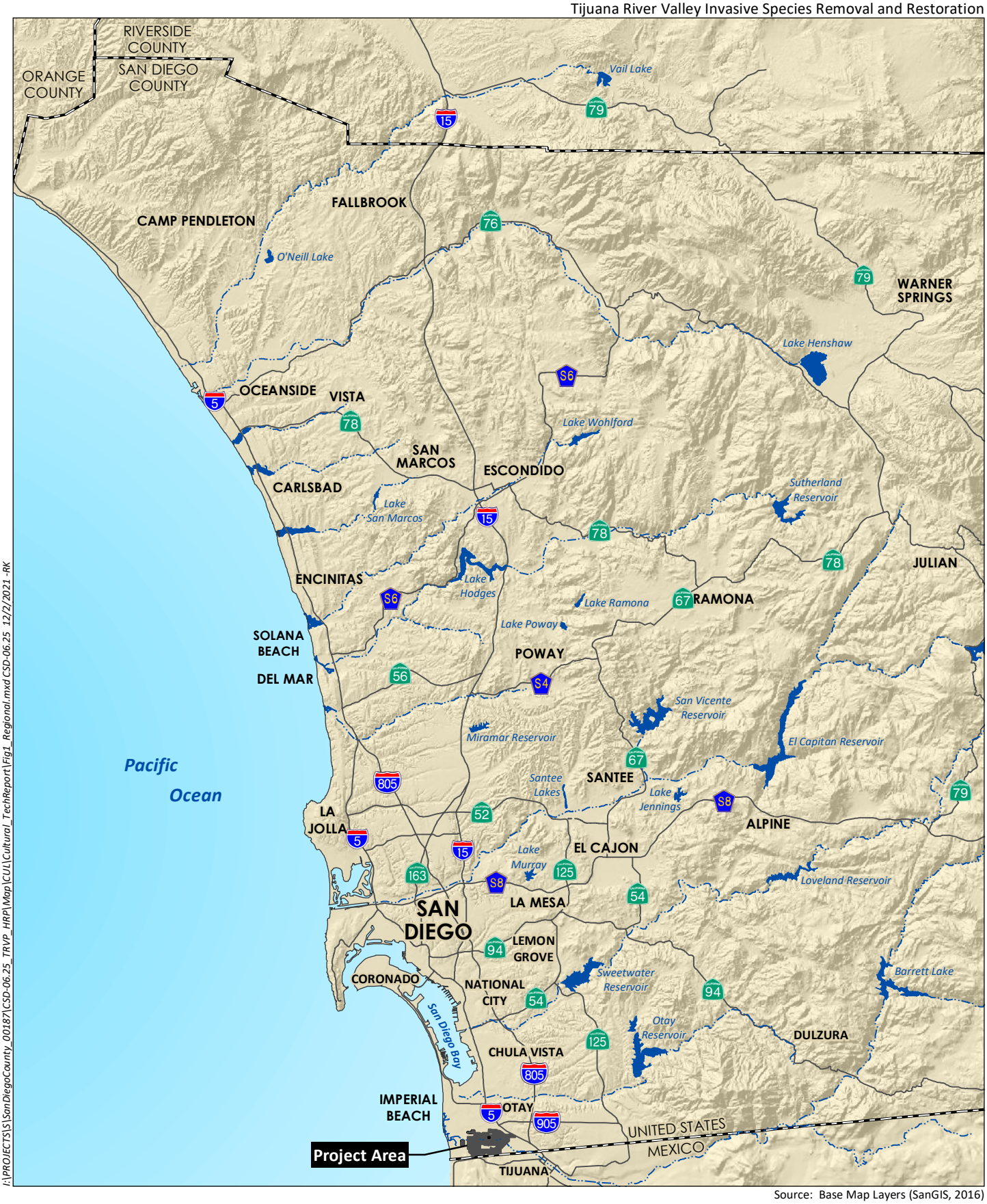

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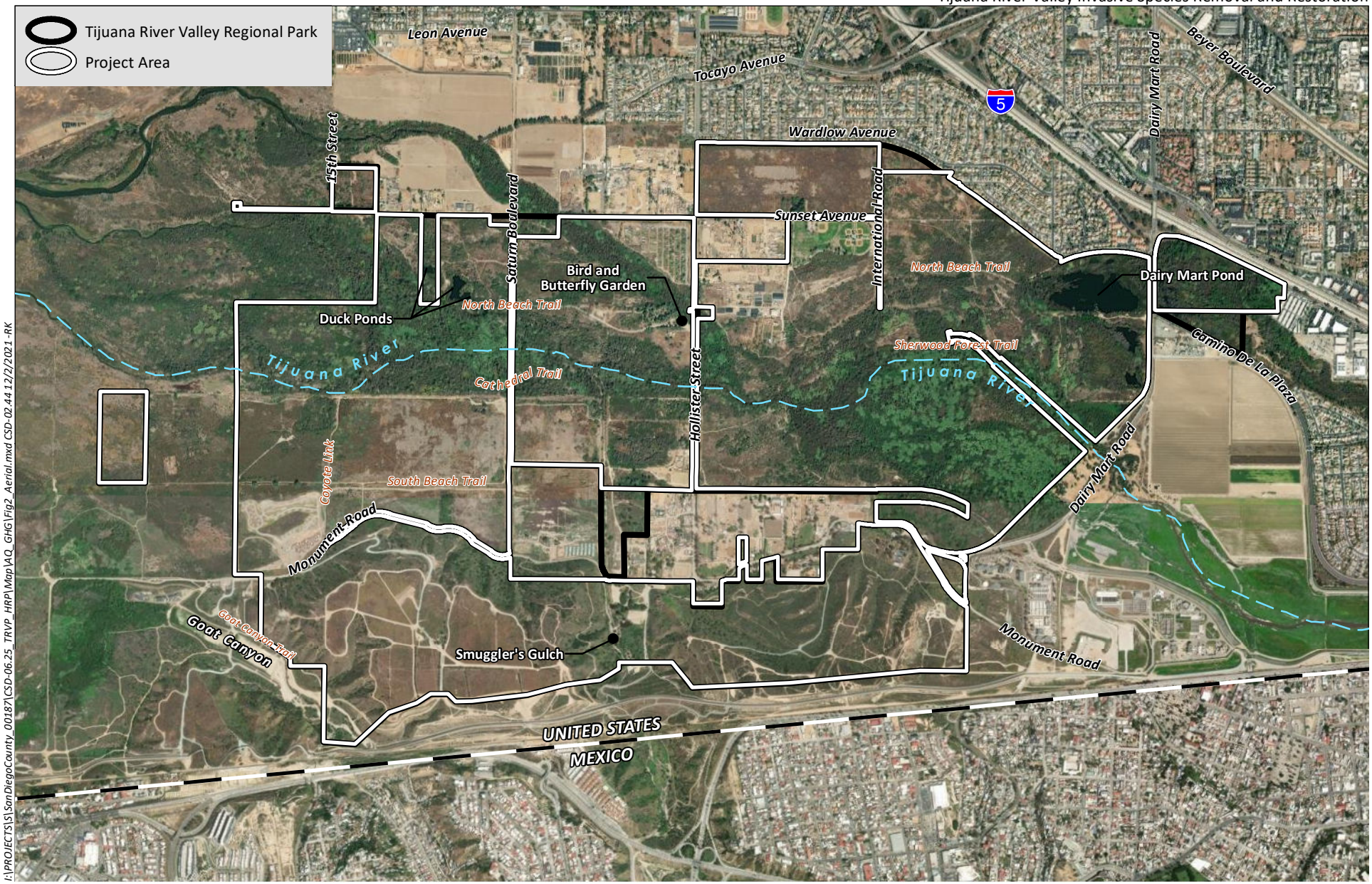
Source: Base Map Layers (SanGIS, 2016)

0 8 Miles

Regional Location

Figure 1



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Source: Aerial Photo (Esri 2020)

0 2,000 Feet

Project Vicinity (Aerial Photograph)

Figure 2

Attachment A

Modeling Outputs

Total By Phases

	Emissions (tons)						Emissions (MT)			
	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Phase 1 Total (equipment)	0.580885906	0.809164073	2.292191551	0.001005309	0.039250692	0.036274449	75.89500986	0.051571436	0	77.18429575
Phases 2-4 Total (equipment)	2.250563502	2.89342107	17.41332596	0.005049692	0.209430281	0.199112639	335.0780756	0.208272928	0	340.2848988
Phases 5-12 Total (equipment)	6.442674474	8.879111625	61.88622639	0.016746327	0.795019313	0.763801831	1138.697091	0.644817843	0	1154.817537
Phase 1 Total (commute)	0.00	0.00	0.00	0.00	0.00	0.00				1.75
Phases 2-4 Total (commute)	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	5.24
Phases 5-12 Total (commute)	0.00	0.00	0.01	0.00	0.00	0.00	-	-	-	13.98

Phase 1 TOTAL	0.58	0.81	2.29	0.00	0.04	0.04	75.90	0.05	-	78.93
Phases 2-4 TOTAL	2.25	2.89	17.42	0.01	0.21	0.20	335.08	0.21	-	345.53
Phases 5-12 TOTAL	6.44	8.88	61.89	0.02	0.80	0.76	1,138.70	0.64	-	1,168.80

	Emissions (tons)						Emissions (MT)			
	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
Equipment Total	9.274123882	12.58169677	81.5917439	0.022801328	1.043700286	0.999188919	1549.670176	0.904662207	0	1572.286731
Commute Total	0.00	0.00	0.01	0.00	0.00	0.00	-	-	-	20.98
PROJECT TOTAL	9.28	12.58	81.60	0.02	1.04	1.00	1,549.67	0.90	-	1,593.26

Total By Phases

	Emissions (pounds per day)					
	ROG	NOX	CO	SOX	PM10	PM2.5
Phase 1 (equipment)	23.23543625	32.3665629	91.68766204	0.040212349	1.57002769	1.450977971
Phases 2-4 (per phase) (equipmen	30.00751336	38.5789476	232.1776795	0.06732923	2.792403746	2.654835182
Phases 5-12 (per phase) (equipmen	32.21337237	44.39555812	309.4311319	0.083731635	3.975096563	3.819009154
commute per phase	0.01	0.00	0.04	0.00	0.00	0.00
Phase 1	23.25	32.37	91.73	0.04	1.57	1.45
Phase 2-4 (per phase)	30.02	38.58	232.22	0.07	2.79	2.66
Phases 5-12 (per phase)	32.22	44.40	309.47	0.08	3.98	3.82

Phases						Daily Usage	Emission Factors (g/hp-hr)										Emission Rates (lbs/day)									
1	2-4'	5-12'	Equipment	Quantity	Horsepower	(hr/day)	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
			Chainsaw	2	2	6	120.084	2.86	332.625	0.036	0.61	0.61	884.646	7.463	0	1071.221	6.353763	0.151325	17.59952	0.001905	0.032276	0.032276	46.80749	0.394875	0	56.67936
			Leaf Blower	3	2	6	95.338	2.777	322.937	0.035	0.593	0.593	858.879	5.925	0	1007.004	7.566641	0.220401	25.63037	0.002778	0.047064	0.047064	68.1662	0.470246	0	79.92236
			Trimmer/Edger	3	2	6	77.784	2.482	285.983	0.031	0.449	0.449	772.991	4.834	0	893.841	6.173442	0.196988	22.69746	0.00246	0.035636	0.035636	61.34957	0.383658	0	70.94101
			Bulldozer	1	500	6	0.475	4.80775	3.89489	0.005	0.22	0.202	479.3107	0.155	0	483.1857	3.14159	31.79785	25.76031	0.033069	1.455052	1.336002	3170.1	1.02515	0	3195.729
			Mower	2	15	6	15.732	3.97	333.499	0.035	2.487	2.487	858.879	0.977	0	883.304	6.242967	1.575425	132.3432	0.013889	0.986922	0.986922	340.831	0.387705	0	350.5236
			Tractor	1	150	8	0.2	1.75274	3.07944	0.005	0.089	0.082	467.8004	0.151	0	471.5754	0.52911	4.63696	8.14681	0.013228	0.235454	0.216935	1237.589	0.399478	0	1247.576
			Tractor	1	150	8	0.2	1.75274	3.07944	0.005	0.089	0.082	467.8004	0.151	0	471.5754	0.52911	4.63696	8.14681	0.013228	0.235454	0.216935	1237.589	0.399478	0	1247.576
			Chipper/Grinder	1	15	4	12.676	8.918	522.437	0.024	7.161	7.161	858.879	0.706	0	876.529	1.676749	1.17965	69.10664	0.003175	0.947239	0.947239	113.6103	0.093388	0	115.945
			Landscape equipment: used 2022 Commercial numbers																							
			Bulldozer: used 2022 numbers, highest HP of median range																							
																Phase 1 Daily Total	23.23544	32.36656	91.68766	0.040212	1.570028	1.450978	3346.423	2.273929	0	3403.272
																Phases 2-4 Daily Total	30.00751	38.57895	232.1777	0.067329	2.792404	2.654835	4924.844	3.061112	0	5001.371
																Phases 5-12 Daily Total	32.21337	44.39556	309.4311	0.083732	3.975097	3.819009	6276.043	3.553978	0	6364.892
																TOTAL (pounds per day)	370.965	503.2679	3263.67	0.912053	41.74801	39.96756	68329.3	39.88909	0	69326.52
																	Emissions (tons)						Emissions (MT)			
																	ROG	NOX	CO	SOX	PM10	PM2.5	CO2	CH4	N2O	CO2e
																Phase 1 Total	0.580886	0.809164	2.292192	0.001005	0.039251	0.036274	75.89501	0.051571	0	77.1843
																Phases 2-4 Total	2.250564	2.893421	17.41333	0.00505	0.20943	0.199113	335.0781	0.208273	0	340.2849
																Phases 5-12 Total	6.442674	8.879112	61.88623	0.016746	0.795019	0.763802	1138.697	0.644818	0	1154.818
																Total	9.274124	12.5817	81.59174	0.022801	1.0437	0.999189	1549.67	0.904662	0	1572.287

Trip Characteristics				
Trip Purpose	Average Daily Worker Trips	Average Trip Length	Daily Vehicle Miles Traveled	Working Days Per Year
Worker Commute	5	20.00	100	50

Emissions are calculated using the equations described below:

For running emissions

$Emissions_{pollutant} = VMT * EF_{pollutant}$

Where:

$Emissions_{pollutant}$ = emissions for each pollutant

VMT = vehicle miles traveled

$EF_{pollutant}$ = emission factor for each pollutant

Other emission types are calculated from trip rates as follows

$Emissions_{pollutant} = Trip * EF_{pollutant}$

Where:

$Emissions_{pollutant}$ = emissions for each pollutant

Trip = number of vehicle trips

$EF_{pollutant}$ = emission factor for each pollutant

Grams per Trip Emission Factors

ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
0.91496	2.79994	0.29861	0.00071	0.00181	0.00166

Grams per Mile Emission Factors

ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
0.01630	0.85111	0.07833	0.00340	0.04629	0.01917

Total Trip Emissions (lbs/day)

ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
0.01009	0.03086	0.00329	0.00001	0.00002	0.00002

Total VMT Emissions (lbs/day)

ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
0.00018	0.00938	0.00086	0.00004	0.00051	0.00021

Total Worker Commute Related Emissions Per Phase

	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Pounds per Day	0.01	0.04	0.00	0.00	0.00	0.00
Tons per Year	0.00	0.00	0.00	0.00	0.00	0.00

Trip Characteristics			
Trip Purpose	Average Daily Worker Trips	Average Trip Length	Daily Vehicle Miles Traveled
Worker Commute	5	20.00	100

Working Days	50
Annual Trips	250
Annual VMT	5,000

Emissions are calculated using the equations described below:

For running emissions

$$Emissions_{pollutant} = VMT * EF_{pollutant}$$

Where:

$Emissions_{pollutant}$ = emissions for each pollutant

VMT = vehicle miles traveled

$EF_{pollutant}$ = emission factor for each pollutant

Other emission types are calculated from trip rates as follows

$$Emissions_{pollutant} = Trip * EF_{pollutant}$$

Where:

$Emissions_{pollutant}$ = emissions for each pollutant

Trip = number of vehicle trips

$EF_{pollutant}$ = emission factor for each pollutant

Grams per Trip Emission Factors	Grams per Mile Emission Factors
CO_2e	CO_2e
83.45	345.45

Total Trip Emissions (MT)	Total VMT Emissions (MT)
CO_2e	CO_2e
0.02	1.73

Total Worker Commute Emissions Per Phase (MT/yr)

CO_2e

1.75

Appendix C

Biological Resources Technical Report

Tijuana River Valley Invasive Species Removal and Restoration

Biological Resources Technical Report

~~November 2023~~ January 2024 | 00187.00006.025

Prepared for:

County of San Diego,
Department of Parks and Recreation
5500 Overland Avenue, Suite 410
San Diego, CA 92123

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
ASMD	Area Specific Management Directive
BCC	Bird of Conservation Concern
BMO	Biological Mitigation Ordinance
BRCA	Biological Resource Core Area
CAGN	Coastal California Gnatcatcher
CCA	California Coastal Act
CCC	California Coastal Commission
CCMP	California Coastal Management Program
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CFGC	California Fish and Game Code
CIAP	Coastal Impact Assistance Program
City	City of San Diego
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
DPR	Department of Parks and Recreation
ESA	Environmentally Sensitive Area
ESHA	Environmentally Sensitive Habitat Area
ESL	Environmentally Sensitive Lands
F	Fahrenheit
FE	Federally Endangered
FESA	Federal Endangered Species Act
FP	Fully Protected
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.

ACRONYMS AND ABBREVIATIONS (cont.)

I	Interstate
LBVI	Least Bell's Vireo
LCP	Local Coastal Program
lf	linear feet
MBTA	Migratory Bird Treaty Act
MHPA	Multi-Habitat Planning Area
mi^2	square miles
MSCP	Multiple Species Conservation Program
NCCP	Natural Communities Conservation Planning
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
OHWM	ordinary high water mark
project	Tijuana River Valley Invasive Species Removal and Restoration
Report	Biological Resources Technical Report
RGP	Regional General Permit
RMP	Resource Management Plan
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SANDAG	San Diego Association of Governments
SE	State Endangered
SSC	Species of Special Concern
SWFL	Southwestern Willow flycatcher
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TRNERR	Tijuana River National Estuarine Research Reserve
TRVRP	Tijuana River Valley Regional Park
TSNWR	Tijuana Slough National Wildlife Refuge
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WL	Watch List

EXECUTIVE SUMMARY

At the request of the County of San Diego (County) Department of Parks and Recreation (DPR; project proponent), HELIX Environmental Planning, Inc. (HELIX) has prepared this Biological Resources Technical Report (report) for the Tijuana River Valley Invasive Species Removal and Restoration Project (project), which is proposed in boundaries of the City of San Diego (City) in southwestern San Diego County, California. The project proposes to implement the Tijuana River Valley Invasive Species Removal and Restoration project, which upon completion, would implement a maintenance and monitoring program for restoration of disturbed habitats on the project area, comprising approximately 1,740.75 acres of wetland, riparian, and upland habitats on lands within the Tijuana River Valley Regional Park that are County owned and managed by DPR and City owned.

In preparing this report, HELIX established a 1,964.18-acre study area, which encompasses the 1,740.75-acre proposed project area plus a 100-foot buffer. The purpose of this report is to document the existing biological conditions within the study area and analyze the project's potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act by DPR.

The project would temporarily affect 216.94 acres of sensitive habitat for the implementation of habitat restoration activities within the approximately 1,964.18-acre study area. No permanent impacts to sensitive habitat would occur. There are no impacts from the project outside of the study area. Restoration is intended to be implemented in phases, divided into separate Treatment Areas; therefore, this report also analyzes the impacts from each individual Treatment Area and the impacts for the most impactive combination of Treatment Areas. To the extent that the project's impacts could result in significant effects on particular biological resources – such as special-status species – they can and will be mitigated to less than significant levels.

HELIX conducted vegetation mapping, species habitat assessment, jurisdictional delineation, rare plant surveys, and protocol-level surveys for the least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), and southwestern willow flycatcher (*Empidonax traillii extimus*) during the period of March 2021 to July 2021. In total, 117 biological surveys were completed in 2021. The study area supports 35 vegetation communities/habitat types, including 26 sensitive vegetation types: saltgrass grassland, southern coastal salt marsh, coastal valley and freshwater marsh, emergent wetland, southern riparian forest (including disturbed), southern riparian woodland, non-native riparian, southern willow scrub (including disturbed), mule fat scrub (including disturbed), tamarisk scrub, riparian scrub (disturbed), open water, unvegetated habitat – streambed, arundo-dominated riparian, maritime succulent scrub, southern maritime chaparral, coastal scrub, Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub: baccharis dominated (including disturbed), chenopod scrub, and non-native grassland. The remaining nine vegetation types/habitat types are not considered sensitive: eucalyptus woodland, non-native vegetation, non-native woodland, disturbed habitat, disturbed habitat – trail, agriculture, row crops, developed land, and developed land - trail.

Seventeen special status plant species were confirmed as occurring within the study area during rare plant surveys: San Diego bur-sage (*Ambrosia chenopodiifolia*), singlewhorl burrobrush (*Ambrosia monogyra*), San Diego sagewort (*Artemisia palmeri*), San Diego viguiera (*Bahiopsis laciniata*), golden-

spined cereus (*Bergerocactus emoryi*), wart-stemmed ceanothus (*Ceanothus verrucosus*), western dichondra (*Dichondra occidentalis*), cliff spurge (*Euphorbia misera*), San Diego barrel cactus (*Ferocactus viridescens*), San Diego marsh-elder (*Iva hayesiana*), southern California black walnut (*Juglans californica*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), sea dahlia (*Leptosyne maritima*), Baja California birdbush (*Ornithostaphylos oppositifolia*), Torrey pine (*Pinus torreyana* ssp. *torreyana*), Nuttall's scrub oak (*Quercus dumosa*), and ashy spike-moss (*Selaginella cinerascens*). The project would avoid impacts to San Diego bur-sage, San Diego viguiera, golden-spined cereus, wart-stemmed ceanothus, western dichondra, cliff spurge, San Diego barrel cactus, southern California black walnut, sea dahlia, Baja California birdbush, Torrey pine, Nuttall's scrub oak, and ashy spike-moss. The project would potentially impact relatively low numbers of singlewhorl burrobrush, San Diego sagewort, San Diego marsh-elder, and southwestern spiny rush. Impacts to San Diego sagewort and southwestern spiny rush are considered less than significant because these species occur within similar habitat adjacent to the study area and are widespread throughout the City of San Diego Multiple Species Conservation Program (MSCP) Subarea. Potential significant impacts would occur to singlewhorl burrobrush and San Diego marsh-elder but would be mitigated to less than significant levels.

A total of 38 special status animal species were detected on or within 500 feet of the study area during 2018 and 2021 surveys: monarch (*Danaus plexippus*), Quino checkerspot butterfly (*Euphydryas editha quino*), western spadefoot toad (*Spea hammondii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*), Baja California coachwhip (*Coluber fuliginosus*), Blainville's horned lizard (*Phrynosoma blainvillii*), Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), great blue heron (*Ardea herodias*), red-shouldered hawk (*Buteo lineatus*), green heron (*Butorides virescens*), Costa's hummingbird (*Calypte costae*), northern cardinal (*Cardinalis cardinalis*), turkey vulture (*Cathartes aura*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), American peregrine falcon (*Falco columbarius*), yellow-breasted chat (*Icteria virens*), gadwall (*Mareca strepera*), osprey (*Pandion haliaetus*), American white pelican (*Pelecanus erythrorhynchos*), double-crested cormorant (*Phalacrocorax auritus*), white-faced ibis (*Plegadis chihi*), coastal California gnatcatcher (*Polioptila californica californica*), yellow warbler (*Setophaga petechia*), southern California rufous-crowned sparrow (*Aimophila ruficeps*), western bluebird (*Sialia mexicana*), Lawrence's goldfinch (*Spinus lawrencei*), barn owl (*Tyto alba*), least Bell's vireo (*Vireo bellii pusillus*), western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), Yuma myotis (*Myotis yumanensis*), San Diego desert woodrat (*Neotoma lepida intermedia*), and pocketed free-tailed bat (*Nyctinomops femorosaccus*).

Impacts to the following special status animal species would be less than significant: monarch, western spadefoot toad, Belding's orange-throated whiptail, Baja California coachwhip, Blainville's horned lizard, Cooper's hawk, sharp-shinned hawk, southern California rufous-crowned sparrow, great blue heron, red-shouldered hawk, green heron, Costa's hummingbird, northern cardinal, turkey vulture, northern harrier, white-tailed kite, California horned lark, merlin, American peregrine falcon, yellow-breasted chat, gadwall, osprey, American white pelican, double-crested cormorant, white-faced ibis, yellow warbler, western bluebird, Lawrence's goldfinch, barn owl, western mastiff bat, western red bat, San Diego black-tailed jackrabbit, Yuma myotis, San Diego desert woodrat, and pocketed free-tailed bat.

There would be potential significant impacts to the following species from at least one analyzed Treatment Area: least Bell's vireo, coastal California gnatcatcher, Quino checkerspot butterfly, and County Group 1 birds and raptors. Impacts to special status animal species would be mitigated to less than significant levels.

The study area supports the Tijuana River, Smuggler's Gulch, Dairy Mart Pond, and Duck Ponds, in addition to multiple unnamed ephemeral drainage features. These features would qualify as wetland and non-wetland waters of the U.S. subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the federal Clean Water Act (CWA); wetland and non-wetland waters of the State subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA; riparian-vegetated and unvegetated streambed subject to the regulatory jurisdiction of the California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of California Fish and Game Code (CFG Code); and potential coastal wetlands under the jurisdiction of the California Coastal Commission.

The project site occurs within the boundaries of the adopted City of San Diego MSCP Subarea Plan. Project impacts have been specifically planned to minimize impacts to sensitive habitats and sensitive species by targeting disturbed habitats for restoration. With the incorporation of the proposed mitigation measures, the project would be consistent with the MSCP. The proposed mitigation measures will reduce project-specific significant effects on biological resources to less than significant and ensure that the project does not make a "cumulatively considerable" contribution to any cumulative impact.

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1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

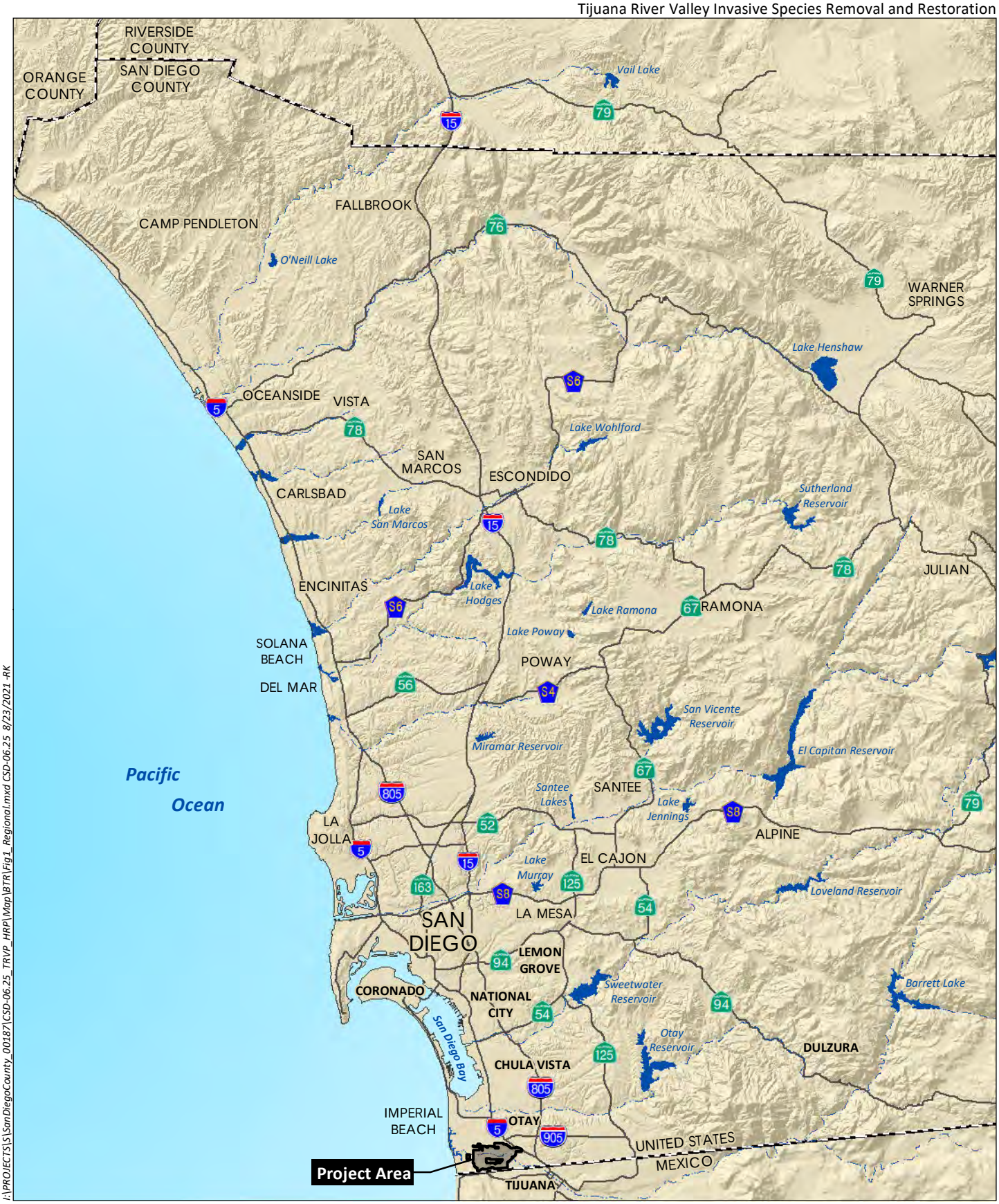
At the request of the County of San Diego (County) Department of Parks and Recreation (DPR; project proponent), HELIX Environmental Planning, Inc. (HELIX) has completed this Biological Resources Technical Report (report) for the Tijuana River Valley Invasive Species Removal and Restoration Project (project). The purpose of this report is to document the existing biological conditions within the project study area; identify those resources that are sensitive, including sensitive species with the potential to occur; provide an analysis of potential project impacts to sensitive biological resources with respect to local, state, and federal policy; and propose measures to avoid, minimize, and/or propose mitigation to offset potential significant impacts of the project on sensitive biological resources. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA).

1.2 PROJECT LOCATION AND DESCRIPTION

1.2.1 Project Location

The Tijuana River Valley Invasive Species Removal and Restoration Project is located within the boundaries of the City of San Diego (City) in southwestern San Diego County (Figure 1, *Regional Location*). The project area totals 1,740.75 acres and includes lands within the Tijuana River Valley Regional Park (TRVRP). Specifically, the project area includes approximately 1,617 acres of County owned and DPR managed lands and approximately 123 acres of City owned lands. The following 73 Assessor's Parcel Numbers intersect the project area: 63601010, 63602020, 63602048, 63602059, 63602105, 63701007, 63701008, 63701009, 63701010, 63701011, 63701034, 63701036, 63701037, 63701067, 63701072, 63701073, 63704103, 63704104, 63808041, 66202004, 66202005, 66202006, 66202009, 66202012, 66202013, 66202025, 66301044, 66301045, 66301048, 66301049, 66301050, 66301051, 66301052, 66301054, 66301101, 66301102, 66301103, 66301104, 66301106, 66301112, 66303006, 66303008, 66401021, 66401026, 66401032, 66401033, 66401036, 66401037, 66401038, 66401040, 66401044, 66401045, 66401047, 66401048, 66401049, 66401050, 66401053, 66401054, 66401055, 66401057, 66401102, 66401103, 66401104, 66401105, 66402004, 66501001, 66501002, 66501045, 76010799, 76024201, 76024220, 76024221, and 76024223.

Mapping of the project area included a 100-foot buffer pursuant to County's biology guidelines (County 2010a and 2010b) and is referred to as the study area. The 1964.18-acre study area is bound to the north by Sunset Avenue, to the south by Monument Road, to the west by Border Field State Park and the Tijuana River National Estuarine Research Reserve (TRNERR), and to the east by Dairy Mart Road and the residential community of San Ysidro (except for the part of the Dairy Mart Ponds that extend further east between the Interstate [I-] 5 corridor and Camino de la Plaza; Figure 2, *Project Vicinity [Aerial Photograph]*). The study area is situated within Sections 2, 3, 4, 5, 32, 33, 34, and 35, Townships 18 and 19 South, and Range 2 West of the U.S. Geological Survey (USGS) Imperial Beach topographic quadrangle map (Figure 3, *Project Vicinity [USGS Topography]*). Designated federal and state open space is found next to the study area and includes Border Field State Park, the TRNERR, and the Tijuana Slough National Wildlife Refuge (TSNWR; Figure 4, *Regional Designations and Conserved Lands*).



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Source: Base Map Layers (SanGIS, 2016)

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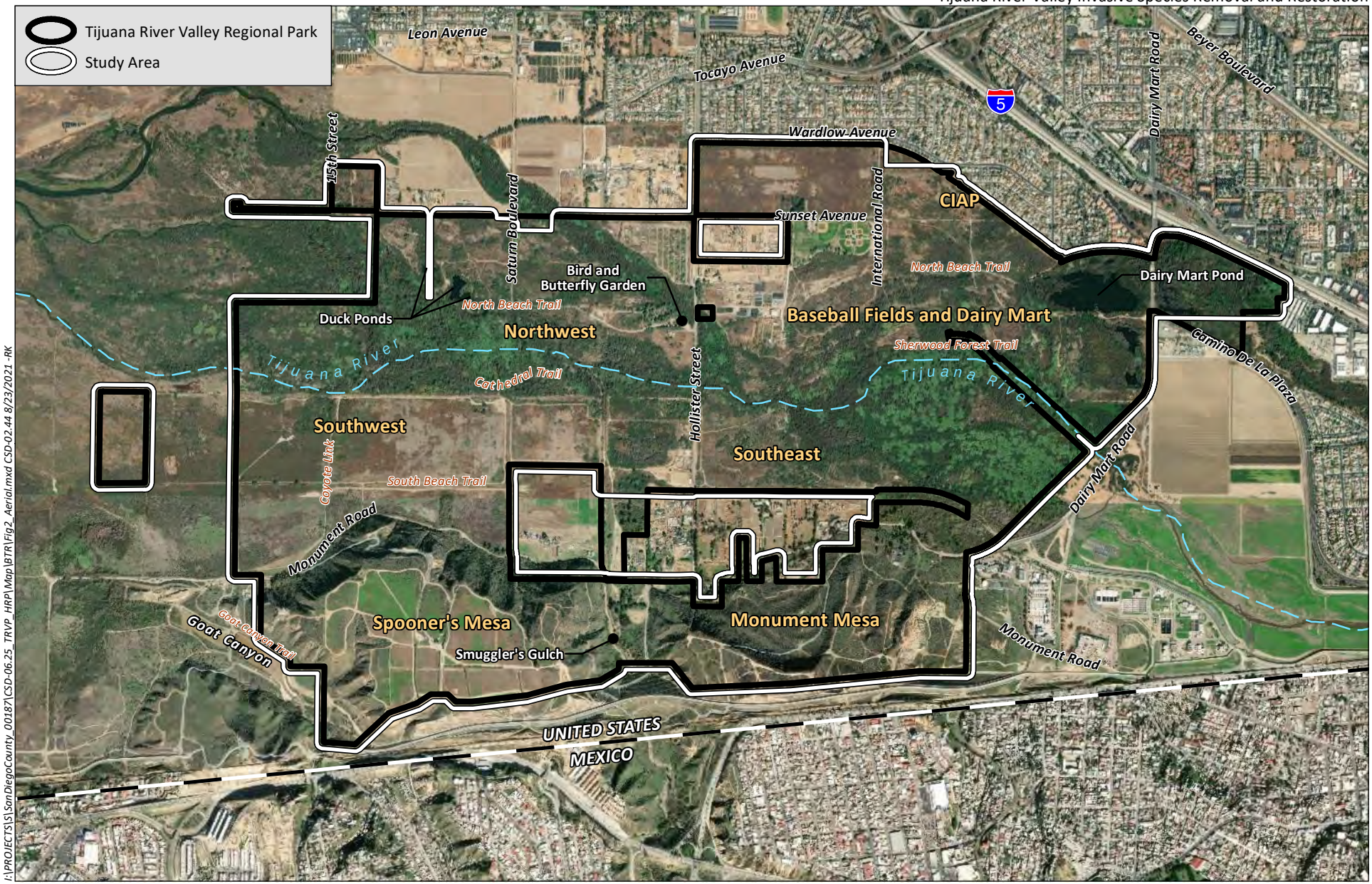
Regional Location

Figure 1



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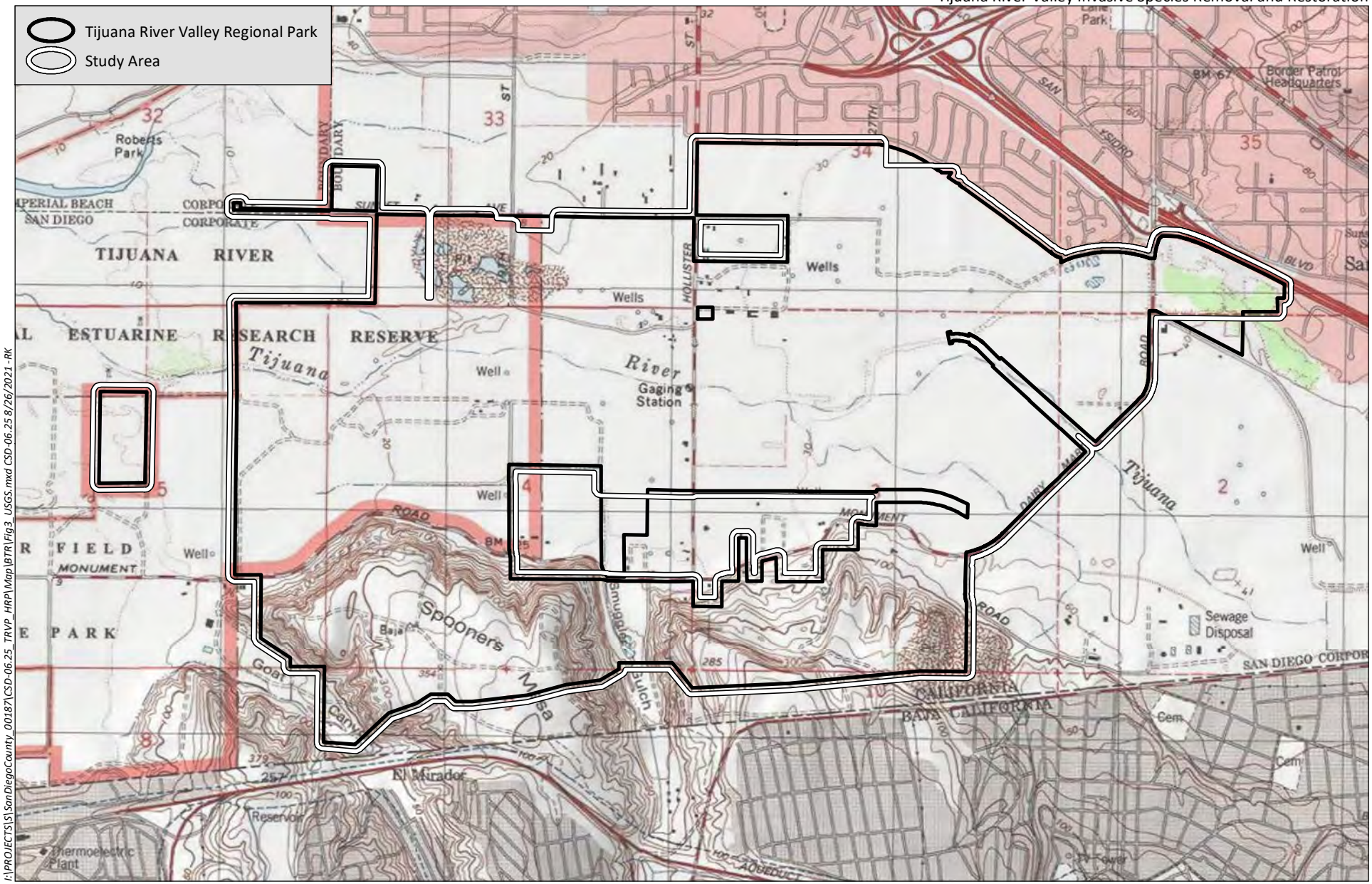
Source: Aerial Photo (Esri 2020)

0 2,000 Feet

Project Vicinity (Aerial Photograph)

Figure 2



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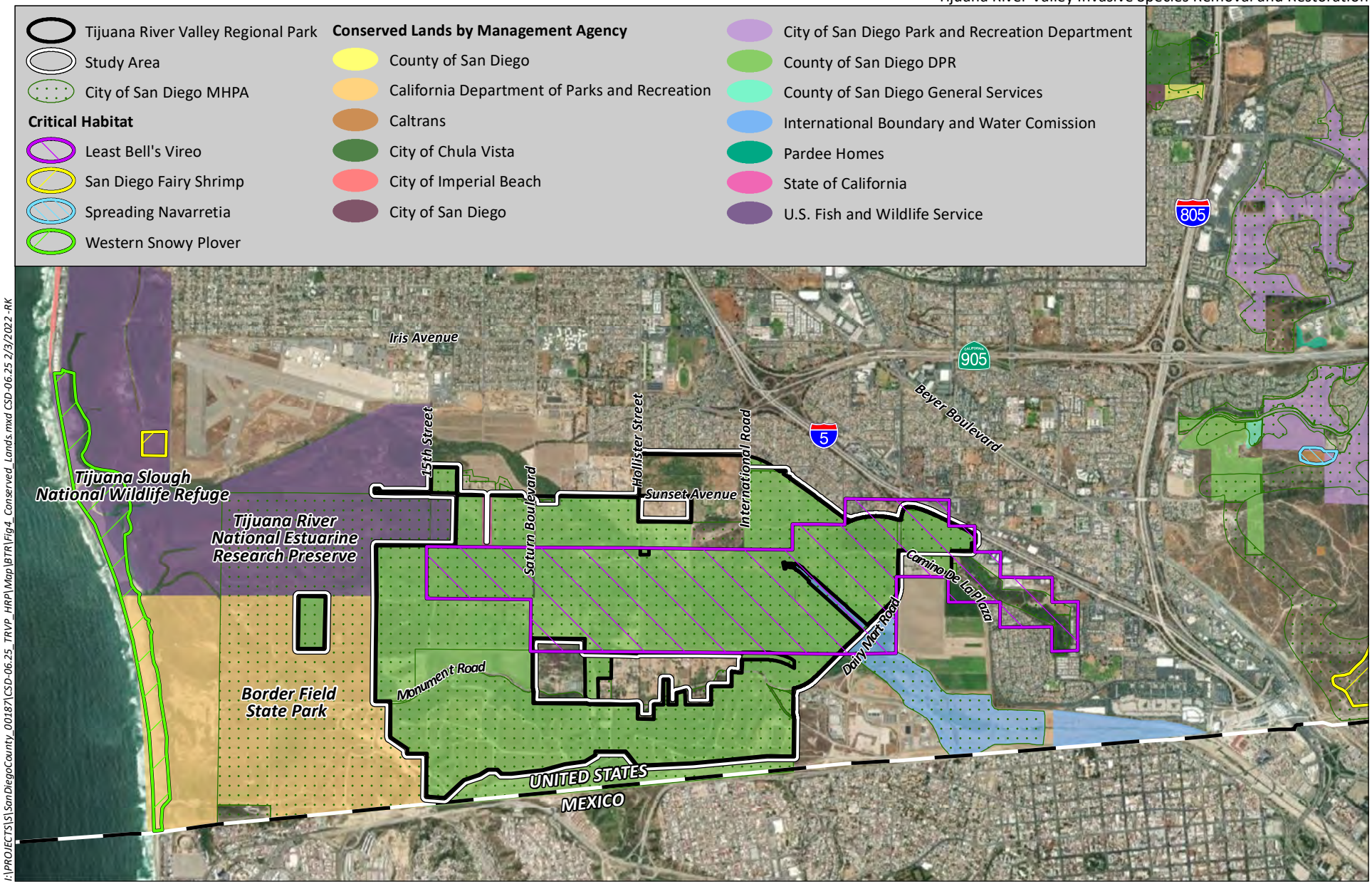
Source: Imperial Beach 7.5' Quad (USGS)

0 2,000 Feet

Project Vicinity (USGS Topography)

Figure 3



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Source: Aerial Photo (Esri 2020); Conserved Lands (SANDAG Technical Services - GIS 2018); MHPA (SanGIS 2006); Critical Habitat (U.S. Fish and Wildlife Service 2020)

0 3,500 Feet

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Regional Designations and Conserved Lands

Figure 4

The topography of the study area is bisected by the Tijuana River. The Tijuana River flows in a northwesterly direction originating in Mexico, flows through the study area, continues west into the TRNERR, and drains into the Pacific Ocean just south of the TSNWR (Figure 4).

The Project Area is within the Coastal Zone, with portions in the Appealable Area and portions within the Deferred Certification Area. Appealable area means the area, as defined by California Public Resources Code Section 30603, within the Coastal Zone that constitutes the appeal jurisdiction of the California Coastal Commission (CCC). This area includes lands between the sea and the first public road paralleling the sea, or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; or within 100 feet of any wetland, estuary, or stream; or within 300 feet of the top of the seaward face of any coastal bluff. Development within this zone is regulated under the City's approved Local Coastal Program (LCP), although the CCC retains appeal authority. Developments in deferred certification areas designated by the certified LCP require a permit or exemption issued by the CCC in accordance with the procedure as specified by the Coastal Act.

Formal areas within the TRVRP include the Coastal Impact Assistance Program (CIAP) area, the Baseball Fields, Dairy Mart, Spooner's Mesa, Monument Mesa, Duck Ponds, Bird and Butterfly Garden, TRVRP Campground, and Smuggler's Gulch. The Duck Ponds and Bird and Butterfly Garden are located in the northwest, north of Tijuana River, south of Sunset Avenue, and west of Hollister Street. The CIAP area is located to the east of Sunset Avenue and north of North Beach Trail. The Baseball Fields and Dairy Mart occur to the south of Sunset Avenue, north of Tijuana River, and west of Dairy Mart Road and contain the Southwest Little League baseball fields and Dairy Mart Pond. Spooner's Mesa and Monument Mesa are located south of Monument Road and separated by Smuggler's Gulch. Goat Canyon is located directly west of Spooner's Mesa outside of the TRVRP.

The study area occurs within the Tijuana Estuary/River Valley Biological Resource Core Area (BRCA), as identified in the Final Multiple Species Conservation Program (MSCP) Plan (County 1998). The study area additionally occurs entirely within the City of San Diego MSCP Subarea Plan (City 1997) subregion. Within the City of San Diego MSCP subarea, the City has delineated a 56,831-acre Multi-Habitat Planning Area (MHPA) that would serve to protect critical sensitive biological resources, and the City proposes to keep 94 percent of the Tijuana Estuary/River Valley BRCA preserved within the MHPA (Figure 4).

1.2.2 Project Description

The project proposes to implement the Tijuana River Valley Invasive Species Removal and Restoration project, which upon completion, would implement a maintenance and monitoring program for the restoration of disturbed habitats on the project area, comprising approximately 1,740.75 acres of wetland, riparian, and upland habitats on lands within the TRVRP that are County-owned and managed by DPR and City-owned. City-owned areas are included in this project to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements.

The project is being undertaken by DPR, utilizing grant funds awarded through the California Department of Fish and Wildlife (CDFW) Watershed Restoration Grant Program. The CDFW developed the Watershed Restoration Grant Program in response to the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1). Proposition 1 amended the California Water Code to add

Section 79737, authorizing the Legislature to appropriate funds to CDFW to fund multi-benefit ecosystem and watershed restoration and protection projects.

Treatment of invasive non-native plants throughout the project area is proposed to occur in twelve separate phases/Treatment Areas based on a variety of conditions such as timing, funding availability, and/or capacity of County staff. Within five years following implementation, each proposed project phase is expected to be approaching the functions and values of adjacent, preserved upland and riparian habitat found within the TRVRP.

Restoration is expected to have secondary benefits resulting from improved ecological and hydrological functions such as reduced concentrations of pollutants and sediments, improved water quality, and enhanced flood control. The restoration will also potentially supply suitable breeding and foraging habitat for special status species known to occur in the TRVRP, including western spadefoot toad (*Spea hammondii*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), and least Bell's vireo *(Vireo bellii pusillus*; HELIX 2019). Following successful restoration, lands within the project area that are managed by DPR would continue to be preserved, managed, and maintained in perpetuity by the County.

Invasive non-native plant populations have been observed forming as dense stands of vegetation that retain areas of ponded water and create odor and vector issues. In recent years, trash, sediment, and invasive non-native plant species within the Tijuana River Valley have posed an increasingly serious threat to the overall health of the watershed and the ecosystems that depend on it. Accumulation of sediment, debris, and thick non-native vegetation have compounded and contributed to serious flooding in the valley. Expected benefits of the project include the removal and maintenance of invasive non-native plant species in the area, successful treatment and removal of invasive non-native plants, reestablishment of native plant species and communities, trash removal**, including the potential removal of remnant building materials,** enhanced water quality and flow, reduced concentration of chemicals and pollutants, improved sediment deposition regimes, reduced risk of flooding, increased ecosystem diversity and species abundance, and improved recreational experience. These expected benefits are significant as the current condition of the TRVRP is critical, and the ecosystems and habitat dependent on this area are rapidly degrading, including the displacement of native riparian willow habitats with the invasive, non-native giant reed (*Arundo donax*; Boland, 2020). They are further significant since several sensitive, threatened, and endangered species, such as the federally and state endangered least Bell's vireo, rely on the Tijuana River Valley for its abundant early to mid-successional riparian habitat that provides a structurally diverse canopy and dense shrub cover required for nesting and foraging, and as it is one of the last coastal estuaries in southern California that has been undeveloped (Safran et al., 2017). The likelihood that the beneficial outcomes of the project will be realized is high as this project area was designed to address lands within the TRVRP that are managed by DPR, which covers a large area; approximately 1,740.75 acres. Implementation of invasive non-native plant treatment/removal through a phased upstream-to-downstream approach will decrease the chance that invasive non-native plants would easily reestablish, which may occur if restoration were only focused on a small scale.

A total of 595.14 acres of disturbed and invasive non-native plant communities and invasive non-native plant species point locations within native habitats will be treated and restored into native habitats. Based on surveys conducted for the project, approximately 587.93 acres of disturbed and invasive non-native plant communities, and 488 invasive non-native plant point locations totaling 7.21 acres, occur within the 1,740.75-acre project area. These invasive non-native plant species targeted for

removal occur as individual occurrences, small dense patches of vegetation, as well as intermixed throughout areas of native vegetation. Point locations are singular or grouped individuals of non-native and invasive trees or shrubs, or herbaceous species that occupy a patch size of 1,256 square feet, or less, which is equal to a point with a 20-foot radius. Invasive non-native plant treatment and restoration areas do not include the entirety of disturbed habitats mapped in the project area, as patches of native vegetation that are intermixed with invasive non-native species would not be impacted. Following treatment of the invasive non-native plant dominated areas and point locations, the treated areas would be restored to native habitats. Up to 2.83 acres of impacts may not occur as part of this project as they occur within planned future recreational amenities as identified in the Tijuana River Valley Regional Park Public Feasibility Study (AECOM 2017), and would be permitted separately as part of those respective projects.

Project implementation would be (a) consistent with the Area Specific Management Directives (ASMDs) listed in the County's Resource Management Plan (RMP) for the TRVRP (County 2007), (b) compatible with adjacent land uses and future uses in the TRVRP, and (c) preserved, managed, and maintained in perpetuity by County DPR, helping to ensure the long-term viability of the habitat restoration effort. Successful implementation of the project will result in a net gain of native upland and riparian habitat within the TRVRP and is expected to result in an overall lift in functions and services at the proposed restoration sites.

The proposed restoration sites are considered compatible with the adjacent land uses, which are predominantly undeveloped open space within the Tijuana River floodplain. Uses within the actively managed portions of the TRVRP are primarily open space and recreation. As required for off-trail areas in the TRVRP lands adjacent to the restoration site, recreational uses and encroachment of any kind will be prohibited, unless for maintenance and management reasons. The location of the restoration within the County TRVRP ensures the long-term preservation and management of the site by the County. Future access for maintenance and management activities will be facilitated by existing access roads/trails.

The project area lies almost entirely in the MHPA. Restoration of the Tijuana River Valley to a natural floodplain that contains appropriate habitats for endangered, threatened, and other special status species and vegetation communities would help achieve and maintain the conservation goals of the City's MSCP Subarea Plan. Explicit management policies and directives have been outlined for the TRVRP in the City's MSCP Subarea Plan, where the primary concerns include maintenance of human use areas, non-sustainable agriculture, vandalism, illegal dumping, water quality, control of invasive species introduction, and management of land use adjacent to habitat for special status species. Specific management policies and directives that pertain to the Tijuana Estuary/River Valley BRCA and MHPA include:

- Maintain existing Reserve (estuary) and park uses;
- Maintain buffers around all wetland areas;
- Maintain existing agricultural uses on Spooner's Mesa, with the long-term goal of phased restoration to coastal sage scrub, maritime succulent scrub, or native grassland habitat;

- Maintain agricultural use on County-owned lands, with the long-term goal of restoration to native vegetation where possible, consistent with the County's Framework Management Plan (County 1998); and

- Retain and enhance, where possible, existing riparian habitat along the Tijuana River.

To help ensure errant impacts to sensitive vegetation communities outside of the impact footprint are avoided during construction, environmental fencing (including silt fencing, where determined necessary by the Stormwater Pollution Prevention Plan [SWPPP]), would be installed at the edges of the impact limits prior to initiation of restoration activities for each phase.

Preferred Project Phasing

This project is intended to be built in phases, with the timing of the implementation to be determined in the future based on County priorities, site conditions, and funding. This environmental analysis includes an extensive investigation into the various phasing options available in the area to get a better understanding of the environmental opportunities and constraints on the project. Through this process, preferred project phases (also known as Treatment Areas) have come to light.

Twelve potential Treatment Areas covering 1,740.75 acres are analyzed in this report (Figure 5, *Treatment Areas*). Within these twelve Treatment Areas, 587.93 acres of disturbed or non-native plant communities and 488 point locations, comprising an additional 7.21 acres within native habitats, may be treated and restored into native habitats. Impacts to previously completed restoration and restoration currently in progress will not occur as part of this project (Figure 5). These phased Treatment Areas may be subdivided, or merged, as budgets and prioritization allow. Phase boundaries may also be modified if significant biological, cultural, or other resources are discovered during surveys that would need to be physically or temporally avoided. These potential phased projects are provided in no particular order, but initially, there would be a preference to implement these projects from upstream to downstream if there is an anticipated lag time (more than five years) between the implementation of all phases. A brief description of each proposed Treatment Area is included below.

(1) **Location**: Upstream of Dairy Mart Road

Size: 35.47 acres; 9.28 acres of invasive weed removal within Arundo-dominated and non-native riparian habitats as well as localized populations of eucalyptus and tamarisk.

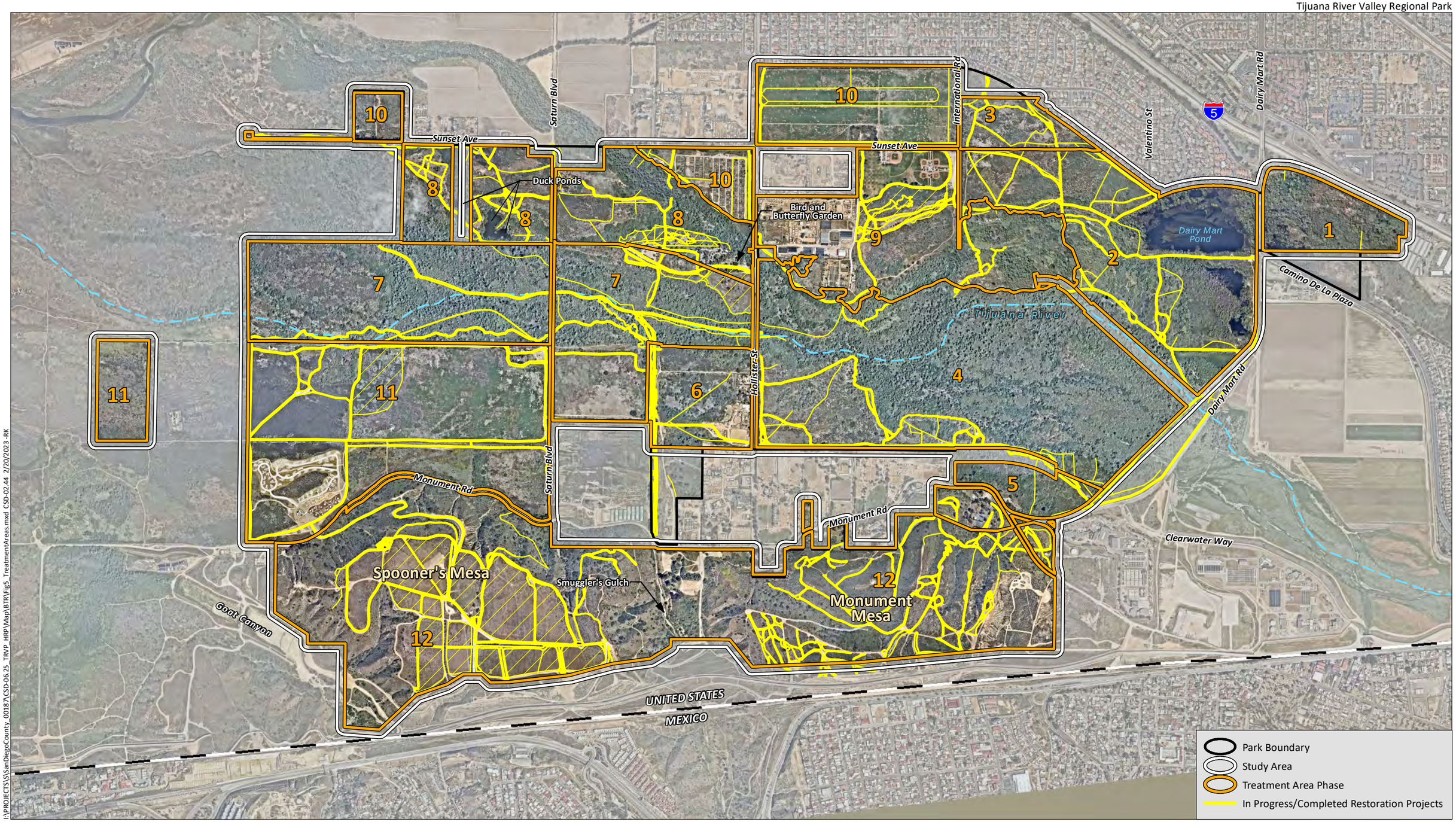
Invasive Non-Native Target Species: Giant reed (*Arundo donax*), salt cedar (*Tamarix ramosissima*), eucalyptus (*Eucalyptus* spp.), Brazilian peppertree (*Schinus terebinthifolia*), non-native invasive annual species

(2) **Location**: Downstream of Dairy Mart Road bridge and north of the South Bay Reclamation Plant property cut out

Size: 154.98 acres; 39.83 acres of invasive weed removal in both upland (29.93 acres) and riparian (9.90 acres) habitat types

Invasive Non-Native Target Species: Giant reed, tamarisk (*Tamarix* spp.), salt cedar, castor bean (*Ricinus communis*), eucalyptus, tree tobacco (*Nicotiana glauca*), mustards (*Brassica* spp. and *Hirschfeldia* spp.), garland daisy (*Glebionis coronaria*), non-native invasive annual species

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 1,200 Feet

Treatment Areas

Figure 5

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(3) **Location**: East of International Road and North of Sunset Avenue (CIAP area)

Size: 21.55 acres; 12.14 acres of invasive weed removal within upland (8.00 acres) and riparian (4.14 acres) habitat types

Invasive Non-Native Target Species: Salt cedar, mustards, garland daisy, non-native invasive annual species

(4) **Location**: Central eastern portion of Project Area, main river channel

Size: 253.52 acres: 116.87 acres of invasive weed removal within upland (12.59 acres) and riparian (104.28 acres) habitat types

Invasive Non-Native Target Species: Giant Reed, salt cedar, Brazilian peppertree, Peruvian peppertree (*Schinus molle*), Mexican fan palm (*Washingtonia robusta*), eucalyptus, castor bean, non-native invasive annual species

(5) **Location**: North of Monument Road and south of the trail

Size: 30.41 acres; 9.61 acres of invasive weed removal in both upland (7.48 acres) and riparian (2.13 acres) habitat types.

Invasive Non-Native Target Species: Giant reed, salt cedar, eucalyptus, Brazilian peppertree, castor bean, Mexican fan palm, non-native invasive annual species

(6) **Location**: West of Hollister Avenue, east of Arroyo Cañon Matadero, to main riparian corridor

Size: 42.21 acres of mostly riparian habitat with 8.39 acres of invasive species in both upland (7.70 acres) and riparian (0.69 acre) habitat types.

Invasive Non-Native Target Species: Giant reed, salt cedar, eucalyptus, tree tobacco, garland daisy, non-native invasive annual species

(7) **Location**: Central western portion of Project Area, main riparian corridor

Size: 223.13 acres; 57.93 acres of invasive weed removal in both upland (34.90 acres) and riparian (23.03 acres) habitat types

Invasive Non-Native Target Species: Giant reed, salt cedar, castor bean, Brazilian peppertree, mousehole tree (*Myoporum laetum*), mustards, non-native invasive annual species

(8) **Location**: West of 19th street, south of Sunset Ave to the main riparian corridor

Size: 112.19 acres total, with approximately 3.0 acres identified in the 2017 Feasibility Study as a potential rentable venue; 19.31 acres of invasive weed removal in both upland (14.70 acres) and riparian (4.61 acres) habitat types, including scattered invasive weed point locations

Invasive Non-Native Target Species: Giant reed, eucalyptus, salt cedar, garland daisy, non-native invasive annual species

(9) **Location**: South of ballfields between Hollister Avenue and Dairy Mart Pond

Size: 125.72 acres; 28.88 acres of invasive weed removal in both upland (19.20 acres) and riparian (9.68 acres) habitat types

Invasive Non-Native Target Species: Brazilian peppertree, castor bean, Mexican fan palm, garland daisy, mustards, giant reed, salt cedar, non-native invasive annual species

(10) **Location**: West of International Road, north of Sunset Avenue

Size: 95.13 acres total, with 64 acres planned for a future Active Recreation Complex; 9.2 acres planned for a potential Community Garden and 16.2 acres for a planned Bike Skills Park. A total of 76.40 acres of invasive weed removal could occur within upland (75.50 acres) and riparian (0.90 acre) habitat types, including scattered invasive weed point locations.

Invasive Non-Native Target Species: Predominantly upland herbaceous non-native species within portions not proposed for future development.

Constraints: Access occurs from Sunset Avenue and Hollister Street where multiple six-foot and four-foot multi-use trails lead into the area.

(11) **Location**: North of Monument Road, west of Hollister St. and extending to the western Project Area boundary, and south of the Tijuana River channel

Size: 218.45 acres total, with approximately 72.26 acres potentially available for restoration (57 acres planned for potential campgrounds and another 17.4 acres planned for a potential equestrian center); 115.87 acres of non-native weed removal within both upland (109.00 acres) and riparian (6.87 acres) habitat types.

Invasive Non-Native Target Species: Salt cedar, giant reed, mustards, non-native grasses, and annual weeds.

(12) **Location**: South of Monument Road to the park boundary and west, including Monument Mesa and Spooners Mesa, to Goat Canyon

Size: 427.99 acres total, with approximately 78.57 acres potentially available for restoration (21.3 acres planned for potential campgrounds and rentable venue within Spooner's Mesa); 100.63 acres of non-native weed removal within both upland (98.80 acres) and riparian (1.83 acres) habitat types.

Invasive Non-Native Target Species: Garland daisy, mustards, giant reed, non-native grasses, and annual weeds.

1.3 METHODS

1.3.1 Literature Review

Prior to conducting biological field surveys, HELIX performed a search of sensitive species and habitats databases for information regarding sensitive species known to occur within one mile of the study area, including the U.S. Fish and Wildlife Service (USFWS) species records (USFWS 2021), CDFW California Natural Diversity Database (CNDDB; CDFW 2021a-c), SanBIOS (County 2021), and California Native Plant Society (CNPS) Rare Plant Inventory (CNPS 2021). Additionally, the existing Tijuana River Valley Regional Park RMP (County 2007), and Baseline Biodiversity Survey Report for the TRVRP (HELIX 2019), were reviewed for special-status species occurrences. Recent aerial imagery, topographic maps, soils maps (Natural Resource Conservation Service [NRCS] 2021 and Bowman 1973), and other maps of the study area and vicinity were acquired and reviewed to obtain updated information on the natural environmental setting.

1.3.2 Vegetation Mapping, Habitat Assessment, and Focused Species Surveys

HELIX conducted baseline biological resources surveys for DPR to identify and map existing biological resources within the TRVRP in spring, summer, and fall of 2018 (HELIX 2019). Baseline surveys conducted in 2018 included habitat/vegetation mapping, rare plant surveys, invasive non-native plant species mapping, butterfly surveys, aquatic herpetological (amphibian) surveys, terrestrial herpetological drift fence with box funnel trap surveys, diurnal and nocturnal avian point count surveys, acoustical bat surveys, small mammal trapping, and passive medium and large mammal camera surveys.

A general biological survey of the study area was conducted by HELIX biologists, according to County requirements (2010a), on March 4 and 5, 2021 (Table 1, *2021 Biological Surveys for the Tijuana River Valley Invasive Species Removal and Restoration Project*). The purpose of the general biological survey and focused species surveys was to verify and update biological resources documented within the project area during previous survey efforts completed in 2018 for the baseline biodiversity study (HELIX 2019). Mapping of the project area included a 100-foot buffer pursuant to County's biology guidelines (County 2010a and 2010b) and is referred to as the study area. The study area was surveyed on foot and with the aid of binoculars. Plant and animal species observed or otherwise detected were recorded (Appendices A, *Plant Species Observed*; and B, *Animal Species Observed or Detected*, respectively). Special status plant and wildlife species with potential to occur on-site are detailed in Appendix C, *Special Status Plant Species Observed or with Potential to Occur*, and Appendix D, *Special Status Animal Species Observed or with Potential to Occur*. Animal identifications were made in the field by direct, visual observation or indirectly by detection of calls, burrows, tracks, or scat. Plant identifications were made in the field or in the lab through comparison with voucher specimens or photographs. The locations of special status plant and animal species observed or otherwise detected were mapped.

In addition to the general biological surveys, HELIX conducted a jurisdictional delineation, rare plant surveys, and protocol-level surveys for coastal California gnatcatcher (*Polioptila californica californica*; CAGN), least Bell's vireo (*Vireo bellii pusillus*; LBVI), and southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL). Table 1 provides a summary of biological surveys conducted to date for the project. Data was additionally collected as part of the Smuggler's Gulch Improvements project, which is a separate County project, portions of which overlap with the Tijuana River Valley Invasive Species

Removal and Restoration study area. Those results are included herein for the Tijuana River Valley Invasive Species Removal and Restoration study area.

Table 1
BIOLOGICAL SURVEYS FOR THE TIJUANA RIVER VALLEY INVASIVE SPECIES REMOVAL AND RESTORATION PROJECT

Survey Date	Survey Number	Personnel	Conditions
Vegetation Mapping and Habitat Assessment			
March 4, 2021	N/A	Benjamin Rosenbaum Dane Van Tamelen	55-70°F; wind 1-2 mph; 15-20% clouds
March 5, 2021		Benjamin Rosenbaum Dane Van Tamelen	54-71°F; wind 1-2 mph; 10-15% clouds
Jurisdictional Delineation Field Survey			
March 16, 2021	N/A	Stacy Nigro Benjamin Rosenbaum	54-57°F; wind 1-5 mph; 40-20% clouds
March 17, 2021		Stacy Nigro Benjamin Rosenbaum	53-63°F; wind 2-3 mph; 10-15% clouds
March 19, 2021		Stacy Nigro Benjamin Rosenbaum	57-65°F; wind 1-2 mph; 10% clouds
April 1, 2021		Stacy Nigro Angelia Bottiani	--
July 12, 2021		Stacy Nigro Alexander Walsh	--
July 13, 2021		Stacy Nigro Alexander Walsh	--
September 21, 2021		Stacy Nigro Benjamin Rosenbaum	75-89°F; wind 0-1 mph; 0% clouds
Rare Plant Focused Surveys			
April 19, 2021	1	Ryan Fitch Benjamin Rosenbaum Amy Mattson Alexander Walsh	73-73°F; wind 0-4 mph; 0% clouds
April 20, 2021		Ryan Fitch Alexander Walsh	57-71°F; wind 1-4 mph; 100-15% clouds
July 9, 2021	2	Benjamin Rosenbaum Erica Harris	68-73°F; wind 1-2 mph; 0% clouds
Least Bell's Vireo Focused Surveys – Tijuana River Valley Invasive Species Removal and Restoration			
May 17, 2021	1	Laura Moreton	60-63°F; wind 0-4 mph; 100% clouds
May 18, 2021		Dane Van Tamelen	61-64°F; wind 0-5 mph; 100% clouds
May 19, 2021		Katie Bellon	62-65°F; wind 0-1 mph; 100-90% clouds
May 20, 2021		Dane Van Tamelen	62-66°F; wind 0-7 mph; 95-35% clouds
May 21, 2021		Benjamin Rosenbaum	61-63°F; wind 1-3 mph; 90-50% clouds
May 24, 2021		Katie Bellon	52-70°F; wind 0-8 mph; 35-0% clouds
May 25, 2021		Dane Van Tamelen	62-70°F; wind 0-8 mph; 100-5% clouds
June 1, 2021	2	Laura Moreton	61-70°F; wind 0-4 mph; 100-60% clouds
June 2, 2021		Mandy Mathews	61-65°F; wind 0-4 mph; 100% clouds
June 2, 2021		Dane Van Tamelen	60-64°F; wind 0-1 mph; 100% clouds
June 3, 2021		Katie Bellon	60-64°F; wind 0-6 mph; 100% clouds
June 4, 2021		Benjamin Rosenbaum	58-70°F; wind 0-3 mph; 5-60% clouds

Survey Date	Survey Number	Personnel	Conditions
June 7, 2021		Mandy Mathews	61-63°F; wind 1-7 mph; 100% clouds
June 8, 2021		Dane Van Tamelen	63-64°F; wind 0-4 mph; 100-95% clouds
June 14, 2021	3	Benjamin Rosenbaum	61-67°F; wind 0-5 mph; 100-5% clouds
June 15, 2021		Dane Van Tamelen	61-75°F; wind 0-4 mph; 90-20% clouds
June 16, 2021		Mandy Mathews	63-76°F; wind 0-3 mph; 60-50% clouds
June 17, 2021		Dane Van Tamelen	63-70°F; wind 0-7 mph; 100-0% clouds
June 17, 2021		Laura Moreton	64-70°F; wind 0-5 mph; 100-45% clouds
June 18, 2021		Benjamin Rosenbaum	64-70°F, 0-5 mph, 100-45% cloud cover
June 18, 2021		Amy Mattson	65-73°F, 0-5 mph, 100-15% cloud cover
June 30, 2021	4	Benjamin Rosenbaum	64-68°F, 1-3 mph, 100% cloud cover
June 30, 2021		Dane Van Tamelen	64-70°F, 0-3 mph, 100% cloud cover
July 1, 2021		Dane Van Tamelen	63-70°F, 0-3 mph, 100-10% cloud cover
July 1, 2021		Mandy Mathews	67-70°F, 0-5 mph, 100-20% cloud cover
July 2, 2021		Dane Van Tamelen	64-73°F, 0-4 mph, 100-20% cloud cover
July 2, 2021		Mandy Mathews	66-70°F, 1-5 mph, 100-70% cloud cover
July 6, 2021		Benjamin Rosenbaum	66-68°F, 0-6 mph, 50-5% cloud cover
July 12, 2021	5	Dane Van Tamelen	68-73°F, 0-7 mph, 100-5% cloud cover
July 13 2021		Laura Moreton	62-73°F, 0-5 mph, 0-50% cloud cover
July 14, 2021		Katie Bellon	69-70°F, 0-4 mph, 100-10% cloud cover
July 14, 2021		Dane Van Tamelen	70-74°F, 0-4 mph, 100-0% cloud cover
July 15, 2021		Dane Van Tamelen	68-75°F, 0-3 mph, 100-0% cloud cover
July 16, 2021		Amy Mattson	64-76°F, 0-3 mph, 10-0% cloud cover
July 16, 2021		Benjamin Rosenbaum	68-76°F, 0-4 mph, 5% cloud cover
Least Bell's Vireo Focused Surveys – Smuggler's Gulch Improvements			
April 23, 2021	1	Erica Harris Kristina Beck[2]	58-60°F, 0-1 mph, 100% cloud cover
May 4, 2021	2	Erica Harris Kristina Beck[2]	62-70°F, 0-4 mph, 100-5% cloud cover
May 14, 2021	3	Erica Harris Kristina Beck[2]	66-69°F, 0-4 mph, 100% cloud cover
May 25, 2021	4	Erica Harris	60-62°F, 0-1 mph, 100% cloud cover
June 8, 2021	5	Erica Harris	61-63°F, 0-1 mph, 100% cloud cover
June 18, 2021	6	Erica Harris	65-65°F, 0-1 mph, 100% cloud cover
July 6, 2021	7	Erica Harris	65-66°F, 0-1 mph, 100-50% cloud cover
July 16, 2021	8	Erica Harris	64-68°F, 0-1 mph, 5% cloud cover
Coastal California Gnatcatcher Focused Surveys – Tijuana River Valley Invasive Species Removal and Restoration			
March 23, 2021	1	Mandy Mathews[1]	52-55°F, 1-4 mph, 100% cloud cover
March 23, 2021		Dane Van Tamelen[1]	56-58°F, 0-3 mph, 100% cloud cover
March 24, 2021		Mandy Mathews[1]	48-64°F, 2-5 mph, 0% cloud cover
March 24, 2021		Dane Van Tamelen[1]	47-61°F, 1-5 mph, 0% cloud cover
March 25, 2021		Mandy Mathews[1]	54-59°F, 1-5 mph, 60-90% cloud cover
March 25, 2021		Dane Van Tamelen[1]	53-61°F, 3-7 mph, 75-50% cloud cover
March 25, 2021		Katie Bellon[1]	53-58°F, 4-15 mph, 95-85% cloud cover
April 7, 2021	2	Mandy Mathews[1] Alexander Walsh[2]	53-63°F, 1-3 mph, 0% cloud cover
April 7, 2021		Dane Van Tamelen[1]	51-68°F, 0-5 mph, 10-0% cloud cover
April 8, 2021		Mandy Mathews[1] Kristina Beck[2]	55-66°F, 0-5 mph, 100-5% cloud cover

Survey Date	Survey Number	Personnel	Conditions
April 9, 2021		Mandy Mathews[1]	55-67°F, 1-3 mph, 100-0% cloud cover
April 9, 2021		Dane Van Tamelen[1]	56-65°F, 0-3 mph, 100-0% cloud cover
April 9, 2021		Katie Bellon[1] Kristina Beck[2]	56-67°F, 0-10 mph, 100-0% cloud cover
April 14, 2021	3	Mandy Mathews[1] Alexander Walsh[2]	57-61°F, 0-4 mph, 95-50% cloud cover
April 15, 2021		Mandy Mathews[1]	50-64°F, 0-2 mph, 10-20% cloud cover
April 15, 2021		Dane Van Tamelen[1]	51-63°F, 1-7 mph, 25-10% cloud cover
April 16, 2021		Katie Bellon[1] Kristina Beck[2]	55-64°F, 0-2 mph, 100-5% cloud cover
April 16, 2021		Dane Van Tamelen[1] Alexander Walsh[2]	55-63°F, 1-7 mph, 100-0% cloud cover
April 20, 2021		Mandy Mathews[1] Kristina Beck[2]	57-61°F, 0-3 mph, 100-0% cloud cover
Coastal California Gnatcatcher Focused Surveys – Smuggler's Gulch Improvements			
March 25, 2021	1	Dane Van Tamelen[1]	55-59°F, 3-7 mph, 70-55% cloud cover
April 7, 2021	2	Mandy Mathews[1]	64-71°F, 2-5 mph, 0% cloud cover
April 14, 2021	3	Mandy Mathews[1] Alexander Walsh[2]	55-57°F, 1-3 mph, 90-95% cloud cover
Southwestern Willow Flycatcher Focused Surveys – Tijuana River Valley Invasive Species Removal and Restoration			
May 17, 2021	1	Erica Harris[1]	60-63°F, 0-1 mph, 100% cloud cover
May 18, 2021		Erica Harris[1]	61-64°F, 0-5 mph, 100% cloud cover
May 19, 2021		Jeff Priest[3]	62-67°F, 0-3 mph, 100-70% cloud cover
May 20, 2021		Jeff Priest[3]	62-65°F, 0-7 mph, 95-40% cloud cover
May 21, 2021		Jeff Priest[3]	57-65°F, 0-4 mph, 90-60% cloud cover
May 24, 2021		Erica Harris[1]	52-70°F, 0-6 mph, 35-0% cloud cover
May 25, 2021		Erica Harris[1]	62-66°F, 0-8 mph, 100-5% cloud cover
June 1, 2021	2	Erica Harris[1]	61-70°F, 0-4 mph, 100-60% cloud cover
June 2, 2021		Erica Harris[1]	61-65°F, 0-4 mph, 100% cloud cover
June 2, 2021		Jeff Priest[3]	60-64°F, 0-1 mph, 100% cloud cover
June 3, 2021		Jeff Priest[3]	62-64°F, 0-6 mph, 100% cloud cover
June 4, 2021		Jeff Priest[3]	58-70°F, 0-9 mph, 5-80% cloud cover
June 7, 2021		Erica Harris[1]	61-62°F, 1-5 mph, 100% cloud cover
June 8, 2021		Erica Harris[1]	63-63°F, 0-4 mph, 100% cloud cover
June 14, 2021	3	Erica Harris[1]	61-67°F, 0-5 mph, 100-5% cloud cover
June 15, 2021		Erica Harris[1]	61-75°F, 0-6 mph, 90-15% cloud cover
June 16, 2021		Jeff Priest[3]	63-76°F, 0-3 mph, 60-50% cloud cover
June 17, 2021		Jeff Priest[3]	63-70°F, 0-3 mph, 100-15% cloud cover
June 17, 2021		Erica Harris[1]	63-66°F, 0-7 mph, 100-5% cloud cover
June 18, 2021		Jeff Priest[3]	64-73°F, 0-3 mph, 100-50% cloud cover
June 18, 2021		Erica Harris[1]	65-70°F, 0-5 mph, 100-80% cloud cover
June 30, 2021	4	Erica Harris[1]	66-68°F, 0-3 mph, 100% cloud cover
June 30, 2021		Jeff Priest[3]	64-70°F, 0-1 mph, 100-10% cloud cover
July 1, 2021		Jeff Priest[3]	63-70°F, 0-3 mph, 100-10% cloud cover
July 1, 2021		Erica Harris[1]	67-70°F, 0-5 mph, 100-20% cloud cover
July 2, 2021		Jeff Priest[3]	64-73°F, 0-4 mph, 100-20% cloud cover
July 2, 2021		Erica Harris[1]	66-70°F, 1-5 mph, 100-70% cloud cover
July 6, 2021		Erica Harris[1]	66-68°F, 0-6 mph, 50-5% cloud cover

Survey Date	Survey Number	Personnel	Conditions
July 12, 2021	5	Erica Harris[1]	68-73°F, 0-7 mph, 100-40% cloud cover
July 13, 2021		Erica Harris[1]	62-72°F, 0-8 mph, 0-65% cloud cover
July 14, 2021		Erica Harris[1]	69-70°F, 0-4 mph, 100-10% cloud cover
July 14, 2021		Jeff Priest[3]	70-73°F, 0-4 mph, 100-0% cloud cover
July 15, 2021		Jeff Priest[3]	68-75°F, 0-3 mph, 100-0% cloud cover
July 16, 2021		Jeff Priest[3]	64-76°F, 0-3 mph, 10-0% cloud cover
July 16, 2021		Erica Harris[1]	68-72°F, 0-5 mph, 5-0% cloud cover
Southwestern Willow Flycatcher Focused Surveys – Smuggler's Gulch Improvements			
May 25, 2021	1	Erica Harris[1]	60-62°F, 0-1 mph, 100% cloud cover
June 8, 2021	2	Erica Harris[1]	61-63°F, 0-1 mph, 100% cloud cover
June 18, 2021	3	Erica Harris[1]	65-65°F, 0-1 mph, 100% cloud cover
July 6, 2021	4	Erica Harris[1]	65-66°F, 0-1 mph, 100-50% cloud cover
July 16, 2021	5	Erica Harris[1]	64-68°F, 0-1 mph, 5% cloud cover

1 USFWS Permit TE-778195-14
2 Supervised Individual
3 USFWS Permit TE-840619-6.1

1.3.3 Focused Species Surveys

Focused surveys for the following special status plant and animal species were conducted during the appropriate survey periods in 2021, in accordance with applicable protocols. Status codes are defined in Appendix E, *Explanation of Status Codes for Plant and Animal Species*. Data was collected as part of the Smuggler's Gulch Improvements project, which is a separate County project, portions of which overlap with the Tijuana River Valley Invasive Species Removal and Restoration study area. Those results were included herein for the Tijuana River Valley Invasive Species Removal and Restoration study area.

Rare Plant Surveys

Rare plant surveys were conducted in April 2021, with follow-up surveys for late-blooming species conducted in the summer between June 30 and July 6, 2021 (Table 1). Rare plant surveys were scheduled to coincide with blooming periods for sensitive plant species with the potential to occur within the study area. Special status plant species include species that are (1) listed as threatened or endangered by the USFWS or the CDFW; (2) contain a California Rare Plant Rank (CRPR) 1 through 4 designated by the CNPS; (3) are on the County's Sensitive Plant List (County 2010a); and (4) covered by the City's MSCP Subarea Plan (City 1997). The surveys were conducted on foot and included 100 percent visual coverage of the study area. Special status plant species encountered were mapped using a hand-held Global Positioning System (GPS) unit and on an aerial photograph. Special status plant species encountered during other biological surveys were also recorded.

Coastal California Gnatcatcher Surveys

HELIX biologists Katie Bellon, Mandy Mathews, and Dane van Tamelen conducted surveys for the coastal California gnatcatcher in 2021, in accordance with the Coastal California Gnatcatcher Presence/Absence Survey Protocol (USFWS 1997). The survey consisted of three site visits. The survey area consisted of all potential coastal California gnatcatcher habitat occurring within the study area with a 500-foot survey buffer, including coastal scrub, Diegan coastal sage scrub (including baccharis dominated), maritime succulent scrub, chenopod scrub, and coastal scrub. The surveys were conducted by walking through the

vegetation or on adjacent paths and viewing avian species with the aid of binoculars, where necessary. If the coastal California gnatcatcher was not detected passively, a digital coastal California gnatcatcher call prompt was briefly played. Coastal California gnatcatcher locations were mapped on an aerial photograph. The coastal California gnatcatcher survey report for the Tijuana River Valley Invasive Species Removal and Restoration project is provided as Appendix F, *2021 Coastal California Gnatcatcher Survey Report* of this report. The coastal California gnatcatcher survey report for the Smuggler's Gulch Improvements project is provided as Appendix G, *2021 Coastal California Gnatcatcher Survey Report* of this report.

Least Bell's Vireo Surveys

A focused survey for the least Bell's vireo (*Vireo bellii pusillus*) was conducted in accordance with a modified approach to the *Least Bell's Vireo Survey Guidelines* (USFWS 2001) given there are multiple previous confirmed occurrences of the least Bell's vireo returning annually to the TRVRP. The survey consisted of five site visits conducted by HELIX biologists Mandy Mathews, Benjamin Rosenbaum, Katie Bellon, Laura Moreton, and Dane Van Tamelen. The survey was conducted by walking along the edges of, as well as within, potential least Bell's vireo habitat while listening for least Bell's vireo vocalizations and while viewing birds with the aid of binoculars. All least Bell's vireo locations, along with other special status riparian bird species locations (and those of the brown-headed cowbird [*Molothrus ater*]; a nest parasite), were mapped on an aerial photograph. The report of findings for the least Bell's vireo survey for the Tijuana River Valley Invasive Species Removal and Restoration project are included as Appendix H, *2021 Least Bell's Vireo Survey Report* of this report. The report of findings for the least Bell's vireo survey for the Smuggler's Gulch Improvements project is included as Appendix I, *2021 Least Bell's Vireo Survey Report*, of this report.

Southern Willow Flycatcher Surveys

HELIX biologists Erica Harris and Jeff Priest conducted a survey for the southwestern willow flycatcher within the study area in 2021. The survey consisted of five survey visits conducted at least five days apart, between May 17 and July 16, 2021 (Table 1), in accordance with USFWS-approved survey protocol (Sogge et al. 2010). The survey area consisted of potential southwestern willow flycatcher riparian habitat (i.e., mule fat scrub, southern willow scrub, southern riparian forest, tamarisk scrub, non-native riparian, and arundo-dominated riparian habitat located along Tijuana River) present within the study area. The survey was conducted by walking along the edges of, as well as within, potential southwestern willow flycatcher habitat while listening for flycatcher vocalizations and viewing birds with the aid of binoculars. Recorded SWFL vocalizations were played every 20 to 30 meters, followed by a one-minute silent period to listen for a response. All flycatcher locations, along with other special status riparian bird species locations, were mapped on an aerial photograph. The southwestern willow flycatcher survey report for the Tijuana River Valley Invasive Species Removal and Restoration project is included as Appendix J, *2021 Southwestern Willow Flycatcher Survey Report*. The southwestern willow flycatcher survey report for the Smuggler's Gulch Improvements project is included as Appendix K, *2021 Southwestern Willow Flycatcher Survey Report*.

1.3.4 Jurisdictional Delineation

HELIX biologists conducted a field-based programmatic jurisdictional delineation of the project area on March 16, 17, and 19, 2021 by Stacy Nigro and Benjamin Rosenbaum, on April 1, 2021 by Stacy Nigro and Angelia Bottiani, on July 12 and July 13, 2021 by Stacy Nigro and Alexander Walsh, and on

September 21, 2021 by Stacy Nigro and Benjamin Rosenbaum. Data from April 1, July 12, and July 13 were collected as part of the Smuggler's Gulch Improvements project, which is a separate County project, portions of which overlap with the project area. Those results are included herein. The jurisdictional delineation was conducted to identify and map aquatic resources potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the Clean Water Act and State Porter-Cologne Water Quality Control Act, streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and coastal wetlands potentially subject to CCC jurisdiction and the California Coastal Act (CCA). Prior to the delineation, recent aerial photographs, topographic maps, previous vegetation mapping, soil survey maps, National Wetlands Inventory mapping, and USGS topographical maps were reviewed to help determine the locations of potential jurisdictional areas. The delineation was conducted on foot with the aid of 1"=500' scale aerials, topographic maps, and digital mapping applications. Potential aquatic resources evaluated within the project area included drainage features, depressions, and/or wetland vegetation that crossed or were adjacent to the proposed restoration areas. The jurisdictional aquatic resources delineation report is included as Appendix L, *Aquatic Resources Delineation Report*.

Waters of the U.S.

The review area for delineation of waters of the U.S. is a 1,315-acre subset of the larger 1,740-acre project area. The USACE review area excludes the Spooner's Mesa and Monument Mesa areas in the southern part of the project area. These areas do not support wetland or riparian vegetation communities but may contain ephemeral waters on steep hillslopes coming off the mesas.

Wetland waters of the U.S. boundaries were delineated using the three criteria (vegetation, hydrology, and soils) established for wetland delineations as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Arid West Supplement (USACE 2008a).

Sampling point locations were constrained by the large size of the project area combined with access limitations stemming from dense vegetation and trail closures, inundation of many areas, and contamination from raw sewage resulting from cross-border flows of polluted water. Thus, sampling points to obtain representative data were located in areas that could be safely accessed, and then the results were extrapolated across broader areas based on a variety of factors, including direct observation from adjacent locations, aerial interpretation across multiple years of imagery, results of recent vegetation mapping efforts, soil survey review, and topography review. The Tijuana River is a large system with adequate hydrology to support extensive wetland habitat. This fact, combined with the access and contamination constraints, resulted in delineating portions of the site by taking sampling points only in higher, drier areas of riparian habitat to establish areas not meeting the USACE wetland criteria, and then adjacent areas of hydrophytic vegetation that were lower in elevation and in landscape positions likely to collect water were all considered USACE wetland. Representative sampling points also were taken in wetlands in some portions of the site.

Boundaries of potential non-wetland waters of the U.S. were delineated by their relation to an ordinary high water mark (OHWM). The OHWM is defined in 33 CFR Section 329.11 as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics

of the surrounding areas." The USACE has issued further guidance on the OHWM (Riley 2005; USACE 2008b), which was used for this delineation. The OHWM widths were measured to the nearest foot at various locations along non-wetland waters. The boundaries of open water areas/ponds were mapped using aerial interpretation combined with field verification where feasible. All features exhibiting an OHWM were included in the delineation as aquatic resources.

Regional Water Quality Control Board Jurisdictional Waters

The RWQCB asserts regulatory jurisdiction over activities affecting wetland and non-wetland waters of the State pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act. The State Water Resources Control Board's (SWRCB's) State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) that was adopted on April 2, 2019 (SWRCB 2019), and implemented as of May 28, 2020, was used to identify potential RWQCB wetland waters of the State within the review area. The boundaries of non-wetland waters of the State stream channels were delineated at the top of bank.

California Department of Fish and Wildlife Jurisdictional Areas

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

California Coastal Commission Wetlands

Potential coastal wetlands under the jurisdiction of the CCC were determined based on the "one-parameter" definition, which only requires evidence of a single parameter to establish wetland conditions: "Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate" (California Code of Regulations Title 14, Section 13577).

City of San Diego Wetlands

According to the City Municipal Code, Chapter 11, Section 113.0103:

"Wetlands are defined as areas which are characterized by any of the following conditions:

(1) All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;

(2) Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats;

(3) Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands;

(4) Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone).

It is intended for this definition to differentiate for the purposes of delineating wetlands, between naturally occurring wetlands and wetlands intentionally created by human actions, from areas with wetlands characteristics unintentionally resulting from human activities in historically non-wetland areas. With the exception of wetlands created for the purpose of providing wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating wetland characteristics, which are artificially created, are not considered wetlands by this definition. Taking into account regional precipitation cycles, all adopted scientific, regulator, and technological information available from the State and Federal resource agencies shall be used for guidance on the identification of hydrophytic vegetation, hydric soils and wetland hydrology."

The City's Land Development Code Biology Guidelines (City 2018) describe wetlands as:

"Wetlands support many of the species included in the MSCP (i.e., Covered Species). The definition of wetlands in ESL is intended to differentiate uplands (terrestrial areas) from wetlands and, furthermore, to differentiate naturally occurring wetland areas from those created by human activities. Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub, and vernal pools. Common to all wetland vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils).

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e., ephemeral/intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute "waters of the U.S.", which are regulated by the USACE and/or the CDFW."

1.3.5 Survey Limitations

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

1.3.6 Nomenclature

Nomenclature used in this report generally comes from Holland (1986) and Oberbauer (2008) for vegetation, Jepson eFlora (2021) and Baldwin et al. (2012) for plants, North American Butterfly Association (2021) for butterflies, Society for the Study of Amphibians and Reptiles (2021) for reptiles and amphibians, American Ornithological Society (2021) for birds, and Bradley et al. (2014) for mammals. Plant species status is from the CNPS's Rare Plant Inventory (CNPS 2021), CDFW (2021a), and County (2010b). Animal species status is from the CDFW (2021b) and County (2010b).

1.4 ENVIRONMENTAL SETTING

1.4.1 Regional Context

The study area is generally located within south San Diego County, within the City of San Diego. Weather patterns within the County and study area are greatly influenced by its proximity to the Pacific Ocean. The climate of San Diego is classified as a Mediterranean climate, which indicates hot, sunny, and dry summers, and cooler, wetter winters. However, San Diego is more arid than most Mediterranean climates and averages 267 sunny days per year. Proximity of the study area to the ocean also results in cooler summers and warmer winters in comparison with other places on the same latitude.

The average monthly temperatures range from 57 degrees Fahrenheit (°F) in January to 72°F in August. The highest recorded temperature for the region was 108°F on September 27, 1963 (recorded in Chula Vista, approximately 2.7 miles north of the study area; Western Regional Climate Center 2012). The record low temperature for the region was 15°F recorded April 14, 2003 (also recorded in Chula Vista; Western Regional Climate Center 2012).

The average annual precipitation on the coast is approximately 10.1 inches (San Diego Association of Governments [SANDAG] 2015), with most rainfall occurring between December and March. On average, precipitation occurs 21 days per year.

A weather phenomenon that occurs in the study area is marine layer clouds, which occur most frequently between May and August. The marine layer results in cool temperatures, cloudy weather, and fog in the morning. Marine layer conditions linger until the heat of the sun becomes strong enough to evaporate the clouds. In May and June, the early morning fog and cool, cloudy conditions often last into the afternoon or even all day. The thick marine layer keeps the air cool and damp within a few miles of the coast. An additional weather phenomenon that occurs in the region is the Santa Ana winds. Santa Ana winds occur when easterly winds bring hot, dry air from the inland deserts. These occur most frequently in autumn but can occur at any time of the year.

Important biological resources in the region generally include designated federal and state open space, including the TRVRP, Border Field State Park, TRNERR, and the TSNWR. The topography of the study area is bisected by the Tijuana River. The Tijuana River flows in a northwesterly direction, originating in Mexico, flows through the TRVRP, continues west into the TNERR, and drains into the Pacific Ocean just south of the TSNWR. The region hosts core populations of sensitive plants, in addition to important habitat for several sensitive animals, including CAGN, SWFL, LBVI, and Quino checkerspot butterfly (*Euphydryas editha quino*), among others. As shown on Figure 4, USFWS-designated critical habitat for one species occurs within the study area: least Bell's vireo (722.7 acres). The surrounding area contains USFWS-designated critical habitat for spreading navarretia, San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus wootoni*), and western snowy plover (*Charadrius nivosus nivosus*). Spreading navarretia critical habitat occurs approximately 2.1 miles east of the park's northeastern boundary, the east of the I-5 transportation corridor, within Otay Mesa. Critical habitat for San Diego fairy shrimp is located approximately 1.1 miles northwest of the park's northwestern boundary, to the west of the Imperial Beach Naval Station (Figure 4). Critical habitat for San Diego fairy shrimp is located 1.9 miles southeast of the park's northeastern boundary, to the east of the I-5 transportation corridor, within Otay Mesa. Western snowy plover critical habitat occurs approximately 1.1 miles west of the study area western boundary along beach habitat within Border Field State Park (Figure 4).

The study area occurs entirely within the boundaries of the City's MSCP Subarea (City 1997) and occurs within the Tijuana Estuary/River Valley BRCA, as identified in the Final MSCP Plan (County 1998). The study area occurs almost entirely within the MHPA (Figure 4). The City proposes to keep 94 percent of the Tijuana Estuary/River Valley BRCA within MHPA; the MHPA represents a "hard line" preserve and will be preserved in perpetuity for biological purposes.

1.4.2 General Land Uses

Most of the land surrounding the study area is undeveloped, although part of the undeveloped land includes a formal 22.5-mile trail network, in addition to an existing informal network of unplanned and unauthorized dirt roads and pathways. Other land uses in the surrounding area include designated federal and state open space to the west of the study area, which includes the Border Field State Park, the TRNERR, and the TSNWR (Figure 4).

1.4.3 Disturbance

HELIX reviewed historic aerial photographs (http://www.historicaerials.com) to gain an understanding of the historic uses within the study area. The earliest aerial photograph available was taken in 1953. The photograph showed that the study area was predominately undeveloped, except for large agricultural areas and main roadways that had already been constructed in the area, including Hollister Street and Monument Road. Large areas of disturbed habitat are still present within the study area, including on Spooner's Mesa in the south, in addition to former agricultural lands on the valley floor east and west of Saturn Boulevard and north of Sunset Avenue

Since the late 1800s, the Tijuana River Valley has been modified for agricultural practices and affected by increasing populations of invasive non-native plants. These non-native species populations displace native habitats, alter riverine hydrology, impair water quality, hinder water filtration capabilities, trap sediments, and degrade wildlife habitat. In recent years, trash, sediment, and invasive non-native plant species within the Tijuana River have posed a serious threat to the overall health of the watershed and

the ecosystems that depend on it. In addition, substantial flooding has occurred in some areas, exacerbated by the accumulation of large amounts of sediment, debris, and thick vegetation.

The study area is also affected by contaminated water that originates from cross-border flows entering the U.S. from Mexico via the Tijuana River, Smuggler's Gulch channel, Goat Canyon, and other areas. While dry-weather flows are intended to be diverted and treated, the amount of flow that occurs during major rain events generally exceeds the capacity of the existing diversion and treatment system, resulting in cross-border flows of sewage, trash, and sediment, which cause public health, environmental, and safety issues. Dredging and placement of trash booms within Smuggler's Gulch channel and Goat Canyon have been used to help address these issues.

Infestation by Kuroshio shot hole borer and associated Fusarium dieback has also affected riparian trees along the river. Kuroshio shot hole borer is an invasive beetle from Asia that was first detected within San Diego County in 2012 (Eskalen et al. 2013; Umeda et al. 2016). The species has been documented residing within the Tijuana River Valley since 2015 (Boland 2016). The shot hole borer creates a gallery of tunnels in the trunk of native and invasive non-native tree species, introducing a fungus (*Fusarium* spp.) and other pathogens into host trees. The fungus is used as a food resource for the beetle. The fungus adversely affects the trees by stopping the flow of water and nutrients, which can lead to the death of individual branches, or in severe cases, the entire tree. This process is generally referred to as Fusarium dieback. The presence of the shot hole borer within the study area and the surrounding area has caused extensive damage to native riparian vegetation, resulting in damage and mortality to many trees along the Tijuana River (Boland 2018). The invasion of the species, and subsequent damage to native trees, has caused a reduction in the willow canopy along the Tijuana River floodplain, particularly in wetter areas. This has led to an increase in the presence and cover of invasive plant species, such as giant reed and castor bean, in areas previously dominated by native vegetation.

Unauthorized grading has also occurred in the study area, resulting in disturbances along the river. This includes the Brown Property, which was the site of unauthorized fill activities in the 1980s. The property was once privately owned, and over 16,000 cubic yards of fill was placed in a special flood hazard area along the southern and western property boundaries without a grading permit from the City. Following flooding events in the 1980s, the fill was used to create a berm to protect the property from future flooding. Introduction of the fill, estimated at between 10 to 12 feet in depth, resulted in a large portion of the property becoming isolated from the Tijuana River floodplain, contributed to a 0.9-foot rise in water surface elevation in the adjacent river for a 25-year or 100-year flood event, obstructed the river channel, and diverted the floodwaters in a more northerly direction, eventually requiring the construction of a new bridge along Hollister Street. Upland areas within the Brown Property are targeted for upland restoration under a separate habitat restoration plan.

Dirt roads, trails, parking, and staging areas are also present within the study area. The study area contains a formal 22.5-mile trail network, in addition to an existing informal network of unplanned and unauthorized dirt roads and pathways. These unauthorized dirt roads and pathways total approximately 71.5 miles.

While an active fire regime is characteristic of the surrounding region, only two historic fires have been recorded within the study area, one in 1953 on Monument Mesa (128 acres burned) and one in 1983 on Spooner's Mesa (134 acres burned).

1.4.4 Topography and Soils

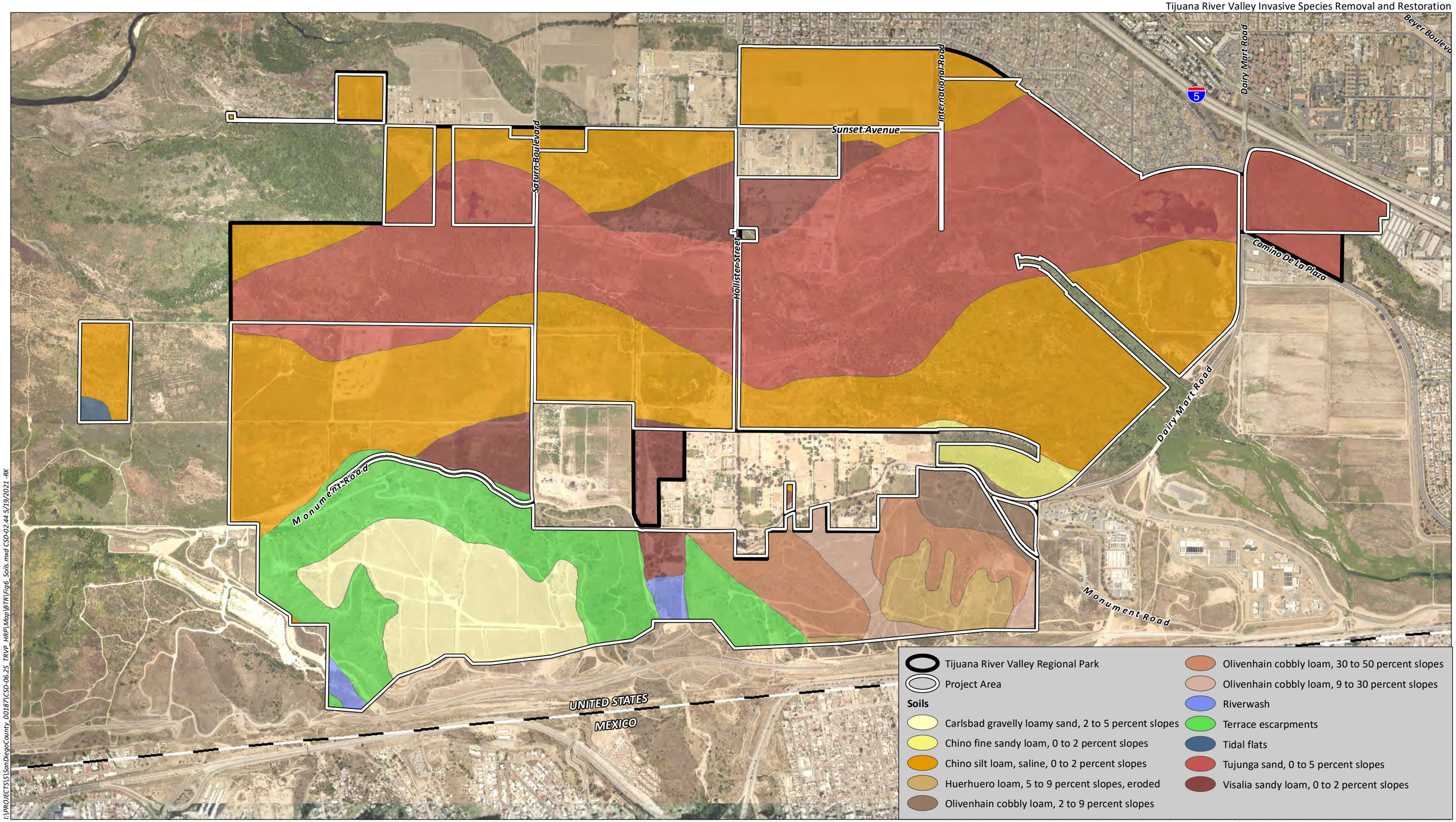
The study area is in the relatively stable Coastal Plain province of San Diego County. A broad, flat floodplain on the valley floor comprises roughly the northern two-thirds of the study area (i.e., the Tijuana River Valley), which is bisected from east to west by the Tijuana River. The southern one-third of the study area is composed of steep, hilly terrain topped with mesas (Spooner's Mesa in the west and Monument Mesa in the east). Elevations within the study area range from approximately eight feet above mean sea level (AMSL) to 434 feet AMSL. The Tijuana River flows in a northwesterly direction, originating in Mexico, and flows through the study area, continues west into the TNERR, and drains into the Pacific Ocean just south of the TSNWR. The study area is bounded on three sides by urban development, open space to the west, and generally consists of a broad floodplain with natural mesas in the south. The eastern boundary of the area is demarcated by the Dairy Mart Ponds.

The area contains alluvium, terrace deposits, recent and old alluvial fan deposits, and fill. Higher elevations within the Tijuana River Valley have conglomerates consisting of San Diego Formation materials. The valley soils are characterized by coarse sands with a medium to low amount of fines (silts and clays). The alluvial deposits contain rocky zones consisting of large amounts of boulders, cobbles, and gravels.

A total of 12 soil mapping units in nine soil series are shown within the study area (Figure 6, *Soils*): Carlsbad gravelly loamy sand, 2 to 5 percent slopes (CbB); Chino fine sandy loam, 0 to 2 percent slopes (ChA); Chino silt loam, saline, 0 to 2 percent slopes (Cka); Huerhuero loam, 5 to 9 percent slopes, eroded (HrC2); Olivenhain cobbly loam, 2 to 9 percent slopes (OhC); Olivenhain cobbly loam, 9 to 30 percent slopes (OhE); Olivenhain cobbly loam, 30 to 50 percent slopes (OhF); riverwash (Rm); terrace escarpments (TeF); tidal flats (Tf); Tujunga sand, 0 to 5 percent slopes (TuB); and Visalia sandy loam, 0 to 2 percent slopes (VaA). Chino silt loam and Tujunga sand comprise the largest areas of soil map units in the study area and coincide with the location of the Tijuana River and much of its floodplain.

1.4.5 Vegetation Communities/Land Use Types

Thirty-five vegetation communities/land use types occur in the study area (Table 2, *Existing Vegetation Communities/Land Use Types Within the Project Area and Survey Buffer)*; Figures 7a-7g, *Vegetation Communities/Habitats [Holland/Oberbauer]*). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986), as added to by Oberbauer (2008) and as presented in the County's Biology Guidelines (County 2010b). The communities are presented in Table 2, in order by MSCP Tier.



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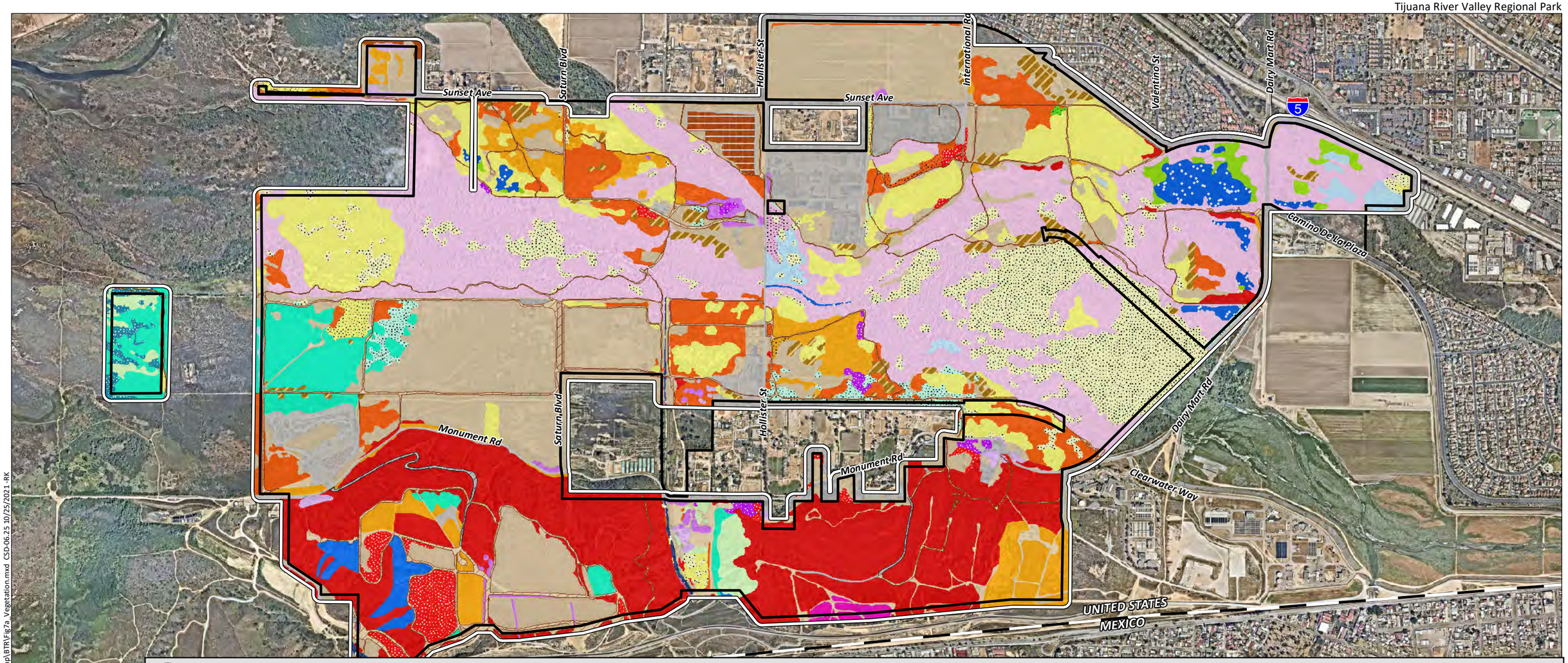
Source: Aerial Photo (SanGIS 2017); Soils (U.S. Department of Agriculture, Natural Resources Conservation Service 2005)

0 1,200 Feet

Soils

Figure 6



Tijuana River Valley Regional Park
Study Area

Holland/Oberbauer Classification

Riparian Forests and Woodlands
- (61300) Southern Riparian Forest
- (61300) Southern Riparian Forest (Disturbed)
- (62500) Southern Riparian Woodland
- (65000) Non-native Riparian

Riparian Shrublands
- (63320) Southern Willow Scrub
- (63320) Southern Willow Scrub (Disturbed)
- (63310) Mule Fat Scrub
- (63310) Mule Fat Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (63000) Riparian Scrub (Disturbed)

Hydrophytic Herbaceous Vegetation
- (52410) Coastal and Valley Freshwater Marsh
- (52120) Southern Coastal Salt Marsh
- (42130) Saltgrass Grassland
- (52440) Emergent Wetland
- (65110) Arundo-Dominated Riparian

Upland Forests and Woodlands
- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland

Sclerophyllous, Evergreen Shrubs
- (37C30) Southern Maritime Chaparral

Soft-Leaved, Drought-Deciduous Shrublands
- (36000) Chenopod Scrub
- (32000) Coastal Scrub
- (32400) Maritime Succulent Scrub
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated (Disturbed)
- (32500) Diegan Coastal Sage Scrub
- (32500) Diegan Coastal Sage Scrub (Disturbed)

Upland Herbaceous Vegetation
- (11300) Disturbed Habitat
- (42200) Non-native Grassland
- (N/A) Non-native Vegetation

General Agriculture
- (18000) Agriculture
- (18320) Row Crops

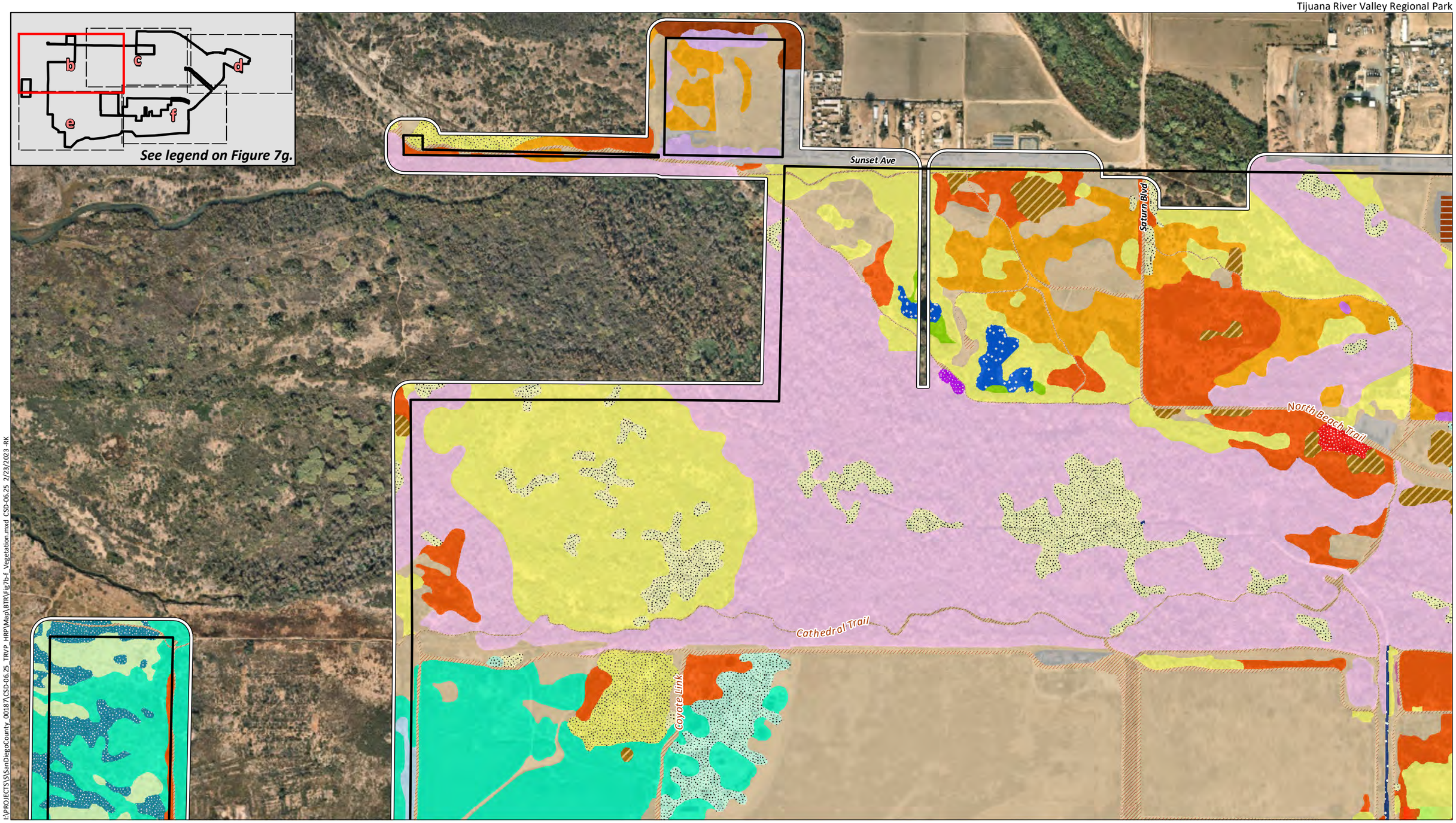
Unvegetated
- (11300) Disturbed Habitat - Trail
- (12000) Developed
- (12000) Developed - Trail
- (64000) Unvegetated Habitat (Streambed)
- (64100)Open Water

Aerial Photo: Nearmap (2021)

0 1,300 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7a



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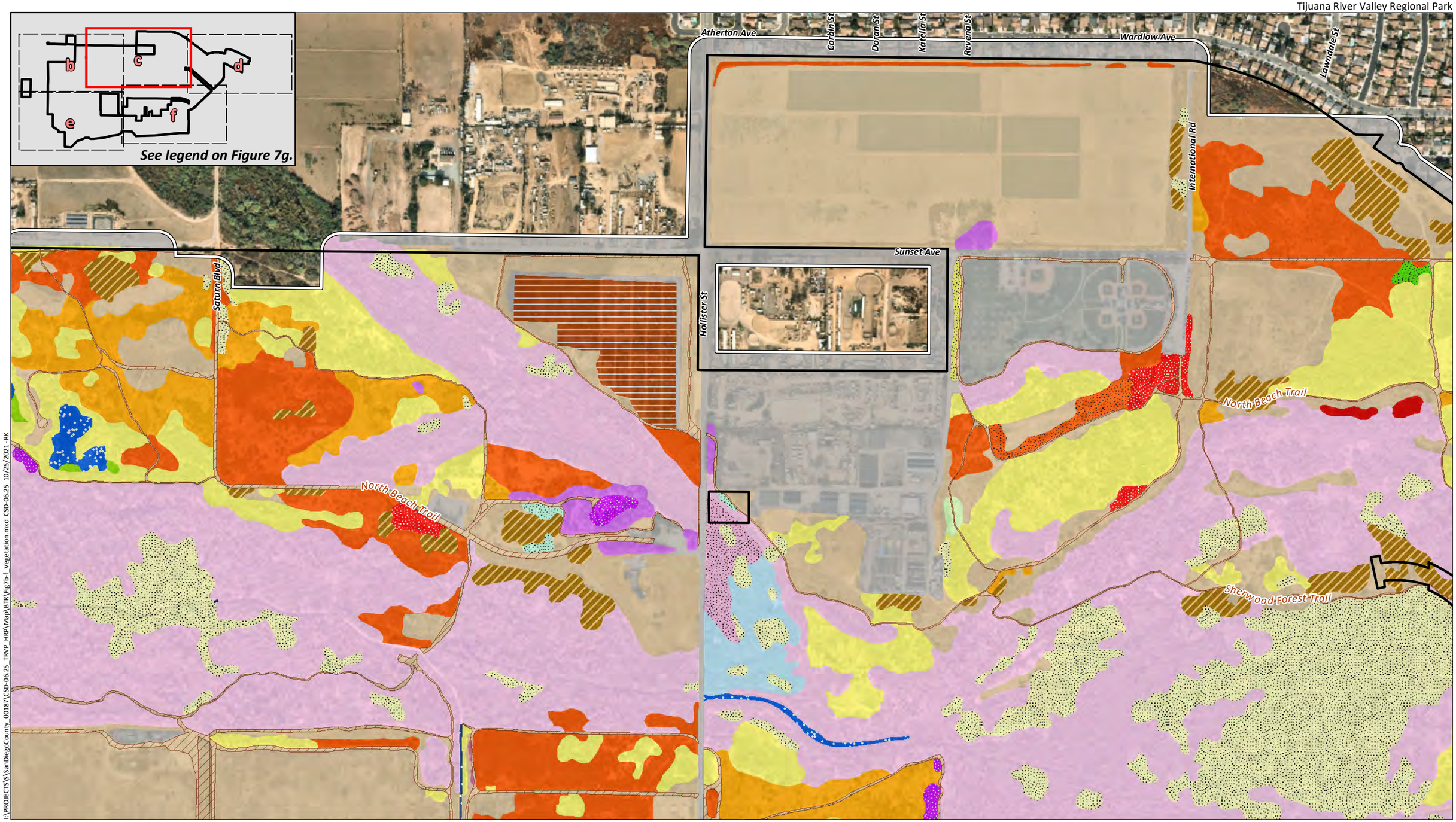
Aerial Photo: Nearmap 2021

0 500 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7b



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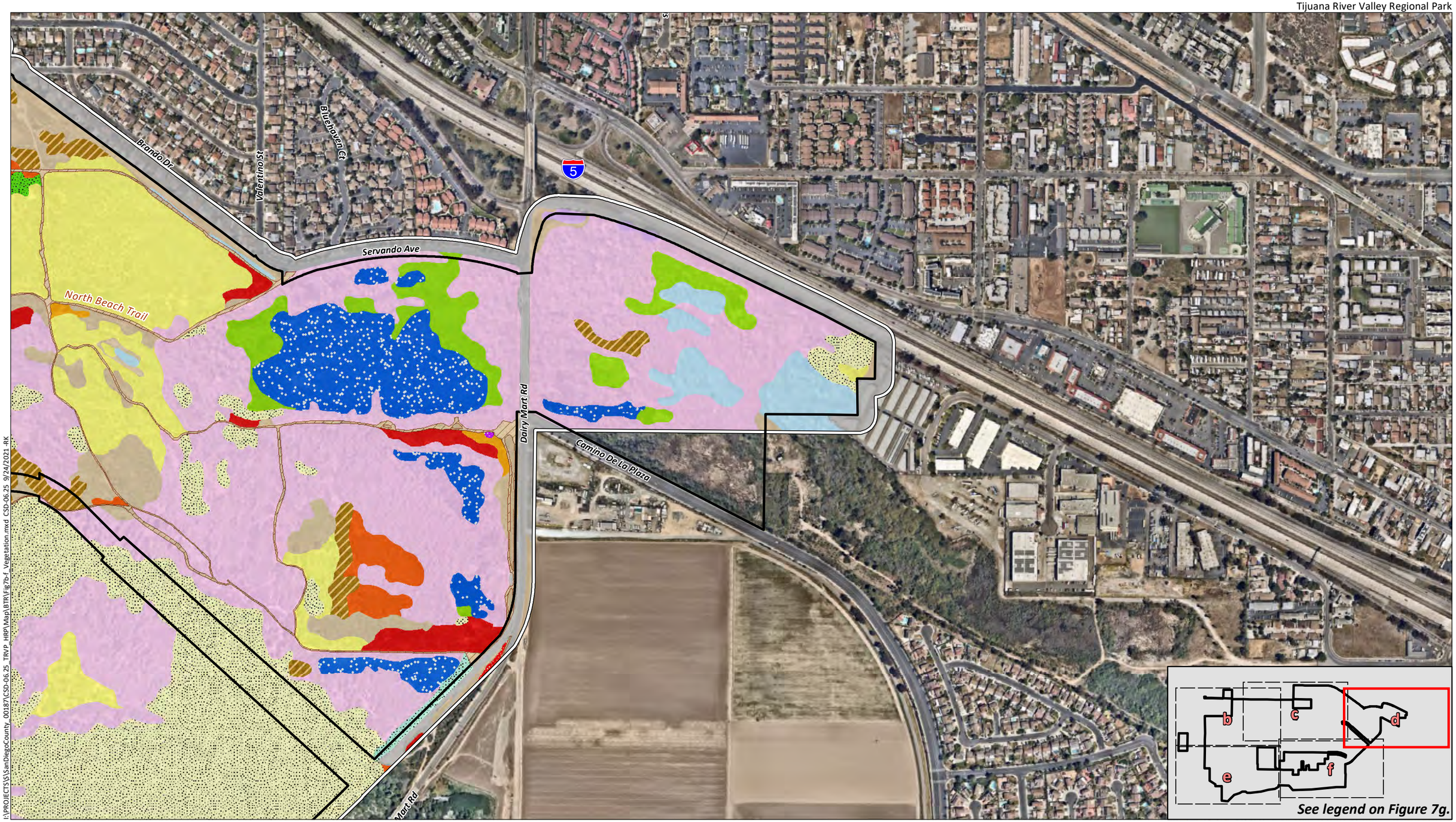
Aerial Photo: Nearmap 2021

0 500 Feet

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7c

Tijuana River Valley Regional Park



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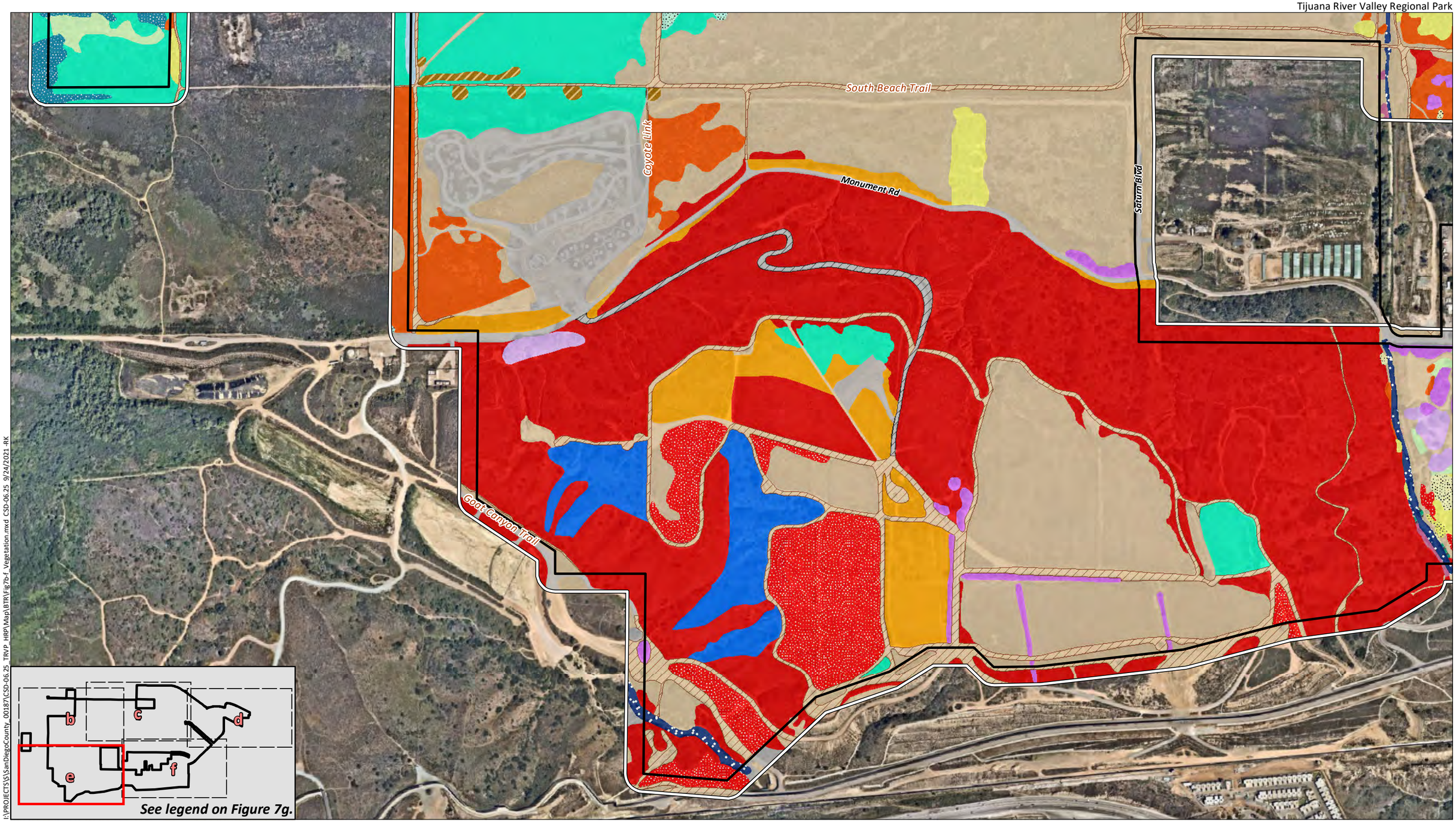
Aerial Photo: Nearmap 2021

0 500 Feet

N

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7d



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Aerial Photo: Nearmap 2021

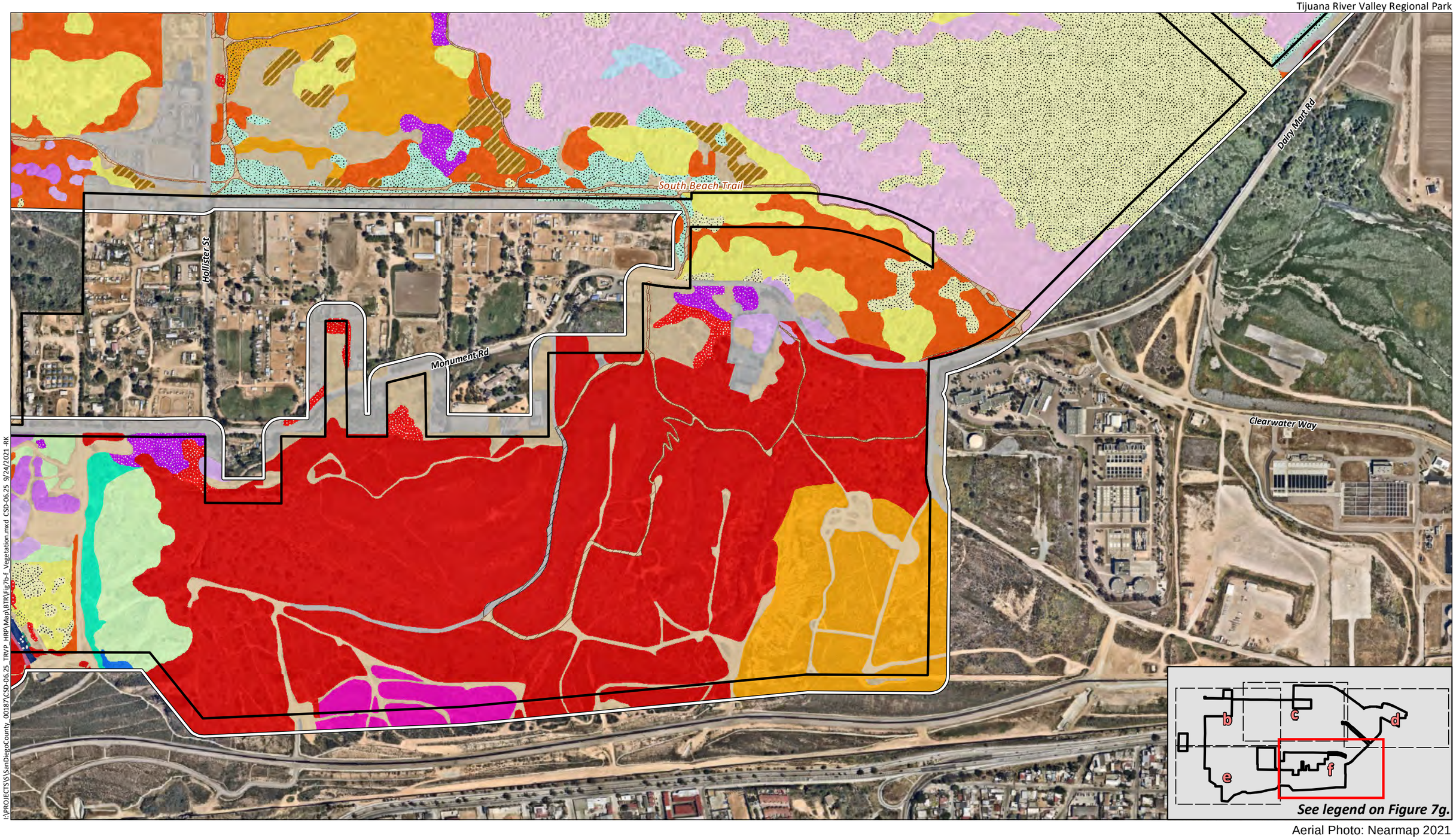
0 500 Feet

N

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7e

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

N

Vegetation Communities/Habitats (Holland Oberbauer)

Figure 7f

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Legend

Figure 7g

Table 2
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES WITHIN THE PROJECT AREA AND SURVEY BUFFER

Vegetation Community[1]	Tier[2]	Phase/Treatment Area												Project Area Total	Survey Buffer	Study Area
		1	2	3	4	5	6	7	8	9	10	11	12			
Wetland Habitats																
Saltgrass grassland (42130)	I	--	0.39	--	--	--	--	--	--	--	--	--	--	**0.39**	--	**0.39**
Southern coastal salt marsh (52120)	I	--	--	--	--	--	--	--	--	--	--	4.35	--	**4.35**	6.06	**10.41**
Coastal valley and freshwater marsh (52410)	I	3.18	5.97	--	--	--	--	--	0.22	--	--	--	--	**9.37**	0.65	**10.02**
Emergent wetland (52440)	I	--	0.25	--	--	--	--	--	--	--	--	--	--	**0.25**	--	**0.25**
Southern riparian forest (61300)	I	22.19	51.95	--	90.02	1.40	0.58	115.35	37.88	34.28	0.19	1.74	--	**355.58**	20.21	**376.79**
Southern riparian forest – disturbed (61300)	I	--	--	--	2.14	--	--	--	--	0.51	--	--	--	**2.65**	0.56	**2.70**
Southern riparian woodland (62500)	I	--	--	--	--	--	0.10	--	--	--	--	--	0.13	**0.23**	0.13	**0.23**
Non-native riparian (65000)	I	6.24	0.16	--	6.04	--	--	--	--	--	--	0.41	--	**12.85**	1.68	**14.53**
Southern willow scrub (63320)	I	0.22	32.49	0.50	16.53	5.21	9.81	37.98	18.92	15.72	0.63	2.25	1.92	**142.18**	12.86	**155.04**
Southern willow scrub - disturbed (63320)	I	--	--	--	--	--	--	--	--	0.52	0.09	4.94	0.13	**5.68**	1.43	**7.11**
Mule fat scrub (63310)	I	--	5.68	8.44	5.41	8.78	15.68	8.66	15.69	1.99	1.58	12.16	0.60	**84.67**	8.78	**93.45**
Mule fat scrub – disturbed (63310)	I	--	--	--	--	--	--	--	--	1.88	--	--	--	**1.88**	--	**1.88**
Tamarisk scrub (63810)	I	0.75	1.76	4.09	5.74	--	0.28	4.24	2.10	3.12	0.55	1.23	0.48	**24.32**	1.07	**25.41**
Riparian scrub – disturbed (63000)	I	--	--	--	--	--	--	--	--	--	--	--	0.06	**0.06**	--	**0.06**
Open Water (64100)	I	0.58	17.96	--	0.68	--	--	--	1.49	--	--	--	--	**20.71**	0.68	**21.39**
Unvegetated Habitat – Streambed (64000)	I	--	--	--	--	--	0.53	--	--	--	--	--	1.74	**2.27**	0.40	**2.67**
Arundo-dominated riparian (65110)	I	1.51	6.69	--	89.77	2.02	0.03	16.29	1.69	3.10	0.26	0.27	1.16	**122.79**	12.92	**135.71**

Vegetation Community[1]	Tier[2]	Phase/Treatment Area												Project Area Total	Survey Buffer	Study Area
		1	2	3	4	5	6	7	8	9	10	11	12			
Upland Habitats																
Maritime succulent scrub (32400)	I	--	--	--	--	--	--	--	--	--	--	--	12.3	**12.3**	0.2	**12.5**
Southern maritime chaparral (37C30)	I	--	--	--	--	--	--	--	--	--	--	--	3.2	**3.2**	2.2	**5.4**
Coastal scrub (32000)	II	--	--	--	--	--	--	--	--	--	--	48.0	7.3	**55.3**	0.4	**55.7**
Diegan coastal sage scrub (32500)	II	--	4.3	--	--	3.4	0.3	--	--	0.3	--	0.8	246.5	**255.6**	25.3	**280.9**
Diegan coastal sage scrub – baccharis dominated (32530)	II	--	0.9	0.3	14.5	--	--	--	16.4	0.2	2.3	2.8	31.3	**68.7**	8.7	**77.4**
Diegan coastal sage scrub – baccharis dominated, disturbed (32530)	II	--	--	--	0.6	--	--	--	--	--	--	--	--	**0.6**	--	**0.6**
Diegan coastal sage scrub – disturbed (32500)	II	--	--	--	<0.1 (0.09)	1.1	--	0.7	--	1.8	--	--	20.4	**24.1**	1.5	**25.6**
Chenopod scrub (36000)	II	--	0.6	--	7.7	--	--	0.3	0.3	--	--	5.7	--	**14.6**	2.0	**16.6**
Non-native grassland (42200)	III	--	--	--	--	--	--	--	--	0.4	--	4.7	9.7	**14.8**	0.5	**15.3**
Disturbed habitat (11300)	IV	0.4	21.3	8.0	9.8	4.0	6.8	34.1	10.7	16.7	73.4	103.8	61.9	**350.9**	29.6	**380.5**
Disturbed habitat – trail (11300)	IV	--	4.5	<0.1 (0.02)	2.8	0.5	1.5	4.5	2.2	2.3	0.9	7.3	16.6	**43.12**	9.2	**52.3**
Agriculture (18000)	IV	--	--	--	--	--	--	--	--	--	<0.1 (0.03)	--	--	**<0.1 (0.03)**	1.6	**1.6**
Row crops (18320)	IV	--	--	--	--	--	--	--	--	--	10.3	--	--	**10.3**	--	**10.3**
Non-native woodland (79000)	IV	--	--	--	--	--	0.5	0.1	3.0	0.3	0.6	0.5	3.2	**8.2**	0.4	**8.6**
Eucalyptus woodland (79100)	IV	0.4	--	--	--	1.3	0.4	--	--	--	1.5	--	2.3	**5.9**	2.4	**16.7**
Non-native vegetation (N/A)	IV	--	<0.1 (0.04)	--	1.7	1.0	--	--	0.8	--	--	--	1.3	**4.8**	0.3	**5.1**
Developed land (12000)	IV	--	<0.1 (0.04)	0.2	--	1.7	5.7	0.91	0.8	42.6	2.8	17.8	3.0	**75.6**	71.7	**147.3**
Developed land – trail (12000)	IV	--	--	--	--	--	--	--	--	--	--	--	2.9	**2.9**	--	**2.9**
	TOTAL	**35.47**	**154.98**	**21.55**	**253.52**	**30.41**	**42.21**	**223.13**	**112.19**	**125.72**	**95.13**	**218.45**	**427.99**	**1,740.75**	**223.43**	**1,973.34**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008) and are listed by City Subarea Habitats and Tiers per Attachment K of the BMO (County 2010).

[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01 acre; thus, total reflects rounding.

1.4.5.1 Wetlands

Saltgrass Grassland (Holland Code 42130, Tier I)

Saltgrass grassland may be composed of low (less than 20 centimeters in height) grassland dominated by saltgrass (*Distichlis spicata*). It is usually found on fine-textured, alkaline soils, that are also often poorly drained. Saltgrass grassland may co-occur and intergrade with alkali meadow and various riparian habitats.

A total of 0.39 acre of saltgrass grassland is mapped within Treatment Area 2. It occurs as a single stand of habitat in the northeast portion of the study area (Figures 7a, 7c-7d, and 7g).

Southern Coastal Salt Marsh (Holland Code 52120, Tier I)

Southern coastal salt marsh is a highly productive community composed of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a dense cover of up to one meter tall. This plant community is found along sheltered inland margins of bays, lagoons, and estuaries where the hydric soils are subjected to regular tidal inundation by salt water (Holland 1986). Dominant species include alkali-heath (*Frankenia salina*) and pickleweed (*Salicornia* sp.).

A total of 4.35 acres of southern coastal salt marsh is mapped within Treatment Area 11, and 6.06 acres occur within the survey buffer. Within the study area, southern coastal salt marsh is limited to portions of the disjunct western parcel. Characteristic species observed include alkali-heath, pickleweed, and saltgrass (Figures 7a-7b,7e, and 7g).

Coastal Valley and Freshwater Marsh (Holland Code 52410, Tier I)

Coastal and valley freshwater marsh is dominated by perennial, emergent monocots, five to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.), along with umbrella sedges (*Cyperus* spp.), rushes (*Juncus* spp.), and spike-sedge (*Eleocharis* spp.).

A total of 9.37 acres of coastal and valley freshwater marsh is mapped within Treatment Areas 1, 2, and 8 and 0.65 acre occurs within the survey buffer. It is found around the edges of Dairy Mart Pond and Duck Ponds in the northwest and northeast portions of the study area and just west of the intersection of Dairy Mart Road and Camino de la Plaza (Figures 7a-7d and 7g).

Emergent Wetland (Holland Code 52440, Tier I)

Emergent wetland is a low-growing, herbaceous community that is dominated by a variety of native wetland species. It typically occurs in seasonally wet areas with heavy soils. These can be found in channels, seeps and springs, floodplains, margins of lakes and rivers, and various basins such as pools and ponds. In San Diego County, these are often in previously disturbed areas where wetlands are emerging, but have not yet established a full suite of species; however, disturbance is not a necessary element of this vegetation community.

A total of 0.25 acre of emergent wetland is mapped within Treatment Area 2. Emergent wetland in the study area is characterized by cattail, yerba mansa (*Anemopsis californica*), and annual beardgrass (*Polypogon monspeliensis*). It occurs as a small, linear area at the toe of a manufactured slope along the park boundary in the northeast portion of the study area (Figures 7a, 7d, and 7g).

Southern Riparian Forests – including disturbed (Holland Code 61300, Tier I)

Southern riparian woodlands and forests are composed of winter-deciduous trees that require water near the soil surface. Willow (*Salix* spp.), cottonwood (*Populus* spp.), and western sycamore (*Platanus racemosa*) form a dense medium height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat (*Baccharis salicifolia*), stinging nettle (*Urtica dioica* ssp. *holosericea*), and wild grape (*Vitis girdiana*; Beauchamp 1986). Disturbed southern riparian forest contains many of the same shrub species as undisturbed southern riparian forest but is sparser and has a higher proportion of non-native perennial and annual species.

A total of 355.58 acres of southern riparian forest is mapped within Treatment Areas 1-2 and 4-11, and 20.21 acres occur within the survey buffer. A total of 2.65 acres of disturbed southern riparian forest is mapped within Treatment Areas 4 and 9, and 0.56 acre occurs within the survey buffer. Southern riparian forest is found along the Tijuana River and characteristic species in this habitat within the study area include black willow (*Salix gooddingii*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), and mule fat. Riparian forest comprises large stands of contiguous habitat associated with the Tijuana River (Figures 7a-7d and 7f). Disturbed southern riparian forest is found bordering the eastern edge of Hollister Street, between Sunset Avenue and Saturn Avenue (Figures 7a and 7c).

Southern Riparian Woodland (Holland Code 62500, Tier I)

Southern riparian woodlands are composed of winter-deciduous trees that require water near the soil surface. Willows, cottonwood, and western sycamore form a dense, medium-height woodland or forest in moist canyons and drainage bottoms. Associated understory species include mule fat, stinging nettle, and wild grape (Beauchamp 1986).

A total of 0.23 acre of southern riparian woodland is mapped within Treatment Area 6 and 12, and 0.13 acre occurs within the survey buffer. Within the study area, southern riparian woodland is made up of small stands of black willow scattered along the banks of the Smuggler's Gulch channel (Figures 7a-7c).

Non-Native Riparian (Holland Code 65000, Tier I)

Non-native riparian habitats are densely vegetated and dominated by invasive non-native plant species. Invasive non-native plant species must make up 50 percent cover or greater. This community is often found in areas that have experienced disturbance. It is common in many of the river channels in San Diego County. Species often encountered include salt cedar, giant reed, eucalyptus, palms (*Washingtonia* spp., *Phoenix* spp.), Bermuda grass (*Cynodon dactylon*), and castor bean. Associated native plant species include arrow weed (*Pluchea sericea*), cottonwoods, and willows.

A total of 12.85 acres of non-native riparian is mapped within Treatment Areas 1 and 4, and 1.68 acres occur within the survey buffer. It is found along the Tijuana River east of Hollister Road, as well as in riparian habitat east of Dairy Mart Road (Figures 7a-7d and 7f).

Southern Willow Scrub – including disturbed (Holland Code 63320, Tier I)

Southern willow scrub consists of dense, broad-leaved, winter-deciduous stands of trees dominated by shrubby willows in association with mule fat, and with scattered emergent cottonwood and western sycamores. This vegetation community occurs on loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. Frequent flooding maintains this early seral community, preventing succession to a riparian woodland or forest (Holland 1986). In the absence of periodic flooding, this early seral type would be succeeded by southern cottonwood or western sycamore riparian forest. Disturbed southern willow scrub contains many of the same shrub species as undisturbed southern willow scrub but is sparser and has a higher proportion of non-native perennial and annual species.

There are 142.18 acres of southern willow scrub within Treatment Areas 1-12, and 12.86 acres occur within the survey buffer. There are 5.68 acres of disturbed southern willow scrub mapped within Treatment Areas 9-12, and 1.43 acres occur within the survey buffer. Characteristic species in southern willow scrub in the study area include arroyo willow, mule fat, and sandbar willow (*Salix exigua*). This habitat occurs in a scattered distribution along the Tijuana River, as well as in smaller, disjunct stands near Smuggler's Gulch and Monument Road (Figures 7a-7f).

Mule Fat Scrub – including disturbed (Holland Code 63310, Tier I)

Mule fat scrub is a depauperate, shrubby riparian scrub community dominated by mule fat and interspersed with small willows. This vegetation community occurs along intermittent stream channels with a fairly coarse substrate and moderate depth to the water table. This early seral community is maintained by frequent flooding, the absence of which would lead to a cottonwood or sycamore dominated riparian woodland or forest (Holland 1986). In some environments, limited hydrology may favor the persistence of mule fat. Disturbed mule fat scrub contains many of the same shrub species as undisturbed mule fat scrub but is sparser and has a higher proportion of non-native perennial and annual species.

There are 84.67 acres of mule fat scrub in Treatment Areas 2-12, and 8.78 acres occur within the survey buffer. There are 1.88 acres of disturbed mule fat scrub in Treatment Area 9. Numerous stands of mule fat occur in the study area along the Tijuana River corridor as well as in other locations on the valley floor (e.g., adjacent to the campground; Figures 7a-7g).

Tamarisk Scrub (Holland Code 63810, Tier I)

Tamarisk scrub is typically comprised of shrubs and/or small trees of exotic tamarisk species (*Tamarix* spp.) but may also contain willows, salt bushes (*Atriplex* spp.), catclaw acacia (*Acacia greggii*), and salt grass. This habitat occurs along intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a drainage (Holland 1986).

There are 24.32 acres of tamarisk scrub in Treatment Areas 1-4 and 6-11, and 1.07 acres occur within the survey buffer. It occurs as several small stands spread throughout the river valley (Figures 7a-7g).

Riparian Scrub – disturbed (Holland Code 63000, tier I)

Riparian scrub describes a shrub dominated community that occurs along drainages and/or riparian corridors but site factors and characteristic species that would further classify the area as southern willow scrub, mule fat scrub, and tamarisk scrub are absent.

There are 0.06 acre of disturbed riparian scrub in Treatment Area 12. Within the study area, disturbed riparian scrub contains a mixture of arroyo willow, mule fat, single-whorl burrobush (*Ambrosia monogyra*), and sandbar willow, with a high percentage of castor-bean. It occurs as three small stands along the southern reach of Smuggler's Gulch channel (Figures 7a, 7e, and 7g).

Open Water (Holland Code 64100, Tier I)

Open water is an unvegetated habitat. It is made up of year-round bodies of saline or fresh water. Fresh water bodies include lakes, streams, ponds, or rivers.

There are 20.71 acres of open water in Treatment Areas 1-2, 4, and 8, and 0.68 acre occurs within the survey buffer. Open water in the study area consists of several ponds in the northeastern and northwestern portions of the study area, including Dairy Mart Pond and the Duck Ponds. (Figures 7a-7d and 7g).

Unvegetated Habitat – Streambed (Holland Code 64000, Tier I)

Unvegetated habitat (streambed) includes areas that are unvegetated and occur within the corridor of a stream or river. The stream or river may be ephemeral or intermittent, making open water an inappropriate name for this habitat type at the time vegetation mapping was conducted; however, these areas may contain water depending on the time of year.

A total of 2.27 acres of streambed occur within Treatment Areas 6-7 and 12, and 0.40 acre occurs within the survey buffer. Streambed within the study area includes the channels within Smuggler's Gulch and Goat Canyon (Figures 7a-7c and 7e-7g).

Arundo-dominated Riparian (Holland Code 65110, Tier I)

The arundo-dominated riparian stands contain densely vegetated riparian thickets dominated almost exclusively by giant reed. This designation is used where giant reed accounts for greater than 50 percent of the total vegetative cover within a mapping unit. This plant may form dense floating mats in riparian areas, streams, ditches, and coastal marshes. Propagation occurs when the rhizomes and culms detach from the plant and are carried downstream. Stands may be up to eight meters in height and will exclude many native trees, especially willows. This community is less dominant in drier riparian systems that may be dominated by mule fat or arrow weed.

A total of 122.79 acres of arundo-dominated riparian occur within Treatment Areas 1-2 and 4-12, and 12.92 acres occur within the survey buffer. This community is found in many areas of the Tijuana River corridor and in the vicinity of Smuggler's Gulch; however, the largest stands are found in the eastern portion of the study area. (Figures 7a-7g).

1.4.5.2 Uplands

Maritime Succulent Scrub (Holland Code 32400, Tier I)

Maritime succulent scrub is a low open scrub community that is dominated by a mixture of stem and leaf succulent species and drought deciduous species that also occur within sage scrub communities. This vegetation community occurs on thin, rocky or sandy soils, on steep slopes of coastal headlands and bluffs. The dominant species typically found within this vegetation community include coast barrel cactus (*Ferocactus viridescens*), prickly pear cactus (*Opuntia littoralis*), cliff spurge (*Euphorbia misera*), dudleya (*Dudleya* spp.), California box-thorn (*Lycium californicum*), and California encelia (*Encelia californica*; Beauchamp 1986).

A total of 12.3 acres of maritime succulent scrub occurs within Treatment Area 12, and 0.2 acre occur within the survey buffer. It is found on Spooner's Mesa and Monument Mesa (Figures 7a and 7e-7g).

Southern Maritime Chaparral (Holland Code 37C30, Tier I)

Southern maritime chaparral is restricted to the weathered sands within the coastal fog belt in San Diego County from La Jolla to Carlsbad, with some scattered patches to the south; Point Loma, Spooner's Mesa, and Peñasquitos Canyon. This low, fairly open, chaparral is dominated by wart-stemmed ceanothus (*Ceanothus verrucosus*) and thick-leaved Eastwood's manzanita (*Arctostaphylos glandulosa* ssp.). Additional species include mission manzanita (*Xylococcus bicolor*), chamise (*Adenostoma fasciculatum*), Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), Nuttall's scrub oak (*Quercus dumosa*), and summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*). Similar to other chaparral communities, fire is necessary for the reproduction of many of the constituent species, which generally resprout from underground root crowns (Conrad 1987).

A total of 3.2 acres of southern maritime chaparral is mapped within Treatment Area 12, and 2.2 acres occur within the survey buffer. It is found on the southern edge of Monument Mesa (Figures 7a and 7f-7g).

Coastal Scrub (Holland Code 32000, Tier II)

Coastal scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Coastal scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within coastal scrub include goldenbush (*Isocoma menziesii*) and deerweed (*Acmispon glaber*).

A total of 55.3 acres of coastal scrub occur within Treatment Areas 11-12, and 0.4 acre occurs within the survey buffer. It is found north of Monument Road, to the north and south of the Tijuana River, Spooner's Mesa, Monument Mesa, and in the western portion of the study area (Figures 7a-7b and 7e-7g).

Diegan Coastal Sage Scrub – including disturbed (Holland Code 32500, Tier II)

Diegan coastal sage scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species

found within Diegan coastal sage scrub include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Disturbed Diegan coastal sage scrub contains many of the same shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native perennial and annual species.

There are 255.6 acres of Diegan coastal sage scrub within Treatment Areas 2, 5-6, 9, and 11-12, and 25.3 acres occur within the survey buffer. There are 24.1 acres of disturbed Diegan coastal sage scrub mapped within Treatment Areas 4-5, 7, 9, and 12, and 1.5 acres occur within the survey buffer. Diegan coastal sage scrub (including disturbed) is found on the slopes of Spooner's Mesa and Monument Mesa and upland areas in the southern portion of the study area (Figures 7a and 7c-7g).

Diegan Coastal Sage Scrub: Baccharis Dominated – including disturbed (Holland Code 32530, Tier II)

Within Diegan coastal sage scrub: baccharis dominated, coyote brush is the dominant species in the shrub canopy. Associated species include California sagebrush, California buckwheat, and goldenbush. The herbaceous layer contains codominant species which includes bromes (*Bromus* spp.), barleys (*Hordeum* spp.), Bermuda grass, giant wild rye (*Elymus condensatus*), purple needlegrass (*Stipa pulchra*), and deergrass (*Muhlenbergia rigens*). Diegan coastal sage scrub: baccharis dominated is usually open and often occurs on floodplains as a transition between riparian and upland habitat types. Disturbed Diegan coastal sage scrub: baccharis dominated contains many of the same shrub species as undisturbed Diegan coastal sage scrub: baccharis dominated but is sparser and has a higher proportion of non-native perennial and annual species.

There are 68.7 acres of Diegan coastal sage scrub: baccharis dominated within Treatment Areas 2-4 and 8-12, and 8.7 acres occur within the survey buffer. There are 0.6 acre of disturbed Diegan coastal sage scrub: baccharis dominated mapped within Treatment Area 4. Diegan coastal sage scrub: baccharis dominated is found throughout the project area in upland areas that have revegetated with baccharis scrub following past disturbances (Figures 7a-7g). Disturbed Diegan coastal sage scrub: baccharis dominated is found on the east side of Hollister Road along to the north of South Beach trail (Figures 7a and 7f-7g).

Chenopod Scrub (Holland Code 36000; Tier II)

Chenopod scrub describes a shrub dominated community that occurs with low, grayish microphyllous shrubs with some succulent species. Stands are typically dominated by saltbush species but site factors and characteristic species that would further classify the area as desert salt scrub or desert sink are absent.

There are 14.6 acres of chenopod scrub within Treatment Areas 2, 4, 7-8, and 11, and 2.0 acres occur within the survey buffer. It is found north of Monument Road, to the north and south of the Tijuana River, Spooner's Mesa, Monument Mesa, and in the western portion of the study area (Figures 7a-7b and 7e-7g).

Non-Native Grassland (Holland Code 42200, Tier III)

Non-native grassland may be composed of dense to sparse cover of annual grasses. It is 0.2 to one meter tall. In years of high rainfall, it can be associated with native wildflowers. In San Diego County, associated species include oats (*Avena* spp.), bromes, filaree (Erodium spp.), mustards (*Brassica* spp.), tocalote (*Centaurea melitensis*), California poppy (*Eschscholzia californica*), lupines (*Lupinus* spp.), and plantain (*Plantago* spp.), among others. In some areas, depending on rainfall, forbs can be dominant. Gemination often occurs with the onset of fall rains and occurs through the spring. Grass species are often dead in the summer and fall. It is usually found on fine textured to clay soils.

There are 14.8 acres of non-native grassland within Treatment Areas 9, 11, and 12, and 0.5 acre occurs within the survey buffer. Non-native grassland occurs in the western and southern portion of the study area, south of the Tijuana River, on the west facing slope of Monument Mesa and to the north of Monument Road, north of Spooner's Mesa (Figures 7a-7b and 7e-7f).

Disturbed Habitat – including trail (Holland Code 11300, Tier IV)

Disturbed habitat includes those areas that have been disturbed and are no longer considered native habitat, but still have a soil substrate. Vegetation is usually made up of invasive non-native species and ornamentals, and in particular, those species that take advantage of disturbed areas. Commonly associated species include thistles (*Sonchus* spp.), Russian thistle (*Salsola tragus*), mustards (*Brassica* spp.), pampas grass (*Cortaderia selloana*), and fountain grass (*Pennisetum setaceum*). The habitat no longer provides animal species with many beneficial uses, other than for dispersal. Examples of areas that are considered disturbed habitat include graded pads, areas actively managed for fuels, dirt parking lots, firebreaks, off-road vehicle trails, and home sites.

There are 350.9 acres of disturbed habitat within Treatment Areas 1-12, and 29.6 acres occur within the survey buffer. There are 43.1 acres of disturbed habitat - trail mapped within Treatment Areas 2-12, and 9.2 acres occur within the survey buffer. This habitat type occurs throughout the study area (Figures 7a-7g).

Agriculture (Holland Code 18000, Tier IV)

Agricultural is defined broadly as land used primarily for the production of food and fiber. On satellite imagery, the chief indications of agricultural activity are distinctive geometric field and road patterns on the landscape, and the traces produced by livestock or mechanized equipment. However, pasture and other lands where such equipment is used infrequently may not show as well-defined shapes as other areas. The number of building complexes is smaller, and the density of the road and highway network is much lower in Agriculture than in developed land.

There is 0.03 acre of agriculture within Treatment Area 10, and 1.6 acres occur within the survey buffer. This habitat type occurs in the northern portion of the study area, east of Hollister Street and south of Sunset Avenue (Figures 7a-7b and 7g).

Row Crops (Holland Code 18320, Tier IV)

Row crops is defined broadly as land used primarily for the production of food and fiber, specifically along defined linear rows or trenches. On satellite imagery, the chief indications of row crop activity are

distinctive linear rows of crops on the landscape. The number of building complexes is smaller, and the density of the road and highway network is much lower in row crops than in developed land.

There are 10.3 acres of row crops within Treatment Area 10. This habitat type occurs in the northern portion of the study area, east of Hollister Street and south of Sunset Avenue (Figures 7a-7c and 7g).

Non-native Woodland (Holland Code 79000, Tier IV)

Non-native woodland refers to stands of exotic trees, usually intentionally planted, which are not maintained or artificially irrigated. This community does not usually apply where these trees have naturalized or occur within riparian woodlands.

There are 8.2 acres of non-native woodland within Treatment Areas 6-12, and 0.4 acre occurs within the survey buffer. This habitat type occurs throughout the study area, mainly as planted windrows of athel tamarisk (*Tamarix aphylla*; Figures 7a-7g).

Eucalyptus Woodland (Holland Code 79100, Tier IV)

Eucalyptus woodland is dominated by eucalyptus, an introduced species that has often been planted purposely for wind blocking, ornamental, and hardwood production purposes. Most groves are monotypic, with the most common species being either the blue gum (*Eucalyptus gunnii*) or red gum (*E. camaldulensis* ssp. *obtusa)*. The understory within well-established groves is usually very sparse due to the closed canopy and allelopathic nature of the abundant leaf and bark litter.

There are 5.9 acres of eucalyptus woodlands within Treatment Areas 1, 5-6, 10, and 12, and 2.4 acres occur within the survey buffer. It is found throughout the study area (Figures 7a and 7g).

Non-native Vegetation (Holland Code 11000, Tier IV)

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* sp.] and peppertree [*Schinus* sp.]), many of which are also used in landscaping.

There are 4.8 acres of non-native vegetation within Treatment Areas 2, 4-5, 8, and 12, and 0.3 acre occurs within the survey buffer. This habitat type occurs throughout the study area (Figures 7a-7g).

Developed – including trail (Holland Code 12000, Tier N/A)

Developed areas are those that have been built on or physically altered to the extent that native vegetation is not supported. Developed land is often characterized by permanent or semi-permanent structures, pavement, hardscape, or landscaped areas that require irrigation. Areas where no natural land is evident due to large quantities of debris or other material being placed upon it are also considered developed. Usually, plants in these areas are invasive non-native plants or ornamental. Developed (Trail) indicates trails that are established and open to the public as part of the formal trail network within the park (Figure 5). These trails are maintained by the County DPR.

There are 75.6 acres of developed lands within Treatment Areas 2-12, and 71.1 acres occur within the survey buffer. There are 2.9 acres of developed lands - trail mapped within Treatment Area 12. This habitat type occurs throughout the study area (Figures 7a-7g).

1.4.6 Flora

A total of 292 plant species were identified within the study area during the HELIX 2018 baseline biodiversity surveys (HELIX 2019) and HELIX 2021 surveys, of which 165 (57 percent) are native species and 127 (43 percent) are non-native species (Appendix A).

1.4.7 Fauna

A total of 232 animal species were observed or otherwise detected in the study area during the HELIX 2019 and 2021 surveys, including 59 invertebrates, five amphibians, 11 reptiles, 132 birds, and 23 mammal species (Appendix B).

1.4.8 Sensitive Vegetation Communities

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants, as defined by Section 15380 of the State CEQA Guidelines. Attachment K of the County's Biological Mitigation Ordinance (BMO) provides a list of vegetation communities and their tier levels, while Attachment M of the County's BMO provides a list of habitat mitigation ratios for each vegetation community type.

A total of 26 sensitive vegetation communities categorized as Tier I, II, and III, were mapped within the study area. Sensitive vegetation communities include saltgrass grassland (Tier I), southern coastal salt marsh (Tier I), coastal and valley freshwater marsh (Tier I), emergent wetland (Tier I), southern riparian forest (including disturbed; Tier I), southern riparian woodland (Tier I), non-native riparian (Tier I), southern willow scrub (including disturbed; Tier I), mule fat scrub (including disturbed; Tier I), tamarisk scrub (Tier I), riparian scrub – disturbed (Tier I), open water (Tier I), unvegetated habitat – streambed (Tier I), arundo-dominated riparian (Tier I), maritime succulent scrub (Tier I), southern maritime chaparral (Tier I), coastal scrub (Tier II), Diegan coastal sage scrub (including disturbed; Tier II), Diegan coastal sage scrub: baccharis dominated (including disturbed; Tier II), chenopod scrub (Tier II), and non-native grassland (Tier III). Impacts to sensitive habitats require mitigation.

Vegetation communities categorized as Tier IV within the project area do not meet the definition of sensitive habitat under CEQA and include agriculture, row crops, non-native woodland, eucalyptus woodland, non-native vegetation, disturbed habitat (including trails), and developed lands (including trails). Impacts to these vegetation communities do not require mitigation.

1.4.9 Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS, CDFW, and/or the County and may also be included in the CNPS' Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be abundant but occur only in very specific habitats. Lastly, a species may be widespread, but exist naturally in small populations. Designated USFWS critical habitat for the spreading navarretia occurs approximately 2.1 miles east of the park's northeastern boundary, the east of the I-5 transportation corridor, within Otay Mesa, and will not be impacted by the proposed project.

Special Status Plant Species Observed

In total, 17 special status plant species were observed within the study area during the HELIX 2018 baseline biodiversity surveys (HELIX 2019) and HELIX 2021 focused surveys, as listed below in alphabetical order by scientific name. Each is also described below and shown on Figures 8a-8f, *Special Status Plant Species*.

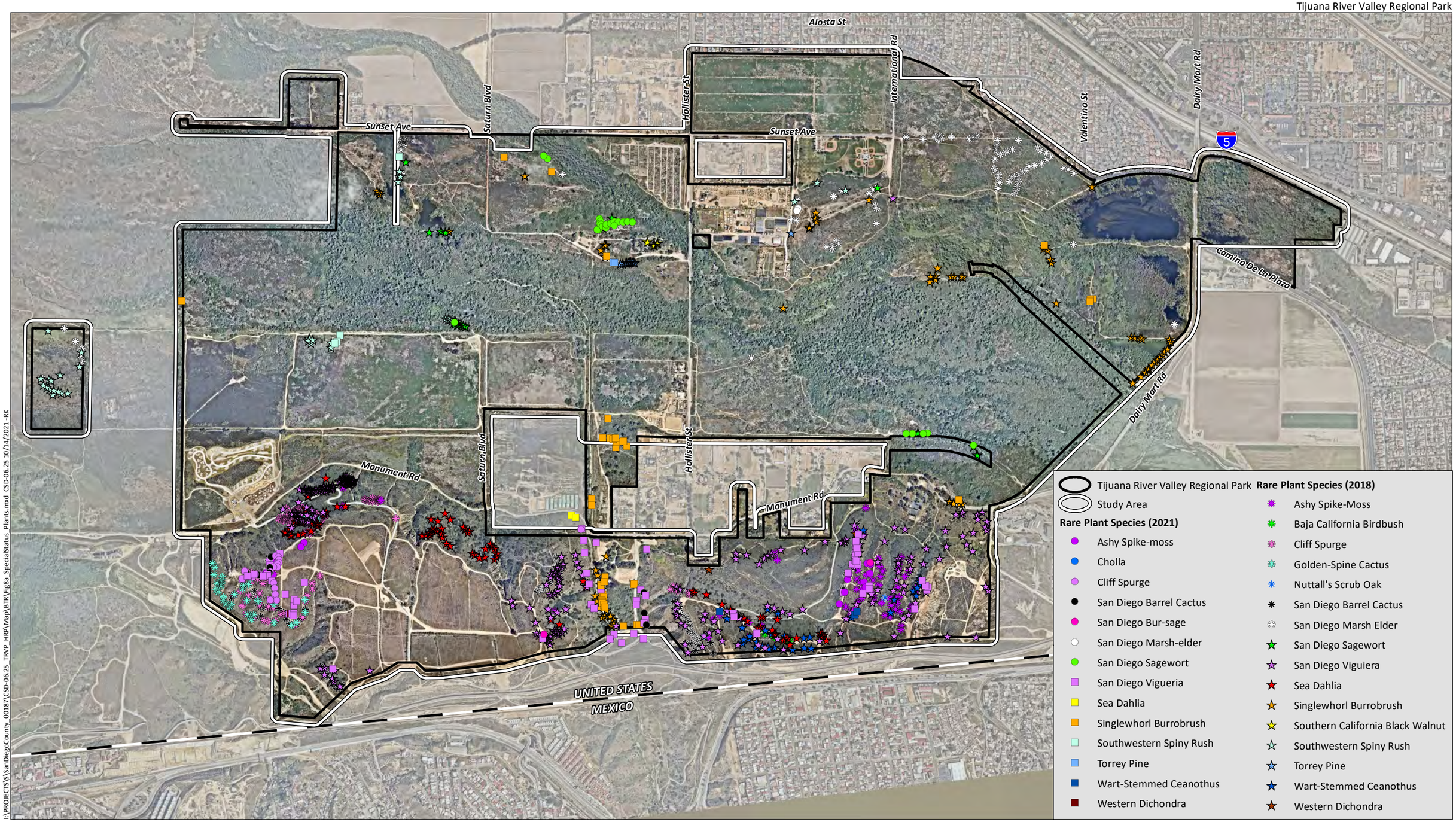
San Diego bur-sage (*Ambrosia chenopodiifolia*)
Status: **--/--; CRPR 2.1; County List B**
Distribution: Southwestern San Diego County, Arizona, and Mexico below 600 feet in elevation. Known from several sites in Otay Mesa.
Habitat: Arid, low-growing, fairly open Diegan coastal sage scrub is preferred. Olivenhain cobbly loam is the soil type mapped for the San Ysidro population.
Status on site: One individual was observed on the eastern side of Monument Mesa within Treatment Area 12 during the spring 2021 rare plant survey (Figures 8a and 8e). This species was not observed in Treatment Areas 1-11.

Singlewhorl burrobrush (*Ambrosia monogyra*)
Status: **--/--; CRPR 2B.2**
Distribution: Coastal San Diego County and Baja California, Mexico.
Habitat: Occurs in washes and dry riverbeds at elevations below 1,640 feet (500 meters).
Status on Site: Patches of singlewhorl burrobrush were mapped throughout the study area during the 2018 and 2021 surveys (Figures 8a-8f). A total of 61 individuals were mapped in 2018 and an additional 299 individuals were mapped in 2021 within the study area. These patches were observed in areas with historical sightings, and new sightings occurred adjacent to the Dairy Mart Pond and Duck Ponds, south of the Baseball Fields, and adjacent to the Butterfly Gardens. Singlewhorl burrobrush occurs within Treatment Areas 2, 5-9, and 12. This species was not observed in Treatment Areas 1, 3, and 10-11.

San Diego sagewort (*Artemisia palmeri*)
Status: **--/--; CRPR 4.2; County List D**
Distribution: Coastal San Diego County and Baja California, Mexico.
Habitat: Stream courses, often within coastal sage scrub and southern mixed chaparral.
Status on Site: This species was mapped within the study area in the northwest and southeast in 2018 and 2021 in and near riparian areas (Figures 8a-8c and 8f). A total of 85 individuals were mapped in 2018 and an additional 1,356 individuals were mapped in 2021 within the study area. San Diego sagewort occurs within Treatment Areas 4 and 7-9. This species was not observed in Treatment Areas 1-3, 5-6, and 10-12.

San Diego County viguiera (*Bahiopsis* [*Viguiera*] *laciniata*)
Status: **--/--; CRPR 4.2; County List D**
Distribution: San Diego and Orange County; Baja California, Mexico
Habitat: Diegan coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Occurs on a variety of soil types.
Status on site: This species is mapped in abundance in 2018 and 2021 within Diegan coastal sage scrub and maritime succulent scrub communities in the southern half of the study area (Figures 8a and 8f). A total of 3,672 individuals were mapped in 2018 and an additional 879 individuals were mapped in 2021, including on Monument Mesa, around the base of Spooner's Mesa, and south of the Baseball Fields. San

Tijuana River Valley Regional Park



Aerial Photo: Nearmap (2021)

0 1,200 Feet

Special Status Plant Species

Figure 8a

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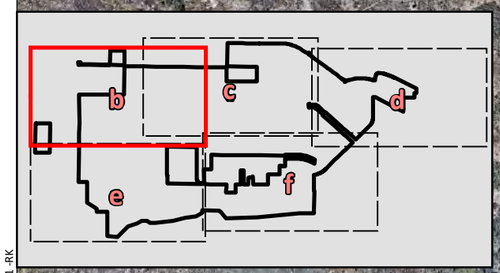
Tijuana River Valley Regional Park
Study Area

Rare Plant Species (2021)

- San Diego Sagewort
- Singlewhorl Burrobrush
- Southwestern Spiny Rush
- Torrey Pine

Rare Plant Species (2018)

- San Diego Marsh Elder
- San Diego Sagewort
- Singlewhorl Burrobrush
- Southwestern Spiny Rush



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

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Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Plant Species

Figure 8b

Tijuana River Valley Regional Park
Study Area

Rare Plant Species (2021)
- San Diego Marsh-elder
- San Diego Sagewort
- Singlewhorl Burrobrush
- Torrey Pine

Rare Plant Species (2018)
- San Diego Marsh Elder
- San Diego Sagewort
- San Diego Viguiera
- Singlewhorl Burrobrush
- Southern California Black Walnut
- Southwestern Spiny Rush
- Torrey Pine

b c d e f

Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
Sherwood Forest Trail

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Aerial Photo: Nearmap 2021

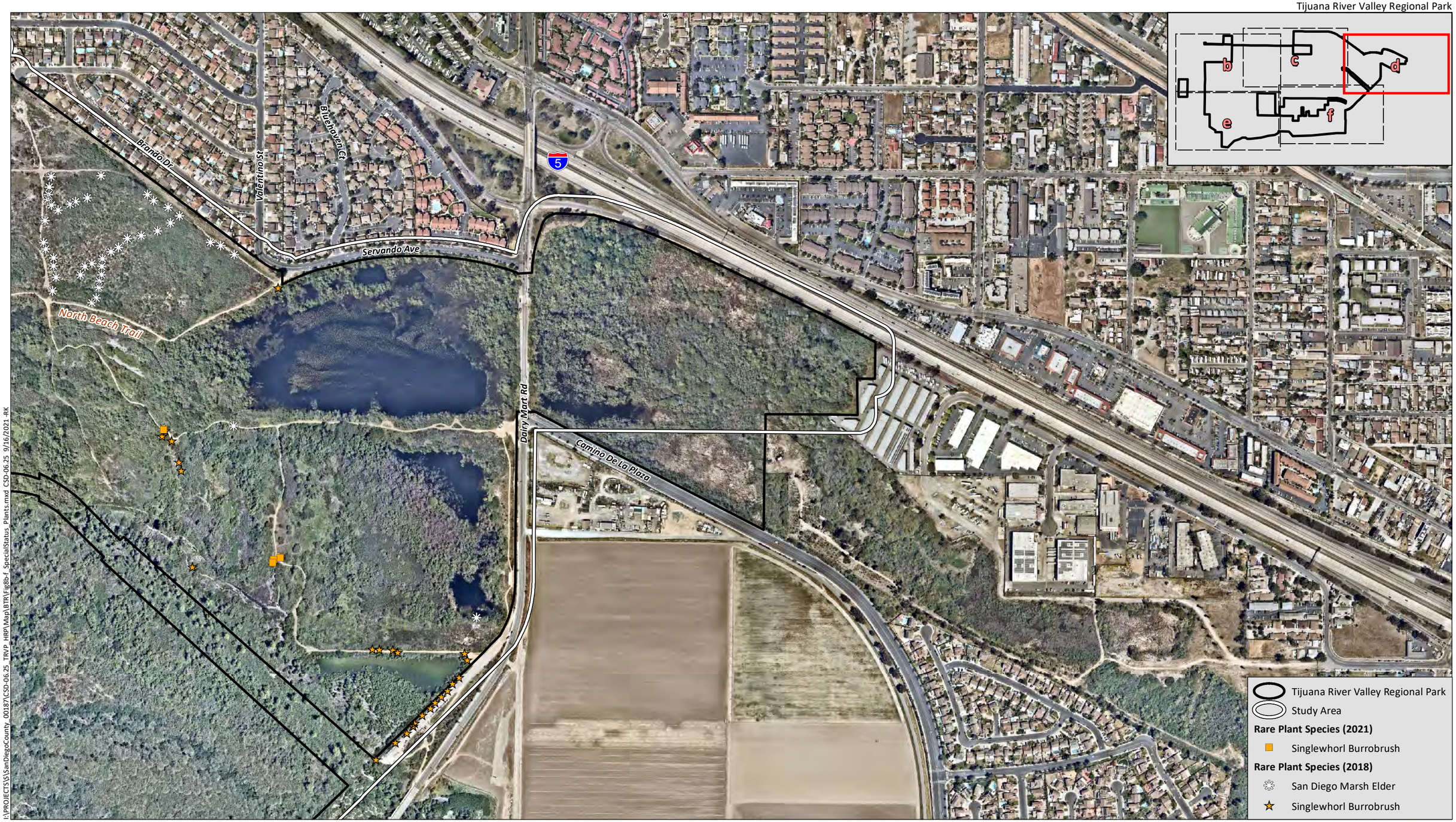
0 500 Feet

N

Special Status Plant Species

Figure 8c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Plant Species

Figure 8d

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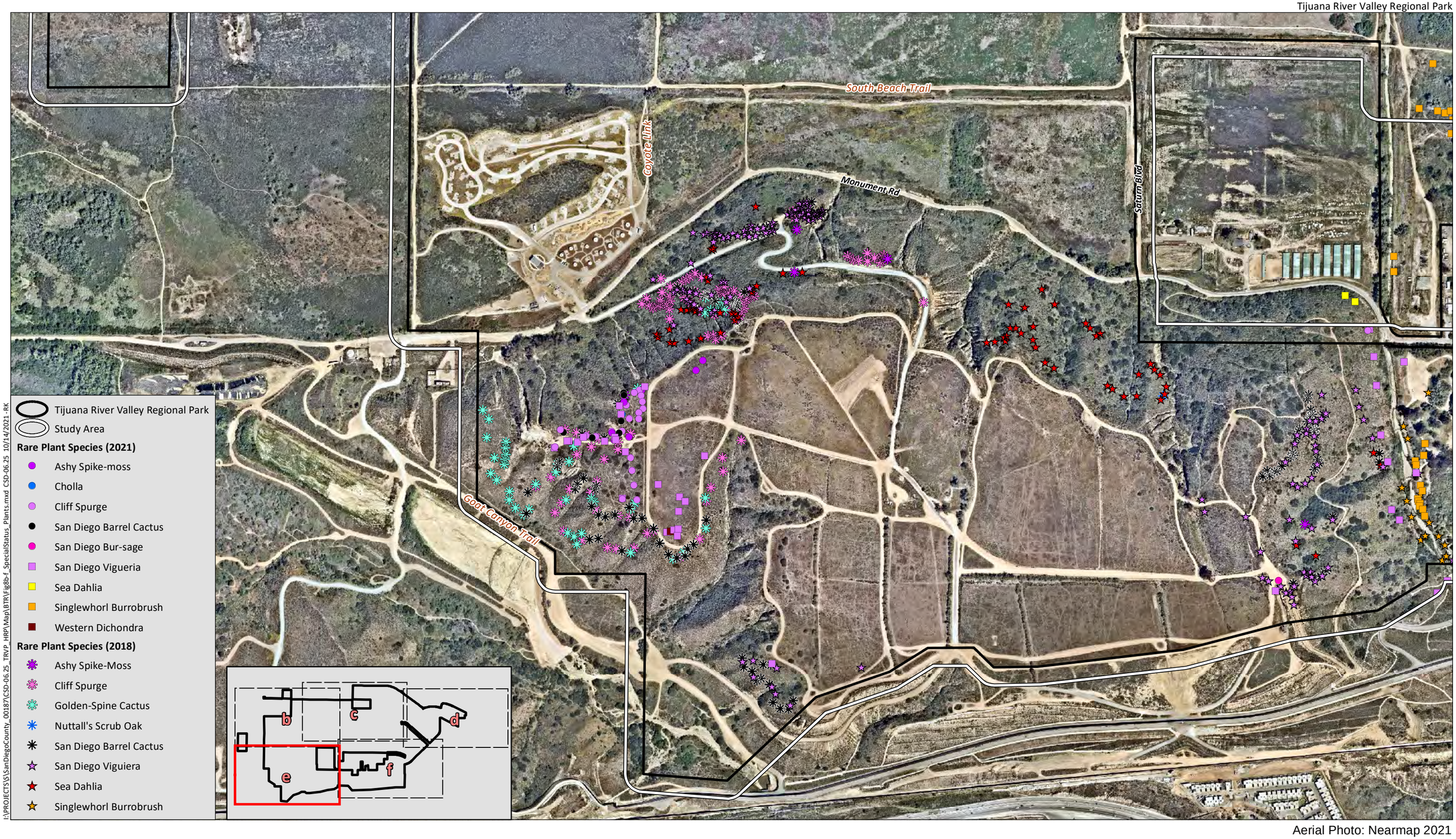

Tijuana River Valley Regional Park
Study Area

Rare Plant Species (2021)
- Ashy Spike-moss
- Cholla
- Cliff Spurge
- San Diego Barrel Cactus
- San Diego Bur-sage
- San Diego Vigueria
- Sea Dahlia
- Singlewhorl Burrobrush
- Western Dichondra

Rare Plant Species (2018)
- Ashy Spike-Moss
- Cliff Spurge
- Golden-Spine Cactus
- Nuttall's Scrub Oak
- San Diego Barrel Cactus
- San Diego Viguiera
- Sea Dahlia
- Singlewhorl Burrobrush

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Aerial Photo: Nearmap 2021

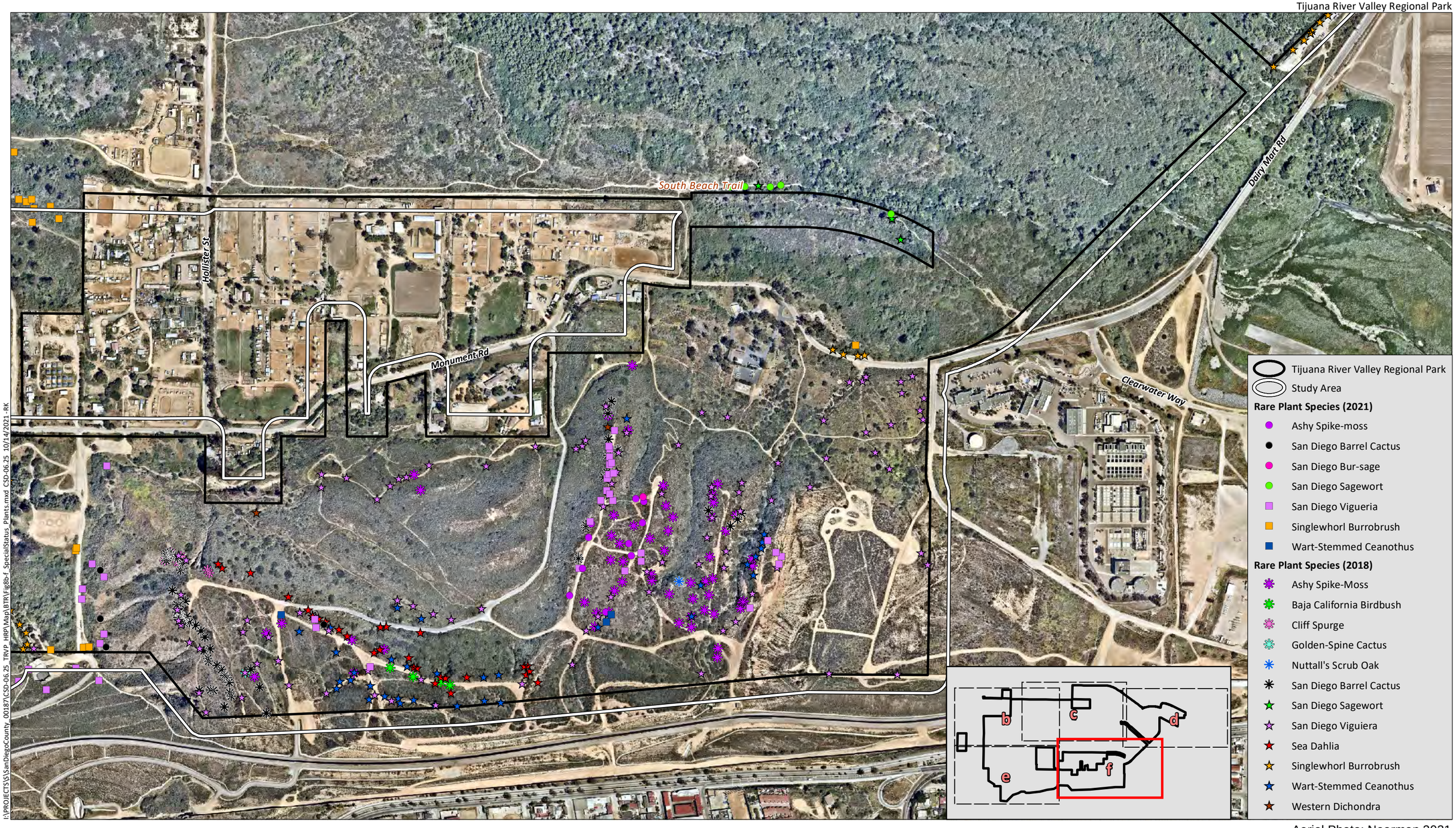
0 500 Feet

N

Special Status Plant Species

Figure 8e

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Study Area

Rare Plant Species (2021)

- Ashy Spike-moss
- San Diego Barrel Cactus
- San Diego Bur-sage
- San Diego Sagewort
- San Diego Vigueria
- Singlewhorl Burrobrush
- Wart-Stemmed Ceanothus

Rare Plant Species (2018)

- Ashy Spike-Moss
- Baja California Birdbush
- Cliff Spurge
- Golden-Spine Cactus
- Nuttall's Scrub Oak
- San Diego Barrel Cactus
- San Diego Sagewort
- San Diego Viguiera
- Sea Dahlia
- Singlewhorl Burrobrush
- Wart-Stemmed Ceanothus
- Western Dichondra

Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Plant Species

Figure 8f

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Diego County viguiera occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Golden-spined cereus (*Bergerocactus emoryi*)
Status: --/--; CRPR 2B.2; County List B
Distribution: Golden-spined cereus is known from southern San Diego County, San Clemente Island, Santa Catalina Island, and Baja California. It is near its northernmost range in San Diego County
Habitat: Occurs on sandy soils and dry bluffs along the coast and is typically associated with maritime succulent scrub. It may also be found within chaparral, coastal sage scrub, and closed-cone pine forests.
Status on site: This species was mapped in Diegan coastal sage scrub and maritime succulent scrub in the southwest portion of the study area (Figures 8a and 8e-8f). A total of 1,753 individuals were mapped in 2018 and the same individuals were confirmed present within the study area in 2021. Golden-spined cereus occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Wart-stemmed ceanothus (*Ceanothus verrucosus*)
Status: --/--; CRPR 2B.2; County List B; MSCP Covered
Distribution: San Diego County and Baja California and appears to have been relatively common on suitable soils prior to urban development.
Habitat: Occurs in xeric chamise or southern maritime chaparral at elevations below 1,148 feet (350 meters). Preferred habitat is coastal chaparral intermixed with chamise (*Adenostoma fasciculatum*) and mission manzanita (*Xylococcus bicolor*). It may be restricted to metavolcanic and gabbroic peaks in western San Diego County. It is known to occur on Exchequer rocky silt loam, San Miguel-Exchequer rocky silt loam, terrace escarpment, and Gaviota fine sandy loam.
Status on site: This species was mapped within the study area in Diegan coastal sage scrub on Monument Mesa (Figures 8a and 8e-8f). A total of 277 individuals were mapped in 2018 and an additional five individuals were mapped in 2021. This plant was observed on Monument Mesa and occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Western dichondra (*Dichondra occidentalis*)
Status: --/--; CRPR 4.2; County List D
Distribution: Several counties (San Diego, Santa Barbara, Ventura, Los Angeles, Orange, and possibly Marin), multiple islands (Santa Catalina, Santa Cruz, San Miguel, and Santa Rosa), and Baja California.
Habitat: It occurs on a variety of soil types in Diegan coastal sage scrub, southern mixed chaparral, chamise chaparral, and rocky outcrops in grasslands, and often proliferates on recently burned slopes.
Status on site: This species was mapped at one location on the northwest end of Monument Mesa (Figures 8a and 8e-8f). A total of two individuals were mapped in 2018 and one additional individual was mapped in 2021. Western dichondra occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Cliff spurge (*Euphorbia misera*)
Status: --/--; CRPR 2B.2; County List B
Distribution: San Diego County, Orange County, Riverside County, San Clemente Island, and Baja California.
Habitat: Occurs on coastal bluffs and rocky slopes within maritime sage scrub at elevations below 1,640 feet (500 meters).
Status on site: This species was observed in the western half of Spooner's Mesa and Monument Mesa (Figures 8a and 8e-8f). A total of 119 individuals were mapped in 2018 and an additional 324 individuals

were mapped in 2021. Cliff spurge occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

San Diego barrel cactus (*Ferocactus viridescens*)
Status: --/--; CRPR 2B.1; County List B; MSCP Covered
Distribution: Coastal San Diego County and Baja California.
Habitat: Diegan coastal sage scrub hillsides, often at the crest of slopes and growing among cobbles. It is occasionally found on vernal pool periphery and mima mound topography in Otay Mesa.
Status on site: This species was observed in Diegan coastal sage scrub and maritime succulent scrub on Spooner's Mesa and Monument Mesa (Figures 8a and 8e-8f). A total of 174 individuals were mapped in 2018 and an additional 88 individuals were mapped in 2021. San Diego barrel cactus occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

San Diego marsh-elder (*Iva hayesiana*)
Status: **--/--; CRPR 2.2; County List B**
Distribution: San Diego County; Baja California, Mexico
Habitat: Creeks of intermittent streambeds are preferred habitat for this low-growing, conspicuous shrub. Typically, the riparian canopy is open, allowing substantial sunlight to reach this marsh-elder. Sandy alluvial embankments with cobbles are frequently utilized.
Status on site: This species was mapped in riparian areas in the northern side of the study area and was additionally observed throughout the northwest, south of the Baseball Fields, and north of the Duck Ponds (Figures 8a-8d). A total of 95 individuals were mapped in 2018 and an additional three individuals were mapped in 2021. San Diego marsh-elder occurs within Treatment Areas 2-4, 8-9, and 11. This species was not observed in Treatment Areas 1, 5-7, 10, and 12.

Southern California black walnut (*Juglans californica*)
Status: **--/--; CRPR 4.2; County List D**
Distribution: Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura counties
Habitat: This tree grows between 20 and 50 feet tall in open savannah, often in habitat best labeled walnut woodland. May be more tolerant of clay soils than most native trees and shrubs. Shows preference for deep alluvial soils with high water-retention capacity and tends to grow in creek beds, alluvial terraces, and north-facing slopes.
Status on site: A patch of five plants was mapped at the TRVRP's Bird and Butterfly Gardens in 2018 and confirmed present in 2021 (Figures 8a and 8c). It appears that these trees were planted. Southern California black walnut occurs within Treatment Area 8. This species was not observed in Treatment Areas 1-7 and 9-12.

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)
Status: **--/--; CRPR 4.2; County List D**
Distribution: Los Angeles, San Bernardino, San Luis Obispo, Ventura, and San Diego counties; Baja California, Mexico
Habitat: Moist, saline, or alkaline soils in coastal salt marshes and riparian marshes
Status on site: This species was mapped at five locations in the northern portion of the study area (Figures 8a-8c). A total of 38 individuals were mapped in 2018 and an additional seven individuals were mapped in 2021. Southwestern spiny rush occurs within Treatment Areas 7 and 11. This species was not observed in Treatment Areas 1-6, 8-10, and 12.

Sea dahlia (*Leptosyne maritima*)
Status: --/--; CRPR 2B.2; County List B
Distribution:
Habitat: Occurs on sandstone bluffs near the ocean. This species typically chooses highly eroding slopes where competition from other shrubs is limited and is known to occur on Gaviota fine sandy loam and Terrace Escarpment sandstone
Status on site: This species was mapped in Diegan coastal sage scrub on Spooner's Mesa and Monument Mesa (Figures 8a and 8e-8f). Within the study area, a total of 842 individuals were mapped in 2018 and confirmed present in 2021. Sea dahlia occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Baja California birdbush (*Ornithostaphylos oppositifolia*)
Status: --/State Endangered (SE); CRPR 2B.1; County List B
Distribution: southern San Diego County and Baja California.
Habitat: Occurs in coastal chaparral hills south of Tijuana River Valley. It occurs at elevations between 328 and 2,625 feet (100 to 800 meters).
Status on site: A patch of this species was mapped in Diegan coastal sage scrub/southern maritime chaparral along the southern edge of Monument Mesa (Figures 8a and 8e-8f). A total of nine individuals were mapped in 2018 and observed in the same locations in 2021. Baja California birdbush occurs within Treatment Area 12. This species was not observed in Treatment Areas 1-11.

Torrey pine (*Pinus torreyana* ssp. *torreyana*)
Status: **--/--; CRPR 1B.2; County List A; MSCP Covered**
Distribution: Occurs in only two locations: along the coast near Del Mar (*Pinus torreyana* ssp. *torreyana*) and on Santa Rosa Island (*P. t.* ssp. *insularis*)
Habitat: Torrey pine woodlands and southern maritime chaparral
Status on site: Torrey pine trees were observed at two locations in the study area and are not naturally occurring (Figures 8a-8c). A total of ten individuals were mapped in 2018 at the TRVRP's Bird and Butterfly Gardens, and an additional two individuals were mapped in 2021 in the northeastern portion of the study area. Torrey pine occurs within Treatment Areas 7 and 9. This species was not observed in Treatment Areas 1-6, 8, or 10-12.

Nuttall's scrub oak (*Quercus dumosa*)
Status: --/--; CRPR 1B.1; County List A
Distribution: It occurs throughout San Diego County at elevations below 656 feet (200 meters). This species occurs in San Diego County, Orange County, Santa Barbara County, and Baja California.
Habitat: Generally found on sandy or clay loam soils in open coastal chaparral in flat terrain or as monotypic stands on north-facing slopes.
Status on site: This species was mapped in a few locations in the southern portion of the study area (Figures 8a and 8e-8f). A total of four individuals were mapped in 2018. Nuttall's scrub oak occurs within Treatment Areas 12. This species was not observed in Treatment Areas 1-11.

Ashy spike-moss (*Selaginella cinerascens*)
Status: --/--; CRPR 4.1; County List D
Distribution: San Diego and Orange Counties and Baja California.
Habitat: Occurs in undisturbed chaparral and Diegan coastal sage scrub. A good indicator of site degradation, as it rarely inhabits disturbed soils.

Status on site: This species was mapped in 2018 and 2021 in Diegan coastal sage scrub on Spooner's Mesa and Monument Mesa (Figures 8a and 8e-8f). Because of the growth form of ashy spike-moss, the number of individuals was not estimated, but is likely in excess of thousands. Ashy spike-moss occurs within Treatment Areas 12. This species was not observed in Treatment Areas 1-11.

Special Status Plant Species with Potential to Occur

Based on an analysis of elevation, soils, vegetation communities, previous rare plant surveys conducted within the study area, and recorded observations of special status plant species in and near the study area, 19 special status plant species have a high potential to occur in the study area (Appendix C): Nuttall's acmispon (*Acmispon prostratus*), aphanisma (*Aphanisma blitoides*), Coulter's saltbush (*Atriplex coulteri*), south coast saltscale (*Atriplex pacifica*), Orcutt's pincushion (*Chaenactis glabriuscula* var*. orcuttiana*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), seaside calandrinia (*Cistanthe maritima*), Orcutt's bird's-beak (*Dicranostegia orcuttiana*), Orcutt's dudleya (*Dudleya attenuata* ssp. *attenuata*), variegated dudleya (*Dudleya variegata*), Palmer's frankenia (*Frankenia palmeri*), California box-thorn (*Lycium californicum*), spreading navarretia (*Navarretia fossalis*), Brand's star phacelia (*Phacelia stellaris*), Santa Catalina Island currant (*Ribes viburnifolium*), chaparral ragwort (*Senecio aphanactis*), estuary seablite (*Suaeda esteroa*), woolly seablite (*Suaeda taxifolia*), and California screw moss (*Tortula californica*). No additional species have a high potential to occur, primarily due to the lack of suitable conditions, habitat conversion, and disturbances from previous and existing, agriculture, equestrian use, and prevalence of non-native vegetation.

Special status plant species that do not have a high potential to occur or were not observed within the study area, but may have the potential to occur on-site, are listed in Appendix C. Status codes are defined in Appendix E.

1.4.10 Special Status Animal Species

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

USFWS-designated critical habitat for one species occurs within the study area: least Bell's vireo (722.7 acres). The surrounding area contains USFWS-designated critical habitat for San Diego fairy shrimp, Riverside fairy shrimp, and western snowy plover. Critical habitat for San Diego fairy shrimp is located approximately 1.1 miles northwest of the park's northwestern boundary, to the west of the Imperial Beach Naval Station (Figure 4). Critical habitat for San Diego fairy shrimp is located 1.9 miles southeast of the study area northeastern boundary, to the east of the I-5 transportation corridor, within Otay Mesa. Western snowy plover critical habitat occurs approximately 1.1 miles west of the study area western boundary along beach habitat within Border Field State Park (Figure 4). Critical habitat lands for least Bell's vireo within the study area are occupied by this species. Critical habitat for San Diego fairy shrimp, and western snowy plover will not be impacted by the proposed project.

Special Status Animal Species Observed or Otherwise Detected

Thirty-eight special status animal species have been observed or detected on or adjacent to the study area, or observed flying over the study area, during the 2018 baseline biodiversity surveys and 2021

focused surveys conducted for the project. Each species is listed below in alphabetical order by scientific name. Species are also shown on Figures 9a-9f, *Special Status Wildlife Species*. Status codes are defined in Appendix E.

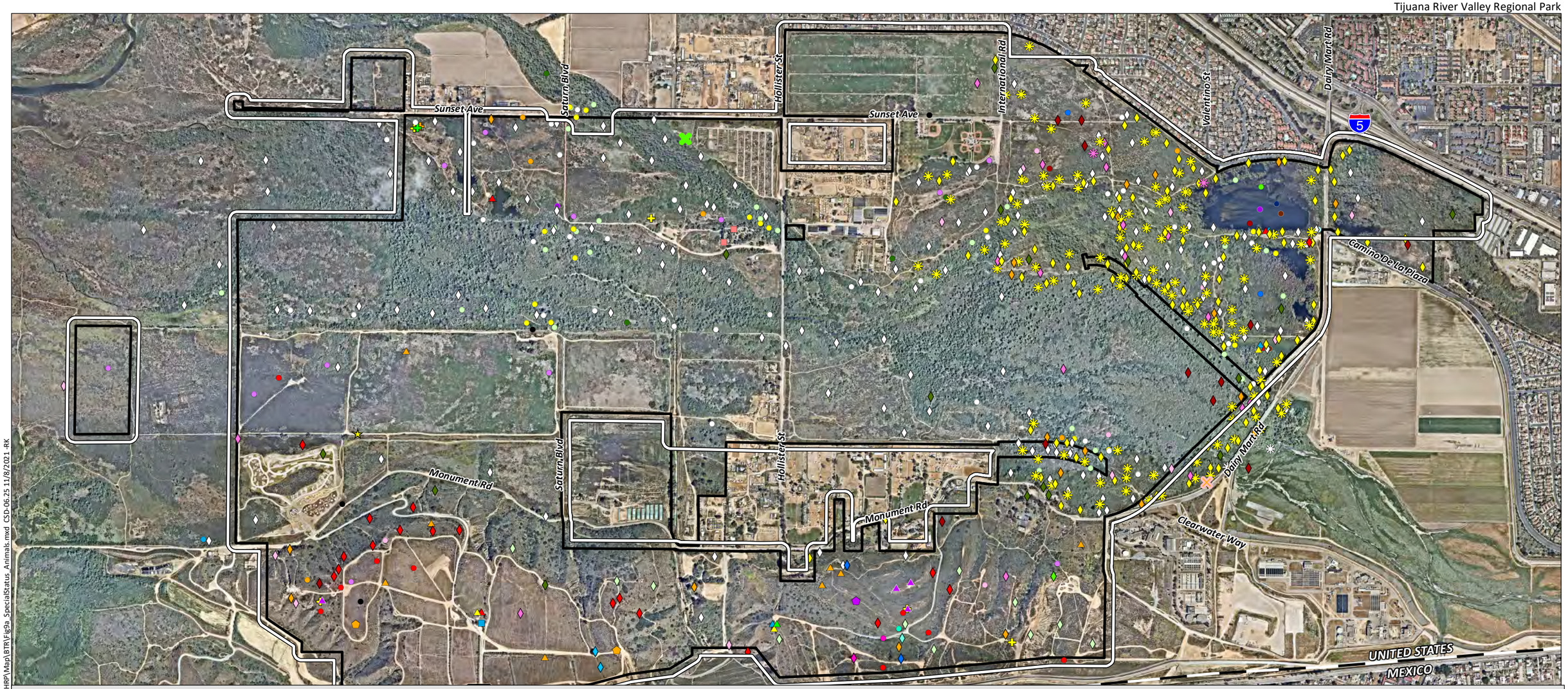
1.4.10.1 Invertebrates

Two special status invertebrate species, monarch and Quino checkerspot butterfly, were observed within the study area, as described below:

Monarch (*Danaus plexippus*)
Status: --/--; County Group 2
Distribution: The monarch butterfly is found from southern Canada south through the United States into Central and South America.
Habitats: The species breeds in areas that have a suitable abundance of their host plant, milkweed (*Asclepias* sp.). The population west of the Rocky Mountains migrates to, and overwinters along, the coast of central and southern California into Baja Mexico (Tuskes 1978). The species inhabits a wide variety of open habitats, including fields, meadows, marshes, and roadsides and roosts on wind-protected tree groves (such as eucalyptus, Monterey pine [*Pinus radiata*], cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby.
Status on site: Two individuals were observed in April 2018 in the northwestern portion of the study area within the TRVRP's Bird and Butterfly Gardens (Figure 9a and 9c). The individuals were observed within Treatment Area 8 and were not observed within Treatment Areas 1-7 and 9-12.

Quino checkerspot butterfly (*Euphydryas editha quino*)
Status: Federal Endangered (FE)/--; County Group 1
Distribution: The Quino checkerspot butterfly occurs in western Riverside County, southern San Diego County, and northern Baja California Mexico (USFWS 2009).
Habitats: The species inhabits patchy shrublands or small tree landscapes with openings. Several vegetation types are known to support the species including coastal sage scrub, open chaparral, juniper woodland, and native grassland. Males, more so than females, are frequently observed on hilltops and ridgelines and exhibit a tendency to occur in barren spots amidst low-growing vegetation (USFWS 2003). Females deposit eggs on the species' primary host plants, which include dwarf plantain (*Plantago erecta*), desert plantain (*P. ovata*), woolly plantain (*P. patagonica*), white snapdragon (*Antirrhinum coulterianum*), thread-leaved bird's beak (*Cordylanthus rigidus*). Secondary larval host plants, plants that may be consumed by larvae but not used by adults for ovipositing include purple owl's clover (*Castilleja exserta*) and Chinese houses (*Collinsia heterophylla*). Nectaring resources also play an important role in the species life cycle with butterflies documented frequently taking nectar from California buckwheat, goldfields (*Lasthenia* spp.), goldenstar (*Bloomeria* spp.), popcorn flower (*Plagiobothrys* spp.; *Cryptantha* spp.), onion (*Allium* spp.), chia (*Salvia columbariae*), and blue dicks (*Dichelostemma capitatum*), among others (USFWS 2003).
Status on site: One Quino checkerspot butterfly was incidentally observed on Spooner's Mesa on April 15, 2019, during monitoring of an adjacent habitat enhancement area (Figure 9a and 9e). The individual was observed within Treatment Area 12 and was not observed within Treatment Areas 1-11.

Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Study Area

Special Status Animal Species (2021)

Reptiles
- Belding's Orange-throated Whiptail
- Coast Horned Lizard

Birds
- California Horned Lark
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Least Bell's Vireo
- Merlin
- Northern Cardinal
- Northern Harrier
- Peregrine Falcon
- Red-shouldered Hawk
- Sharp-shinned Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-faced Ibis
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Mammal
- San Diego Black-tailed Jackrabbit
- Wood Rat Nest

Special Status Animal Species (2018)

Amphibians
- Western Spadefoot

Invertebrates
- Quino Checkerspot Butterfly
- Monarch

Reptiles
- Baja California Coachwhip
- Belding's Orange-throated Whiptail
- Blainville's Horned Lizard

Birds
- American White Pelican
- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Double-crested Cormorant
- Gadwall
- Great Blue Heron
- Green Heron
- California Horned Lark
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Sharp-shined Hawk
- Turkey Vulture
- Western Bluebird
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Pocketed Free-tailed Bat
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Western Red Bat
- Yuma Myotis

Aerial Photo: Nearmap (2021)

0 1,200 Feet

Special Status Animal Species

Figure 9a

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Tijuana River Valley Regional Park
Study Area

Special Status Animal Species (2021)

Reptiles

- Coast Horned Lizard

Birds

- Cooper's Hawk
- Least Bell's Vireo
- Turkey Vulture

Special Status Animal Species (2018)

Reptiles

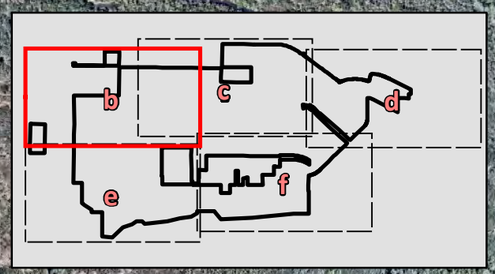
- Baja California Coachwhip
- Belding's Orange-throated Whiptail
- Blainville's Horned Lizard

Birds

- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Double-crested Cormorant
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Yellow Warbler
- Yellow-breasted Chat

Mammals

- San Diego Black-tailed Jackrabbit
- Western Red Bat
- Yuma Myotis



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Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Animals Species

Figure 9b

Tijuana River Valley Regional Park
Study Area

Special Status Animal Species (2021)

Reptiles
- Coast Horned Lizard

Birds
- Cooper's Hawk
- Least Bell's Vireo
- Northern Cardinal
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

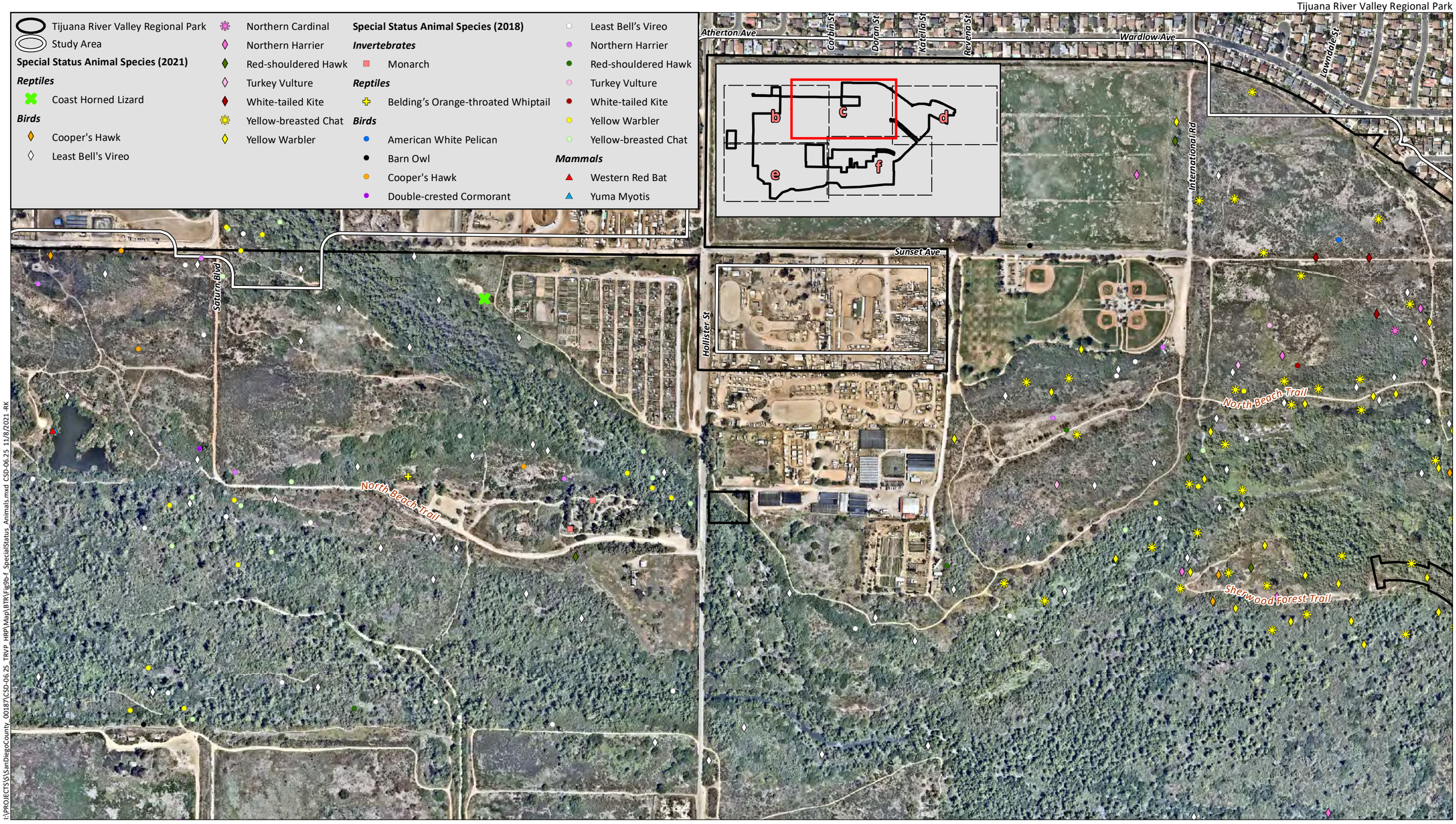
Special Status Animal Species (2018)

Invertebrates
- Monarch

Reptiles
- Belding's Orange-throated Whiptail

Birds
- American White Pelican
- Barn Owl
- Cooper's Hawk
- Double-crested Cormorant
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Western Red Bat
- Yuma Myotis



Aerial Photo: Nearmap 2021

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Special Status Animals Species

Figure 9c

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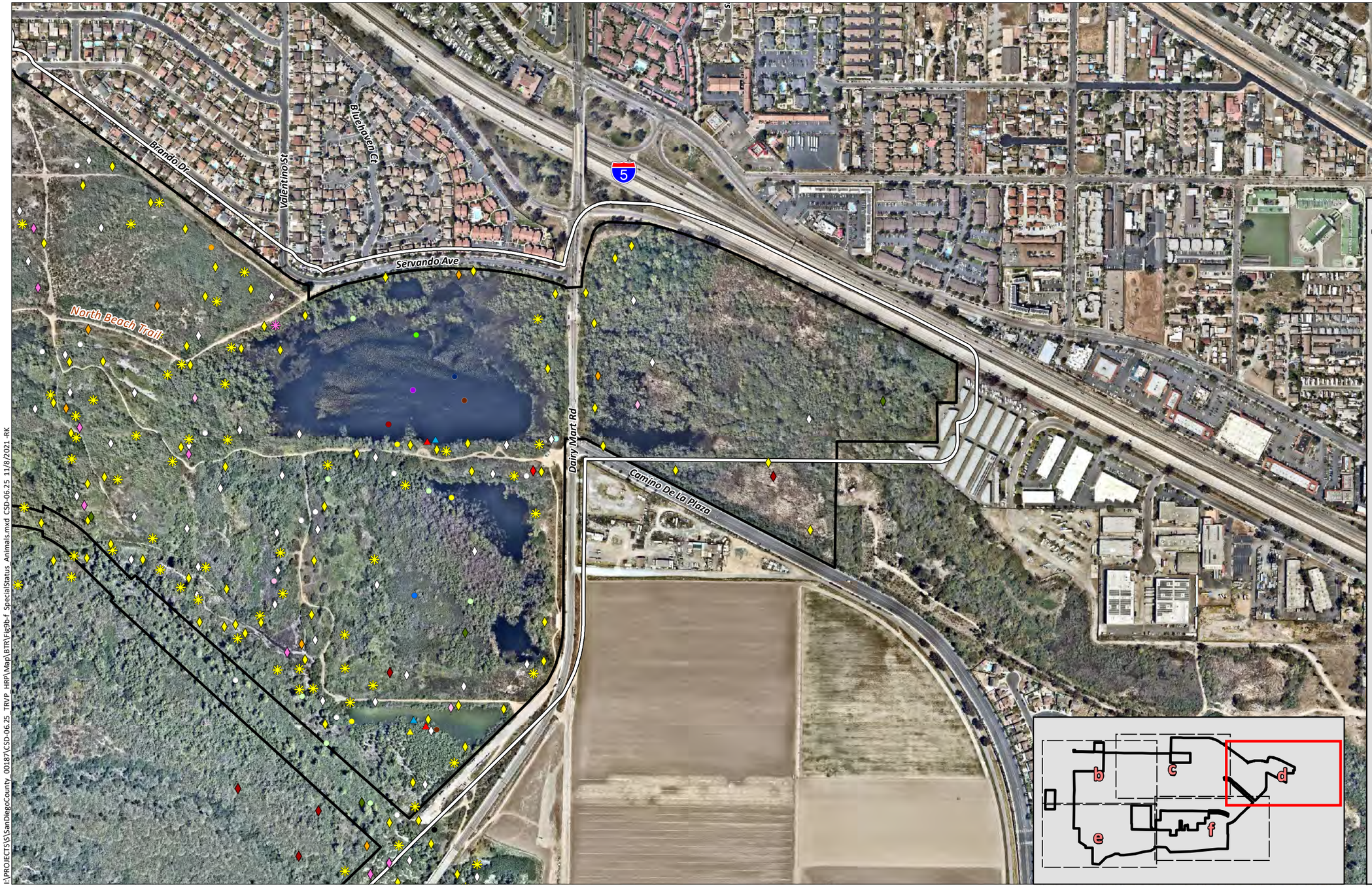
Tijuana River Valley Regional Park



Tijuana River Valley Regional Park
Study Area

Special Status Animal Species (2021)

Birds

- Coastal California Gnatcatcher
- Cooper's Hawk
- Least Bell's Vireo
- Northern Cardinal
- Northern Harrier
- Red-shouldered Hawk
- Turkey Vulture
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Special Status Animal Species (2018)

Birds

- American White Pelican
- Barn Owl
- Cooper's Hawk
- Double-crested Cormorant
- Gadwall
- Great Blue Heron
- Green Heron
- Least Bell's Vireo
- Turkey Vulture
- Western Bluebird
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals

- Western Mastiff Bat
- Western Red Bat
- Yuma Myotis

Aerial Photo: Nearmap 2021

0 500 Feet

N

Special Status Animals Species

Figure 9d

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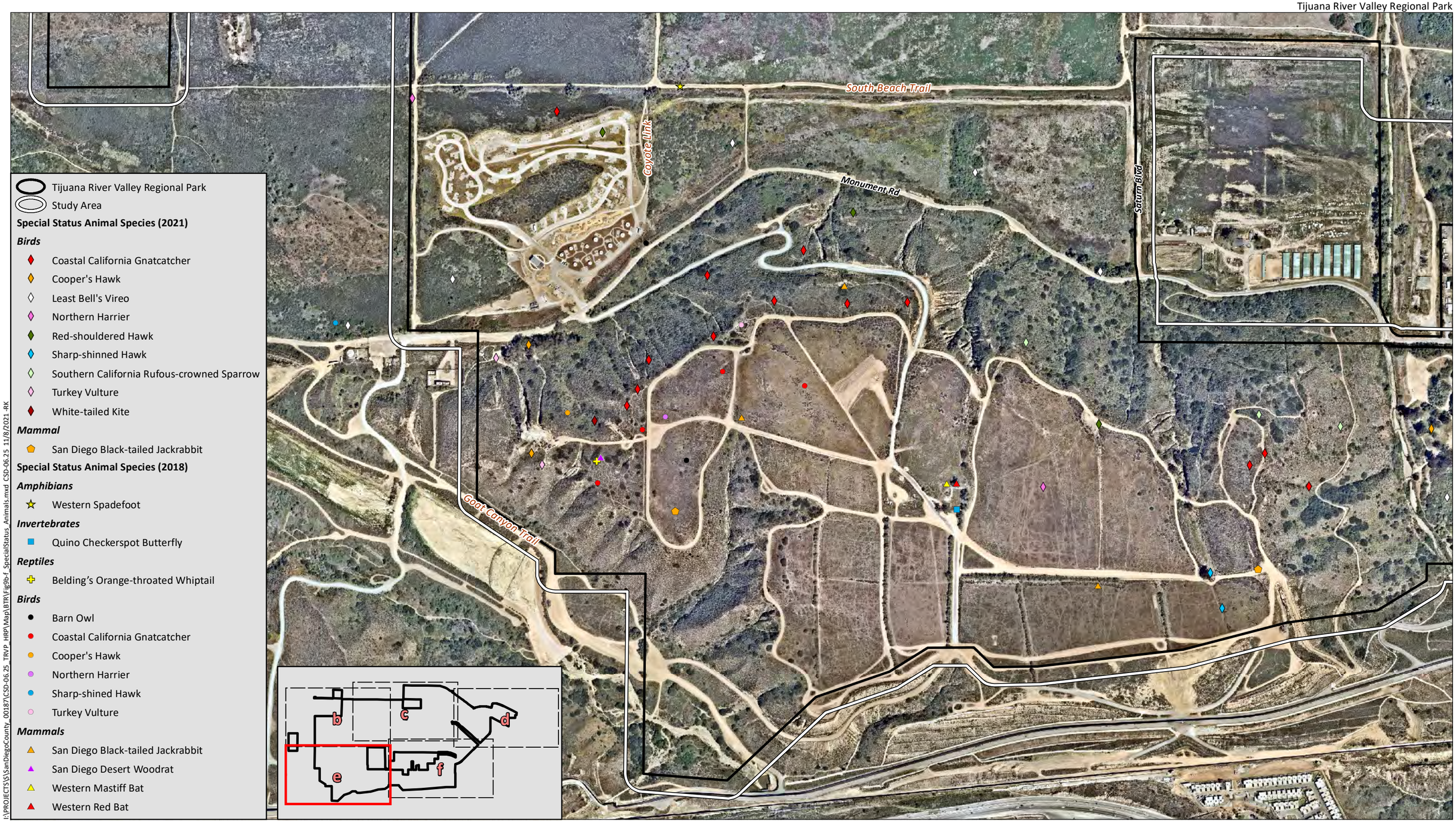

Tijuana River Valley Regional Park
Study Area

Special Status Animal Species (2021)

Birds

- Coastal California Gnatcatcher
- Cooper's Hawk
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Sharp-shinned Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-tailed Kite

Mammal

- San Diego Black-tailed Jackrabbit

Special Status Animal Species (2018)

Amphibians

- Western Spadefoot

Invertebrates

- Quino Checkerspot Butterfly

Reptiles

- Belding's Orange-throated Whiptail

Birds

- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Northern Harrier
- Sharp-shined Hawk
- Turkey Vulture

Mammals

- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Western Red Bat

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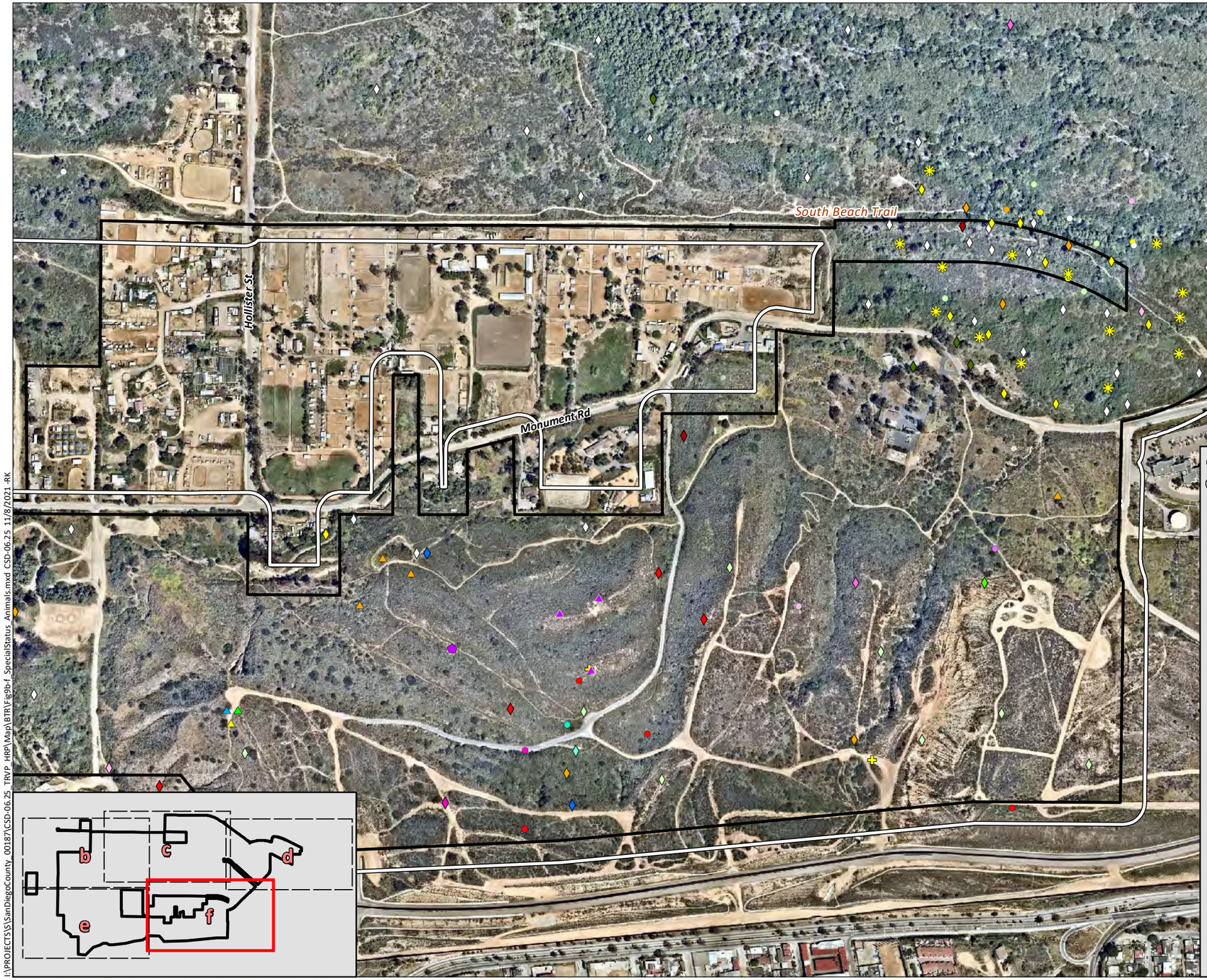
Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Animals Species

Figure 9e

Tijuana River Valley Regional Park



- Tijuana River Valley Regional Park
- Study Area

Special Status Animal Species (2021)

Reptiles
- Belding's Orange-throated Whiptail

Birds
- California Horned Lark
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Least Bell's Vireo
- Merlin
- Northern Harrier
- Peregrine Falcon
- Red-shouldered Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-faced Ibis
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Mammal
- Wood Rat Nest

Special Status Animal Species (2018)

Reptiles
- Belding's Orange-throated Whiptail

Birds
- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- California Horned Lark
- Least Bell's Vireo
- Northern Harrier
- Turkey Vulture
- Yellow Warbler
- Yellow-breasted Chat

Mammals
- Pocketed Free-tailed Bat
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Yuma Myotis

Aerial Photo: Nearmap 2021

0 500 Feet

Special Status Animals Species

Figure 9f

1.4.10.2 Amphibians

One special status amphibian species, western spadefoot, was observed within the study area as described below:

Western spadefoot toad (*Spea hammondii*)
Status: --/Species of Special Concern (SSC); County Group 2
Distribution: The western spadefoot toad occurs from northern California southward to San Diego County and farther into Baja California to the west of the Sierra Nevada at elevations below 4,500 feet.
Habitats: This terrestrial species requires temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands but the species is most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas (Holland and Goodman 1998). The species breeds in temporary pools formed by heavy rains that hold standing water for more than three weeks to allow adequate time for tadpoles to metamorphose but is also found breeding in riparian habitats with suitable water resources (Feaver 1971). Breeding pools must lack exotic predators such as fish, bullfrogs, and crayfish for the species to successfully reproduce (Jennings and Hayes 1994). The species estivates in burrows within upland habitats adjacent to potential breeding sites (Stebbins and McGinnis 1972).
Status on site: Western spadefoot tadpoles were incidentally observed within an ephemeral pond located along a dirt trail in the southwestern portion of the study area to the north of Monument Road (Figures 9a and 9e). Approximately 30 tadpoles were observed during the monitoring of an adjacent restoration site on February 19, 2019. The individuals were observed within Treatment Area 11 and were not observed within Treatment Areas 1-10 and 12.

1.4.10.3 Reptiles

Three special status reptile species were detected within the study area as described below:

Belding's orange-throated whiptail (*Aspidoscelis hyperythrus beldingi*)
Status: --/Watch List (WL); County Group 2; MSCP Covered
Distribution: The Belding's orange-throated whiptail is found in the southwestern portion of California within San Diego, Orange, western Riverside, and southern San Bernardino Counties on the western slopes of the Peninsular ranges below 3,500 feet (Jennings and Hayes 1994).
Habitats: Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands, along with alluvial fan scrub and riparian areas. Occurrence of the species appears to be correlated with the presence of perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) that provide a food base for its major food source, termites (Bostic 1966).
Status on site: The Belding's orange-throated whiptail was detected in several locations throughout the study area, including being captured during the drift-fence and funnel trap surveys in 2018 (HELIX 2019). Twenty-two individuals were captured between drift-fence and funnel Traps in 2018. Additionally, two individuals of this species were observed in the study area in 2021 (Figures 9a-9c and 9e-9f). The individuals were observed within Treatment Areas 8-9 and 12 and were not observed within Treatment Areas 1-7 and 10-11.

Baja California coachwhip (*Coluber fuliginosus*)
Status: --/SSC
Distribution: The Baja California coachwhip occurs from extreme southern San Diego County south to Baja California at elevations below 7,700 feet (Stebbins 1985).
Habitats: The species is a habitat generalist found in open terrain but is more common in grasslands, scrublands, and coastal sand dunes in California (Wilson 1970). Their diet consists of a wide variety of prey, including rodents, lizards, snakes, turtles, insects, bird and lizard eggs, and carrion (Grismer 2002).
Status on site: A single Baja California coachwhip was captured in the reptile drift-fence with funnel trapping surveys in 2018 in the northwestern portion of the study area south of Sunset Avenue (Figure 9a and 9b). The individual was observed within Treatment Area 8 and the species was not observed within Treatment Areas 1-7 and 9-12.

Blainville's horned lizard (*Phrynosoma blainvillii*)
Status: --/SSC; County Group 2; MSCP Covered
Distribution: The Blainville's horned lizard (formerly known as coast horned lizard [*Anota coronatum*] and San Diego horned lizard [*Phrynosoma coronatum blainvillii*]) occur from southern California to northern Baja California. In California, the species predominately occurs from Kern County south to San Diego County and west of the deserts at elevations below 8,000 feet (Brattstrom 1997).
Habitats: The species inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable loose, sandy soils with open areas for basking (Jennings and Hayes 1994). The horned lizard is an insectivore primarily feeding on native harvester ants (*Pogonmyrmex* sp.).
Status on site: A single Blainville's horned lizard was captured during the reptile drift-fence with funnel trapping surveys in 2018 in the northwestern portion of the study area south of Sunset Avenue (Figure 8b). Additionally, a single Blainville's horned lizard was observed in the northwestern portion of the study area south of Sunset Avenue during 2021 surveys (Figures 9a-9c). The individuals were observed within Treatment Areas 8 and 10 and were not observed within Treatment Areas 1-7, 9, and 11-12.

1.4.10.4 Birds

Twenty-six special status birds were detected within the study area as described below:

Cooper's hawk (*Accipiter cooperii*)
Status: --/WL; County Group 1; MSCP Covered
Distribution: The Cooper's hawk is widespread throughout North America ranging from southern Canada south to Mexico, and occurring as a year-round resident within the majority of the continental United States. In California, the species breeds from Siskiyou County south to San Diego County and east to the Owens Valley at elevations below 9,000 feet (Curtis et al. 2006).
Habitat: The species inhabits forests, riparian areas, and more recently suburban and urban areas nesting within dense woodlands and forests and isolated trees in open areas (Chiang et al. 2012).
Status on site: The Cooper's hawk was detected within multiple locations of the study area during survey efforts in 2018 and 2021. The species was heard calling, observed flying overhead, and observed perched on telephone poles and trees in the northwestern, northeastern, southeastern, and southwestern portions of the study area (Figures 9a-9f). Suitable nesting habitat for the species is present throughout the study area, particularly within riparian habitat located along the Tijuana River and other large trees (such as eucalyptus) present in the area. Additionally, this species was confirmed nesting within the southeastern portion of the study area (Figure 9f). Within the study area, a total of

nine individuals were observed in 2018, and 22 individuals were observed in 2021. The individuals were observed within Treatment Areas 1-2, 4-5, 8-9, and 12 and were not observed within Treatment Areas 3, 6-7, and 10-11.

Sharp-shinned hawk (*Accipiter striatus*)
Status: --/WL; County Group 1
Distribution: The sharp-shinned hawk occurs throughout North America breeding from Alaska through Canada, the northern United States, southwestern states of Arizona and New Mexico, and into Mexico; winters from southern Canada to Central America. Primarily migrates through and winters in California with breeding records restricted to the northern and central portions of the State, but the species breeding range within California is poorly known (Bildstein and Meyer 2000).
Habitat: Breeding habitat consists of most closed-canopy woodlands and forests, including riparian habitats, located at sea level to near alpine elevations with nest sites generally placed in trees near openings (Platt 1976). Wintering habitat is similar to its breeding habitat but more expansive to include suburban and agricultural areas.
Status on site: The sharp-shinned hawk was incidentally observed in 2018 and 2021 flying in the southeastern portion of the study area in April (Figures 9a and 9e). The species is presumed to be a wintering visitor to the park as no later observations of the species occurred in the summer months and no breeding records for the species occur in the area (Unitt 2004). Sharp-shinned hawks are not known to nest within southern California, primarily being found as a migrant and wintering species. Summering and possible breeding records for the species within San Diego County are restricted to higher elevation areas in the eastern portion of the County, such as the Cuyamaca Mountains (Unitt 2004). Within the study area, a single individual was observed in 2018 and two individuals were observed in 2021. The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
Status: --/WL; County Group 1; MSCP Covered
Distribution: The southern California rufous-crowned sparrow range is restricted to southwestern California, occurring from Santa Barbara south into northern Baja California, at elevations below 5,000 feet (Grinnell and Miller 1944).
Habitat: The species generally inhabits moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. They have been documented to prefer areas with California sagebrush but are generally absent from areas of dense stands of coastal sage scrub or chaparral (Collins 1999). The species may occur on steep grassy slopes without shrubs if rock outcrops are present (Zeiner et al. 1990).
Status on site: This species was detected during HELIX surveys in 2021. Individuals were present in the southern portion of the study area at Spooner's Mesa and Monument Mesa (Figures 9a and 9e-9f). Within the study area 16 individuals were observed. The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

Great blue heron (*Ardea herodias*)
Status: --/--; County Group 2
Distribution: The great blue heron is widespread throughout North America ranging from southern Canada southwards into Mexico, also wintering in Central and northern South America.
Habitat: In California, the species is a year-round resident occurring throughout most of the State in saline and freshwater wetlands and shallow estuaries (Zeiner et al. 1990). The species nests as single pairs and in small colonies with nest sites located on the ground, in trees and bushes, and on artificial

structures that are usually adjacent to water and secluded from human disturbance (Vennesland 2000). It is found in a wide variety of habitats, foraging in various wetland habitats, water bodies, and occasionally uplands.
Status on site: Great blue heron was observed in the northwestern portion of the study area at Dairy Mart Pond in 2018, wading within the freshwater marsh habitat and foraging for food (Figures 9a and 9d). Within the study area, a single individual was observed in 2018 within Treatment Area 2 and was not observed within Treatment Areas 1 and 3-12.

Red-shouldered hawk (*Buteo lineatus*)
Status: --/--; County Group 1
Distribution: Two populations, an eastern and western, of red-shouldered hawk occur within North America (Wheeler 2003). The eastern population ranges from southeastern Canada south to Florida and northeastern Mexico, and as far east as central Texas. The western population occurs along the coastal regions of southern Oregon south to California into northern Baja California. In California, the species occurs to the west of Sierra Nevada.
Habitat: This species occupying mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas (Dykstra et al. 2008). Nests in trees, both native and non-native, often located near a water source such as stream or pond (Rottenborn 2000).
Status on site: This species was detected during multiple survey efforts in 2018 and 2021. Individuals were heard calling within riparian habitat along the Tijuana River and flying overhead in the northwestern, northeastern, and southwestern portions of the study area (Figure 9a-9f). This species was confirmed nesting within the study area during 2021 surveys (Figure 9f). Within the study area, a total of three individuals were observed in 2018, and 16 individuals were observed during 2021 surveys. The individuals were observed within Treatment Areas 1-2, 4-5, 7, and 9-12 and were not observed within Treatment Areas 3, 6, and 8.

Green heron (*Butorides virescens*)
Status: --/--; County Group 2
Distribution: The green heron occurs throughout the majority of North America ranging from southeastern Canada, south to Florida, west to the Pacific Coast, and south into Mexico and the northern portion of South America. In California, the species is a year-round resident found generally west of the Sierra Nevada and within appropriate habitat in the southern deserts.
Habitat: Found in a wide variety of wetland habitats such as swamps, marshes, riparian habitat along creeks and streams, lake edges, and artificial ditches, canals, and ponds preferring thick vegetation and avoiding open areas (Davis and Kushlan 1994).
Status on site: A single green heron was detected during the 2018 surveys at Dairy Mart Pond in the northeastern portion of the study area (Figure 9d). The individual was observed within Treatment Area 2 and was not observed within Treatment Areas 1 and 3-12.

Costa's hummingbird (*Calypte costae*)
Status: Birds of Conservation Concern (BCC)/--
Distribution: The Costa's hummingbird is found in deserts and xeric habitats west of the Continental Divide and south of the Great Basin from southern Utah, western and southern Arizona, to southern California and further into Baja California and Mexico (Baltosser et al. 1996).
Habitat: The species occurs year-round in southern California breeding along the coast in sage scrub and chaparral habitats from Santa Barbara County south to San Diego County, and east into the desert regions of Inyo County and south to Imperial County (Garrett and Dunn 1981). Breeding habitats include Sonoran Desert scrub, Mojave Desert scrub, coastal sage scrub, and chaparral.

Status on site: This species was detected during HELIX surveys in 2018 and 2021. Individuals were present in the southeastern portion of the study area at Monument Mesa (Figures 9a and 9f). Within the study area, a single individual was observed in both 2018 and in 2021. The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

Northern cardinal (*Cardinalis cardinalis*)
Status: --/WL
Distribution: In California, a rare resident along the lower Colorado River. Individuals observed in the southern coastal areas represent introduced birds (Los Angeles County) or escaped captive birds (San Diego County), including escapes from Mexico that fly across the border. Uncommon resident in Tijuana River valley since the mid-1990s.
Habitat: Found in a variety of dense to semi-open habitats including woodlands, riparian forests, and desert washes. Also inhabits urban areas with suitable dense bushes for nesting, such as city parks.
Status on site: This species was detected during HELIX surveys in 2021. Individuals were present in the southeastern and southwestern portions of the study area (Figures 9a and 9c-9d). Within the study area, a total of four individuals were observed in 2021. Two individuals were observed within Treatment Area 2 and two individuals were observed within the study area. This species was not observed within Treatment Areas 1 and 3-12.

Turkey vulture (*Cathartes aura*)
Status: --/--; County Group 1
Distribution: The turkey vulture occurs throughout most of North America from southern Canada south to Mexico and into Central and South America. In California, the species occurs as a year-round resident along the coastal regions but breeds throughout the entire state.
Habitat: Preferred habitat includes farmland and forests but the species is also found at pastures and agricultural areas in the west and has an increased presence in urban areas in the winter (Gaby 1982). The species nests in partly forested to forested areas isolated from humans with nest sites placed on rock outcrops, fallen trees, and abandoned buildings (Kirk and Mossman 1998). Vultures roost communally preferring stands of large trees or hilly areas, usually away from human disturbance (Evans and Sordahl 2009).
Status on site: Turkey vultures were observed flying over the study area during multiple survey efforts in 2018 and 2021. The species was detected in the northeastern, southeastern, and southern portions of the study area including Monument Mesa and Spooner's Mesa (Figures 9a-9f). Suitable nesting habitat for the species within the study area would be restricted to rocky crevices present in the southern portion at Spooner's Mesa and Monument Mesa, particularly steeper slopes bordering Smuggler's Gulch. No nesting turkey vultures were observed within the study area. Within the study area, a total of five individuals were observed in 2018, and 12 individuals were observed in 2021. The individuals were observed within Treatment Areas 1-2, 4-5, 9, and 12 and were not observed within Treatment Areas 3, 6-8, and 10-11.

Northern harrier (*Circus hudsonius*)
Status: --/SSC; County Group 1; MSCP Covered
Distribution: The northern harrier is a widely distributed species occurring throughout North America from Canada to Mexico and further south into Central America. In California, the species occurs as a year-round resident, migratory breeder, and wintering individual.
Habitat: Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, and pastures and agricultural areas. The northern harrier breeds at elevations below 8,000 feet from the northern portion of the state, south through the central coast and valley, and

into the southern portion of the state, though harriers are largely absent from the southern desert regions. Breeding populations in southern California occurring from Ventura County to San Diego County are highly fragmented with many local populations extirpated, mostly likely as a result of habitat loss and degradation (Shuford and Gardali 2008). Harriers nest on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas (Smith et al. 2011).
Status on site: Detected during multiple survey efforts in 2018 and 2021. This species was observed foraging and flying overhead in the northwestern, northeastern, and southwestern portions of the study area, as well at Monument Mesa and Spooner's Mesa (Figures 9a-9f). Additionally, a nest was detected in the southwestern portion of the park to the north of Monument Road in 2018 confirming the species breeding status within the study area. Within the study area, a total of 10 individuals were observed in 2018, and 12 were observed in 2021. The individuals were observed within Treatment Areas 2, 4, and 8-12 and were not observed within Treatment Areas 1, 3, and 5-7.

White-tailed kite (*Elanus leucurus*)
Status: --/Fully Protected (FP); County Group 1
Distribution: The white-tailed kite occurs in small portions of Washington south to California and east to Texas and Florida, as well as further south to Mexico and South America. In California, the species is a year-long resident of coasts and valleys west of the Sierra Nevada foothills and southeast deserts, though the species has been documented breeding in arid regions east of the Sierra Nevada and within Imperial County (Small 1994).
Habitat: The species inhabits low elevation grasslands, wetlands, oak woodlands, and open woodlands, and is associated with agricultural areas. Kites breed in riparian areas adjacent to open spaces nesting in isolated trees or relatively large stands trees (Dunk 1995).
Status on site: This species was observed during HELIX surveys conducted in 2018 and 2021 (Figures 9a and 9c-9f). Within the study area, a total of two individuals were observed in 2018 and 10 were observed during 2021 surveys, including family groups observed in 2018 and 2021. The family groups were observed flying within the area and perched on vegetation. Suitable nesting habitat for the species within the study area includes riparian habitat located along the Tijuana River. No nesting white-tailed kites were observed within the study area. The individuals were observed within Treatment Areas 2-4 and 12 and were not observed within Treatment Areas 1 and 5-11.

California horned lark (*Eremophila alpestris actia*)
Status: --/WL; County Group 2
Distribution: The California horned lark is one of 21 recognized subspecies occurring in the coastal ranges of California from San Joaquin Valley to northern Baja California (American Ornithologists' Union 1957).
Habitat: The species inhabits a variety of open habitats with low, sparse vegetation where trees and large shrubs are absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas (Beason 1995).
Status on site: Detected during 2018 and 2021 HELIX surveys. Single individuals were heard signing in the southeastern portion of the study area at Monument Mesa (Figures 9a and 9f). The individuals were not identified to the subspecies level but is presumed to be subspecies because of the high likelihood to occur. Within the study area, a single individual was detected in both 2018 and 2021 surveys. The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

Merlin (*Falco columbarius*)
Status: **--/WL; County Group 2**
Distribution: Rare in San Diego County and can only be found during winter.
Habitat: Uncommon winter migrant in California occurring from September to May. Often found in open woodland, grasslands, cultivated fields, marshes, estuaries, and sea coasts and are rarely found in heavily wooded areas or over open deserts. Occurs at elevations below 5,000 feet.
Status on site: This species was detected in March and April 2021 during HELIX surveys in the southeastern portion of the study area on Monument Mesa (Figures 9a and 9f). Two individuals were observed during the 2021 surveys. The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

American peregrine falcon (*Falco columbarius*)
Status: **BCC/FP; County Group 1; MSCP Covered**
Distribution: In California, the species breeds and winters throughout the State, except for desert areas. Very uncommon breeding resident and uncommon as a migrant.
Habitat: Active nesting sites of this species within California are known from along the coast north of Santa Barbara, in the Sierra Nevada, and other mountains of northern California. Few nest sites are known anecdotally for southern California mostly at coastal estuaries and inland oases. Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on artificial structures.
Status on site: A single individual was Detected during 2021 HELIX surveys and observed in the southeastern portion of the study area at Monument Mesa (Figures 9a and 9f). This species is not expected to nest in the study area as slopes in the southern portion, while steep, are not near vertical cliffs with suitable rocky ledges where falcons would construct nests. The individual was observed within Treatment Area 12 and was not observed within Treatment Areas 1-11.

Yellow-breasted chat (*Icteria virens*)
Status: --/SSC; County Group 1
Distribution: The yellow-breasted chat occurs throughout North America from Canada south to Baja California and Mexico. The species' breeding range includes southern British Columbia south to Baja California with the species wintering from southern Baja California and south Texas, south to Mexico and Panama (Eckerle and Thompson 2001). In California, the species occurs as a migrant and summer resident breeding from the coastal regions of northern California east of the Cascades, and throughout the central and southern portions of the state.
Habitat: Chats breed in early successional riparian habitats with a well-developed shrub layer and an open canopy with nest sites often placed on the borders of streams, creeks, rivers, and marshes (Shuford and Gardali 2008).
Status on site: This species was detected within the study area in multiple locations in the spring and summer months during the 2018 and 2021 HELIX survey efforts. The species was found within riparian habitat along the Tijuana River and associated floodplain in areas north of Monument Road (Figures 9a-9d and 9f). Within the study area, a total of 21 individuals were observed in 2018, and 193 were observed in 2021. The individuals were observed within Treatment Areas 2-5, 7-9, and 11 and were not observed within Treatment Areas 1, 10, and 12.

Gadwall (*Mareca strepera*)
Status: --/-- County Group 2
Distribution: The gadwall is found throughout North America from southern Alaska south to Canada and Mexico. The species winters and breeds within California occupying interior valleys, wetlands, ponds, and streams (Leschack et al. 1997).
Habitat: Gadwalls nest in short, dense herbaceous habitats adjacent to suitable shallow-water feeding areas, such as islands surrounded by open water (Zeiner et al. 1990).
Status on site: Five gadwalls were observed during the 2018 surveys. The species was observed at Dairy Mart Pond and south of Dairy Mart Pond just north of Tijuana River (Figures 9a and 9d). The individuals were observed within Treatment Area 2 and were not observed within Treatment Areas 1 and 3-12.

Osprey (*Pandion haliaetus*)
Status: --/WL; County Group 1
Distribution: The osprey occurs throughout San Diego County in small numbers year-round but is more common during winter. Within California, breeding populations reside in the Cascade and Sierra mountain ranges, though small numbers of the species also breed within San Diego County. Although widely seen on the coast, these birds are rare transients in the interior portions of southern California. Nesting occurs in close proximity to water.
Habitat: The osprey is restricted to large water bodies such as rivers, lakes, and reservoirs supporting fish with suitable nesting habitat such as rocky pinnacles or large trees and snags. Osprey build their large nests often in dead tops of older trees and artificial structures.
Status on site: A single osprey was observed flying over the southern portion of the study area in 2021 (Figures 9a-9c). The species has the potential to utilize the study area for foraging opportunities but is not expected to breed within the study area. The individual was observed within Treatment Area 7 and were not observed within Treatment Areas 1-6 and 8-12.

American white pelican (*Pelecanus erythrorhync*hos)
Status: --/SSC; County Group 2
Distribution: The American white pelican is found in the western and southern portions of North America from central Canada south to the western two-thirds of the United States as far east as Florida and then further south into Mexico.
Habitat: The species is mainly an overwintering visitor to California found along the Pacific Coast and lowlands of central California, although birds also winter at the Salton Sea in Imperial County (Shuford and Gardali 2008). In California, the species breeds at lakes and marshes in the Klamath Basin, Modoc Plateau, and Great Basin Desert in the northeastern portion of the state (Shuford 2005). The species breeds in colonies on isolated islands of freshwater lakes and overwinters at marine estuaries and inland lakes where suitable habitat for feeding, loafing, and roosting is present (Knopf 2004).
Status on site: The American white pelican was observed flying over the study area in 2018 in November. A group of 10 individuals was observed flying in the distance to the northwest of Dairy Mart Pond (Figures 9a and 9c-9d) and a group of 11 individuals was observed flying to the south of Dairy Mart Pond (Figures 9a and 9c-9d). The species has potential to utilize the study area for loafing and foraging opportunities during the winter but is not expected to breed within the study area. The individuals were observed within Treatment Area 2 and were not observed within Treatment Areas 1 and 3-12.

Double-crested cormorant (*Phalacrocorax auritus*)
Status: --/WL; County Group 2
Distribution: The double-crested cormorant is widely distributed throughout North America ranging as far north as Alaska and south toward Canada and Mexico. In California, the species is a year-round resident along the entire coast, occupying fresh and saltwater estuaries, and inland lakes. The species also occurs east of the coast within the Central Valley, lower Colorado River, and Salton Sea (Dorr et al. 2014).
Habitat: Habitat requirements include suitable places for feeding, resting, loafing, and nighttime roosts. The species diet mostly consists of fish but may include other aquatic animals, and at times terrestrial animals based on opportunity (Robertson 1974). Cormorants breed in colonies at sites safe from predators and adjacent to feeding areas such as rocky or sandy islands, bridges, docks, nesting towers, trees, emergent marsh vegetation, and on the ground (Meier 1981).
Status on site: The double-crested cormorant was observed in 2018 flying over and utilizing aquatic habitat within the study area (Figures 9a-9b and 9d). Ten individuals were observed in the northwestern portion of the study area south of Sunset Avenue, in the northeastern portion of the study area, and the species was observed loafing and foraging at the Dairy Mart Pond, but no nesting cormorants were observed. The individuals were observed within Treatment Areas 2 and 8 and were not observed within Treatment Areas 1, 3-7, and 9-12.

White-faced ibis (*Plegadis chihi*)
Status: --/WL; MSCP Covered; County Group 1
Distribution: Uncommon summer resident in sections of southern California and a rare visitor in the Central Valley. Local wintering visitor along the coast.
Habitat: Prefers to feed in fresh emergent wetlands, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland. In San Diego County, two nesting colonies were documented at Guajome Lake and at a pond along the San Luis Rey located near Keys Canyon (southwest of the I-15 and SR-76 intersection).
Status on site: A small flock of four individuals was detected flying over the southeastern portion of the study area during HELIX surveys in 2021 (Figures 9a and 9f). This species is not expected to breed in the study area as no known nesting colonies occur in the region. The individuals were observed within Treatment Area 4 and were not observed within Treatment Areas 1-3 and 5-12.

Coastal California gnatcatcher (*Polioptila californica californica*)
Status: FE/SSC; County Group 1; MSCP Covered
Distribution: The coastal California gnatcatcher is a year-round resident occurring from southern California south to northwest Baja California (Atwood and Bolsinger 1992). In California, the species is found from Ventura County south to San Diego County and east to the western portions of San Bernardino and Riverside Counties.
Habitat: Coastal California gnatcatchers typically occur in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 1,640 feet but may occur as high as 3,000 feet (Grishaver et al. 1998). The composition of sage scrub in which gnatcatchers are found is variable; however, California sagebrush is at least present as dominant or co-dominant species (Atwood and Bontrager 2001). The species is mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though in inland areas the species may occur more regularly in areas dominated by black sage (Mock 2004).
Status on site: The coastal California gnatcatcher was detected within the southern portion of the study area during multiple survey efforts in 2018. During 2021 focused species surveys, two CAGN pairs were detected in the western portion of the survey area in suitable habitat northwest of Spooner's Mesa, one

CAGN pair was detected in the central portion of the survey area, two CAGN pairs were detected in the eastern portion of the survey area within suitable habitat on Monument Mesa, and one CAGN pair was detected in the northwestern portion of the survey area in the valley north of Spooner's Mesa. In addition to CAGN pairs, four lone males were observed in the western portion of the survey area north of Spooner's Mesa, one lone male was observed in the eastern portion of the survey area on Monument Mesa, one single male was observed just outside of the survey area within habitat immediately southeast of Smuggler's Gulch, and a non-black-capped individual was observed in the western portion of the survey area north of Spooner's Mesa. Within the study area, a total of 9 individuals were observed in 2018, and 23 were observed in 2021 (Figures 9a-9b and 9e-9f). The individuals were observed within Treatment Areas 11 and 12 and were not observed within Treatment Areas 1-10.

Yellow warbler (*Setophaga petechia*)
Status: BCC/SSC; County Group 2
Distribution: The yellow warbler is a common to locally abundant species breeding throughout California, excluding most of the Mojave Desert and all of the Colorado Desert, and wintering in northern Mexico (Lowther et al. 1999).
Habitat: The species breeds in riparian areas dominated by willows near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests in higher elevation areas (Shuford and Gardali 2008).
Status on site: Detected during several efforts in 2018 and 2021 in the spring and summer months. Found throughout the study area, primarily within riparian habitat along the Tijuana River (Figures 9a-9d and 9f). Within the study area, a total of 17 individuals were observed in 2018, and 195 were observed in 2021. The individuals were observed within Treatment Areas 1-11 and were not observed within Treatment Area 12.

Western bluebird (*Sialia mexicana*)
Status: --/--; County Group 2; MSCP Covered
Distribution: The western bluebird is found throughout the western United States, Mexico, and southwestern Canada. The species is a common year-round resident throughout California but is absent from the higher mountain regions and eastern deserts (Guinan et al. 2008).
Habitat: Western bluebirds breed in open woodlands, riparian habitats, grasslands, and farmlands. They nest and roost in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Bluebirds are found in a wider variety of habitats in the winter.
Status on site: A single western bluebird was detected in 2018 in the northwestern portion of the study area at Dairy Mart Pond (Figures 9a and 9d). The individual was observed within Treatment Area 2 and was not observed within Treatment Areas 1 and 3-12.

Lawrence's goldfinch (*Spinus lawrencei*)
Status: BCC/--
Distribution: Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts. Found year-round in areas south of Kern County with wintering individuals observed further east into the desert regions and Colorado River valley.
Habitat: Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet.
Status on site: Flocks of two to five individuals were observed flying over the study area on two occasions during the 2021 surveys (Figures 9a-9c). Suitable habitat for the species occurs within the

study area. However, this species is not expected to nest in the study area and no known nests occur in the area (Unitt 2004). The individuals were observed within Treatment Area 8 and were not observed within Treatment Areas 1-7 and 9-12.

Barn owl (*Tyto alba*)
Status: --/--; County Group 2
Distribution: The barn owl is a wide-ranging species found throughout the continental United States and San Diego County.
Habitat: The species is a common, yearlong resident found in open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats (Zeiner et al. 1990). The species is also found in urban and suburban areas. Barn owls' nest in sheltered areas of cliffs or artificial structures, on ledges, and in crevices, culverts, nest boxes, and cavities in trees. The species roosts in dense vegetation, and on cliffs, buildings, and other artificial structures.
Status on site: Barn owls were detected in 2018 during nocturnal avian surveys in April, June, and November as single individuals and groups of two throughout the study area. The species was observed foraging within uplands and perched on telephone poles and wires during the nocturnal surveys within the southwestern and northeastern portions of study area including Spooner's Mesa, south of Dairy Mart Pond, and north of baseball fields (Figures 9a-9f). The individuals were observed within Treatment Areas 9-12 and were not observed within Treatment Areas 1-8.

Least Bell's vireo (*Vireo bellii pusillus*)
Status: FE/SE; SSC; County Group 1; MSCP Covered
Distribution: The least Bell's vireo is the western-most of the four subspecies of Bell's vireo (*Vireo bellii*) breeding within California and northern Baja California and wintering in southern Baja California (Kus 2002).
Habitat: In California, the species breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County and east to Inyo County, San Bernardino, and Riverside Counties. Preferred breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but the species is also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging (Kus 2002). Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite (*Prosopis glandulosa*), and arrowweed (*Pluchea sericea*) within desert habitats. The species can be tolerant of the presence of invasive non-native species such as tamarisk.
Status on site: The least Bell's vireo was detected within the study area in 2018 during the spring and summer months during multiple survey efforts in multiple locations. During the 2021 focused species surveys, least Bell's vireo was detected in the study area in 147 locations, representing five LBVI pairs and 142 LBVI males. The pair located east of the Hollister was confirmed to be a breeding pair as both adults were observed foraging with and feeding at least two fledglings during one of the survey visits. One banded LBVI was observed during the survey effort, though not all individuals were directly observed. The banded individual appeared to have the band combination of bronze anodized metal on the left and dark pink plastic on the right. Additionally, a total of 44 individuals were observed or detected in 2018 (Figures 9a-9f). The individuals were observed within Treatment Areas 1-12.

1.4.10.5 Mammals

Six special status mammal species were detected within the study area as described below:

Western mastiff bat (*Eumops perotis*)
Status: --/SSC; County Group 2
Distribution: The western mastiff bat has three widely separated populations, with one occurring in southwestern United States from California east toward Texas and south across northern Mexico (Tremor et al. 2017). In California, the species occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert (Zeiner et al. 1990).
Habitat: The western mastiff bat is found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. The species prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.
Status on site: The western mastiff bat was detected during the passive bat surveys conducted in 2018 on Spooner's Mesa in the southwestern portion of the study area, at Monument Mesa in the southeastern portion of the study area, and just north of Tijuana River south of Dairy Mart Pond in the northeastern portion of the study area (Figures 9a and 9e-9f). The individuals were detected within Treatment Areas 2 and 12 and were not detected within Treatment Areas 1 and 3-11.

Western red bat (*Lasiurus blossevillii*)
Status: --/SSC; County Group 2
Distribution: The western red bat has a broad distribution ranging from southern British Columbia to the western United States and further south through Mexico, Central America, and South America. In California, the species is locally common being found from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts (Zeiner et al. 1990).
Habitat: The species mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in invasive non-native vegetation such as tamarisk, eucalyptus, and orchards. The western red bat typically forages along river and stream courses but also feeds at forested meadow edges and suburban and urban parks (Tremor et al. 2017). The species primarily roosts in trees preferring heavily shaded areas which are open underneath (Zeiner et al. 1990).
Status on site: The western red bat was detected in 2018 during the passive bat surveys in April, May, and July, with calls recorded at Dairy Mart Pond in the northeastern portion of the study area, at the Duck Ponds in the northwestern portion of the study area south of Sunset Avenue and west of Saturn Boulevard and north of the Tijuana River, and just north of the Tijuana River to the south of Dairy Mart Pond in the northeastern portion of the study area (Figures 9a-9e). The individuals were detected within Treatment Area 2, 8, and 12 and were not detected within Treatment Areas 1, 3-7, and 9-11.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
Status: --/SSC; County Group 2
Distribution: The San Diego black-tailed jackrabbit is one of nine subspecies of black-tailed-jackrabbit that occur in the United States (Hall 1951). It occurs along the coastal regions of southern California south to northern Baja California (Hall 1951).
Habitat: The species is found in arid regions preferring grasslands, agricultural fields, and sparse scrub. They are typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.
Status on site: The San Diego black-tailed jackrabbit was observed in 2018 at seven separate locations, and in 2021 at two separate locations, in the southern portion of the study area including Spooner's Mesa and Monument Mesa, and in the southwestern portion north of Monument Road (Figures 9a-9b

and 9e-9f). The individuals were observed within Treatment Areas 11 and 12 and were not observed within Treatment Areas 1-10.

Yuma myotis (*Myotis yumanensis*)
Status: --/--; County Group 2
Distribution: Yuma myotis occurs in western North America ranging from British Columbia to Central Mexico and eastward toward Colorado and Oklahoma (Sims 2000). The species is widespread in California but uncommon in the Mojave and Colorado Deserts, except in the mountain ranges bordering Colorado River Valley (Zeiner et al. 1990).
Habitat: Yuma myotis is found in a variety of habitats, including juniper and riparian woodlands, riparian forests, and desert regions where bodies of water (i.e., rivers, streams, ponds, lakes, etc.) are present. The species is closely associated with water, which it uses for foraging and as a source of drinking water. They roost within caves, attics, buildings, mines, and other similar structures, and underneath bridges.
Status on site: This species was detected during the 2018 HELIX bat surveys with calls recorded at Spooner's Mesa, Duck Ponds, Dairy Mart Pond, and along the Tijuana River south of Dairy Mart Pond (Figure 9a-9c and 9f). The individuals were detected within Treatment Areas 2, 8, and 12 and were not detected within Treatment Areas 1, 3-7, and 9-11.

San Diego desert woodrat (*Neotoma lepida intermedia*)
Status: --/SSC; County Group 2
Distribution: Baja California (Verts and Carrawaay 2002). In California, the species is found as far north as San Luis Obispo County and south to San Diego County, and in the western portions of San Bernardino and Riverside Counties.
Habitat: The San Diego desert woodrat occurs along the coastal regions of Central California south to northern. The San Diego desert woodrat occupies a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland among others. The species is often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Woodrats construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti using various materials such as twigs, sticks, and other debris.
Status on site: The species captured during the 2018 HELIX small mammal trapping efforts and reptile trapping efforts. A total of three individuals were captured, with one recapture, at Monument Mesa. Two individuals were captured on Spooner's Mesa, and one individual was captured on Monument Mesa. Additionally, a single woodrat nest was documented on Monument Mesa during the 2021 surveys (Figures 9a and 9e-9f). The individuals were observed within Treatment Area 12 and were not observed within Treatment Areas 1-11.

Pocketed free-tailed bat (*Nyctinomops femorosaccus*)
Status: --/SSC; County Group 2
Distribution: The pocketed free-tailed bat occurs in southwestern United States and northern Mexico. The species is rare in California, occurring in Riverside, San Diego, and Imperial counties (Zeiner et al. 1990).
Habitat: The pocketed free-tailed bat inhabits semiarid habitats, including pinyon-juniper woodland, desert scrub, succulent scrub, desert riparian, desert washes, alkali desert scrub, Joshua tree woodland, and palm oases (Lancaster 2000). The species roosts in caves, mines, tunnels, and rock crevices but is also known to occasionally roost in buildings and holes in trees.
Status on site: This species was detected during the 2018 HELIX bat surveys with calls recorded at Spooner's Mesa in the southeastern portion of the study area (Figures 9a and 9f). The individuals were detected within Treatment Area 12 and were not detected within Treatment Areas 1-11.

Special Status Animal Species with Potential to Occur

Special status animal species present on-site or with the potential to occur on-site are included in Appendix D. Refer to Appendix E of this report for an explanation of status codes. The species are grouped into invertebrates and vertebrates (fish, amphibians, reptiles, birds, and mammals) and alphabetized by scientific name. Twelve (12) additional special status animal species that were not observed on the study area were determined to have a high potential to occur: San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), San Diegan legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans occidentalis*), Coronado skink (*Plestiodon skiltonianus interparietalis*), two-striped garter snake (*Thamnophis hammondii*), Canada goose (*Branta canadensis*), loggerhead shrike (*Lanius ludovicianus*), California gull (*Larus californicus*), vermillion flycatcher (*Pyrocephalus rubinus*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

There are six County Group 1 species with high potential to occur: San Diego fairy shrimp (County Group 1, MSCP Covered, FE), Riverside fairy shrimp (County Group 1, MSCP Covered, FE), two-striped garter snake (County Group 1, Species of Special Concern [SSC]), loggerhead shrike (County Group 1, BCC/SSC), vermilion flycatcher (County Group 1, SSC), and light-footed Ridgway's rail (County Group 1, MSCP Covered).

San Diego fairy shrimp and Riverside fairy shrimp have high potential to occur within ephemeral ponds along trails in the study area, and potentially suitable habitat for the species occurs in the southern portion of the study area on Monument Mesa and Spooner's Mesa. Suitable depressions were reported to be present in 2007 along dirt roads on Spooner's Mesa (County 2007).

Two-striped garter snake has high potential to occur within aquatic and riparian habitats present within the project area. Loggerhead shrike has a high potential to occur in the project area foraging over open ground within areas of riparian areas, open woodland, and agricultural fields.

Vermilion flycatcher has a high potential to occur in the study area adjacent to the baseball fields south of Sunset Avenue.

Light-footed Ridgway's rail has high potential to occur in the study area at Dairy Mart Pond and along the Tijuana River in the northern portion of the park. The species breeds to the west within Border Field State Park and further northwest Tijuana Slough National Wildlife Preserve which supports the second of the largest population in California (Zembal et al. 2017).

There are three SSC species with High potential to occur: San Diegan legless lizard (County Group 2, SSC), California glossy snake (SSC), and northwestern San Diego pocket mouse (SSC, County Group 2).

There are three County Group 2 species that are not SSC species with High potential to occur in the study area: Canada goose (*Branta canadensis*; County Group 2, MSCP Covered), California gull (*Larus californicus*; County Group 2, WL), and Coronado skink (*Plestiodon skiltonianus interparietalis*; County Group 2, WL).

Raptor Foraging

Twelve species of raptors were observed flying over the study area during the 2018 and 2021 biological surveys. Raptors observed during these surveys include Cooper's hawk, sharp-shinned hawk, red-tailed

hawk (*Buteo jamaicensis*), red-shouldered hawk, northern harrier, white-tailed kite, turkey vulture, osprey, merlin, peregrine falcon, and American kestrel (*Falco sparverius*).

The County (2010b) defines raptor foraging habitat as, "Land that is a minimum of five acres (not limited to project boundaries) of fallow or open areas with any evidence of foraging potential (i.e., burrows, raptor nests, etc.)." The coastal scrub, non-native grassland, and disturbed habitat within the study area could be potential raptor foraging habitat based on this definition, as each occupies greater than five acres and supports burrows of common small mammals, namely California ground squirrel (*Otospermophilus beecheyi*). The overall foraging value of the study area is high and is likely functioning as a local or regional foraging resource of importance for raptors.

1.4.11 Jurisdictional Waters and Wetlands

Jurisdictional waters and riparian habitat are present within the study area and are further discussed below. The project study area occurs along the Tijuana River. The Tijuana River flows in a northwesterly direction, originating in Mexico, flows through the study area, continues west into the TRNERR, and drains into the Pacific Ocean just south of the TSNWR. The study area is bounded on three sides by urban development, open space to the west, and generally consists of a broad floodplain with natural mesas in the south. The study area is located within the Tijuana River Watershed, which is a bi-national watershed since the river originates in Mexico but flows into the United States, terminating at the Pacific Ocean. The watershed is divided into approximately 1,245 square miles (mi^2; 65 percent) in Mexico and 455 mi^2 (35 percent) in the United States, totaling approximately 1,700 mi^2. Three surface water reservoirs are present in addition to the TRNERR and various flood control networks. There are three major drainages, the Rio Las Palmas system in Mexico, and Cottonwood and Campo Creeks in the United States. Eight hydrological areas exist within the Tijuana River Watershed: the Tijuana Valley, Potrero, Barrett Lake, Monument, Morena, Cottonwood, Cameron, and Campo. Morena Reservoir and Barrett Lake on Cottonwood Creek capture runoff.

Jurisdictional waters and riparian habitat within the study area are primarily associated with the Tijuana River. Additionally, two ephemeral tributaries to the Tijuana River intersect the study area: Smuggler's gulch and the upper reach of Goat Canyon. Smuggler's Gulch and Goat Canyon are earthen bottom improved channels that are tributary to the South Channel of the Tijuana River.

USACE Jurisdiction

USACE-jurisdictional waters within the study area include wetland and non-wetland waters of the U.S. (Table 3, *Waters of the U.S.*; Figures 10a-10f, *Waters of the U.S.*). A total of 633.70 acres / 3,249 linear feet (lf) of potential waters of the U.S. were delineated in the USACE review area. Potential waters of the U.S. consist of 610.60 acres of wetland and 23.10 acres of non-wetland waters.

Table 3
WATERS OF THE U.S.

Wetlands	Acres[1]	Linear Feet[2]
Southern Riparian Forest (including disturbed)	332.83	--
Southern Willow Scrub (including disturbed)	96.15	--
Mule Fat Scrub (including disturbed)	24.13	--
Coastal and Valley Freshwater Marsh	9.34	--
Emergent Wetland	0.25	--

Wetlands	Acres[1]	Linear Feet[2]
Southern Coastal Salt Marsh	4.35	--
Saltgrass Grassland	0.39	--
Arundo-dominated Riparian	117.35	--
Non-native Riparian	12.16	--
Tamarisk Scrub	13.65	--
Subtotal	**610.60**	--
Non-wetland Waters		
Open Water	20.71	--
Stream Channel	2.39	3,249
Subtotal	**23.10**	**3,249**
TOTAL	**633.70**	**3,249**

1 Acreage rounded to the nearest hundredth acre.

2 Linear feet rounded to the nearest foot. Linear feet identified for stream channel only, not wetlands.

RWQCB Jurisdiction

RWQCB-jurisdictional waters within the study area include wetland and non-wetland waters of the State (Table 4, *RWQCB Waters of the State*; Figures 11a-11f, *Waters of the State*). A total of 634.49 acres/ 3,249 lf of potential waters of the State were delineated in the study area, consisting of 610.60 acres of wetland and 23.89 acres of non-wetland waters. The channel acreage for RWQCB is larger than the channel area delineated for the USACE due to the differences in width between the OHWM (USACE jurisdictional extent) and top of bank (RWQCB jurisdictional extent). No isolated waters or isolated wetlands meeting the SWRCB's State Wetland Definition were identified in the study area. Thus, no waters or wetlands subject to RWQCB regulation solely under the Porter-Cologne Water Quality Control Act were observed on site.

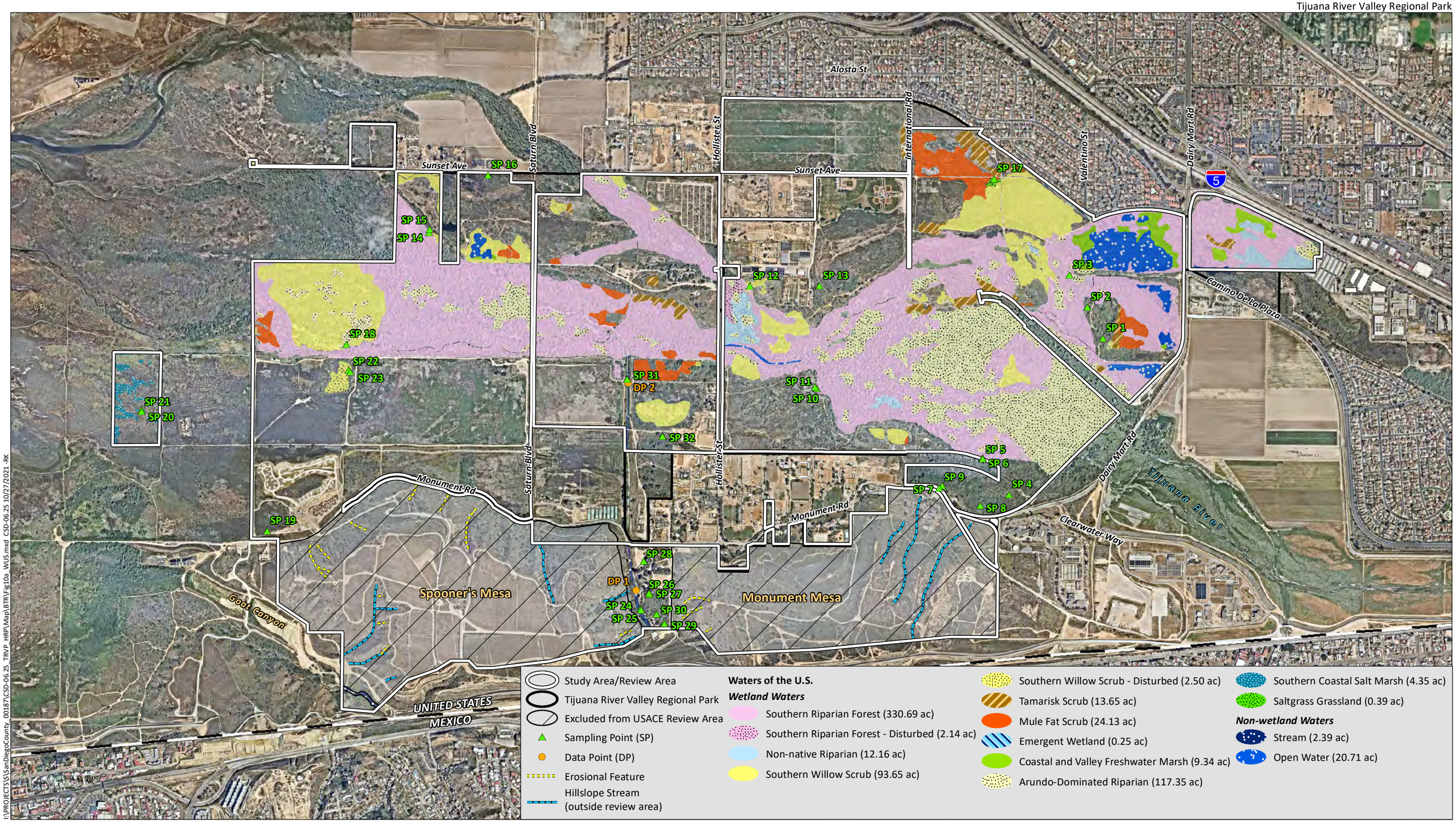
Table 4
RWQCB WATERS OF THE STATE

Wetlands	Acres[1]	Linear Feet[2]
Southern Riparian Forest (including disturbed)	332.83	--
Southern Willow Scrub (including disturbed)	96.15	--
Mule Fat Scrub (including disturbed)	24.13	--
Coastal and Valley Freshwater Marsh	9.34	--
Emergent Wetland	0.25	--
Southern Coastal Salt Marsh	4.35	--
Saltgrass Grassland	0.39	--
Arundo-dominated Riparian	117.35	--
Non-native Riparian	12.16	--
Tamarisk Scrub	13.65	--
Subtotal	**610.60**	--
Non-wetland Waters		
Open Water	20.71	--
Stream Channel	3.18	3,249
Subtotal	**23.89**	**3,249**
TOTAL	**634.49**	**3,249**

1 Acreage rounded to the nearest hundredth acre.

2 Linear feet rounded to the nearest foot. Linear feet identified for stream channel only, not wetlands.

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap (2021)

0 1,300 Feet

1 inch = 1,300 feet

Waters of the U.S. Delineation

Figure 10a

- Study Area/Review Area
- Tijuana River Valley Regional Park
- Sample Point (SP)
- Data Point (DP)

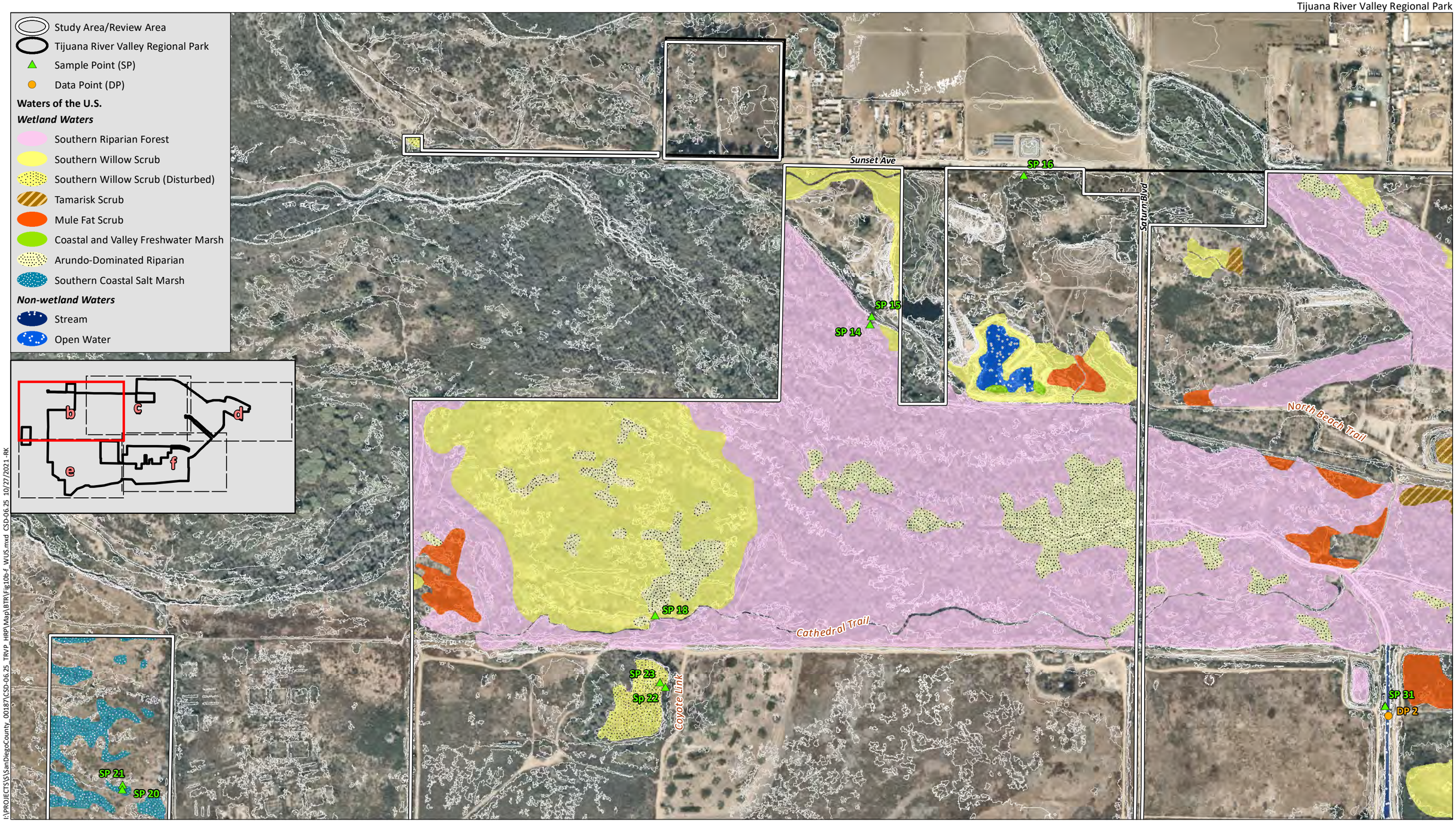
Waters of the U.S.

Wetland Waters

- Southern Riparian Forest
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Tamarisk Scrub
- Mule Fat Scrub
- Coastal and Valley Freshwater Marsh
- Arundo-Dominated Riparian
- Southern Coastal Salt Marsh

Non-wetland Waters

- Stream
- Open Water



Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

Waters of the U.S. Delineation

Figure 10b

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Study Area/Review Area
Tijuana River Valley Regional Park
Sample Point (SP)
Data Point (DP)

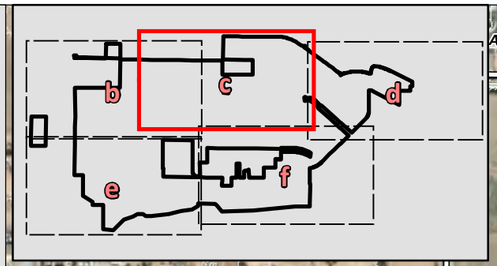
Waters of the U.S.

Wetland Waters

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Non-native Riparian
Southern Willow Scrub
Tamarisk Scrub
Mule Fat Scrub
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Saltgrass Grassland

Non-wetland Waters

Stream
Open Water



Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
Sherwood Forest Trail
SP 16
SP 17
SP 12
SP 13
SP 31
DP 2
SP 11
SP 10

I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig10b-f_WUS.mxd CSD-06.25 10/27/2021 RK

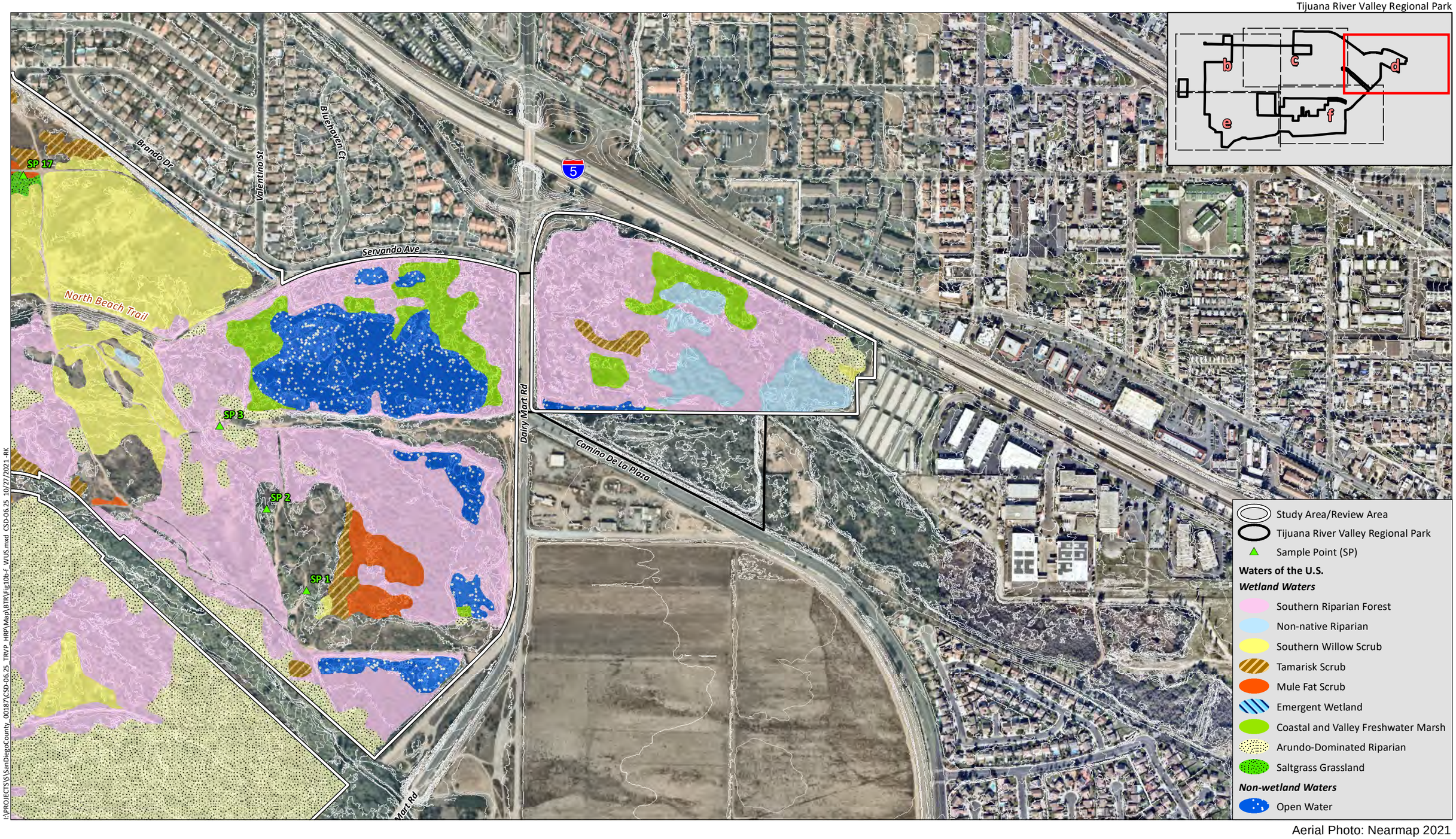
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

Waters of the U.S. Delineation

Figure 10c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

Waters of the U.S. Delineation

Figure 10d

Tijuana River Valley Regional Park

South Beach Trail

Coyote Link

Monument Rd

Saturn Blvd

SP 19

SP 28

DP 1

Spooner's Mesa

SP 24

SP 25

Goat Canyon Trail

Study Area/Review Area

Tijuana River Valley Regional Park

Sample Point (SP)

Data Point (DP)

Excluded from USACE Review Area

Erosional Feature

Hillslope Stream (outside review area)

Waters of the U.S.

Wetland Waters

Southern Willow Scrub

Southern Coastal Salt Marsh

Non-wetland Waters

Stream

b

c

d

e

f

Aerial Photo: Nearmap 2021

0 500 Feet

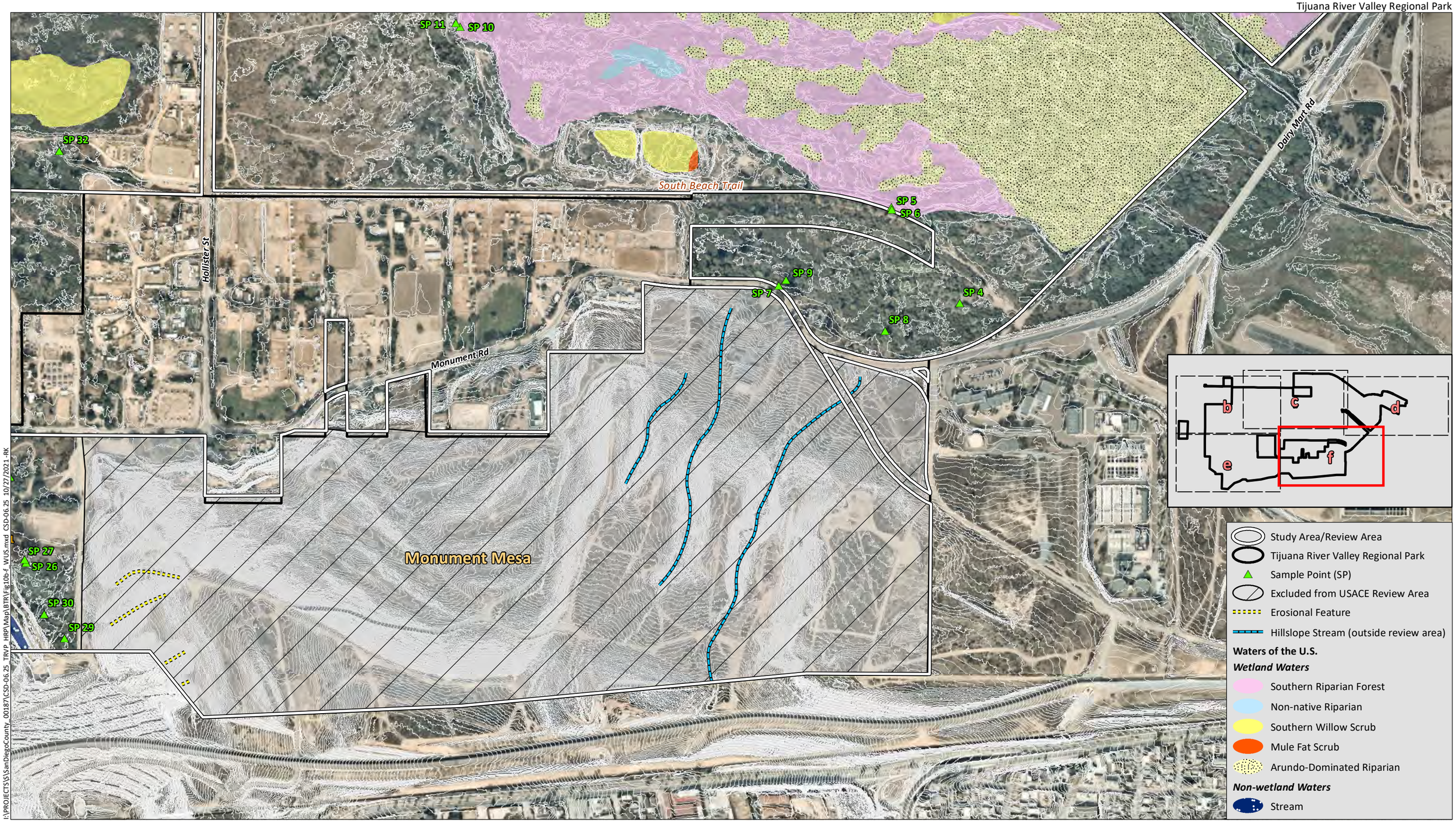
1 inch = 500 feet

Waters of the U.S. Delineation

Figure 10e

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig10b-f_WUS.mxd CSD-06.25 10/27/2021-RK

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

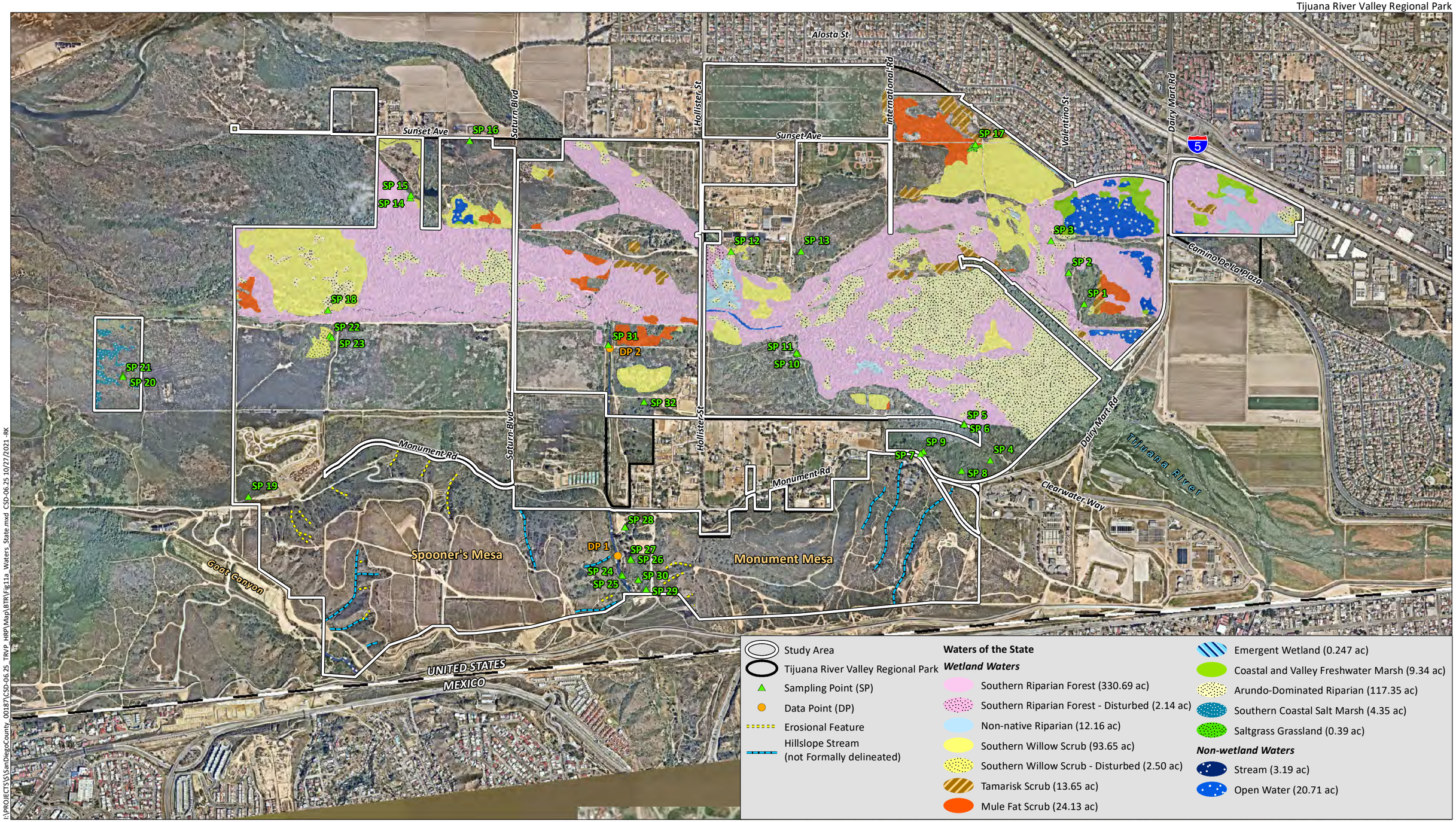
0 500 Feet

1 inch = 500 feet

Waters of the U.S. Delineation

Figure 10f

I:\PROJECTS\S\SanDiegoCounty_001871\CSD-06.25_TRVP_HRP\Map\BTR\Fig10b-f_WUS.mxd CSD-06.25 10/27/2021 -RK



Aerial Photo: Nearmap (2021)

0 1,300 Feet

1 inch = 1,300 feet

N

RWQCB Waters of the State Delineation

Figure 11a

Tijuana River Valley Regional Park

Study Area
Tijuana River Valley Regional Park
Sample Point (SP)
Data Point (DP)

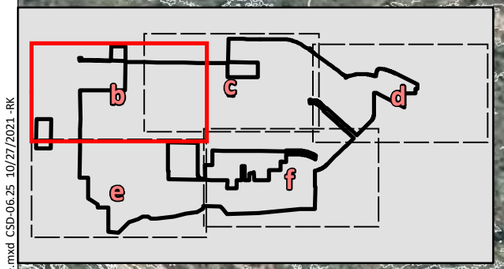
Waters of the State

Wetland Waters

Southern Riparian Forest
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Tamarisk Scrub
Mule Fat Scrub
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Southern Coastal Salt Marsh

Non-wetland Waters

Stream
Open Water



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

SP 14
SP 15
SP 16
SP 18
SP 20
SP 21
SP 22
SP 23
SP 31
DP 2

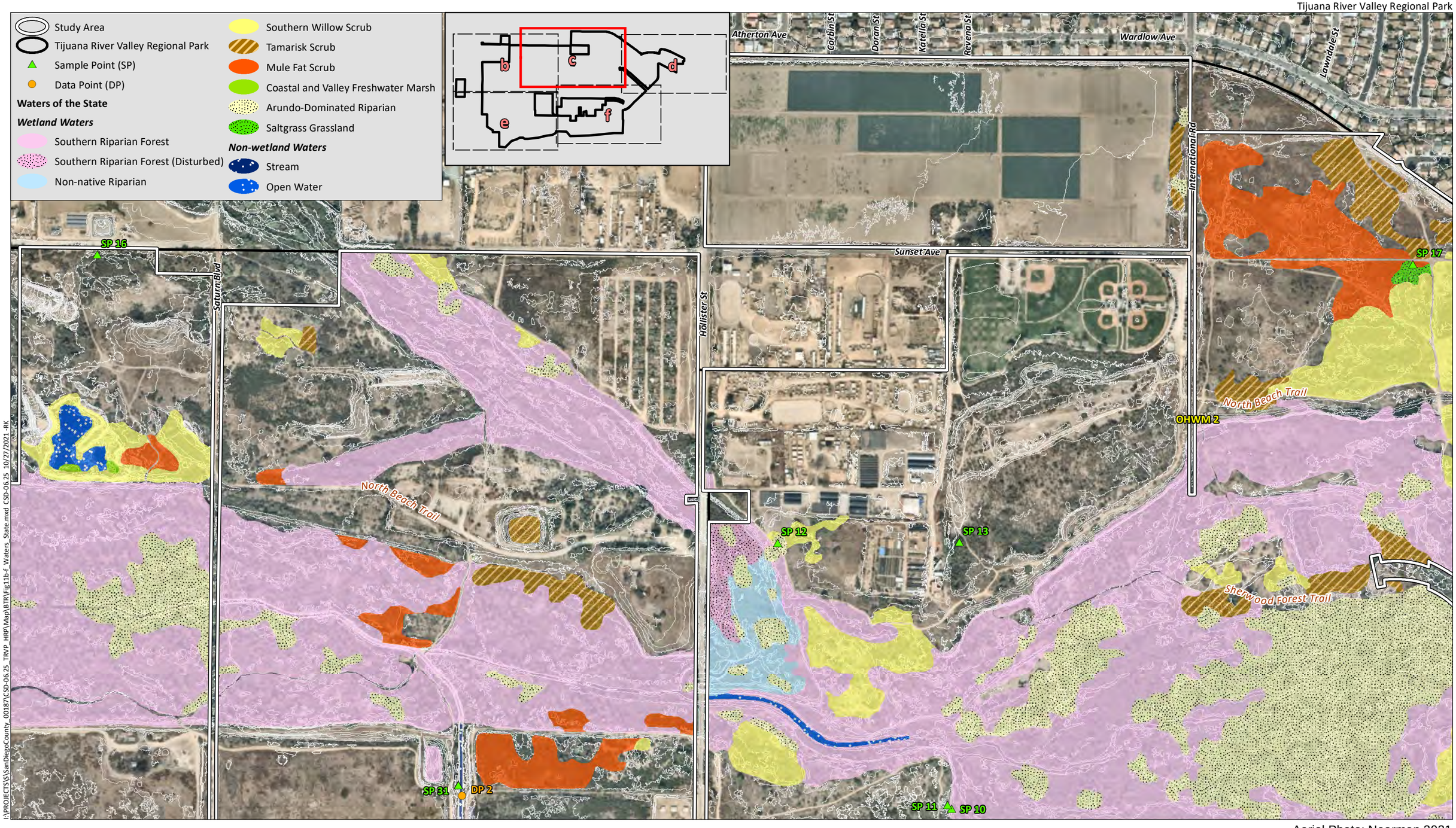
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

RWQCB Waters of the State Delineation

Figure 11b

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig11b-f_Waters_State.mxd CSD-06.25 10/27/2021 - RK



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Aerial Photo: Nearmap 2021

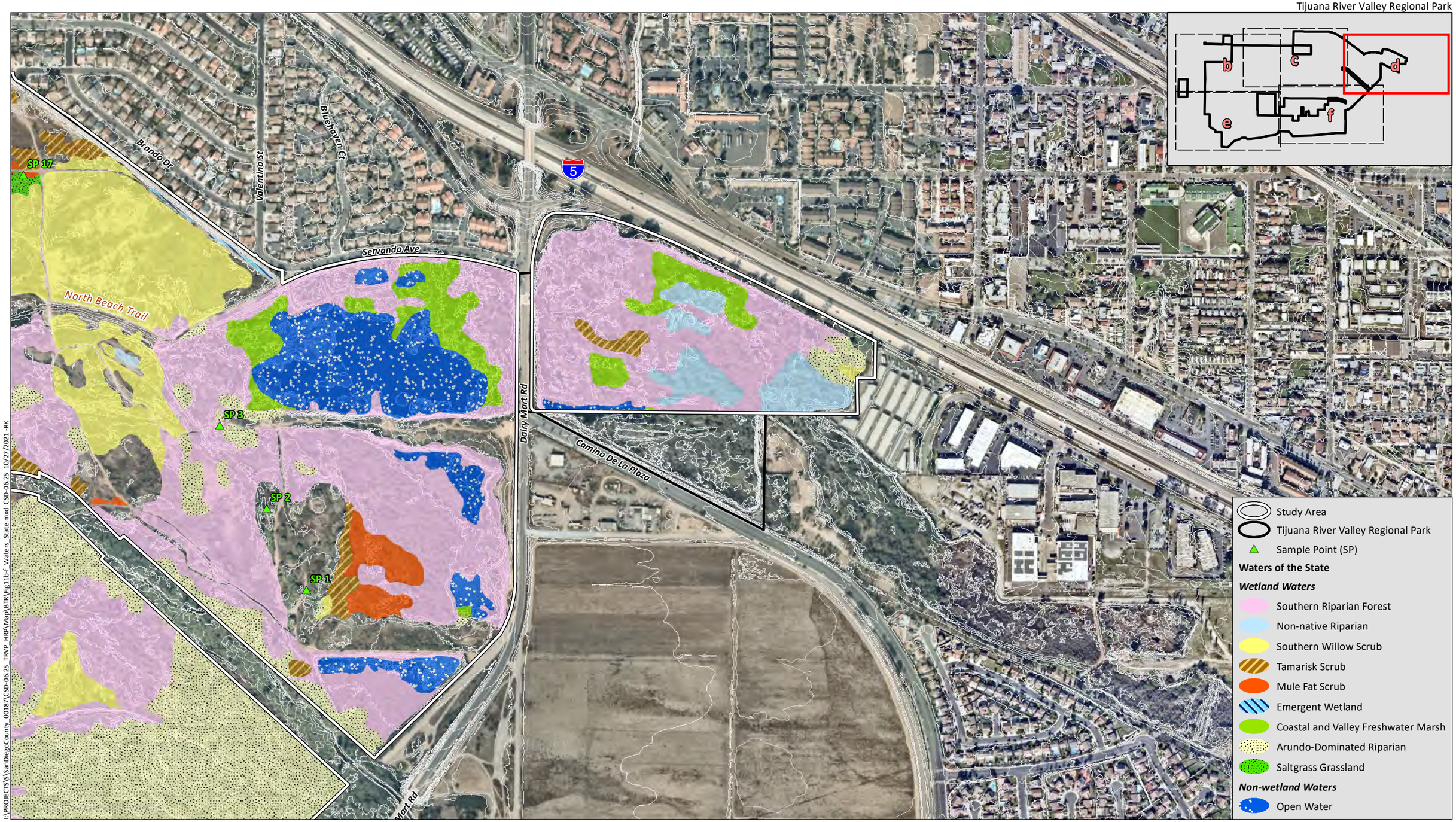
0 500 Feet

1 inch = 500 feet

RWQCB Waters of the State Delineation

Figure 11c

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap 2021

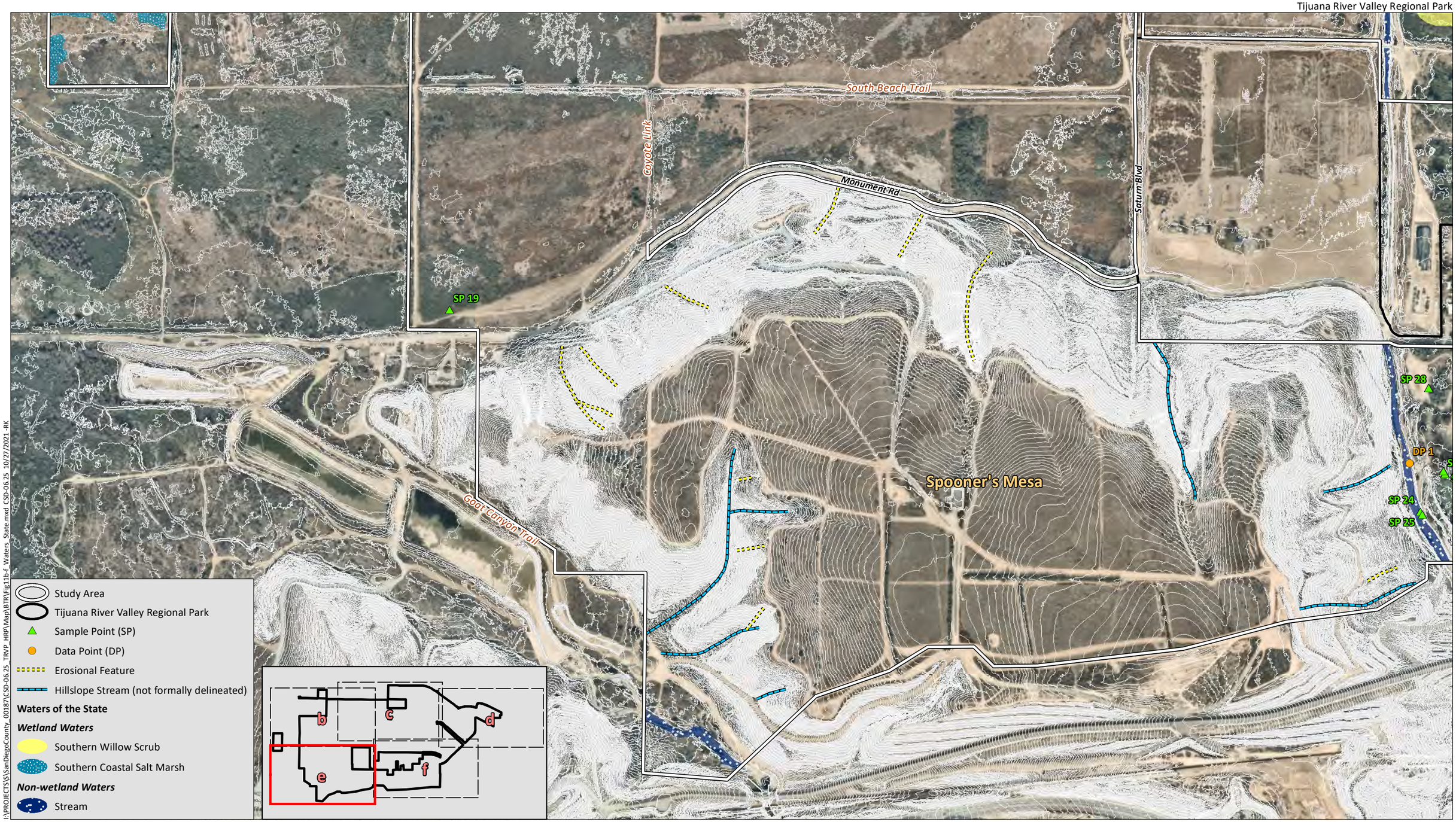
0 500 Feet

1 inch = 500 feet

RWQCB Waters of the State Delineation

Figure 11d

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap 2021

0 500 Feet

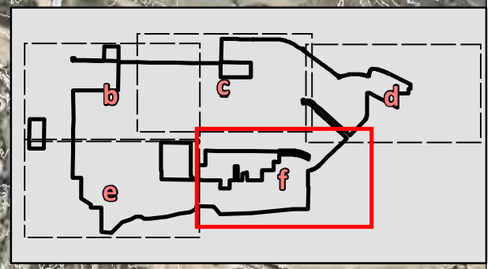
1 inch = 500 feet

RWQCB Waters of the State Delineation

Figure 11e

Tijuana River Valley Regional Park

SP 11
SP 10
SP 32
South Beach Trail
Dairy Mart Rd
SP 5
SP 6
Hollister St
SP 9
SP 7
SP 4
SP 8
Monument Rd
Monument Mesa
SP 27
SP 26
SP 30
SP 29



- Study Area
- Tijuana River Valley Regional Park
- Sample Point (SP)
- Erosional Feature
- Hillslope Stream (not formally delineated)

Waters of the State

Wetland Waters

- Southern Riparian Forest
- Non-native Riparian
- Southern Willow Scrub
- Mule Fat Scrub
- Arundo-Dominated Riparian

Non-wetland Waters

- Stream

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Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

RWQCB Waters of the State Delineation

Figure 11f

CDFW Jurisdiction

CDFW jurisdictional riparian habitat and streambed within the study area consist of riparian habitat, streambed, and open water (Table 5, *California Department of Fish and Wildlife Jurisdictional Habitats in the Study Area*; Figures 12a-12f, *CDFW Jurisdictional Areas*). A total of 789.54 acres of CDFW jurisdictional habitats occur within the study area, composed of 766.06 acres of riparian habitat, 20.71 acres of open water pond, and 2.77 acres of non-vegetated stream channel.

Table 5
CDFW JURISDICTIONAL HABITATS IN THE STUDY AREA

Habitats	Acres
Southern Riparian Forest (including disturbed)	357.81
Southern Riparian Woodland	0.22
Southern Willow Scrub (including disturbed)	147.96
Mule Fat Scrub (including disturbed)	86.65
Riparian Scrub - disturbed	0.06
Coastal and Valley Freshwater Marsh	9.37
Emergent Wetland	0.25
Southern Coastal Salt Marsh	4.35
Saltgrass Grassland	0.39
Arundo-dominated Riparian	122.82
Non-native Riparian	12.85
Tamarisk Scrub	23.33
Open Water	20.71
Stream Channel	2.77
TOTAL	**789.54**

[1]Rounded to the nearest hundredth

California Coastal Commission

A total of 789.54 acres of CCC coastal wetlands occurs within the study area, 766.06 acres of wetland/riparian habitat, 20.71 acres of open water pond, and 2.77 acres of non-vegetated stream channel (Table 6, *CCC Coastal Wetlands in the Study Area*; Figures 13a-13f, *CCC Coastal Wetlands Delineation*). The 2.77 acres of stream channel in Smuggler's Gulch and Goat Canyon are considered to meet the "1-parameter" definition of a coastal wetland because drastic fluctuations of water flow and seasonal variability, combined with sediment and trash deposition and dredging of the channels, preclude the establishment of year-round wetland vegetation.

Table 6
CCC COASTAL WETLANDS IN THE STUDY AREA

Habitats	Acres
Southern Riparian Forest (including disturbed)	357.81
Southern Riparian Woodland	0.22
Southern Willow Scrub (including disturbed)	147.96
Mule Fat Scrub (including disturbed)	86.65
Riparian Scrub - disturbed	0.06
Coastal and Valley Freshwater Marsh	9.37
Emergent Wetland	0.25

Habitats	Acres
Southern Coastal Salt Marsh	4.35
Saltgrass Grassland	0.39
Arundo-dominated Riparian	122.82
Non-native Riparian	12.85
Tamarisk Scrub	23.33
Open Water	20.71
Stream Channel	2.77
TOTAL	**789.54**

[1]Rounded to the nearest hundredth

City Environmentally Sensitive Lands Wetlands

City wetlands, as defined in Section 1.5.3 and by the City Biology Guidelines (City 2018), within the study area include 357.81 acres of southern riparian forest (including disturbed), 0.22 acre of southern riparian woodland, 147.96 acres of southern willow scrub (including disturbed), 86.65 acres of mule fat scrub (including disturbed), 0.06 acre of riparian scrub (disturbed), 9.37 acres of coastal and valley freshwater marsh, 0.25 acre of emergent wetland, 4.35 acres of southern coastal salt marsh, 0.39 acre of saltgrass grassland, 122.82 acres of arundo-dominated riparian, 12.85 acres of non-native riparian, and 23.33 acres of tamarisk scrub. The unvegetated streambeds are not considered City wetlands because they naturally lack hydrophytic vegetation.

1.4.12 Habitat Connectivity and Wildlife Corridors

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow wildlife species access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as steppingstone connections that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

The study area is located within the Tijuana Estuary/River Valley BRCA (Area 1) under the Final MSCP Plan (City 1998). BRCAs are defined as “areas that support a high concentration of sensitive wildlife resources which, if lost or fragmented, could not be replaced.” The study area is located along the Tijuana River, supporting a relatively wide riparian corridor and undeveloped upland habitat to the north and west. However, the presence of rural and agricultural development, residential development, transportation corridors, international border fence, and the Pacific Ocean to the west constrains the ability of the study area to function as a regional wildlife movement corridor. The study area is geographically isolated from adjacent open space areas to the north (Otay Valley Regional Park) and east (Pacific Gateway Park) as it is surrounded by rural and residential development, and other anthropogenic influences.

The Naval Outlying Landing Field Imperial Beach (herein referred to as the Imperial Beach Naval Station) occurs to the northwest of the study area, with flight practices and demonstrations occurring in the area. The Southwestern Little League baseball fields occur within the north-central portion of the study

Tijuana River Valley Regional Park

Sunset Ave
Saturn Blvd
Hollister St
Alosta St
International Rd
Valentino St
Dairy Mart Rd
Camino De La Plaza
Monument Rd
Clearwater Way
Tijuana River
Goat Canyon
Spooner's Mesa
Monument Mesa
UNITED STATES
MEXICO

Study Area
Tijuana River Valley Regional Park
Erosional Feature

CDFW Jurisdiction

Southern Riparian Forest (355.67 ac)
Southern Riparian Forest - Disturbed (2.14 ac)
Southern Riparian Woodland (0.22 ac)
Non-native Riparian (12.85 ac)
Southern Willow Scrub (142.27 ac)
Southern Willow Scrub - Disturbed (5.69 ac)
Mule Fat Scrub (84.76 ac)
Mule Fat Scrub - Disturbed (1.88 ac)
Tamarisk Scrub (23.33 ac)
Riparian Scrub - Disturbed (0.06 ac)
Coastal and Valley Freshwater Marsh (9.37 ac)
Southern Coastal Salt Marsh (4.35 ac)
Saltgrass Grassland (0.39 ac)
Emergent Wetland (0.25 ac)
Arundo-Dominated Riparian (122.82 ac)
Stream (2.77 ac)
Open Water (20.71 ac)
Hillslope Stream (not formally delineated)*

** CDFW only*

Aerial Photo: Nearmap (2021)

0 1,300 Feet

CDFW Jurisdictional Habitat Delineation

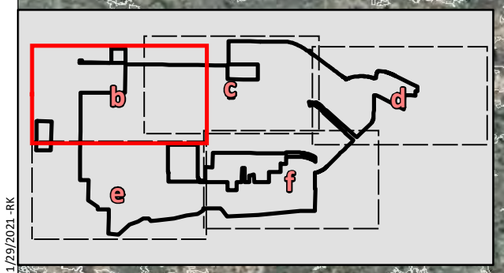
Figure 12a

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig12a_CDFW.mxd CSD-06.25 11/29/2021 -RK

Study Area
Tijuana River Valley Regional Park

CDFW Jurisdiction

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Southern Coastal Salt Marsh
- Arundo-Dominated Riparian
- Stream
- Open Water



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

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Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

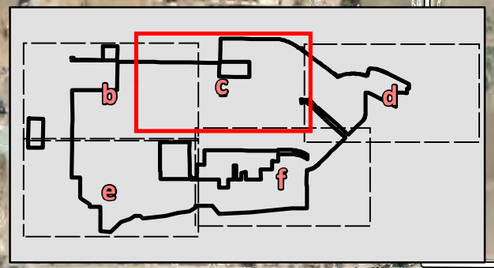
CDFW Jurisdictional Habitat Delineation

Figure 12b

Study Area
Tijuana River Valley Regional Park

CDFW Jurisdiction

- Southern Riparian Forest
- Southern Riparian Forest (Disturbed)
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Mule Fat Scrub (Disturbed)
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Saltgrass Grassland
- Arundo-Dominated Riparian
- Stream
- Open Water



Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
North Beach Trail
Sherwood Forest Trail

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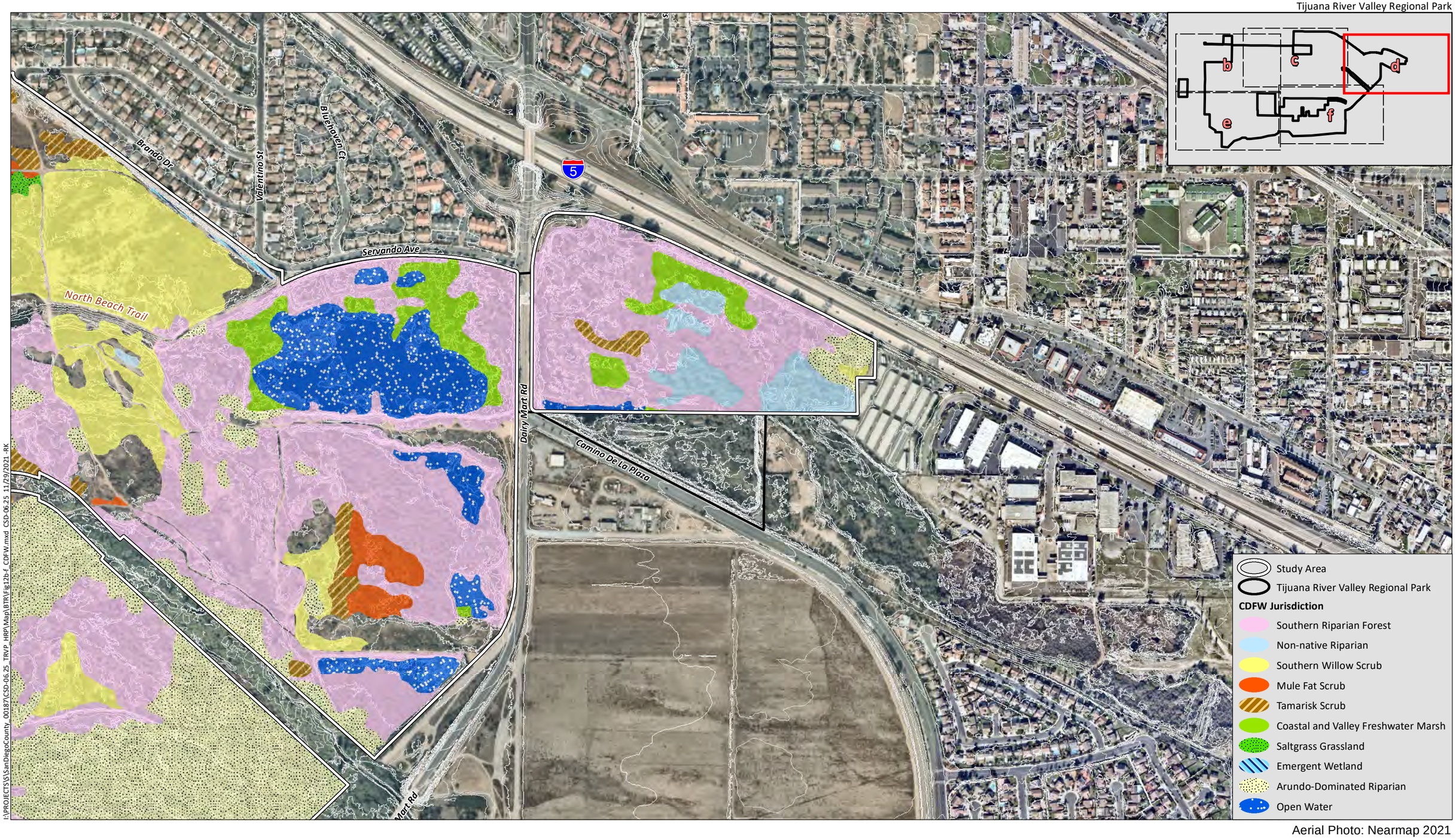
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation

Figure 12c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation

Figure 12d

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig12b-f_CDFW.mxd CSD-06.25 11/29/2021 RK

Tijuana River Valley Regional Park

South Beach Trail

Coyote Link

Monument Rd

Saturn Blvd

Goat Canyon Trail

Spooner's Mesa

Study Area

Tijuana River Valley Regional Park

Erosional Feature

CDFW Jurisdiction

Southern Riparian Woodland

Non-native Riparian

Southern Willow Scrub

Southern Willow Scrub (Disturbed)

Mule Fat Scrub

Tamarisk Scrub

Riparian Scrub (Disturbed)

Southern Coastal Salt Marsh

Arundo-Dominated Riparian

Stream

Hillslope Stream (not formally delineated)*

** CDFW only*

b

c

d

e

f

Aerial Photo: Nearmap 2021

0 500 Feet

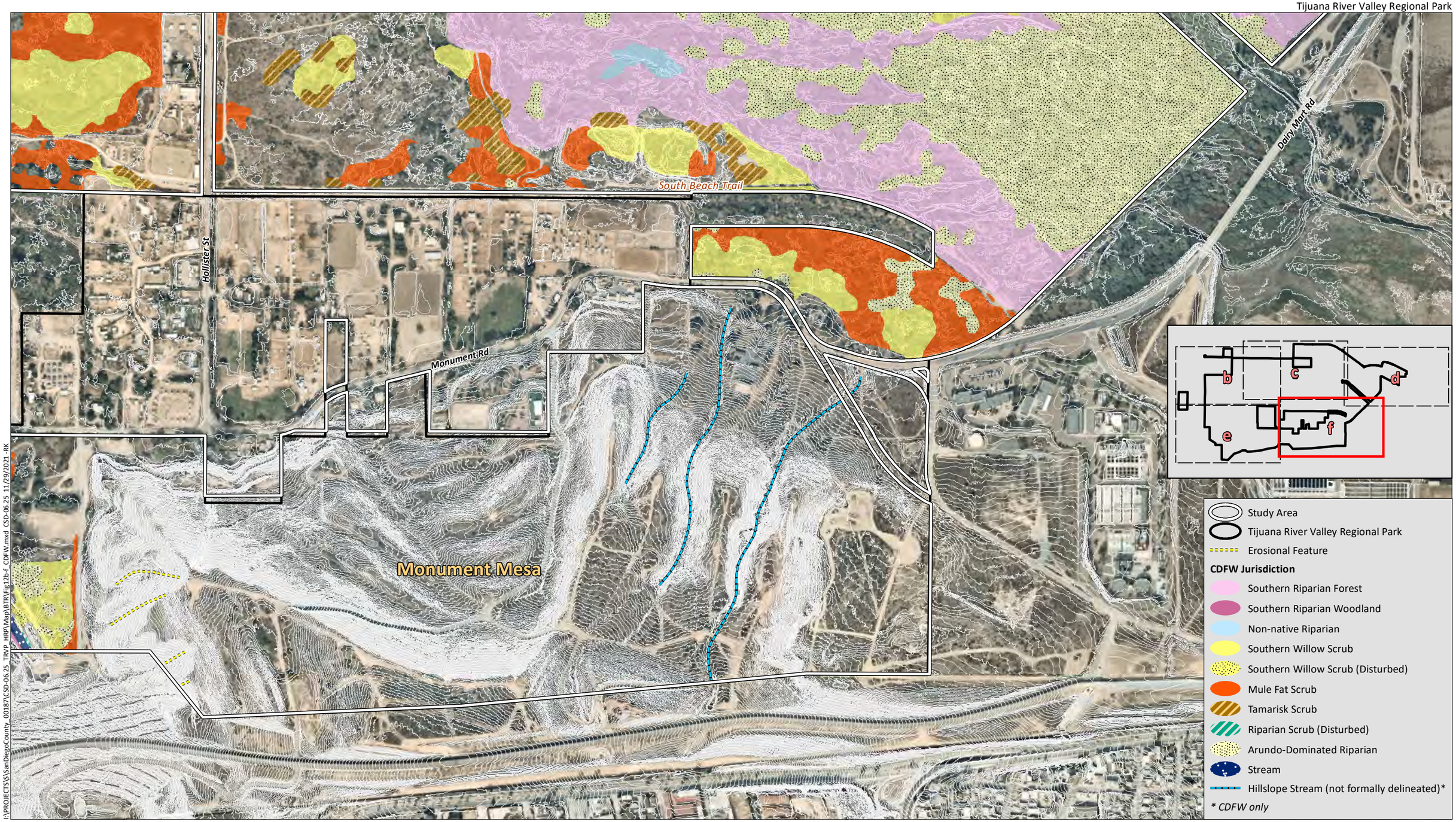
1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation

Figure 12e

I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig12b-f_CDFW.mxd CSD-06.25 11/29/2021 - RK

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap 2021

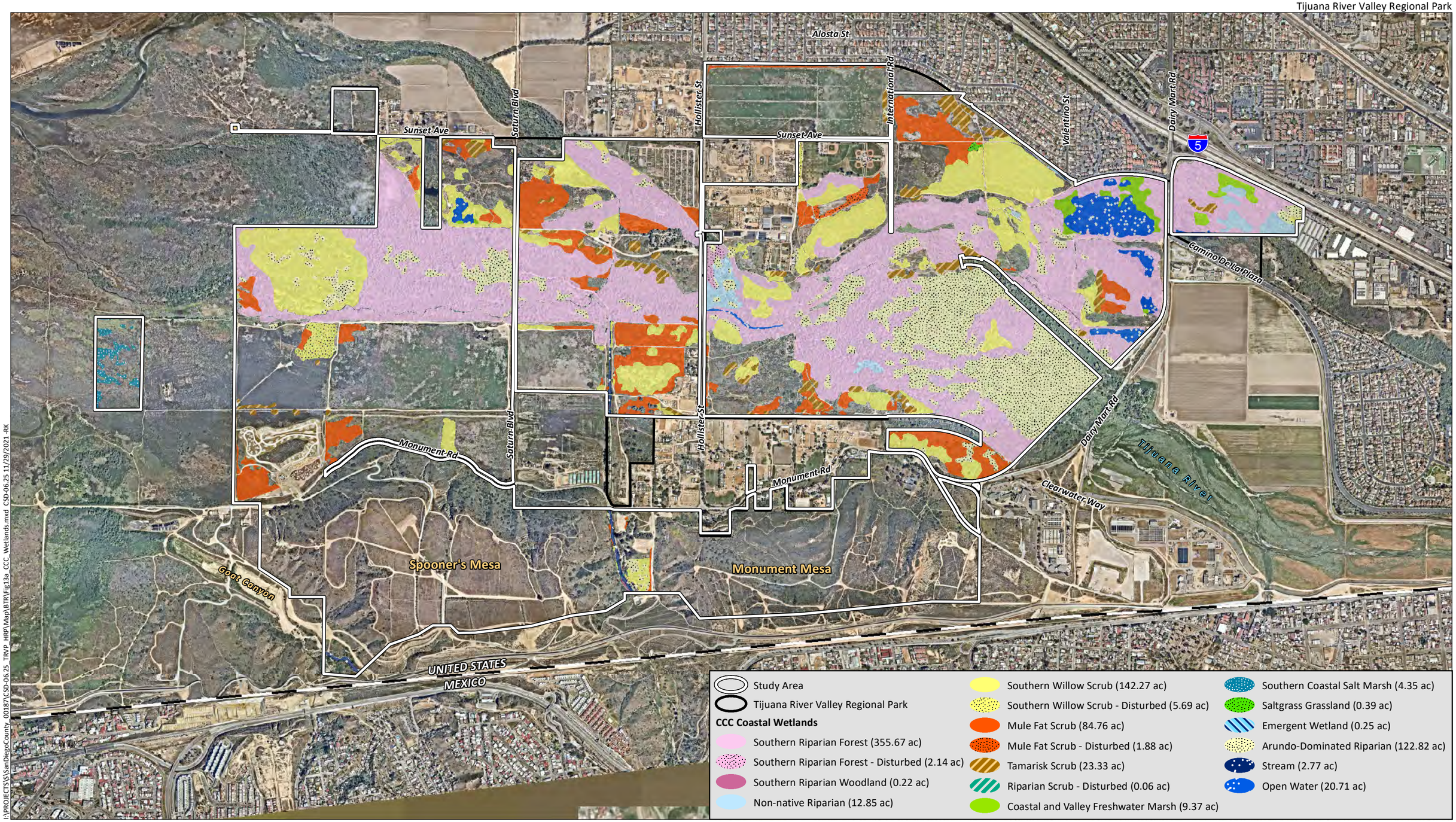
0 500 Feet

1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation

Figure 12f

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap (2021)

0 1,300 Feet

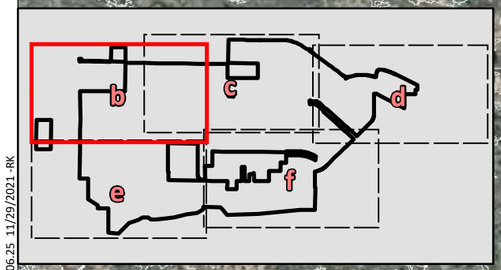
CCC Coastal Wetlands Delineation

Figure 13a

Study Area
Tijuana River Valley Regional Park

CCC Coastal Wetlands

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Southern Coastal Salt Marsh
- Arundo-Dominated Riparian
- Stream
- Open Water



Sunset Ave
Saturn Blvd
North Beach Trail
Cathedral Trail
Coyote Link

Aerial Photo: Nearmap 2021

0 500 Feet

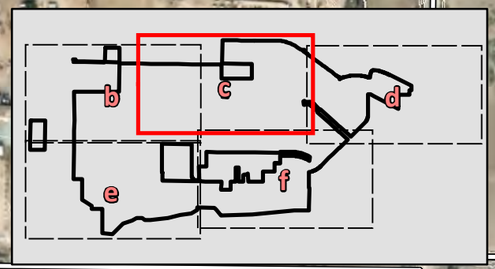
CCC Coastal Wetlands Delineation

Figure 13b

Study Area
Tijuana River Valley Regional Park

CCC Coastal Wetlands

- Southern Riparian Forest
- Southern Riparian Forest (Disturbed)
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Mule Fat Scrub (Disturbed)
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Saltgrass Grassland
- Arundo-Dominated Riparian
- Stream
- Open Water



Atherton Ave
Corbin St
Doran St
Katella St
Revena St
Wardlow Ave
Lawndale St
International Rd
Sunset Ave
Hollister St
Saturn Blvd
North Beach Trail
North Beach Trail
Sherwood Forest Trail

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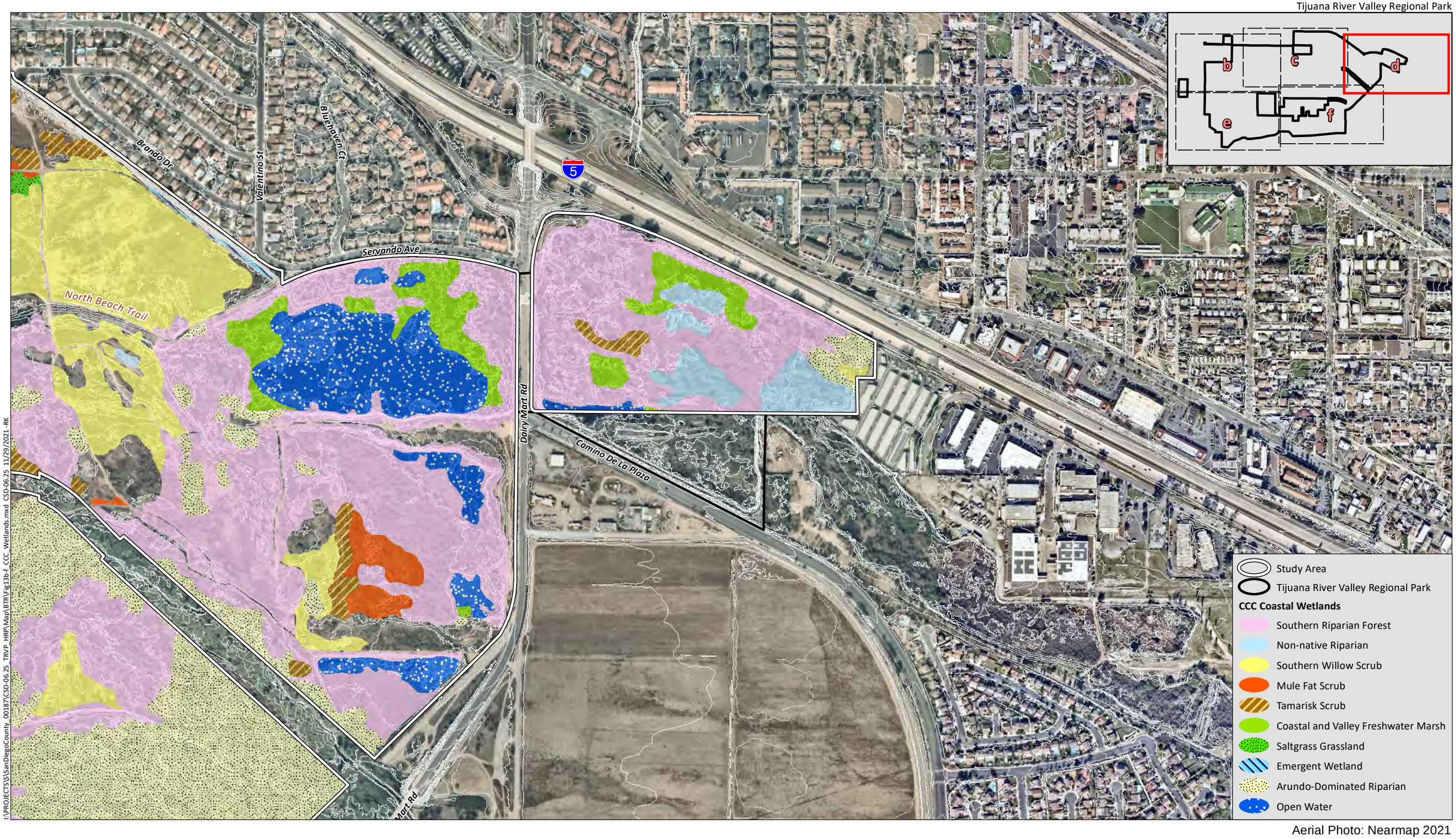
Aerial Photo: Nearmap 2021

0 500 Feet

CCC Coastal Wetlands Delineation

Figure 13c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

N

CCC Coastal Wetlands Delineation

Figure 13d

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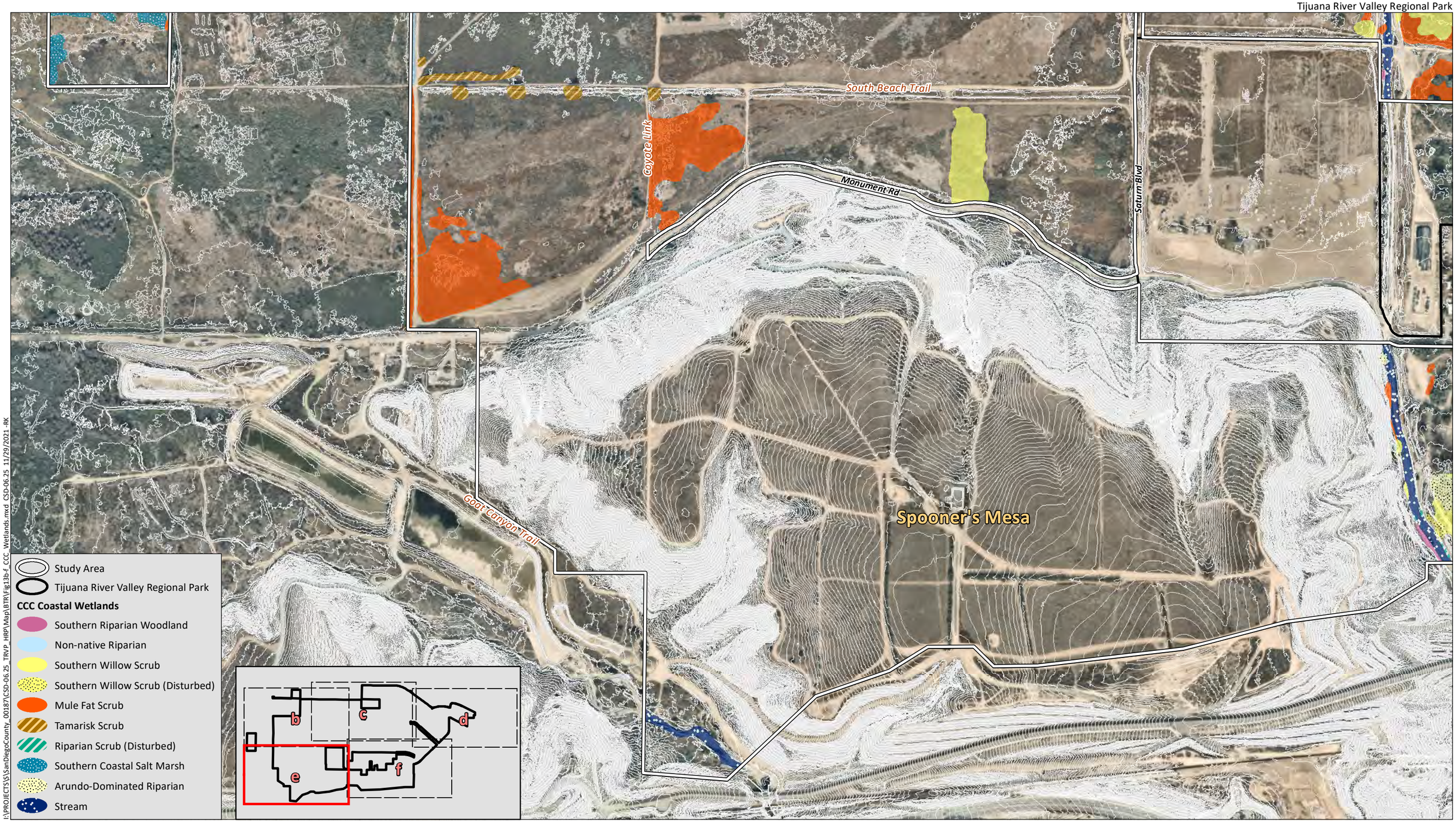

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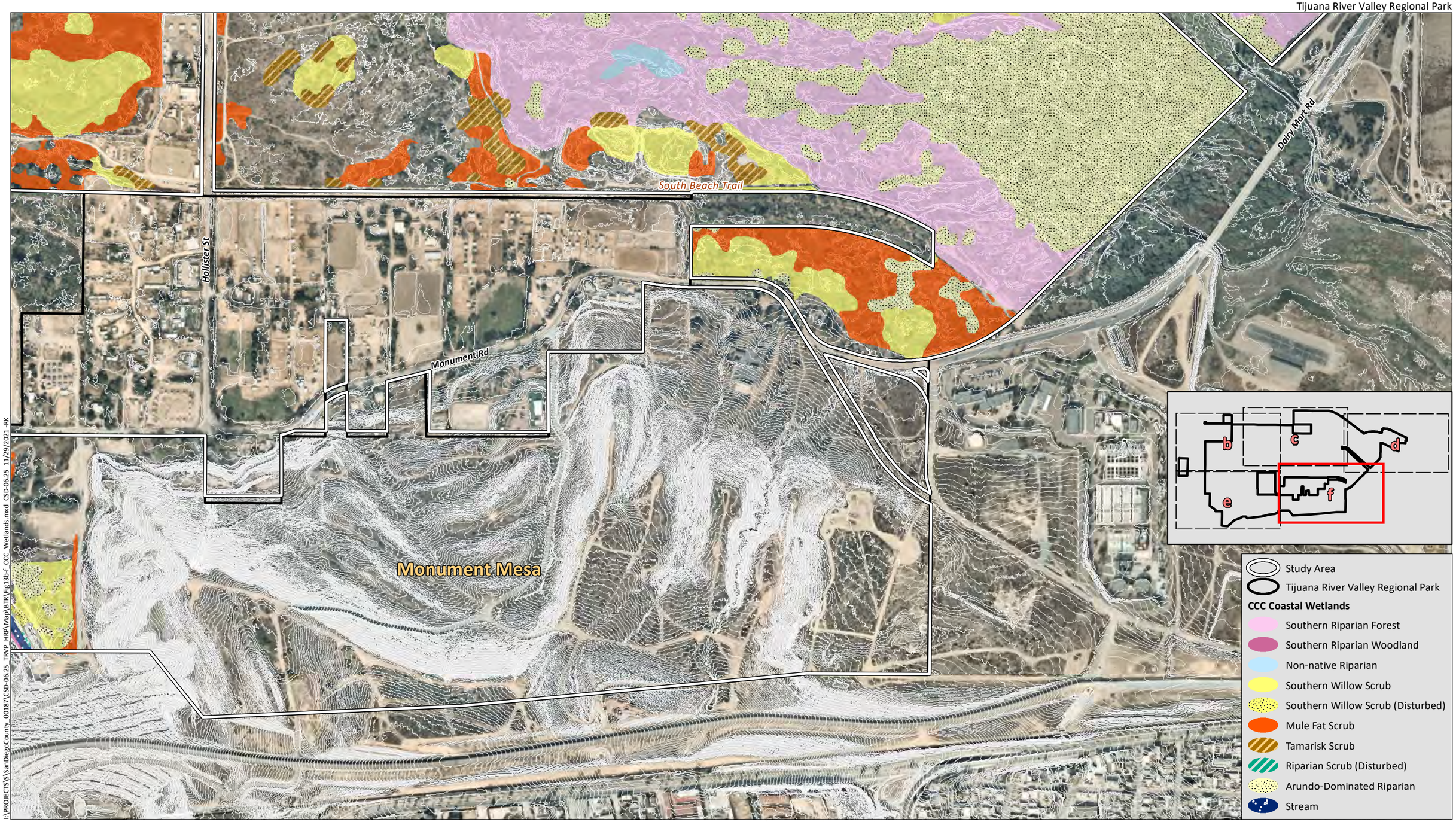
Aerial Photo: Nearmap 2021

0 500 Feet

CCC Coastal Wetlands Delineation

Figure 13e

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

0 500 Feet

CCC Coastal Wetlands Delineation

Figure 13f

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area immediately south of the eastern terminus of Sunset Avenue. Open fields and residential development occur to the north of Sunset Avenue. Agricultural fields consisting of row crops and open fields occur north of the study area. Residential development occurs to the north of the site abutting the Park's northeastern boundary. Row crops, open fields, and residential development occur to the east of the study area, with residential development and the I-5 and I-805 transportation corridor occurring further east. Agricultural and rural development occurs along Hollister Road and north of Monument Road with horse stables and community gardens located in the central portion of the study area, though outside Park boundaries, along Hollister Street. The U.S.-Mexico border fence occurs to the south of Spooner's Mesa and Monument Mesa. Conserved lands occur to the west, with Border Field State Park located immediately west of the study area, TNERR to the northwest, and the TSNWR further northwest (Figure 4).

Several medium- to small-sized mammal species were observed within the study area, including bobcat, coyote, and raccoon. Larger mammal species such as mule deer and mountain lion were not detected and are presumed to be absent from the study area. The study area most likely functions as a local movement corridor for wildlife species found in the region, particularly those that would utilize coastal, estuarine, and riparian habitats. The study area abuts conserved lands that occur to the west and north providing access to coastal and beach habitats. Residential development, transportation corridors, and the international fence to the north, east, and south of the study area act as barriers to wildlife movement into and out of the study area. These barriers impede wildlife movement from the study area to open space areas that occur further north and east of the study area.

Local roadways within the study area are generally two-lane streets with light vehicular usage associated with agricultural and recreation usage. Though these roads lack wildlife culverts or crossings, excluding bridges that cross over the river, they are not expected to impede wildlife movement within the study area. The roads are generally not heavily traveled, are relatively narrow, and often bisect open areas with undeveloped habitat present on either side of the road. These roads could potentially be a barrier to small mammal species through direct mortality and indirect barrier effects to species that are behaviorally sensitive to roads. Riparian habitat in the extreme northeastern portion of the study area abuts the I-5 sloping up toward the interstate. A wildlife culvert or crossing does not occur in the area, and residential development occurs immediately east of the I-5, which further prevents wildlife access and movement to and from the study area.

1.5 APPLICABLE REGULATIONS

Biological resources in the study area are subject to regulatory review by federal, state, and local agencies. Under CEQA, impacts associated with a proposed project or program are assessed with regard to significance criteria determined by the CEQA Lead Agency (in this case, the County) pursuant to CEQA Guidelines. Biological resource-related laws and regulations that apply include federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), CWA, CEQA, California Endangered Species Act (CESA), and CFG Code.

With respect to the proposed project, the USFWS will be responsible for reviewing issues related to migratory birds pursuant to the MBTA and project consistency with the adopted City MSCP Subarea Plan. The USACE and RWQCB will be responsible for reviewing issues related to Waters of the U.S./State pursuant to the CWA. The CDFW will be responsible for reviewing issues related to riparian habitat and streambeds pursuant to CFG Code, nesting birds and raptors pursuant to CFG Code, and project consistency with the adopted City MSCP Subarea Plan.

The County is the lead agency for the CEQA environmental review process, in accordance with state law and local ordinances. During CEQA review, the County is responsible for reviewing the project, per the Guidelines for Determining Significance for Biological Resources (County 2010b). The County will also be responsible for reviewing the project with respect to consistency with the adopted City MSCP Subarea Plan.

This report is intended to provide the federal and/or state Resource Agencies (USFWS and CDFW) with information relative to the project and the proposed mitigation relative to any project impacts. As the intent of this project is Restoration, any impacts incurred during project implementation are considered temporary and self-mitigation through completion of the project itself.

1.5.1 Federal Government

Federal Endangered Species Act

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the FESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is a term defined and used in the FESA, and refers to specific geographic areas that contain features considered necessary for endangered or threatened species to recover. Critical habitat designations can include areas that are not currently occupied by the species, as the ultimate goal is to restore healthy populations of listed species within their native habitats so that they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat. Only activities that involve a federal permit, license, or funding require consultation with the USFWS.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. In this case, take can be authorized via a letter of Biological Opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation (formal or informal) is required when there is a nexus between endangered species' use of a site and there is an associated federal action for a proposed impact (e.g., the USACE would initiate a Section 7 consultation with the USFWS for impacts proposed to USACE jurisdictional areas that may also affect listed species or their critical habitat). Section 10(a) allows issuance of permits for incidental take of endangered or threatened species with preparation of a Habitat Conservation Plan (HCP) when there is no federal nexus. The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized, and how steps taken would ensure the species' survival, must be submitted for issuance of Section 10(a) permits. The MSCP is a regional HCP that was developed pursuant to Section 10(a) of the ESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act has protections for all migratory bird species that are native to the United States or that have territories protected under the federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds, but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on the disturbance of active bird nests during the nesting season (generally February 1 to September 15; beginning January 15 for raptors).

Clean Water Act and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the CWA. The Rivers and Harbors Act deals primarily with discharges into tidally influenced navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of non-tidally influenced waters. The USACE regulates activities that may result in temporary or permanent dredge, fill, or discharge into aquatic resources that qualify as waters of the U.S. Regulated activities are authorized by the USACE pursuant to several permitting instruments available to them under the Rivers and Harbors Act and CWA, including (Standard) Individual Permits, Nationwide Permit verifications, and Regional General Permit (RGP) verifications. Depending on the scope and size of the activities within waters of the U.S., habitat restoration projects may be authorized by the USACE under either an Individual Permit, Nationwide Permit verification, or RGP verification. This section will be updated following the initial permitting consultation with USACE.

Coastal Zone Management Act

The federal Coastal Zone Management Act of 1972 (CZMA) is administered by the National Oceanic and Atmospheric Administration and provides for the management of the nation's coastal resources. Federal consistency with the CZMA is required when federal agency activities have reasonably foreseeable effects on any land or water use or natural resource of the Coastal Zone. Federal projects must be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program. California's coastal management program is the California Coastal Management Program (CCMP), administered and enforced by the CCC. The enforceable policies of the CCMP are contained in Chapter 3 of the CCA.

1.5.2 State of California

California Environmental Quality Act

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

California Endangered Species Act

The CESA established that it is state policy to conserve, protect, restore, and enhance state endangered species and their habitats. Under state law, plant and animal species may be formally designated rare,

threatened, or endangered by official listing by the CFG Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For state-only listed species, Section 2081 of the CFG Code authorizes the CDFW to issue an Incidental Take Permit for state listed threatened and endangered species, if specific criteria are met. The MSCP is a regional Natural Communities Conservation Plan (NCCP) that was granted take coverage under Section 2081 of the CESA for specific species.

Native Plant Protection Act

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

California Fish and Game Code

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

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

Porter-Cologne Water Quality Control Act

This statute regulates surface waters and wetlands within the State and is governed by the RWQCB. Features that support aquatic resources (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology), but are isolated (i.e., lack downstream connectivity to waters of the U.S.) could be subject to regulation pursuant to the State Porter-Cologne Water Quality Control Act (Porter-Cologne). Impacts to isolated wetlands and/or waters of the State require a Waste Discharge Requirement Permit from the RWQCB.

California Coastal Act

The CCC, through provisions of the CCA, is authorized to issue a Coastal Development Permit (CDP) for projects located within the Coastal Zone. Projects proposed within the Coastal Zone may require the issuance of a CDP by the CCC depending on the specifics of the project proposal and location of the project with respect to coastal resources and any certified LCP boundaries.

Further, Section 30240 of the CCA includes policy for the protection of Environmentally Sensitive Habitat Areas (ESHAs). Section 30107.5 defines ESHA or Environmentally Sensitive Areas (ESAs) as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments".

Vegetation communities that are isolated, small in size, subject to existing disturbances, do not support CRPR 1 or 2 plant species, do not support sensitive animal species, and/or have greater than 50 percent of the species composition made up of non-native plant species, may not meet the definition of ESHA if it is determined that such areas are not rare or especially valuable and do not have a special nature or role in the ecosystem that could be easily disturbed or degraded by human activities and developments.

The study area supports lands within the Coastal Zone that may be considered ESHA by the CCC; however, some areas of sensitive vegetation communities may not meet the definition of ESHA based on a variety of factors, including small size, lack of connectivity to other habitats, lack of sensitive species, high percentage of invasive non-native plant species, existing disturbances, or combination thereof. ESHA on-site is generally CCC wetlands, Tier I upland habitat, and listed and sensitive species habitat.

The study area is within the Coastal Zone, with portions of the study area within the Coastal Zone Appealable Area and portions within the Deferred Certification Area. Appealable area means the area, as defined by California Public Resources Code Section 30603, within the Coastal Zone that constitutes the appeal jurisdiction of the CCC. This area includes lands between the sea and the first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; or within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff. Development within this zone is regulated under the City's approved LCP, although the CCC retains appeal authority. Developments in deferred certification areas designated by the certified LCP require a permit or exemption issued by the CCC in accordance with the procedure as specified by the Coastal Act.

Natural Communities Conservation Planning Act

The Natural Communities Conservation Planning (NCCP) program is a cooperative effort to protect habitats and species. It began under the state's NCCP Act of 1991, legislation broader in its orientation and objectives than the CESA or FESA. These laws are designed to identify and protect individual species that have already declined significantly in number. The NCCP Act of 1991 and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003.

The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by a species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

This voluntary program allows the state to enter into planning agreements with landowners, local governments, and other stakeholders to prepare plans that identify the most important areas for a threatened or endangered species, and the areas that may be less important. These NCCP plans may become the basis for a state permit to take threatened and endangered species in exchange for conserving their habitat. The CDFW and USFWS worked to combine the NCCP program with the federal HCP process to provide take permits for state and federal listed species. Under the NCCP, local governments, such as the County, can take the lead in developing these NCCP plans and become the recipients of state and federal take permits.

1.5.3 Local

1.5.3.1 County of San Diego

The County regulates natural resources (among other resources) via the MSCP BMO, and Resource Protection Ordinance (RPO), as discussed below.

Multiple Species Conservation Program

The California NCCP Act of 1991 (Section 2835) allows the CDFW to authorize take of species covered by plans in agreement with NCCP guidelines. A Natural Communities Conservation Program initiated by the State of California focuses on conserving coastal sage scrub, and in concert with the USFWS and the FESA, is intended to avoid the need for future federal and state listing of coastal sage scrub-dependent species.

The San Diego Final MSCP Plan for the southwestern portion of San Diego County was approved in August 1998 and covers 85 species (County 1998). The City of San Diego, portions of the unincorporated County, and 10 additional city jurisdictions make up the San Diego MSCP Plan area. It is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species by identifying key areas for preservation as open space in order to link core biological areas into a regional wildlife preserve.

Biological Mitigation Ordinance

The BMO is the ordinance by which the County implements the MSCP at the project level in order to attain the goals set forth in the County's MSCP Subarea Plan. The BMO contains design criteria and mitigation standards that, when applied to projects requiring discretionary permits, protect habitats and species and ensure that a project does not preclude the viability of the MSCP Preserve System. In this way, the BMO promotes the preservation of lands that contribute to contiguous habitat core areas or linkages.

While DPR is exempt from the BMO, pursuant to Section 86.503(a)(8) of the BMO, the proposed project would additionally be exempt from the BMO:

Section 86.503(a)(8): A public facility or public project, determined to be essential by the County, including but not limited to a County Park or County recreational facility, provided that the County decision making body considering an application for such a project makes the following findings:

(a) The facility or project is consistent with the County General Plan, the MSCP Plan, and Subarea Plan, as approved by the Board of Supervisors;

(b) All feasible mitigation measures have been incorporated into the facility or project, and there are no feasible, less environmentally damaging locations, alignments, or non-structural alternatives that would meet project objectives;

(c) Where the facility or project encroaches into a wetland or floodplain, mitigation measures are required that result in a net gain in wetland and/or riparian habitat;

(d) Where the facility or project encroaches into steep slopes, native vegetation will be used to revegetate and landscape cut and fill areas;

(e) No mature riparian woodland is destroyed or reduced in size due to otherwise allowed encroachments; and

(f) All Critical Populations of Sensitive Plant Species Within the MSCP Subarea, (Attachment C of Document No. 0769999 on file with the Clerk of the Board); Rare, Narrow Endemic Animal Species Within the MSCP Subarea, (Attachment D of Document No. 0769999 on file with the Clerk of the Board); Narrow, Endemic Plant Species Within the MSCP subarea, (Attachment E of Document No. 0769999 on file with the Clerk of the Board); and San Diego County Sensitive Plant Species, as defined herein will be avoided as required by, and consistent with, the terms of the Subarea Plan

Resource Protection Ordinance

The County regulates sensitive biological resources (among other resources) via the RPO (County 2011). The RPO covers wetlands, wetland buffers, special status plant and animal species, sensitive vegetation communities/habitat types, and habitats containing special status animals or plants. Sensitive habitat lands are identified by the RPO as lands that "support unique vegetation communities, or habitats of rare or endangered species or sub-species of animals or plants as defined by Section 15380 of the CEQA Guidelines." It is the intent of the RPO to increase the preservation and protection of the County's unique topography, natural beauty, biological diversity, and natural and cultural resources. Pursuant to Section 86.603(a) of the RPO, where any portion of a parcel contains environmentally sensitive lands, this section would be applicable to the portions of the parcel containing the sensitive lands, and to the remainder of the parcel only to the extent necessary to achieve the purpose and intent of the RPO.

Pursuant to Section 86.604(a), the proposed project would be consistent with the RPO:

SEC. 86.604. PERMITTED USES AND DEVELOPMENT CRITERIA. Within the following categories of sensitive lands, only the following uses shall be permitted and the following development standards and criteria shall be met provided, however, that where the extent of environmentally sensitive lands on a particular legal lot is such that no reasonable economic use of such lot would be permitted by these regulations, then an encroachment into such environmentally sensitive lands to the minimum extent necessary to provide for such reasonable use may be allowed:

(a) Wetlands. The following permitted uses shall be allowed:

(3) Removal of diseased or invasive exotic plant species as identified and quantified in writing by a qualified biologist and approved in writing by the Director of Planning and Development Services, and removal of dead or detached plant material.

(4) Wetland creation and habitat restoration, revegetation, and management projects where the primary goal is to restore or enhance biological values of the habitat, and the activities are carried out pursuant to a written management/enhancement plan approved by the Director of Planning and Development Services.

Pursuant to Section 86.605(c) of the RPO, the proposed project would be exempt from RPO:

SEC. 86.605. EXEMPTIONS. This Chapter shall not apply to the following:

(c) Any essential public facility or project, or recreational facility which includes public use when the authority considering an application listed at Section 86.603(a) above makes the following findings:

(1) The facility or project is consistent with adopted community or subregional plans;

(2) All possible mitigation measures have been incorporated into the facility or project, and there are no feasible less environmentally damaging location, alignment, or non-structural alternatives that would meet project objectives;

(3) Where the facility or project encroaches into a wetland or floodplain, mitigation measures are required that result in any net gain in the wetland and/or riparian habitat;

(4) Where the facility or project encroaches into steep slopes, native vegetation will be used to revegetate and landscape cut and fill areas; and

(5) No mature riparian woodland is destroyed or reduced in size due to otherwise allowed encroachments.

The project is a habitat restoration project within a recreational facility that includes public use and meets the above findings for exemption from RPO requirements.

1.5.3.2 City of San Diego

Multiple Species Conservation Program Subarea Plan

The City's MSCP Subarea Plan was prepared to protect sensitive species and habitats within San Diego County and to meet the requirements of the California Natural Communities Conservation Planning Act of 1992. The MSCP Subarea Plan describes the implementation of the City's program, including how to preserve areas (i.e., MHPA), including 85 covered species, will be conserved and how the final MSCP Preserve will be assembled within the MHPA. Adopted by the City in March 1997, the Subarea Plan provides the framework for the MSCP Implementing Agreement. The Implementing Agreement is the contract between the City, USFWS, and CDFW to ensure implementation of the Subarea Plan and allow the City to issue "take" permits under the FESA and CESA to address impacts at the local level.

Environmentally Sensitive Lands

The City of San Diego Land Development Code includes regulation of Environmentally Sensitive Lands (ESL; Chapter 14, Division 1, Section 143.0101 et seq.). The ESL ordinance defines sensitive biological resources as those lands included in the MHPA as identified in the City of San Diego MSCP Subarea plan, and other lands outside of the MHPA that contain wetlands, vegetation communities classified as Tier I, II, IIIA or IIIB, habitat for rare, endangered or threatened species, or narrow endemic species.

Wetlands are differentiated in the ESL regulation from uplands and further differentiated between naturally occurring wetland areas and those created by humans. According to the City Municipal Code, Chapter 11, Section 113.0103:

"Wetlands are defined as areas which are characterized by any of the following conditions:

(1) All areas persistently or periodically containing naturally occurring wetland vegetation communities characteristically dominated by hydrophytic vegetation, including but not limited to salt marsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodlands, riparian scrub, and vernal pools;

(2) Areas that have hydric soils or wetland hydrology and lack naturally occurring wetland vegetation communities because human activities have removed the historic wetland vegetation or catastrophic or recurring natural events or processes have acted to preclude the establishment of wetland vegetation as in the case of salt pannes and mudflats;

(3) Areas lacking wetland vegetation communities, hydric soils, and wetland hydrology due to non-permitted filling of previously existing wetlands;

(4) Areas mapped as wetlands on Map C-713 as shown in Chapter 13, Article 2, Division 6 (Sensitive Coastal Overlay Zone)."

It is intended for this definition to differentiate for the purposes of delineating wetlands, between naturally occurring wetlands and wetlands intentionally created by human actions, from areas with wetlands characteristics unintentionally resulting from human activities in historically non-wetland areas. With the exception of wetlands created for the purpose of providing wetland habitat or resulting from human actions to create open waters or from the alteration of natural stream courses, areas demonstrating wetland characteristics, which are artificially created, are not considered wetlands by this definition. Taking into account regional precipitation cycles, all adopted scientific, regulator, and technological information available from the State and Federal resource agencies shall be used for guidance on the identification of hydrophytic vegetation, hydric soils and wetland hydrology."

The City's Land Development Code Biology Guidelines (City 2018) describe wetlands as:

"Wetlands support many of the species included in the MSCP (i.e., Covered Species). The definition of wetlands in ESL is intended to differentiate uplands (terrestrial areas) from wetlands and, furthermore, to differentiate naturally occurring wetland areas from those created by human activities. Naturally occurring wetland vegetation communities are typically characteristic of wetland areas. Examples of wetland vegetation communities include saltmarsh, brackish marsh, freshwater marsh, riparian forest, oak riparian forest, riparian woodland, riparian scrub, and vernal pools. Common to all wetland

vegetation communities is the predominance of hydrophytic plant species (plants adapted for life in anaerobic soils).

Seasonal drainage patterns that are sufficient enough to etch the landscape (i.e., ephemeral/intermittent drainages) may not be sufficient enough to support wetland dependent vegetation. These types of drainages would not satisfy the City's wetland definition unless wetland dependent vegetation is either present in the drainage or lacking due to past human activities. Seasonal drainage patterns may constitute 'waters of the U.S.', which are regulated by the USACE and/or the CDFW."

Local Coastal Program and Land Use Plan

The CCC and the local governments along the coast share responsibility for managing the State's coastal resources mandated by the CCA. Through coordination with the CCC, coastal cities and counties develop Local Coastal Program (LCPs). These programs are the primary means for carrying out the policies of the CCA at the local level. Following approval by the CCC, the LCP is certified, and the local governments implement the programs. LCPs include two main components, a Land Use Plan and an Implementation Plan. The City of San Diego's LCP Amendment #2-90 (certified in September 1990) included all of the Tijuana River Valley rezoning needed to make the zoning consistent with the certified Land Use Plan. Once these rezoning were certified by the CCC, CDP authority was delegated to the City of San Diego.

2.0 PROJECT EFFECTS

Direct impacts from the proposed project consist entirely of temporary impacts resulting from temporary habitat removal associated with habitat restoration, including impacts from grading, grubbing, clearing, and treatment/removal of invasive non-native plants. Direct impacts were quantified by overlaying the limits of project-related impacts on the biological resources map of the project area. Indirect impacts are actions that are not direct removal of habitat but affect the surrounding biological resources either as a secondary effect of the direct impacts (e.g., construction noise, runoff, nighttime lighting, fugitive dust, etc.) or as the cause of degradation of a biological resource over time (e.g., edge effects and adjacency issues). Cumulative impacts are those caused by numerous projects in the region and their additive effect of multiple direct and indirect impacts to biological resources over time. It should be noted that impacts would occur over time in accordance with project Treatment Area/phasing, rather than occurring all at once. Indirect impacts would also occur over the life of the proposed project until the restoration has been completed within all Treatment Areas, anticipated to be completed within 10 years following commencement of restoration activities.

Following County Guidelines, 587.93 acres of disturbed and invasive non-native plant vegetation communities/habitats and 7.21 acres of invasive species point locations occurring within native habitat out of the approximately 1,740.75 project area would be considered impacted as part of the project, comprising temporary impacts totaling 595.14 acres (Figures 14a-14g, *Vegetation and Sensitive Resources/Impacts*). Permanent impacts are not anticipated to occur. Temporary impacts to sensitive habitats at a maximum would total 216.94 acres. Temporary impacts comprise treatment and removal of invasive non-native vegetation, which would be followed by in-place restoration of native habitats. Design of the proposed restoration reduces direct impacts to sensitive habitat, riparian areas, and jurisdictional resources to the greatest extent feasible. Following completion of the restoration effort

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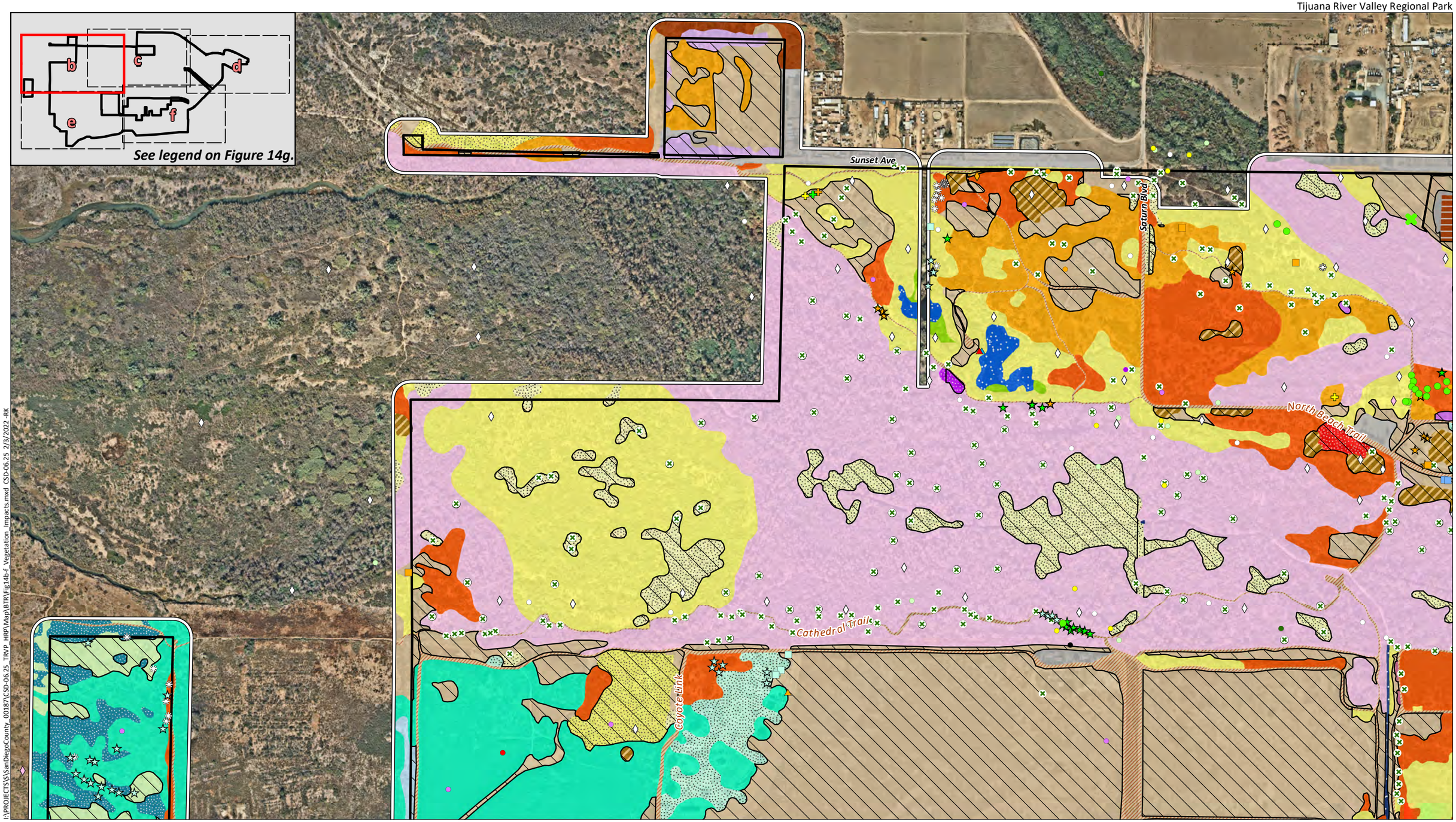
See legend on Figure 14g.

Aerial Photo: Nearmap (2021)

0 1,200 Feet

Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14a



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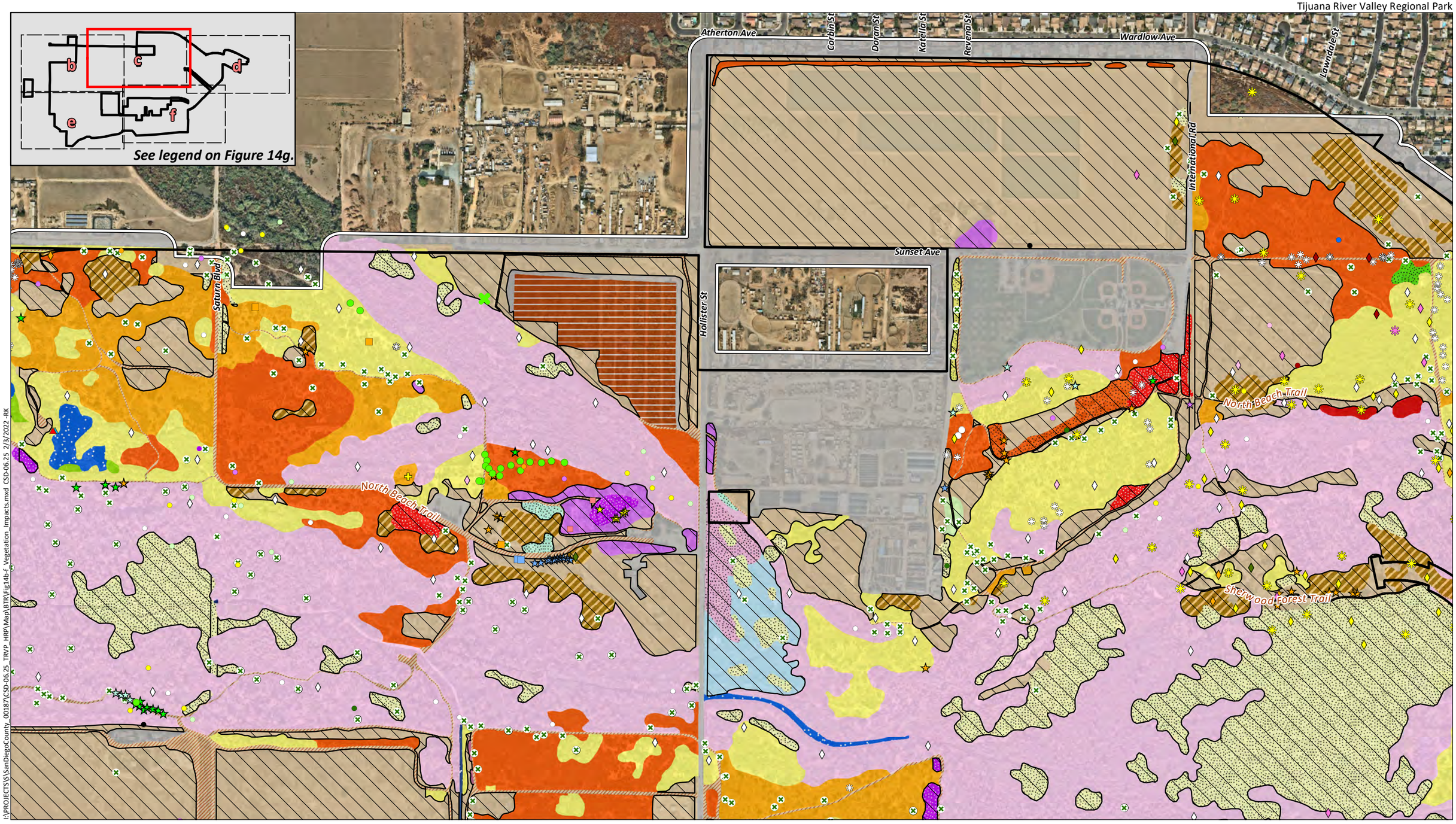
Aerial Photo: Nearmap 2021

0 500 Feet

Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14b



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Aerial Photo: Nearmap 2021

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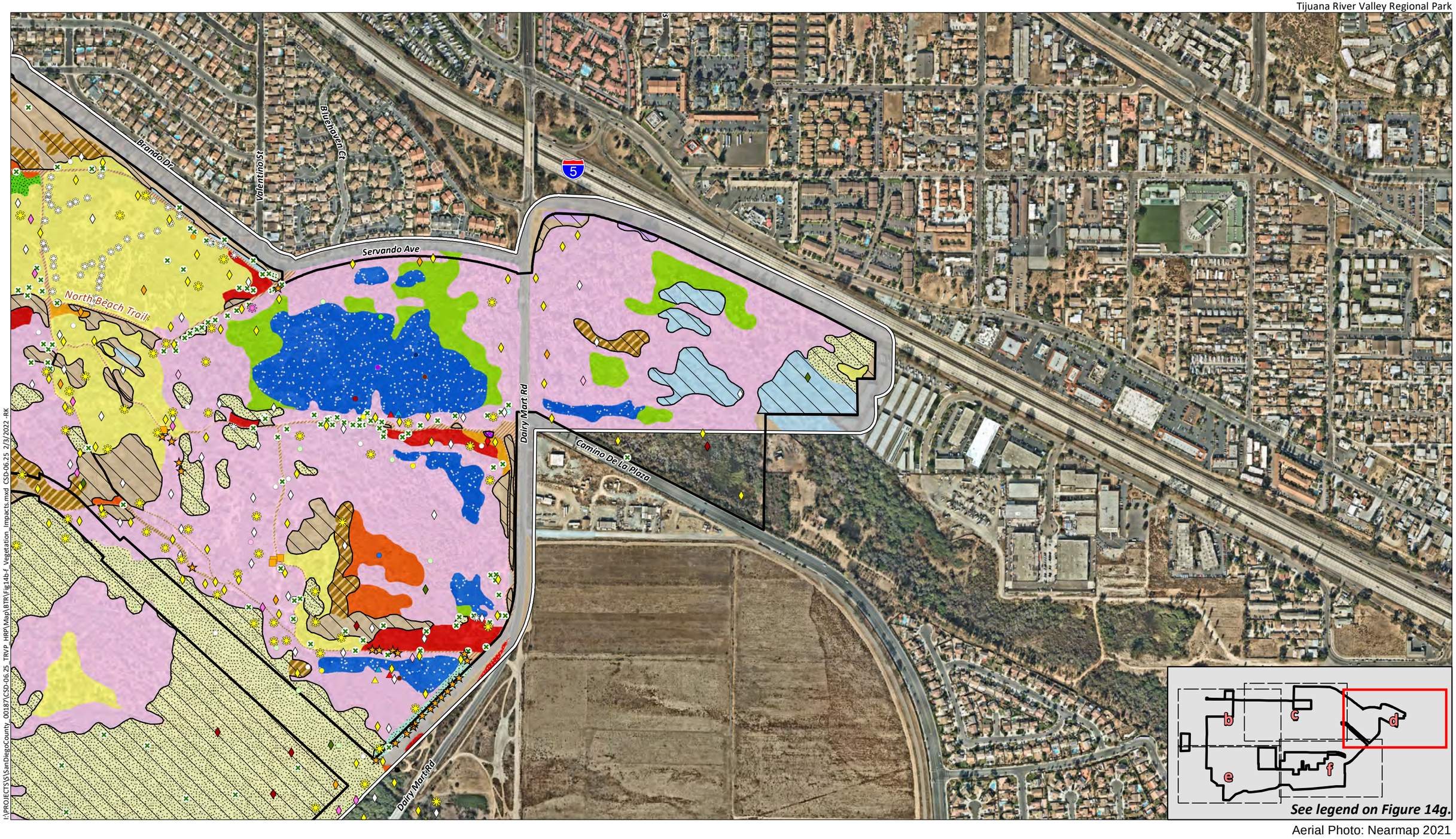
Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14c



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Aerial Photo: Nearmap 2021

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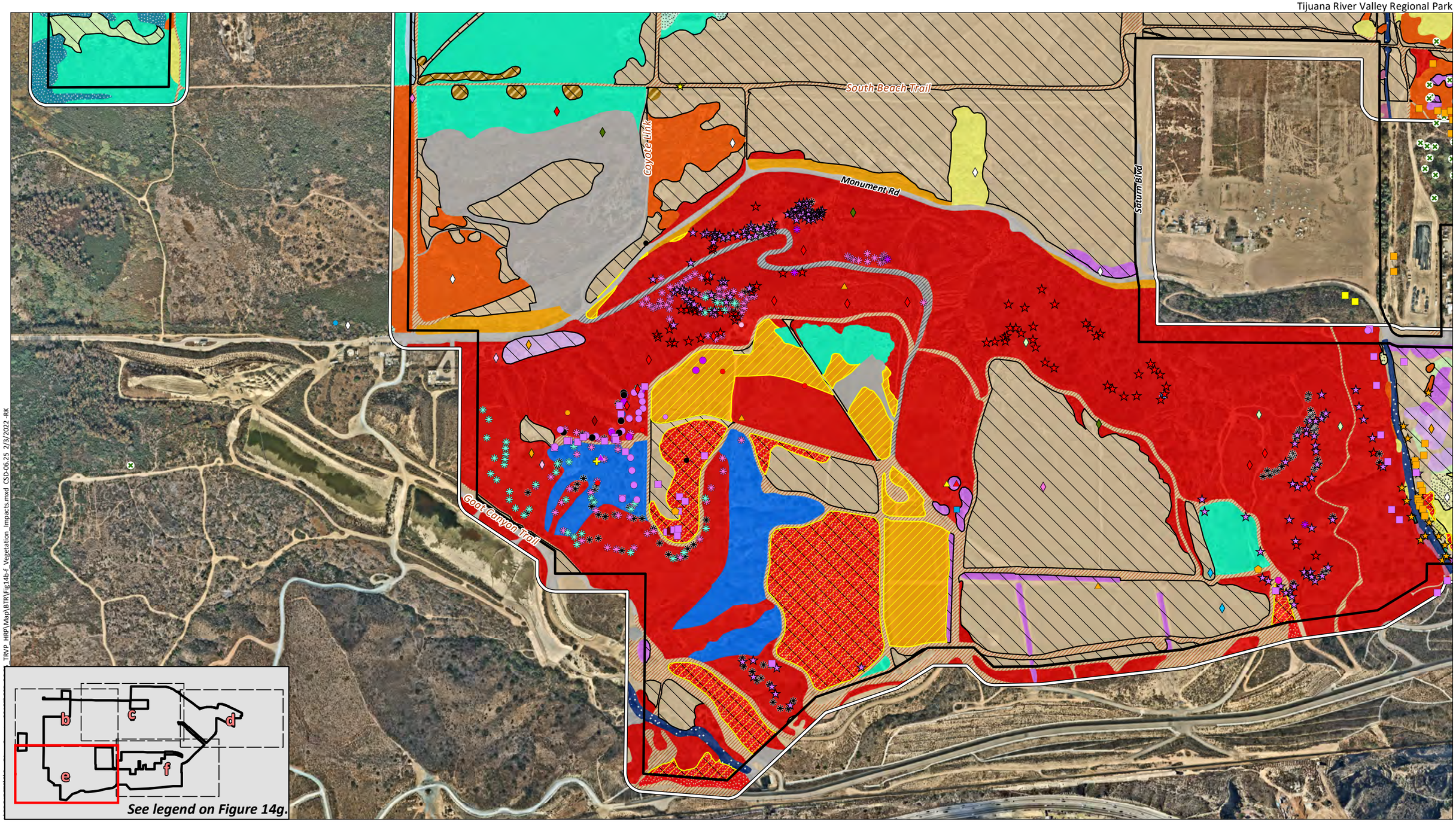
Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14d



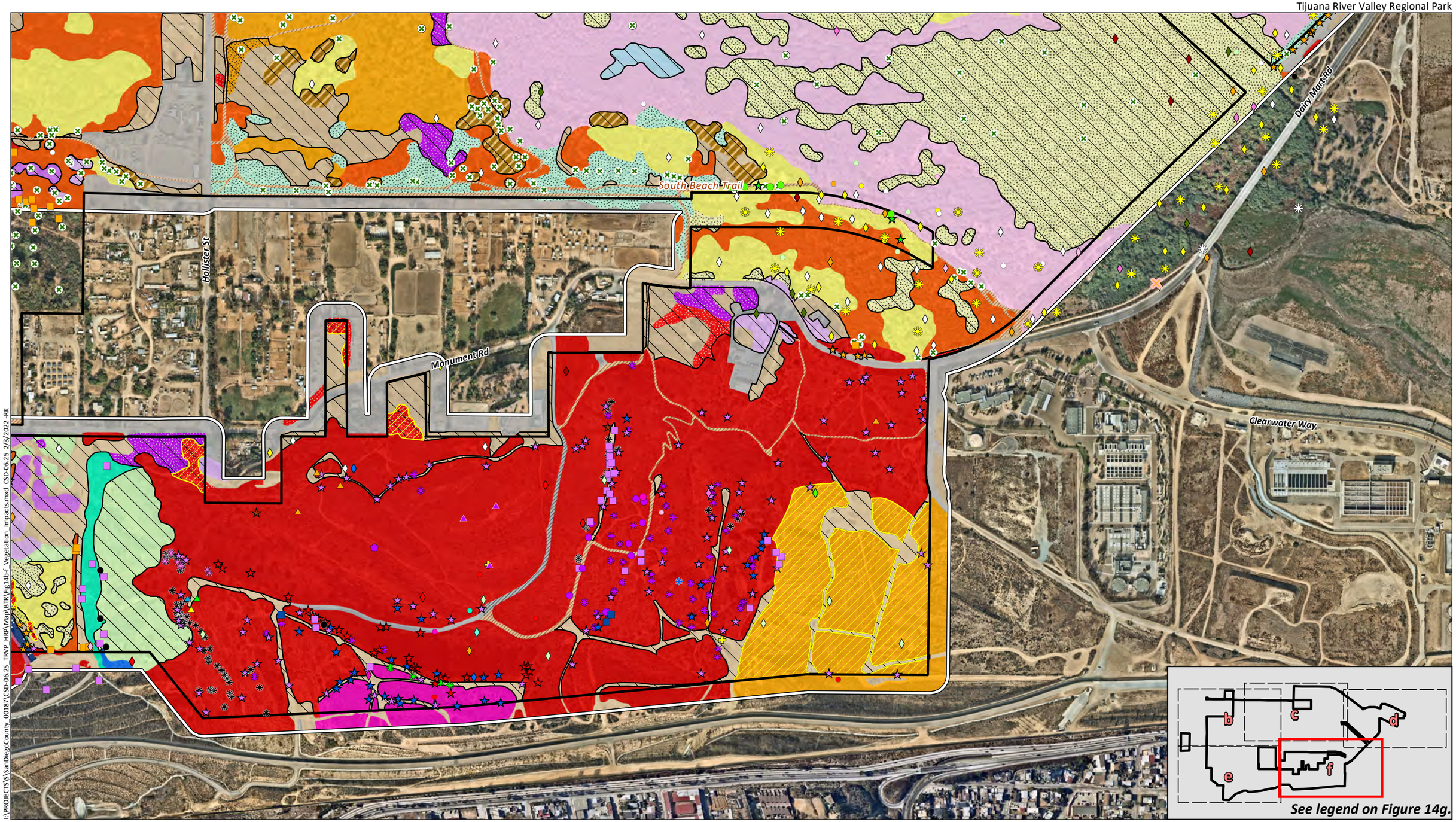
Aerial Photo: Nearmap 2021

0 500 Feet

Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14e

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

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0 500 Feet

Vegetation Communities/Habitats (Holland/Oberbauer) Restoration Work Area/Impacts

Figure 14f

- Tijuana River Valley Regional Park
- Study Area
- Impact Area
- Quino Checkerspot Butterfly Avoidance Area
- Invasive Plant Point Location*

Holland/Oberbauer Classification

Riparian Forests and Woodlands

- (61300) Southern Riparian Forest
- (61300) Southern Riparian Forest (Disturbed)
- (62500) Southern Riparian Woodland
- (65000) Non-native Riparian

Riparian Shrublands

- (63320) Southern Willow Scrub
- (63320) Southern Willow Scrub (Disturbed)
- (63310) Mule Fat Scrub
- (63310) Mule Fat Scrub (Disturbed)
- (63810) Tamarisk Scrub
- (63000) Riparian Scrub (Disturbed)

Hydrophytic Herbaceous Vegetation

- (52410) Coastal and Valley Freshwater Marsh
- (52120) Southern Coastal Salt Marsh
- (42130) Saltgrass Grassland
- (52440) Emergent Wetland
- (65110) Arundo-Dominated Riparian

Upland Forests and Woodlands

- (79000) Non-native Woodland
- (79100) Eucalyptus Woodland

Sclerophyllous, Evergreen Shrubs

- (37C30) Southern Maritime Chaparral

Soft-Leaved, Drought-Deciduous Shrublands

- (36000) Chenopod Scrub
- (32000) Coastal Scrub
- (32400) Maritime Succulent Scrub
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated
- (32530) Diegan Coastal Sage Scrub: Baccharis-dominated (Disturbed)
- (32500) Diegan Coastal Sage Scrub
- (32500) Diegan Coastal Sage Scrub (Disturbed)

Upland Herbaceous Vegetation

- (11300) Disturbed Habitat
- (42200) Non-native Grassland
- (N/A) Non-native Vegetation

General Agriculture

- (18000) Agriculture
- (18320) Row Crops

Unvegetated

- (11300) Disturbed Habitat - Trail
- (12000) Developed
- (12000) Developed - Trail
- (64000) Unvegetated Habitat (Streambed)
- (64100)Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Special Status Animal Species (2021)

Reptiles

- Belding's Orange-throated Whiptail
- Coast Horned Lizard

Birds

- California Horned Lark
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Least Bell's Vireo
- Merlin
- Northern Cardinal
- Northern Harrier
- Northern Harrier Nest
- Peregrine Falcon
- Red-shouldered Hawk
- Sharp-shinned Hawk
- Southern California Rufous-crowned Sparrow
- Turkey Vulture
- White-faced Ibis
- White-tailed Kite
- Yellow-breasted Chat
- Yellow Warbler

Mammal

- San Diego Black-tailed Jackrabbit
- Wood Rat Nest

Special Status Animal Species (2018)

Amphibians

- Western Spadefoot

Invertebrates

- Quino Checkerspot Butterfly
- Monarch

Reptiles

- Baja California Coachwhip
- Belding's Orange-throated Whiptail
- Blainville's Horned Lizard

Birds

- American White Pelican
- Barn Owl
- Coastal California Gnatcatcher
- Cooper's Hawk
- Costa's Hummingbird
- Double-crested Cormorant
- Gadwall
- Great Blue Heron
- Green Heron
- California Horned Lark
- Least Bell's Vireo
- Northern Harrier
- Red-shouldered Hawk
- Sharp-shined Hawk
- Turkey Vulture
- Western Bluebird
- White-tailed Kite
- Yellow Warbler
- Yellow-breasted Chat

Mammals

- Pocketed Free-tailed Bat
- San Diego Black-tailed Jackrabbit
- San Diego Desert Woodrat
- Western Mastiff Bat
- Western Red Bat
- Yuma Myotis

Rare Plant Species (2021)

- Ashy Spike-moss
- Cholla
- Cliff Spurge
- San Diego Barrel Cactus
- San Diego Bur-sage
- San Diego Marsh-elder
- San Diego Sagewort
- San Diego Vigueria
- Sea Dahlia
- Singlewhorl Burrobrush
- Southwestern Spiny Rush
- Torrey Pine
- Wart-Stemmed Ceanothus
- Western Dichondra

Rare Plant Species (2018)

- Ashy Spike-Moss
- Baja California Birdbush
- Cliff Spurge
- Golden-Spine Cactus
- Nuttall's Scrub Oak
- San Diego Barrel Cactus
- San Diego Marsh Elder
- San Diego Sagewort
- San Diego Viguiera
- Sea Dahlia
- Singlewhorl Burrobrush
- Southern California Black Walnut
- Southwestern Spiny Rush
- Torrey Pine
- Wart-Stemmed Ceanothus
- Western Dichondra

Legend

Figure 14g

addressed in this plan, long-term maintenance and management of the restored areas will be executed by DPR.

2.1 SPECIAL STATUS SPECIES

2.1.1 Special Status Plant Species

Seventeen special status plant species were observed within the study area during the 2018 and 2021 surveys. The project would potentially result in impacts to four special status plant species: San Diego marsh elder, San Diego sagewort, southwestern spiny rush, and singlewhorl burrobrush. Generally, impacts to plant species with a CRPR of 1 or 2 are considered potentially significant, whereas CRPR 3 and 4 species are relatively widespread and impacts to such species would not substantially reduce their populations in the region and are not typically significant.

San Diego marsh-elder

San Diego marsh-elder is a CRPR 2B.2 species, and County List B. This species was mapped in riparian areas in the northern portion of the study area in Treatment Areas 2-4, 8-9, and 11 (Figures 8a-8d). A total of 98 individuals were mapped within the study area. While proposed project restoration activities would avoid and minimize potential impacts to San Diego marsh-elder that occur within disturbed habitat areas, the following individuals occur within or directly adjacent to disturbed habitat areas targeted for project restoration: two individuals within Treatment Area 2 and four individuals within Treatment Area 9.

San Diego sagewort

San Diego sagewort is a CRPR 4.2 species, and County List D. This species was mapped at four locations in and near riparian areas within the northwestern portion of the study area in Treatment Areas 4 and 7-9 (Figures 8a-8c and 8f). A total of 1,378 individuals were mapped within the study area. While proposed project restoration activities would avoid and minimize potential impacts to San Diego sagewort that occur within disturbed habitat areas, one individual occurs within a disturbed habitat area within Treatment Area 9.

Southwestern spiny rush

Southwestern spiny rush is a CRPR 4.2 species, and County List D. This species was mapped at five locations in the northern portion of the study area in Treatment Areas 7 and 11 (Figures 8a-8c). A total of 45 individuals were observed. While proposed project restoration activities would avoid and minimize potential impacts to southwestern spiny rush that occur in disturbed areas, the following individuals occur within or directly adjacent to disturbed habitat areas targeted for project restoration: eight individuals within Treatment Area 11.

Singlewhorl burrobrush

Singlewhorl burrobrush is a CRPR 2B.2 species and is not on the County's list of sensitive plants. Patches of singlewhorl burrobrush are mapped in the northern and southeastern portions of the study area in Treatment Areas 2, 5-9, and 12 (Figures 8a-8f). A total of 360 individuals were mapped within the study area. While proposed project restoration activities would avoid and minimize potential impacts to

singlewhorl burrobrush that occur in disturbed areas, the following individuals occur within or directly adjacent to disturbed habitat areas targeted for project restoration: one individual within Treatment Area 2, two individuals within Treatment Area 4, one individual within Treatment Area 5, 15 individuals within Treatment Area 7, two individuals within Treatment Area 8, 13 individuals within Treatment Area 9, and 34 individuals within Treatment Area 12.

Remaining Special Status Plant Species

Eleven special status plant species (Baja California birdbush [State Endangered, CRPR 2B.1, and County List B], Nuttall's scrub oak [CRPR 1B.1 and County List A], San Diego bur-sage [CRPR 2B.1 and County List B], San Diego barrel cactus [CRPR 2B.1, County List B], golden-spined cereus [CRPR 2B.2, and County List B], wart-stemmed ceanothus [CRPR 2B.2, County List B], cliff spurge [CRPR 2B.2 and County List B], ashy spike-moss [CRPR 4.1 species and County List D], western dichondra [CRPR 4.2 and County List D], Southern California Black walnut [CRPR 4.2 species, and County List D], and San Diego County viguiera [CRPR 4.3 species, and County List D] occur outside of proposed restoration areas where no impacts are proposed, and thus, project impacts on these species are unlikely. Additionally, while Torrey pine occurs as planted individuals within the anticipated project area in Treatment Areas 7 and 9, all individuals observed on-site would remain undisturbed and will not be impacted.

2.1.2 Special Status Animal Species

A total of 38 special status animal species were observed or detected on or within the study area, or observed flying over the study area, during biological surveys conducted by HELIX in 2018 and 2021, including 14 County Group 1 species, 20 County Group 2 species, one species that is not on the County Group lists, but is a state Species of Special Concern, one species that is not on the County Group lists, but is a state Watch List species, and two species that are not on County Group lists, but are a federal Bird of Conservation Concern. Most project effects on wildlife species would be through the temporary reduction in suitable habitat used by that species, but because of the mobility of wildlife and the amount of habitat available in the area, most impacts would not be significant. The effects of the project on these species are discussed below.

Least Bell's Vireo

Least Bell's vireo is a federally and state listed endangered and County Group 1 species. The least Bell's vireo was detected within the study area during the spring and summer months during multiple survey efforts in 2018 and 2021 in multiple locations. During the 2021 focused species surveys for the Tijuana River Valley Invasive Species Removal and Restoration project, least bell's vireo was detected in the study area in 138 locations representing five LBVI pairs and 133 LBVI males. The pair located east of Hollister Street was confirmed to be a breeding pair as both adults were observed foraging with and feeding at least two fledglings during one of the survey visits. During the 2021 focused species surveys for the Smuggler's Gulch Improvements project, least Bell's vireo was detected in the study area in nine locations representing nine LBVI males. Least Bell's vireo was observed in the vicinities of Treatment Areas 1-12.

In total, the project would temporarily impact a total of 176.52 acres of suitable habitat for this species (southern riparian forest (including disturbed), non-native riparian, southern willow scrub (including disturbed), mule fat scrub (including disturbed), tamarisk scrub, disturbed riparian scrub, and arundo-dominated riparian; Table 7, *Impacts to Least Bell's Vireo Habitat*). The project would also temporarily

impact 221.42 acres of land within USFWS critical habitat for this species, including 176.52 acres of suitable habitat. Additionally, noise related to restoration activities adjacent to active nests could result in adverse indirect impacts. Following treatment and removal of invasive non-native plant species, the project would restore additional, higher quality habitat for the species through the revegetation and restoration of approximately 176.52 acres of native wetland/riparian habitat along the Tijuana River corridor.

Table 7
PROJECT TEMPORARY IMPACTS TO LEAST BELL'S VIREO HABITAT

Vegetation Community[1,2]	Phase/Treatment Area[3]												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
Sensitive Vegetation Communities													
Tier I													
Southern riparian forest (61300)	--	0.86	--	0.32	0.04	0.03	2.35	0.38	0.26	--	0.02	--	**4.26**
Southern riparian forest – disturbed (61300)	--	--	--	2.14	--	--	--	--	0.51	--	--	--	**2.65**
Non-native riparian (65000)	6.24	0.16	--	6.04	--	--	--	--	--	--	0.41	--	**12.85**
Southern willow scrub (63320)	--	0.33	0.03	0.14	0.03	0.13	0.12	0.31	0.29	--	--	--	**1.38**
Southern willow scrub - disturbed (63320)	--	--	--	--	--	--	--	--	0.52	0.09	4.94	0.13	**5.68**
Mule fat scrub (63310)	--	0.06	0.02	0.13	0.04	0.22	0.03	0.13	--	--	--	--	**0.63**
Mule fat scrub – disturbed (63310)	--	--	--	--	--	--	--	--	1.88	--	--	--	**1.88**
Tamarisk scrub (63810)	0.75	1.76	4.09	5.74	--	0.28	4.24	2.10	3.12	0.55	1.23	0.48	**24.32**
Riparian scrub – disturbed (63000)	--	--	--	--	--	--	--	--	--	--	--	0.06	**0.06**
Arundo-dominated riparian (65110)	1.51	6.69	--	89.77	2.02	0.03	16.29	1.69	3.10	0.26	0.27	1.16	**122.79**
TOTAL	**8.50**	**9.86**	**4.14**	**104.28**	**2.13**	**0.69**	**23.03**	**4.61**	**9.68**	**0.90**	**6.87**	**1.83**	**176.52**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
2 City of San Diego Subarea Habitats and Tiers per Attachment K of the BMO (County 2010).
3 All habitats are rounded to the nearest 0.01 acre. Temporary impacts shown include invasive species point locations within native habitats.

Coastal California Gnatcatcher

Coastal California gnatcatcher is a federally listed threatened, state Species of Special Concern, County Group 1 species, and City of San Diego MSCP covered species. The coastal California gnatcatcher was detected within the southern portion of the Study Area during multiple HELIX survey efforts in 2018 and 2021 within the vicinities of Treatment Areas 11 and 12. The coastal California gnatcatcher was not detected within 500 feet of areas targeted for restoration within Treatment Areas 1-10.

In total, the project would temporarily impact a total of 25.63 acres of suitable habitat for this species (Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub: baccharis dominated (including disturbed), and chenopod scrub; Table 8, *Impacts Coastal California Gnatcatcher Habitat*).

Additionally, noise related to restoration activities adjacent to active nests could result in adverse indirect impacts. Following treatment and removal of invasive non-native plant species, the project would restore additional, higher quality habitat for the species through the revegetation and restoration of a maximum of 418.6 acres of coastal sage scrub habitat.

Treatment Areas 1, 3, 6, and 10 would not impact Diegan coastal sage scrub and would not pass within 500 feet of an observed coastal California gnatcatcher location documented during the 2021 protocol survey. Treatment Area 11 would not impact Diegan coastal sage scrub, but would pass within 500 feet of an observed coastal California gnatcatcher location documented during the 2021 protocol survey. Treatment Areas 2, 4-5, 7-9, and 12 would impact Diegan coastal sage scrub.

Treatment Area 2 would temporarily impact 0.19 acre of Diegan coastal sage scrub and less than 0.1 acre (0.03 acre) of Diegan coastal sage scrub: baccharis dominated. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 2 during the 2021 protocol survey, and the habitat within Treatment Area 2 is considered unoccupied by the species.

Treatment Area 4 would temporarily impact less than 0.1 acre (0.09 acre) of disturbed Diegan coastal sage scrub, 0.17 acre of Diegan coastal sage scrub: baccharis dominated, and 0.65 acre of disturbed Diegan coastal sage scrub: baccharis dominated. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 4 during the 2021 protocol survey, and the habitat within Treatment Area 4 is considered unoccupied by the species.

Treatment Area 5 would temporarily impact less than 0.1 acre (0.08 acre) of Diegan coastal sage scrub and 1.08 acres of disturbed Diegan coastal sage scrub. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 5 during the 2021 protocol survey, and the habitat within Treatment Area 5 is considered unoccupied by the species.

Treatment Area 7 would temporarily impact 0.73 acre of disturbed Diegan coastal sage scrub. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 7 during the 2021 protocol survey, and the habitat within Treatment Area 7 is considered unoccupied by the species.

Treatment Area 8 would temporarily impact 0.18 acre of Diegan coastal sage scrub: baccharis dominated. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 8 during the 2021 protocol survey, and the habitat within Treatment Area 8 is considered unoccupied by the species.

Treatment Area 9 would temporarily impact 1.84 acres of disturbed Diegan coastal sage scrub. There were no coastal California gnatcatchers observed within 500 feet of Treatment Area 9 during the 2021 protocol survey, and the habitat within Treatment Area 9 is considered unoccupied by the species.

Treatment Area 11 would not impact Diegan coastal sage scrub. Project activities would occur within 500 feet of an observed gnatcatcher location, such that breeding season noise impacts could occur to coastal California gnatcatcher.

Treatment Area 12 would impact 20.37 acres of disturbed Diegan coastal sage scrub. Project activities would occur within 500 feet of an observed gnatcatcher location, such that breeding season noise impacts could occur to coastal California gnatcatcher.

Table 8
PROJECT TEMPORARY IMPACTS TO COASTAL CALIFORNIA GNATCATCHER HABITAT

Vegetation Community[1,2]	Phase/Treatment Area[3]												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
Sensitive Vegetation Communities													
Tier II													
Diegan coastal sage scrub – baccharis dominated (32530)	--	0.03	--	0.17	--	--	--	0.18	--	--	--	--	**0.38**
Diegan coastal sage scrub – baccharis dominated, disturbed (32530)	--	--	--	0.65	--	--	--	--	--	--	--	--	**0.65**
Diegan coastal sage scrub (32500)	--	0.19	--	--	0.08	--	--	--	--	--	--	--	**0.27**
Diegan coastal sage scrub – disturbed (32500)	--	--	--	<0.1 (0.09)	1.08	--	0.73	--	1.84	--	--	20.37	**24.11**
Chenopod scrub (36000)	--	--	--	0.22	--	--	--	--	--	--	--	--	**0.22**
TOTAL	**--**	**0.22**	**--**	**1.13**	**1.16**	**--**	**0.73**	**0.18**	**1.84**	**--**	**--**	**20.37**	**25.63**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] City Subarea Habitats and Tiers per Attachment K of the BMO (County 2010).
[3] All habitats are rounded to the nearest 0.01 acre.

2.1.3 Remaining Sensitive Animal Species

No removal of suitable habitat (open water at Dairy Mart Pond and Duck Ponds) would occur in any of the Treatment Areas for great blue heron, green heron, gadwall, American white pelican, double crested cormorant, or white-faced ibis.

No removal of known roosting habitat or larval host plants for the monarch butterfly would occur. Nectar sources are assumed to occur within the study area; however, their removal would not significantly affect the monarch, as it is a wide-ranging species that moves through the area briefly during migration.

Suitable foraging and/or roosting habitat for the turkey vulture would be impacted in all Treatment Areas, but suitable nesting habitat would not be impacted.

Temporary removal of suitable habitat (e.g., riparian vegetation, woodlands, and aquatic areas) for the following seven special status animal species would occur in all Treatment Areas: Cooper's hawk, sharp-shinned hawk, white-tailed kite, red-shouldered hawk, American peregrine falcon, osprey, yellow warbler, yellow-breasted chat, and northern cardinal.

Temporary removal of suitable habitat for the southern California rufous-crowned sparrow would occur in Treatment Areas 4, 5, 7, 9, and 12.

Temporary removal of suitable habitat for Belding's orange-throated whiptail and Blainville's (coast) horned lizard would occur in Treatment Areas 4, 5, 7, 9, and 12.

Temporary removal of suitable habitat for Costa's hummingbird, western bluebird, and Lawrence's goldfinch would occur in all Treatment Areas.

Temporary removal of suitable habitat for California horned lark and merlin would occur in Treatment Area 12.

Temporary removal of suitable habitat for Baja California coachwhip would occur in all Treatment Areas.

Temporary removal of suitable habitat for northern harrier and barn owl would occur in all Treatment Areas.

Temporary removal of suitable habitat for western mastiff, western red, and pocketed free-tailed bat would occur in all Treatment Areas.

Temporary removal of suitable habitat for San Diego black-tailed jackrabbit and San Diego desert woodrat would occur in all Treatment Areas.

Temporary removal of suitable habitat for western spadefoot would occur in all Treatment Areas.

2.1.4 Remaining Sensitive Animal Species With Potential to Occur

San Diego fairy shrimp and Riverside fairy shrimp have high potential to occur within ephemeral ponds along trails in the study area, and potentially suitable habitat for the species occurs in the southern portion of the study area on Monument Mesa and Spooner's Mesa. No impacts will occur to ephemeral ponds on dirt trails, and these species are not discussed further in this report.

Two-striped garter snake has high potential to occur within aquatic and riparian habitats present within the project area. Loggerhead shrike has a high potential to occur in the project area foraging over open ground within areas of riparian areas, open woodland, and agricultural fields. Impacts to potential habitat would be minimal compared to the amount of habitat present in the project vicinity and not proposed to be impacted, and these species are not discussed further in this report. Additionally, pre-construction nesting bird surveys would protect species covered by the MBTA.

Vermilion flycatcher has a high potential to occur in the study area adjacent to the baseball fields south of Sunset Avenue. No impacts will occur to this species' upland habitat, and the species is not discussed further in this report. Additionally, pre-construction nesting bird surveys would protect species covered by the MBTA.

Light-footed Ridgway's rail has a high potential to occur in the study area at Dairy Mart Pond and along the Tijuana River in the northern portion of the park. The species breeds to the west within Border Field State Park and further northwest Tijuana Slough National Wildlife Preserve, which supports the second of the largest population in California (Zembal et al. 2017). Project impacts would be less than significant for this Group 1 species because the project has been designed to avoid impacts to native habitats, and the underlying habitat these species occur would be mitigated for, should the habitat be temporarily impacted. Additionally, pre-construction nesting bird surveys would protect species covered by the MBTA. In addition, impacts to potential habitat would be temporary and minimal compared to the

amount of habitat present in the project vicinity and not proposed to be impacted. Therefore, this species is not discussed further in this report.

There are three SSC species with High potential to occur: San Diegan legless lizard (County Group 2, SSC), California glossy snake (SSC), and northwestern San Diego pocket mouse (SSC, County Group 2). All of these species are either County Group 2 species, or not County listed as sensitive. County Group 2 species are relatively common and widespread throughout the City of San Diego MSCP Subarea, such that even if these species were confirmed present, removal of a small amount of habitat would not impact the local long-term survival of the species. In addition, impacts to potential habitat would be minimal compared to the amount of habitat present in the project vicinity and not proposed to be impacted. Finally, project impacts would be less than significant for these Group 2 species because the underlying habitat these species occur in would be mitigated for, should the habitat be temporarily impacted. Therefore, these three species are not discussed further in this report.

There are three County Group 2 species that are not SSC species with High potential to occur in the study area: Canada goose (*Branta canadensis*; County Group 2, MSCP Covered), California gull (*Larus californicus*; County Group 2, WL), and Coronado skink (*Plestiodon skiltonianus interparietalis*; County Group 2, WL). County Group 2 species are relatively common and widespread throughout the City MSCP Subarea, such that even if these species were confirmed present, temporary removal of a small amount of habitat would not impact the local long-term survival of the species. Pre-construction nesting bird surveys would protect species covered by the MBTA. In addition, temporary impacts to potential habitat would be minimal compared to the amount of habitat present in the project vicinity and not proposed to be impacted. Finally, temporary project impacts would be less than significant for these Group 2 species because the underlying habitat these species occur in would be mitigated for, should the habitat be impacted. Therefore, these three species are not discussed further in this report.

2.2 RIPARIAN HABITAT AND SENSITIVE NATURAL COMMUNITIES

Table 9, *Proposed Project Maximum Temporary Impacts to Vegetation Communities/Habitat Types*, provides a summary of project temporary impacts to vegetation communities/habitat types, including sensitive habitats, resulting from implementation of the proposed habitat restoration plan. Total impacts for the project total 595.14 acres: 216.94 acres of sensitive vegetation communities and 378.20 acres of non-sensitive vegetation communities. Impacts to sensitive vegetation would include southern riparian forest (including disturbed), non-native riparian, southern willow scrub (including disturbed), mule fat scrub (including disturbed), tamarisk scrub, disturbed riparian scrub, arundo-dominated riparian, open water, Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub: baccharis dominated (including disturbed), chenopod scrub, and non-native grassland (Table 9). Impacts to sensitive habitats (Tiers I-III) are considered self-mitigating as the project purpose is habitat restoration; no additional habitat compensation is required. Impacts to non-sensitive vegetation communities would include disturbed habitat, non-native woodland, eucalyptus woodland, and non-native vegetation. Impacts to non-sensitive habitats do not require mitigation.

Table 9
PROPOSED PROJECT MAXIMUM TEMPORARY IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation Community[1,2]	Phase/Treatment Area[3]												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
Sensitive Vegetation Communities													
Tier I													
Saltgrass grassland (42130)	--	0.01	--	--	--	--	--	--	--	--	--	--	**0.01**
Coastal valley and freshwater marsh (52410)	--	<0.01 (0.003)	--	--	--	--	--	--	--	--	--	--	**<0.01 (0.003)**
Emergent wetland (52440)	--	0.03	--	--	--	--	--	--	--	--	--	--	**0.03**
Southern riparian forest (61300)	--	0.86	--	0.32	0.04	0.03	2.35	0.38	0.26	--	0.02	--	**4.26**
Southern riparian forest – disturbed (61300)	--	--	--	2.14	--	--	--	--	0.51	--	--	--	**2.65**
Non-native riparian (65000)	6.24	0.16	--	6.04	--	--	--	--	--	--	0.41	--	**12.85**
Southern willow scrub (63320)	--	0.33	0.03	0.14	0.03	0.13	0.12	0.31	0.29	--	--	--	**1.38**
Southern willow scrub - disturbed (63320)	--	--	--	--	--	--	--	--	0.52	0.09	4.94	0.13	**5.68**
Mule fat scrub (63310)	--	0.06	0.02	0.13	0.04	0.22	0.03	0.13	--	--	--	--	**0.63**
Mule fat scrub – disturbed (63310)	--	--	--	--	--	--	--	--	1.88	--	--	--	**1.88**
Tamarisk scrub (63810)	0.75	1.76	4.09	5.74	--	0.28	4.24	2.10	3.12	0.55	1.23	0.48	**24.32**
Riparian scrub – disturbed (63000)	--	--	--	--	--	--	--	--	--	--	--	0.06	**0.06**
Arundo-dominated riparian (65110)	1.51	6.69	--	89.77	2.02	0.03	16.29	1.69	3.10	0.26	0.27	1.16	**122.79**
Tier II													
Diegan coastal sage scrub – baccharis dominated (32530)	--	<0.1 (0.03)	--	0.2	--	--	--	0.2	--	--	--	--	**0.4**
Diegan coastal sage scrub – baccharis dominated, disturbed (32530)	--	--	--	0.6	--	--	--	--	--	--	--	--	**0.6**
Diegan coastal sage scrub (32500)	--	0.2	--	--	<0.1 (0.08)	--	--	--	--	--	--	--	**0.3**
Diegan coastal sage scrub – disturbed (32500)	--	--	--	<0.1 (0.09)	1.1	--	0.7	--	1.8	--	--	20.4	**24.1**
Chenopod scrub (36000)	--	--	--	0.2	--	--	--	--	--	--	--	--	**0.2**
Tier III													
Non-native grassland (42200)	--	--	--	--	--	--	--	--	0.4	--	4.7	9.7	**14.8**
Subtotal Sensitive Communities	*8.50*	*10.13*	*4.14*	*105.37*	*3.31*	*0.69*	*23.73*	*4.81*	*11.88*	*0.90*	*11.57*	*31.93*	***216.94***
Non-Sensitive Vegetation Communities													
Tier IV													
Disturbed habitat (11300)	0.4	21.3	8.0	9.8	4.0	6.8	34.1	10.7	16.7	73.4	103.8	61.9	**350.9**
Non-native woodland (79000)	--	--	--	--	--	0.5	0.1	3.0	0.3	0.6	0.5	3.2	**8.2**
Eucalyptus woodland (79100)	0.4	8.4	--	--	1.3	0.4	--	--	--	1.5	--	2.3	**14.3**
Non-native vegetation (N/A)	--	<0.1 (0.04)	--	1.7	1.0	--	--	0.8	--	--	--	1.3	**4.8**
Subtotal Non-Sensitive Communities	*0.8*	*29.7*	*8.0*	*11.5*	*6.3*	*7.7*	*34.2*	*14.5*	*17.0*	*75.5*	*104.3*	*68.7*	***378.2***
TOTAL	**9.30**	**39.83**	**12.14**	**116.87**	**9.61**	**8.39**	**57.93**	**19.31**	**28.88**	**76.40**	**115.87**	**100.63**	**595.14**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] City Subarea Habitats and Tiers per Attachment K of the BMO (County 2010).
[3] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding. Table includes impacts from invasive species point locations that occur within native habitats.

2.3 JURISDICTIONAL WETLANDS AND WATERWAYS

Unavoidable impacts would occur to jurisdictional waters and wetlands as part of proposed project restoration activities. All impacts to jurisdictional waters and wetlands will be temporary, focused on treatment and removal of invasive non-native vegetation, and restored in-place onsite with native riparian vegetation. The proposed project impacts are considered to be self-mitigating, as following project completion, the restored areas would support higher quality jurisdictional waters and wetlands.

The project would impact 151.70 acres of wetland waters of the U.S. (Figures 15a-15f, *Waters of the U.S. Delineation Restoration Work Area/Impacts*), 151.70 acres of wetland waters of the State (Figures 16a-16f, Waters of the State Delineation Restoration Work Area/Impacts), 174.49 acres of riparian habitat under CDFW jurisdiction (Figures 17a-17f, *CDFW Habitat Delineation Restoration Work Area/Impacts*), and 174.49 acres of CCC coastal wetland (Figures 18a-18f, *CCC Coastal Wetlands Delineation Restoration Work Area/Impacts*).

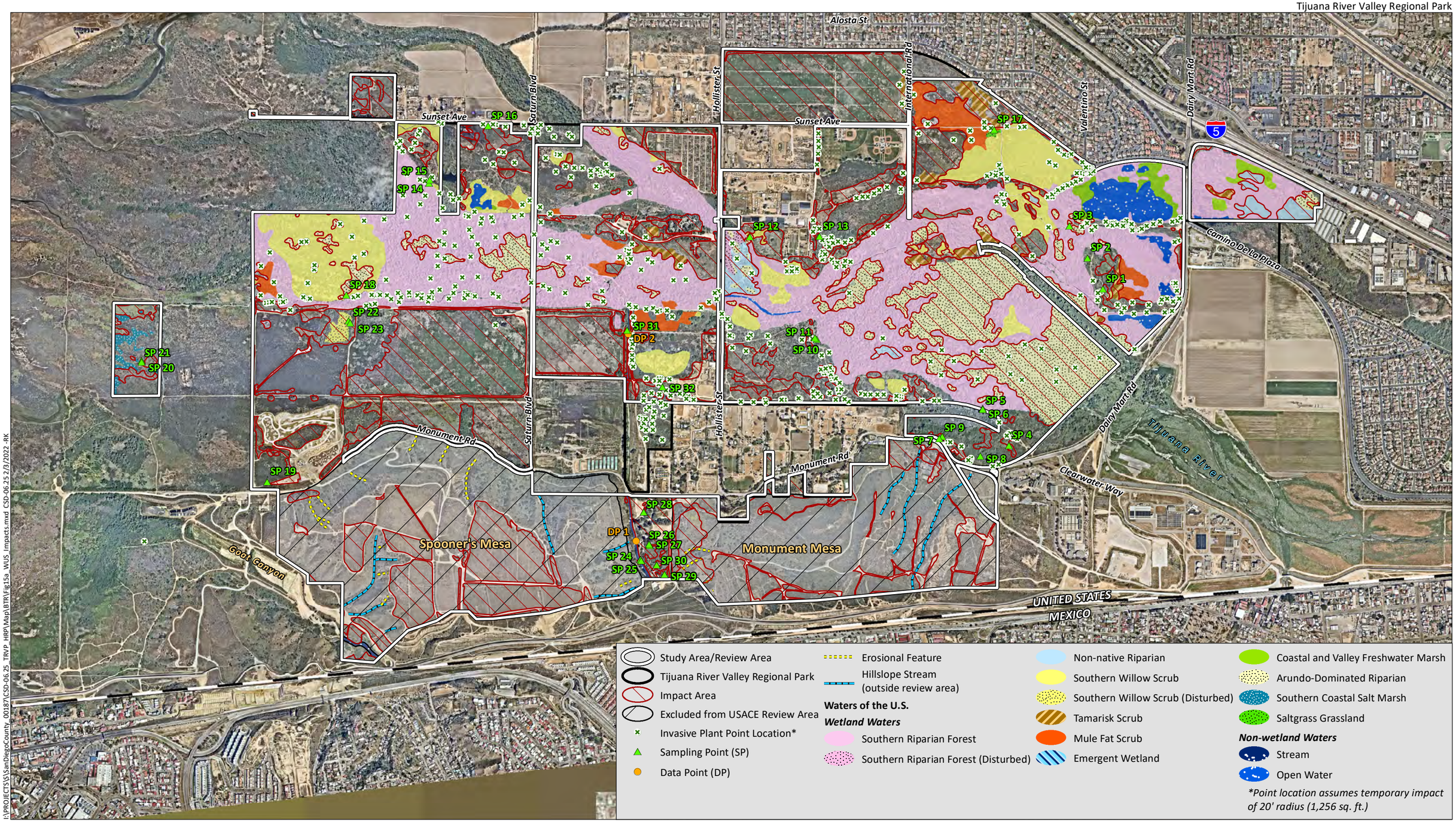
Table 10a-10b, *Temporary Impacts to Jurisdictional Wetlands and Waterways,* provides a summary of project impacts to jurisdictional wetlands and waterways.

Table 10a
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS (acre[s])[1]

Habitat	Waters of U.S.	Waters of the State	CDFW	CCC
Wetland Waters/Riparian				
Coastal and Valley Freshwater Marsh	<0.01 (0.003)	<0.01 (0.003)	<0.01 (0.003)	<0.01 (0.003)
Emergent Wetland	0.03	0.03	0.03	0.03
Saltgrass Grassland	0.01	0.01	0.01	0.01
Southern Riparian Forest	3.46	3.46	4.07	4.07
Disturbed Southern Riparian Forest	2.14	2.14	2.14	2.14
Non-native Riparian	12.12	12.12	12.78	12.78
Southern Willow Scrub	0.58	0.58	1.40	1.40
Disturbed Southern Willow Scrub	2.50	2.50	5.69	5.69
Mule Fat Scrub	0.15	0.15	0.63	0.63
Disturbed Mule Fat Scrub	--	--	1.88	1.88
Tamarisk Scrub	13.62	13.62	23.30	23.30
Disturbed Riparian Scrub	--	--	0.06	0.06
Arundo-dominated Riparian	117.09	117.09	122.50	122.50
TOTAL	**151.70**	**151.70**	**174.50**	**174.50**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

Tijuana River Valley Regional Park



Study Area/Review Area
Tijuana River Valley Regional Park
Impact Area
Excluded from USACE Review Area
Invasive Plant Point Location*
Sampling Point (SP)
Data Point (DP)

Erosional Feature
Hillslope Stream (outside review area)

Waters of the U.S.

Wetland Waters

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Non-native Riparian
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Tamarisk Scrub
Mule Fat Scrub
Emergent Wetland
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Southern Coastal Salt Marsh
Saltgrass Grassland

Non-wetland Waters

Stream
Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Aerial Photo: Nearmap (2021)

0 1,300 Feet
1 inch = 1,300 feet

N

Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15a

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig15a_WUS_Impacts.mxd CSD-06.25 2/3/2022 RK

- Study Area/Review Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Sample Point (SP)
- Data Point (DP)

Waters of the U.S.

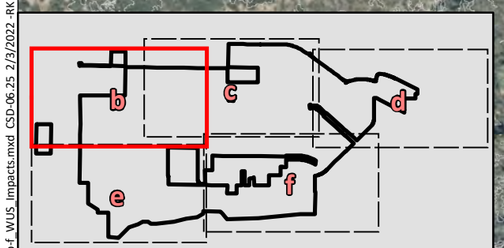
Wetland Waters

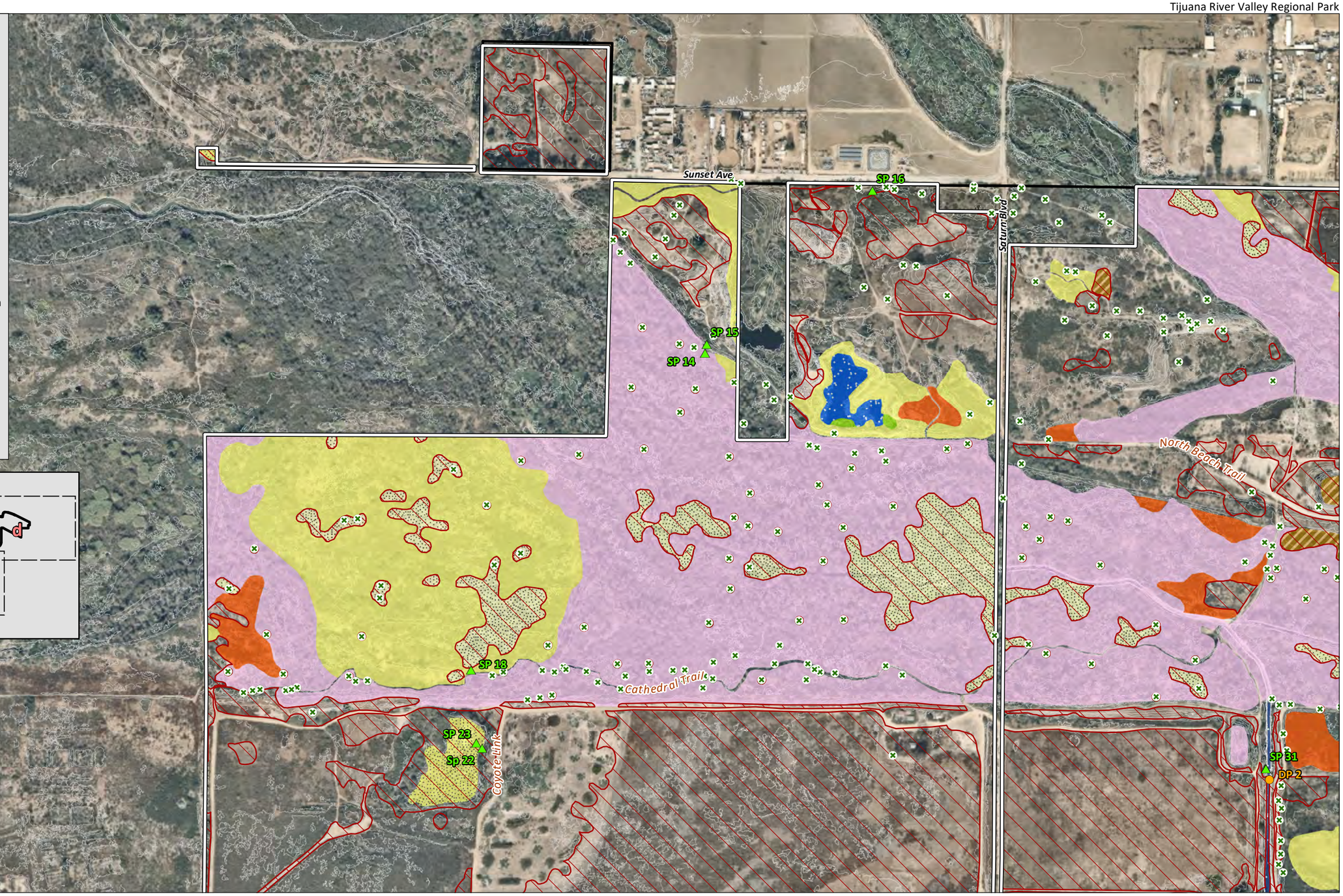
- Southern Riparian Forest
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Tamarisk Scrub
- Mule Fat Scrub
- Coastal and Valley Freshwater Marsh
- Arundo-Dominated Riparian
- Southern Coastal Salt Marsh

Non-wetland Waters

- Stream
- Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*





Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

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Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15b

Tijuana River Valley Regional Park

Study Area/Review Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*
Sample Point (SP)
Data Point (DP)

Waters of the U.S.

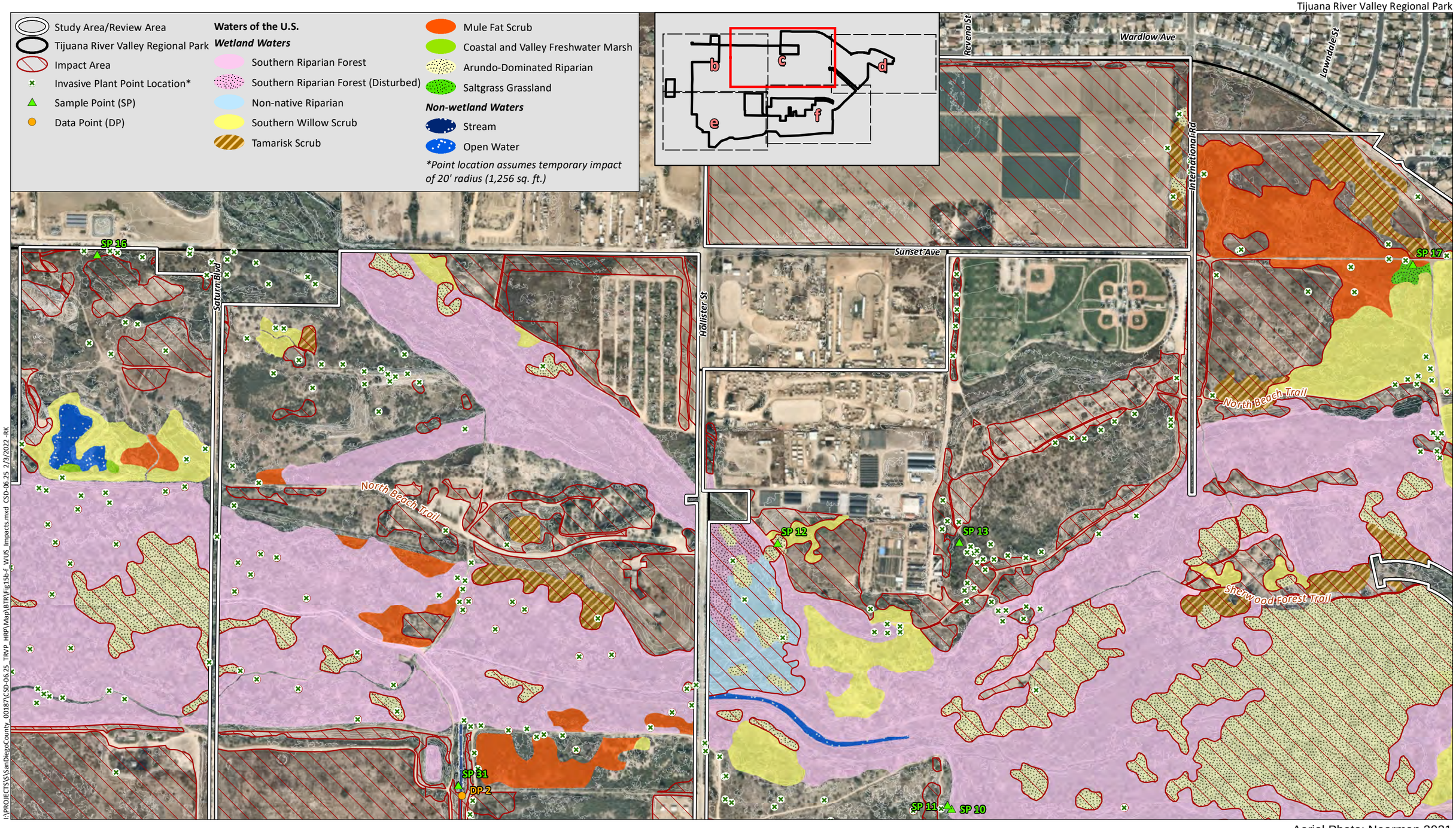
Wetland Waters

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Non-native Riparian
Southern Willow Scrub
Tamarisk Scrub
Mule Fat Scrub
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Saltgrass Grassland

Non-wetland Waters

Stream
Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*



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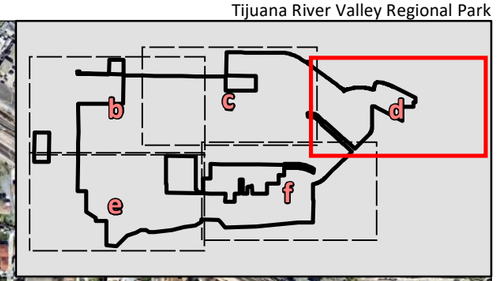
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15c

Tijuana River Valley Regional Park



Brando Dr
Valentino St
Blueheaven Ct
Servando Ave
North Beach Trail
Dairy Mart Rd
Camino De La Plaza
SP 17
SP 3
SP 2
SP 1
5

Study Area/Review Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*
Sample Point (SP)

Waters of the U.S.

Wetland Waters

Southern Riparian Forest
Non-native Riparian
Southern Willow Scrub
Tamarisk Scrub
Mule Fat Scrub
Emergent Wetland
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Saltgrass Grassland

Non-wetland Waters

Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06-25_TRVP_HRP\Map\BTR\Fig15b-f_WUS_Impacts.mxd CSD-06-25 2/3/2022 RK

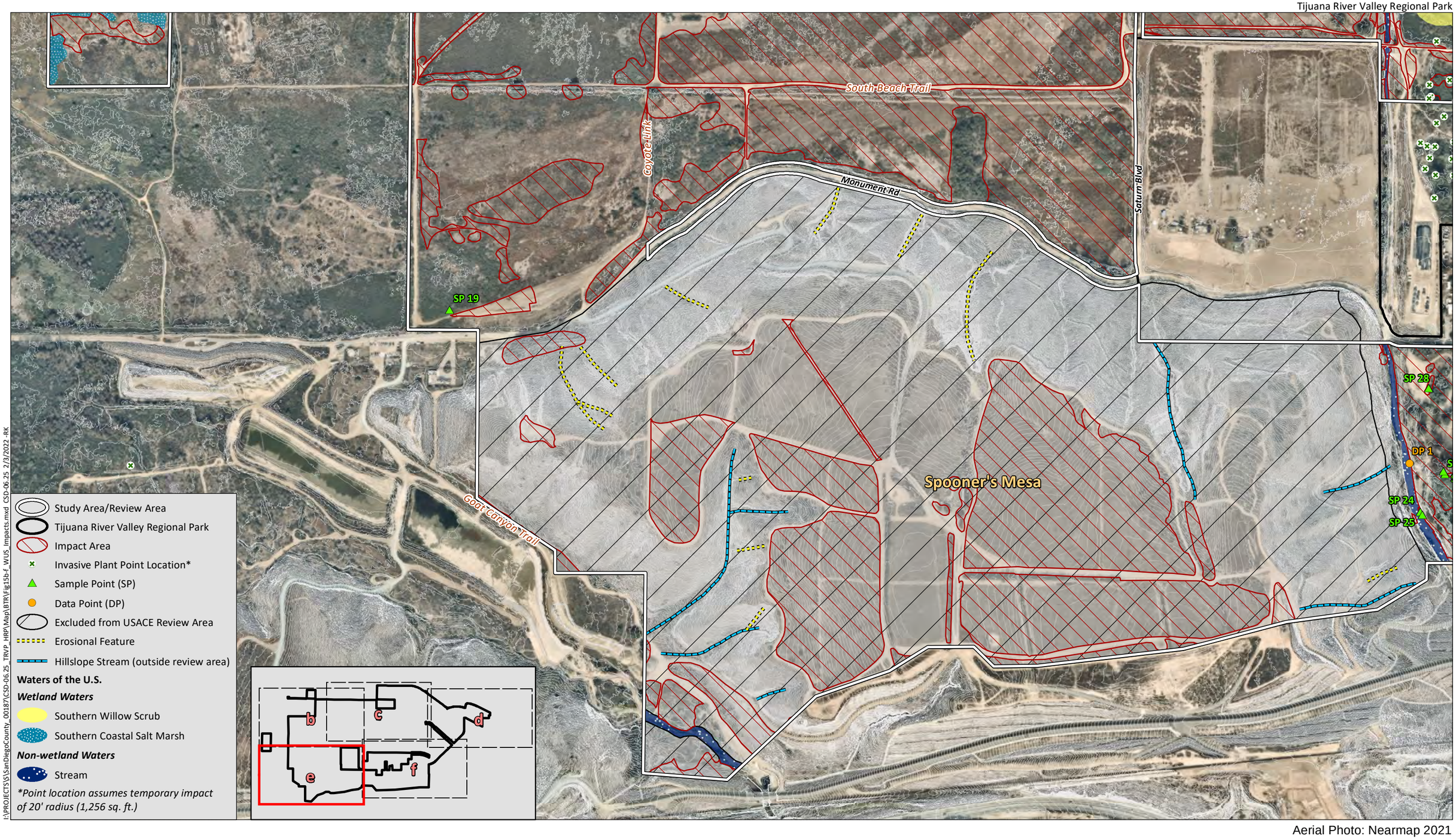
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15d

Tijuana River Valley Regional Park



Study Area/Review Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*
Sample Point (SP)
Data Point (DP)
Excluded from USACE Review Area
Erosional Feature
Hillslope Stream (outside review area)

Waters of the U.S.

Wetland Waters

Southern Willow Scrub
Southern Coastal Salt Marsh

Non-wetland Waters

Stream

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig15b-f_WUS_Impacts.mxd CSD-06.25 2/3/2022 RK

Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

N

Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15e

Tijuana River Valley Regional Park

SP 11
SP 10
SP 32
South Beach Trail
SP 5
SP 6
Daily Mart Rd
Hollister St
SP 9
SP 7
SP 4
SP 8
Monument Rd
Clearwater Way
Monument Mesa
SP 27
SP 26
SP 30
SP 29

- Study Area/Review Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Sample Point (SP)
- Excluded from USACE Review Area
- Erosional Feature
- Hillslope Stream (outside review area)

Waters of the U.S.

Wetland Waters

- Southern Riparian Forest
- Non-native Riparian
- Southern Willow Scrub
- Mule Fat Scrub
- Arundo-Dominated Riparian

Non-wetland Waters

- Stream

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

b c d e f

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Aerial Photo: Nearmap 2021

0 500 Feet

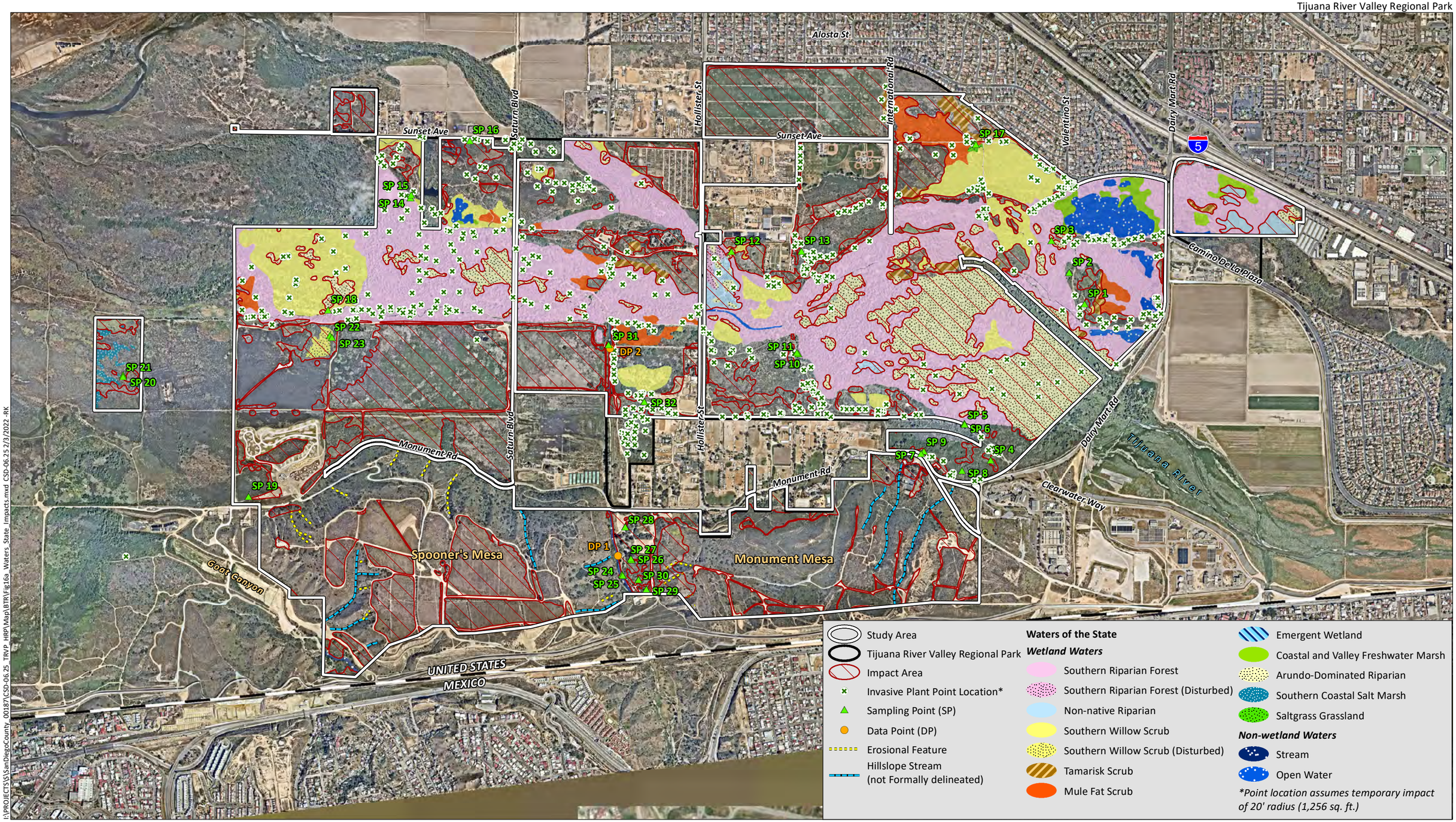
1 inch = 500 feet

N

Waters of the U.S. Delineation Restoration Work Area/Impacts

Figure 15f

Tijuana River Valley Regional Park



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Aerial Photo: Nearmap (2021)

0 1,300 Feet

1 inch = 1,300 feet

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16a

- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Sample Point (SP)
- Data Point (DP)

Waters of the State

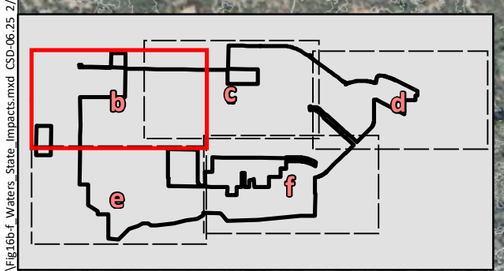
Wetland Waters

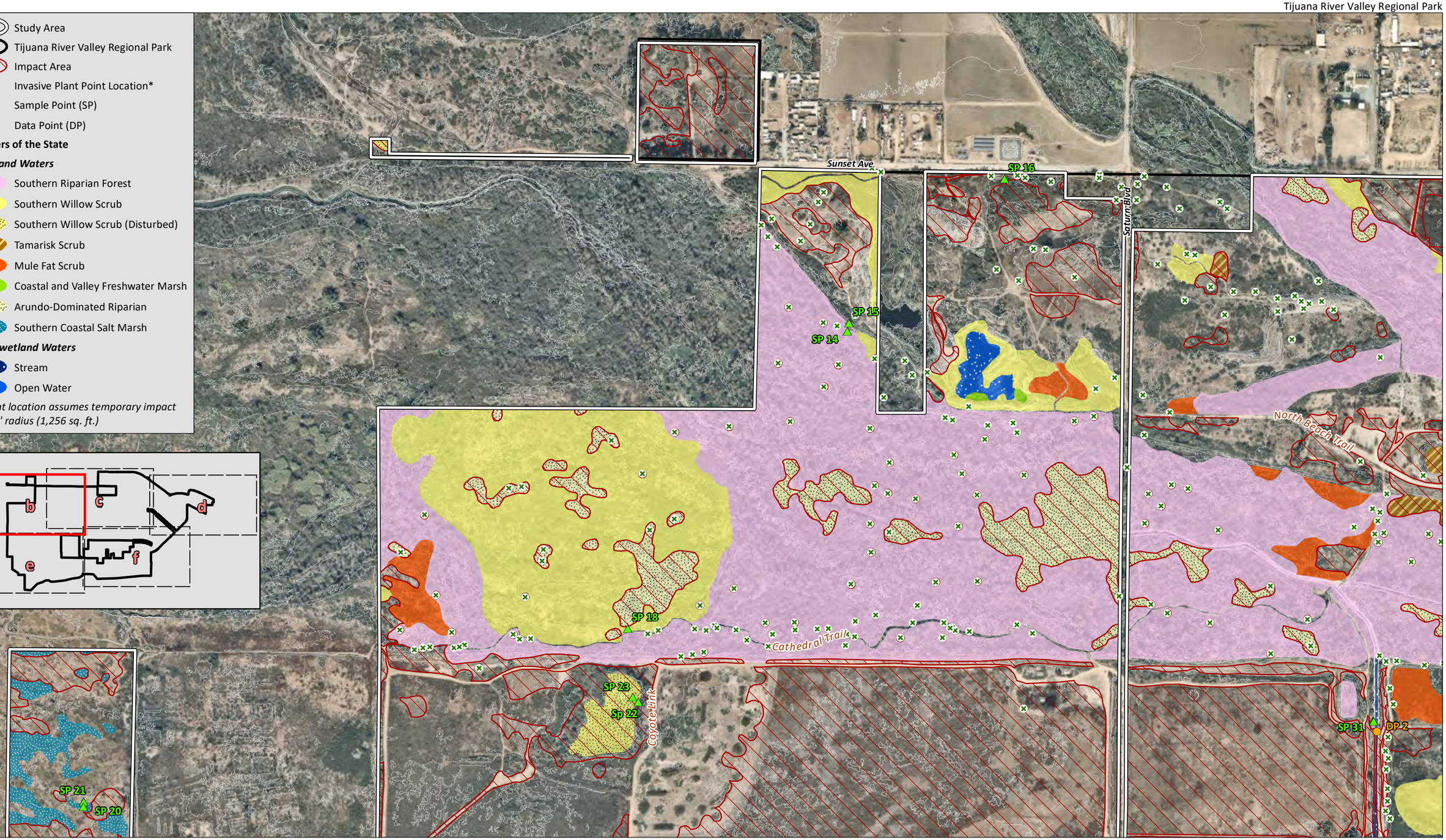
- Southern Riparian Forest
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Tamarisk Scrub
- Mule Fat Scrub
- Coastal and Valley Freshwater Marsh
- Arundo-Dominated Riparian
- Southern Coastal Salt Marsh

Non-wetland Waters

- Stream
- Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*





Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16b

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig16b-f_Waters_State_Impacts.mxd CSD-06.25 2/3/2022 -RK

- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Sample Point (SP)
- Data Point (DP)

Waters of the State

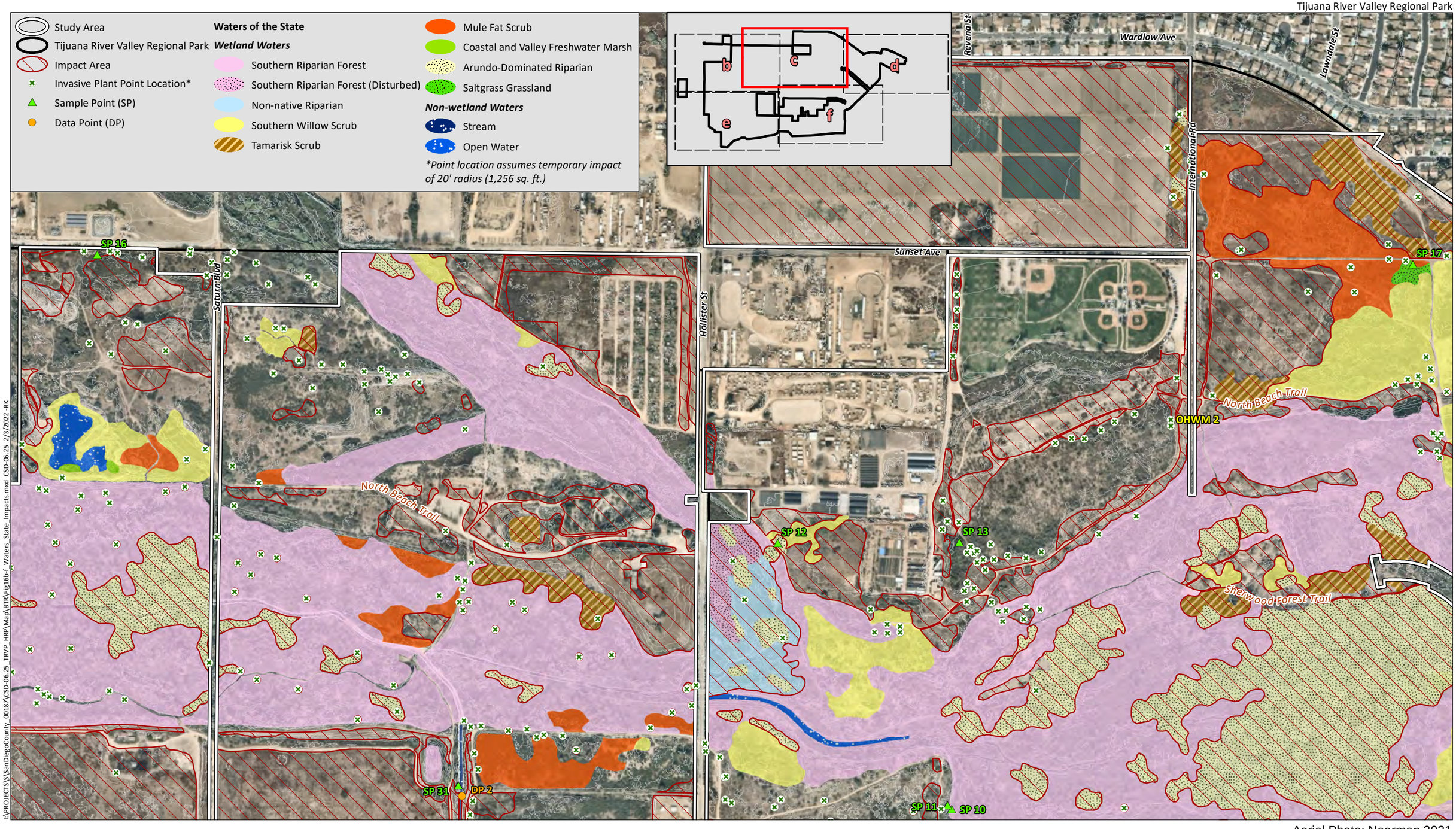
Wetland Waters

- Southern Riparian Forest
- Southern Riparian Forest (Disturbed)
- Non-native Riparian
- Southern Willow Scrub
- Tamarisk Scrub
- Mule Fat Scrub
- Coastal and Valley Freshwater Marsh
- Arundo-Dominated Riparian
- Saltgrass Grassland

Non-wetland Waters

- Stream
- Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*



Aerial Photo: Nearmap 2021

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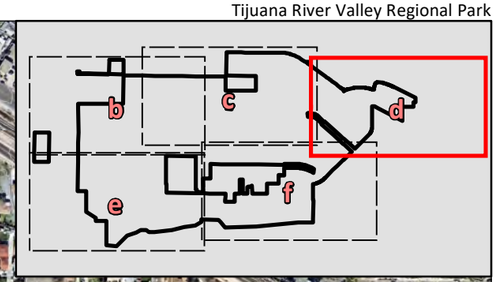
0 500 Feet

1 inch = 500 feet

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16c

Tijuana River Valley Regional Park



Brando Dr
Valentino St
Blueheaven Ct
Servando Ave
North Beach Trail
Dairy Mart Rd
Camino De La Plaza
Mart Rd
5
SP 17
SP 3
SP 2
SP 1

Study Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*
Sample Point (SP)

Waters of the State

Wetland Waters

Southern Riparian Forest
Non-native Riparian
Southern Willow Scrub
Tamarisk Scrub
Mule Fat Scrub
Emergent Wetland
Coastal and Valley Freshwater Marsh
Arundo-Dominated Riparian
Saltgrass Grassland

Non-wetland Waters

Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

N

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16d

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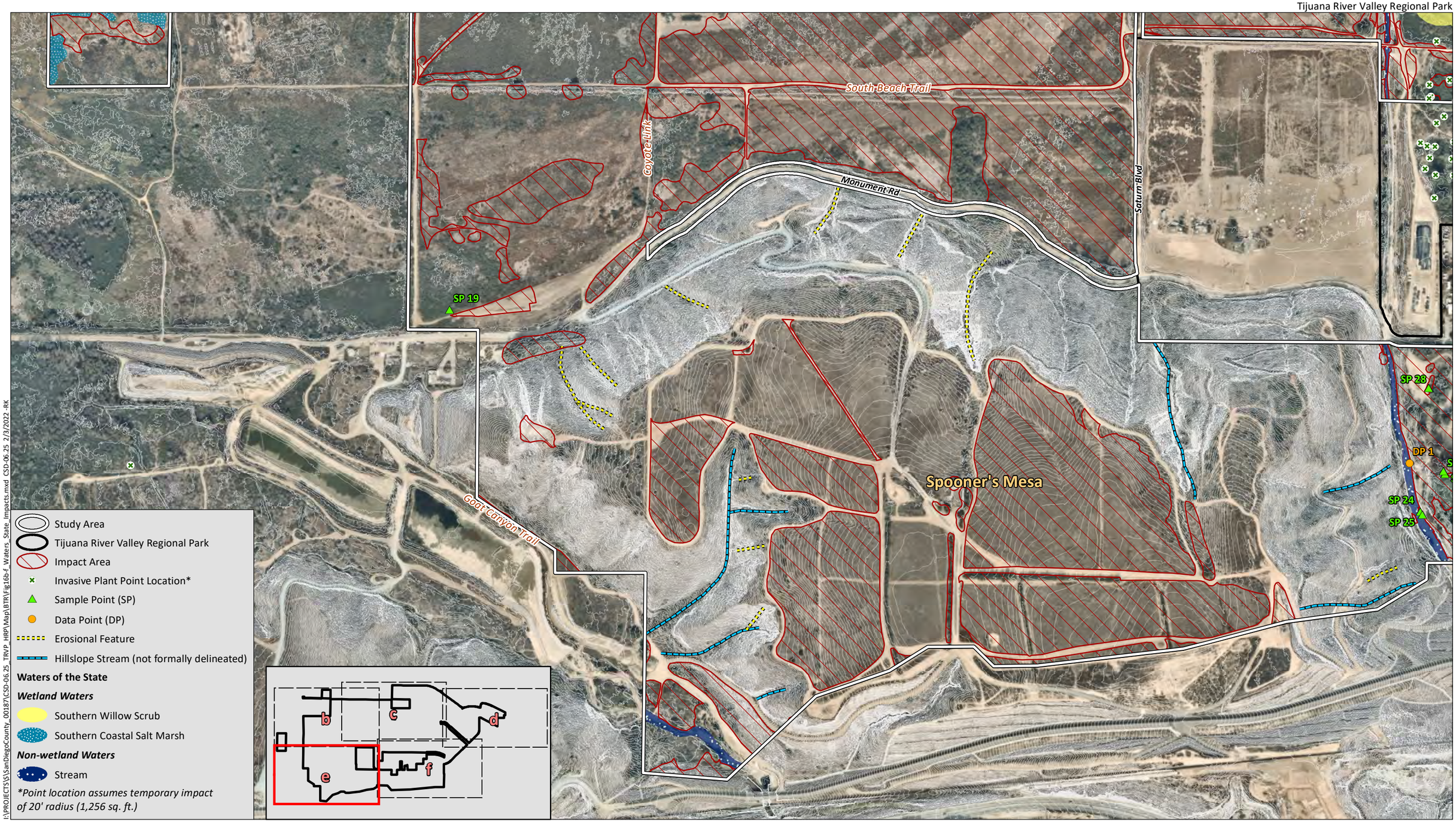


Aerial Photo: Nearmap 2021

0 500 Feet

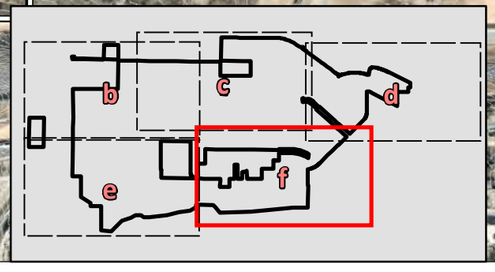
1 inch = 500 feet

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16e

Tijuana River Valley Regional Park

SP 11
SP 10
SP 32
South Beach Trail
SP 5
SP 6
Daily Mart Rd
Hollister St
SP 9
SP 7
SP 4
SP 8
Monument Rd
Clearwater Way
Monument Mesa
SP 27
SP 26
SP 30
SP 29



- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Sample Point (SP)
- Erosional Feature
- Hillslope Stream (not formally delineated)

Waters of the State

Wetland Waters

- Southern Riparian Forest
- Non-native Riparian
- Southern Willow Scrub
- Mule Fat Scrub
- Arundo-Dominated Riparian

Non-wetland Waters

- Stream

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Aerial Photo: Nearmap 2021

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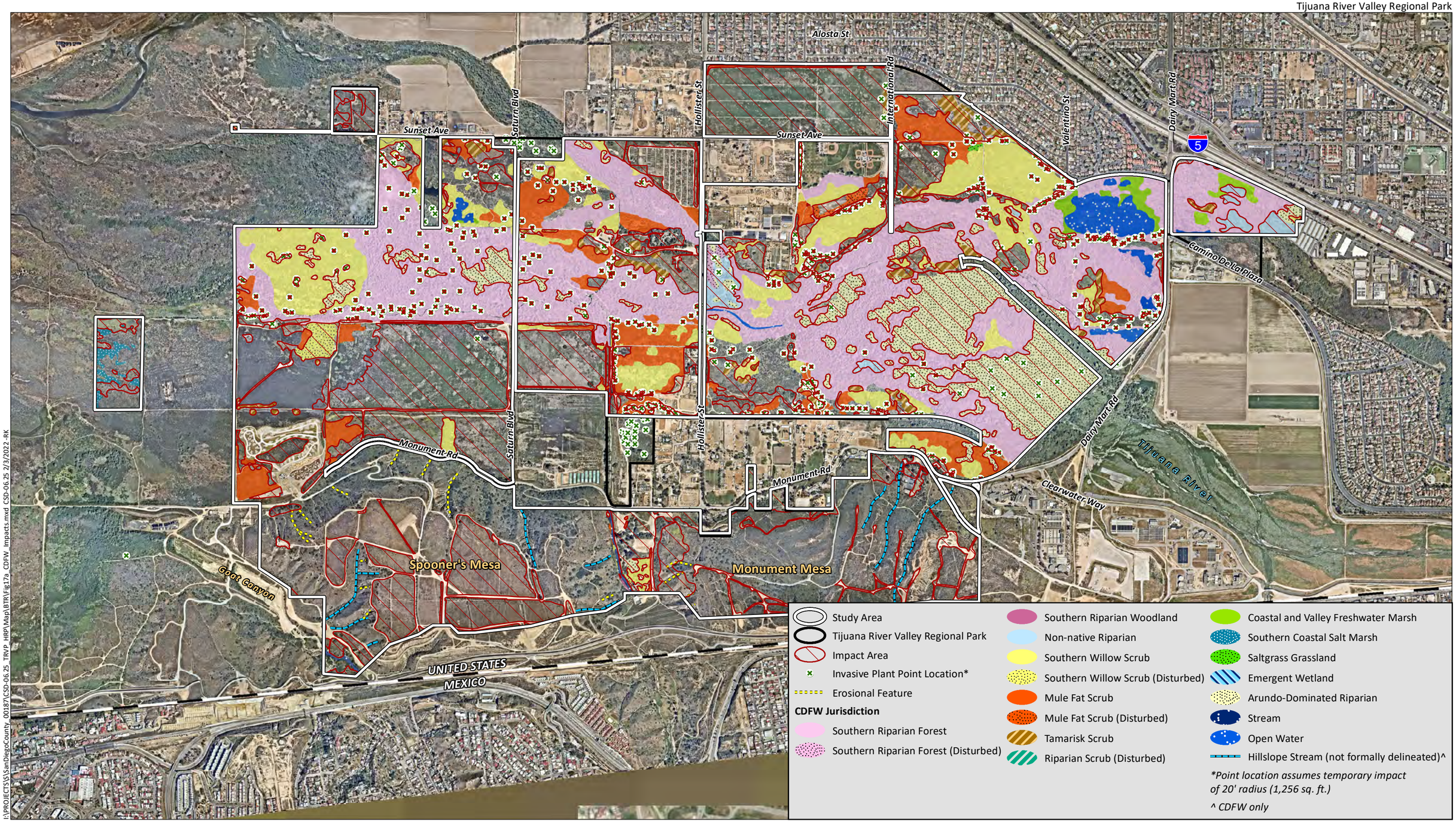
0 500 Feet
1 inch = 500 feet

Waters of the State Delineation Restoration Work Area/Impacts

Figure 16f

Tijuana River Valley Regional Park



Aerial Photo: Nearmap (2021)

0 1,300 Feet

N

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

Figure 17a

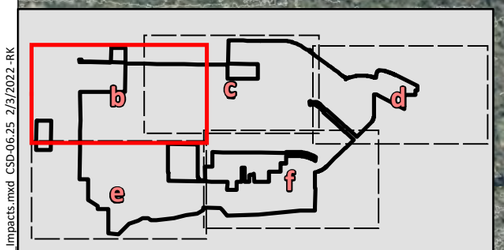
I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig17a_CDFW_Impacts.mxd CSD-06.25 3/3/2022 RK

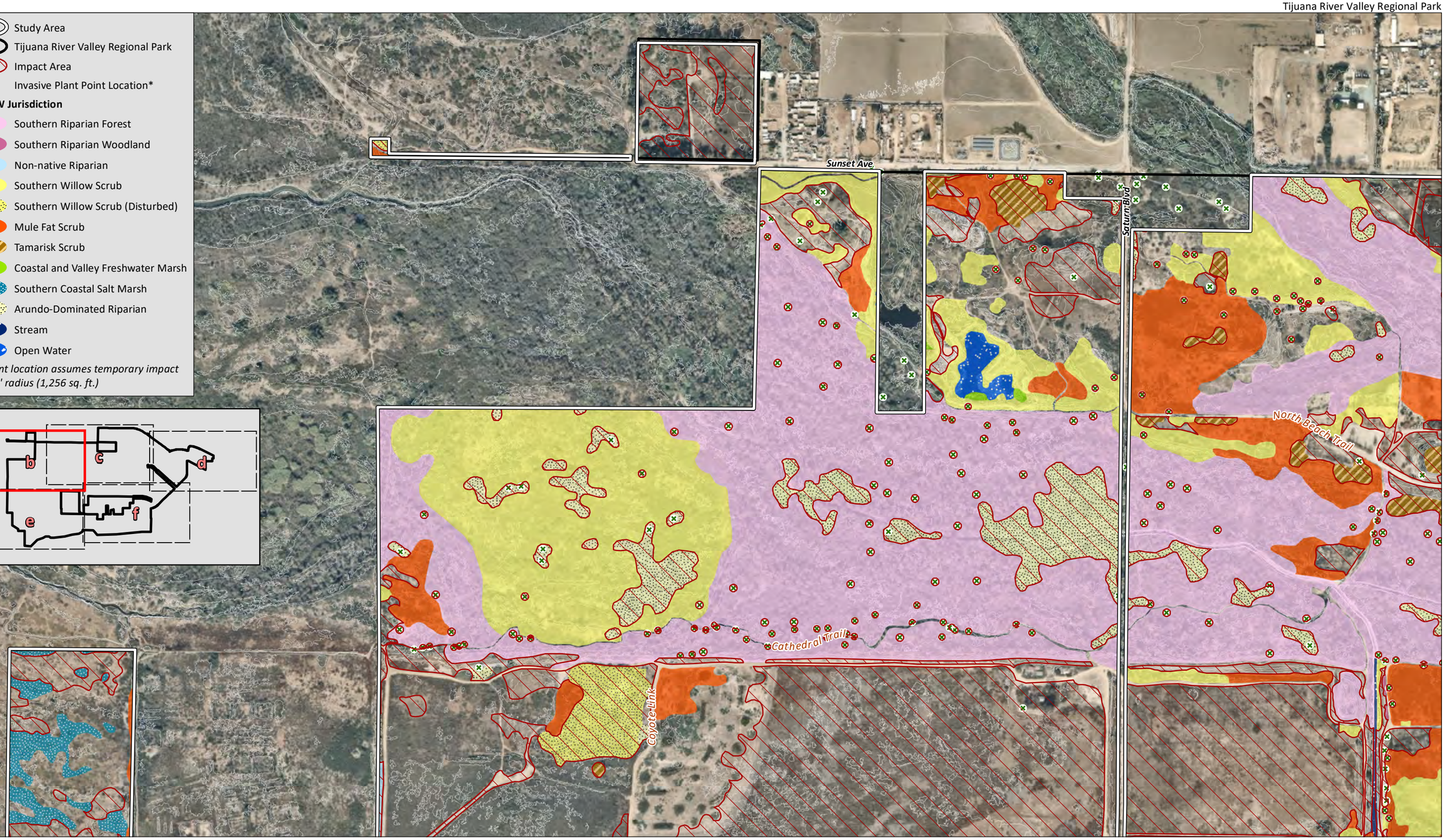
- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*

CDFW Jurisdiction

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Southern Coastal Salt Marsh
- Arundo-Dominated Riparian
- Stream
- Open Water

** Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*





Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

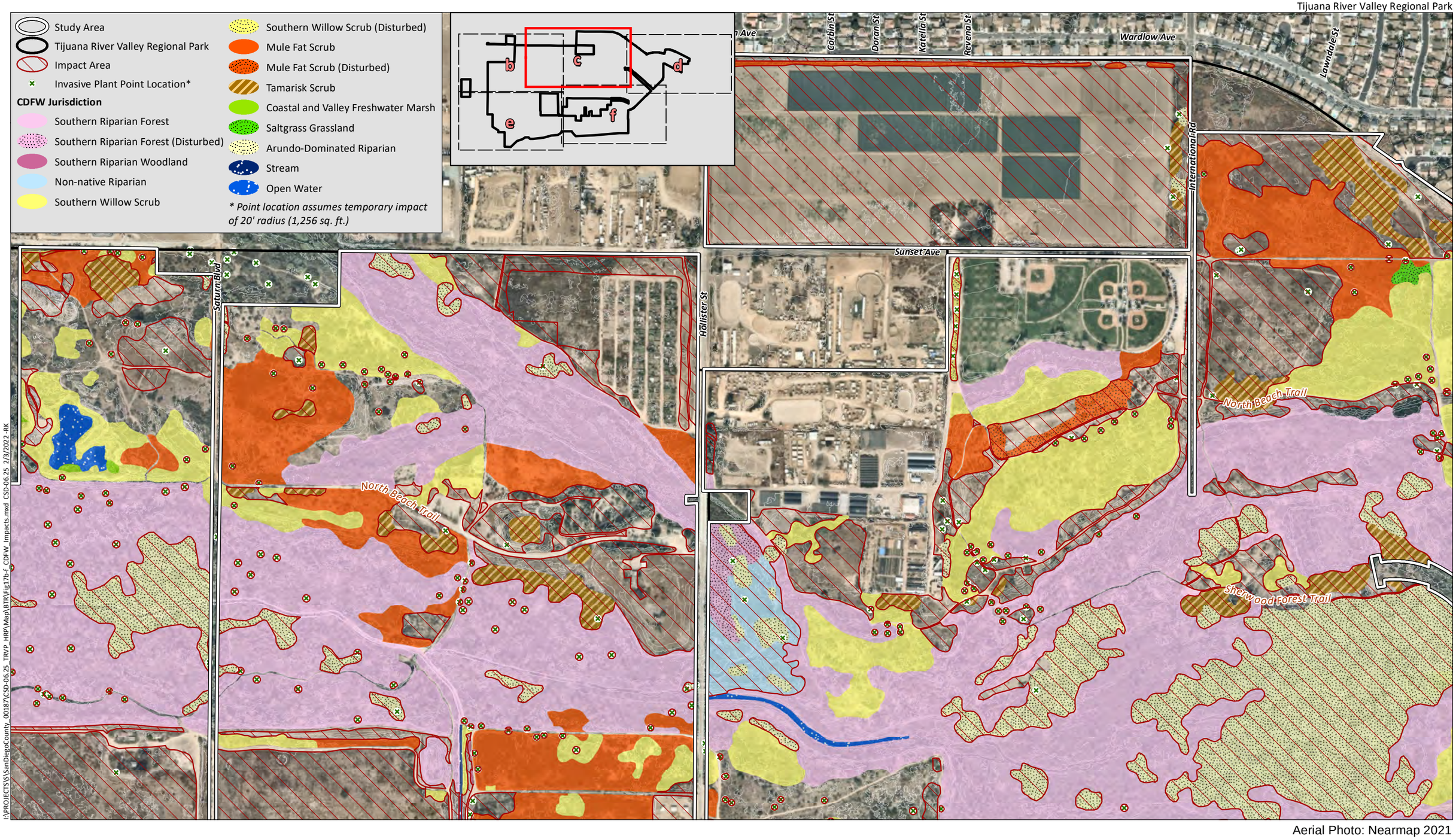
Figure 17b

Study Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*

CDFW Jurisdiction

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Southern Riparian Woodland
Non-native Riparian
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Mule Fat Scrub
Mule Fat Scrub (Disturbed)
Tamarisk Scrub
Coastal and Valley Freshwater Marsh
Saltgrass Grassland
Arundo-Dominated Riparian
Stream
Open Water

** Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*



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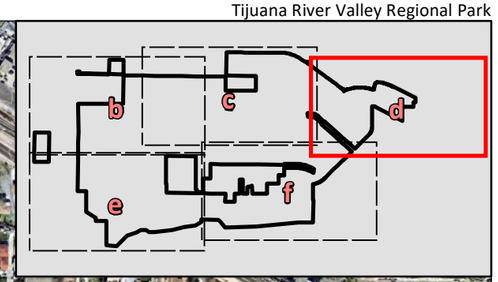
Aerial Photo: Nearmap 2021

0 500 Feet
1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

Figure 17c

Tijuana River Valley Regional Park



Brando Dr
Valentino St
Blueheaven Ct
Servando Ave
North Beach Trail
Dairy Mart Rd
Camino De La Plaza
Dairy Mart Rd
5

Study Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*

CDFW Jurisdiction

Southern Riparian Forest
Non-native Riparian
Southern Willow Scrub
Mule Fat Scrub
Tamarisk Scrub
Coastal and Valley Freshwater Marsh
Saltgrass Grassland
Emergent Wetland
Arundo-Dominated Riparian
Open Water

** Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Aerial Photo: Nearmap 2021

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06-25_TRVP_HRP\Map\BTR\Fig17b-f_CDFW_Impacts.mxd CSD-06-25 2/3/2022-RK

0 500 Feet
1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

Figure 17d

Tijuana River Valley Regional Park

South Beach Trail

Coyote Jnx

Monument Rd

Saturn Blvd

Goat Canyon Trail

Spooner's Mesa

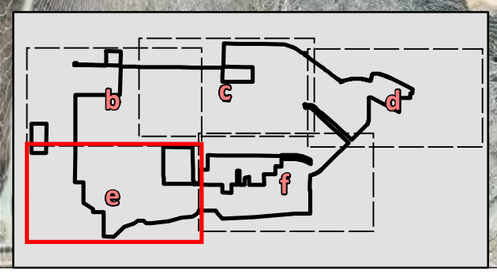
- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Erosional Feature

CDFW Jurisdiction

- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Riparian Scrub (Disturbed)
- Southern Coastal Salt Marsh
- Arundo-Dominated Riparian
- Stream
- Hillslope Stream (not formally delineated)^

** Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

^ CDFW only



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Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

Figure 17e

Tijuana River Valley Regional Park

South Beach Trail

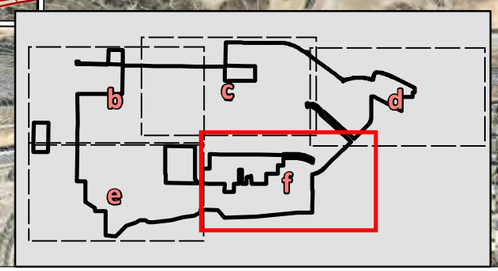
Hollister St

Monument Rd

Daily Mart Rd

Clearwater Way

Monument Mesa



- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*
- Erosional Feature

CDFW Jurisdiction

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Riparian Scrub (Disturbed)
- Arundo-Dominated Riparian
- Stream
- Hillslope Stream (not formally delineated)^

** Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

^ CDFW only

Aerial Photo: Nearmap 2021

0 500 Feet

1 inch = 500 feet

N

CDFW Jurisdictional Habitat Delineation Restoration Work Area/Impacts

Figure 17f

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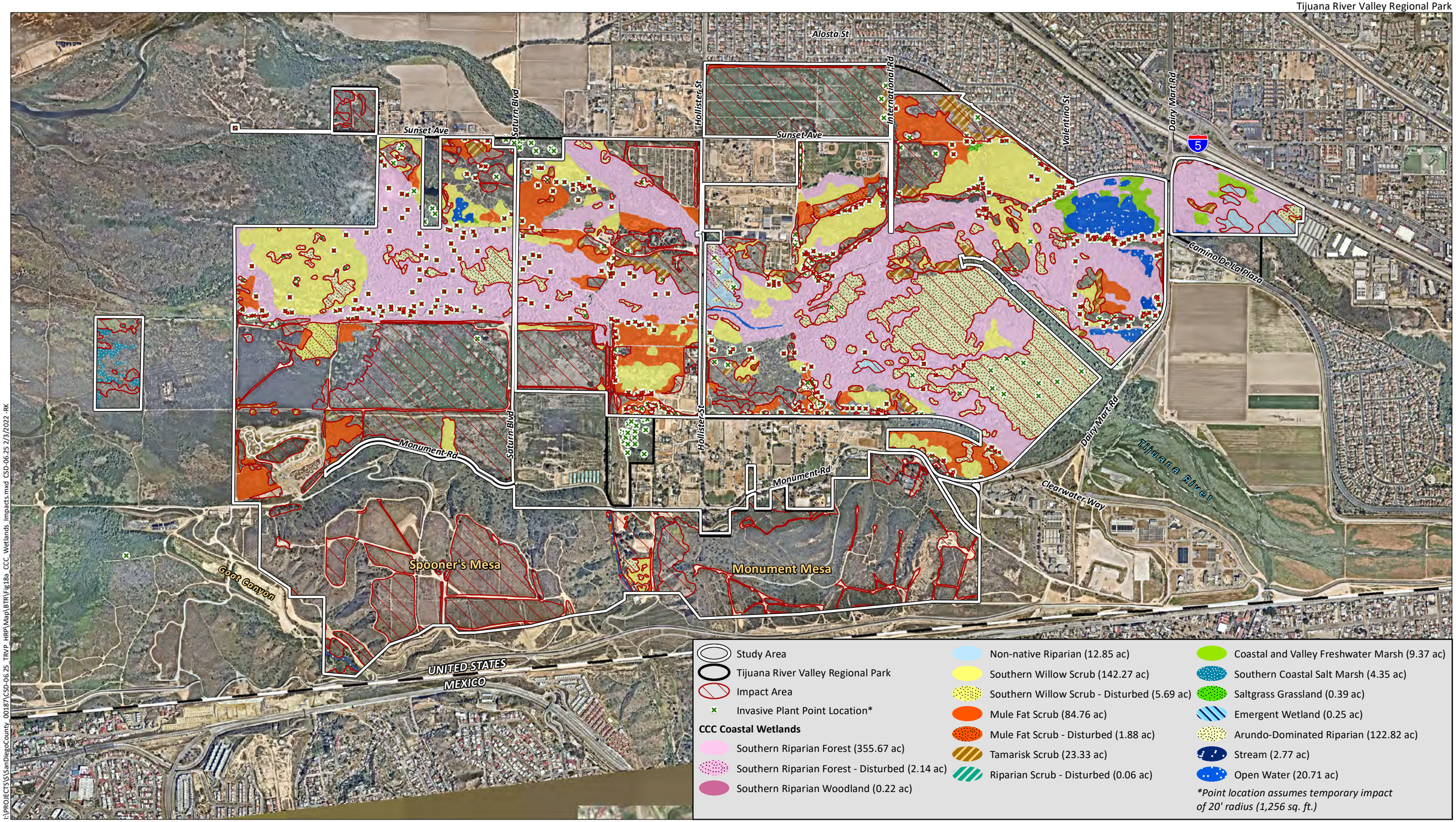
Tijuana River Valley Regional Park



Aerial Photo: Nearmap (2021)

0 1,300 Feet

N

CCC Coastal Wetlands Delineation Restoration Work Area/Impacts

Figure 18a

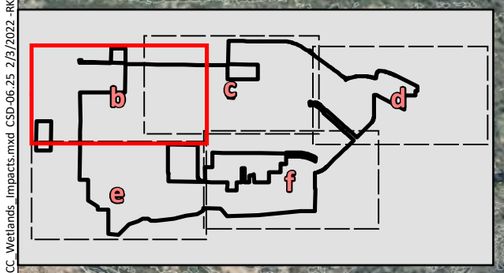
I:\PROJECTS\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig18a_CCC_Wetlands_Impacts.mxd CSD-06.25 2/3/2022 - RK

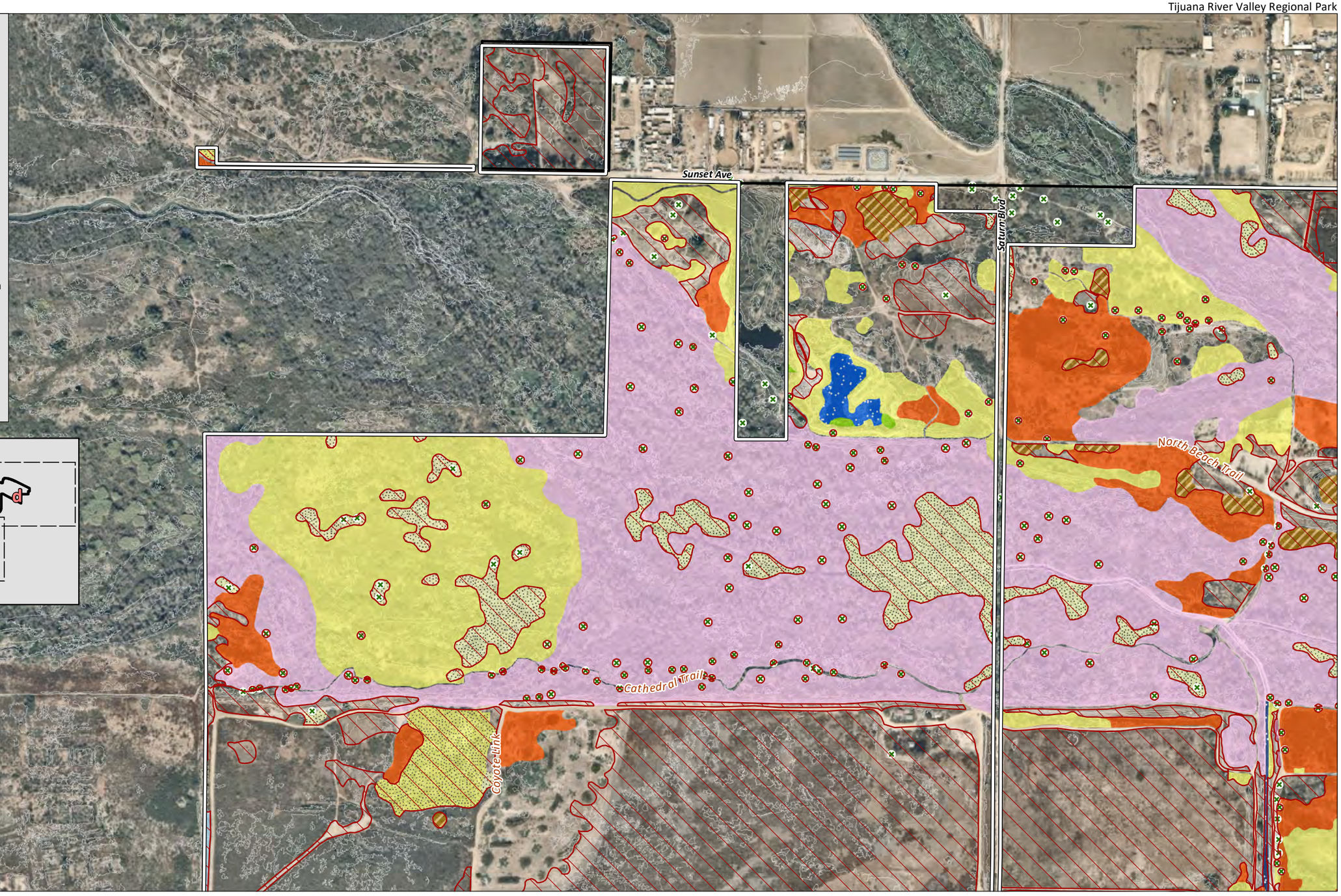
- Study Area
- Tijuana River Valley Regional Park
- Impact Area
- Invasive Plant Point Location*

CCC Coastal Wetlands

- Southern Riparian Forest
- Southern Riparian Woodland
- Non-native Riparian
- Southern Willow Scrub
- Southern Willow Scrub (Disturbed)
- Mule Fat Scrub
- Tamarisk Scrub
- Coastal and Valley Freshwater Marsh
- Southern Coastal Salt Marsh
- Arundo-Dominated Riparian
- Stream
- Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*





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Aerial Photo: Nearmap 2021

0 500 Feet

N

Coastal Wetlands Delineation Restoration Work Area/Impacts

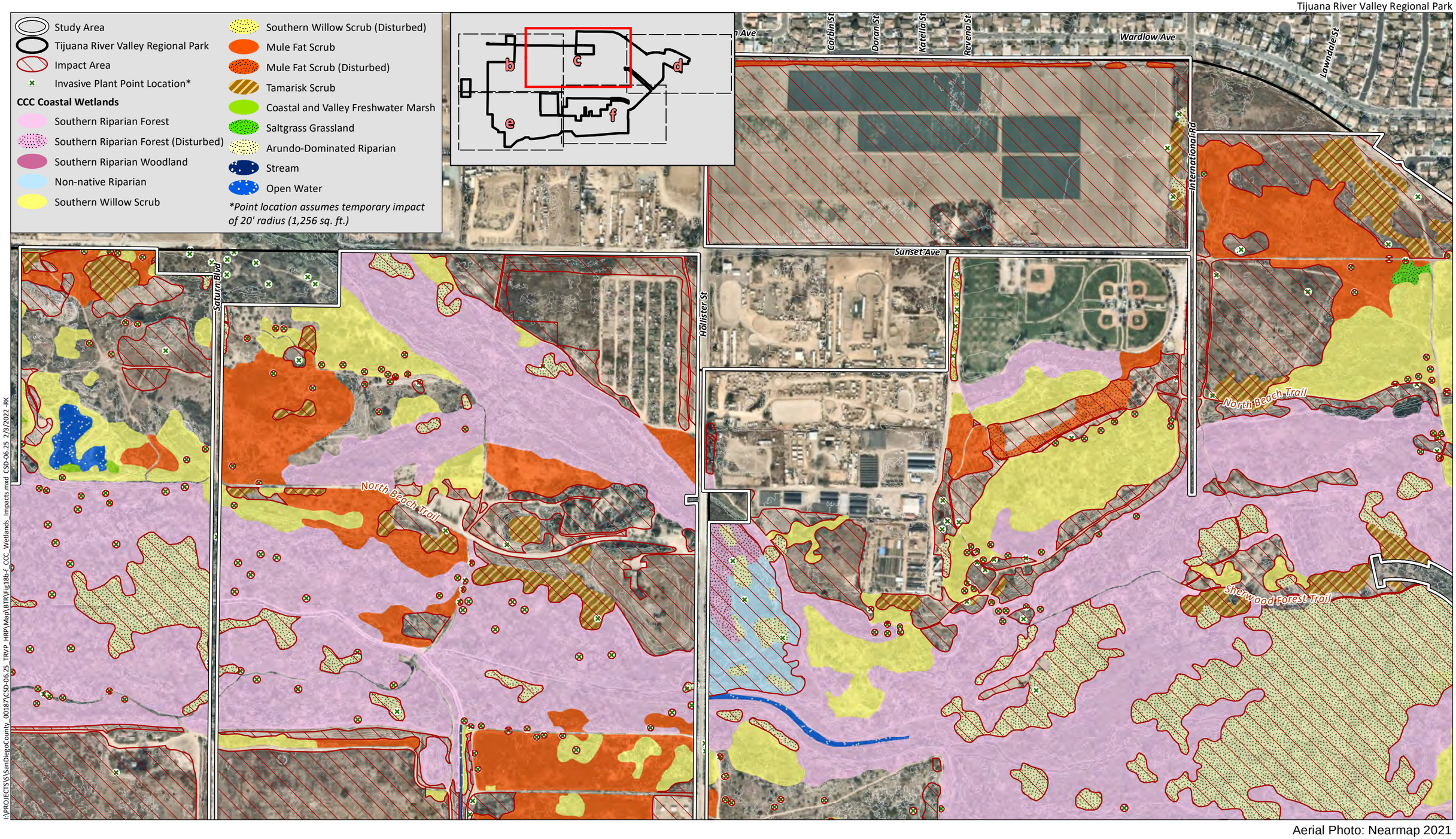
Figure 18b

Study Area
Tijuana River Valley Regional Park
Impact Area
Invasive Plant Point Location*

CCC Coastal Wetlands

Southern Riparian Forest
Southern Riparian Forest (Disturbed)
Southern Riparian Woodland
Non-native Riparian
Southern Willow Scrub
Southern Willow Scrub (Disturbed)
Mule Fat Scrub
Mule Fat Scrub (Disturbed)
Tamarisk Scrub
Coastal and Valley Freshwater Marsh
Saltgrass Grassland
Arundo-Dominated Riparian
Stream
Open Water

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*



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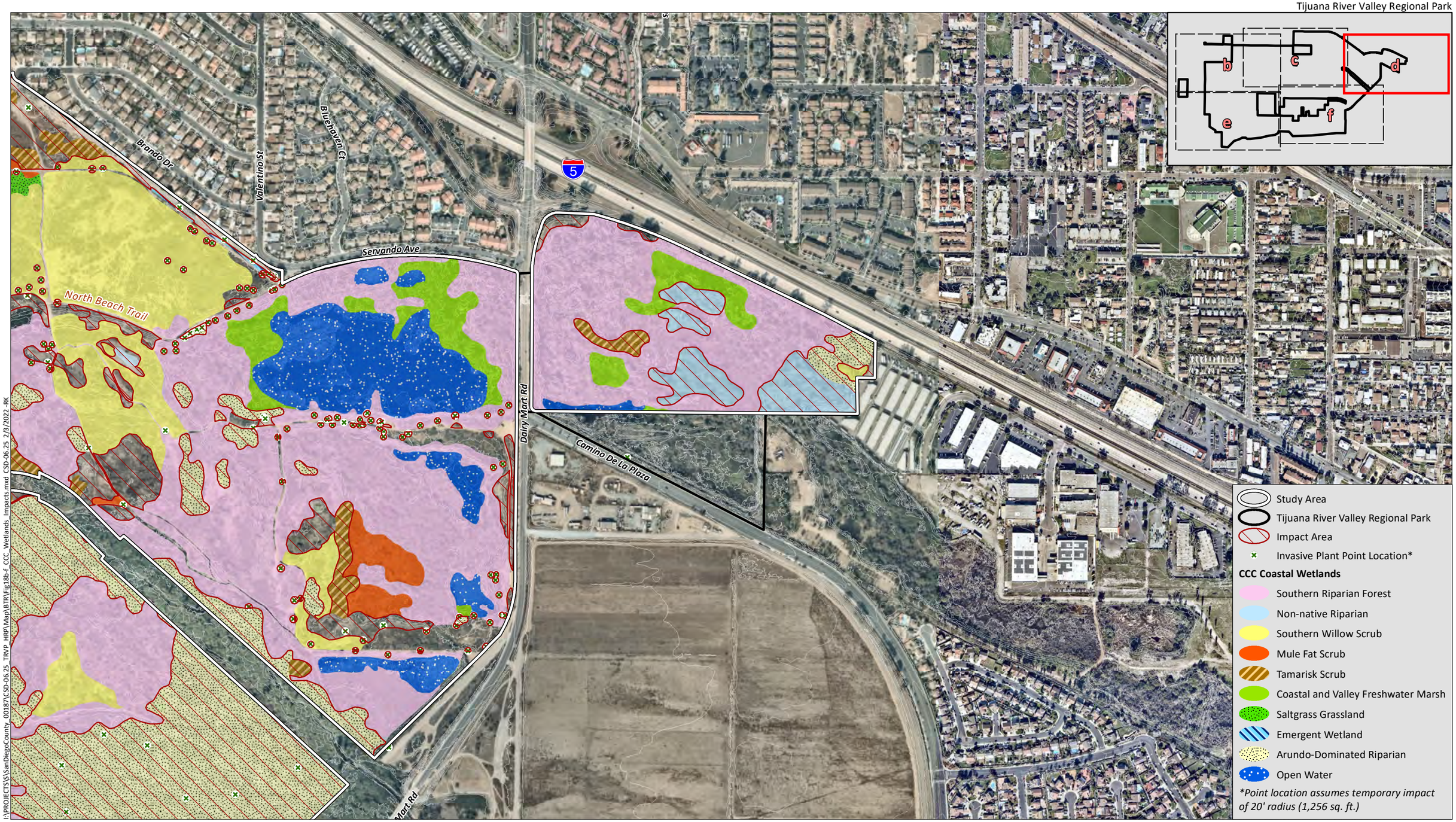
Aerial Photo: Nearmap 2021

0 500 Feet

Coastal Wetlands Delineation Restoration Work Area/Impacts

Figure 18c

Tijuana River Valley Regional Park



Aerial Photo: Nearmap 2021

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0 500 Feet

N

Coastal Wetlands Delineation Restoration Work Area/Impacts

Figure 18d

Tijuana River Valley Regional Park

South Beach Trail

Coyote Trail

Monument Rd

Saturn Blvd

Goat Canyon Trail

Spooner's Mesa

Study Area

Tijuana River Valley Regional Park

Impact Area

Invasive Plant Point Location*

CCC Coastal Wetlands

Southern Riparian Woodland

Non-native Riparian

Southern Willow Scrub

Southern Willow Scrub (Disturbed)

Mule Fat Scrub

Tamarisk Scrub

Riparian Scrub (Disturbed)

Southern Coastal Salt Marsh

Arundo-Dominated Riparian

Stream

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

b

c

d

e

f

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig18b-f_CCC_Wetlands_Impacts.mxd CSD-06.25 2/3/2022 -RK

Aerial Photo: Nearmap 2021

0 500 Feet

N

Coastal Wetlands Delineation Restoration Work Area/Impacts

Figure 18e

Tijuana River Valley Regional Park

South Beach Trail

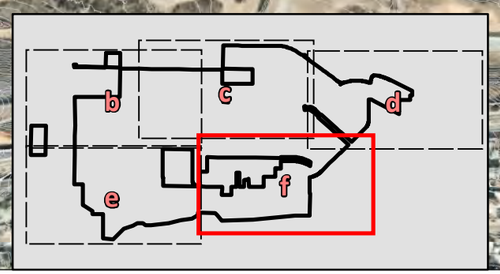
Hollister St

Monument Rd

Monument Mesa

Dairy Mart Rd

Clearwater Way



Study Area

Tijuana River Valley Regional Park

Impact Area

Invasive Plant Point Location*

CCC Coastal Wetlands

Southern Riparian Forest

Southern Riparian Woodland

Non-native Riparian

Southern Willow Scrub

Southern Willow Scrub (Disturbed)

Mule Fat Scrub

Tamarisk Scrub

Riparian Scrub (Disturbed)

Arundo-Dominated Riparian

Stream

**Point location assumes temporary impact of 20' radius (1,256 sq. ft.)*

Aerial Photo: Nearmap 2021

I:\PROJECTS\S\SanDiegoCounty_00187\CSD-06.25_TRVP_HRP\Map\BTR\Fig18b-f_CCC_Wetlands_Impacts.mxd CSD-06.25 2/3/2022 -RK

0 500 Feet

Coastal Wetlands Delineation Restoration Work Area/Impacts

Figure 18f

Table 10b
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS BY PHASE (acre[s])[1]

Resource	Resource Agency Jurisdiction (acres)			
	USACE	RWQCB	CDFW	CCC
Wetland				
Phase 1	7.83	7.83	8.43	8.43
Phase 2	8.81	8.81	9.72	9.72
Phase 3	4.17	4.17	4.17	4.17
Phase 4	98.41	98.41	104.18	104.18
Phase 5	--	--	2.10	2.10
Phase 6	0.04	0.04	0.71	0.71
Phase 7	21.27	21.27	22.60	22.60
Phase 8	1.85	1.85	4.32	4.32
Phase 9	6.00	6.00	9.14	9.14
Phase 10	0.90	0.90	0.91	0.91
Phase 11	2.42	2.42	6.87	6.87
Phase 12	--	--	1.35	1.35
Subtotal	*151.70*	*151.70*	*174.50*	*174.50*
Non-Wetland Waters				
Phase 1-12	--	--	--	--
Subtotal	--	--	--	--
TOTAL	**151.70**	**151.70**	**174.50**	**174.50**

1 Areas are presented in acre(s) rounded to the nearest 0.01.

2.4 WILDLIFE MOVEMENT AND NURSERY SITES

The open and relatively undisturbed mesas, ridges, slopes, valley bottom, and riparian corridor within the study area and surrounding TRVRP, TNERR, and TSNWR contain native habitat that provides functional wildlife habitat and movement capability. Wildlife movement functions would be maintained and improved within the TRVRP as a variety of animals are expected to use the study area, and wildlife movement is not expected to be substantially constrained by the temporary removal of invasive non-native plants and restoration of native riparian and upland habitats.

Restored areas would be expected to be used by medium and large mammals for ease of movement through the study area. No features would be constructed that would impinge any movement areas, including ridgelines or canyons. Wildlife movement is not expected to be substantially constrained by temporary construction of restoration areas as (1) restoration construction would not substantially change topography; (2) the proposed project maintains connectivity to core wildlife habitat along the Tijuana River to the surrounding undeveloped areas; (3) restoration areas would not be heavily-trafficked as to prevent animals from moving across them; and (4) existing lines-of-sight are maintained across restoration areas. The study area and surrounding preserved lands provide adequate space and resources for wildlife known to use the site, maintains connectivity to off-site resources, and functions to facilitate bird and mammal movement through the area, including for species targeted for conservation in the region, such as the coastal California gnatcatcher and least Bell's vireo. Therefore, the project would not significantly impact the viability of a core wildlife area, and biological connectivity between the TRVRP and adjacent open space areas would be maintained.

Further, the primary species of concern in this area are the coastal California gnatcatcher and least Bell's vireo. The restoration activities would not preclude the coastal California gnatcatcher and least Bell's vireo from crossing them. Coyotes are highly mobile and adaptable wildlife species also known to frequent areas within the TRVRP. Movement of other medium-sized mammals, such as bobcat, is more likely to follow riparian areas associated with the Tijuana River and other areas with sufficient vegetative cover. Given the nature of restoration and use of suitable native soils for restoration (where feasible), smaller species, such as rodents and lizards, will also be able to cross the areas safely. All impacts are considered to be temporary and will result in a net uplift of native habitats, and temporary vegetation impacts associated from restoration areas will be minimized.

Given birds' ability to fly, project construction would not result in a barrier to their movement throughout the TRVRP or to adjacent open space lands. As previously noted, the project would temporarily impact riparian vegetation along the Tijuana River, but restoration activities would result in a net gain of native riparian habitats, maintaining foraging areas for many avian species. Restoration activities would be phased, and large areas of the existing habitat would remain undisturbed, allowing for continued use by wildlife during the project implementation period. By restoring disturbed habitats along the Tijuana River and other drainages, proposed restoration would also not result in a barrier to movement for amphibian species. General wildlife movement routes would be maintained by the project.

2.5 INDIRECT IMPACTS

Potential indirect impacts may occur as a result of project implementation, as described further below.

2.5.1 Noise

Construction-related noise from sources related to clearing, grubbing, and/or trimming to remove invasive non-native vegetation would potentially impact wildlife. Restoration activities may require the daily use of heavy equipment that would elevate existing noise levels on-site. Breeding birds and mammals may temporarily or permanently leave their territories to avoid disturbances from construction activities, which could lead to reduced reproductive success and increased mortality. Potential short-term noise impacts could result from invasive non-native vegetation removal in undeveloped areas. Following project installation, noise impacts are not expected during restoration maintenance and monitoring, because all activities will utilize hand tools, as needed.

2.5.2 Lighting

Night lighting that extends from a developed area onto adjacent wildlife habitat can discourage the use of the habitat by nocturnal wildlife and can also provide nocturnal predators with an unnatural advantage over their prey, resulting in a potentially significant impact. Restoration activities would occur during daylight hours; the project would not install temporary or permanent night lighting.

2.5.3 Fugitive Dust

Fugitive dust produced restoration activities have the potential to disperse onto preserved vegetation, which may reduce the overall vigor of individual plants by reducing their photosynthetic capabilities and increasing their susceptibility to pests or disease. This, in turn, could affect animals dependent on these plants. Fugitive dust also may make plants unsuitable as habitat for insects and birds. Breeding birds and

mammals may temporarily or permanently leave their territories to avoid construction, which could lead to reduced reproductive success and increased mortality. As part of the proposed project, active construction areas, as well as unpaved surfaces, would be watered, if needed, to minimize dust generation.

2.5.4 Human Activity

Increases in human activity in the area could result in degradation of open space habitat and associated indirect impacts on sensitive species through the creation of unauthorized trails, dispersal of weed seeds, erosion along trails, and trampling or removal of vegetation during restoration activities. The project area currently operates as a Preserve with hiking trails and staging areas, which are subject to moderate human activity related to hiking and bicycle use. In general, human disturbance is minimal and constrained to trails, although there are numerous unauthorized trails in the TRVRP (HELIX 2019). As the project area is already subjected to human uses, with existing formal and informal trails, the proposed project would not represent a significant increase in human activity.

Project related human disturbance is expected to be minimal and constrained to monthly and quarterly maintenance and monitoring visits. Signage will be provided to help dissuade trespassing into closed areas and provide further protections for sensitive habitat areas. Signage and trash removal is recommended by the County's Preserve Trail Guidelines (County 2018) and is required along conservation areas and in the Bureau of Indian Affairs Lands, per the Natural and Cultural Resources Management Plan (Analytical Environmental Services 2011).

2.5.5 Domestic Predators

Domestic predators (e.g., dogs and cats) have the potential to harm native wildlife species. For example, free-roaming cats are known to injure and/or kill native wildlife, and are of particular threat to small animals, including lizards, birds, and small rodents, while off-leash dogs can be a nuisance to wildlife, resulting in changes in wildlife behavior such as alteration in patterns of habitat utilization, or damage to burrows of ground-dwelling animals. Implementation of the proposed project would not result in increased potential for encounters between domestic predators and native wildlife. Signage will be provided to help dissuade trespassing into closed areas and provide further protections for sensitive habitat areas.

2.5.6 Exotic Plant Species

Non-native plants could colonize areas disturbed by restoration activities and could potentially spread into adjacent native habitats. Many non-native plants are highly invasive and can displace native vegetation (reducing native species diversity), potentially increase flammability and fire frequency, change ground and surface water levels, and potentially adversely affect native wildlife dependent on native plant species. The project would include vigorous weed control during both project operation and during regular maintenance of the restoration areas, with a focus on highly invasive species.

3.0 SPECIAL STATUS SPECIES

3.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the USFWS or CDFW (County 2010b)?

Any of the following conditions would be considered significant if:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

C. The project would impact the local long-term survival of a County List C or D plant species or a County Group 2 animal species.

D. The project may impact arroyo toad aestivation, foraging, or breeding habitat.

E. The project would impact golden eagle (*Aquila chrysaetos*) habitat.

F. The project would result in a loss of functional foraging habitat for raptors.

G. The project would impact the viability of a core wildlife area, defined as a large block of habitat (typically 500 acres or more not limited to project boundaries, though smaller areas with particularly valuable resources may also be considered a core wildlife area) that supports a viable population of a sensitive wildlife species or supports multiple wildlife species.

H. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive species over the long term.

I. The project would impact occupied burrowing owl (*Athene cunicularia*) habitat.

J. The project would impact occupied San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) habitat, or formerly occupied San Diego cactus wren habitat that has been burned by wildfire.

K. The project would impact occupied Hermes copper butterfly (*Lycaena hermes*) habitat.

L. The project would impact nesting success of the following sensitive bird species through grading, clearing, fire fuel modification, and/or other noise-generating activities such as construction:

- Coastal cactus wren
- Coastal California gnatcatcher
- Least Bell's vireo
- Southwestern willow flycatcher
- Tree-nesting raptors
- Ground-nesting raptors
- Golden eagle
- Light-footed Ridgway's rail

3.2 ANALYSIS OF PROJECT EFFECTS

3.2.1 Significant Impacts

The following discussion of impacts to special status species is broken down by Treatment Area/project phase. Refer to Tables 7 and 8 in Section 2.1.2 for an overview of temporary habitat impacts affecting special status species by each treatment area and for the overall totals.

3.2.1.1 Treatment Area 1

Treatment Area 1 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 1 could impact one federally and state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 1 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at three locations within Treatment Area 1 during 2021 protocol surveys. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. Treatment Area 1 would temporarily impact a total of 8.50 acres of suitable habitat for this species, including 6.24 acres of non-native riparian, 0.75 acre of tamarisk scrub, and 1.51 acres of arundo-dominated riparian. The project would not preclude the use of suitable habitat by this species, and occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Following project restoration activities, the impacted areas will be restored with native riparian habitat. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through

implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 1: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County Group 1 Birds and Raptors

Project construction in Treatment Area 1 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 1 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the trail segments. Impacts to least Bell's vireo could occur from Treatment Area 1, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.2 Treatment Area 2

Treatment Area 2 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 2 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 2 (Figure 4).

The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at 43 locations within Treatment Area 2 during 2021 protocol surveys. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. Treatment Area 2 would temporarily impact a total of 9.86 acres of suitable habitat for this species, including 0.86 acre of southern riparian forest, 0.16 acre of non-native riparian, 0.33 acre of southern willow scrub, 0.06 acre of mule fat scrub, 1.76 acres of tamarisk scrub, and 6.69 acres of arundo-dominated riparian. Following project restoration activities, the impacted areas will be restored with native riparian habitat. The project would not preclude the use of suitable habitat by this species, and occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 2: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

<u>San Diego marsh-elder</u>

The project activities within Treatment Area 2 would impact up to two individuals of CRPR 2B.2/County List B San Diego marsh-elder. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-3.**

<u>Singlewhorl burrobrush</u>

The project activities within Treatment Area 2 would impact up to two individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 2 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, yellow warbler, great blue heron, green heron, double-crested cormorant, American white pelican, and white-faced ibis), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, yellow warbler, great blue heron, green heron, double-crested cormorant, American white pelican, and white-faced ibis would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 2 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the trail segments. Impacts to least Bell's vireo could occur from Treatment Area 2, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.3 Treatment Area 3

Treatment Area 3 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 3 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 3 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at two locations within Treatment Area 3 during 2021 protocol surveys. Treatment Area 3 would temporarily impact a total of 4.14 acres of suitable habitat for this species, comprising 0.03 acre of southern willow scrub, 0.02 acre of mule fat scrub, and 4.09 acres of tamarisk scrub. Least Bell's vireo have been documented within these vegetation communities in the study area,

and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 3: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County Group 1 Birds and Raptors

Project construction in Treatment Area 3 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 3 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the trail segments. Impacts to least Bell's vireo could occur from Treatment Area 3, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.4 Treatment Area 4

Treatment Area 4 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 4 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 4 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at 21 locations within Treatment Area 4 during 2021 protocol surveys. Treatment Area 4 would temporarily impact a total of 104.28 acres of suitable habitat for this species, including 0.32 acre of southern riparian forest, 2.14 acres of disturbed riparian forest, 6.04 acres of non-native riparian, 0.14 acre of southern willow scrub, 0.13 acre of mule fat scrub, 5.74 acres of tamarisk scrub, and 89.77 acres of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered the occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 4: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

<u>Singlewhorl burrobrush</u>

The project activities within Treatment Area 4 would impact up to two individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 4 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 4 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 4, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.5 Treatment Area 5

Treatment Area 5 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 5 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 5 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least bell's vireo were observed at nine locations within Treatment Area 5 during 2021 protocol surveys. Treatment Area 5 would temporarily impact a total of 2.13 acres of suitable habitat for this species, comprising 0.04 acre of southern riparian forest, 0.03 acre of southern willow scrub, 0.04 acre of mule fat scrub, and 2.02 acres of arundo-dominated riparian. Least Bell's vireo have been documented within this vegetation community in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species,

and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 5: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

Singlewhorl burrobrush

The project activities within Treatment Area 5 would impact up to one individual of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 5 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1 and BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 5 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 5, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction

noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.6 Treatment Area 6

Treatment Area 6 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 6 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 6 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below

Least Bell's Vireo

Least bell's vireo were observed at one locations within Treatment Area 6 during 2021 protocol surveys. Treatment Area 6 would temporarily impact a total of 0.69 acre of suitable habitat for this species, including 0.03 acre of southern riparian forest, 0.13 acre of southern willow scrub, 0.22 acre of mule fat scrub, 0.28 acre of tamarisk scrub, and 0.03 acre of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 6: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County Group 1 Birds and Raptors

Project construction in Treatment Area 6 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-

tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 6 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 6, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.7 Treatment Area 7

Treatment Area 7 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 7 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 7 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least bell's vireo were observed at 19 locations within Treatment Area 7 during 2021 protocol surveys. Treatment Area 7 would temporarily impact a total of 23.03 acres of suitable habitat for the species, including 2.35 acres of southern riparian forest, 0.12 acre of southern willow scrub, 0.03 acre of mule fat scrub, 4.24 acres of tamarisk scrub, and 16.29 acres of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 7: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

Singlewhorl burrobrush

The project activities within Treatment Area 7 would impact up to 15 individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 7 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 7 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 7, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.8 Treatment Area 8

Treatment Area 8 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 8 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 8 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least bell's vireo were observed at 19 locations within Treatment Area 8 during 2021 protocol surveys. Treatment Area 8 would temporarily impact a total of 4.61 acres of suitable habitat for this species, including 0.38 acre of southern riparian forest, 0.31 acre of southern willow scrub, 0.13 acre of mule fat scrub, 2.10 acres of tamarisk scrub, and 1.69 acres of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 8: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

<u>Singlewhorl burrobrush</u>

The project activities within Treatment Area 8 would impact up to two individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 8 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1 and BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 8 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 8, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.9 Treatment Area 9

Treatment Area 9 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 9 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 9 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at 14 locations within Treatment Area 9 during 2021 protocol surveys. Treatment Area 9 would temporarily impact a total of 9.68 acres of suitable habitat for this species, including 0.26 acre of southern riparian forest, 0.51 acre of disturbed southern riparian forest, 0.29 acre of southern willow scrub, 0.52 acre of disturbed southern willow scrub, 1.88 acres of disturbed mule fat scrub, 3.12 acres of tamarisk scrub, and 3.10 acres of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this

habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 9: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

San Diego marsh-elder

The project activities within Treatment Area 9 would impact up to four individuals of CRPR 2B.2/County List B San Diego marsh-elder. This impact is potentially significant but would be reduced to a less than significant level through inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-3.**

Singlewhorl burrobrush

The project activities within Treatment Area 9 would impact up to 13 individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 9 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 9 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 9, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.10 Treatment Area 10

Treatment Area 10 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 11 could impact one federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 11 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at one location within Treatment Area 10 during 2021 protocol surveys. Treatment Area 10 would temporarily impact a total of 0.90 acre of suitable habitat for this species, including 0.09 acre of disturbed southern willow scrub, 0.55 acre of tamarisk scrub, and 0.26 acre of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 2: least Bell's vireo. Least Bell's vireo is discussed above under guideline A.

County Group 1 Birds and Raptors

Project construction in Treatment Area 10 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 10 could impact the nesting success of least Bell's vireo and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the Treatment Areas. Impacts to least Bell's vireo could occur from Treatment Area 10, based on 2021 protocol survey results. If least Bell's vireo or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.11 Treatment Area 11

Treatment Area 11 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 11 could impact two federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo and coastal California gnatcatcher. In addition, USFWS-designated critical habitat for the least Bell's vireo is present throughout Treatment Area 11 (Figure 4). The project would result in minor impacts to least Bell's vireo critical habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least bell's vireo were observed at six locations within Treatment Area 11 during 2021 protocol surveys. Treatment Area 11 would temporarily impact a total of 6.87 acres of suitable habitat for this species, including 0.02 acre of southern riparian forest, 0.41 acre of non-native riparian, 4.94 acres of disturbed southern willow scrub, 1.23 acres of tamarisk scrub, and 0.27 acre of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

Coastal California Gnatcatcher

Coastal California gnatcatchers were observed at two locations within Treatment Area 11 during 2021 protocol surveys. Treatment Area 11 would avoid direct impacts to Diegan coastal sage scrub, thereby avoiding direct impacts to the coastal California gnatcatcher. Treatment Area 11 would not impact Diegan coastal sage scrub. Project construction within 300 feet of on- and off-site breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. These impacts would be considered significant. These impacts would be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 11: least Bell's vireo, coastal California gnatcatcher. Least Bell's vireo and coastal California gnatcatcher are discussed above under guideline A.

County Group 1 Birds and Raptors

Project construction in Treatment Area 11 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 11 could impact the nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo, coastal California gnatcatchers, and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the trail segments. Impacts to least Bell's vireo and coastal California gnatcatcher could occur from Treatment Area 11, based on 2021 protocol survey results. If least Bell's vireo, coastal California gnatcatcher, or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.1.12 Treatment Area 12

Treatment Area 12 of the proposed project would result in significant impacts under the **above guidelines 3.1.A, 3.1.B, and 3.1.L** for the following reasons:

A. The project would impact one or more individuals of a species listed as federally or state endangered or threatened.

Without mitigation, Treatment Area 12 could impact three federally or state listed species detected within the study area during surveys conducted by HELIX to date: least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly. The project would result in minor impacts to least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly habitat areas that occur on-site as discussed below.

Least Bell's Vireo

Least Bell's vireo were observed at six locations within Treatment Area 12 during 2021 protocol surveys. Treatment Area 12 would temporarily impact a total of 1.83 acres of suitable habitat for this species, including 0.13 acre of disturbed southern willow scrub, 0.48 acre of tamarisk scrub, 0.06 acre of disturbed riparian scrub, and 1.16 acres of arundo-dominated riparian. Least Bell's vireo have been documented within these vegetation communities in the study area, and the majority of this habitat would be considered occupied by least Bell's vireo. The project would not preclude the use of suitable habitat by this species, and the occupied habitat would remain contiguous with the suitable habitat throughout the TRVRP. Project construction within 500 feet of breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. Impacts to breeding least Bell's vireo, occupied habitat, and temporary (foraging, migration, and dispersal) habitat would be significant. However, because impacts to occupied habitat would be small in relation to the total occupied habitat within the TRVRP and through the implementation of mitigation measures **BIO-1** and **BIO-2**, impacts to this species would be reduced to less than significant.

Coastal California Gnatcatcher

Coastal California gnatcatchers were observed at 20 locations within Treatment Area 12 during 2021 protocol surveys. Treatment Area 12 would temporarily impact a total of 20.4 acres of suitable habitat for this species, comprising 20.4 acres of disturbed Diegan coastal sage scrub. Project construction within 300 feet of on- and off-site breeding habitat for this sensitive bird species could result in adverse indirect impacts related to construction noise. These impacts would be considered significant. These impacts would be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

Quino Checkerspot Butterfly

Quino checkerspot butterfly were observed at three locations within Treatment Area 12 during surveys conducted in 2019. Treatment Area 12 would temporarily impact a total of 20.4 acres of suitable habitat for this species, comprising 20.4 acres of disturbed Diegan coastal sage scrub. Project construction within on-site breeding habitat for this sensitive species could result in adverse impacts. These impacts would be considered significant. These impacts would be mitigated through the implementation of mitigation measure **BIO-5**.

B. The project would impact an on-site population of a County List A or B plant species, or a County Group 1 animal species, or a species listed as a state Species of Special Concern.

Project impacts to the following County Group 1, List A, and/or state Species of Special Concern are potentially significant in Treatment Area 12: least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly. Least Bell's vireo, coastal California gnatcatcher, and Quino checkerspot butterfly are discussed above under guideline A.

County List A or B Plant Species and/or CRPR 1 or 2 Species

<u>Singlewhorl burrobrush</u>

The project activities within Treatment Area 12 would impact up to 34 individuals of CRPR 2B.2 singlewhorl burrobrush. This impact is potentially significant but would be reduced to a less than significant level through the inclusion of this species in the project's restoration plant palette, and by providing additional habitat for the species following completion of restoration activities. These impacts will be mitigated through the implementation of mitigation measure **BIO-4.**

County Group 1 Birds and Raptors

Project construction in Treatment Area 12 could impact the nesting success of County Group 1 birds and raptors (osprey, Cooper's hawk, red-shouldered hawk, northern harrier, and white-tailed kite), all of which have the potential to nest on and/or within 500 feet of impact areas. Noise from such sources as clearing and grading activities could result in an impact to these species. Noise-related impacts would be considered significant if these sensitive avian species were displaced from their nests and failed to breed. Impacts to osprey, Cooper's hawk, red-shouldered hawk, northern harrier, white-tailed kite, yellow-breasted chat, and yellow warbler would be reduced to a level below significance through the implementation of mitigation measures **BIO-1** and **BIO-2**.

L. The project could impact nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors through grading, clearing, fire fuel modification, and/or other noise generating activities such as construction.

Project construction for Treatment Area 12 could impact the nesting success of coastal California gnatcatcher, least Bell's vireo, and tree-nesting raptors, which have the potential to nest on and/or within 500 feet of construction impact areas. Noise from clearing and grading could result in an impact to wildlife. Noise-related impacts would be considered significant if sensitive species (such as least Bell's vireo, coastal California gnatcatchers, and raptors) were displaced from their nests and failed to breed. Raptors or other sensitive bird species nesting within any area impacted by noise exceeding 60 decibels (dB) or ambient could be significantly impacted. Tree-nesting raptors could be impacted along any of the trail segments. Impacts to least Bell's vireo and coastal California gnatcatcher could occur from Treatment Area 12, based on 2021 protocol survey results. If least Bell's vireo, coastal California gnatcatcher, or tree-nesting raptors are nesting within 300 feet of the impact area (500 feet for raptors), effects resulting from construction noise would be significant. These impacts will be mitigated through the implementation of mitigation measures **BIO-1** and **BIO-2**.

3.2.2 No Impact or Less than Significant Impacts

The project would result in less than significant or no impacts under **Guidelines 3.1.A, 3.1.B, 3.1.C, 3.1.E, 3.1.F, 3.1.G, 3.1.H, 3.1.I, 3.1.J, and 3.1.K** for the following species and reasons:

A. Non-significant impacts under County Guideline 3.1.A

Baja California Birdbush

Impacts to the State endangered Baja California birdbush would not occur, as the locations occur outside of proposed restoration areas where no impacts are proposed, and thus, project impacts on this species are unlikely.

B. Non-significant impacts under County Guideline 3.1.B

Impacts to the following species would be less than significant, as discussed below.

State Species of Special Concern and County Lists A and B Plants

Impacts to plants (San Diego bur-sage, golden-spined cereus, wart-stemmed ceanothus, cliff spurge, San Diego barrel cactus, San Diego marsh-elder, sea dahlia, Torrey pine, and Nuttall's scrub oak) that are state Species of Special Concern or County Groups A and B would not occur, as the locations occur outside of proposed restoration areas where no impacts are proposed and thus, project impacts on these species are not expected.

State Species of Special Concern and County Group 1 Wildlife

American White Pelican

No removal of suitable habitat (open water at Dairy Mart Pond or Duck Ponds) would occur in any of the Treatment Areas for American white pelican. The project would not impact an on-site population of American white pelican, and impacts would be less than significant.

White-Faced Ibis

No removal of suitable habitat (open water at Dairy Mart Pond or Duck Ponds) would occur in any of the Treatment Areas for white-faced ibis. This species is not expected to breed in the study area as no known nesting colonies occur in the region. The project would not impact an on-site population of American white pelican, and impacts would be less than significant.

Turkey Vulture

Suitable foraging and/or roosting habitat for the turkey vulture would be temporarily impacted in all the Treatment Areas, but suitable nesting habitat would not be impacted. Turkey vulture is a wide-ranging species that flies over large territories, and suitable habitat occurs in the surrounding area, including preserved habitat within the TRVRP. Suitable nesting habitat for the species within the study area would be restricted to rocky crevices present in the southern portion at Spooner's and Monument Mesa, particularly steeper slopes bordering Smuggler's Gulch. No nesting turkey vultures were observed within the study area. Therefore, the project would not impact an on-site population of turkey vulture, and impacts would be less than significant.

Sharp-shinned Hawk

Temporary removal of suitable habitat for sharp-shinned hawk would occur in Treatment Area 12; however, ample suitable habitat occurs in the surrounding area to be avoided, including preserved habitat within the TRVRP. The species is presumed to be a wintering visitor to the TRVRP as no later observations of the species occurred in the summer months and no breeding records for the species occur in the area (Unitt 2004). Sharp-shinned hawks are not known to nest within southern California, primarily being found as a migrant and wintering species. Summering and possible breeding records for the species within San Diego County are restricted to higher elevation areas in the eastern portion of the County, such as the Cuyamaca Mountains (Unitt 2004). Therefore, the on-site population of sharp-shinned hawk would not be impacted, and impacts would be less than significant.

American Peregrine Falcon

Temporary removal of suitable habitat for sharp-shinned hawk would occur in Treatment Area 12; however, ample suitable habitat occurs in the surrounding area to be avoided, including preserved habitat within the TRVRP. This species is not expected to nest in the study area as slopes in the southern portion, while steep, are not near vertical cliffs with suitable rocky ledges where falcons would construct nests. Therefore, the on-site population of American peregrine falcon would not be impacted, and impacts would be less than significant.

Remaining State Species of Special Concern and County List 1 Wildlife

Impacts to reptiles/amphibians (spadefoot toad, Baja California coachwhip, Blainville's horned lizard) and mammals (western mastiff bat, western red bat, San Diego black-tailed jackrabbit, San Diego desert woodrat, and pocketed free-tailed bat) that are state Species of Special Concern would be less than significant as these are highly mobile animals; any restoration of disturbed habitats would avoid impacting native vegetation, no woodrat nests were observed within the proposed restoration areas, and the proposed project footprint comprises a small fraction of the available habitat within the TRVRP for these species. Construction of the project is not anticipated to impact the western spadefoot toad, but trail use may impact the species. Therefore, DPR will implement adaptive management to reduce

impacts to the species, as needed. Additionally, as a regional conservation program, the MSCP also protects covered and 'non-target' species such as these through habitat acquisition and preservation efforts. Because the TRVRP includes extensive habitat occupied by these relatively common species, and these species are conserved through the MSCP program, the project impacts on these species would not be significant.

C. The project would not impact the local long-term survival of a County List C or D plant species or a County Group 2 animal species.

The following County List C or D plant species, County Group 2 animal species, and Birds of Conservation Concern have been detected on the project area, but their local long-term survival would not be impacted: ashy spike-moss, southwestern spiny rush, San Diego viguiera, western dichondra, Southern California black walnut, San Diego sagewort, monarch, Belding's orange-throated whiptail, gadwall, Costa's hummingbird, merlin, horned lark, Lawrence's goldfinch, western bluebird, great blue heron, green heron, barn owl, double-crested cormorant, and Yuma myotis. These species are further discussed below.

County Groups C and D Plants

Impacts to ashy spike-moss, San Diego viguiera, western dichondra, and southern California black walnut, that are County Groups C and D, would not occur, as the locations occur outside of proposed restoration areas where no impacts are proposed and thus, project impacts on these species are unlikely.

Southwestern Spiny Rush

Southwestern spiny rush is a CRPR 4.2 species, and County List D. This species was mapped at five locations in the northern portion of the study area in Treatment Areas 7 and 11. While proposed project restoration activities would avoid and minimize potential impacts to southwestern spiny rush, the following individuals occur within or directly adjacent to disturbed habitat areas targeted for project restoration: eight individuals within Treatment Area 11. The removal of a few individual plants within the study area is not a significant impact given the abundance of this species across the City of San Diego MSCP Subarea. Project impacts to this species would not impact the local long-term survival of this species.

San Diego Sagewort

San Diego sagewort is a CRPR 4.2 species, and County List D. This species was mapped at five locations in the northern portion of the study area in Treatment Areas 7 and 11. While proposed project restoration activities would avoid and minimize potential impacts to southwestern spiny rush, the following individuals occur within or directly adjacent to disturbed habitat areas targeted for project restoration: one individual within Treatment Area 9. The removal of a few individual plants within the study area is not a significant impact given the abundance of this species across the City of San Diego MSCP Subarea. Project impacts to this species would not impact the local long-term survival of this species.

County Group 2 Animals

Impacts to gadwall, great blue heron, and green heron, that are County Group 2, would not occur, as no removal of suitable habitat (open water at Dairy Mart Pond and Duck Ponds) would occur in any of the

Treatment Areas. The locations occur outside of proposed restoration areas where no impacts are proposed and thus, project impacts on these species are unlikely.

Monarch

No removal of known roosting habitat or larval host plants for the monarch butterfly would occur. Nectar sources are assumed to occur within the study area; however, their removal would not significantly affect the monarch, as it is a wide-ranging species that moves through the area briefly during migration.

Belding's Orange-throated Whiptail

Removal of suitable habitat for Belding's orange-throated whiptail would occur in Treatment Areas 4, 5, 7, 9, and 12; however, extensive habitat for this species is already preserved throughout the region within the TRVRP and other open space areas present within the vicinity such that impacts would be less than significant.

Merlin

Temporary removal of suitable habitat for merlin would occur in Treatment Area 12; however, extensive habitat for this species is already preserved throughout the region within the TRVRP and other open space areas present within the vicinity such that impacts would be less than significant.

Horned Lark

Temporary removal of suitable habitat for horned lark would occur in Treatment Area 12; however, extensive habitat for this species is already preserved throughout the region within the TRVRP and other open space areas present within the vicinity such that impacts would be less than significant.

Western Bluebird

Temporary removal of suitable habitat for western bluebird would occur in Treatment Area 12; however, extensive habitat for this species is already preserved throughout the region within the TRVRP and other open space areas present within the vicinity such that impacts would be less than significant.

Barn Owl

Temporary removal of suitable habitat for barn owl would occur in all Treatment Areas; however, extensive habitat for this species is already preserved throughout the region within the TRVRP and other open space areas present within the vicinity such that impacts would be less than significant.

E. The project would not impact golden eagle habitat.

The study area does not contain suitable nesting habitat for the species and the area is not within any known golden eagle territory. Golden eagles are occasional visitors to the TRVRP and could forage over portions of the study area; however, no known active nest sites occur within 4,000 feet of the study area. No impacts would occur to golden eagle or its habitat.

F. The project would not result in a loss of functional foraging habitat for raptors.

All impacts to habitat within the study area would be temporary and occur as the removal of invasive non-native plant species and restoration of those areas with native riparian or upland habitat. The suitable habitat onsite within the study area is considered optimal raptor foraging habitat and would remain so after restoration activities. Thus, the removal of invasive non-native plants for restoration of native riparian and upland habitat would not constitute an effect on raptor foraging habitat, as the restoration activities would not affect the study area's functionality for raptor foraging and would not have a substantial adverse effect on the long-term survival of raptor species within the City of San Diego MSCP Subarea. Impacts to raptor foraging would be less than significant; however, the habitat impacted by the project would be mitigated as described in Section 4.0.

G. The project would not impact the viability of a core wildlife area, defined as a large block of habitat (typically 500 acres or more not limited to project boundaries, though smaller areas with particularly valuable resources may also be considered a core wildlife area) that supports a viable population of a sensitive wildlife species or supports multiple wildlife species.

The study area is part of a core wildlife area, the majority of the study area occurs within the Tijuana Estuary/River Valley BRCA. However, project activities comprising restoration on a maximum of 587.93 acres of disturbed habitats is expected to improve local wildlife movement given that restoration is designed to maintain and improve core wildlife areas and improve connectivity to preserved habitats existing within the TRVRP and connectivity to preserved lands within the adjacent Border Field State Park, TRNERR, and TSNWR. Additionally, the proposed project restoration would improve movement through the area for species targeted for conservation in the region, such as the coastal California gnatcatcher and least Bell's vireo. Therefore, the existing preserved lands on the site would continue to provide regional landscape-level conservation functions. Therefore, the effects on the viability of a core wildlife area would be less than significant under County Guideline 3.1.G.

H. The project would not cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive species over the long term.

Human access would not increase substantially because the study area currently has existing dirt roads, trails, and roads, which are subject to moderate to heavy human activity related to hiking, bicycle use, and vehicles. As the majority of the site is already subjected to human uses, with some of the proposed trails following existing informal trails, the proposed project would not represent a significant increase in human activity. Furthermore, signage to direct visitors onto established trails would help dissuade trespassing into closed areas and provide further protections for sensitive habitat areas.

Signs and wildlife-friendly fencing will also be installed where needed to protect Quino host plant areas from human access and trampling.

Dogs are currently required to be on-leash within County parks, and the effects of off-leash dogs on wildlife would be further minimized through the installation of signage along the trails reminding hikers that off-leash dogs are prohibited. Trails would not be lit and are considered unlikely to be used by people walking dogs during the night, thus minimizing encounters with nocturnal wildlife.

Signage would also be installed to encourage responsible behavior by equestrian visitors, thus minimizing the spread of weed seeds, flies, and brown-headed cowbirds (*Molothrus ater*) from horse

manure. The trail will be designed and constructed to minimize erosion and runoff. Potential indirect impacts from construction noise are discussed under Guideline 3.1.L. Noise impacts are not expected during project operation/restoration maintenance activities. Therefore, indirect impacts on sensitive species will be less than significant.

I. The project would not impact occupied burrowing owl habitat.

Burrowing owls were not observed during biological surveys, the site does not support suitable burrowing owl habitat, and the project would have no impact on burrowing owl.

J. The project would not impact occupied cactus wren habitat, or formerly occupied coastal cactus wren habitat that has been burned by wildfire.

Coastal cactus wren was not observed during biological surveys, the site does not support suitable coastal cactus wren habitat, and the project would have no impact on coastal cactus wren.

K. The project would not impact occupied Hermes copper butterfly habitat.

The project area does not support Hermes copper butterfly habitat. The species' host plant, spiny redberry (*Rhamnus crocea*), is present in the TRVRP but does not occur in the proposed riparian restoration areas or upland restoration areas and impacts to suitable habitat for Hermes copper butterfly are not expected. Therefore, the project would have a less than significant impact on Hermes copper butterfly.

3.3 CUMULATIVE IMPACT ANALYSIS

The proposed project would result in minimal impacts to sensitive species and their habitats. The project impacts to sensitive habitat would be limited to 216.94 acres, out of an approximately 1,963.59-acre study area. The proposed project would not contribute to a significant cumulative impact on least Bell's vireo, coastal California gnatcatcher, or Quino checkerspot butterfly. The project includes avoidance and minimization measures to avoid riparian habitat occupied by least Bell's vireo, to avoid sage scrub habitat occupied by coastal California gnatcatcher, and to avoid habitat occupied by Quino checkerspot butterfly. The project would potentially impact a maximum of 221.42 acres of critical habitat for the least Bell's vireo. However, the project would implement the required least Bell's vireo avoidance measures, and all impacts would be temporary and followed by restoration of native riparian habitats.

As the proposed project would ultimately be in conformance with the City of San Diego MSCP Subarea Plan and any other projects proposed in the vicinity would also have to follow the City of San Diego MSCP Subarea Plan, cumulative impacts would be considered fully mitigated.

3.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

BIO-1 Grubbing or clearing of vegetation of any project phase during the general avian breeding season (February 1 to September 15), least Bell's vireo breeding season (March 15 to September 15), coastal California gnatcatcher breeding season (March 1 to August 15), or raptor breeding season (January 15 to July 15) shall be avoided to the extent feasible. If grubbing, clearing, or grading would occur during the breeding season, a pre-construction survey shall be conducted by a qualified biologist no more than three days prior to the commencement of

activities to determine if active bird nests are present in the affected areas. If there are no nesting birds (includes nest building or other breeding/nesting behavior) within 300 feet of the survey area (500 feet for raptors), clearing, grubbing, and grading shall be allowed to proceed in that area. Furthermore, if clearing, grubbing, or grading activities are to resume in an area where they have not occurred for a period of seven or more days during the breeding season, an updated survey for avian nesting will be conducted by a qualified biologist within three days prior to the commencement of clearing, grubbing, or grading activities in that area. If active nests or nesting birds are observed within 300 feet of the survey area (500 feet for raptors), the biologist shall flag a buffer around the active nests, and clearing, grubbing, or grading activities shall not occur within 300 feet of active nests (500 feet for raptors) until nesting behavior has ceased, nests have failed, or young have fledged as determined by a qualified biologist. If the qualified biologist determines that the species will not be impacted with a reduced buffer (i.e., less than 300 feet for general avian species and 500 feet for raptors), potentially with the implementation of avoidance measures to reduce noise, as necessary, and/or the qualified biologist monitors the active nest during clearing, grubbing, or grading to ensure no impacts to the species occur, these activities may occur outside the reduced buffer during the breeding season, as long as the species is not impacted.

BIO-2 If heavy equipment would be in operation in any project phase during the breeding season for least Bell's vireo (March 15 to September 15), coastal California gnatcatcher (March 1 to August 15), or raptors (January 15 to July 15), pre-construction survey(s) shall be conducted by a qualified biologist, as appropriate, to determine whether these species occur within the areas potentially impacted by noise. If pre-construction surveys determine that active nests belonging to these species are absent from the potential impact area (within 300 feet for vireo or gnatcatcher, 500 feet for raptors, or as otherwise determined by a qualified biologist), clearing, grubbing, and grading shall be allowed to proceed. If pre-construction surveys determine the presence of active nests belonging to these species, then clearing, grubbing, and grading within 300 feet of the nest location(s) for vireo or gnatcatcher and 500 feet for raptors, shall: (1) be postponed until a permitted biologist determines the nest is no longer active; (2) be allowed to continue if nest monitoring by a qualified biologist determines that noise levels are not adversely affecting the nesting birds, or (3) not occur until a temporary noise barrier or berm is constructed at the edge of the clearing, grubbing, or grading footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 A-weighted decibels (dBA) or ambient at the nest location. Decibel output for Item (3) will be confirmed by a qualified noise specialist and intermittent monitoring by a qualified biologist will be required to ensure that conditions have not changed.

BIO-3 Mitigation for impacts occurring within all project phases to six individuals of San Diego marsh-elder, a CRPR 2B.2 and County List B plant species, shall occur through the inclusion of this species in the project's restoration plant palette.

BIO-4 Mitigation for impacts occurring within all project phases to 68 individuals of singlewhorl burrobrush, a CRPR 2B.2 plant species, shall occur through the inclusion of this species in the project's restoration plant palette.

BIO-5 The following Quino conservation measures apply in Phase/Treatment Area 12, shown as Quino Checkerspot Butterfly Avoidance Area on Figures 14a and 14e-14f.

Step 1, Survey

- Additional Quino host plant mapping conducted prior to construction when host plants are blooming, in order to ensure host plant patches are delineated to the greatest extent feasible.
- During host plant mapping, host plant patches will be mapped using GPS so they can be flagged prior to construction.

Step 2, Avoidance and Minimization Measures:

- Following host plant mapping, realign or leave potential restoration areas unimproved, as needed, to avoid direct impacts to host plants as much as possible.
- All construction within mapped Quino host plant patches will be prohibited during the Quino flight season (defined as the third week of February through the second Saturday in May).
- A qualified biologist will monitor construction within the Quino Avoidance Area to ensure that all flagged and mapped host plant locations planned for avoidance are avoided.
- The qualified biologist will conduct environmental awareness training for all entering the site during the construction of the project.
- Following restoration installation, maintenance activities in areas supporting Quino host plants within the Quino Avoidance Area shall either occur outside of the Quino flight season or be monitored, as appropriate, by a qualified biologist.
- Install signs and/or fencing along the avoided host plants stating, “Environmentally sensitive area. Please stay on trail,” or similar language.

Step 3, Compensatory Mitigation:

If the restoration cannot be redesigned to avoid impacts to all occupied Quino host plant patches, then in addition to the surveys and avoidance and minimization measures in Steps 1 and 2 above, consultation with USFWS will be required. Mitigation may consist of one or a combination of on- or off-site planting of host plants, providing long-term maintenance of existing host plants, preserving occupied Quino habitat, or similar measures to the satisfaction of the USFWS.

3.5 CONCLUSION

The project would result in significant impacts to least Bell’s vireo, coastal California gnatcatcher, and raptors with the potential to nest and/or forage over the site and immediate vicinity. Potential significant impacts could result from direct disturbance, loss of habitat, and noise. The proposed

mitigation would reduce project impacts from the implementation of restoration activities to less than significant. The proposed mitigation would reduce these impacts to less than significant.

4.0 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITIES

4.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the USFWS or CDFW (County 2010b)?

Any of the following conditions would be considered significant if:

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5 in the County Guidelines for Determining Significance [County 2010b], excluding those without a mitigation ratio) on or off the Project site.

B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by the USACE, CDFW, and County: vegetation removal; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; road crossing construction; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of three feet or more from historical low groundwater levels.

D. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive habitats over the long term.

E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands.

4.2 ANALYSIS OF PROJECT EFFECTS

4.2.1 Significant Impacts

The project would result in potentially significant impacts under guideline 4.1.B as described below.

B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by the USACE, CDFW, and County: vegetation removal; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; road crossing construction; placement of culverts or other

underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.

The project would result in impacts to jurisdictional wetlands and riparian habitats as defined by the USACE, RWQCB, CDFW, CCC, and/or County. Impacts to jurisdictional waters and wetlands include 151.70 acres of wetland waters of the U.S. (Figure 15a-15f), 151.70 acres of wetland waters of the State (Figure 16a-16f), 174.50 acres of riparian habitat under CDFW jurisdiction (Figures 17a-17f), and 174.50 acres of CCC coastal wetlands (Figures 18a-18f). These impacts would be considered potentially significant. These impacts would be reduced to a less than significant level through the implementation of mitigation measures **BIO-6** and **BIO-7**, which require the project to obtain wetland permits through the appropriate wetland permitting agencies and prepare a Habitat Restoration Plan and subsequent Execution Plans to offset project impacts to wetland habitat and water resources to wetland habitat and jurisdictional waters.

Indirect impacts to adjacent jurisdictional waters and wetlands could occur through inadvertent intrusion into these adjacent areas by construction vehicles, equipment, and personnel. These impacts would be mitigated through the implementation of mitigation measures **BIO-8** and **BIO-9**.

4.2.2 No Impact or Less than Significant Impacts

The project would not result in significant impacts under the guidelines 4.1.A, 4.1.C, 4.1.D, and 4.1.E for the following reasons:

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5 in the County Guidelines for Determining Significance [County 2010b], excluding those without a mitigation ratio) on or off the Project site.

Per County Guidelines, 595.14 acres of the approximately 1,740.75-acre project area would be considered impacted as part of the project, comprising temporary impacts resulting from the implementation of habitat restoration activities. Of which, temporary impacts to sensitive habitats at a maximum would total 216.94 acres. These impacts are provided below for each phase of habitat restoration.

As the intent of the project is habitat restoration, impacts incurred during project implementation are considered temporary and would be self-mitigated through the completion of the project itself. Because of the nature of the project being habitat restoration, the temporary impacts incurred are considered self-mitigating and, therefore, less than significant.

Phase 1: Implementation of Phase 1 of the project would result in direct impacts to approximately 8.50 acres of sensitive vegetation communities, including 6.24 acres of non-native riparian, 0.75-acre of tamarisk scrub, and 1.51 acres of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 2: Implementation of Phase 2 of the project would result in direct impacts to approximately 10.13 acres of sensitive vegetation communities, including 6.24 acres of non-native riparian, 0.75-acre of tamarisk scrub, and 1.51 acres of arundo-dominated riparian. These impacts would be temporary in

nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 3: Implementation of Phase 3 of the project would result in direct impacts to approximately 4.09 acres of sensitive vegetation communities, comprising 4.09 acres of tamarisk scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 4: Implementation of Phase 4 of the project would result in direct impacts to approximately 104.38 acres of sensitive vegetation communities, including 2.14 acres of disturbed southern riparian forest, 6.04 acres of non-native riparian, 5.74 acres of tamarisk scrub, 89.77 acres of arundo-dominated riparian, 0.6-acre of disturbed Diegan coastal sage scrub: baccharis dominated, and 0.09-acre of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 5: Implementation of Phase 5 of the project would result in direct impacts to approximately 3.12 acres of sensitive vegetation communities, including 2.02 acres of arundo-dominated riparian and 1.1 acres of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 6: Implementation of Phase 6 of the project would result in direct impacts to approximately 0.31-acre of sensitive vegetation communities, including 0.28-acre of tamarisk scrub and 0.03-acre of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 7: Implementation of Phase 7 of the project would result in direct impacts to approximately 21.23 acres of sensitive vegetation communities, including 4.24 acres of tamarisk scrub, 16.29 acres of arundo-dominated riparian, and 0.7-acre of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 8: Implementation of Phase 8 of the project would result in direct impacts to approximately 3.79 acres of sensitive vegetation communities, including 2.10 acres of tamarisk scrub and 1.69 acres of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 9: Implementation of Phase 9 of the project would result in direct impacts to approximately 11.33 acres of sensitive vegetation communities, including 0.51-acre of disturbed southern riparian forest, 0.52-acre of disturbed southern willow scrub, 1.88 acres of disturbed mule fat scrub, 3.12 acres of tamarisk scrub, 3.10 acres of arundo-dominated riparian, 1.8 acres of disturbed Diegan coastal sage scrub, and 0.4 acre of non-native grassland. These impacts would be temporary in nature and would be

self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 10: Implementation of Phase 10 of the project would result in direct impacts to approximately 0.90-acre of sensitive vegetation communities, including 0.09-acre of disturbed southern willow scrub, 0.55-acre of tamarisk scrub, and 0.26-acre of arundo-dominated riparian. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 11: Implementation of Phase 11 of the project would result in direct impacts to approximately 11.55 acres of sensitive vegetation communities, including 0.41-acre of non-native riparian, 4.94 acres of disturbed southern willow scrub, 1.23 acres of tamarisk scrub, 0.27-acre of arundo-dominated riparian, and 4.7 acres of non-native grassland. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

Phase 12: Implementation of Phase 12 of the project would result in direct impacts to approximately 31.93 acres of sensitive vegetation communities, including 0.13-acre of disturbed southern willow scrub, 0.48-acre of tamarisk scrub, 0.06-acre of disturbed riparian scrub, 1.16 acres of arundo-dominated riparian, and 20.4 acres of disturbed Diegan coastal sage scrub. These impacts would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Impacts would be less than significant, and no further mitigation is required nor proposed.

C. The project would not draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of three feet or more from historical low groundwater levels.

No groundwater withdrawals or activities that would result in lowering of the groundwater table are proposed. No significant impact would occur.

D. The project would not cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing open space or other natural habitat areas, to levels that would likely harm sensitive habitats over the long term.

Potentially significant indirect impacts to sensitive habitat resulting from human access, domestic animals, exotic plant species, and lighting would be avoided through the following project design features: (1) signs precluding access to the restoration area shall be posted; (2) off-leash pets would not be allowed on trails or public areas and signs would be posted along trails notifying pet owners of this regulation; (3) only non-invasive, native plant species would be included in the landscape plan for the site (species not listed on the California Invasive Plant Inventory prepared by the Cal-IPC [2006]); (4) if night lighting is utilized during construction, the project is required to direct all necessary lighting in a downward direction with appropriate shield and illumination technology to prevent adverse spillover of light; and (5) no operational project lighting is proposed; no significant impact would occur.

E. The project includes wetland buffers adequate to protect the functions and values of existing wetlands.

The proposed project is exempt from the County's RPO (County 2012) requirements, pursuant to Section 86.605(c) of the RPO. Therefore, no wetland buffer is required.

4.3 CUMULATIVE IMPACT ANALYSIS

As discussed in Section 3.3 above, the project would not contribute to the cumulative impact on riparian habitat and other sensitive natural communities. The project consists of habitat restoration and would not result in a loss of riparian habitat or other sensitive natural communities; thus, no cumulative impact would occur.

4.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Impacts to riparian habitats and sensitive natural communities would be mitigated through the implementation of mitigation measures **BIO-6** through **BIO-9** below.

BIO-6 Impacts to jurisdictional wetland and waterway resources require permits and authorizations by the USACE, RWQCB, and CDFW prior to impacts. The County shall acquire appropriate permits and approvals from the resource agencies prior to impacts.

BIO-7 A Habitat Restoration Plan addressing impacts and subsequent restoration of wetland habitat and jurisdictional waters, as well as sensitive upland habitats, shall be submitted to the County for review and approval. The Plan shall also be submitted to the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) for review and approval, with the scope of review limited to impacts within each Agency's jurisdictional extent, as applicable.

BIO-8 To help ensure errant impacts to sensitive vegetation communities outside of the impact footprint are avoided during construction, temporary environmental fencing (including silt fencing where determined necessary by the Stormwater Pollution Prevention Plan [SWPPP]), would be installed at the edges of the impact limits prior to initiation of grading. All construction staging shall occur within the approved limits of construction.

BIO-9 A qualified biologist shall monitor the installation of environmental fencing wherever it would abut sensitive vegetation communities, jurisdictional waters or wetlands, or open space. The biologist also would conduct a pre-construction environmental training session for construction personnel prior to all phases of restoration to inform them of the sensitive biological resources on-site and avoidance measures to remain in compliance with project approvals. The biologist shall monitor the initial vegetation clearing, grubbing, and grading activities to ensure that activities occur within the approved limits of work and avoid impacts to nesting birds. The biologist shall periodically monitor the limits of construction and restoration to ensure that restoration and avoidance areas are delineated with temporary fencing and that the fencing remains intact.

4.5 CONCLUSION

Impacts to riparian habitats and jurisdictional wetlands would be reduced to below a level of significance through the implementation of mitigation measures **BIO-6** through **BIO-9**.

5.0 JURISDICTIONAL WETLANDS AND WATERWAYS

5.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (County 2010b)?

The following condition would be considered significant if:

A. The project would impact federally protected wetlands as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means.

5.2 ANALYSIS OF PROJECT EFFECTS

5.2.1 Significant Impacts

As previously stated in Section 4.2.1, implementation of the proposed project would result in temporary impacts to 151.70 acres of wetland waters of the U.S. for the purpose of habitat restoration (Tables 10a and 10b; Figures 15a-15f). Impacts to wetland and non-wetland waters of the U.S. would be considered potentially significant.

5.3 CUMULATIVE IMPACT ANALYSIS

The proposed project's impacts to 151.70 acres of USACE jurisdictional areas, comprising wetland waters of the U.S., are temporary in nature and would be self-mitigated through completion of the project itself, as the intent of the project is habitat restoration; no net loss of wetland would occur. Thus, no cumulatively significant impact would occur.

5.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Impacts to USACE wetland and non-wetland waters would require the implementation of mitigation measures **BIO-6** and **BIO-7**, above, which require the project to obtain wetland permits through the appropriate wetland permitting agencies and prepare a Habitat Restoration Plan and subsequent Execution Plans to offset project impacts to wetland habitat and jurisdictional waters.

5.5 CONCLUSION

Implementation of the proposed project would result in potentially significant impacts to USACE wetland waters of the U.S. The project would also result in potentially significant impacts to RWQCB wetland waters of the State, CDFW-jurisdictional habitat, and CCC wetlands.

Impacts to jurisdictional areas would require authorization through the appropriate regulatory agencies, as discussed below. Securing necessary authorizations prior to the issuance of a grading permit would be required. Anticipated wetland permits include a CWA Section 404 permit from the USACE, CWA Section 401 Water Quality Certification or State Porter-Cologne Water Quality Control Act Waste Discharge requirements from the RWQCB, and CFG Code Section 1602 Streambed Alteration Agreement from CDFW. Final permit requirements for work within jurisdictional wetlands and waters would be determined through consultation with the USACE, RWQCB, and CDFW, and would reduce impacts to less than significant.

6.0 WILDLIFE MOVEMENT AND NURSERY SITES

6.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (County 2010b)?

Any of the following conditions would be considered significant if:

A. The project would impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.

B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage.

C. The project would create artificial wildlife corridors that do not follow natural movement patterns.

D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels proven to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path.

F. The project does not maintain adequate visual continuity (i.e., long lines-of-site) within wildlife corridors or linkage.

6.2 ANALYSIS OF PROJECT EFFECTS

6.2.1 No Impact or Less than Significant Impacts

The project would not result in significant impacts under the above guidelines 6.1.A, 6.1.B, 6.1.C, 6.1.D, 6.1.E, and 6.1.F for the following reasons:

A. The project would not impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.

Although the project would impact areas used by species for foraging and breeding, the project would not impede wildlife access to areas necessary for reproduction, as sufficient habitat to support these species occurs throughout the study area, vegetation impacts associated from restoration activities will be temporary, lines-of-sight will be maintained across restoration areas, wildlife may cross the restoration areas, and connections to off-site lands also would be maintained. Similarly, wildlife may continue to access foraging habitat and water sources.

Access to these resources is expected to be maintained for a variety of species, including birds, terrestrial wildlife, and aquatic animals. Project construction would not impede access or lessen the area available for terrestrial wildlife movement. Coyotes are not known to avoid restoration sites. Movement of other medium-sized mammals, such as bobcat, is more likely to follow riparian areas associated with the Tijuana River and other areas with sufficient vegetative cover. Small animals could also cross the proposed restoration areas. The project would maintain a continuous connection of undeveloped land and native habitat, including connections to the TRNERR and TSNWR. Therefore, the project would not impede wildlife access to habitat necessary for reproduction. Impacts would be less than significant.

B. The project would not substantially interfere with connectivity between blocks of habitat and would not potentially block or substantially interfere with a local or regional wildlife corridor or linkage.

The study area occurs within the Tijuana Estuary/River Valley BRCA. The study area is continuous with large, continuous blocks of undeveloped areas, including connections to the TRNERR and TSNWR. As discussed above in Section 6.2.1.A, the proposed project is not expected to substantially interfere with the connectivity between blocks of habitat as lines-of-sight are maintained across the restoration areas, and wildlife may cross the proposed restoration areas. The proposed restoration areas would not substantially interfere with the ability of wildlife species to disperse across the core area within the study area or to adjacent open space areas, as adequate connectivity is maintained. The project would conform to the goals and requirements of the City of San Diego Subarea MSCP and County BMO, including effects on habitat linkages and wildlife corridors. Impacts would be less than significant.

C. The project would not create artificial wildlife corridors that do not follow natural movement patterns.

The project does not create artificial corridors, and movement functions would continue throughout the TRVRP under post-project conditions. To the greatest extent practicable, the proposed activities will restore native habitat to areas that have become infested with invasive non-native species, and large expanses of native habitat would be maintained and improved. Additionally, because the restoration areas are not lighted, they will be available for wildlife usage outside of daylight hours. Potential

impediments to movement from removal/treatment of invasive non-native plant species would not substantially interfere with natural movement patterns or access due to alternate travel routes throughout the local area. Adequate space and connectivity of habitat would remain in the local area, and local and regional movement functions would continue throughout. In conclusion, although the project would introduce new temporary disturbances from treatment/removal of invasive non-native plant species that would potentially result in minor interruptions to local wildlife movement within the site, the effects would not be substantially adverse and no artificial corridors would be created. Impacts would be less than significant.

D. The project would not increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels proven to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

Project noise is not anticipated to adversely impact wildlife corridors/linkages as ongoing use by the public generates noise in portions of the site; thus, some level of noise disturbance already exists on-site. Additionally, restoration activities are expected to occur in phases. The entire study area would not be impacted concurrently, allowing for wildlife, particularly avian species, to continue to use or occupy portions of the site outside of active work areas. Noise generated from treatment/removal of invasive non-native vegetation is not anticipated to adversely impact wildlife species, and project design would not result in a significant impact to wildlife corridors or linkages resulting from noise.

Nighttime lighting is not proposed by this project. No significant impact to wildlife corridors or linkages resulting from lighting would occur.

E. The project maintains an adequate width for an existing wildlife corridor or linkage and would not further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, or placement of barriers in the movement path.

The study area occurs within the Tijuana Estuary/River Valley BRCA. The study area has large, continuous blocks of undeveloped areas, including connections to the TRNERR and TSNWR. As discussed above in Section 6.2.1.A, implementation of restoration would not constrain or further constrain the width of an existing wildlife corridor or linkage. The project would make use of existing trails, and vegetation removal would be limited to existing disturbed habitat areas. Wildlife movement would be able to continue around or across existing native vegetation corridors as well as future restored areas, and implementation of the project would not change the width of available wildlife corridors and linkages. Thus, the proposed project would not result in an inadequate width for an existing wildlife corridor or linkage, and no significant impact would occur.

F. The project maintains adequate visual continuity (i.e., long lines-of-site) within wildlife corridors and linkage.

The project would not impair visual continuity within corridors or linkages. The project involves the treatment/removal of invasive non-native plant species and restoration of native habitats within a BRCA. Lines-of-sight will be maintained across the restoration areas. Biological connectivity and existing lines-of-site between the project and adjacent undeveloped areas would be maintained. As such, the project would not impair visual continuity within corridors or linkages, and impacts would be less than significant.

6.3 CUMULATIVE IMPACT ANALYSIS

Wildlife movement in the area has already been impacted by the construction of roads through the TRVRP (including Monument Road and Hollister Road), adjacent residential and commercial development, and agriculture, as well as the presence of existing trails, maintenance, and access roads. The proposed project maintains connectivity within the core wildlife habitat, to adjacent linkages, and to adjacent, undeveloped habitat. With the project's location within and adjacent to undeveloped areas, incorporation of design features, and implementation of habitat mitigation measures at the specified ratios, the contribution of the project to the cumulative impact on wildlife movement would not be considerable and would be less than significant.

6.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

No additional mitigation measures are required.

6.5 CONCLUSION

With the project's location within and adjacent to undeveloped areas, incorporation of design features, and implementation of habitat mitigation measures at the specified ratios, impacts would be temporary and less than significant, and no additional mitigation measures are required.

7.0 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

7.1 GUIDELINES FOR DETERMINING SIGNIFICANCE

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Would the project conflict with the provisions of an adopted HCP, NCCP plan, or other approved local, regional or state HCP (County 2010b)?

Any of the following conditions would be considered significant if:

A. For lands outside of the MSCP, the project would impact Diegan coastal sage scrub vegetation in excess of the County's five percent habitat loss threshold, as defined by the Southern California Coastal Sage Scrub NCCP Guidelines.

B. The project would preclude or prevent the preparation of the subregional NCCP. For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.

C. The project will impact any amount of wetlands or sensitive habitat lands as outlined in the RPO.

D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the NCCP Guidelines.

E. The project does not conform to goals and requirements outlined in any applicable HCP, Resource Management Plan (RMP), Special Area Management Plan, Watershed Plan, or similar regional planning effort.

F. For lands within the MSCP, the project would not minimize impacts to a Biological Resource Core Area (BRCA), as defined in the Biology Mitigation Ordinance (BMO; County 2010c).

G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub NCCP Guidelines.

H. The project does not maintain existing movement corridors and/or habitat linkages, as defined by the BMO.

I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.

J. The project would reduce the likelihood of survival and recovery of listed species in the wild.

K. The project would result in the killing of migratory birds or the destruction of active migratory bird nests and/or eggs (MBTA).

L. The project would result in the take of eagles, eagle eggs, or any part of an eagle (Bald and Golden Eagle Protection Act; BGEPA).

7.2 ANALYSIS OF PROJECT EFFECTS

7.2.1 Significant Impacts

The project would result in significant impacts under above guideline 7.1.K for the following reasons:

K. The project could result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (MBTA).

Implementation of the project Treatment Areas 1-12 could potentially result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs protected under the MBTA. Project construction could directly impact individuals or cause breeding birds to temporarily or permanently leave their territories, which could lead to reduced reproductive success and increased mortality. These impacts would be significant; however, the mitigation measures **BIO-1** and **BIO-2** would reduce impacts to less than significant.

7.2.2 No Impact or Less than Significant Impacts

The project would not result in significant impacts under the above guidelines 7.1.A, 7.1.B, 7.1.C, 7.1.D, 7.1.E, 7.1.F, 7.1.G, 7.1.H, 7.1.I, 7.1.J, and 7.1.L for the following reasons:

A. The project would not impact Diegan coastal sage scrub vegetation outside of the MSCP in excess of the County's five percent habitat loss threshold, as defined by the Southern California Coastal Sage Scrub NCCP Guidelines.

Project impacts to Diegan coastal sage scrub are all located within the adopted City of San Diego MSCP Subarea Plan. No impact would occur.

B. The project would not preclude or prevent the preparation of the subregional NCCP. For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.

Implementation of the project would not preclude or prevent the preparation of the subregional NCCP. The project is located within the boundaries of the City of San Diego MSCP Subarea Plan, which has already been prepared and adopted. No impact would occur.

C. The project would impact wetlands and sensitive habitat lands outlined in the RPO.

As detailed above in Section 1.5.3, the proposed project is exempt from this guideline pursuant to Section 86.605(c) of the RPO. The proposed project does not include consideration of an application listed as a type of discretionary application requiring a Resource Protection Study. Therefore, the project would be exempt from RPO requirements, and no significant impact would occur.

D. The project would mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the NCCP Guidelines.

In total, the project would temporarily impact 25.39 acres of Diegan coastal sage scrub (including disturbed) and Diegan coastal sage scrub: baccharis dominated (including disturbed) and restore the areas as native coastal sage scrub habitat. The project is located within the adopted City of San Diego MSCP Subarea Plan and the temporary impacts would be mitigated in accordance with the City of San Diego MSCP Subarea Plan and BMO. Therefore, no significant impact would occur.

E. The project conforms to goals and requirements outlined in any applicable HCP, RMP, Special Area Management Plan, Watershed Plan, or similar regional planning effort.

An RMP has been prepared for the TRVRP as a guidance document to preserve and manage the biological resources within the TRVRP. Project implementation would be consistent with the ASMDs listed in the County's RMP for the TRVRP (County 2007). No adopted HCP, Special Area Management Plan, Watershed Plan, or other regional planning efforts are applicable to the project. The project occurs within the boundaries of the adopted City of San Diego MSCP and conforms to the goals and requirements of the MSCP. No impact would occur.

F. For lands within the MSCP, the project would minimize impacts to BRCA, as defined in the BMO.

The project minimizes impacts to BRCA in accordance with the MSCP and BMO; all impacts would be temporary, and the project would ultimately result in an increase in native habitat within the BRCA. Impacts would be less than significant.

G. The project would not preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub NCCP Guidelines.

The project is a restoration project located within the adopted MSCP; habitat restoration activities would not preclude connectivity between areas of high habitat values. Impacts would be less than significant.

H. The project maintains existing movement corridors and/or habitat linkages, as defined by the BMO.

The project area is located within a BRCA. As part of the restoration process, the proposed project would substantially improve the condition of the existing BRCA by removing and treating invasive non-native vegetation and planting of native riparian or sage scrub habitat in its place. The Tijuana River riparian corridor would be maintained throughout the project area, which would encourage and facilitate wildlife movement within the region. Therefore, the project would ultimately conserve and enhance the functions and values of the BRCA in accordance with the MSCP and BMO. Impacts would be less than significant.

I. The project avoids impacts to MSCP narrow endemic species and would not impact core populations of narrow endemics.

Narrow endemic species listed by the Final MSCP Plan and the City of San Diego MSCP Subarea plan do not occur within the project area. Therefore, the project avoids impacts to MSCP narrow endemic species and would not impact core populations. Impacts would be less than significant.

J. The project would not reduce the likelihood of survival and recovery of listed species in the wild.

The proposed project proposes to restore up to 595.14 acres of disturbed habitats to native habitat suitable for many listed species known to occupy the study area, contributing to the contiguous suitable habitat available throughout the study area and adjacent undeveloped lands. Furthermore, the project would enhance breeding, foraging, and dispersal habitat for listed species that have been documented within the study area. By treating and removing non-native plant species, followed by restoration of native riparian habitats, large blocks of suitable habitat for listed species would be preserved or improved, and impacts from human intrusion would be dissuaded from these areas. Finally, avoidance, minimization, and mitigation measures proposed above will mitigate impacts to listed species such that the project would not reduce the likelihood of survival or recovery for listed species, and a less than significant impact would occur.

L. The project would not result in the take of eagles, eagle eggs, or any part of an eagle (BGEPA).

The study area does not contain eagle foraging habitat or nesting habitat and it is not within any known golden eagle territory. The surrounding habitat fragmentation and the distance from known eagle territories would indicate that the site does not have high value for golden eagle. The surrounding area is primarily urbanized, and new nesting in the vicinity is unlikely. Therefore, no impacts would occur to golden eagle or its habitat.

7.3 CUMULATIVE IMPACT ANALYSIS

The project will comply with the requirements of the MBTA, BGEPA, BMO, and MSCP. All currently proposed and future projects within the cumulative study area will also be required to comply with these regulations; therefore, no significant cumulative impacts would occur.

7.4 MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Impacts to nesting birds protected under the MBTA would be mitigated through mitigation measures **BIO-1** and **BIO-2**.

7.5 CONCLUSION

Implementation of the restoration of disturbed habitats within Treatment Areas 1-12 would result in potentially significant impacts to breeding migratory birds. Implementation of mitigation measures **BIO-1** and **BIO-2** would reduce these impacts to below a level of significance.

8.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

The proposed project has the potential to cause significant impacts to special status plant and animal species, jurisdictional wetlands, and/or riparian habitats as defined by the USACE, RWQCB, and CDFW, and local policies. In each case, however, the identified significant impact can be mitigated to a less than significant level. Table 11, *Summary of Biological Resources Mitigation Measures*, provides a summary of the proposed mitigation measures.

Impacts to sensitive natural communities would be temporary in nature and would be self-mitigated through the completion of the project itself, as the intent of the project is habitat restoration. Thus, impacts to sensitive natural communities would be less than significant, and no further mitigation is required nor proposed.

Table 11
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Proposed Mitigation	Level of Significance After Mitigation	Guideline Number(s)	Phase(s)/Treatment Area
BIO-1 Grubbing or clearing of vegetation of any project phase during the general avian breeding season (February 1 – September 15), least Bell's vireo breeding season (March 15 to September 15), coastal California gnatcatcher breeding season (March 1 – August 15), or raptor breeding season (January 15 – July 15) shall be avoided to the extent feasible. If grubbing, clearing, or grading would occur during the breeding season, a pre-construction survey shall be conducted by a qualified biologist no more than three days prior to the commencement of activities to determine if active bird nests are present in the affected areas. If there are no nesting birds (includes	Less than Significant	3.1.A, 3.1.B, 3.1.L, 7.1.K	1-12

Proposed Mitigation	Level of Significance After Mitigation	Guideline Number(s)	Phase(s)/Treatment Area
nest building or other breeding/nesting behavior) within 300 feet of the survey area (500 feet for raptors), clearing, grubbing, and grading shall be allowed to proceed in that area. Furthermore, if clearing, grubbing, or grading activities are to resume in an area where they have not occurred for a period of seven or more days during the breeding season, an updated survey for avian nesting will be conducted by a qualified biologist within three days prior to the commencement of clearing, grubbing, or grading activities in that area. If active nests or nesting birds are observed within 300 feet of the survey area (500 feet for raptors), the biologist shall flag a buffer around the active nests and clearing, grubbing, or grading activities shall not occur within 300 feet of active nests (500 feet for raptors) until nesting behavior has ceased, nests have failed, or young have fledged as determined by a qualified biologist. If the qualified biologist determines that the species will not be impacted with a reduced buffer (i.e., less than 300 feet for general avian species and 500 feet for raptors), potentially with implementation of avoidance measures to reduce noise, as necessary, and/or the qualified biologist monitors the active nest during clearing, grubbing, or grading to ensure no impacts to the species occur, these activities may occur outside the reduced buffer during the breeding season, as long as the species is not impacted.			
BIO-2 If heavy equipment would be in operation in any project phase during the breeding season for least Bell's vireo (March 15 to September 15) or raptors (January 15 – July 15), pre-construction survey(s) shall be conducted by a qualified biologist, as appropriate, to determine whether these species occur within the areas potentially impacted by noise. If pre-construction surveys determine that active nests belonging to these species are absent from the potential impact area (within 300 feet for vireo or gnatcatcher, 500 feet for raptors, or as otherwise determined by a qualified biologist), clearing, grubbing, and grading shall be allowed to proceed. If pre-construction surveys determine the presence of active nests belonging to these species, then clearing, grubbing, and grading within 300 feet of the nest location(s) for vireo or gnatcatcher and 500 feet for raptors, shall: (1) be postponed until a permitted biologist determines the nest is no longer active; (2) be allowed to continue if nest monitoring by a qualified biologist determines that noise levels are not adversely affecting the nesting birds, or (3) not occur until a temporary noise barrier or berm is constructed at the edge of the clearing, grubbing, or grading footprint and/or around the piece of equipment to ensure that noise levels are reduced to below 60 A-weighted decibels (dBA) or ambient at the nest location. Decibel output for Item (3) will be confirmed by a qualified noise specialist and intermittent monitoring by a qualified biologist will be required to ensure that conditions have not changed.	Less than Significant	3.1.A, 3.1.B, 3.1.L, 7.1.K	1-12

Proposed Mitigation	Level of Significance After Mitigation	Guideline Number(s)	Phase(s)/Treatment Area
BIO-3 Mitigation for impacts occurring within all project phases to six individuals of San Diego marsh-elder, a CRPR 2B.2 and County List B plant species, shall occur through the inclusion of this species in the project's restoration plant palette.	Less than Significant	3.1.A, 3.1.B, 3.1.L,	1-12
BIO-4 Mitigation for impacts occurring within all project phases to 68 individuals of singlewhorl burrobrush, a CRPR 2B.2 plant species, shall occur through the inclusion of this species in the project's restoration plant palette.	Less than Significant	3.1.A, 3.1.B, 3.1.L,	1-12
BIO-5 The following Quino conservation measures apply in Phase/Treatment Area 12, shown as Quino Checkerspot Butterfly Avoidance Area on Figures 14a and 14e-14f. **Step 1, Survey** • Additional Quino host plant mapping conducted prior to construction when host plants are blooming, in order to ensure host plant patches are delineated to the greatest extent feasible. • During host plant mapping, host plant patches will be mapped using GPS so they can be flagged prior to construction. **Step 2, Avoidance and Minimization Measures:** • Following host plant mapping, realign or leave potential restoration areas unimproved, as needed, to avoid direct impacts to host plants as much as possible. • All construction within mapped Quino host plant patches will be prohibited during the Quino flight season (defined as the third week of February through the second Saturday in May). • A qualified biologist will intermittently monitor construction within the Quino Avoidance Area to ensure that all flagged and mapped host plant locations planned for avoidance are avoided. • The qualified biologist will conduct environmental awareness training for all contractors entering the site during the construction of the Project. • Following restoration installation, maintenance activities in areas supporting Quino host plants within the Quino Avoidance Area shall either occur outside of the Quino flight season or be monitored, as appropriate, by a qualified biologist. • Install signs and/or fencing along the avoided host plants stating, "Environmentally sensitive area. Please stay on trail," or similar language.	Less than Significant	3.1.A, 3.1.B, 3.1.L,	12

Proposed Mitigation	Level of Significance After Mitigation	Guideline Number(s)	Phase(s)/Treatment Area
Step 3, Compensatory Mitigation: If the restoration cannot be redesigned to avoid impacts to all occupied Quino host plant patches, then in addition to the surveys and avoidance and minimization measures in Steps 1 and 2 above, consultation with USFWS will be required. Mitigation may consist of one or a combination of on- or off-site planting of host plants, providing long-term maintenance of existing host plants, preserving occupied Quino habitat, or similar measures to the satisfaction of the USFWS.			
BIO-6 Impacts to jurisdictional wetland and waterway resources require permits and authorizations by the USACE, RWQCB, and CDFW prior to impacts.	Less than Significant	3.1.A, 3.1.B, 3.1.L, 4.1.B 5.1.A	1-12
BIO-7. A Habitat Restoration Plan addressing impacts and subsequent restoration of wetland habitat and jurisdictional waters, as well as sensitive upland habitats, shall be submitted to the County for review and approval. The Plan shall also be submitted to the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) for review and approval, with scope of review limited to impacts within each Agency's jurisdictional extent, as applicable.	Less than Significant	3.1.A, 3.1.B, 3.1.L, 4.1.B 5.1.A	1-12
BIO-8 To help ensure errant impacts to sensitive vegetation communities outside of the impact footprint are avoided during construction, temporary environmental fencing (including silt fencing where determined necessary by the Stormwater Pollution Prevention Plan [SWPPP]), would be installed at the edges of the impact limits prior to initiation of grading. All construction staging shall occur within the approved limits of construction.	Less than Significant	3.1.A, 3.1.B, 3.1.L, 4.1.B	1-12
BIO-9 A qualified biologist shall monitor the installation of environmental fencing wherever it would abut sensitive vegetation communities, jurisdictional waters or wetlands, or open space. The biologist also would conduct a pre-construction environmental training session for construction personnel prior to all phases of restoration to inform them of the sensitive biological resources on-site and avoidance measures to remain in compliance with project approvals. The biologist shall monitor the initial vegetation clearing, grubbing, and grading activities to ensure that activities occur within the approved limits of work and avoid impacts to nesting birds. The biologist shall periodically monitor the limits of construction and restoration to ensure that restoration and avoidance areas are delineated with temporary fencing and that the fencing remains intact.	Less than Significant	3.1.A, 3.1.B, 3.1.L, 4.1.B	1-12

Table 12, *Summary of Mitigation Measures by Treatment Area/Phase*, presents an overview of applicable mitigation measures by treatment area/phase.

Table 12
SUMMARY OF MITIGATION MEASURES BY TREATMENT AREA/PHASE

Treatment Area/Phase	Applicable Mitigation Measures (BIO-MM)	Sensitive Plant Species	Sensitive Animal Species or Nesting Birds	Riparian/Sensitive Habitats[1]
1	1, 2, 6, 7, 8, 9	No	Yes	Yes
2	1, 2, 3, 4, 6, 7, 8, 9	Yes	Yes	Yes
3	1, 2, 6, 7, 8, 9	No	Yes	Yes
4	1, 2, 4, 6, 7, 8, 9	Yes	Yes	Yes
5	1, 2, 4, 6, 7, 8, 9	Yes	Yes	Yes
6	1, 2, 6, 7, 8, 9	No	Yes	Yes
7	1, 2, 4, 6, 7, 8, 9	Yes	Yes	Yes
8	1, 2, 4, 6, 7, 8, 9	Yes	Yes	Yes
9	1, 2, 3, 4, 6, 7, 8, 9	Yes	Yes	Yes
10	1, 2, 6, 7, 8, 9	No	Yes	Yes
11	1, 2, 6, 7, 8, 9	No	Yes	Yes
12	1, 2, 4, 5, 6, 7, 8, 9	Yes	Yes	Yes

[1] See Table 9 in Section 2.2 for a breakdown of impacts by habitat type.

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Appendix A

Observed Species List - Flora

Appendix D

Cultural Resources Inventory and Assessment

Draft
Tijuana River Valley Invasive Species Removal and Restoration Project

Cultural Resources Inventory and Assessment

Prepared for:

County of San Diego
Department of Parks and Recreation
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HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
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~~November 2023~~January 2024 | 00187.0006.025
Contract No: 557665
Task Order No: 25

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National Archaeological Database Information

Authors:	Stacie Wilson, Theodore G. Cooley, and James Turner
Consulting Firm:	HELIX Environmental Planning, Inc.
Client/Project:	County of San Diego Department of Parks and Recreation / Tijuana River Valley Invasive Species Removal and Restoration Project
Report Date:	~~November 2023~~January 2024
Report Title:	Cultural Resources Inventory and Assessment for the Tijuana River Valley Invasive Species Removal and Restoration Project, San Diego, California
Type of Study:	Cultural Resources Survey
New Sites:	P-37-040176, P-37-040177
USGS Quad:	Imperial Beach 7.5' Quadrangle
Acreage:	Approximately 1,741 acres
Key Words:	San Diego County; Township 18 and 19 South, Range 2 West; San Diego; Tijuana River; Tijuana River Valley Regional Park

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Acronyms and Abbreviations

AB	Assembly Bill
AMSL	above mean sea level
ASMD	Area Specific Management Directive
BLM	Bureau of Land Management
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Diego
cm	centimeter
County	San Diego County
CRHR	California Register of Historical Resources
DPR	Department of Parks and Recreation
GLO	General Land Office
HELIX	HELIX Environmental Planning, Inc.
HRP	Habitat Restoration Plan
m	meters
MLD	Most Likely Descendant
MM	mitigation measure
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PRC	Public Resources Code
RPO	Resource Protection Ordinance
SCIC	South Coastal Information Center
STP	shovel test pit
TCP	Traditional Cultural Property
TCR	Tribal Cultural Resource
TRVRP	Tijuana River Valley Regional Park
USGS	U.S. Geological Survey

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EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) was contracted by the San Diego County (County) Department of Parks and Recreation (DPR) to provide cultural resources services for the Tijuana River Valley Invasive Species Removal and Restoration Project (project) located within the boundaries of the City of San Diego (City), San Diego County, California. The project proposes to implement the Tijuana River Valley Invasive Species Removal and Restoration Habitat Restoration Plan (HRP), which upon completion, would implement a maintenance and monitoring program for the restoration of disturbed habitats in the project area, comprising approximately 1,740.75 acres of mixed wetland, riparian, and upland habitats on lands within the Tijuana River Valley Regional Park (TRVRP) that are County and City owned. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements. A cultural resources study including a records search, Sacred Lands File search, a review of historic aerial photographs and maps, and a pedestrian survey was conducted for the project area. This report details the methods and results of the cultural resources study and has been prepared to comply with the San Diego County CEQA Guidelines, California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act (NHPA), as amended.

The records search obtained from the South Coastal Information Center (SCIC) on December 1, 2020, indicated that 94 previous cultural resources studies have been conducted within a half-mile of the project area, 45 of which overlap with the project area. The records search results also indicated that a total of 58 cultural resources have been previously recorded within the TRVRP, with all but one being within the project area. Forty-seven of the resources are prehistoric resources, consisting of lithic and shell scatters, quarry sites, and isolated artifacts. Two multi-component sites are recorded within TRVRP consisting of building remains and historic trash scatters with shell/lithic scatters. Nine historic-period resources, consisting of historic structures, building remains, artifact scatters and isolates, terraces, and a bridge, are documented within the TRVRP.

Field surveys by HELIX archaeologists and a Native American monitor occurred on March 8 and 9, and November 15 and 16, 2021. The March surveys focused on a preliminary project area encompassing approximately 850 acres, centered along the Tijuana River. The November surveys focused on the 595.14 acres within the 12 Treatment Areas of disturbed and invasive non-native habitats that may be treated and restored into native habitats. Two newly identified isolated finds were documented within the project area: Isolate P-37-040176 consisting of a single metavolcanic flake with edge modification possibly indicating its use as a tool, and P-37-040177 consisting of a single metavolcanic secondary flake. These two resources were identified along an established trail and not in areas targeted for invasive non-native plant removal and restoration.

A total of 27 cultural resources, all previously recorded, are located within the areas identified as disturbed habitats or containing invasive non-native plant species that will be targeted for removal and restoration during the implementation of the HRP. Of these resources, one archeological site (P-37-011946) and the Hollister Street Bridge (P-37-025924) have been previously evaluated as eligible for the National Register of Historic Places (NRHP) and, as such, would be considered significant resources under CEQA. Seven of the resources (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-025919) are prehistoric archaeological sites that have not been evaluated for CEQA significance or for eligibility for listing on the NRHP; these sites are being treated as significant for the purposes of this project.

Due to natural alluvial, erosional, and human impacts that have occurred within the TRVRP, invasive non-native plant treatments occurring by herbicide treatment, hand removal, mowing, and solarization techniques, as well as shallow planting activities, would not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource or constitute an adverse effect to historic properties. However, mechanized discing/clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) occurring during the implementation of the HRP could result in soil disturbances that may cause an adverse impact to significant cultural resources. In order to reduce adverse project-related impacts to the potentially affected prehistoric sites to a level below significant, it is recommended that mechanized clearing and topographic modification restoration measures be avoided within the recorded site boundaries of these eight resources (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-011946, and P-37-025919).

If avoidance of mechanized clearing and topographic modification restoration measures proves infeasible, additional measures are to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects. Cultural resources monitoring is recommended for all ground-disturbing activities outside of shallow planting, i.e., physical invasive non-native plant control methods (e.g., hand removal) related to the implementation of the HRP occurring within the recorded site boundaries of these resources and a 100-foot buffer in order to ensure no adverse impacts occur to the resources and to minimize impacts to unknown subsurface archaeological deposits related to the resources. In the event that significant cultural resources are inadvertently encountered during the implementation of the HRP, the cultural resource specialist will coordinate with County DPR staff to develop and implement appropriate mitigation measures.

1.0 INTRODUCTION

HELIX Environmental Planning, Inc. (HELIX) was contracted by the San Diego County (County) Department of Parks and Recreation (DPR) to provide cultural resources services for the Tijuana River Valley Invasive Species Removal and Restoration Project (project) located in southwestern San Diego County, California. The project proposes to implement the Tijuana River Valley Invasive Species Removal and Restoration Habitat Restoration Plan (HRP), which upon completion, would implement a maintenance and monitoring program for the restoration of disturbed habitats in the project area, which comprises approximately 1,740.75 acres of mixed wetland, riparian, and upland habitats on lands situated within the Tijuana River Valley Regional Park (TRVRP).

A cultural resources study including a records search, Sacred Lands File search, a review of historic aerial photographs and maps, and a pedestrian survey was conducted for the project. This report details the methods and results of the cultural resources study and has been prepared to comply with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

1.1 PROJECT LOCATION AND DESCRIPTION

The greater TRVRP encompasses 1,800 acres within the boundaries of the City of San Diego (City), in San Diego County, southwest of Interstate (I-) 5 and north of the U.S.-Mexico International Border (Figure 1, *Regional Location*). The project is situated within Sections 2, 3, 4, 5, 9, 10, 32, 33, 34, and 35 of Townships 18 and 19 South, Range 2 West, on the U.S. Geological Survey (USGS) 7.5' Imperial Beach quadrangle (Figure 2, *Park/Preserve Vicinity Map*). The TRVRP is bordered by Sunset Avenue to the north, the U.S.-Mexico International Border to the south, Border Field State Park to the west, and Dairy Mart Road and the community of San Ysidro to the east (Figure 3, *Project Vicinity [Aerial Photograph]*). Approximately 1,740.75 acres of the 1,800-acre TRVRP are owned by the County and/or City (herein referred to as the project area), with the remaining other landowners consisting of the California Department of Fish and Wildlife (CDFW), U.S. Federal government, and private entities. City-owned areas are included in this HRP to provide an opportunity for contiguous habitat restoration. Before moving forward with phases that include these areas, DPR would coordinate with the City and obtain all necessary approvals and agreements.

The proposed restoration effort will be performed per a grant that was obtained by County DPR from the CDFW Prop 1 Watershed Restoration Grant Program. The CDFW developed the Watershed Restoration Grant Program in response to the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1). Proposition 1 amended the California Water Code to add Section 79737, authorizing the Legislature to appropriate funds to CDFW to fund multi-benefit ecosystem and watershed restoration and protection projects. The overall project area totals 1,740.75 acres and includes lands within the TRVRP that are County-owned and managed by DPR, as well as those lands that are owned by the City.

Treatment of invasive non-native plants throughout the project area is proposed to occur in 12 separate phases, called Treatment Areas, based on a variety of conditions such as timing, funding availability, or capacity of County staff (Figure 4, *Treatment Areas*). Within these twelve Treatment Areas, 587.93 acres and 488 point locations (with a 20-foot radius or less) of invasive non-native plants may be treated and restored into native habitats (totaling 595.14 acres). These disturbed habitats and invasive non-native

plant species targeted for removal occur as dense patches of vegetation, as well as point locations intermixed throughout areas of mapped native riparian and upland vegetation. Within five years following implementation, each proposed project phase is expected to be approaching the functions and values of adjacent, preserved riparian habitat found within the TRVRP.

Project implementation would be (a) consistent with the Area Specific Management Directives (ASMDs) listed in the County's Resource Manage Plan for the TRVRP (County 2007a); (b) compatible with adjacent land uses and future uses in the TRVRP; and (c) preserved, managed, and maintained in perpetuity by County DPR, helping to ensure the long-term viability of the habitat restoration effort. Successful implementation of the project will result in a net gain of native riparian habitat within the TRVRP and is expected to result in an overall lift in functions and services at the proposed restoration sites.

The proposed restoration sites are considered compatible with the adjacent land uses, which are predominantly undeveloped open space within the Tijuana River floodplain. Uses within the actively managed portions of the TRVRP are primarily open space and recreation. As required for off-trail areas in the TRVRP lands adjacent to the restoration site, recreational uses and encroachment of any kind will be prohibited, unless for maintenance and management reasons. The location of the restoration within the County TRVRP ensures the long-term preservation and management of the site by the County. Future access for maintenance and management activities will be facilitated by existing access roads and/or trails.

Expected benefits include removal and maintenance of invasive non-native plant species in the area, successful treatment and the removal of invasive non-native plants, reestablishment of native plant species and communities, trash removal, **including the potential removal of remnant building materials,** enhanced water quality and flow, reduced concentration of chemicals and pollutants, improved sediment deposition regimes, reduced risk of flooding, increased ecosystem diversity and species abundance, and improved recreational experience. These expected benefits are significant as the current condition of the TRVRP is critical, and the ecosystems and habitat dependent on this area are rapidly degrading. The likelihood that the beneficial outcomes of the project will be realized is high as the phased upstream-to-downstream approach will decrease the chance that invasive non-native plants would easily reestablish.

Invasive non-native plant treatments/biomass removal techniques in the HRP include the following: herbicide treatment, hand removal, mechanical mowing and discing, mechanical clearing, and solarization. Chemical means of controlling invasive non-native plants consist of the application of herbicides, which can be a highly effective method in controlling invasive non-native plant species by killing or inhibiting plant growth. Physical invasive non-native plant control methods (i.e., hand removal) may be used to control small populations of invasive non-native plants or used in sensitive habitats where wildlife may be indirectly affected by invasive non-native plant removal activities. Hand pulling minimizes soil disturbance and would be used to remove localized and discrete populations of annual and biennial species that have a single-root mass and would be timed to occur prior to seed set. For large monotypic stands of invasive non-native plants such as giant reed and salt cedar, biomass reduction is an effective restoration strategy for invasive non-native plant removal. Biomass reduction involves using large mowers to mulch plant material and leave it in place. Mechanical clearing methods range from the use of chain and brush saws to bulldozers and excavators, and specialized logging equipment to remove woody plants. Machinery, such as bulldozers, may be used to remove large swaths of invasive non-native vegetation at the expense of some soil disturbances. Unlike mowing,

mechanical clearing would result in biomass removal. Soil solarization is the technique of placing a film (usually black or transparent plastic) over the soil surface to trap solar radiation and cause an increase in soil temperatures to levels that kill plants, seeds, plant pathogens, and insects.

In addition, topographic modifications may also occur during the implementation of the HRP. Topographic modifications would include small surface recontouring activities that would enhance the Tijuana River stream and flood flows and/or remove impediments within the TRVRP floodplain. No large-scale topographic modifications would occur under the project, but small topographic modifications (potentially up to 0.25 acre per occurrence) may be proposed within the phases to enhance hydrologic functions over larger swaths of vegetation communities. A topographic modification may be performed by a small skip-loader, skid-steer, or small bulldozer.

Following successful restoration, lands within the project area that are managed by DPR would continue to be preserved, managed, and maintained in perpetuity by the County.

1.1.1 Project Personnel

Stacie Wilson, M.S., RPA served as principal investigator and is the primary author of this technical report. Ms. Wilson meets the qualifications of the Secretary of Interior's Standards and Guidelines for archaeology. James Turner, M.A., RPA and Theodore G. Cooley, M.A., RPA are report co-authors. Mary Robbins-Wade, M.A., RPA provided senior technical review. Julie Roy, B.A., and James Turner conducted the field survey. Shuluuk Linton (Kumeyaay Native American monitor) from Red Tail Environmental participated in the pedestrian survey. Resumes for key project personnel are presented in Appendix A.

1.2 EXISTING CONDITIONS

1.2.1 Environmental Setting

1.2.1.1 Natural Environment

The project area is situated within the coastal plain of western San Diego County, where the climate is characterized as semi-arid steppe, with warm, dry summers and cool, moist winters (Pryde 2004). The project area is situated along the Tijuana Riverbed, approximately 1.1 miles from the Pacific Ocean at its closest point. Due to its location along the river, it is underlain entirely by geologically recent sediments consisting, principally, of river deposited Quaternary alluvium with contributions of slope-wash deposits from adjacent upland bluff areas along the margins of the river valley (Strand 1962). The elevation in the area ranges from approximately 23 feet above mean sea level (AMSL), along the western extent of the project area, to 55 feet AMSL at the southern and eastern extent. The southern portion of the study area contains the heights of the hills and bluffs along the southern side of the river. The river area consists of a gently sloping but otherwise relatively even floodplain terrain along the river with the native riparian plant species consisting mostly of willow (Salix sp.), but with considerable quantities of nonnative weeds, shrubs, and bamboo mixed in, while the southern bluff-mesa areas contain predominately plants of the sage scrub community.

Four soils predominate in and along the river part of the study area: Chino silt loam, saline, 0 to 2 percent slopes (CkA); Chino fine sandy loam, 0 to 2 percent slopes (ChA); Tujunga sand, 0 to 5 percent slopes (TuB); and Visalia sandy loam, level to 2 percent slopes (VaA) (Bowman 1973). In the northernmost extent of the study area, along an old, abandoned channel of the river, two other soils are

present: Huerhuero loam, 5 to 9 percent slopes (HrC2), and Huerhuero loam, 9 to 15 percent slopes (HrD2). The soils along the river are generally very deep, excessively drained, sands derived from granitic alluvium. In the southern elevated bluff and hill portion of the study area, eight soils are present: Chino fine sandy loam, 2 to 5 percent slopes (ChB), Terrace escarpments consisting of steep to very steep escarpments and escarpment-like landscapes (TeF); Olivenhain cobbly loam, 2 to 9 percent slopes (OhC); Olivenhain cobbly loam, 9 to 30 percent slopes (OhE); Olivenhain cobbly loam, 30 to 50 percent slopes (OhF); Huerhuero loam, 5 to 9 percent slopes (HrC2); Riverwash occurring in intermittent stream channels (Rm); and Visalia gravelly sandy loam, 2 to 5 percent slopes (VbB) (Bowman 1973). Along the river bed area, due to periodic past episodes of flooding and erosion, distinct soil types may no longer be distinguishable in some areas. Years of trash dumping have also occurred, with much of this trash subsequently dispersed and mixed into the soil by flooding.

Prehistorically, the natural vegetation in the project's location along the river bed likely consisted mostly of the riparian community with possibly also areas of fresh water marsh along the river bed. Plants of the riparian and riparian woodland communities include western sycamore (*Platanus racemosa*), willow (*Salix* sp.), Fremont cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), cattail (*Typha latifolia*), bulrush (*Scirpus* spp.), mule fat (*Baccharis* spp.), and poison oak (*Toxicodendron diversiloba*). Plants common to fresh-water marsh include reed grass (*Phragmites australis*), marsh mallow (*Kosteletzkya virginic*), soft rush (Juncus effusus), pickerelweed (Pontederia cordata), narrow-leaved cattail (*Typha angustifolia*), and button bush (*Cephalanthus occidental*). The coastal sage scrub community would have covered most of the adjacent bluffs and canyon areas with interspersed areas of native grasslands. Plants of the coastal sage scrub community include California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), flat-top buckwheat (*Eriogonum fasiculatum*), broom baccharis (*Baccharis sarothroides*), wild onion (*Allium haematochiton*), laurel sumac (*Malosma laurina*), San Diego sunflower (*Bahiopsis laciniata*), golden-yarrow (*Eriophyllum confertiflorum*), sawtooth goldenbush (*Hazardia squarrosa*), yucca (*Yucca schidigera, Hesperoyucca whipplei*), prickly pear cactus (*Opuntia* sp.), and scrub oak (*Quercus dumosa*). Native grassland plants include Stipa, Elymus, Poa, and Muhlenbergia species (Beauchamp 1986; Hall 2007; Munz 1974).

Major wildlife species found in these environments include mammals such as coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), grizzly bear (*Ursus arctos*), mountain lion (*Puma concolor*), desert cottontail (*Sylvilagus audubonii*), jackrabbit (*Lepus californicus*); reptiles such as western pond turtle (*Actinemys marmorata*), southern pacific diamondback rattlesnake (*Crotalus oreganus helleri*), gopher snake (*Pituophis melanoleucus catenifer*), and several lizard species; and various rodents, the most notable of which are the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*), and dusky footed woodrat (*Neotoma fuscipes*) (Burt and Grossenheider 1976; Stebbins 1966).

Prehistorically, the natural environment in the project area would have included the natural riparian and marsh habitat, with coastal sage scrub and grassland communities in the adjacent bluff and hill areas (Schoenherr 1992). In the immediately adjacent hill and bluff areas to the south, extensive cobble outcrops were present, containing useful raw materials for stone tool manufacture (Glenny et al. 2014). Many of the plant species naturally occurring in the project area and vicinity are known to have been used by native populations for food, medicine, tools, ceremonial activities, and other uses. Many of the animal species living within these plant communities (such as rabbits, deer, small mammals, and birds) would have been used by native inhabitants as well. Rabbits and rodents were very important to the prehistoric diet; deer were somewhat less significant for food but were an important source of leather, bone, and antler. In addition to these terrestrial habitats, marine resources such as shellfish and fish

would have also been available to the prehistoric inhabitants from the nearby coastline (Christenson 1990; Hedges and Beresford 1986; Luomala 1978).

1.2.1.2 Cultural Setting

Prehistoric Period

The proposed project is located along the San Diego coast, within the Southern Coast Archaeological Region of California (Moratto 1984). The following culture history outlines and briefly describes the known prehistoric cultural traditions in the vicinity of the study area. The approximately 10,000 years of documented prehistory of the San Diego region has often been divided into three periods: Early Prehistoric Period (San Dieguito tradition/complex), Archaic Period (Milling Stone Horizon, Encinitas tradition, and La Jolla and Pauma complexes), and Late Prehistoric Period (Cuyamaca and San Luis Rey complexes).

1.2.1.3 Early Prehistoric Period Traditions/Complexes

The Early Prehistoric Period represents the time period of the first known inhabitants in California. In some areas of California, it is referred to as the Paleo-Indian period and is associated with the Big-Game-Hunting activities of the peoples of the last Ice Age occurring during the Terminal Pleistocene (pre-10,000 years ago) and the Early Holocene, beginning circa 10,000 years ago (Erlandson 1994, 1997; Erlandson et al. 2007). In the western United States, most evidence for the Paleo-Indian or Big-Game-Hunting peoples during this time period derives from finds of large, fluted spear and projectile points (Fluted-Point Tradition) at sites outside of California in places such as Clovis and Folsom in the Great Basin and the Desert southwest (Moratto 1984:79–88). In California, most of the evidence for the Fluted-Point Tradition derives from less substantial sites in the southeastern areas of the state along the margins of the Great Basin and the adjacent Mojave Desert and from isolated fluted point occurrences scattered elsewhere in the state (Dillon 2002; Rondeau et al. 2007). Three of these isolated fluted points or point fragments, however, have occurred in San Diego County, all occurring in the eastern mountainous area of the County; one east of Warner Springs (Kline and Kline 2007); one in Cuyamaca Pass (Dillon 2002; Rondeau et al. 2007), and one near Ocotillo Wells (Rondeau et al. 2007). Several others have occurred in proximity to the County, including one along the coast to the north in southern Orange County (Fitzgerald and Rondeau 2012), and two in Baja California to the south (Des Lauriers 2008; Hyland and Gutierrez 1995).

While three isolated fluted points have been found in San Diego County, the most well-documented archaeological site dating to the Early Prehistoric Period in the San Diego area, belongs to the San Dieguito Tradition, now documented to be nearly 10,000 years old (Warren et al. 2008; Warren and Ore 2011). The San Dieguito Tradition, with an artifact assemblage distinct from that of the Fluted-Point Tradition, has been documented mostly in the coastal area in San Diego County, as well as in the southeastern California deserts (Carrico et al. 1993; Rogers 1966; Warren 1966, 1967; Warren and True 1961), with only sparse evidence for it discovered in the coastal area north of San Diego County (e.g., Sutton and Grenda 2012). The content of the earliest component of the C.W. Harris Site (CA SDI-149), located approximately 32 miles to the north of the project area, along the San Dieguito River, formed the basis upon which Warren and others (Rogers 1966; Warren 1966, 1967; Warren and True 1961) identified the “San Dieguito complex,” and which Warren later reclassified as the San Dieguito Tradition (1968). This tradition is characterized by an artifact inventory consisting almost entirely of flaked stone biface and scraping tools, but lacking the fluted points associated with the Fluted-Point

Tradition. Diagnostic artifact types and categories associated with the San Dieguito Tradition include elongated bifacial knives; leaf-shaped projectile points; scraping tools; crescentics; and in the eastern desert areas, Silver Lake and Lake Mojave projectile points (Carrico et al. 1993; Rogers 1939; Vaughan 1982; Warren 1967; Warren and True 1961).

The subsistence system or emphasis of the San Dieguito Tradition, while not as yet entirely agreed upon, is suggested by Warren as having an orientation toward a hunting rather than gathering economy, based on an artifact assemblage of primarily hunting-associated tools, in contrast to the more gathering-oriented complexes that were to follow in the Archaic Period (Warren 1967, 1968, 1987; Warren et al. 2008). Other researchers have interpreted the San Dieguito subsistence system to be possibly ancestral to, or a developmental stage for, the predominantly gathering-oriented "La Jolla/Pauma complex" of the subsequent Archaic Period (e.g., Bull 1983; Ezell 1987; Gallegos 1985, 1987, 1991; Koerper et al. 1991). Based on uncalibrated radiocarbon dates, Warren originally indicated this tradition to have begun sometime prior to 9,000 years before present (BP) and to have ended sometime between 8,500 and 7,500 BP (1967; 1968:4). Recent calibrations, however, have indicated these dates to be significantly earlier, extending to circa 10,000 BP (Warren et al. 2008:39; Warren and Ore 2011).

1.2.1.4 Archaic Period Complexes

In the southern coastal region, the Archaic Period dates from circa 8,600 BP to circa 1,300 BP (Warren et al. 2008). A large number of archaeological site assemblages dating to this period have been identified at a range of coastal and inland sites. This occurrence appears to indicate that a relatively stable, sedentary hunting and gathering complex, possibly associated with one people, was present in the coastal and immediately inland areas of what is now San Diego County for more than 7,000 years. These assemblages, designated as the La Jolla/Pauma complexes, are considered part of Warren's (1968) "Encinitas tradition" and Wallace's (1955) "Early Milling Stone Horizon." In general, the content of these site assemblages includes manos and metates; shell middens; terrestrial and marine mammal remains; inhumation burials; rock features; bone tools; doughnut stones; discoidals; stone balls; plummets; biface points/knives; beads made of stone, bone, or shell; and cobble-based tools at coastal sites and increased hunting equipment and quarry-based tools at inland sites (True 1958, 1980).

As originally defined by True (1958), the "Pauma complex" aspect of this culture is associated with sites located in inland areas that lack shellfish remains but that are otherwise similar in content to the La Jolla complex. The Pauma complex may, therefore, simply represent a non-coastal expression of the La Jolla complex (True 1980; True and Beemer 1982). Additional radiometric dating in the archaeological record has indicated that an increase in hunting activity and the gathering and processing of acorns may have begun during the latter half of the Archaic Period, with artifacts such as dart points and mortars and pestles becoming increasingly present in site assemblages dating after circa 5,500 BP and being essentially absent during the Early Archaic Period. This evidence in the archaeological record is indicative of an increase in hunting activity and the gathering and processing of acorns for subsistence and represents a major shift in the Encinitas/La Jolla/Pauma complex subsistence system in the southern coastal region at this time (Warren et al. 2008; Warren 2012).

While sites dating to the Archaic Period are numerous along the coast, including several in proximity to the study area, evidence in the archaeological record for sites associated with the Archaic Period, in upper-elevation inland foothill and mountain areas of San Diego County (i.e., more than 10 miles east from the coast), is less common relative to the Late Prehistoric complexes that succeed them. McDonald (1995:14) observed that "most sites in the Laguna Mountains can be expected to date from late

prehistoric or ethnohistoric occupation of the region, and Archaic Period remains, while not unknown, are relatively rare." It is also possible, now, to observe, however, that while a number of examples of Late Prehistoric Period sites, that appear to be attributable, exclusively, to the San Luis Rey or Cuyamaca complexes have been identified for the near-coastal inland foothill areas of the county through diagnostic artifacts and/or radiocarbon dating, (e.g., Chace and Hightower 1979:48; Dominici and Corum 1985; McCown 1945), a number of sites containing evidence for both Late Prehistoric Period and Archaic Period occupations have also been documented (Carrico and Cooley 2005; Carrico et al. 1994; Cooley and Barrie 2004; Gross and Robbins-Wade 1992; 2010; McDonald et al. 1994; Raven-Jennings and Smith 1999; Willey and Dolan 2004). It appears possible, therefore, that, as more archaeological data accumulates, this coastal and inland geographic dichotomy of site locations between the Archaic and Late Prehistoric periods within the County, may be found to not be completely valid.

Coastal sites radiocarbon dated to the Archaic Period south of the San Luis Rey River and north of the project area include sites CA SDI-210/UCLJ-M-15 (Moriarty 1967), CA SDI-10965/SDM-W-131 (Gallegos 1991; Gallegos and Carrico 1984), and the Allen O. Kelly Site, CA SDI-9649 (Koerper et al. 1991) around Agua Hedionda Lagoon; site CA-SDI-603 (Crabtree et al. 1963) on Batiquitos Lagoon; site CA SDI-10238 on San Dieguito Lagoon (Cooley et al. 2000; Smith 1986); site CA SDI-16653 (195, 4691, W-20) along Peñasquitos Lagoon (Smith and Moriarty 1985); and the Scripps Estate Site, CA-SDI-525, in La Jolla (Moriarty et al. 1959; Shumway et al. 1961). In the project vicinity in southernmost San Diego County, sites radiocarbon dated to the Archaic Period include site CA SDI-11767 (Cooley and Mitchell 1996) on the Lower San Diego River; and sites CA SDI-48 (Gallegos and Kyle 1998) and CA-SDI-10945 (Pigniolo et al. 1991) on northern San Diego Bay. One site dated to the Archaic Period, CA-SDI-7455, is located in close proximity to the project area along an old channel of the Otay River, approximately two miles to the northwest of the study area. Subsurface coring investigations conducted at the site in 2003, produced a calibrated radiocarbon date of 5025 BP to 5465 BP from a depth of between 4.9 and 5.3 meters (m) (Andrews and Cook 2003:23). Other sites in southernmost San Diego County dating to the Early Archaic (i.e., circa 5000 to 9000 BP) and/or the later Archaic Period, circa 4000 to 2000 BP, are located in the near-coastal areas of Otay Mesa (e.g., Cooley et al. 1996; Gallegos et al. 1998; Kyle et al. 1990, 1998; Robbins-Wade 1990). Investigations at one of these sites in the Otay area (CA-SDI-11079), located approximately two miles to the northeast of the project area, have, in fact, yielded what may be the oldest radiocarbon dates for an Archaic Period site in the county, ranging from circa 8250 to 9400 BP (Gallegos et al. 1998; Kyle et al. 1998). The location of the project in proximity to these and other archaeological sites along the coast, therefore, places it within an area where sites that can be definitely dated to the Archaic Period are present.

1.2.1.5 Late Prehistoric Period Complexes

The beginning of the Late Prehistoric Period is marked by evidence of a number of new tool technologies and subsistence shifts in the archaeological record. Compared to those shifts noted for the middle and late Archaic Period, those occurring at the onset of the Late Prehistoric Period were rather abrupt changes. The magnitude of these changes and the short period of time within which they took place seem to indicate a significant alteration in subsistence practices in what is now San Diego County circa 1,500 to 1,300 BP The changes observed in the archaeological record during the Late Prehistoric Period include shifts in settlement patterning indicative of population increases; shifts in subsistence practices such as a reduction, in some areas, of shellfish gathering (possibly due to silting of the coastal lagoons), and an increase in the storage of foodstuffs such as acorns; new technologies such as the production of pottery and the use of the bow and arrow for hunting instead of atlatl and dart; and new traits such as

the cremation of the dead instead of burial by inhumation (Gallegos 2002; McDonald and Eighmey 2008).

Movements of people during the last 2,000 years can account for at least some of these changes. Yuman-speaking people had occupied the Gila/Colorado River drainages of what is now western Arizona by 2,000 years ago (Moriarty 1968) and then continued to migrate westward. An analysis by Moriarty (1966, 1967) of materials recovered from the Spindrift site in La Jolla indicated a preceramic Yuman phase. Based on this analysis and a limited number of radiocarbon samples, Moriarty concluded that the Yuman speakers, lacking ceramic technology, penetrated into, and occupied what is now the San Diego coastline circa 2,000 BP Subsequently, approximately 1,200 to 1,300 BP, ceramic technology diffused into the coastal area from the eastern deserts. Although these Yuman speakers may have shared cultural traits with the people occupying what is now eastern San Diego County before 2,000 BP, their influence is better documented throughout present-day San Diego County after 1,300 BP, with the introduction of small points, ceramics, Obsidian Butte obsidian, and the practice of cremation of the dead.

Early research by Meighan (1954) and True (1970) defined two distinct archaeological complexes for the Late Prehistoric Period in what is now San Diego County. True (1970) defined a Late Prehistoric Period complex for southern San Diego County, the Cuyamaca complex, that was distinct from one defined by Meighan (1954), the San Luis Rey complex, in the northern county area. The presence or absence, or differences in the relative occurrence, of certain diagnostic artifacts in the archaeological assemblages at the sites provide the principal distinctions between these archaeological complexes. Cuyamaca complex sites, for example, generally contain both Cottonwood Triangular-style points and Desert Side-notched arrow points, while Desert Side-notched points are quite rare or absent in San Luis Rey complex sites (Pigniolo 2004). Other examples include Obsidian Butte obsidian, which is far more common in Cuyamaca complex sites than in San Luis Rey complex sites, and ceramics. While ceramics are present during the Late Prehistoric Period throughout what is now San Diego County, they are more common in the southern or Cuyamaca complex portions of San Diego County, where they occur earlier in time and appear to be somewhat more specialized in form. Both complexes have produced a variety of vessel types, along with rattles, straight and bow-shaped pipes, and effigies. Interment of the dead at Cuyamaca complex sites is almost exclusively by cremation, often in special burial urns for interment, while archaeological evidence from San Luis Rey complex sites indicates both inhumation and cremation. Based on ethnographic data, including the areas defined for the Hokan-based Yuman-speaking peoples (Diegueño/Kumeyaay) and the Takic-speaking peoples (Luiseño) at the time of contact, it is generally accepted that the Cuyamaca complex is associated with the Kumeyaay people and the San Luis Rey complex with the Luiseño. Based on archaeological data, the proposed project lies within the area currently defined for the Cuyamaca complex.

Compared to Archaic Period sites, it has been previously observed that substantial Late Prehistoric Period sites attributable to the San Luis Rey or Cuyamaca complexes, while not absent (see below), are less common in the near-coastal areas of the county. Gallegos (1995:200) stated that “for San Diego County, there is temporal patterning, as the earliest sites are situated in near-coastal drainage valleys and around coastal lagoons. Late Prehistoric Period sites are also found in coastal settings but are more common along river valleys and interior locations.” It has also been observed at some coastal sites with substantial Archaic Period occupations, that evidence for Late Prehistoric occupation, when present, is often minimal in comparison to earlier occupations (e.g., Crabtree et al. 1963: 343). In contrast, numerous Late Prehistoric Period sites, attributable to the San Luis Rey or Cuyamaca complexes, have been identified for the near-coastal inland foothill areas of the county through diagnostic artifacts

and/or radiocarbon dating, (e.g., Chace and Hightower 1979:48; McCown 1945), including some sites containing evidence for both Late Prehistoric Period and Archaic Period occupations (Carrico and Cooley 2005; Carrico et al. 1994; Cooley and Barrie 2004; Gross and Robbins-Wade 2010; McDonald et al. 1994; Raven-Jennings and Smith 1999; Willey and Dolan 2004).

Three southern coastal archaeological sites have been particularly well-documented to contain evidence of substantial prehistoric occupation, including during the Late Prehistoric Period. Site CA-SDI-48, located approximately 13 miles to the northwest of the project area, on Ballast Point at the northern end of San Diego Bay, has produced 13 radiocarbon dates spanning from approximately 6,000 BP to circa 680 BP (Gallegos and Kyle 1998; Byrd and Reddy 2002). Site CA-SDI-5017, located approximately 17 miles to the north of the project area, at the mouth of the Rose Canyon drainage on Mission Bay, has produced three radiocarbon dates spanning from approximately 2,580 BP to circa 650 BP (Winterrowd and Cardenas 1987; Byrd and Reddy 2002). This is also generally recognized as the ethnographic village of *Jamo* (Rinconada), a village documented historically as being occupied at the time of Spanish contact (Carrico 1977). A third well-documented southern coastal archaeological site, CA SDI-4513/4609/5443, is located approximately 25 miles to the north, on the Peñasquitos Lagoon (Carrico and Taylor 1983; Gallegos et al. 1989). This site, which is also known ethnographically as the ethnohistoric village of *Ystagua*, has produced a total of 38 radiocarbon dates spanning from approximately 5,040 BP to circa 2,20 BP (Byrd and Reddy 2002). As with the village of *Jamo* (Rinconada), this village has also been documented historically as being occupied in 1769 at the time of Spanish contact (Carrico 1977).

A large archaeological site, CA-SDI-10669, is recorded at the SCIC as located in a portion of the southwest part of the study area. This site was originally recorded by Shipek (1976) and proposed as a potential location of the ethnographic village of *Milejo* (*Milejo, Millejo, Milijo*). Shipek theorized that the site was occupied when the Spanish arrived in 1769 and had continuous habitation through 1850. Shipek also suggested that the site could have possibly been buried by alluvium as a result of flooding in 1895 and 1916. Recently, however, Carrico, while previously concurring with Shipek on the identification and location of the village of Melijo (Carrico 2008a; Trafzer and Carrico 1992), has, based on subsequent research, proposed that the village of Melijo was actually located along the coast to the south, just south of the City of Tijuana, and that another ethnohistorically documented village, *Tijuan* (*Llauteacan*), was located near the mouth of the Tijuana River (Personal communication, 2020). While, in the years subsequent to its recordation, artifacts have been noted at the site during a number of surveys, limited subsurface testing investigations, and monitoring of trenching within different portions of the site area, only one investigation has resulted in the discovery of possibly intact cultural deposits.

Deeply buried cultural deposits were discovered at the site in 1992, during monitoring of trench excavations conducted for the South Bay Land Outfall project (Higgins et al. 1993). Lithic artifacts, fire-affected rock, marine shell, lithics, and features (hearths), were observed in trench walls at depths between 6.0 and 7.0 meters below the current ground surface. A radiocarbon date of 4,380±60 BP from the deposits appeared to associate them with the Archaic Period, and an apparent absence was also noted of any conclusive evidence of a Late Prehistoric/historic ethnographic village (Higgins et al. 1993). Another archaeological site, CA-SDI-13488, located along the river and at the southern edge of CA-SDI-10669, approximately 0.9 mile to the south of the project area, was also found to contain buried cultural deposits at depths of from 1.0 to 8.0 meters during the monitoring of trenching. As with the buried cultural deposits discovered at CA-SDI-10669, radiocarbon dates of 4,960±60 BP and 5,970±70 BP also indicated an Archaic Period time placement for the deposits (Higgins et al. 1993).

The results from these two sites could lend credence to the theory that a large village (Milijo?, *Tijuan*?) may have once been located here, but that it has been subsequently eroded away and/or covered by alluvium as a result of flooding. It seems plausible that these buried deposits at the sites, which are in proximity to each other, could represent the remains of a village habitation at this location that was occupied over a long period of time. As noted above, other known southern coastal village sites such as CA SDI-4513/4609/5443 (*Ystagua*) and CA-SDI-5017 (*Jamo*), have radiocarbon dating indicating early (Archaic Period) as well as subsequent Late Prehistoric Period occupations. It also seems plausible that any upper-level Late Prehistoric Period deposits at CA-SDI-10669 and CA-SDI-13488 would be the most likely to be eroded away during recent flood episodes, while deeper, possibly more extensive deposits from older occupations would be the most likely to remain intact and be buried.

Another nearby archaeological site, CA-SDI-7455, located approximately two miles to the northwest of the project area, and similar to the location of CA-SDI-10669 and CA-SDI-13488 near the mouth of the Tijuana River, is similarly located at the mouth of the Otay River, has also been documented to contain subsurface deposits radiocarbon dated to both the Late Prehistoric Period and the Archaic Period (Andrews and Cook 2003). It has also been suggested as possibly representing the location of another ethnographic village, the village of *Chiap* (La Punta) (Roeder 1980). Another nearby archaeological site located approximately 7.5 miles, situated inland along the Otay River (CA-SDI-12809), to the northeast of the project area, has also been documented to contain subsurface deposits radiocarbon dated to both the Late Prehistoric Period and the Archaic Period (McDonald et al. 1993). This site has been suggested as possibly associated with the village of *'Utay* (McDonald et al. 1993; Carrico 2008a). Sites such as these demonstrate a pattern of repeated occupation of some coastal locations and their surrounding vicinity, not only during the Late Prehistoric and in some instances, into ethnohistoric times, but extending back into the late and/or middle Archaic Period as well.

1.2.1.6 Ethnohistory

The Ethnohistoric Period, sometimes referred to as the ethnographic present, commenced with the earliest European arrival in what is now San Diego and continued through the Spanish and Mexican periods and into the American period. The Kumeyaay people of southern San Diego County are also known as Ipai-Tipai (Luomala 1978) or as the Diegueño (named for Mission San Diego de Alcala), while the name Luiseño derives from Mission San Luis Rey de Francia. Agua Hedionda Creek is often described as the division between the territories of the Luiseño people to the north and the Kumeyaay people to the south (Bean and Shipek 1978; Luomala 1978), although various ethnographers (e.g., Kroeber 1925) have defined slightly different boundaries. Traditional stories and songs of the Native people also describe the extent of the traditional use areas.

The founding of Mission San Diego de Alcalá in 1769 brought about profound changes in the lives of the Kumeyaay. The coastal Kumeyaay died from introduced diseases or were brought into the mission system. Earliest accounts of Native American life in what is now San Diego were recorded as a means to salvage scientific knowledge of native lifeways. These accounts were often based on limited interviews or biased data collection techniques. Later researchers and local Native Americans began to uncover and make public significant contributions in the understanding of native culture and language. These studies have continued to the present day and involve archaeologists and ethnographers working in conjunction with Native Americans to address the continued cultural significance of sites and landscapes across San Diego County.

The population for the Kumeyaay in San Diego, immediately prior to European contact, has been estimated to be as few as 3,000 (Kroeber 1925:712) or possibly as many as 9,000 (Luomala 1978:596). At the time of Spanish contact, Yuman-speaking Kumeyaay bands occupied southern San Diego and southwestern Imperial counties, and northern Baja California. The Kumeyaay lived in semi-sedentary, politically autonomous villages or rancherias. Most rancherias were the seat of a clan, although it is thought that, aboriginally, some clans had more than one rancheria, and some rancherias contained more than one clan, often depending on the season within the year (Luomala 1978). Each village was comprised of many households, and groups of villages were part of a larger social kinship system. The basic unit of the system "appears to have been kin groups referred to by a variety of names including sib, shimulls, cimuLs, gens, and gentes. These clans were organized into exogamous groups based on patrilineal (male) descent" (Carrico 2017:9). Campsites and villages were chosen based on proximity to water, boulder outcrops, environmental protection, and availability of plants and animals (Luomala 1978), consequently, many of the known Kumeyaay villages or rancherias were located in river valleys, near springs, and along the coastal shoreline and estuaries (Luomala 1978; Carrico 2008a; Kroeber 1925). They subsisted on a hunting and foraging economy, exploiting San Diego's diverse ecology throughout the year; coastal bands exploited coastal marine resources while inland bands might move from the desert, ripe with agave and small game, to the acorn and pine nut rich mountains in the fall (Cline 1984; Kroeber 1925; Luomala 1978).

Several ethnohistoric Kumeyaay villages have been proposed as being located in the study area vicinity (i.e., within a radius of approximately eight miles), including the ethnohistoric village of and Milejo. Shipek (1976) originally proposed a location for Melijo near the mouth of the Tijuana River and theorized that the site was occupied when the Spanish arrived in 1769 and had continuous habitation through 1850. Shipek also suggested that the site could have possibly been buried by alluvium as a result of flooding in 1895 and 1916. Recently, however, Carrico, who previously concurred with Shipek on the identification and location of the village of Melij*o* (Carrico 2008a; Trafzer and Carrico 1992), has, based on subsequent research, proposed that the village of Melijo was actually located along the coast to the south, just south of the City of Tijuana, and that another ethnohistorically documented village, *Tijuan* (*Llauteacan*), was located near the mouth of the Tijuana River (Carrico, personal communication, 2020). The village of *Chiap* (La Punta), is documented to have been situated approximately 2.25 miles to the northwest, near the mouth of the Otay River and lower San Diego Bay (Carrico 2008a). Other Kumeyaay villages indicated by Carrico (2008a) to be within or in the vicinity of the study area were the villages of 'Utay (Otay), situated inland also along the Otay River, but probably downstream from the location of Otay Dam; and *Apusquel* (La Purisima Concepcion) located inland along the lower Sweetwater River near the current day community of Bonita. Some native speakers referred to river valleys as *oon-ya*, meaning trail or road, describing one of the main routes linking the interior of San Diego with the coast. For example, the floodplain from the San Diego Mission de Alcalá to the ocean was *hajir* or *qajir* (Harrington 1925). Carrico (2008a; 2008b) indicates that inhabitants of the villages of Milejo, *Chiap* and *'Utay* participated in the burning of the original Mission San Diego de Alcalá, in 1775, located near the village *Kosoi* (*Cosoy*), located near the north end of San Diego Bay and the mouth of the San Diego River.

As noted above, archaeological sites such as CA-SDI-10669 and CA-SDI-13488, located near the mouth of the Tijuana River, and partially within or in proximity to the study area, and containing intact deeply buried subsurface deposits, (Higgins et al. 1993), may represent deposits associated with an ethnohistoric village, either Melij*o* (Shipek 1976) or *Tijuan* (Carrico, personal communication, 2020). Elsewhere, in nearby areas, site CA-SDI-7455, around the mouth of the Otay River, may represent deposits associated with the ethnohistoric village of *Chiap* (La Punta) (Andrews and Cook 2003;

Roeder 1980), and deposits at a site inland (CA-SDI-12809), along the Otay River, have been suggested as possibly associated with the village of *'Utay* (Carrico 2008a; McDonald et al. 1993).

1.2.1.7 Historical Background

Spanish Period

While Juan Rodriguez Cabrillo visited San Diego briefly in 1542, the beginning of the historic period in the San Diego area is generally given as 1769. In the mid-18th century, Spain had escalated its involvement in California from exploration to colonization (Weber 1992), and in that year, a Spanish expedition headed by Gaspar de Portolá and Junípero Serra established the Royal Presidio of San Diego. Portolá then traveled north from San Diego, seeking suitable locations to establish military presidios and religious missions to extend the Spanish Empire into Alta California.

Initially, both a mission and a military presidio were located on Presidio Hill overlooking the San Diego River. A small pueblo, now known as Old Town San Diego, developed below the presidio. The Mission San Diego de Alcalá was constructed in its current location five years later. The missions and presidios stood, literally and figuratively, as symbols of Spanish colonialism, importing new systems of labor, demographics, settlement, and economies to the area. Cattle ranching, animal husbandry, and agriculture were the main pursuits of the missions.

The first written descriptions of the Tijuana River Valley appear in 1979; Father Juan Crespi and Father Junipero Serra, both traveling through the area in two separate expeditions, noted the presence of a "populous" or a "thickly populated" village (Crespi 1927; Serra 1955). These references likely refer to the Kumeyaay village of Milejo, which appears to have been destroyed by floods around 1850 (Engelhardt 1920; Pourade 1960). Much of the Tijuana River Valley would be used for grazing cattle for the Mission San Diego de Alcalá; this grazing ultimately undermined the local Kumeyaay subsistence patterns (Carrico 2008b).

Mexican Period

Although Mexico gained its independence from Spain in 1821, Spanish patterns of culture and influence remained for a time. The missions continued to operate as they had in the past, and laws governing the distribution of land were also retained in the 1820s. Following the secularization of the missions in 1834, large ranchos were granted to prominent and well-connected individuals, ushering in the Rancho Era, with the society making a transition from one dominated by the church and the military to a more civilian population, with people living on ranchos or in pueblos. With the numerous new ranchos in private hands, cattle ranching expanded and prevailed over agricultural activities.

These ranches put new pressures on California's native populations, as grants were made for inland areas still occupied by the Kumeyaay, forcing them to acculturate or relocate farther into the backcountry. In rare instances, former mission neophytes were able to organize pueblos and attempt to live within the new confines of Mexican governance and culture. The most successful of these was the Pueblo of San Pasqual, located inland along the San Dieguito River Valley, founded by Kumeyaay who were no longer able to live at the Mission San Diego de Alcalá (Carrico 2008b; Farris 1994).

Three ranchos occupied the Tijuana River Valley: Rancho Ti Juan, Rancho Jesus Maria, and Rancho de San Ysidro. In 1837, the ranchos were raided by local native groups; two ranchos were burned, and several people were killed (SWCA Environmental Consultants 2004a).

In 1833, Rancho Milijo was granted to Santiago Emilio Arguello by Governor Jose Figuero. Rancho Milijo, later called Rancho La Punta, consisted of over thirty square miles and encompassed Otay, Palm City, Nestor, and San Ysidro (Rojas 1992).

American Period

American governance began in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo, ceding California to the United States at the conclusion of the Mexican-American War. A great influx of settlers to California and the San Diego region occurred during the American Period, resulting from several factors, including the discovery of gold in the state in 1848, the end of the Civil War, the availability of free land through the passage of the Homestead Act, and later, the importance of San Diego County as an agricultural area supported by roads, irrigation systems, and connecting railways. The increase in American and European populations quickly overwhelmed many of the Spanish and Mexican cultural traditions, and greatly increased the rate of population decline among Native American communities.

Between 1848 and 1851, the U.S. Mexican International Boundary Commission surveyed and established the border between the two countries (ICF 2018; Schoenherr 2015). The Commission placed a total of 42 boundary markers, the first of which became a tourist attraction in the latter part of the nineteenth century. Located in Border Field State Park, Boundary Marker No. 1 was a large Italian marble obelisk (ICF 2018).

While the American system required that the newly acquired land be surveyed prior to settlement, the Treaty of Guadalupe Hidalgo bound the United States to honor the land claims of Mexican citizens who were granted ownership of ranchos by the Mexican government. The Land Act of 1851 established a board of commissioners to review land grant claims, and land patents for the land grants were issued throughout the following years. As required by the Land Act of 1851, Santiago Arguello filed a claim for Rancho Milijo with the Public Lands Commission; however, likely due to confusion over the size of the rancho, the claim was denied (Christenson and Sweet 2008).

The 1880s saw “boom and bust” cycles that brought thousands of people to the area of San Diego County. By the end of the decade, many had left, although some remained to form the foundations of small communities based on dry farming, orchards, dairies, and livestock ranching. The Tijuana River Valley attracted many farmers in the late 1860s due to its nutrient rich soil, resulting in the establishment of both large and small farmsteads in the area. The area became known as Monument City in 1869 (Schoenherr 2015). In August 1869, the Monument School District was organized, and a schoolhouse was built in present-day Imperial Beach. A new schoolhouse was built in 1889 at the intersection of Hollister Street and Monument road, though it closed in 1941 and was converted into a private residence (Schoenherr 2015). Periodic flooding, such as the 1916 Hatfield Flood, wreaked havoc on those attempting to settle in the area (Patterson 1970).

Military presence at the border increased following the Mexican Revolution in 1916. The Army established a camp near Monument No. 1 (Schoenherr 2015). The far western portion of the Tijuana River Valley was purchased and used by the Navy as an airfield, gunnery range, and auxiliary training base during World War I (Dedina 1991). Following World War I, fortifications were built in the southwestern corner of the valley to defend from potential attacks from Mexico and the Pacific Ocean.

The population growth that occurred in the San Diego area following World War II resulted in an increase in farming activity within the valley. By the late 1950s, farmers had cultivated more than half of

the valley's land, though the years of low rainfall and the water pumps used by farmers in the region decimated the water supply. Saltwater intrusion into the groundwater table, in turn, decimated crops and drove farmers away from the western portion of the valley (Dedina 1991). The Tijuana River Valley was later designated a National Estuarine Sanctuary in 1986.

1.2.2 Record Search Results

HELIX obtained a records search of the entire TRVRP from the South Coastal Information Center (SCIC), located at San Diego State University, on December 1, 2020. The records search included the identification of previously recorded cultural resources and locations and citations for previous cultural resources studies. Reviews of the California Historical Resources and the California state Office of Historic Preservation (OHP) historic properties directories were also conducted. The records search maps are included as Confidential Appendix B to this report.

1.2.2.1 Previous Studies

The records search results identified 55 previous cultural resource studies occurring within the TRVRP (Table 1, *Previous Studies within the Tijuana River Valley Regional Park*). One additional report was not identified within the search limits, as it was not on file at the SCIC at the time of the records search request but has been included in Table 1. The majority of the studies were cultural resource surveys or monitoring reports; the remaining reports consisted of resource evaluations inventories, investigations, testing results, and studies. Environmental documents, such as Mitigated Negative Declarations, were also identified within the limits.

Table 1
PREVIOUS STUDIES WITHIN THE TIJUANA RIVER VALLEY REGIONAL PARK

Report Number (SD-)	Report Title	Author, Date
00231	Archaeological Survey of the South San Diego Water Treatment Site	Carrico, 1976
00790	Cultural Resource Survey for the Smuggler Gulch Surface Flow Collection Facility, San Diego, California	Cheever and Gallegos, 1987
00995	Supplemental Cultural Resources Inventory for the Tijuana River Flood Control Project Area	Hanna, 1977
01225	Archaeological Survey of Border Highland Borrow Pit Site	Carrico, 1976
01342	An Archaeological Reconnaissance of Border Highlands San Diego, California	Polan, 1981
02807	Archaeological Survey of a Maintenance Ditch to be Constructed at a 1940's Adobe Located at Bancroft Park, San Diego County	Hector, 1993
02885	Archaeological Investigations at the Proposed International Wastewater Treatment Plant Site: Cultural Resource Identification and Geotechnical Test Monitoring	Higgins, 1994
02886	Archaeological Monitoring of the International Wastewater Treatment Plant Land Outfall Trench. San Diego County, California	Higgins, 1994
02955	Supplemental Report: Archaeological Survey and Geotechnical Test Monitoring of the International Wastewater Treatment Plant Ocean Outfall Tunnel	Adams and Turnbow, 1994
03026	Results of an Archaeological Survey and Cultural Resources Evaluation for the International Traders Center of San Ysidro	Smith, Pierson, Callahan, Bouscaren, and Goodwin, 1993

Report Number (SD-)	Report Title	Author, Date
03266	Archaeological Survey for the Joint Task Force-Six Border Road Repair Project, Otay Mountain, California	Gross, Alter, and Robbins-Wade, 1996
03282	Historic Assessment of Properties on 3 Parcels on Monument Road, San Diego California	Manley, 1993
03469	Cultural Resources Evaluation for the South Bay Reclamation Sewer and Pump Station Project San Diego County, California	Carrico and Dietler, 1998
03646	Archaeological Investigations at South Bay International Wastewater Treatment Plant Site and Outfall Facilities, Cultural Resource Identification and Geotechnical Test Monitoring	Higgins, Coleman, Brown, Anduze, and Kemrer, 1994
03707	Work Plan for Archaeological Services at South Bay International Wastewater Treatment Plant and Outfall Facilities	Brown and Higgins, 1992
03709	Archaeological Monitoring of the South Bay Land Outfall Trench, San Diego County, California	Higgins, Turnbow, Brown, Coleman, Collet, Lintz, and Mires, 1993
03713	Archaeological Testing of Three Sites for the International Wastewater Treatment Plant Project San Diego County, California	Turnbow, Adams, Evaskovich, and Higgins, 1995
04225	Archaeological Survey and Significance Evaluation Program for the Border Highlands Project	ASM Affiliates, 1989
04393	Negative Archaeological Survey Report: The Hollister Street Project	Baksh, 1996
04396	Dairy Mart Road Realignment Project	Case, 1996
04608	Public Notice of Proposed Negative Declaration	City of San Diego, 1994
04609	Public Notice of Proposed Mitigated Negative Declaration International Traders Center Wetlands Restoration Program	City of San Diego, 1994
05027	Cultural Resource Monitoring Report for the Hollister Street Bailey Bridge Replacement Project, San Diego County, CA	Pigniolo, 2001
05291	Cultural Resources Evaluation within the South Bay Water Reclamation Plant San Diego County, California	Carrico, Case, and Serr, 1996
05507	Historic Properties Inventory for Secondary Treatment, Clean Water Program for Greater San Diego, San Diego, California	Wade, Van Wormer, and Cheever, 1990
05933	Draft Environmental Assessment for the Joint Task Force Six Operation JT (154D-91) Border Fence Construction	USACE, 1992
05934	An Archaeological Reconnaissance of Border Highlands San Diego	Polan, 1981
05935	Cultural Resource Survey and Significance Testing for the International Waste Water Project	Gallegos, Pigniolo, and Carrico, 1986
05948	Cultural Resources Survey of 2.65 Miles of the Tijuana River North Levee for the Joint Task Force Six Border Fence Project	Perry, 1992
06635	Historic Property Survey-Bailey Bridge Hollister Street	Rosen, 1996
07136	Final Cultural and Paleontological Resource Study for the Tijuana River Valley Regional Park Trails and Habitat Restoration Enhancement Project, San Diego County, California	SWCA Environmental Consultants, 2004
07358	Archaeological Inventory Report for the Goat Canyon Enhancement Project, City of San Diego, California	Pigniolo, Murray, and Dietler, 2001
08599	Historic Properties Inventory for the Southeast Otay Mesa Sludge Processing Facilities and Pipeline (Southern Sludge Processing Facility to Southeast Otay Mesa Sludge Processing Facility) San Diego, California	Robbins-Wade and Gross, 1990

Report Number (SD-)	Report Title	Author, Date
09177	Cultural Resources Survey of the Tijuana River Wetland Mitigation Project San Diego County, California	Underwood and Gregory, 2004
10423	Cultural Resources Survey of the Tijuana River Valley Channel Dredging Project	Hector, 2006
10448	Site Significance Evaluation of a Portion of Prehistoric Archaeological Site CA-SDI-17668 Located Along the Proposed Otay Water District, 30-Inch Recycled Water Pipeline Route, in the Otay River Valley, San Diego County, California	Cooley, 2005
10821	Final Cultural Resources Mitigation Monitoring Report for the Otay Water District 30- Inch Recycled Water Pipeline San Diego County, California	Case, 2007
10929	Archaeological Monitoring for the Coral Gate Project, Tijuana River Valley, San Diego, California	Robbins-Wade and Shultz, 1996
11503	Initial Study for the Tijuana River Valley Wetlands Mitigation Project	Dudek, 2007
11688	A Cultural Resources Survey and Archaeological Site Evaluation for the San Diego County Water Authority Tijuana River Valley Wetland Mitigation Project, San Diego County, California, APNs 668-011-04-00 and 663-011-12-00	Smith and Rosenberg, 2008
11826	Archaeological Resources Analysis for the Master Stormwater System Maintenance Program, San Diego, California	Robbins-Wade, 2008
12853	Cultural Resources Survey Report Proposed RVSS Tower W-9 at Russian Hill	Berryman and Rosenberg, 2010
13006	Master Storm Water System Maintenance Program - Draft Recirculated Program Environmental Impact Report	City of San Diego, 2011
14561	Cultural Resources Monitoring Report for the Hollister Street Bailey Bridge Replacement Project, San Diego County, California	Pigniolo, 2001
15229	ETS #24738.03, Cultural Resources Monitoring for the Intrusive Pole Inspections, Metro District, Sub-Areas Bord, Snys, Impe, Otay, SBay, Hilt, Mont, SSDE, Linc Project, San Diego County, California	Tennesen, 2013
15485	Results of an Archeological Monitoring Program Conducted for Phase 2, San Diego District 2012-2014 Water Main Replacements, Hollister Street Pipeline, San Diego, California	Foglia and Schaefer, 2014
15486	Results of an Archeological Monitoring Program Conducted for Phase 3, San Diego District 2012-2014 Water Main Replacements, Hollister Street Pipeline, San Diego, California	Foglia and Hennessey, 2015
15764	Cultural Resources Study in Support of the Tijuana River Valley Regional Park Trails and Habitat Enhancement Project, Tijuana River Valley Regional Park, San Diego, California	Wilson, Cooley, and Bietz, 2014
15767	Auger Testing Results for Tijuana River Valley Regional Park Trails and Habitat Enhancement Project, Tijuana River Valley Regional Park, San Diego, California	Wilson, 2014
16538	Major Maintenance Improvements Plan: Irrigation Retrofit Project Cultural Resources Monitoring	Roy, 2016
16681	Cultural Resources Survey for the Tijuana River Valley Regional Park Trails and Habitat Restoration Enhancement Project	Wilson, 2014
16942	Letter Report: Cultural Resources Survey of CA-SDI-10487 for the Tijuana River Valley Regional Park - Northern Trails Project	Wilson, 2013
16993	Cultural Resources Monitoring for the Tijuana River Valley Regional Park - Habitat Restoration Enhancement Project	Spelts, 2013

Report Number (SD-)	Report Title	Author, Date
17736	Archaeological Monitoring for CMP Pole Inspection of P84499 and P737739, San Diego, San Diego County, California	Foglia, 2018
18030	Section 106 Consultation for the Rehabilitation of the Levee System of the Tijuana River Flood Control Project in San Diego County, California	Anaya, 2019
NOF	Cultural Resources Study in Support of the Mesa Trail and Restoration Project and the Dairy Mart Overlook Project, Tijuana River Valley Regional Park, San Diego, California	Glenny, Wilson, Cooley, and McGinnis 2014

NOF indicates document not on file at the SCIC

1.2.3 Previously Recorded Resources

The SCIC has a record of 58 previously recorded cultural resources within the TRVRP (Table 2, *Previously Recorded Resources within the Tijuana River Valley Regional Park*). In general, the majority of the resources (n = 47) recorded within TRVRP are of prehistoric resources consisting of lithic and shell scatters, quarry sites, and isolated artifacts. Two multi-component sites are recorded within TRVRP consisting of building remains and historic trash scatters with shell/lithic scatters also present. Nine historic-period resources, consisting of historic structures, building remains, artifact scatters and isolates, terraces, and a bridge, are documented within the TRVRP. Of the 58 resources, all but one (P-37-012962) are within the project area (Figure 5, *Cultural Resources within the TRVRP* [Appendix C; Confidential, Bound Separately]).

Table 2
PREVIOUSLY RECORDED RESOURCES WITHIN THE TIJUANA RIVER VALLEY REGIONAL PARK

Primary Number (P-37-##)	Trinomial (CA-SDI-#)	Age and Resources Present	Description	Recorder, Date
007456	7456	Prehistoric Site	Artifact scatter with ash in soil. Destroyed during construction of nearby road.	Van Wormer, 1980; Polan, 1981
008595	8595/H	Multi-component Site	Shell and lithic scatter, with accompanying historic trash dump.	Polan 1981; Buysse, Pemberton, and Waters, 1998
008597	8597	Prehistoric Site	Lithic scatter.	Polan, 1981
008598	8598	Prehistoric Site	Shell scatter.	Polan, 1981
008599	8599	Prehistoric Site	Lithic and shell scatter.	Polan, 1981
008600	8600	Prehistoric Site	Lithic scatter.	Polan, 1981
008601	8601	Prehistoric Site	Lithic scatter.	Polan, 1981
008602	8602	Prehistoric Site	Lithic scatter.	Polan, 1981
008603	8603	Prehistoric Site	Lithic scatter.	Polan, 1981
008604	8604	Prehistoric Site	Quarry site with numerous hammers, cores, and lithic tools.	Polan, 1981; Coleman, 1992; Buysse, Waters, and Pemberton, 1998; Pigniolo, 2000

Primary Number (P-37-##)	Trinomial (CA-SDI-#)	Age and Resources Present	Description	Recorder, Date
008605	8605	Prehistoric Site	Quarry site and lithic scatter consisting of two loci.	Polan, 1981; Poe, n.d.; Ritz and Davis, 1990; Coleman, 1992; Buysse, Waters, and Pemberton, 1998; Foglia, 2018
010487	10487	Prehistoric Site	Shell and lithic scatter.	Pigniolo and Christenson, 1986; Collett and Wade, 1990; Dietler and McGinnis, 1998; SWCA Environmental Consultants, 2004; LaVictoire and Droessler, 2013; AECOM 2014
010488	10488/H	Multi-component Site	Cobble and cement wall, foundation, and historic trash deposit. Shell fragments located nearby.	Pigniolo, 1986
010669	10669	Prehistoric Site	Ethnographically recorded village of Millejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire affected rocks, and hearths.	Shipek, 1976; Collett and Wade, 1990; Perry, 1992; Lintz and Bilsbarrow, 1992; Coleman and Bilsbarrow, 1992; Collett and Bilsbarrow, 1992; Rosenberg 2008a; AECOM 2014; ICF 2018
010967	10967	Prehistoric Site	Shell midden and lithic scatter, possibly part of the ethnographically recorded village of Millejo or “Sancti Spiritu” mentioned by Crespi.	Roeder, 1980; Underwood et al., 2002; Rosenberg 2008b; AECOM 2014
011095	11095H	Historic Site	Historic artifact scatter west of a small cinderblock structure.	Van Wormer, 1989; Cox and Chmiel, 2019
011096	11096H	Historic Site	A single story, shotgun-style house (no longer existing).	Van Wormer, 1989; Coleman, 1994; Foglia, 2018
011097	11097	Prehistoric Site	Lithic scatter.	Cook and Serr, 1989
011098	11098	Prehistoric Site	Chipping station with lithic artifacts.	Cook and Serr, 1989
011099	11099	Prehistoric Site	Lithic scatter/resource station with ceramic and shell artifacts.	Cook and Serr, 1989
011100	11100	Prehistoric Site	Chipping station and associated lithic scatter.	Cook and Serr, 1989
011101	11101	Prehistoric Site	Lithic scatter.	Cook and Serr, 1989
011945	11945	Prehistoric Site	Lithic scatter.	Ritz and Davis, 1990; Coleman, 1992

Primary Number (P-37-##)	Trinomial (CA-SDI-#)	Age and Resources Present	Description	Recorder, Date
011946	11946	Prehistoric Site	Lithic Scatter.	Ritz and Davis, 1990
011948	11948H	Historic Site	A series of terraces made of stacked river cobbles associated with cobble-lined walkways, concrete pads, and machine parts and trash.	Ritz and Davis, 1990; Coleman 1992
012962	12962	Historic Site	Historic trash deposit intermixed with artifacts from P-37-004934.	Pierson, 1992; AECOM, 2014
013486	13486	Prehistoric Site	Artifact scatter with stone tools and shell.	Coleman, 1992; Blotner, Berryman, and Rosenberg, 2010
013487	13487	Prehistoric Site	Concentration of fire affected rock, lithic artifacts, and shell.	Dibble, 1991; AECOM, 2014; ICF, 2018
013488	13488	Prehistoric Site	Possible roasting pit, fire affected rock, charcoal, and flake.	Perry 1991; ICF, 2018
017058	15099	Prehistoric Site	Lithic scatter.	Buysse, Pemberton, and Waters, 1998
025703	17098	Prehistoric Site	Artifact scatter consisting of flaked and ground stone artifacts.	Underwood et al., 2002; AECOM, 2014
025704	--	Historic Site	Pump house with subterranean well and redwood water storage tank. A wood utility pole may be associated with the structure.	Underwood et al., 2002; Rosenberg, 2008; AECOM, 2014
025705	--	Historic Site	Remains of a house with a modern complex of buildings and structures.	Underwood et al., 2002; Rosenberg, 2008; AECOM, 2014
025917	17236	Prehistoric Site	Shell scatter, a possible mano, and a possible flake.	Hunt et al., 2004
025918	17237	Prehistoric Site	Shell and lithic scatter.	SWCA Environmental Consultants, 2004
025919	17238	Prehistoric Site	Shell scatter.	SWCA Environmental Consultants, 2004; AECOM 2014
025920	--	Historic Isolate	Brick fragment with partial maker's mark.	SWCA Environmental Consultants, 2004; AECOM 2014
025921	--	Prehistoric Site	Lithic scatter.	SWCA Environmental Consultants, 2004; ICF, 2018
025922	--	Prehistoric Isolate	Isolated scraper.	SWCA Environmental Consultants, 2004; ICF, 2018
025923	17239	Prehistoric Site	Shell and lithic scatter.	SWCA Environmental Consultants, 2004; AECOM, 2014
025924	17240H	Historic Bridge	Hollister Bridge that travels over the Tijuana River channel and basin.	SWCA Environmental Consultants, 2004; AECOM, 2014

Primary Number (P-37-##)	Trinomial (CA-SDI-#)	Age and Resources Present	Description	Recorder, Date
028784	18500	Prehistoric Site	Possible shell midden with ground stone and lithic artifacts.	Kierulff, 2004; AECOM, 2014
033837	--	Prehistoric Isolate	A metavolcanic flake.	Glenny et al., 2014
033838	--	Historic Isolate	Stainless steel knife handle with "U.S.N." inscribed on the handle.	Glenny et al., 2014
033839	--	Prehistoric Isolate	Five shell fragments.	Glenny and Roy, 2014
033840	--	Prehistoric Isolate	Hammerstone fragment.	Glenny and Roy, 2014
033841	--	Prehistoric Isolate	Metavolcanic scraper.	Glenny and Roy, 2014
033842	--	Prehistoric Isolate	Fire affected quartzite ground stone fragment.	Glenny and Roy, 2014
033843	--	Prehistoric Isolate	Metavolcanic flake.	Glenny and Roy, 2014
034103	--	Prehistoric Isolate	Shell fragment.	Hennessey and Bigney, 2013
034149	21359	Prehistoric Site	Shell scatter.	Bigney and Hennessey, 2013
036579	--	Prehistoric Site	Lithic scatter.	Glenny, Cooley, and Contreras, 2014
037593	--	Prehistoric Isolate	Metavolcanic flake.	Ruis, Cox, and Menvielle, 2017
038322	--	Prehistoric Isolate	Metavolcanic flake.	Cox, Chmiel, Taylor, 2019
038323	--	Prehistoric Isolate	Metavolcanic flake.	Cox, Chmiel, and Taylor, 2019
038324	--	Prehistoric Isolate	Metavolcanic core fragment.	Cox, Chmiel, and Taylor, 2019
038325	--	Prehistoric Isolate	Quartzite flake.	Cox, Chmiel, and Taylor, 2019
038326	22618	Prehistoric Isolate	Three metavolcanic flakes.	Cox, Chmiel, and Taylor, 2019

1.3 APPLICABLE REGULATIONS

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, and/or scientific importance. Significant resources are those resources that have been found eligible to the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP), as applicable.

1.3.1 Federal

Federal regulations that would be applicable to the project consist of the NHPA and its implementing regulations (16 United States Code 470 et seq., 36 Code of Federal Regulations [CFR] Part 800). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings

on “historic properties”, that is, properties (either historic or archaeological) that are eligible for the NRHP. To be eligible for the NRHP, a historic property must be significant at the local, state, or national level under one or more of the following four criteria:

A. associated with events that have made a significant contribution to the broad patterns of our history;

B. associated with the lives of persons significant in our past;

C. embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or

D. has yielded or may be likely to yield, information important in prehistory or history.

Under Section 106 of the NHPA, actions that alter any of the characteristics that qualify a property for eligibility for listing in the NRHP “in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association” (36 CFR 800.5[a]) constitute an adverse effect to the historic property.

1.3.2 State

CEQA, Public Resources Code (PRC) 21084.1, and California Code of Regulations (CCR) Title 14 Section 15064.5, address determining the significance of impacts to archaeological and historic resources and discuss significant cultural resources as “historical resources,” which are defined as:

- resource(s) listed or determined eligible by the State Historical Resources Commission for listing in the CRHR (14 CCR Section 15064.5[a][1])

- resource(s) either listed in the NRHP or in a “local register of historical resources” or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless “the preponderance of evidence demonstrates that it is not historically or culturally significant” (14 CCR Section 15064.5[a][2])

- resources determined by the Lead Agency to meet the criteria for listing on the CRHR (14 CCR Section 15064.5[a][3])

For listing in the CRHR, a historical resource must be significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

2. It is associated with the lives of persons important to local, California, or national history;

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

4. It has yielded or has the potential to yield information important to the prehistory or history of the local area, California, or the nation.

Under 14 CCR Section 15064.5(a)(4), a resource may also be considered a "historical resource" for the purposes of CEQA at the discretion of the lead agency.

All resources that are eligible for listing in the CRHR must have integrity, which is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. In an archaeological deposit, integrity is assessed with reference to the preservation of material constituents and their culturally and historically meaningful spatial relationships. A resource must also be judged with reference to the particular criteria under which it is proposed for nomination.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

(1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

(2) The significance of a historical resource is materially impaired when a project:

   (a) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

   (b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

   (c) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5 8 of CEQA applies to effects on archaeological sites and contains additional provisions regarding archaeological sites. If an archaeological site does not meet the criteria defined in subsection (a) as a historical resource but does meet the definition of a unique archaeological resource in Section 21083.2 of the PRC, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources. If an archaeological resource is neither a unique

archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Environmental Document, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) & (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides the following:

> When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code §5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission.

1.3.3 San Diego County Local Register of Historical Resources

The County requires that resource importance be assessed not only at the state level as required by CEQA, but at the local level as well. If a resource meets any one of the following criteria as outlined in the San Diego County Local Register of Historical Resources (Local Register), it will be considered an important resource.

(1) Is associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage:

(2) Is associated with the lives of persons important to the history of San Diego County or its communities;

(3) Embodies the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

1.3.4 Native American Heritage Values

Federal and state laws mandate that consideration be given to the concerns of contemporary Native Americans with regard to potentially ancestral human remains, associated funerary objects, and items of cultural patrimony. Consequently, an important element in assessing the significance of the study site has been to evaluate the likelihood that these classes of items are present in areas that would be affected by the proposed project.

Potentially relevant to prehistoric archaeological sites is the category termed Traditional Cultural Properties (TCP) in discussions of cultural resource management performed under federal auspices. According to Parker and King (1998), "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and

practices. Cultural resources can include TCPs, such as gathering areas, landmarks, and ethnographic locations, in addition to archaeological districts. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ ethnographic importance.

In California, the Traditional Tribal Cultural Places Bill of 2004 requires local governments to consult with Native American Tribes during the project planning process, specifically before adopting or amending a General Plan or a Specific Plan, or when designating land as open space for the purpose of protecting Native American cultural places. The intent of this legislation is to encourage consultation and assist in the preservation of Native American places of prehistoric, archaeological, cultural, spiritual, and ceremonial importance. State Assembly Bill (AB) 52, effective July 1, 2015, introduced the Tribal Cultural Resource (TCR) as a class of cultural resource and additional considerations relating to Native American consultation into CEQA. As a general concept, a TCR is similar to the federally defined TCP; however, it incorporates consideration of local and state significance and the required mitigation under CEQA. A TCR may be considered significant if included in a local or state register of historical resources; or determined by the lead agency to be significant pursuant to criteria set forth in PRC §5024.1; or is a geographically defined cultural landscape that meets one or more of these criteria; or is a historical resource described in PRC §21084.1, a unique archaeological resource described PRC §21083.2; or is a non-unique archaeological resource if it conforms with the above criteria.

The County of San Diego Guidelines for Determining Significance, Cultural Resources: Archaeological and Historic Resources identifies that cultural resources can also include TCPs, such as gathering areas, landmarks, and ethnographic locations in addition to archaeological districts (County of San Diego 2007b). These guidelines incorporate both State and Federal definitions of TCPs. Generally, a TCP may consist of a single site, or group of associated archaeological sites (district or traditional cultural landscape), or an area of cultural/ethnographic importance.

2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

For the purposes of this technical report, any of the following will be considered a potentially significant environmental impact to cultural resources:

(1) The project causes a substantial adverse change in the significance of a historical resource as defined in §15064.5 of the State CEQA Guidelines. This shall include the destruction, disturbance, or any alteration of characteristics or elements of a resource that cause it to be significant in a manner consistent with the Secretary of Interior Standards.

(2) The project causes a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5 of the State CEQA Guidelines. This shall include the destruction or disturbance of an important archaeological site or any portion of an important archaeological site that contains or has the potential to contain information important to history or prehistory.

(3) The project disturbs any human remains, including those interred outside of formal cemeteries.

(4) The project proposes activities or uses that would impact tribal cultural resources as defined under PRC §21074.

3.0 ANALYSIS OF PROJECT EFFECTS

3.1 METHODS

3.1.1 Survey Methods

Pedestrian field surveys within the TRVRP were conducted by HELIX archaeologists Julie Roy and James Turner and Native American monitor Shuluuk Linton of Red Tail on March 8 and 9, and November 15 and 16, 2021. The March survey focused on a preliminary project area encompassing approximately 850 acres centered along the Tijuana River. The November survey focused on the 595.14 acres within the 12 Treatment Areas of disturbed and invasive non-native habitats that may be treated and restored into native habitats, as shown on Figure 4.

Where feasible, the survey was conducted in parallel transects spaced approximately 5 to 10 meters (m) apart. However, due to dense vegetation and flooding due to recent rain events, transects were not the most efficient way to cover the area and identify whether there were cultural constraints to the proposed project; instead, reconnaissance was primarily used on the trails and in open areas on the sides of the trails. Areas with previously recorded sites were paid specific attention to during the surveys in order to document the current conditions of the cultural resource locations.

Because the project area was highly disturbed due to years of dumping of construction materials, general human activity, and dense native and non-native vegetation, much of the area had little to no visibility (Plates 1-4). Open fields had virtually no visibility, and portions of the project area were flooded due to recent rain events; because of this, the surveys were mainly kept to the well-traveled trails (Plates 3 and 4). Artificial berms were observed throughout the project area – these likely were built to alter the path of the Tijuana River's flow, or to prevent the areas from being flooded during large rain events.

Plate 1. Overview from the outlook in the northwest corner of project area, View to the northeast.

Plate 2. Overview of the project area the central portion of the TRVRP. View to the southeast.

Plate 3. Overview of a trail along the southern boundary of the western portion of the project area. View to the west.

Plate 4. Overview of a trail in the eastern portion of the project area. View to the west.

3.1.2 Other Archival Research

Various additional archival sources were also consulted, including historic topographic maps and aerial imagery. These include historic aerials from 1953, 1964, 1966, and 1980 (NETR Online 2020) and several historic USGS topographic maps, including the 1904 and 1930 San Diego (1:62,500), the 1953 San Ysidro (1:24,000), and the 1975 and 1996 Imperial Beach (1:24,000) topographic maps. Bureau of Land Management (BLM) General Land Office (GLO) Records were also consulted. The purpose of this research was to identify historic structures and land use in the area.

The 1904 San Diego (1:62,500) topographic map shows the "Tia Juana River" in its original alignment, running through the project area; the map also shows the "National City and Otay R.R." to the east, and the community of Oneota to the northwest. The 1930 San Diego map is relatively unchanged from the earlier 1904, though the railroad to the east is now labeled as the "Southern Pacific Lines," and San Ysidro is recorded within sections 1 and 2 of Township 19 South, Range 2 West, and 35 and 36 of Township 18 South, Range 2 West. Several structures are scattered throughout the project area 1953 San Ysidro (1:24,000) – these structures are visible on subsequent topographic maps, and additional structures and roads are recorded on the 1975 and 1996 Imperial Beach (1:24,000) maps.

The aerial photographs largely show the remnants of the extensive agricultural endeavors in the region (NETR Online 2021). The 1953 aerial shows much of the TRVRP as a patchwork of hundreds of agricultural plots with dozens of associated structures. In fact, it appears that the only land left untouched by agriculture in the region is located within the immediate vicinity of the Tijuana River (NETR Online 2020). This patchwork is still visible on the 1964 and 1968 aerials, though the 1980 aerial shows a drastic decrease in farmland in the area, as well as the results of the numerous flood events. Later aerial photographs, such as the 1987 and 1990 aerials, show some farming still being done in the area, though there is a notable decline in farming activities seen after 1999 (NETR Online 2020).

According to GLO Records, Township 18 South, Range 2 West and Township 19 South, Range 2 West were first surveyed in 1870 – during this survey, the dry riverbed of the Tijuana River was noted as passing through the project area, and six residences are plotted within the boundaries of the project (GLO 1870a, 1870b). Fort Yuma Road was noted to the east, running in a northwest-southeast direction

(GLO 1870a). Over twenty patents for land within the project area are on file at BLM, dating to between 1874 and 1980—most of them were granted under the 1851 Sale-Cash Entry (3 Stat. 566), while others were granted under the 1862 Homestead Act (12 Stat. 392).

3.1.3 Native American Participation/Consultation

HELIX contacted the Native American Heritage Commission (NAHC) on March 11, 2021, for a Sacred Lands File search for the project area. The NAHC indicated in a response dated April 5, 2021, that the results of the search were positive, and that the Kwaaymii Laguna Band of Mission Indians should be contacted for further information. HELIX contacted Ms. Carmen Lucas of the Kwaaymii Laguna Band of Mission Indians on March 7, 2023 regarding the positive Sacred Lands File search results. Ms. Lucas indicated that there is no specific TCP or tribal cultural resource within the TRVRP but that the entire Tijuana River Valley is extremely sensitive for cultural resources and for human remains. As such, she recommended that a knowledgeable Native American monitoring firm or tribal monitor be present for during ground disturbance within the TRVRP. NAHC and Native American correspondence is included as Appendix D (Confidential Appendices, bound separately).

Shuuluk Linton, the Kumeyaay Native American monitor from Red Tail Environmental, participated in the field survey.

On February 4, 2022, via certified mail and email, County staff provided project notification pursuant to AB 52 to seven tribes who have requested that the County provide, in writing, notification to the tribe of projects in the tribe's area of traditional and cultural affiliation. Notified tribes include the Barona Group of the Capitan Grande, Campo Band of Mission Indians, Jamul Indian Village (Jamul), Kwaaymii Laguna Band of Mission Indians, Manzanita Band of Kumeyaay Nation, San Pasqual Band of Mission Indians, Iipay Nation of Santa Ysabel, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians (Viejas).

On April 19, 2022, Jamul responded via email requesting consultation. County staff responded via email sent to Lisa Cumper on September 29, 2022, requesting meeting availability for consultation. Virtual and telephone consultation meetings occurred between County Staff and Ms. Cumper on January 20, March 3, and April 7, 2023. HELIX staff also attended the March 3 meeting. Ms. Cumper expressed the importance of the Tijuana River Valley to the Jamul Tribe and their history, in terms of cultural resources but also environmental, ethnographical, geographical, and biological resources. The Jamul Tribe considers the entire valley as an important tribal cultural resource. Mr. Cumper also requested Native American monitoring for ground disturbing activities occurring within the TRVRP. As discussed in further detail in Sections 4 and 5, it was decided upon that the County will require monitoring during extensive grading and in known high-sensitivity areas but will not require monitoring during hand-pulling of vegetation or for shallow planting activities.

Viejas responded via email on February 4, 2022, that they request that a cultural Native American monitor be present during ground disturbance; that they would like to be provided a copy of this cultural report; and that they are aware that there are TCRs in the Tijuana River Valley, but do not know specifically where they are located. No responses or requests for consultation were received from the remaining tribes. A correspondence matrix between County staff, the NAHC, and tribal contacts is included in Confidential Appendix D.

3.2 RESULTS

As noted in Section 1.2.3 and shown on Figure 5, there are 58 cultural resources documented within the TRVRP, all but one of which occur within the overall project area that totals 1,740.75 acres of the 1,800-acre TRVRP. The results presented here focus on the cultural resources that are situated within the 595.14 acres within the Treatment Areas located outside of proposed recreation amenity areas where invasive non-native plants may be treated and restored into native habitats. Within these areas are disturbed habitats and invasive non-native plant species that occur as dense patches of vegetation, as well as point locations intermixed throughout areas of mapped native riparian and upland vegetation that will be targeted for removal and restoration. Two newly identified isolated finds were documented within the project area: Isolate P-37-040176, consisting of a single metavolcanic flake with edge modification possibly indicating its use as a tool, and P-37-040177, consisting of a single metavolcanic secondary flake. These two resources have been recorded on appropriate DPR site forms, but as they were identified along an established trail and not in areas targeted for invasive non-native plant removal and restoration, they are not discussed further in this section.

A total of 27 cultural resources, all previously recorded, are located within the areas identified as disturbed habitats or containing invasive non-native plant species that will be targeted for removal and restoration (Table 4, *Cultural Resources Identified within Treatment Areas Containing Disturbed Habitats and Invasive Non-Native Plant Species;* Figure 6, *Cultural Resources within Treatment Areas Containing Disturbed Habitats and Invasive Non-Native Plant Species* [Appendix C; Confidential, Bound Separately]). Of these cultural resources, 20 are prehistoric, two are multi-component, and five are historic-period resources. Copies of the DPR site forms for the cultural resources are included in Appendix E.

Table 3
CULTURAL RESOURCES IDENTIFIED WITHIN TREATMENT AREAS CONTAINING DISTURBED HABITATS AND INVASIVE NON-NATIVE PLANT SPECIES

Resource Number	Age	Description	Status	Known NRHP/CRHR Eligibility
P-37-0008595 (CA-SDI-8595/H)	Multi-component Site	Prehistoric shell and lithic artifact scatter, with accompanying historic trash dump.	Reidentified during current survey.	Not eligible for the NRHP (Buysse et al. 1998a; Glenny et al. 2014; SWCA 2004:29)
P-37-008598 (CA-SDI-8598)	Prehistoric Site	Marine shell scatter.	Reidentified during current survey; in poor condition.	Not eligible for the NRHP (Glenny et al. 2014; SWCA 2004:29)
P-37-008599 (CA-SDI-8599)	Prehistoric Site	Lithic artifact and shell scatter.	Reidentified during current survey; in poor condition.	Not eligible for the NRHP (Glenny et al. 2014; SWCA 2004:29)
P-37-008600 (CA-SDI-8600)	Prehistoric Site	Lithic artifact scatter.	Reidentified during current survey; in poor condition.	Not eligible for the NRHP (Glenny et al. 2014)
P-37-008602 (CA-SDI-8602)	Prehistoric Site	Lithic artifact scatter.	Not reidentified during current survey.	Not evaluated

Resource Number	Age	Description	Status	Known NRHP/CRHR Eligibility
P-37-008603 (CA-SDI-8603)	Prehistoric Site	Lithic artifact scatter.	Reidentified during current survey; in poor condition.	Not eligible for the NRHP (Glenny et al. 2014; SWCA 2004:29)
P-37-008604 (CA-SDI-8604)	Prehistoric Site	Quarry site with numerous hammerstones, cores, and lithic tools.	Not reidentified during current survey.	Not eligible for the NRHP (SWCA 2004:29)
P-37-008605 (CA-SDI-8605)	Prehistoric Site	Quarry site and lithic artifact scatter consisting of two loci.	Not reidentified during current survey.	Not eligible for the NRHP (SWCA 2004:29)
P-37-010487 (CA-SDI-10487)	Prehistoric Site	Shell and lithic artifact scatter.	Not reidentified during current survey.	Not evaluated
P-37-010488 (CA-SDI-10488/H)	Multi-component Site	Cobble and cement wall, foundation, historic trash deposit, and marine shell fragments.	Reidentified during current survey; in poor condition.	Not evaluated
P-37-010669 (CA-SDI-10669)	Prehistoric Site	Possible ethnographically recorded village of Milejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire affected rocks, and hearths.	Reidentified during current survey; in poor condition.	Not evaluated
P-37-010967 (CA-SDI-10967)	Prehistoric Site	Shell and lithic scatter.	Not reidentified during current survey.	Not eligible for the CRHR (Rosenberg 2008b)
P-37-011095 (CA-SDI-11095H)	Historic Site	Historic artifact scatter west of a small cinderblock structure.	Reidentified during current survey.	Not eligible for the NRHP (SWCA 2004:30; Glenny et al. 2014)
P-37-011096 (CA-SDI-11096	Historic Site	A single story, shotgun-style house.	House no longer exists but a low cobble wall is present.	Not evaluated
P-37-011097 (CA-SDI-11097)	Prehistoric Site	Lithic artifact scatter.	Reidentified during current survey; in poor condition.	Not eligible for the NRHP (Glenny et al. 2014)
P-37-011099 (CA-SDI-11099)	Prehistoric Site	Lithic s artifact scatter with associated ceramic and shell artifacts.	Reidentified during current survey; in poor to fair condition.	Not evaluated
P-37-011945 (CA-SDI-11945)	Prehistoric Site	Lithic artifact scatter.	Reidentified during current survey; in poor condition.	Not eligible (Glenny et al. 2014)

Resource Number	Age	Description	Status	Known NRHP/CRHR Eligibility
P-37-011946 (CA-SDI-11946)	Prehistoric Site	Lithic artifact scatter.	Reidentified during current survey; in good to fair condition.	Eligible for the NRHP (Glenny et al. 2014)
P-37-013486 (CA-SDI-13486)	Prehistoric Site	Artifact scatter with stone tools and shell.	Not reidentified during current survey.	Not eligible for the NRHP (SWCA 2004:31)
P-37-025705	Historic Site	Remains of a house with a modern complex of buildings and structures.	Reidentified during current survey; in poor condition.	Not eligible for the CRHR (Rosenberg 2008b)
P-37-025919 (CA-SDI-17238)	Prehistoric Site	Marine shell scatter	Not reidentified during current survey.	Not evaluated
P-37-025924 (CA-SDI-17240H)	Historic Site	The Hollister Street Bridge.	Observed during current survey, in good condition.	Eligible (Steely 2004; SWCA 2004:53)
P-37-033838	Historic Isolate	Stainless steel knife handle with "U.S.N." inscribed on the handle.	Not reidentified during current survey.	Not eligible
P-37-033839	Prehistoric Isolate	Five marine shell fragments.	Not reidentified during current survey.	Not eligible
P-37-033840	Prehistoric Isolate	Hammerstone fragment.	Not reidentified during current survey.	Not eligible
P-37-033841	Prehistoric Isolate	Metavolcanic scraper.	Not reidentified during current survey.	Not eligible
P-37-033843	Prehistoric Isolate	Metavolcanic flake with edge modification.	Not reidentified during current survey.	Not eligible

3.2.1 Prehistoric Archaeological Sites

3.2.1.1 P-37-008598 (CA-SDI-8598)

Resource P-37-008598 (CA-SDI-8598) was originally recorded by K. Polan in 1981 as a moderate density shell and lithic scatter containing two cores and a single hammerstone. The site is situated on a small bench that extends from Spooner's Mesa in a southwesterly direction. Polan (1981a) noted that the area had been severely impacted by grading, road construction, and agricultural activities. In 2014, AECOM revisited the site with survey observations consistent with the content described in the 1981 survey. Based on these results, AECOM concurred with a previous determination of non-eligibility for the listing of the site in the NRHP (California OHP 2012; Glenny et al. 2014).

During the current survey, a sparse shell scatter was observed within the documented site boundary of Resource P-37-008598. In addition, historic-period material, including fragments of ceramics, glass, milk glass, and a U.S.N. fork in poor condition, was observed, likely originating from CA-SDI-8595 (discussed below). The resource area is highly impacted by off-road vehicle, road grading, and border control activities.

3.2.1.2 P-37-008599 (CA-SDI-8599)

Resource P-37-008599 (CA-SDI-8599) was originally recorded by K. Polan (1981b) as a low to moderate density lithic scatter within an area measuring 60 m (north/south) by 30 m (east/west) on the westerly slope of a northerly trending bench on Spooner's Mesa. The site was noted as containing cores, flakes, shell, one chopper core, and some historic bone with no evidence of site disturbance at the time. In 2014, AECOM resurveyed the site but failed to identify any prehistoric surface artifacts at the site location (Glenny et al. 2014). However, some historic cultural materials were noted, including glass, white stoneware ceramic tableware, and cut bone. It was concluded that the historic debris likely originated from CA-SDI-8595 (discussed below) and were distributed throughout the area from grading, agricultural tilling, and road maintenance activities. AECOM concurred with a previous determination of non-eligibility for the listing of the site in the NRHP (California OHP 2012; Glenny et al. 2014).

During the current survey, a sparse shell scatter was observed within the documented site boundary of Resource P-37-008598. In addition, historic-period material including fragments of ceramics, glass, and milk glass was observed, likely originating from CA-SDI-8595 (discussed below). The resource area is disturbed by fencing installation, road maintenance, and border patrol activities.

3.2.1.3 P-37-008600 (CA-SDI-8600)

Resource P-37-008600 (CA-SDI-8600) was originally recorded by K. Polan (1981c) as a lithic scatter within a 60 m by 50 m area on the northern portion of Spooner's Mesa. Artifacts observed included two hammerstones and one felsite scraper. At the time of recordation, Polan (1981c) noted that, although there was little evidence of any site disturbance, the chance of the site being destroyed through grading, road construction, and agricultural activities was extremely high. AECOM revisited the site in 2014 and observed one core tool and a single shell fragment (Glenny et al. 2014). A sparse scatter of historic milk glass and ceramics was also noted throughout the area; AECOM concluded that, as with P-37-008599, the historic debris likely originated from CA-SDI-8595. It was also observed that the site had been significantly altered or impacted by natural erosion and grading associated with road maintenance. As such, CA-SDI-8600 was recommended not eligible for the NRHP (Glenny et al. 2014).

Resource P-37-008600 was reidentified during the current survey, with a large green metavolcanic core, at least three core fragments, and approximately 15 flakes observed along with historic-period materials including fragments of ceramics, glass, and milk glass (likely originating from CA-SDI-8595 [discussed below]). The site area has been heavily impacted and is highly eroded, with many fractured cobbles noted in the area.

3.2.1.4 P-37-008602 (CA-SDI-8602)

Resource P-37-008602 (CA-SDI-8602) was originally recorded by K. Polan (1981d) as consisting of numerous waste flakes, cores, scrapers, hammers, a utilized primary flake, and an anvil. The site was described as situated on a narrow landform finger on Spooner's Mesa overlooking Goat Canyon and had been impacted by major landform modifications and dirt access roads (Polan 1981d).

Resource P-37-008602 was not reidentified during the current survey. The site area has been heavily impacted by natural erosion, access road, and border patrol activities.

3.2.1.5 P-37-008603 (CA-SDI-8603)

Resource P-37-008603 (CA-SDI-8603) was originally recorded by K. Polan (1981e) as a moderate to high density scatter of lithic artifacts containing flakes, cores, scrapers, and hammers within an area measuring 165 m (north/south) by 90 m (east/west) on the rim of Spooner's Mesa overlooking Goat Canyon. At the time of the 1981 recordation, Polan noted that the site had been impacted by roads and agricultural activities and suggested that the site's integrity was under threat and the possibility of future impacts from grading, road construction, and agricultural activities was extremely high (Polan 1981e). In 2014, AECOM resurveyed the site and observed six flakes, a scraper tool, a possible mano, and two cores within the site boundary as previously recorded (Glenny et al. 2014). Disturbances were noted within the site location resulting from vehicle activity, grading, and previous agricultural activities. AECOM concurred with a previous determination of non-eligibility for the listing of the site in the NRHP (California OHP 2012; Glenny et al. 2014).

During the current survey, artifacts observed within the boundary of Resource P-37-008603 included a green metavolcanic core fragment with at least four flake scars and a large, broken quartz metate fragment. In addition, numerous possible flakes were also noted within the boundaries of the site; however, the resource area has been heavily impacted by natural erosion and border patrol activities.

3.2.1.6 P-37-008604 (CA-SDI-8604)

Resource P-37-008604 (CA-SDI-8604) was originally recorded by K. Polan (1981f) as a large quarry site within an area measuring 400 m (north/south) by 120 m (east/west) in Goat Canyon on a terrace along a drainage in the southwestern portion of Spooner's Mesa. Polan noted the presence of numerous "hammers" and indicated that the site was possibly from the San Dieguito III stage (Polan 1981f). At the time of the 1981 recordation, the site had been impacted by gravel and sand extraction. Since its initial recordation, the site has been updated three times (Buysse et al. 1998b; Coleman 1992; Pigniolo 2000). Artifacts documented within all updates consisted of lithic debitage and tools, with a high to medium scatter density. As part of an initial study for the International Wastewater Project, Gallegos and Associates tested the site (Gallegos et al. 1986). A total of three cores, seven pieces of debitage, shell, and 24 pieces of historic trash were recovered during testing. The site was revisited in 1992 (Coleman 1992a) and 1998 (Buysse et al. 1998b), and no definitively cultural materials were identified (Buysse et al. 1998b; Coleman 1992). The site was recommended as not eligible for the NRHP (Buysse et al. 1998b). A. Pigniolo surveyed the site in 2000 and noted considerable disturbance. The site has a determination of non-eligibility for listing in the NRHP (California OHP 2012).

The current survey did not reidentify Resource P-37-008604. Dense vegetation was present within the drainages within the site location.

3.2.1.7 P-37-008605 (CA-SDI-8605)

Resource P-37-008605 (CA-SDI-8605) was originally identified in 1970 by M. Poe and described as a prehistoric quarry site and lithic scatter consisting of two loci, situated on the bed and banks of the seasonal stream running through Smuggler's Gulch (Poe 1970). Large amounts of debitage were found, as well as some stone tools. The site was subsequently revisited and identified in 1981 (Polan 1981g) and 1990 (Wade and Ritz 1990). However, surveys conducted 1992 and 1998 were not able to identify the site, and reported the area as being heavily disturbed by heavy erosional and man-made disturbances that had occurred in the area (Buysse et al. 1998c).

The 1998 update supported a 1987 WESTEC recommendation that the resource was ineligible for listing the NRHP (Buysse et al. 1998c), and the site has been determined as not eligible for listing on the NRHP (California OHP 2012).

During the current survey, the site location was not accessed; however, cultural resources monitoring was conducted by HELIX for geotechnical activities within the site boundary in July and August 2021; the results of which noted the area as heavily disturbed, and no cultural material being observed.

3.2.1.8 P-37-010487 (CA-SDI-10487)

Resource P-37-010487 (CA-SDI-10487) is recorded as being located west of Sunset Avenue and Hollister Street within the northwestern portion of the Tijuana River Valley Regional Park. The site was originally recorded as a temporary site "DM-2" in 1986, consisting of a scatter of marine shell and lithic artifacts within a 60 m by 50 m area (Pigniolo and Christenson 1986). In a 1990 survey, Locus A and B were added to the site boundaries of P-37-010487, identified with the temporary designation "Metro-4" (Collett and Wade 1990a). In 1998, Locus A and B were revisited by Dietler and McGinnis; Locus A was not reidentified at this time. In 2004, DM-2 was relocated by Miller and Hunt as part of the cultural resources study for the Tijuana River Valley Regional Park Trails and Habitat Restoration Enhancement Project (Miller and Hunt 2004a). AECOM conducted a survey of CA-SDI-10487 in 2013 (AECOM 2014a). In general, survey coverage was limited due to extremely dense vegetation that resulted in restricted access and poor ground visibility. Based on a detailed review of previous studies and site forms, AECOM determined that the locus of CA-SDI-10487 mapped in the western portion of the project area was a plotting error on the 1998 update form, and this area was not previously surveyed. The AECOM survey identified shell and a single flake in areas where ground visibility was not restricted (AECOM 2014a). This resource has not been evaluated for inclusion within the NRHP or CRHR.

No cultural material within the documented loci of resource P-37-010487 was observed during the current survey; however, as the impacts to the resource location were not noted to be in poorer condition than the earlier updates, the site is assumed to exist as previously documented.

3.2.1.9 P-37-010669 (CA-SDI-10669)

P-37-010669 (CA-SDI-10669) was recorded as a large habitation site located north of Monument Road and west of Hollister Street, located within the southwestern portion of the TRVRP. Originally recorded by Shipek in 1976 as SDM-W-1140, the site was recorded as a potential location of the ethnographic village of Milejo (Shipek 1976). Shipek theorized that the site was occupied when the Spanish arrived in 1769 and had continuous habitation through 1850; Shipek also noted that the site could have been possibly covered by alluvium as a result of flooding in 1895 and 1916. No map is included with the 1976 site form, and it is unclear how the large site boundary on file at the SCIC was initially defined. The first portion of the site to be mapped on a site form was an approximately 30 m long by 10 m area along Hollister Street surveyed by Collett and Wade in 1990 that was noted as containing numerous shell fragments within a disturbed open area (Collett and Wade 1990b).

A linear segment of the site was inspected by Mariah Associates during monitoring of the South Bay Outfall Trenching Project in 1992. Numerous artifacts and features were discovered and recorded during the trenching operation, including shell scatters, fire-affected rocks, roasting pits, ground stone artifacts, and lithic tools and debitage at depths of up 7.3 m. The trenching operation ran east-west, and paralleled Monument Road to the north, resulting in the 'western' arm of site boundary as filed at the

SCIC (Perry 1992). Mariah Associates suggested that, due to the results of the monitoring effort, P-37-010669 should be removed from topographic maps and the archaeological site inventory at the SCIC until the site of Milejo is firmly established (Higgins et al. 1993).

A new portion of the site was discovered during a survey in 2008 by Brian F. Smith and Associates (BFSA), and a testing program was implemented to determine the integrity of the site (Rosenberg 2008a). The testing program included recording and collecting surface artifacts, excavation of two 1 by 1 m test units, and the excavation of 18 exploratory test trenches. The testing program resulted in the recovery of 44 cataloged artifacts and 768.7 grams of ecofacts. The testing results suggested that the site boundary was larger than previously recorded; however, the site also endured a significant loss of integrity as previous agricultural activities had intermixed modern refuse with elements of the prehistoric deposit.

ICF visited the site in 2008 as part of a cultural resource survey for the Tijuana River Valley Regional Park Campground and education Center Project. During this survey, two artifacts were observed (ICF 2018). At this time, the site had not been evaluated for inclusion within the NRHP or CRHR.

Resource P-37-010669 was reidentified within the current project area on the east side of Hollister Street. Scattered fragments of shell were observed during the survey within the eastern portion of the defined site boundaries. The site is in fair to poor condition due to human activity and illegal dumping over the years. Visibility was good along the trails and in some open patches; otherwise, visibility was limited, no more than 10 percent.

3.2.1.10 P-37-010967 (CA-SDI-10967)

Site P-37-010967 (CA-SDI-10967) was originally recorded by Roeder in 1980 as a prehistoric shell midden and lithic scatter located on the south side of the Tijuana River (Roeder 1980). During the original recordation, Roeder observed two felsite flakes, one quartzite flake, and heavy shell midden within an area measuring approximately 700 feet (east-west) by 400 feet (north-south). Roeder theorized that the site was probably the village site of Milejo, citing site descriptions provided by Shipek (1976), site record SDM-W-1140, and references to “Sancti Spiritu” mentioned by Crespi as cited in Pourade 1960 (Roeder 1980).

The site was updated by EDAW in 2003 as part of the cultural resources survey of the Tijuana River Wetland Mitigation Project (Underwood and Gregory 2004; Underwood et al. 2002a). Two additional metavolcanic flakes and one mano fragment were observed during the update; the shell midden, however, was not observed. The site was remapped as measuring 29 m (east-west) by 14 m (north-south) and was noted as lying upon a man-made earthen levee (berm) and an adjacent dirt road, which was in use as an equestrian trail. The three artifacts that were observed during the updated survey were also noted as not appearing to be in-situ (Underwood and Gregory 2004).

The site was tested for subsurface significance by BFSA in 2008 (Rosenberg 2008b). In addition to the collection of surface artifacts, seven 1 by 1 m test units and two test trenches were excavated to depths reaching 150 centimeters (cm) below the surface, yielding 116 catalogued artifacts and 13,685.8 grams of ecofacts such as faunal bone and marine shell. Two samples of marine shell were submitted for radiocarbon dating, returning a calibrated Late Holocene date range of AD 340 to AD 720 (Rosenberg 2008b). The results of the testing program extended the boundaries of the site to the northwest and southwest but also suggested that the site was disturbed due to ongoing dumping of refuse and disking

of the field for agricultural activities, with only isolated pockets of intact subsurface deposit being present. The site was also argued as not being the ethnographically recorded village of Melijo due to only a narrow range of artifacts recovered from the testing program and the lack of dark midden soils. It was theorized to be a resource processing site for marine shell and lithic resources for a late Archaic Period village and was not representative of a village proper (Rosenberg 2008b). BFSA interpreted the site as containing only limited significance according to CEQA and San Diego County guidelines and was listed as not meeting the criteria for Resource Protection Ordinance (RPO) significance.

In 2014, AECOM conducted an archaeological investigation to determine if the subsurface component of site CA-SDI-10967 extended north of the dirt road and berm, within the vegetated portion of the river valley (Wilson 2014; Wilson et al. 2014). The investigation included a review of previous reports and archival maps, a field survey, and the excavation of auger probes along a trail in the river valley. AECOM concluded that the map on file at the SCIC depicts the boundary of the site as erroneously shifted to the northwest, beyond the berm and dirt road (Wilson et al. 2014). The results of the testing along the trail were negative (Wilson 2104).

No cultural material was observed during the current survey. However, vegetation and leaf debris along the trail was dense, and visibility was generally limited to less than 20 percent outside of existing trails.

3.2.1.11 P-37-011097 (CA-SDI-11097)

Resource P-37-011097 (CA-SDI-11097) was originally recorded by John Cook and Carol Serr in 1989 as a light to moderate lithic scatter consisting of one multidirectional core, seven secondary flakes, and 19 tertiary flakes (Cook and Serr 1989). The site is situated on Monument Mesa in an area with natural cobbles and angular debris with graded dirt roads traversing through the site. ASM Affiliates conducted subsurface testing for the Border Highlands Project; a 1-by-1-m test unit was excavated, but no artifacts were recovered from the unit (Cook and Serr 1989). In 2014, AECOM resurveyed the site and observed it to have been significantly altered or impacted by grading associated with road maintenance, walking trails, and natural erosion processes. Based on the 1989 negative testing results and their survey results, AECOM recommended the site as not eligible for the NRHP (Glenny et al. 2014).

Resource P-37-011097 was reidentified during the current survey. The site area has been heavily impacted by road maintenance and natural erosion and is in poor condition. Three lithic flakes were observed scattered within the recorded site boundaries on the north side of the access road in an area with a large number of cobbles.

3.2.1.12 P-37-011099 (CA-SDI-11099)

Resource P-37-011099 was recorded by Cook and Serr in 1989 as a Late Prehistoric moderate to high density lithic scatter or resource station containing hammerstones, scrapers, manos, cores, numerous flakes, Tizon Brown Ware sherds, and marine shellfish (Cook and Serr 1989). The site is located at the northern base of Monument Mesa and has not been evaluated for inclusion within the NRHP or CRHR.

Resource P-37-011099 was reidentified within the current project area. Shell and lithics were observed scattered within the recorded site boundaries, on the east side of a lower terrace and eroding out of the west-facing slope of an upper terrace to the east. The site is in fair condition, with the lower terrace having been revegetated with native plants at some point in the past.

3.2.1.13 P-37-011945 (CA-SDI-11945)

Resource P-37-011945 (CA-SDI-11945) was originally recorded by Ritz and Davis in 1990 as a moderate lithic scatter on a north-trending cobblestone terrace on the eastern side of Monument Mesa. The scatter was observed within an area measuring 100 m (north/south) by 50 m (east/west) with more than 25 flakes and stone tools. At the time of recordation, it was noted that the site had been impacted by the grading of dirt roads (Ritz and Davis 1990a). A subsequent survey in 1992 failed to reidentify the resource, with the entire area observed to be disturbed by heavy equipment parking areas and roads, with evidence that grading of the entire area may have occurred (Coleman 1992b). In 2014, the site was resurveyed by AECOM, with two artifacts being observed within the previous site boundaries. It was noted that the site, which is located on a north-trending cobblestone terrace, had been heavily impacted by grading, and approximately 80 percent of the original natural site surface was observed to have been removed. Based on these survey results, AECOM recommended the site as not eligible for the NRHP (Glenny et al. 2014).

Resource P-37-011945 was reidentified during the current survey. Two lithic tools and two possible flakes were found scattered within the recorded site boundaries. Artifacts were found in open areas devoid of vegetation. Some off-road vehicle disturbance was noted on the access road within the site boundaries. The site was observed to be in poor condition, as noted by the 2014 AECOM update.

3.2.1.14 P-37-011946 (CA-SDI-11946)

Resource P-37-011946 (CA-SDI-11946) was originally recorded by Ritz and Davis in 1990 as a moderate density lithic scatter with more than 40 flakes and shatter in a 100 m (north/south) by 60 m (east/west) area on a north-south-trending cobble terrace on Monument Mesa. At the time of recordation, it was noted that the site had been impacted by a dirt road that trends north-south running the length of the terrace (Ritz and Davis 1990b). In 2014, AECOM resurveyed the site and noted it to be considerably more complex than previously recorded (Glenny et al. 2014). The site was observed to be in fair condition and bounded by steep slopes to the north, east, and west.

The survey extended the site boundaries to include portions of the terrace to the south and west, with cultural materials observed including cores; hammerstones; modified and utilized flakes; a large biface blank; a scraper plane; primary, secondary, and interior flakes; a unifacial mano; and waste material (shatter). Most of the flaked stone artifacts were made of cobble-derived volcanic or metavolcanic material. In addition, two concentrations of flaked lithics, one feature, and a single, apparently in situ, lithic reduction area were also recorded. While most of the lithic artifacts were noted to be along the perimeter of the terrace within the exposed cobble areas, the mano and scraper plane were found in soils along the interior area of the site. The numerous tested cobbles and artifacts along the terrace edge suggest that raw material procurement was an important activity at the site, indicating that these naturally exposed terrace margins provided prehistoric peoples easy access to raw materials used in lithic tool production. AECOM concluded that while the site had been altered or impacted by grading associated with road maintenance, walking trails, and natural erosion processes, the interior of the terrace top appeared much less disturbed and that the site deposit may be intact at this resource (Glenny et al. 2014). Based on the results of the survey effort, AECOM recommended the site to be eligible for the NRHP under Criterion D (Glenny et al. 2014).

Resource P-37-011946 was reidentified during the current survey, with numerous lithic tools and flakes observed within the recorded site boundaries. The slope on the east side of the resource has been impacted by heavy erosion; however, the site was found to be in good to fair condition overall.

3.2.1.15 P-37-013486 (CA-SDI-13486)

Resource P-37-013486 (CA-SDI-13486) was originally identified in 1992 within the back dirt from a geotechnical trench excavation as one unidirectional core, two flakes, and a piece of thermally fractured rock (Coleman (1992c). While only limited artifacts were recorded, the resulting site boundary on file at the SCIC reflects a much larger area; it is likely that the project boundary was plotted as the resource boundary. A subsequent investigation in June 2010 was conducted by HDR/e^2M in the southwestern portion of the site located along the boundary outside of the TRVRP (Blotner, Berryman, and Rosenberg 2010). This survey observed a dispersed scatter of marine shell (*Chione* sp. and unidentifiable) and six surface artifacts (one medium-grained metavolcanic scraper, two granite manos, one medium-grained metavolcanic core, one fine-grained metavolcanic flake, and one fine-grained metavolcanic debitage fragment) along a portion of a dirt road. HDR/e^2M excavated 12 shovel test pits (STPs) and one 1 by 1 m excavation unit to determine the extent and structure of any possible subsurface cultural deposits. Four of the 12 STPs and the unit were positive - primarily containing moderate amounts of marine shell with a single flake and three faunal bone fragments recovered from two of the STPs. In addition to marine shell, modern disturbances such as concrete, glass, and plastic fragments were identified throughout the STPs and unit. The modern disturbances were thoroughly intermixed with the marine shell fragments at all levels; thus, indicating a lack of a culturally intact deposit (Blotner, Berryman, and Rosenberg 2010). The site has a determination of non-eligibility for listing in the NRHP (California OHP 2012).

Resource P-37-013486 was not reidentified within the current project area. The small portion of the site mapped within the project area has been highly disturbed by human activity, access roads, and natural erosion. Ground surface visibility within the site location in the TRVRP was approximately 60 percent.

3.2.1.16 P-37-025919 (CA-SDI-17238)

Resource P-37-025919 (CA-SDI-17238) is a prehistoric shell midden site situated on the alluvial floodplain of the Tijuana River in a fallow agricultural field. The site was originally recorded by SWCA in 2004 as a moderately dense scatter of marine shell with lithic artifacts (SWCA 2004). The scatter contained shell species consisting of Pecten, Chione, and Ostrea with one flake, one scraper, and one mano fragment within an area measuring 44 m (north/south) by 36 m (east/west). At the time of the recordation, SWCA (2004a) suggested the site appeared to be a marine shell processing station of undetermined cultural affiliation. An attempt was made by AECOM to relocate and update the site in 2014 (AECOM 2014b). While several fragments of shell, one utilized flake, and one mano were observed along an adjacent trail to the north of the site, no cultural material was observed within the originally defined site boundaries. AECOM noted that the surrounding area was heavily disturbed, and contained numerous fragments of modern construction debris, concrete fragments, pipe fragments, and milled wood, and that visibility during the field survey was limited due to overgrown vegetation. This resource has not been evaluated for inclusion within the NRHP or CRHR.

Resource P-37-025919 was not reidentified during the current survey. Visibility within the site location was limited except for the area within existing trails.

3.2.2 Multicomponent Sites

3.2.2.1 P-37-008595 (CA-SDI-8595/H)

Resource P-37-008595 (CA-SDI-8595/H) is a multi-component site situated on Spooner's Mesa consisting of prehistoric marine shell and lithic artifact scatter, and a historic trash dump. The site was originally documented in 1981 by K. Polan as a light lithic and shell scatter within an area measuring five m by five m with one felsite primary flake, a possible mano, and a chopper present; historic bone fragments were also noted (Polan 1981h). In 1998, Geo-Marine, Inc. updated the site as a widely scattered mix of historic trash, including glass, white stoneware ceramic tableware, cut bone, and shell (Buysse et al. 1998c). The scatter was observed within an area measuring 475 m (east/west) by 100 m (north/south). The source of the trash scatter was identified as a localized trash dump possibly resulting from a U.S. Navy mess hall on the southwestern portion of the mesa, with agricultural activities resulting in the distribution of artifacts across the entire southern half of the mesa (Buysse et al. 1998c). CA-SDI-8595 was recommended not eligible for the NRHP due to disturbance (Buysse et al. 1998c).

In 2014, AECOM resurveyed the site for a proposed biological restoration project and excavated six STPs to ascertain any potential for deposit depth in the site area. The survey observations were consistent with the content described in the 1981 and 1998 recordings. Four of the six STPs returned positive results but with minimal subsurface artifacts consisting of saw-cut bone, milk glass, ceramics, and clear glass. The subsurface component was shallow, extending to a maximum depth of 30 cm, and was determined to potentially be the result of surface artifacts being reworked and buried during agricultural activities. Based on these results, AECOM concurred with the previous determination of non-eligibility for the listing of the site in the NRHP (California OHP 2012; Glenny et al. 2014).

Resource P-37-008595 was reidentified during the current survey, with a scatter of historic-period material consisting of fragments of ceramics, glass, and milk glass, and a possible metavolcanic flake tool, were observed.

3.2.2.2 P-37-010488 (CA-SDI-10488/H)

Resource P-37-010488 (CA-SDI-10488/H) is categorized as a multi-component site located along the west side of Monument Road, measuring approximately 20 m by 20 m. The site was originally recorded by A. Pigniolo in 1986 as consisting of marine shell, and a historic cobble and cement wall, foundation, and historic trash deposit (Pigniolo 1986). The shell and the historic trash, consisting of purple glass, ceramics, and metal, were all observed to be eroding out of a road cut. No prehistoric artifacts were noted. Pigniolo indicated that a portion of the original historic elements of the site may have been removed during previous road widening construction. As the shell was described as being found in the same physical context as the historic trash, it seems possible, if not likely, that it is also of historic origin, not prehistoric (Pigniolo 1986). This resource has not been evaluated for inclusion within the NRHP or CRHR.

Resource P-37-010488 was reidentified during the current survey. A concrete and cobble wall was observed on the south side of Monument Road; the portion of the wall that was visible was essentially buried by alluvial soil and vegetation. The wall segment measured approximately 23 feet long. Shell, and glass, ceramics, and metal fragments were observed within the recorded site boundaries. The site is in poor condition, primarily due to erosional activities.

3.2.3 Historic Sites

3.2.3.1 P-37-011095 (CA-SDI-11095)

Resource P-37-011095 (CA-SDI-11095H) was originally recorded by S. Van Wormer in 1989 as a scatter of nineteenth-century artifacts and structural remains including glass, ceramics, brick, and lumber (Van Wormer 1989a). The scatter was found within an area measuring 5 m (north/south) by 3 m (east/west). The site was situated on Spooner's Mesa on the west side of a small cinder block structure. At the time of the 1989 recordation, Van Wormer noted that a structure was recorded at this location on the 1902 USGS San Diego quadrangle and that it had disappeared by 1928 (Van Wormer 1989a). The site has a determination of non-eligibility for listing in the NRHP (California OHP 2012).

During the current survey, no concentrations of glass, wood, brick, or ceramic fragments could be observed within the recorded site boundary, but historic-period glass, milk glass, and ceramics fragments were observed on the adjacent road and in the field to the west.

3.2.3.2 P-37-011096 (CA-SDI-11096)

Resource P-37-011096 (CA-SDI-11096H) was originally recorded by S. Van Wormer in 1989 and is described as a single-story shotgun style house with associated outbuildings (Van Wormer 1989b). Mariah Associates, Inc. revisited P-37-011096 in 1992, noting the resource to be in a similar condition as previously recorded. However, by 1994, the resource is noted as having been destroyed by flooding or completely removed (Coleman 1994). This resource has not been evaluated for inclusion within the NRHP or CRHR.

During the current survey, the site location was not accessed; however, cultural resources monitoring was conducted by HELIX for geotechnical activities within the site boundary in July and August 2021; the results of which noted the area as heavily disturbed, with no remnants of buildings or historic-period debris observed. However, a low cobble wall is present along Monument Road north of where the buildings were originally located and may be associated with the house and associated outbuildings documented in 1989.

3.2.3.3 P-37-025705

Resource P-37-025705 was originally recorded by EDAW in 2002 as a historic house with a modern complex of buildings and structures, with the construction date of the house unknown (Underwood et al. 2002b). Aerial photographs from 1953 show the structure on the landscape but not the complex of buildings, suggesting the complex of buildings were added later. In 2008, BFSA reassessed the house and building complex and determined the structure to be in poor condition with broken windows, graffiti, and loss of structural integrity (Rosenberg 2008c). Therefore, BFSA recommended the site as not significant under CEQA eligibility and County significance criteria.

Resource P-37-025705 was reidentified during the current survey. The site is in very poor condition and the complex of structures are in disarray, with some being completely collapsed.

3.2.3.4 P-37-025924 (CA-SDI-17240H)

This resource consists of the historic Hollister Street Bridge, constructed in 1953 using woodpile, beam, and guardrail construction. SWCA determined in 2004 that the bridge had been rehabilitated at some

point in the past (Steely 2004). During a 2014 visit to the bridge, AECOM noted that the bridge appeared to retain good integrity, though moderate amounts of graffiti were observed (AECOM 2014c). This resource had been evaluated as eligible for inclusion on the CRHR/NRHP under Criteria A and C (SWCA 2004).

Resource P-37-025704 was observed during the current survey and is in good condition.

3.2.4 Isolates

Five resources, P-37-033838, P-37-033839, P-37-033840, P-37-033841, and P-37-033843 consist of isolated artifact or faunal remain finds. Four of the isolates, P-37-033839, P-37-033840, P-37-033841, and P-37-033843 consist of prehistoric materials, and one, P-37-033838, of a historic artifact. Isolate P-37-033839 consists of five marine shell fragments; Isolate P-37-033840 of a hammerstone tool fragment; Isolate P-37-033841 of a single metavolcanic scraping tool; and Isolate P-37-033843 of a single metavolcanic flake with edge modification possibly indicating its use as a tool. The historic Isolate, P-37-033838, consists of a stainless-steel knife handle with "U.S.N." inscribed on the handle, of unknown age. These isolated resources do not meet the criteria for inclusion in the CRHR or the NRHP.

3.2.5 Discussion and Evaluation

3.2.5.1 Prehistoric Resources

Prehistorically, the natural environment in the project area would have included the natural riparian and marsh habitat, along the Tijuana River with coastal sage scrub and grassland communities in the adjacent bluff and hill areas. The types of prehistoric sites in the project area, consequently, possibly reflect the different elements of the prehistoric settlement pattern influenced by this natural environment. Sites in the upper hill and bluffs in the southern part of the project area, where extensive cobble outcrops were present containing useful raw materials for stone tool manufacture, appear to largely reflect temporary locations where activities related to the procurement of lithic tool manufacturing resources occurred. Sites in the project area, such as CA-SDI-11946, with its intact undisturbed activity areas, clearly indicate the procurement of lithic raw materials from the cobble outcrops and the initial working of these materials (Glenny et al. 2014).

Other resources available and likely procured on the bluff areas would have been an important prehistoric food staple, seeds present from plants in the sage scrub and grassland communities. Below the bluffs, the areas adjacent to the river, were more likely favored for habitation due to their proximity to water and the plentiful food and shelter resources available in the riparian and marsh habitats. However, because as is still true today, the Tijuana River frequently floods and changes course across the flood plain, these habitation locations would, periodically, have been flooded and would, over time, have either been eroded away or buried beneath varying depths of alluvium. Sites located closer to the base of the bluffs, which has likely been at a slightly higher elevation are more likely, through time, to be buried than eroded away as they were farther away from the river channel(s) than sites situated farther out on the flood plain that were closer to the erosive action of the river. Archaeological investigations at sites such as CA-SDI-10669 in the project area (Higgins et al. 1993), and CA-SDI-13488, located along the base of the bluffs in the southwestern part of the project area (Higgins et al. 1993), and CA-SDI-16293 located on the flood plain immediately adjacent to the northwestern edge of the project area (Pigniolo 2002), have demonstrated the presence of deeply buried deposits in the flood plain areas associated with locations of prehistoric habitation within and adjacent to the project area.

The mostly procurement-type of sites in the bluff areas, due to their, apparently, original temporary nature, resulted in generally shallow cultural deposits. The various activities that have occurred in these areas in historic and modern times, including agriculture, grading for various reasons, and motorized recreational activities, have resulted in substantial disturbance to many of these shallow resources. In the flood plain area, natural forces such as erosion and alluvial deposition have served to both destroy and preserve prehistoric cultural resources. While, in general, prehistoric materials present in the upper levels of the river-deposited alluvium are likely disturbed and displaced from their original context, subsurface archaeological investigations as reported by Higgins et al. 1993 and Pigniolo 2002, have demonstrated that intact, deeply buried, prehistoric habitation deposits still exist in some areas beneath the current surface of the flood plain.

3.2.5.2 Historic Resources

The historic-era resources primarily stem from the residential development of the project region in the American Period, more specifically within the late nineteenth century or early twentieth century. The historic site types present within the project area primarily consist of the remains of residential homesteads, such as P-37-011096 and P-37-025705, or other residential trash/debris or infrastructure-related debris, such as at P-37-011095 and P-37-010488.

In addition to these resources discussed above, one other sire, P-37-008595, is the result of a trash dump/debris scatter, possibly resulting from a U.S. Navy mess hall on Spooner's Mesa.

4.0 INTERPRETATION OF RESOURCE IMPORTANCE AND IMPACT IDENTIFICATION

4.1 RESOURCE IMPORTANCE

A total of 59 cultural resources have been recorded within the project area, with 27 of the resources being located within the areas identified as disturbed habitats or containing invasive non-native plant species that will be targeted for removal and restoration; these 27 resources have a greater likelihood of being subject to potential impacts from the project.

The known NRHP/CRHR eligibility status of the 27 resources is noted in Table 3 and described for each resource in Section 3.2 above. Of these resources, one archeological site (P-37-011946) and the Hollister Street Bridge (P-37-025924) have been previously evaluated as eligible for the NRHP and, as such, would be considered significant resources under CEQA. Seven of the resources (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-025919) are archaeological sites that have not been evaluated for CEQA significance or for eligibility for listing on the NRHP; these sites are being treated as significant for the purposes of this project.

Thirteen of the resources are archaeological sites that have been previously determined as not eligible for the NRHP. Due to the lack of integrity at these sites and the limited potential to yield information important in California prehistory or history, they are not eligible to the CRHR and would not be considered a significant resource under CEQA. The remaining resources consist of five previously recorded isolates that do not meet the criteria for inclusion in the CRHR or the NRHP.

It must be noted that all areas of past cultural use are of cultural importance to the Native American community, even if they do not meet the eligibility criteria for listing in the CRHR and the NRHP.

4.2 IMPACT IDENTIFICATION

The 59 cultural resources documented within the project area are listed in Table 4, *Cultural Resources Identified within Treatment Areas,* and are shown on Figure 7, *Cultural Resources within Treatment Areas* [Appendix C; Confidential, Bound Separately]. In summary, no known cultural resources are located within Treatment Areas 1, 2, 3, or 9. Treatment Areas 4, 5, and 6 each have one cultural resource documented within the area; P-37-010669 is recorded within Treatment Areas 4 and 6, and P-37-011099 is recorded within Treatment Area 5. Three resources are located within Treatment Area 7 (P-37-010669, P-37-010967, P-37-025924); five resources are located within Treatment Area 8 (P-37-025923, P-37-010487, P-37-028784, P-37-040176, and P-37-040177); and three resources are located within Treatment Area 10 (P-37-025923, P-37-010487, P-37-034149). The greatest number of known cultural resources are located within Treatment Areas 11 and 12, with 16 cultural resources located within Treatment Area 11 and 35 cultural resources located within Treatment Area 12.

For those cultural resources located within the Treatment Area outside of areas identified as disturbed habitats or containing invasive non-native plant species, no project impacts are expected to occur.

As noted above, 27 of the 59 known cultural resources within the project area are located within the 595.14 acres within the 12 Treatment Areas that may be treated and restored into native habitats, i.e., the 587.93 acres and 488 point locations (with a 20-foot radius or less) within the Treatment Areas identified as disturbed habitats or as containing invasive non-native plant species that will be targeted for removal and restoration. Eight archaeological sites (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-011946, and P-37-025919) are located within the areas identified as disturbed habitats or containing invasive non-native plant species and are considered, or are being treated as, NRHP-eligible and as significant resources under CEQA. Any adverse impacts to these sites would be considered a significant effect. In addition to these archaeological sites, the Hollister Street Bridge (P-37-025924) is also NRHP-eligible and a significant resource under CEQA. Although any adverse impacts to the bridge would be considered a significant environmental effect, no impacts from the project would occur to the resource. The area including and surrounding the significant resources within the Treatment Areas identified as disturbed habitats or as containing invasive non-native plant species that will be targeted for removal and restoration is indicated on Figure 8, *High Cultural Resources Sensitivity Areas*.

Due to natural alluvial erosion and human impacts that have occurred within the TRVRP, implement of the project involving invasive non-native plant treatments occurring by herbicide treatment, hand removal, mowing, and solarization techniques would not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. In addition, shallow planting activities would also not be expected to cause a substantial adverse change in the significance of a historical or archaeological resource. However, mechanized discing/clearing and topographic modification restoration techniques (i.e., those involving bulldozers and excavators) occurring during the implementation of the HRP could result in soil disturbances that may cause an adverse impact to significant cultural resources.

Table 4
CULTURAL RESOURCES IDENTIFIED WITHIN TREATMENT AREAS

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
	Treatment Area 1 (No Cultural Resources)			
	Treatment Area 2 (No Cultural Resources)			
	Treatment Area 3 (No Cultural Resources)			
	Treatment Area 4			
P-37-010669 (CA-SDI-10669) [2]	Prehistoric Site. Ethnographically recorded village of Millejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire-affected rocks, and hearths.	Disturbed Habitat, Invasive Point	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
	Treatment Area 5			
P-37-011099 (CA-SDI-11099) [2]	Prehistoric Site. Lithic scatter/ resource station with ceramic and shell artifacts.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
	Treatment Area 6			
P-37-010669 (CA-SDI-10669) [2]	Prehistoric Site. Ethnographically recorded village of Millejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire affected rocks, and hearths.	Disturbed Habitat, Invasive Point	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
	Treatment Area 7			
P-37-010669 (CA-SDI-10669) [2]	Prehistoric Site. Ethnographically recorded village of Millejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire affected rocks, and hearths.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-010967 (CA-SDI-10967)[3]	Prehistoric Site. Shell midden and lithic scatter, possibly part of the ethnographically recorded village of Millejo or "Sancti Spiritu" mentioned by Crespi	Invasive Point	No	None
P-37-025924 (CA-SDI-17240)[1]	Historic Bridge. Hollister Bridge that travels over the Tijuana River channel and basin.	Invasive Point	No	None; P-37-025924 is a built environment resource (a bridge) that would not be impacted by the project.
	Treatment Area 8			
P-37-025923 (CA-SDI-17239)	Prehistoric Site. Shell and lithic scatter.	No	No	--
P-37-010487 (CA-SDI-10487)[2]	Prehistoric Site. Shell and lithic scatter.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-028784 (CA-SDI-18500)	Prehistoric Site. Possible shell midden with ground stone and lithic artifacts.	No	No	--
P-37-040176	Prehistoric Isolate. Metavolcanic flake.	No	No	--
P-37-040177	Prehistoric Isolate. Metavolcanic secondary flake.	No	No	--

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
	Treatment Area 9 (No Cultural Resources)			
	Treatment Area 10			
P-37-025923 (CA-SDI-17239)	Prehistoric Site. Shell and lithic scatter.	No		--
P-37-010487 (CA-SDI-10487)[2]	Prehistoric Site. Shell and lithic scatter.	Disturbed Habitat, Row Crops	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-034149 (CA-SDI-21359)	Prehistoric Site. Shell scatter.	No	No	--
	Treatment Area 11			
P-37-010669 (CA-SDI-10669) [2]	Prehistoric Site. Ethnographically recorded village of Millejo. Cultural material includes lithic and shell scatters, ground stone artifacts, fire affected rocks, and hearths.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-010967 CA-(SDI-10967)	Prehistoric Site. Shell midden and lithic scatter, possibly part of the ethnographically recorded village of Millejo or "Sancti Spiritu" mentioned by Crespi	No	No	--
P-37-013487 (CA-SDI-13487)	Prehistoric Site. Concentration of fire affected rock, lithic artifacts, and shell.	No	No	--
P-37-013488 (CA-SDI-13488)	Prehistoric Site. Possible roasting pit, fire affected rock, charcoal, and flake.	No	No	--
P-37-025703 (CA-SDI-17098)	Prehistoric Site. Artifact scatter with flaked and ground stone artifacts.	No	No	--

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
P-37-025704	Historic Site. Pump house with subterranean well and redwood water storage tank. A wood utility pole may be associated with the structure.	No	No	--
P-37-025705[3]	Historic Site. Remains of a house with a modern complex of buildings and structures	Disturbed Habitat	No	None
P-37-025917 (CA-SDI-17236)	Prehistoric Site. Shell scatter, a possible mano, and a possible flake.	No	No	--
P-37-025918 (CA-SDI-17237)	Prehistoric Site. Shell and lithic scatter.	No	No	--
P-37-025919 (CA-SDI-17238) [2]	Prehistoric Site. Shell scatter.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-025920	Historic Isolate. Brick fragment with partial maker's mark.	No	No	--
P-37-025921	Prehistoric Site. Lithic scatter.	No	No	--
P-37-025922	Prehistoric Isolate. Isolated scraper.	No	No	--
P-37-034103	Prehistoric Isolate. Shell fragment.	No	No	--
P-37-036579	Prehistoric Site. Lithic scatter.	No	No	--
P-37-037593	Prehistoric Isolate. Metavolcanic flake.	No	No	--
	Treatment Area 12			
P-37-007456 (CA-SDI-7456)	Prehistoric Site. Artifact scatter with ash in soil. Destroyed during construction of nearby road.	No	No	--

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
P-37-008595 (CA-SDI-8595) [3]	Multi-component Site. Shell and lithic scatter, with accompanying historic trash dump.	Disturbed Habitat	No	None
P-37-008597 (CA-SDI-8597)	Prehistoric Site. Lithic scatter.	No	No	--
P-37-008598 (CA-SDI-8598) [3]	Prehistoric Site. Shell scatter.	Disturbed Habitat	No	None
P-37-008599 (CA-SDI-8599) [3]	Prehistoric Site. Lithic and shell scatter.	Disturbed Habitat	No	None
P-37-008600 (CA-SDI-8600) [3]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	No	None
P-37-008601 (CA-SDI-8601)	Prehistoric Site. Lithic scatter.	No	No	--
P-37-008602 (CA-SDI-8602)[2]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-008603 (CA-SDI-8603) [3]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	No	None
P-37-008604 (CA-SDI-8604) [3]	Prehistoric Site. Quarry site with numerous hammers, cores, and lithic tools.	Disturbed Habitat	No	None
P-37-008605 (CA-SDI-008605) [3]	Prehistoric Site. Quarry site and lithic scatter consisting of two loci.	Disturbed Habitat	No	None
P-37-010488 (CA-SDI-10488) [2]	Multi-component Site. Cobble and cement wall, foundation, and historic trash deposit. Shell fragments located nearby.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-011095 (CA-SDI-11095) [3]	Historic Site. Historic artifact scatter west of a small cinderblock structure.	Disturbed Habitat	No	None

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
P-37-011096 (CA-SDI-11096) [2]	Historic Site. A single story, shotgun-style house (no longer existing).	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-011097 (CA-SDI-11097) [3]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	No	None
P-37-011098 (CA-SDI-11098)	Prehistoric Site. Chipping station with lithic artifacts.	No	No	--
P-37-011100 (CA-SDI-11100)	Prehistoric Site. Chipping station and associated lithic scatter.	No	No	--
P-37-011101 (CA-SDI-11101)	Prehistoric Site. Lithic scatter.	No	No	--
P-37-011945 (CA-SDI-11945) [3]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	No	None
P-37-011946 (CA-SDI-11946)[1]	Prehistoric Site. Lithic scatter.	Disturbed Habitat	Yes	Site treated as NRHP/CRHR. Avoidance of mechanized clearing and topographic modification restoration measures. If infeasible, additional measures to be developed to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects.
P-37-011948 (CA-SDI-11948)	Historic Site. A series of terraces made of stacked river cobbles associated with cobble-lined walkways, concrete pads, and machine parts and trash.	No	No	--
P-37-013486 (CA-SDI-13486) [3]	Prehistoric Site. Artifact scatter with stone tools and shell.	Disturbed Habitat	No	None
P-37-017058 (CA-SDI-15099)	Prehistoric Site. Lithic scatter.	No	No	--
P-37-033837	Prehistoric Isolate. A metavolcanic flake.	No	No	--

Resource Number	Description	Within Area of Invasive Non-Native Plants or Disturbed Habitat	Potentially Significant Impact	Management Recommendation
P-37-033838[3]	Historic Isolate. Stainless steel knife handle with "U.S.N." inscribed on the handle.	Disturbed Habitat	No	None
P-37-033839[3]	Prehistoric Isolate. Five shell fragments.	Non-native Grassland: Broadleaf-Dominated	No	None
P-37-033840[3]	Prehistoric Isolate. Hammerstone fragment	Disturbed Habitat	No	None
P-37-033841[3]	Prehistoric Isolate. Metavolcanic scraper.	Disturbed Habitat	No	None
P-37-033842	Prehistoric Isolate. Fire-affected quartzite ground stone fragment.	No	No	--
P-37-033843[3]	Prehistoric Isolate. Metavolcanic flake.	Disturbed Habitat	No	None
P-37-038322	Prehistoric Isolate. Metavolcanic flake.	No	No	--
P-37-038323	Prehistoric Isolate. Metavolcanic flake.	No	No	--
P-37-038324	Prehistoric Isolate. Metavolcanic core fragment.	No	No	--
P-37-038325	Prehistoric Isolate. Quartzite flake.	No	No	--
P-37-038326 (CA-SDI-22618)	Prehistoric Isolate. Three metavolcanic flakes.	No	No	--

[1] Previously evaluated as eligible for the NRHP and considered a significant resource under CEQA.
[2] Not evaluated for CEQA significance or for eligibility for listing on the NRHP and being treated as significant for the purposes of this project.
[3] Previously evaluated as not eligible for the NRHP and not considered a significant resource under CEQA.

5.0 MANAGEMENT CONSIDERATIONS – MITIGATION MEASURES AND DESIGN CONSIDERATIONS

As described in Section 1.1 above and outlined in Section 4.2 of the HRP (*Phase-Specific Panning Activities*), the implementation of the project includes twelve potential phases covering 1,740.75 acres, from which specific Execution Plans will be developed for each phase in accordance with the HRP and approved by DPR prior to execution. Within the 12 Treatment Areas, 595.14 acres have been identified as disturbed habitats or as containing invasive non-native plant species that will be targeted for removal and restoration.

5.1 UNMITIGATED IMPACTS

No unmitigated impacts to cultural resources are expected with implementation of the project.

5.2 MITIGATED IMPACTS

As addressed in the previous section, eight archaeological sites could be subjected to significant impacts from the implementation of the invasive species removal and restoration project if mechanized clearing or topographic modification restoration techniques occurs within the cultural resource locations (Table 5, *Significant Cultural Resources*). Table 4 above provides recommendations to reduce project-related impacts to the potentially affected prehistoric sites to a level below significant. In general, mechanized clearing and topographic modification restoration techniques are to be avoided within the recorded site boundaries of these eight resources (P-37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-011946, and P-37-025919). Should avoidance of mechanized clearing and topographic modification restoration techniques within these resource boundaries prove infeasible, further measures will be developed within the Execution Plan that will be prepared for each of the HRP phases and approved by DPR prior to implementation. All mitigation and treatment measures to address the preservation, minimization of impacts, or mitigation of potential impacts/ adverse effects to significant cultural/historical resources will occur prior to the implementation of the project phase.

Table 5
CULTURAL RESOURCES TO BE AVOIDED BY MECHANIZED CLEARING AND TOPOGRAPHIC MODIFICATION RESTORATION TECHNIQUES

Resource Number	Treatment Area
P-37-008602 (CA-SDI-8602)	12
P-37-010487 (CA-SDI-10487)	8, 10
P-37-010488 (CA-SDI-10488)	12
P-37-010669 (CA-SDI-10669)	4, 6, 7, 11
P-37-011096 (CA-SDI-11096)	12
P-37-011099 (CA-SDI-11099)	5
P-37-011946 (CA-SDI-11946)	12
P-37-025919 (CA-SDI-17238)	11

5.2.1 Mitigation Measures and Design Considerations

A total of eight archaeological sites are considered, or are being treated as, significant resources under CEQA that may be subject to adverse impacts from implementation of the HRP and have been designated as 'high cultural resources sensitivity' areas (see Figure 8). The Treatment Area for each of these eight resources is indicated in Table 4. The following mitigation measures (MM) and design considerations will serve to mitigate project impacts to these resources to below a level of significance.

MM-CUL-1: Prior to the finalization of each Execution Plan that will be prepared as implementation documents for the twelve phases under the guidance of the HRP, the County DPR will retain a cultural resource specialist who is a qualified archaeologist(s) meeting the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations, Title 36, Section 61. The supervision of the cultural resources avoidance and monitoring programs will be the responsibility of the cultural resource specialist. Once the specific location and size of each project phase are identified, the

cultural resource specialist will conduct a review of cultural resources information to confirm or identify any additional potential impacts to archaeological sites. The review will focus on the phased restoration activity areas that may involve mechanized clearing and topographic modification restoration techniques and contain recorded cultural resources. Known cultural resources within the phased restoration activity areas will be updated as appropriate, and significant, or potentially significant (e.g., unevaluated), resources identified as 'high cultural resources sensitivity' areas (see Figure 8) will be confirmed. In order to minimize impacts to known cultural resources and disturbance of subsurface archaeological deposits, the cultural resource specialist will flag areas for avoidance per MM-CUL-2 and provide oversite during the implementation of cultural resources monitoring (MM-CUL-3).

MM-CUL-2: Cultural resources 37-008602, P-37-010487, P-37-010488, P-37-010669, P-37-011096, P-37-011099, P-37-011946, and P-37-025919 shall be identified as 'high cultural resources sensitivity' areas in order to ensure no adverse impacts to the resources occur. If the cultural resource review (MM-CUL-1) identifies any additional significant, or potentially significant resources, they shall also be identified as 'high cultural resources sensitivity' areas.

- The established 'high cultural resources sensitivity' areas shall consist of the recorded site boundary and a 100-foot buffer and be established by the cultural resource specialist in consultation with the County DPR and the habitat restoration designer to ensure the resources are not adversely impacted directly or indirectly.

- The 'high cultural resources sensitivity' locations shall be provided to the habitat restoration designer during the preparation of the Execution Plan, and the locations shall be avoided by all project design considerations for mechanized clearing and topographic modification restoration measures. If during the preparation of the Execution Plan, it is determined that avoidance of a 'high cultural resources sensitivity' location proves infeasible, additional measures are to be developed for inclusion in the Execution Plan to be approved by County DPR, including appropriate methodologies to address the preservation, minimization of impacts, or mitigation of potential impacts/adverse effects to significant cultural/historical resources.

- Prior to project activities involving ground disturbance (excluding shallow planting), the 'high cultural resources sensitivity' areas shall be temporarily flagged with oversight by the cultural resource specialist.

MM-CUL-3: The County DPR shall retain a qualified archaeologist/cultural resource specialist and a Native American representative to monitor ground-disturbing activities related to the implementation of the HRP (excluding shallow planting) occurring within the 'high cultural resources sensitivity' areas.

- The monitoring program shall include attendance by the cultural resource specialist and Native American monitor at a pre-construction meeting with construction personnel for the Treatment Area phase to provide environmental training to all personnel of the cultural resources sensitivity of the area; outline protocols to follow in the event inadvertent cultural resources are identified; and to discuss monitoring scheduling and coordination.

- Restoration activities involving ground-disturbance (excluding shallow planting) occurring within the 'high cultural resources sensitivity' areas (MM-CUL-2) shall be monitored by an archaeological monitor; in addition, restoration activities involving ground-disturbance within a

'high cultural resources sensitivity' area surrounding prehistoric archaeological resources shall also be monitored by a Native American monitor.

- Both archaeological and Native American monitors shall have the authority to temporarily halt or redirect grading and other ground-disturbing activity in the event that cultural resources are encountered. Isolates and non-significant deposits shall be minimally documented in the field and recorded on appropriate DPR site forms. If significant or potentially cultural material is encountered, appropriate actions shall be implemented according to the protocols outlined in the monitoring plan.

- If the archaeological monitor, in conjunction with the cultural resource specialist and Native American monitor, determines that monitoring of ground-disturbing activities related to the implementation of the HRP is no longer warranted within the 'high cultural resources sensitivity' due to the disturbances resulting from natural alluvial erosion and human impacts within the TRVRP, the County DPR should be informed as such and will make the final determination on the necessity for additional monitoring.

MM-CUL-4: Should human remains be identified during ground-disturbing activities related to the implementation of the project, whether during construction, maintenance, or any other activity, State Public Resources Code §5097.98, CEQA §15064.5 and Health & Safety Code §7050.5 and County-mandated procedures will be followed for the treatment and disposition of those remains, as follows.

- A County (DPR) official is contacted.

- Upon identification of human remains, there will be no further excavation or disturbance in the area of the find or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner has made the necessary findings as to origin. If the human remains are to be taken offsite for evaluation, they shall be accompanied by the Kumeyaay Native American monitor.

- If the remains are determined to be of Native American origin, the coroner will contact the NAHC within 24 hours. The NAHC will identify a Most Likely Descendant (MLD), the person or persons it believes to be most likely descended from the deceased Native American.

- The immediate vicinity where the Native American human remains are located is not to be damaged or disturbed by further development activity until consultation with the MLD regarding their recommendations as required by Public Resources Code Section 5097.98 has been conducted.

- The MLD, as identified by the NAHC, shall be contacted by DPR or their representative in order to determine proper treatment and disposition of the remains. The MLD may make recommendations to the landowner (DPR), or the person responsible for the excavation work, for the treatment of human remains and any associated grave goods as provided in PRC Section 5097.98.

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Appendix A

Resumes of Key Personnel

Stacie Wilson, RPA

Senior Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Ms. Wilson has been professionally involved in cultural resources management for 18 years and has extensive experience in both archaeology and Geographic Information Systems (GIS). She has served as principal investigator on numerous cultural resources management projects, and regularly coordinates with local, state, and federal agencies and Native American tribal representatives. She is skilled in project management, archaeological inventories and excavation, and report documentation and has broad experience on private, municipal, federal, utility, and renewable energy projects. Her years of experience also encompass an understanding of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) compliance regulations. Ms. Wilson is a Registered Professional Archaeologist (RPA) and meets the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology.

Selected Project Experience

Sweetwater Bike Park. Project Manager/Principal Investigator for a cultural resources monitoring program for the construction of a bike park within the Sweetwater Regional Park, which is the first bicycle skills course in the County of San Diego's park system. Oversaw archaeological and Native American monitoring, attended groundbreaking ceremony, oversaw cataloguing of recovered historic and prehistoric artifacts, and prepared weekly monitoring reports. Work performed for the County of San Diego Department of Parks and Recreation.

Mesa Trail and Restoration and Dairy Mart Pond Overlook Projects. Principal investigator for a cultural resources survey of 61 acres within the Tijuana River Valley Regional Park located less than 1 mile north of the international border with Mexico. In support of a Land and Water Conservation Fund application, compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, was required for the projects. Duties included agency and fieldwork coordination and providing Section 106 consultation support to the County of San Diego Department of Parks and Recreation.

Buckman Springs Road Bridge Widening Technical Studies. Principal Investigator for the rehabilitation and widening of the existing Buckman Springs Road Bridge, located in eastern San Diego County. The project proponent was the County of San Diego Department of Public Works (DPW), with local assistance funding from the Federal Highway Administration (FHWA). Conducted a records search and field survey and prepared technical documents consistent with Caltrans format and content requirements for compliance with Section 106 of the NHPA. Work performed for the County of San Diego and completed for Caltrans review and oversight for the completion of the environmental review process.

Education

Master of Science, Applied Geographical Information Science, Northern Arizona University, 2008

Bachelor of Arts, Anthropology, University of California, San Diego, 2001

Bachelor of Science, Biological Psychology, University of California, San Diego, 2001

Registrations/ Certifications

Register of Professional Archaeologists, The Register of Professional Archaeologists #16436, 2008

County of Riverside, Approved Cultural Resources Consultant, 2017

County of San Diego, Approved CEQA Consultant for Archaeological Resources, 2019

County of San Diego Department of Parks and Recreation As-Needed Consulting Services. Cultural Resources Task Lead and Principal Investigator for as-needed environmental services support. Duties include coordination of archaeological monitors, site assessments, survey, site form documentation, and reporting efforts.

Beeler Canyon Trail Cultural Resources Assessment. Project Manager/Principal Investigator for cultural resources survey of the trail realignment for a portion of the Beeler Canyon Trail. Oversaw the cultural resources assessment performed to determine the nature and extent of cultural resources within an area that would be affected by proposed realignment of a trail segment in the West Sycamore area Mission Trails Regional Park. Work performed for the City of San Diego Parks and Recreation Department.

Padre Dam Municipal Water District East County Advanced Water Purification Program. Senior Archaeologist for cultural resources inventory and assessment of approximately 10 miles of pipeline. The East County Advanced Water Purification project proposes to increase the region's supply of potable water. Duties included preparation of a cultural resources study, assisting with community outreach with regard to the historic resources, and working with the agencies and interested parties to develop appropriate measures to avoid or minimize impacts. Work performed for Kennedy/Jenks Consultants, Inc., with Padre Dam Municipal Water District as the lead agency and Helix Water District, the County of San Diego, and the City of El Cajon as participating agencies.

City of San Diego Long-term Mitigation Strategy Development. Principal Investigator for a cultural resources study of the Kearny Mesa East Mitigation Site, a 7.57-acre City of San Diego owned parcel located in Murphy Canyon. Conducted as part of an as-needed contract with the City of San Diego, Transportation & Storm Water Department, the project evaluated the potential mitigation opportunities for the parcel. Duties included conducting background research, a field survey and recording of cultural resources, Native American outreach and coordination, and report preparation. Work performed for the City of San Diego.

City of San Diego Sewer Group 806. Principal Investigator for the Sewer Group Job 806 located in the College Area and Mid City Kensington-Talmadge community planning areas in the City of San Diego. Conducted as part of an as-needed contract with the City of San Diego, Public Works Department, the project proposes both the replacement and rehabilitation of existing sewer mains, including replacing-in-place approximately 2,158 linear feet of existing vitrified clay pipe sewer mains. Duties included conducting background research, reviewing previous cultural resource surveys, conducting a field survey with a Native American monitor, and the preparation of a cultural resources technical report.

Southeast to Downtown Regional Bikeway-Environmental Technical Studies. Archaeological Principal Investigator for the development of bikeways within southeastern San Diego along Imperial Avenue between 17th Street and 47th Street. Managed a records search and field survey; prepared an Area of Potential Effects (APE) Map, an Archaeological Survey Report (ASR), and a Historic Property Survey Report (HPSR) consistent with Caltrans format and content requirements for compliance with Section 106 of the NHPA. Work performed as a subconsultant to Kimley-Horn & Associates, Inc., with SANDAG as the CEQA lead agency and Caltrans as a reviewing agency.

Theodore G. Cooley, RPA

Senior Archaeologist

HELIX Environmental Planning

Summary of Qualifications

Mr. Cooley has over 45 years of experience in archaeological resource management. He has directed test and data recovery investigations, monitoring programs, and archaeological site surveys of large and small tracts, and has prepared reports for various cultural resource management projects. He is well-versed in National Historic Preservation Act, National Environmental Policy Act (NEPA), and California Environmental Quality Act (CEQA) regulations and processes. Mr. Cooley's experience also includes Native American consultation for monitoring of archaeological field projects, including some with human remains and reburial-related compliance issues.

Selected Project Experience

8016 Broadway Self Storage Project (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the Lemon Grove Self-Storage project located in the City of Lemon Grove, San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the Summit Environmental Group, Inc.

Briggs Road Walton Development Project (Assessor's Parcel Number 461-170-001) (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the Briggs Road Residential project located in Riverside County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the Walton International Group, LLC.

Brown Field and Montgomery Field Airport Master Plans (2019 - Present). Senior Archaeologist for Phase I cultural resource inventory and pedestrian survey programs at the Brown Field Municipal Airport and the Montgomery-Gibbs Executive Airport, in the City of San Diego, in support of updating of the Airport Master Plan and its Programmatic Environmental Impact Report. Involvement included participation in the analysis of the results from the survey programs and co-authorship of the technical reports. Work performed as a subconsultant to C&S Companies, with the City of San Diego as the lead agency.

Cubic Redevelopment Environmental Consulting (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory and assessment program in support of a 20-acre redevelopment project, located in the community of Kearny Mesa, City of San Diego. Involvement included participation in the analysis of the results from the survey program and preparation of the technical report. Work performed for Cubic Redevelopment Environmental Consulting, with the City of San Diego as lead agency.

Education

Master of Arts, Anthropology, California State University, Los Angeles, 1982

Bachelor of Arts, Anthropology, California State College, Long Beach, 1970

Registrations/ Certifications

Register of Professional Archaeologists #10621, 2019

City of San Diego, Certified Principal Investigator for Monitoring Projects

County or Riverside, Certified Cultural Resources Consultant Principal Investigator

County of Orange, Certified Cultural Resources Consultant Principal Investigator

County of San Diego, Approved Consultant for Archaeological Resources

Los Angeles, Ventura, San Luis Obispo, and Santa Barbara Approved Consultant

Theodore G. Cooley, RPA

Senior Archaeologist

French Valley 303 Project (2019 - Present). Senior Archaeologist for an archaeological construction monitoring program for the French Valley 303 Site residential development project, located in the French Valley area of unincorporated Riverside County. Involvement included participation in the analysis of the results from the monitoring program and co-authorship of the technical report. Work performed for Pulte Home Co., LLC.

Hiser Property Project (2019 - Present). Senior Archaeologist for a due diligence study prepared to summarize potential cultural resources constraints to the 9.2-acre Hiser Property development project, located in the Mission Gorge area of the City of Santee, San Diego County. The study consisted of background research including a record search and limited archival study, a field survey, and a review of the Sacred Lands File from the Native American Heritage Commission (NAHC). Involvement included participation in the analysis of the results and preparation of a summary letter report of the potential cultural resources-related constraints to the planned development. Work performed for KB Home.

Ponto Hotel Technical Studies (2019 - Present). Senior Archaeologist for a cultural resources assessment study for the Ponto Hotel development project in the City of Carlsbad, San Diego County, California. Involvement included participation in the analysis of the results from the assessment program and preparation of the technical report. Work performed for Kam Sang Company, with the City of Carlsbad as the lead agency.

R.M. Levy Water Treatment Plant Sewer Replacement (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory and assessment program in support of a water treatment plant, sewer pipeline, replacement project, located in the community of Lakeside, San Diego County. Involvement included participation in the analysis of the results from the survey program and preparation of the technical report. Work performed for HELIX Water District.

Salt Bay District Specific Plan EIR (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program in support of the 46.6-acre Salt Bay Design District Specific Plan mixed-use wholesale/retail shopping and light industrial development project, in the cities of San Diego and Chula Vista. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for M. & A. Gabaee, with the City of San Diego as lead agency.

San Jacinto Property Project (2019 - Present). Senior Archaeologist for a Phase I pedestrian survey and cultural resource inventory program of the 214 residential project located in Riverside County. Involvement included participation in the analysis

of the results from the survey program and co-authorship of the technical report. Work performed for the Walton International Group, LLC.

San Elijo Joint Powers Authority Roadway and Trail Addendum and Permitting (2019 - Present). Senior Archaeologist for Phase I cultural resource inventory, pedestrian survey, and resource testing at the San Elijo Water Reclamation Facility adjacent to San Elijo lagoon, in San Diego County, in support of the preparation by the San Elijo Joint Powers Authority of a Roadway and Trail Addendum for upgrades to the facility requiring verification of Nationwide Permit authorization from the U.S. Army Corps of Engineers (USACE). Involvement included participation in the analysis of the results from the survey and testing program and co-authorship of the technical report. Work performed as a subconsultant to Kimley-Horn & Associates, with the San Elijo Joint Powers Authority as lead agency.

Sycamore & Watson Project (2019 - Present). Senior Archaeologist for an archaeological construction monitoring program for the Sycamore & Watson residential development project, located in City of Vista, San Diego County. Involvement included participation in the analysis of the results from the monitoring program and preparation of the technical report. Work performed for Meritage Homes.

Sycamore Canyon/Goodan Ranch Public Access Plan IS/MND (2019 - 2019). Senior Archaeologist for Phase I pedestrian survey and cultural resource inventory in support of the preparation by the County of San Diego County Parks Department of a Public Access Plan for the Sycamore Canyon/Goodan Ranch Preserve located in coastal foothills of unincorporated west-central San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the County of San Diego.

Sycuan/Sloane Canyon Trail IS/MND (2019). Senior Archaeologist for Phase I pedestrian survey and cultural resource inventory in support of the preparation by the County of San Diego County Department of a Parks and Recreation for the Sycuan/Sloane Canyon Trail project located in the coastal foothills of unincorporated southwestern San Diego County. Involvement included participation in the analysis of the results from the survey program and co-authorship of the technical report. Work performed for the County of San Diego.

The Enclave at Delpy's Corner Project (2019 - Present). Senior Archaeologist for a cultural resources monitoring and data recovery program in support of a proposed 124-unit townhome development project, in the City of Vista, San Diego County. Involvement included participation in the analysis of the prehistoric lithic artifacts and preparation of technical report sections containing the results of these analyses. Work performed for CalAtlantic Homes.

James Turner, RPA

Staff Archaeologist

Summary of Qualifications

Mr. Turner is a Registered Professional Archaeologist (RPA) with a Master's degree in Anthropology and field and college-level teaching experience in archaeology. He is experienced in Section 106, the Native American Graves Protection and Repatriation Act (NAGPRA), and writing detailed reports. Mr. Turner has archaeological research and fieldwork expertise throughout southern California. He has also received training in identifying and analyzing animal remains in archaeological contexts, historic artifact identification, and technical writing. Mr. Turner's experience meets the Secretary of the Interior's Professional Qualification Standards for archaeology.

Selected Project Experience

eTS 43472 "Gold Mine" Monitoring (2020). Archaeologist for an erosion control and repair project in the community of Julian. Conducted cultural resource monitoring and report preparation. Work performed for San Diego Gas & Electric.

Aliso Creek Canyon Restoration Project (2020). Archaeologist for an erosion repair project in Lake Forest. Conducted a field survey of the project area, performed background research, and produced a cultural resources report. Work performed for the Orange County Department of Public Works.

Broadway Channel Improvements - Phase A (2020 -). Archaeologist for an earthen channel improvement project in the city of El Cajon. Performed background research and prepared cultural resource survey report. Work performed for City of El Cajon.

Clairemont Community Plan Update EIR Ph1 (2020). Archaeologist for the Clairemont Community Plan Update. Performed background research and assisted with preparing the Community Plan Update cultural resources section. Work performed for the City of San Diego.

Cordial Road Pipeline (2020). Archaeologist for a pipeline replacement project in the unincorporated portion of the City of El Cajon. Performed background research and field survey. Other responsibilities included the production of a letter report detailing the methods and results of the survey, as well as the completion of a site record update to submit to the South Coastal Information Center. Work performed for the Padre Dam Municipal Water District.

Carmel Mountain Road Life Sciences Project (2020). Archaeologist for a proposed commercial development project in the Torrey Hills Community Plan area.

Education

Master of Arts, Anthropology, San Diego State University, 2018

Bachelor of Arts, Biology and Anthropology, San Diego State University, 2015

Registrations/ Certifications

Registered Professional Archaeologist #17338

Professional Affiliations

Society for Historical Archaeology

Society for California Archaeology

Responsibilities included performing background and archival research and producing an archaeological resources report. Work performed for Allen Matkins Leck Gabme Mallory & Natsis, LLP.

Draft EIS/Overseas EIS - Disposal of Decommissioned, Defueled Ex-Enterprise (CVN 65) & Associated Naval Reactor Plants (2020 -). Archaeologist for the Draft EIS for the disposal of the Navy ex-Enterprise. Responsible for background research and citation management and assisted with document preparation. Work performed for the United States Navy as a subconsultant to ManTech.

Eastlake Village Park (2020). Archaeologist for a telecommunication project in the community of Eastlake in the City of Chula Vista. Conducted cultural resource monitoring for the drilling of a cassion hole. Work performed for Terracon.

General Coatings (2020). Archaeologist for a due diligence project for the possible future expansion of the General Coatings property. Conducted background research, which included analyzing a records search and viewing historic maps and aerial photographs of the project area. Additional responsibilities included performing a field survey of the project area and producing a cultural resources due diligence report. Work performed for General Coatings.

Lake Rancho Viejo Environmental Consulting (2020). Archaeologist for a cultural resources survey for a proposed housing development in the community of Fallbrook in northern San Diego County. Conducted background research and report preparation. Work performed for Q Technology Direct LLC with County of San Diego as the lead agency.

Mtn View Connector Pipeline - Cultural (2020). Archaeologist for a waterline replacement project in the community of Alpine. Conducted cultural resource monitoring and prepared the final monitoring report. Work performed for Padre Dam Municipal Water District.

Salt Bay Design District Specific Plan EIR (2020). Archaeologist for a mixed-use development project, which proposes to include wholesale/retail shopping and light industrial uses. Participated in an archaeological testing program and produced artifact tables for report. Work performed for M & A Gabaee.

Santa Ysabel Trail (2020 -). Staff Archaeologist for a proposed 3 mile hiking trail in the unincorporated community of Julian. Performed background research, participated in the cultural resource survey, and contributed to the cultural resources survey report. Work performed for the County of San Diego Parks and Recreation Department.

Confidential Appendix B

Records Search Results

Confidential Appendix C

Confidential Figures

Confidential Appendix D

Native American Correspondence

Confidential Appendix E

Site Forms