Mitigated Negative Declaration

PROJECT NAME:	Otay Trails & Mitigation Bank Expansion Project
PROJECT LOCATION:	Otay River Valley
ASSESSOR'S PARCEL NO.:	APNs: 6440900400, 6440800900, 6440900300, 6440802100, and 6460100500
PROJECT APPLICANT:	HomeFed Otay Land II, LLC
CASE NO.:	IS-21-0004
DATE OF DRAFT DOCUMENT:	April 4, 2022
DATE OF FINAL DOCUMENT:	TBD

A. Project Setting

The project site encompasses approximately 233.36 acres within five parcels located in the City of Chula Vista in southwestern San Diego County, California. These five parcels are owned by two entities, with the City of Chula Vista owning the eastern portion of the site (Assessor's Parcel Numbers [APNs] 6440900400 and 6440800900) and HomeFed Otay Land II, LLC (a subsidiary of the Otay Land Company [OLC]) owning the western portion (APNs 6440900300, 6440802100, and 6460100500). Figures 1 and 2 show the regional and local project vicinity (see Attachment 1 for all figures).

The project site occurs within the upper portion of the Lower Otay River Watershed, approximately 1.2 miles downstream of Savage Dam and Lower Otay Reservoir. It is generally south and west of the Lower Otay Reservoir and surrounded by open space largely within the Multiple Species Conservation Program (MSCP) preserve system managed in partnership by the City of Chula Vista, City of San Diego, and County of San Diego. Specifically, the City parcels are owned in fee title by the City of Chula Vista and are designated as Open Space Preserve in the City's General Plan (City of Chula Vista 2015). Fee title was transferred to the City as open space mitigation for a previous Otay Ranch development project. Additionally, the City and HomeFed parcels, where the proposed project is located, are part of the City's MSCP Subarea Plan, which designates the parcels as 100 percent Conservation Area, and protects the habitat on site from development and impacts. The City of Chula Vista and the County of San Diego together, via a Joint Powers Agreement, are the Otay Ranch Preserve Owner/Manager. The Preserve Owner/Manager is responsible for the long-term management of ~~the upland portion of the property~~ lands conveyed to it as mitigation for Otay Ranch Development projects with a focus on the upland portions in accordance with the MSCP and the identified annual priorities. Land management activities are guided by the Otay Ranch Resource Management Plan and funded through a Community Facility District. The existing land uses surrounding the site are as follows:

North: Chula Vista Water Treatment Plant, County Park, and Open Space

East: Open Space including County MSCP, Bureau of Land Management, and California Department of Fish and Wildlife (CDFW) lands

South: Open Space with the exception of a cluster of development (Otay Water District [OWD] Roll Reservoir, George F. Bailey Detention Facility, City of San Diego's Otay Treatment Plant, and Richard J. Donovan Correctional Facility)

West: Open Space and the Otay River Valley, both publicly and privately owned

The proposed project site is undeveloped land with utility corridors (electric, gas, and water) along the northern, eastern, southern, and western boundaries. Several undesignated informal trails and dirt roads traverse the proposed project site. The roads and informal trails are utilized by unauthorized ~~accessed by~~ recreational users (hikers, cyclists, equestrians, and off-road vehicles~~; use of off-road vehicles is prohibited within open space preserve areas~~) and by U.S. Customs and Border Protection for routine patrols and by San Diego Gas and Electric (SDG&E), OWD, the City of San Diego, and the City of Chula Vista for utility inspection and maintenance.

B. Project Background

In May 2016, the City of Chula Vista approved the 2016 Otay River Restoration Project Habitat Mitigation and Monitoring Plan (HMMP) and ~~adopted the~~ Initial Study (IS)/Mitigated Negative Declaration (MND) (City of Chula Vista 2016). These documents evaluated implementation of the Otay River Restoration Project HMMP on approximately 100 acres within a 300-acre parcel owned by the City of Chula Vista (2016 Restoration Project). The 2016 Restoration Project included three primary components: (1) upstream enhancement, (2) permittee responsible mitigation (Pre-Bank), and (3) the future establishment of a Mitigation Bank for Otay Ranch University Villages and future City projects ~~(pre-bank)~~. Restoration implementation of the Pre-Bank was initiated in January 2018 with the installation of an approximately 38-acre permittee-responsible mitigation project ~~for Otay Ranch University Villages and future City projects~~ to offset impacts of three developments, Village 3, Village 8 West, and Village 2. The Mitigation Bank component of the 2016 Restoration Project has been expanded and is under design now and is expected to be implemented following approval of the Mitigation Bank. The upstream enhancement has also been initiated and crosses eight parcels adjacent to Savage Dam. These parcels are owned by the County of San Diego, City of San Diego, and federal agencies. Figure 3 shows a parcel map and location of the 2016 Restoration Project. Figure 4 shows an overview of the 2016 Restoration Project and the limits of the proposed project.

C. Project Overview

A detailed description of the proposed project is included in Attachment 2 which also provides a glossary of the common terms used in this MND.

The proposed project involves the expansion of the 2016 Restoration Project mitigation bank component (Original Mitigation Bank) and the creation, modification, ~~and expansion~~and formalization of trails within the entire proposed project limits (see Figure 4, Project Overview). The Mitigation Bank expansion is located on land owned by HomeFed and the City of Chula Vista and includes enhancement, rehabilitation, and re-establishment of hydrological processes, vegetation communities, and wildlife habitats associated with the Lower Otay River watershed that will be self-sustaining and can adjust to dynamic natural processes. The proposed project would also re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. This will serve to improve hydrologic conditions, significantly reduce the upstream invasive species seed sources, preserve connectivity between adjacent areas of preserved land and natural habitats, and preserve wildlife movement corridors, and would result in a net gain in functions and services following restoration activities.

The proposed project would provide mitigation opportunities to offset impacts on waters of the U.S. and state, including wetlands, and CDFW jurisdiction within a designated service area, currently proposed to include the Otay River watershed, Tijuana watershed, and portions of the San Diego River watershed. As stated above, the 2016 Restoration Project was designed to meet the compensatory mitigation needs associated with unavoidable impacts on jurisdictional waters of the U.S., waters of the state, and associated habitats due to the implementation of the Otay Ranch University Villages and future City projects.

The expansion ~~will~~ was further justified to provide flexibility, as project designs and permitting for the Otay Villages and City projects are still in progress with the possibility of additional mitigation acreage requirements. In addition, over the last ~~two~~ 2 years, multiple local agencies and private entities have inquired about mitigation credit availability, stressing their need for opportunities now and in the future. It was decided by HomeFed and the City that the proposed ~~project~~ Mitigation Bank expansion was appropriate to meet the larger regional needs for ~~aquatic~~wetland mitigation. When evaluating the extent to which the Original Mitigation Bank should be expanded, consideration was given to cost effectiveness and maximum ecological benefit. This resulted in the recommendation to connect the mainstem of Otay River to the confluence of Salt Creek. This location is ecologically significant, as it represents a major input of water in the river valley and the first true connection point for the river. In addition, this key connection point would facilitate future restoration opportunities downstream. The restoration of Salt Creek has also been evaluated in this report; however, this aspect is not committed to undergoing construction at this time and will require a refined design and supplemental analysis if implemented in the future. See Figure 5, Proposed Project, Mitigation Bank Expansion Component Concept Plan.

The project proponent, OLC, and its contractors would be responsible for installation, maintenance, and monitoring of restoration project activities. It is currently anticipated that the proposed project would be implemented over ~~approximately 24 weeks~~the course of 12 months. Implementation of the proposed project would occur throughout the year, vegetation removal would only occur between September and February (outside the breeding season for nesting birds protected under the Migratory Bird Treaty Act). Following implementation and a 120-day plant establishment period (PEP) ~~and would be followed by the completion of~~ a minimum 5-year maintenance, monitoring, and reporting phase would be initiated. Attachment 2 includes a detailed description of the project design, project implementation, and project maintenance and monitoring activities associated with the proposed project.

The project site and surrounding area are included within the City of Chula Vista General Plan, Otay Ranch General Development and Resource Management Plan, County of San Diego MSCP, City of Chula Vista MSCP Subarea Plan, Otay River Watershed Management Plan, Draft Otay River Watershed Special Area Management Plan, City of Chula Vista Greenbelt Master Plan, and Otay Valley Regional Park (OVRP) Concept Plan and Trails Guidelines. In addition, the proposed project has been developed in compliance with the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (USACE) Compensatory Mitigation for Losses of Aquatic Resources: Final Rule (40 Code of Federal Regulations [CFR] Part 230 and 33 CFR Parts 325 and 332) and the USACE Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division.

The project site is designated as Open Space Preserve and Undeveloped by the City of Chula Vista General Plan. The project site is zoned Residential by the City of Chula Vista's Zoning Code. Figures 6 and 7 show the land use and zoning designations for the project site.

The City of Chula Vista is the lead agency under the California Environmental Quality Act (CEQA) ~~and responsible~~ for ~~permitting~~ the proposed project; USFWS, USACE, CDFW and the Regional Water Quality Control Board (RWQCB) have some approval and/or discretionary authority over the proposed project. Table 1-1, below, indicates the discretionary approvals that would be required to implement the proposed project.

To restore the river valley, the proposed project would temporarily affect small areas of jurisdictional waters of the United States and state as well as native upland habitats, which would need to be authorized by the regulatory agencies. These temporary impacts, and the proposed project as a whole, will be evaluated by USACE in accordance with Section 404 of the Clean Water Act (CWA), the RWQCB in accordance with Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, U.S. Fish and Wildlife Service (USFWS) in accordance with Section 7 of the Endangered Species Act, and CDFW in accordance with Section 1600 of the California Fish and Game Code and the state

Endangered Species Act. In addition, the proposed project is part of a Mitigation Bank, which has its own specific review and approval process in which the regulatory agencies are involved.

San Diego Gas & Electric has generally authorized project grading and restoration work to be conducted within its easement areas, and will need to review and approve any revised grading or restoration plans for the project.

Table 1-1. Discretionary Approvals Required

Agency	Role	Permit/Approval
City of Chula Visa	Lead agency	• Mitigated Negative Declaration adoption ○ Mitigation Monitoring and Reporting Program adoption ○ Prospectus and Bank Enabling Instrument (BEI) approval ○ Finance Plan approval (including retaining the appropriate qualified personnel, as described in the BEI [e.g., landscape installation/maintenance contractor, restoration ecologist]) • Grading permit
U.S. Army Corps of Engineers	Federal agency with permitting authority and National Environmental Policy Act Lead Agency	• Section 404 permit
U.S. Fish and Wildlife Service	Federal agency with permitting authority	• Section 7 consultation • Prospectus and BEI
California Department of Fish and Wildlife	Trustee/responsible agency	• Section 1602 Streambed Alteration Agreement • California Endangered Species Act consultation • Prospectus and BEI
Regional Water Quality Control Board	Responsible agency	• Section 401 Water Quality Certification • Construction General Permit/Storm Water Pollution Prevention Plan

as the Inter-agency Review Team and/or Signatory Agencies. It is anticipated that USACE, CDFW, and potentially USFWS ~~and RWQCB~~ will be signatories to the Mitigation Bank. Those not a signatory will be part of the Inter-agency Review Team. To date, the agencies have reviewed the initial restoration concept (as part of the Prospectus) and attended a site visit. An updated Prospectus, along with a Bank Enabling Instrument (BEI) containing a Development Plan will be developed in coordination with, and reviewed by, the regulatory agencies. It is anticipated that USACE will authorize impacts associated with the proposed project through issuance of a Nationwide Permit or Standard Individual Permit and conduct Section 7 of the Endangered Species Act consultation and Section 106 of the National Historic Preservation Act consultation with USFWS and the State Historic Preservation Officer, respectively. RWQCB will issue a 401 certification for impacts on waters of the U.S./state and CDFW will issue a streambed alteration agreement for impacts on streambed resources.

Trails

As mentioned above, the 2016 Restoration Project included trail system improvements as part of the project with a focus on select trail closures as well as fencing, signage, and crossing improvements. As these informal trails are part of the City of Chula Vista Greenbelt Master Plan (City of Chula Vista 2003a) and the OVRP Concept Plan (County of San Diego et al. 2016), both high-level planning documents, additional stakeholder outreach was required in addition to ~~Resource and Wildlife~~ agency input. As a result of a series of multi-agency meetings that included the City of Chula Vista, County of San Diego, CDFW, USFWS, California Department of Transportation, Border Patrol, OWD, and OVRP Citizens Advisory Committee, including both committee meetings and field visits, it was determined that the activities required to finalize the installation of the trail network within the proposed project limits would require additional environmental review and permitting. The proposed project includes modifications to existing trail routes beyond those described as part of the 2016 Restoration Project. These proposed modifications include trail improvements (grading and contouring) to facilitate

drainage and reduce ponding and water damage; new trail alignments to avoid sensitive resources and improve the trail experience for the users; select fencing and placement of natural barriers (boulders and logs) to keep pedestrians and vehicles on trail routes; and trail reclamation and road width reduction. See Figure 8, Proposed Project, Trails Component Concept Plan.

The trail network within the proposed project site would consist of two trail types (multi-use trails and secondary trails) to serve both recreational resources and routine maintenance access to the site. In addition, a series of existing roads and road shoulders would be reclaimed as part of proposed project implementation.

Certain segments of roads have been identified as redundant and unnecessary and would be graded where appropriate and revegetated to blend into the surrounding landscape. In some instances, large rocks or woody material would also be used to close entry points to trails, allowing the natural regrowth of native plant species. In addition, existing roads would be narrowed (either entirely or in specific segments) by reclaiming portions of the shoulders to be more accommodating to pedestrians (see Figure 9, Trails Detail, Plan View, and Figure 10, Trails Detail, Cross Section).

Trail improvements would include wayfinding signs and interpretive opportunities along scenic points of the river and riparian areas. The Mitigation Bank expansion would include at least two stream crossings with the trails. For these locations, a semi-hardened crossing is proposed to meet the creek at grade to allow water to flow. The crossings on the proposed project would be constructed with interlocking, permeable, concrete surface bedding in the river bottom. The voids in the concrete bedding would be filled with gravel to both stabilize the surface from storm flow events and provide a stable surface for trail users to walk or ride across. The gravel would consist of crushed, 0.75-inch, compacted rock and smaller material. The trail surface would transition back to a compacted, decomposed, granite, crushed-rock surface or the existing natural material above the creek bed (see Figure 5). A detailed description of the proposed multi-use trails, secondary trails, fencing, and educational elements are included in Attachment 2 as part of the project description.

D. Compliance with Zoning and Plans

The project site and surrounding area are designated as Open Space Preserve and Undeveloped by the General Plan and within the planning boundaries of the City of Chula Vista MSCP Subarea Plan. Other applicable planning documents include the Otay Ranch General Development and Resource Management Plan, the County of San Diego MSCP Subarea Plan, the Otay River Watershed Management Plan, and the Otay River Watershed Special Area Management Plan. The proposed project would restore and enhance hydrologic and sediment transport processes and native habitats in the Otay River Valley. Implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project. Figures 6 and 7 provide the existing land use designations and zoning within and surrounding the project site.

E. Public Comments

In December 2021 the City of Chula Vista made the Draft MND available on the City's website. On April 4, 2022, a Notice of Availability was circulated to property owners within a 500-foot radius of the proposed project site as well as interested agencies and organizations. The public review period ~~will end on December 27,2021~~ ended on May 5, 2022. All comments were reviewed and responded to, and revisions to the draft Initial Study and Mitigated Negative Declaration were made where needed (Attachment 4). These are clarifying changes only, and no changes to the conclusion in these documents are needed.

Identification of Environmental Effects

An IS conducted by the City of Chula Vista (including the attached Environmental Checklist form) determined that, although the proposed project could have a significant environmental effect, there would not be a significant effect in this case because mitigation measures described in Section F below have been added to the proposed project. The preparation of an environmental impact report will not be required. This MND has been prepared in accordance with Section 15070 of the State CEQA Guidelines.

Biological Resources

The discussions of project effects on biological resources provided below and in the IS are based on the analysis of project impacts included in technical attachment *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report 2021 Update* (BRR), dated September 2021a (ICF 2021a). Refer to the BRR for a detailed discussion of the environmental setting, including existing conditions and surveys conducted of sensitive biological resources, as well as an impact analysis for biological resources. BRR Figures 3b, 5ba and 7 show the survey areas, impact areas and restoration activities.

Special-Status Plants

Non-listed plant species identified as California Rare Plant Rank 1B or 2B, San Diego County Group A or B plant species are present within the project area, including inside of the "heavy" restoration activity areas. One listed plant species has been documented within the project area (spreading navarretia[1]), specifically within a low impact activity level area, and five other federally or state-listed as threatened or endangered plant species have moderate to high potential to occur within the project area. A very small amount of permanent impacts on natural habitats that can support special-status plant species may occur due to the construction of new trails and armoring of existing stream crossings; however, the project would primarily result in temporary impacts on natural habitats during restoration and enhancement activities. Absent mitigation, impacts on these special-status plants would be significant.

Impacts on special-status plant species would be avoided and minimized through implementation of **Mitigation Measures BIO-9,** which includes rare plant salvage and avoidance measures (e.g., exclusionary flagging and fencing, and salvage and relocation), and **BIO-11,** which would ensure persistence of viable populations of special-status species within the project area by limiting trespassing into the restoration areas and special-status plant populations**.** Implementation of **Mitigation Measures BIO-2, BIO-3, BIO-4, BIO-5, BIO-8,** and **BIO-9** would also further minimize temporary impacts and avoid direct impacts on narrow endemic and other special-status species. Additionally, as described in the BRR, the project's footprint and trail alignment would be further refined in the design finalization and permitting process, which is anticipated to further reduce impacts on special-status species through avoidance and create additional natural habitats onsite. Thus, impacts on special-status plant species would be less than significant with mitigation incorporated.

Special-Status Wildlife

Five species listed as federally or state endangered or threatened have been observed within the project area during focused species surveys: San Diego fairy shrimp, Quino checkerspot butterfly, western yellow-billed cuckoo (nesting),[2] least Bell's vireo (nesting), and coastal California gnatcatcher. Forty non-listed special-status species are known to be present or have a moderate to high potential to occur within the project area, including species considered Covered Species under the City of Chula Vista

[1] Federally Listed as Threatened; California Rare Plant Rank 1B.1; San Diego County **List** A species; City of Chula Vista MSCP species

[2] Western yellow-billed cuckoo is considered protected while nesting. The individual observed on site was a transient foraging migrant and the site does not have suitable habitat to support nesting cuckoo.

MSCP Subarea Plan (City of Chula Vista 2003b). A small amount of permanent impacts on suitable and occupied habitats for special-status wildlife would occur due to habitat removal for trail creation and armoring of existing stream crossings. Special-status wildlife habitat would be temporarily impacted by the project. Direct loss of special-status wildlife species and disturbance resulting in direct mortality of individual special-status wildlife, particularly of federally listed species, would be significant impacts absent mitigation.

Direct impacts as a result of grading and vegetation removal activities would be minimized or avoided to the maximum extent practicable through implementation of mitigation measures. Specifically, vegetation removal would be completed outside of breeding season and grading and ground disturbance activities would be conducted outside of the nesting season, when feasible, to avoid direct impacts on nesting birds, including those protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (**Mitigation Measure BIO-6**). Preconstruction burrowing owl surveys would be completed to avoid impacts on burrowing owl (**Mitigation Measure BIO-7**). Therefore, no special-status bird nests would be directly impacted. Additionally, implementation of **Mitigation Measure BIO-12** will minimize direct impacts on western spadefoot toads. Indirect impacts on special-status wildlife would be minimized or avoided through implementation of **Mitigation Measures BIO-2, BIO-3, BIO-5,** and **BIO-11**. The proposed project is a restoration project that would ultimately improve and enhance function of native habitats that are suitable for special-status wildlife species. In addition, the proposed project is a Covered Project under the City of Chula Vista MSCP, and many of these special-status wildlife species are Covered Species that would directly benefit from the proposed project in the long term. Therefore, impacts on special-status wildlife species would be less than significant with mitigation incorporated.

Once the trail alignments have been finalized to further avoid impacts on federally listed species, the applicant would enter into consultation with the USFWS to document how the proposed project is consistent with the City of Chula Vista MSCP Subarea Plan, as described in **Mitigation Measure BIO-1**. As a result of the consultation process, the USFWS would provide a Biological Opinion on the potential effects on federally listed species from the proposed project. The applicant would adhere to any conservation measures provided by the USFWS in their Biological Opinion as required by law. Implementation of these mitigation measures and anticipated conservation measures from the Biological Opinion would reduce impacts on federally listed species to less than significant with mitigation incorporated.

Designated Critical Habitat

Activities associated with grading, trails creation and reclamation, and upland enhancement within the project area would impact approximately 140.61 acres of designated Otay tarplant critical habitat. Figure 15 of the Biological Resources Report (BRR) technical attachment shows the location of critical habitat with the project area. However, permanent impacts due to the creation of new trails would occur primarily within existing access roads that do not provide the physical and biological features (PBFs)[3] necessary to support Otay tarplant; only approximately 1.94 acres of critical habitat that has PBFs for Otay tarplant (i.e., Diegan coastal sage scrub and non-native grasslands) would be permanently affected. Revegetation, rehabilitation, and enhancement activities would occur in areas of temporary impact totaling approximately 134.91 acres of Otay tarplant critical habitat. However, only

[3] Physical or biological features essential for the conservation of the species, also called primary constituent elements, are defined in the Designation of Critical Habitat for *Deinandra conjugens* (Otay tarplant); Final Rule (USFWS 2002). All areas designated as critical habitat are within the species' currently known range and contain one or more of these physical or biological features essential for the conservation of the species. The primary constituent elements of *Deinandra conjugens* critical habitat consist of, but are not limited to, soils with a high clay content (generally greater than 25 percent) (or clay intrusions or lenses) that are associated with grasslands, open coastal sage scrub, or maritime succulent scrub communities between 25 meters (80 feet) and 300 meters (1,000 feet) in elevation.

approximately 49.08 acres within the "heavy" temporary work activities area (where grading would occur) contain PBFs for Otay tarplant because they are within coastal sage scrub and non-native grassland vegetation communities. Indirect and direct impacts resulting from restoration-related activities could occur on the areas that contain PBFs, such as increased dust deposition, spills of pollutants, and trampling of plants if present. Absent mitigation, permanent and temporary impacts would be significant.

With implementation of **Mitigation Measure BIO-9**, no Otay tarplant individuals potentially occurring within critical habitat are anticipated to be impacted by either permanent impacts or heavy grading in temporary impact areas. Implementation of **Mitigation Measures BIO-2** through **BIO-5** would ensure indirect and direct impacts on Otay tarplant critical habitat that could result during restoration-related activities are minimized to the maximum extent practicable. Furthermore, upland enhancement and trail reclamation, as well as implementation of **Mitigation Measure BIO-11**, would likely result in improved conditions of critical habitat for Otay tarplant in the temporary impact area, and an overall positive effect of improved quality of critical habitat is anticipated within Otay tarplant critical habitat. Therefore, impacts on Otay tarplant critical habitat would be less than significant with mitigation incorporated.

Riparian Habitat and Sensitive Natural Communities

Project-related construction, grading, clearing, or other activities would temporarily and permanently remove sensitive native or naturalized habitat within the project area. Figure 8 of the BRR technical attachment shows the location of riparian habitat and sensitive natural communities. As shown in the BRR technical attachment (ICF 2021a), permanent impacts would occur on sensitive native and naturalized habitats. Approximately 2.96 acres of Tier I, II, and III habitats and 0.19 acre of riparian and wetland habitats would be permanently impacted by the proposed project.[4] Temporary impacts could occur on up to 166.21 acres of Tier I, II, or III habitats (67.06 acres of which would be subject to grading during restoration activities; the remainder of temporary impacts would be associated with disturbance during enhancement activities such as weeding and invasive species treat). Temporary impacts could also occur on up to 40.97 acres of riparian and wetland habitats (35.39 acres of which would be subject to grading during channel and floodplain restoration activities; the remainder of temporary impacts would be associated with disturbance during enhancement activities).

The proposed project is a restoration projects and once completed, will enhance the functions and values of existing wetlands. Furthermore, no permanent structures would be built within or near wetlands with the exception of armoring of existing low-flow stream crossings. The result of the work would include an overall net gain in functions and values of the existing wetlands. Overall, the proposed project is designed as a restoration and enhancement project to improve natural habitats within the project area. The proposed project would re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. This would serve to improve hydrologic conditions, significantly reduce the upstream invasive species seed sources, preserve connectivity between adjacent areas of preserved land and natural habitats, and preserve wildlife movement corridors, and would result in a net gain in functions and services following restoration activities.

[4] Under the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003b), upland vegetation communities, defined according to the Holland classification system, are grouped into habitat tiers, Tier I through Tier IV, based on species composition and rarity within the region. Tier I (rare uplands), Tier II (Uncommon Uplands), and Tier III (common uplands) are considered to be sensitive habitats. Tier IV habitats (other uplands) consist of disturbed and developed habitats and are not considered sensitive. In addition, all wetland and riparian areas are considered sensitive under the Wetlands Protection Program described in Section 5.2.4 of the City of Chula Vista MSCP Subarea Plan.

Implementation of **Mitigation Measures BIO-2** through **BIO-5** and **BIO-11** would avoid and minimize impacts on sensitive native and naturalized habitats to the maximum extent practicable. The proposed project would apply for and comply with all regulatory permits for impacts on jurisdictional riparian or wetland habitats per **Mitigation Measure BIO-1**. Therefore, impacts on sensitive native and naturalized habitats would be less than significant with mitigation incorporated.

Wetlands and Jurisdictional Resources

The proposed project would cause temporary and permanent impacts on wetlands and jurisdictional waters as defined by USACE, RWQCB, and CDFW. Figure 16a and 16b of the BRR technical attachment shows the potential jurisdictional waters and wetlands occurring in the project area. Temporary impacts associated with the proposed project are focused on two restoration activities: habitat restoration (habitat enhancement and rehabilitation) and grading (for habitat establishment and reestablishment). A relatively small amount of permanent impacts would occur due to creation of new trails (including grading) and from work on at least two existing stream crossings (i.e., channel armoring). All habitat restoration and establishment/reestablishment impacts are considered temporary because the proposed project is a restoration project, and any impacts would be restored with native vegetation and ultimately lead to a net gain in viable habitat and native plant communities, and overall improved river conditions. Habitat restoration would involve invasive vegetation removal followed by re-establishment of native vegetation communities. Enhancement and rehabilitation activities would generate little to no ground disturbance, and invasive plant species removal would target select species of plants in order to minimize potential impacts on native and sensitive species. Grading activities would involve considerable ground disturbance, with the ultimate goal of redefining the channel and other hydrologic features along the Otay River.

As described in the BRR technical attachment Section 2.2.5 (ICF 2021a), approximately 0.06 acre of waters of the U.S. subject to jurisdiction of USACE and RWQCB (0.06 acre of non-wetland and approximately 90 square feet of wetland) would be permanently impacted by the proposed project. A total of 39.37 acres of waters of the U.S. (1.27 acre of non-wetland and 38.10 acres of wetland) would be temporarily impacted by the proposed project.

A total of 0.23 acre of waters of the state subject to jurisdiction of CDFW (0.20 acre of streambed and 0.02 acre of riparian) would be permanently impacted by the proposed project. A total of 61.23 acres of waters of the state (18.67 acres of streambed and 42.56 acres of riparian) would be temporarily impacted by the proposed project. Absent mitigation, these impacts would be significant.

However, permanent and temporary impacts would be mitigated on site as part of the proposed project (**Mitigation Measure BIO-1**), including rehabilitation and reestablishment of the river channel and its floodplain and expansive removal of invasive species. In addition to restoring existing wetlands, waterways, and riparian habitat, the proposed project would expand and reestablish both federal wetlands and waterways, including over 30 acres of waters of the U.S. and 55 acres of waters of the state. The proposed project would also restore more than 3,300 feet of channel under USACE jurisdiction and 5,500 feet of channel under CDFW jurisdiction. In addition, hydrologic processes would be restored and invasive vegetation removed, further improving conditions for native species composition, diversity, and abundance throughout the site. Implementation of **Mitigation Measures BIO-2** (biological awareness training for all workers), **BIO-3** (temporary fencing of sensitive resources), **BIO-4** (onsite biological monitoring during grading and vegetation removal activities), **BIO-5** (implementation of Best Management Practices), and **BIO-11** (management of public access, trails, and recreation to deter trespassing and protect sensitive resources) would minimize indirect impacts on federal jurisdictional resources. As mentioned above, the proposed project would also apply for and comply with all regulatory permits as appropriate per **Mitigation Measure BIO-1**. Therefore, impacts on federal jurisdictional wetlands and waterways would be less than significant with mitigation incorporated.

Native Resident or Migratory Fish or Wildlife Species or Established Native Resident or Migratory Wildlife Corridors, and Native Wildlife Nursery Sites

The proposed project is within a core habitat area under the City of Chula Vista MSCP Subarea Plan, and as a result has the potential to temporarily impact a core wildlife area but would not result in the loss of a core wildlife area. The proposed project would not prevent wildlife access to habitat, nor would it create a barrier to wildlife movement. The proposed project would not permanently prevent wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction; overall, the proposed project would improve these characteristics of the site. Wildlife nursery areas within the project area could include vegetation communities that support nesting birds, riparian habitat, wetlands, and stream habitat.

A small amount of permanent impacts on natural habitats would occur due to conversion to trails, though this would not be expected to negatively impact wildlife access to foraging or breeding habitat, water sources, or other areas necessary for reproduction due to the existing trail networks in the project area. Additionally, some existing trails would be reclaimed, improving these characteristics onsite. Temporary impacts on natural habitats would occur due to implementation of restoration activities in the Otay River channel and floodplain (e.g., large areas of grading). Temporary disturbances include increased human activity, noise, and dust, etc., and temporary removal of natural habitats during restoration activities. These impacts would be less than significant regarding wildlife movement and connectivity because they would be temporary in nature and would not result in the permanent loss of a core wildlife area; however, indirect impacts would be significant for wildlife corridor habitats along the Otay River channel absent mitigation.

Implementation of **Mitigation Measures BIO-2** through **BIO-5** and **BIO-11** would minimize impacts on core wildlife areas, edge of open space or other natural areas, connectivity habitat, and wildlife corridors. All personnel would go through a comprehensive environmental training (**Mitigation Measure BIO-2**), fencing would be installed during construction to focus work areas and illustrate avoidance areas (**Mitigation Measure BIO-3**), a qualified biological monitor would be onsite to ensure minimization of impacts on biological resources during vegetation removal and grading activities (**Mitigation Measure BIO-4**), best management practices (BMPs) would be implemented throughout the project work area to minimize impacts on adjacent resources (**Mitigation Measure BIO-5**), and signage and wood split-rail fencing would be installed to limit trespassing and protect sensitive biological resources (**Mitigation Measure BIO-11**). The proposed project is a restoration project that would provide a net improvement and enhancement of habitat for wildlife species and the functions and values of these areas, consistent with the goals and objectives of the City of Chula Vista MSCP Subarea Plan. Therefore, impacts on the edge of open space or other natural areas, connectivity habitat, and wildlife corridors would be less than significant with mitigation incorporated.

City of Chula Vista MSCP Subarea Plan & Habitat Loss Incidental Take Permit

The project area is within the City of Chula Vista's MSCP Subarea Plan area, specifically within lands designated as 100 percent Conservation Area (i.e., within the MSCP Preserve, where the habitat is protected on site from development and impacts, and is considered a Covered Project[5] under the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003b). In compliance with the City of Chula Vista MSCP Subarea Plan, and as a condition of issuance of take authorization by the wildlife agencies, the City of Chula Vista established a development standard and an implementing ordinance, the Habitat

[5] Covered Projects are defined in the City of Chula Vista MSCP Subarea Plan as, "Those projects involving land use development within the City of Chula Vista for which hard-line Preserve boundaries have been established pursuant to the approved Chula Vista Subarea Plan, and where conservation measures consistent with the MSCP Subregional Plan and Chula Vista Subarea Plan have been or will be specified as binding conditions of approval in such Project's plans and approvals. Covered Projects are shown on Figure 5-1 of [the] Subarea Plan. The conditions of coverage for each Covered Project are specified at 7.5.6 of the Subarea Plan" (City of Chula Vista 2003b).

Loss and Incidental Take Ordinance (HLIT). The HLIT is consistent with the conservation and mitigation goals of the San Diego County MSCP Subregional Plan and the City of Chula Vista MSCP Subarea Plan, which require impacts on sensitive vegetation communities to be avoided and minimized to the maximum extent practicable. Refer to the BRR at Section 1.6.3.1, *City of Chula Vista Multiple Species Conservation Plan Subarea Plan*, for description of the requirements and guidelines for Covered Projects under the City of Chula Vista MSCP Subarea Plan and HLIT.

The proposed project would be consistent with the City of Chula Vista MSCP Subarea Plan. Ultimately, the proposed project would restore and enhance existing preserve land and minimize impacts on sensitive resources defined by the City of Chula Vista HLIT Ordinance. The proposed project would directly benefit the primary goals of the City of Chula Vista MSCP Subarea Plan, which are to conserve covered species and their habitat through the conservation of interconnected significant habitat cores and linkages. The proposed project would restore over 1 mile of lost river channel and its floodplain and further enhance existing preserved upland habitats while minimizing impacts on sensitive resources. Thus, the proposed project would improve habitat functions and directly benefit many MSCP covered flora and fauna. A small amount of permanent impacts on sensitive resources would occur due to the construction of new trails and armoring of existing stream crossings; however, the project would primarily result in temporary impacts on sensitive resources during restoration and enhancement activities. As described above, avoidance and minimization of impacts on sensitive resources would be accomplished to the maximum extent practicable through implementation of **Mitigation Measures BIO-1** through **BIO-11~~1~~2**. Overall, the proposed project would increase habitat quantity and quality for narrow endemic species, restore protected riverine, wetland, and riparian habitats, and enhance and restore Tier I, Tier II, and Tier III upland habitats. Therefore, the proposed project would not conflict with the provisions of the City of Chula Vista MSCP Subarea Plan.

Cultural Resources

To assess potential impacts affecting cultural resources, technical attachment *CEQA Cultural Resources Technical Report* was prepared (ICF 2021b). The cultural resources analysis is summarized below.

Seventeen previously identified resources were recorded within the project site, and the pedestrian survey relocated artifacts associated with 10 of the resources. In addition, one archaeological resource (a prehistoric lithic scatter) and five isolated artifacts were newly identified during the survey efforts.

The pedestrian survey identified artifacts associated with the following cultural resources: P-37-004732, P-37-004728, P-37-004735, P-37-010875, P-37-014566, P-37-014575, P-37-014585, P-37-031366, P-37-032254, and P-37-034106. The pedestrian survey did not relocate artifacts for portions of seven previously documented sites; although, in some instances, the project site intersected with a very small portion of the resource. No attempt was made to relocate portions of sites outside of the project site. The pedestrian survey did not relocate portions of seven resources that intersect with the project site (P-37-004733, P-37-007212, P-37-008649, P-37-014583, P-37-015386, P-37-015391, and P-37-031365).

Of the 10 relocated cultural resources (sites P-37-004732, P-37-004728, P-37-004735, P-37-010875, P-37-014566, P-37-014575, P-37-014585, P-37-031366, P-37-032254, and P-37-034106) and one newly recorded archaeological site, none have been formally evaluated for their eligibility for listing in the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP). In accordance with guidance from the California Office of Historic Preservation, the unevaluated sites must be considered eligible for the CRHR. Therefore, for the purposes of the proposed project, these sites are assumed to be eligible for the CRHR.

Five isolates were newly recorded within the project site. Intensive pedestrian surveys in the vicinity of the isolates revealed no additional artifacts or features. Although it is unknown whether there are buried archaeological deposits associated with these isolates, it is inferred that these isolates would

have limited potential for being eligible for listing in the CRHR and/or NRHP because of a paucity of associated artifacts and features. No mitigation measures are necessary for isolates because they lack association and context with other archaeological materials; therefore, they are by definition not eligible for listing in the NRHP or CRHR.

Proposed project activities would include ground disturbance as part of road reclamation, installation of signage, stream recontouring and vegetation removal. Potential impacts on eligible resources could occur from these proposed activities if ground disturbance occurs within cultural resource boundaries. However, in order to reduce or minimize impacts on cultural resources, the proposed project would incorporate **Mitigation Measures CUL-1** through **CUL-3.** As part of the mitigation measures, the proposed project would establish environmentally sensitive areas (ESAs) around areas of artifact concentration and prohibit ground-disturbing activities, thereby avoiding impacts in the ESAs **(Mitigation Measure CUL-1**). In addition to establishing ESAs, areas requiring archaeological and Native American monitoring would be established within an existing cultural resources boundary but in areas where no artifact concentrations were identified during survey efforts. These areas are referred to as Monitoring Areas (MAs); ground-disturbing activities occurring within MAs will require the presence of an archaeological monitor and a Native American monitor. The ESAs and MAs would be incorporated into the cultural resources monitoring and treatment plan (**Mitigation Measure CUL-2**) and would be made available to non-archaeological staff for scheduling purposes. Additionally, in response to Native American due diligence outreach and given the prehistoric archaeological sensitivity of the proposed project area, **Mitigation Measure CUL-3** would be implemented to minimize impacts on prehistoric resources and would require a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. With implementation of **Mitigation Measures CUL-1** through **CUL-3**, impacts on sensitive archaeological resources would be less than significant.

Geology and Soils, and Paleontological Resources

Implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil. Erosion is a condition that could adversely affect development on any site. The proposed project would include enhancement, rehabilitation, and re-establishment of hydrological processes, vegetation communities, and wildlife habitats. It would also re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. Additional improvements would include modifications to existing trail routes. Therefore, the proposed project would not add any new impervious surfaces. Construction activities could exacerbate erosion conditions by exposing soils and adding water to the soil from irrigation during construction. As discussed in more detail in Section X, *Hydrology and Water Quality*, the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities (Construction General Permit), which was adopted by the State Water Resources Control Board as Water Quality Order 2012-0006-DWQ on July 17, 2012, is required for soil disturbance activities greater than 1 acre. Compliance with the Construction General Permit requires development and implementation of a site-specific Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer that includes BMPs to be employed during construction to control soil erosion. The selection of erosion control BMPs is based on minimizing disturbed areas, stabilizing disturbed areas, and protecting water quality. Preliminary erosion control measures (as part of the SWPPP) for the proposed project could include, but not be limited to, the use of hydraulic mulch, soil binders, geotextiles and mats, hydroseeding, straw mulch, earthen dikes, and velocity dissipation devices. Furthermore, as discussed in Section V, *Biological Resources*, the proposed project would implement **Mitigation Measure BIO-1** to ensure all necessary agency permits, including a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) from RWQCB, have been approved before initiating grading activities, and impacts on geology and soils would be minimized per the conditions set forth in the permits. As a result, with implementation of **Mitigation Measure BIO-1**, the proposed

project would result in less-than–significant impacts related to soil erosion during construction activities.

Project operations would not increase erosion because the restoration site would be restored to the desired functions, with native habitat that would prevent substantial erosion or siltation on or off site. Furthermore, a restoration ecologist, to be retained by the project applicant, would work in coordination with the installation and maintenance contractors and oversee the protection of existing native vegetation, nonnative plant removal, contour grading, site preparation, planting and seeding, maintenance and monitoring, and reporting. If deemed necessary by the restoration ecologist, maintenance activities would include remedial measures for erosion control. In addition, maintenance of the trail improvements would be managed per a long-term management plan,[6] further minimizing the potential for conditions leading to erosion. Therefore, long-term operational impacts related to soil erosion or loss of topsoil would be less than significant.

Hazards and Hazardous Materials

Implementation of the proposed project is not expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, chemicals, and oils, for the operation of construction equipment. It is possible that any of these substances could be released in small amounts during construction activities. However, compliance with federal, state, and local regulations in combination with construction BMPs implemented from a SWPPP as required under the State Water Resources Control Board's Construction General Permit would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the construction phase of the proposed project. Furthermore, **Mitigation Measure BIO-1** would ensure all necessary agency permits, including a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012- 0006-DWQ) from RWQCB, have been approved before initiating grading activities. No hazardous materials are expected to be transported, used, disposed of, or stored on site during the operational phase.

An environmental database search was conducted to determine if there are any known hazardous materials sites within or adjacent to the project site that could result in a significant hazard due to project implementation. The following summarizes the findings of this records search.

Brown Field Bombing Range Formerly Used Defense Site

The southern portion of the proposed project site is within the Brown Field Bombing Range Formerly Used Defense Site (FUDS). The site is approximately 2 miles northeast of Otay Mesa and approximately 63 acres of the project site overlap with the FUDS site. Figure 11 shows the project footprint in correlation with the FUDS property boundaries. The Brown Field Bombing Range was identified in the EnviroStor database as being part of the Department of Toxic Substances Control's Site Cleanup Program with a status of *Inactive – Needs Evaluation* (as of July 2018). The Brown Field Bombing Range (also known as the Otay Mesa Bombing Range, the Otay Bombing Target, or Otay Mesa Bombing Target #32) was used by the Navy between 1942 and 1960 as a dive-bombing practice range, and later as an aerial rocket range. In 1961, the bombing range was assigned for disposal (Parsons 2007). Construction of the proposed project could create a significant hazard to construction workers

[6] The purpose of the long-term management plan is to maintain control over factors that could adversely affect the site. OLC would evaluate the potential factors that could adversely affect the proposed project site in light of the location and the condition of riparian/wetland areas surrounding the proposed project site. The long-term management plan would be a "living" document and would include a provision to be updated every 5 years so that changes in the physical or anthropogenic environments can be adequately addressed.

or the environment by potentially exposing any remaining unearthed unexploded ordnances (UXO[7]), munitions and explosives of concern (MEC[8]), and munitions debris (MD[9]) associated with these types of facilities.

2007 Parsons Site Inspection Report

A site inspection evaluation consisting of a qualitative reconnaissance and surface soil sampling was conducted by Parsons in 2007 to evaluate the presence of MEC, MD, and MC within the Brown Field Bombing Range. The qualitative reconnaissance encompassed 15.9 miles of the former bombing range and a total of 10 soil samples (Figure 11). Results of the sampling event were as follows:

- Explosives were not detected in any of the soil samples collected.
- MC contamination was detected in surface soil samples, in particular aluminum, copper, iron, lead, potassium, manganese, and zinc.

Due to the laboratory results, an MC Screening Level Risk Assessment (SLRA) and a Screening Level Ecological Risk Assessment (SLERA) were conducted for aluminum, copper, lead, manganese, and zinc (iron and potassium were determined to not pose an unacceptable risk). Based on the results of the SLRA and SLERA, the Brown Field Bombing Range was determined not to pose an unacceptable risk to human health or ecological receptors resulting from potential exposure to MC in surface soil. As surface water and sediment samples were not collected at the time of the evaluation, the site inspection recommended the need for further investigation to determine the presence of MEC hazards in these types of media. **Mitigation Measure HAZ-1** would reduce potential impacts associated with unacceptable risks to human health or ecological receptors resulting from exposure to MC in surface water and sediment by requiring sampling and completion of the associated SLRA and SLERA studies, along with either avoidance or remediation of any affected areas before any construction activities may proceed.

The site inspection stated that, based on the MD observed during the investigation as well as the MD identified at the Brown Field Bombing Range in the past, it is likely that additional MD and/or MEC currently exist within the former Brown Field Bombing Range site. Implementation of **Mitigation Measure HAZ-2** would further reduce potential impacts related to the historical Brown Field FUDS site activities by performing a surface clearance sweep prior to initiating any construction activities and removing and disposing of any remaining unearthed UXO, MEC, and MD. In addition, **Mitigation Measure HAZ-2** would require a UXO qualified technician to support the proposed project's restoration and grading activities to detect the presence of MEC in disturbed soil. Impacts would be less than significant with mitigation incorporated.

Other Nearby Sites

Other nearby sites identified include the East Mesa Regional Firing Range, Richard J Donovan Correctional Facility, and East Mesa Detention Center. However, based on cleanup details reviewed in the IS environmental checklist, the likelihood of contamination migrating to the proposed project area and adversely affecting construction workers or the environment from the East Mesa Regional Firing Range, Richard J Donovan Correctional Facility, and East Mesa Detention Center sites is very low. Impacts related to the other nearby sites would be less than significant.

[7] UXO are defined as military munitions that have been prepared for action, remain unexploded, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute an explosive hazard.

[8] MEC are military munitions that may pose unique explosives safety risks, including UXO, Discarded Military Munitions (DMM), or Munitions Constituents (MC) present in high enough concentrations to pose an explosive or other health hazard.

[9] MD is remnants of munitions (i.e., penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal (Parsons 2007).

Land Use and Planning

Implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project. The project site is designated as Open Space Preserve by the City of Chula Vista General Plan and zoned ~~Residential~~ Planned Community by the City of Chula Vista's Zoning Code. Other applicable planning documents include the Brown Field Municipal Airport Land Use Compatibility Plan, Otay Ranch Phase 1 and 2 Resource Management Plan, Otay River Watershed Management Plan, Draft Otay River Watershed Special Area Management Plan, City of Chula Vista Greenbelt Master Plan, and OVRP Concept Plan and Trails Guidelines. As discussed within the IS environmental checklist, the proposed project would be consistent with all applicable plans. Moreover, to ensure all trail improvements are consistent with the City's Greenbelt Master Plan and the OVRP Concept Plan and Trail Guidelines, **Mitigation Measure LU-1** is required. **Mitigation Measure LU-1** would require that all applicable grading plans would contain the applicable trail guidelines from both the City's Greenbelt Master Plan and the OVRP Trail Guidelines. It would also require approval of the design of the proposed fencing and signage, which would be designed in accordance with these two documents. Finally, it would require the City to confirm installation of these improvements matched the approved designs. With this mitigation, impacts related to land use and planning would be less than significant.

Tribal Cultural Resources

Pursuant to California Public Resources Code Section 21080.3.1 (Assembly Bill 52), California Native American tribes traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. No tribes have requested notification from the City of Chula Vista. However, in the event that a tribal cultural resource is unexpectedly identified during the course of the proposed project, and the City determines that the proposed project may cause a substantial adverse change to a tribal cultural resource, the City will rely on mitigation measures described in the Public Resources Code that, if the City determines to be feasible, may avoid or minimize the significant adverse impacts (Public Resources Code Section 21084.3(b)). Therefore, **Mitigation Measure TCR-1** is the standard mitigation set forth in Assembly Bill 52.

E. Mitigation Necessary to Avoid Significant Impacts

Biological Resources

1. **Mitigation Measure BIO-1: Obtain Approval of All Necessary Resource Agency Permits**

   Prior to the issuance of a grading permit, the applicant will obtain all necessary resource agency permits and provide copies to the City. All conditions identified within each of the resource agency permits will be implemented in accordance with the permit. The applicable resource agency permits for the proposed project include a Clean Water Act (CWA) Section 404 Permit from the USACE, a CWA Section 401 Water Quality Certification from the RWQCB, a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) from the RWQCB, and a Section 1602 Streambed Alteration Agreement from the CDFW. In addition to the agency permits, a conservation easement or other approved site protection mechanism and endowment would be established per the USACE and Environmental Protection Agency Compensatory Mitigation Rule.

   The applicant will also enter into consultation with the USFWS under Section 7 of the Federal Endangered Species Act (FESA) to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan.

2. **Mitigation Measure BIO-2: Biological Awareness Training**

Prior to initiation of grading activities and every 2 months through implementation, biological resource awareness training will be provided by a qualified biologist to all construction personnel. The training will include information regarding sensitive species with the potential to occur at the site as well as minimization and avoidance measures to reduce potential indirect effects on the habitat. A log of personnel who have completed the training and a copy of the training report/outline (including special-status species photos, targeted invasive plant species, and descriptions of the measures discussed in the training session) will be maintained at the construction office.

3. **Mitigation Measure BIO-3: Temporary Fencing**

Prior to the initiation of grading activities, ~~the limits of grading~~ sensitive resources, as identified by the designated biologist, will be clearly marked by well-installed temporary fencing that is prominently colored. The fence will be installed by the construction contractor and will be maintained and remain in place during all grading activities. In addition, the construction contractor is required to use machinery equipped with GPS systems programmed with the limits of grading, sensitive resources, and any other avoidance areas. The avoidance data will be provided to the contractor to ensure accuracy and will be verified in the field by the designated biologist.

4. **Mitigation Measure BIO-4: Biological Monitor**

A qualified biological monitor will be on site during vegetation clearing activities to ensure that grading activities occur within designated areas. The monitor will also ensure that any special-status species that becomes entrapped within the grading limits is moved away from construction equipment. The biological monitor will also periodically inspect the limits of disturbance fence to ensure that it is in good condition. Any parts of the fence that need attention will be brought to the contractor's attention to be fixed immediately. In the event that a special-status species is located within the grading limits, the biological monitor will temporarily stop construction. Removal of special-status species should be done by a biologist qualified to handle that specific species. If needed, ~~the~~ CDFW and USFWS will be informally consulted if there is a question on the best manner to safely address a situation with a special-status wildlife species.

5. **Mitigation Measure BIO-5: Best Management Practices**

BMPs will be implemented during all grading activities to reduce potential indirect effects on special-status species and habitat. BMPs will include the following:

- All trash will be properly stored and removed from the site daily to prevent attracting wildlife to the construction area.
- Vehicles and equipment will be stored only on pre-designated staging areas in disturbed or developed areas. Fueling should be conducted in a manner that prevents spillage of fuel into the Otay River or into riparian or wetland habitats.
- All maintenance of vehicles and equipment will be conducted in a manner so that oils and other hazardous materials will not discharge into the Otay River, or into riparian habitat areas (including Freshwater and Freshwater Marsh).
- Dust control measures will be implemented to minimize the settling of dust on vegetation.
- Appropriate firefighting equipment (e.g., extinguishers, shovels, water tankers) will be available on the site during all phases of proposed project construction, and appropriate fire prevention measures will be taken to help minimize the chance of human-caused wildfires.
- All construction will be performed between dawn and dusk to the degree feasible to minimize potential indirect effects (e.g., increased depredation) on the species beyond the limits of disturbance.

6. **Mitigation Measure BIO-6: Nesting Bird Avoidance**

To avoid any direct impacts on nesting coastal California gnatcatchers, least Bell's vireo, burrowing owl, raptors, or other birds protected under the Migratory Bird Treaty Act (MBTA), removal of any vegetation that may support active nests ~~on~~ within the project area will occur outside of the breeding season when feasible. The breeding season is defined as February 15–September 15. If ~~work~~ vegetation removal must be conducted during the breeding season ~~, including any trail improvement work and upland enhancement,~~ a qualified biologist will conduct nesting bird surveys ~~will be conducted~~ within the work area and a ~~500~~250-foot buffer in order to clear the area or locate active nests for monitoring and avoidance. Adequate avoidance buffers would be established around any active nests in coordination with the wildlife agencies. Following vegetation removal, biological monitors will regularly monitor the perimeter of the work area for nests in the remaining vegetation and will work with the contractor to avoid any disturbance associated with construction activities.

7. **Mitigation Measure BIO-7: Preconstruction Burrowing Owl Survey**

A biologist will conduct preconstruction take-avoidance surveys for burrowing owls within 150 meters of project areas in suitable habitat no more than 14 days prior to ground-disturbing activities according to methods outlined in the CDFW's 2012 (or most recent) *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Surveys will provide data on whether burrowing owls occupy the site and, if so, whether the owls are actively nesting. If preconstruction take-avoidance surveys detect the presence of any active burrowing owl burrows during breeding season, the burrows will be avoided, and construction activities within 150 meters will be enclosed by construction fencing. Buffer sizes are outlined in CDFW's *Staff Report on Burrowing Owl Mitigation*. Active burrowing owl burrows will be monitored regularly to ensure no adverse effects on the burrowing owls are occurring. Avoidance buffers will remain in place until the nest fledges or fails. If, in consultation with the CDFW, it is determined that project activities require removal of occupied burrows, or burrows potentially occupied by burrowing owls, eviction and burrow closure may be required to ensure against "take" of owl or nests. If eviction is required, it will occur only after consulting with CDFW and CDFW approval. Monitoring will be conducted to ensure take is avoided during eviction procedures. Owls may not be evicted or captured without prior authorization from the CDFW.

8. **Mitigation Measure BIO-8: Vernal Pool and Vernal Pool–Dependent Species Avoidance**

The trails alignment described in this report is planned to be further refined in order to avoid all permanent impacts on federally listed branchiopods. To avoid potential fairy shrimp habitat areas and potential impacts on San Diego fairy shrimp and western spadefoot (*Spea hammondii*), ephemeral basins, which were primarily seasonally ponding features such as road ruts and road ponds, were identified by an aquatic resource and fairy shrimp specialist. Prior to any ground disturbing work on site, mapped ephemeral basins will be reevaluated using the finalized spatial extents of trails and all work areas. Vernal pools resources will be differentiated from all other ephemeral basins (e.g., unvegetated road ruts and road ponds) in a refined jurisdictional delineation, and the potential for impacts will be re-evaluated using the finalized design and alignments.

In creation of the final extents of trails and work areas, to avoid direct impacts on San Diego fairy shrimp to the maximum extent practicable, road and trail improvements and creation will avoid existing ephemeral basins that are known to support or could potentially support San Diego fairy shrimp by moving the alignment prior to construction, as needed. Final trail alignments and access routes will avoid impacts to the quantity and long-term quality of water flow to the vernal pools supporting listed fairy shrimp. Construction access routes will also be rerouted within the proposed grading footprint to avoid these ponding features to the maximum extent practicable.

During construction and restoration activities, occupied and potentially occupied habitat for San Diego fairy shrimp will be avoided during the wet season to the maximum extent practicable. Prior to ground disturbance, occupied and potentially occupied fairy shrimp habitats will be temporarily

fenced and avoided during construction activities to the maximum extent practicable. No staging of any equipment will be allowed within vernal pools, road ruts, or other ephemeral basins occupied by or potentially occupied by San Diego fairy shrimp at any time. A biological monitor will be present during construction activities occurring adjacent to vernal pools and occupied or potentially occupied habitats, and will ensure that vehicles are fueled and maintained at least 100 feet away from such pools. In addition, where appropriate, the adjacent upland areas surrounding road ruts, vernal pools, and other ephemeral basins will be restored with native species. Wood split-rail fencing, boulders, and signage will be used to inform the public of the sensitivity of the area and deter them from trespassing into the ponded areas and into the river restoration areas. Though the majority of grading will occur within the Otay River floodplain, some grading and staging of equipment will occur in upland areas outside of the floodplain. Grading activities will include vernal pool establishment and enhancement activities, as described in the *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report 2020 Update (*ICF 2021a) at Section 1.3.3. In accordance with **Mitigation Measure BIO-1**, should any pools occupied by or potentially occupied by San Diego fairy shrimp be unable to be avoided in the final project design, the applicant will consult with the USFWS under Section 7 of FESA to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan. Mitigation of impacts on fairy shrimp will be addressed in the Section 7 consultation process either with onsite pool enhancement/habitat creation or additional avoidance through project redesign prior to construction. Mitigation of impacts on jurisdictional vernal pool habitats will be also be mitigated for, as needed, to obtain CWA Section 401 and 404 permits from the RWQCB and USACE.

9. **Mitigation Measure BIO-9: Special-Status Plant, Quino Host Plant, and Succulent Plant Salvage Plan**

   During grading and enhancement activities, special-status plants, Quino checkerspot host plants (e.g., dot-seed plantain), and succulent plants (i.e., target plant species) will be avoided where feasible. Prior to ground-disturbing work on site, special-status plant surveys will be conducted to locate target plant species within defined work limits to determine areas to be avoided. Salvage and relocation of target plant species will occur to the extent feasible in accordance with a Plant Salvage Plan. The Plant Salvage Plan will be prepared for the areas where temporary grading and habitat enhancement activities will occur, with an emphasis on collecting and relocating to adjacent areas the target plant species. The plan will be prepared and implemented prior to grading and enhancement activities. The Plant Salvage Plan will include a list of target plant species list, seed collection methods, succulent plant salvage techniques, transplanting methods, and applicable monitoring activities for transplanted individuals, as appropriate.

10. **Mitigation Measure BIO-10: Quino Checkerspot Butterfly Seasonal Avoidance**

    Due to the presence of Quino checkerspot butterfly within the project area and known populations nearby, no removal of any host plant vegetation or any native vegetation within 50 feet of host plants will occur within the Quino flight season, defined by the USFWS 2014 protocol as the third week of February to the second Saturday in May. Biological monitors will stake locations of host plants for avoidance and will be present during vegetation removal activities within potentially suitable habitat for Quino located outside of the mapped host plant locations and 50-foot buffer to ensure that construction activities do not result in harm to individual Quino checkerspot butterflies that may be foraging or nectaring in the area.

11. **Mitigation Measure BIO-11: Public Access, Trails, and Recreation**

    To deter trespassing into the restoration site, wood split-rail fencing will be installed in select locations to designate road/trail corridors along existing roads and existing unofficial trails that border the restoration site. Other barriers (boulders, brush piles, logs, and plantings) will be placed

at strategic locations when protection of sensitive resources is required where fencing is not present. For safety purposes, reflective material will be placed on the wood fencing at specific locations to aid Border Patrol and other night-time users from unintentionally breaking through fencing into sensitive habitat. Additionally, signage and informational kiosks will be installed for educational purposes and to inform the public of the sensitivity of the restoration site and adjacent habitats. All installation activities (signage, fencing, kiosks) and reflective materials will occur outside of the breeding season defined as February 15–September 15 or be in accordance with **Mitigation Measure BIO-6** and require preconstruction surveys.

12. **Mitigation Measure BIO-12: Western Spadefoot Survey and Relocation Plan**

    Prior to the start of any ground disturbance, construction, or site preparation activities, a qualified biologist will conduct pre-construction surveys for western spadefoot within all portions of the Project site containing suitable breeding habitat. Surveys shall be conducted beginning the first week of January or following the first one-inch or greater rain event and will be repeated as necessary to monitor their development. An estimate of the total larval population for each pond and total density for all impacted ponds will be recorded.

    A Western Spadefoot relocation plan will be developed and approved by the Wildlife Agencies prior to ground disturbance. The relocation plan will include:

    - Proposed suitable relocation sites outside the area of disturbance,
    - Proposed methods for relocation,
    - Proposed monitoring of relocation sites,
    - Proposed success criteria.

Cultural Resources

13. **Mitigation Measure CUL-1: Establishing Environmentally Sensitive Areas**

    - To reduce potential impacts on archaeological resources, Environmentally Sensitive Areas (ESAs) will be established in areas of artifact concentrations.
    - In order to avoid impacts on ESAs 1 through 4, only non-ground-disturbing methods of seeding and herbicide control of nonnative species will be used.
    - Cultural resources monitoring will not be required for seeding and herbicide control of nonnative species.

14. **Mitigation Measure CUL-2: Archaeological Monitoring**

    To reduce potential impacts on archaeological resources, a qualified archaeologist will monitor initial ground-disturbing activities within Monitoring Areas (MAs) in order to minimize disturbance of archaeological deposits. Specifically, the following measures will be implemented to reduce impacts:

    - Prior to start of construction, a monitoring and treatment plan will be prepared that describes the nature of the archaeological monitoring work, procedures to follow in the event of an unanticipated discovery, and reporting requirements. The plan will include confidential maps of ESAs and Mas. The plan will be submitted for review to the City of Chula Vista.
    - All monitoring will be conducted by individuals with experience monitoring for archaeological resources in Southern California. All monitors will be under the supervision and direction of a qualified archaeologist(s) who meets the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations (CFR), Title 36, Section 61.

- Monitoring of initial ground disturbance will occur within MAs 1 through 8.
- The following activities will require the presence of an archaeological monitor when they occur within MAs 1 through 8:
    - Manual weed pulling, fence installation, mechanical work that includes ground disturbance, and other ground-disturbing activities necessary for the implementation of the project
- If intact subsurface deposits are identified during construction, the archaeologist will be empowered to divert construction activities away from the find and will be given sufficient time and compensation to investigate the find and determine its significance. No soil will be exported off site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.
- Recovered items will be treated in accordance with current professional standards by being properly provenienced, cleaned, analyzed, researched, reported, and curated in a collection facility meeting the Secretary of the Interior's Standards, as promulgated in 36 CFR 79, such as the San Diego Archaeological Center. The costs for curation will be included in the budget for recovery of the archaeological remains.
- A final cultural resources report will be produced and provided to the City of Chula Vista, which will discuss the monitoring program and its results and will provide interpretations of any recovered cultural materials.
- The qualified archaeologist will have the discretion to increase or decrease the level of monitoring based on profession judgment and field conditions.

15. **Mitigation Measure CUL-3: Native American Monitoring**

    A Kumeyaay tribal monitor will be retained to conduct Native American monitoring for MAs and activities identified in **Mitigation Measure CUL-2** and when an archaeological monitor is present.

    - Attendance by Native American monitors during initial ground-disturbing activities is at the discretion of the tribe, and the absence of a Native American monitor, should the tribe choose to forgo monitoring for some reason, will not delay work.
    - Interpretation of a find will be requested from Native American monitors involved with the discovery, evaluation, or data recovery of unanticipated finds for inclusion in the final cultural resources report.

Hazards and Hazardous Materials

16. **Mitigation Measure HAZ-1: Sampling and Screening Level Risk Assessment (SLRA)/Screening Level Ecological Risk Assessment (SLERA) Studies for Onsite Surface Water and Sediment and Water/Sediment Remediation (if necessary)**

    Prior to construction activities associated with the project, the need for surface water and sediment sampling will be ~~conducted~~ evaluated by an environmental consultant with experience in proper sample handling procedures in coordination with DTSC. If needed samples will be collected from portions of the site where the project site overlaps with the Brown Field Bombing Range Formerly Used Defense Site, the number and location of which will be determined by a qualified environmental professional with experience in screening level risk assessments. ~~Using the laboratory results, SLRA and SLERA studies will be conducted to assess potential risk associated with munitions constituents' exposure to human and ecological receptors. A report will be prepared with the results of the study and submitted to the City for review and approval.~~ Should results indicate the presence of contamination levels that would pose a risk to human health or ecological health, the project proponent (in consultation with the City) will coordinate ~~with the San Diego County Department of Environmental Health,~~ the Department of Toxic Substances Control ~~and the~~

~~Regional Water Quality Control Board (as necessary)~~ regarding avoidance or remediation of affected water and soils in compliance with applicable federal, state, and local laws prior to any project-specific construction grading activities occurring. If the condition at the site requires it, the project proponent will not proceed with construction activities until ~~a letter of closure~~ approval is provided by the lead hazardous materials agency. Should the results indicate that no serious risk is present, project-related construction activities may proceed, pending compliance with any other applicable mitigation as well as coordination with DTSC. A summary report of all coordination, analysis, results, and project actions will be provided to the agencies for inclusion in the documentation record.

17. **Mitigation Measure HAZ-2: Surface Clearance Prior to Construction.**

Prior to initiating project activities, a surface clearance will be conducted where project elements intersect with the Brown Field Bombing Range Formerly Used Defense Site boundary. The surface clearance would be employed to identify all munitions and explosives of concern (MEC) and munitions debris (MD) in the project site. A qualified survey company with experience in unearthed unexploded ordnances (UXO) will be retained to sweep the area for metallic items including those that may be obscured by vegetation or surface debris, and MD will be evaluated to determine if any explosive residue remains. If it is determined that there is the potential for an explosive hazard, the City of Chula Vista and County of San Diego will be contacted to respond to the item and dispose of it appropriately. Upon identifying an explosive hazard, the survey company will establish an exclusion zone around the material. The exclusion zone radius will depend on the type of material identified and will be expanded, if needed, while material is being worked on or if setting a charge to explode the material in place. If setting a charge, all personnel will be required to evacuate the area. All personnel will be required to remain out of the exclusion zone until the responders provide clearance. All MD determined to no longer contain explosive residue will be inspected by qualified personnel and containerized in lockable 55-gallon drums for later disposal by an approved recycler.

During construction, the qualified survey company will supply a UXO-qualified technician to support the project. The technicians will use magnetometers to detect the presence of MEC in disturbed soil. If no MEC items are identified, excavations will be advanced to desired depth. If MEC are detected during excavation/grading, these activities will stop immediately and the survey company technician(s) will contact the City of Chula Vista and County of San Diego for disposal of the material. The technician(s) will remain on site during disposal response actions to provide site safety and security and for technical consultation with emergency responders.

Land Use and Planning

18. **Mitigation Measure LU-1: Trail Improvements Consistent with Applicable City of Chula Vista Greenbelt Master Plan and Otay Valley Regional Park Trail Guidelines**

All applicable trail guidelines from the City of Chula Vista's Greenbelt Master Plan and Otay Regional Park Trail Guidelines shall be shown on all applicable grading plans as details, notes, or as otherwise appropriate. All proposed designs for signage and fencing will be submitted to the City to verify consistency with the above mentioned guidelines. Finally, installation of all trail-related improvements will be subject to inspection by the City to confirm the improvements were constructed in accordance with the approved designs.

Tribal Cultural Resources

19. **Mitigation Measure TCR-1: Protection of Resources**

In the event that a tribal cultural resource is unexpectedly identified during the course of implementation of the proposed project, and the City of Chula Vista determines that the proposed project may cause a substantial adverse change to a tribal cultural resource, the City of Chula Vista

will work with the consulting tribe(s) to employ one or more of the following standard mitigation measures.

1. Avoidance and preservation of the resources in place including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria
2. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    i. Protecting the cultural character and integrity of the resource
    ii. Protecting the traditional use of the resource
    iii. Protecting the confidentiality of the resource
    iv. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places
3. Protecting the resource

F. Agreement to Implement Mitigation Measures

By signing the line(s) provided below, the Applicant stipulates that it has read and understood and has its respective company's authority to and do agree to the mitigation measures contained herein, and will implement same, consistent with the Mitigation Monitoring and Reporting Program for the proposed project, to the satisfaction of the Development Services Director. Failure to sign the line(s) provided below prior to posting of this Mitigated Negative Declaration with the County Clerk shall indicate the Applicant's desire that the project be held in abeyance without approval and that the Applicant shall apply for an Environmental Impact Report.

Printed Name and Title of Applicant (or authorized representative)	Date
Signature of Applicant (or authorized representative)	Date
N/A Printed Name and Title of Operator (if different from Applicant)	Date
N/A Signature of Operator (if different from Applicant)	Date

G. Consultation

1. Individuals and Organizations

City of Chula Vista:

~~Cheryl Goddard~~ Dai Hoang Development Services Department

Others:

2. Documents

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation.* March 7.

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City of Chula Vista. 2015. *Chula Vista Vision 2020*. Chula Vista, CA. Adopted: December 13, 2005, Amended: March 2015. Available: https://www.chulavistaca.gov/departments/development-services/planning/general-plan. Accessed: September 23, 2019.

City of Chula Vista. 2016. *Otay River Restoration Project Habitat Mitigation and Monitoring Plan Initial Study/Mitigated Negative Declaration*. Case No. IS-15-006. May 2016.

County of San Diego et al. 2016. *Otay Valley Regional Park Concept Plan*. July 2016.

ICF. 2021a. *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report, 2020 Update.*

ICF. 2021b. *CEQA Cultural Resources Technical Report, Otay River Restoration Project; City of Chula Vista Mitigation Bank Expansion and Trail Alignment, San Diego County, California*. Prepared for Otay Land Company, LLC, a subsidiary of HomeFed Corporation.

Parsons. 2007. *Site Inspection Report Former Brown Field Bombing Range*. Available: https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/2060010612/bfbr_si_1.pdf. Accessed: October 30, 2019.

U.S. Fish and Wildlife Service (USFWS). 2002. Designation of Critical Habitat for *Deinandra conjugens* (Otay tarplant); Final Rule.

3. Initial Study and Finding of No Significant Effect on the Environment

This environmental determination is based on the attached Initial Study, any comments received on the Initial Study, and any comments received during the public review period for this Mitigated Negative Declaration. Based on the Initial Study, all comments received on the Initial Study and the Draft Mitigated Negative Declaration, the contents of the Final Mitigated Negative Declaration, all supporting technical studies and reports, the responses to comments on the Draft Mitigated Negative Declaration, the related Mitigation Monitoring and Reporting Program, and the entirety of the record before the City, there is no substantial evidence in the record before the City that the project will have a significant effect on the environment, with mitigation measures implemented as described in the Final Mitigated Negative Declaration and the related Mitigation Monitoring and Reporting Program. The report reflects the independent judgment of the City of Chula Vista. Further information regarding the environmental review of this project is available from the Chula Vista Development Services Department, 276 Fourth Avenue, Chula Vista, CA 91910.

Dai Hoang

Date: 6/4/2024

Dai Hoang
Senior Planner

ENVIRONMENTAL CHECKLIST FORM

1. Name of Proponent:	HomeFed Otay Land II, LLC
2. Lead Agency Name and Address:	City of Chula Vista Development Services Department 276 Fourth Avenue Chula Vista, CA 91910
3. Address and Phone Number of Proponent:	1903 Wright Place, Suite 220 Carlsbad, CA 92008
4. Name of Proposal:	Otay Trails & Mitigation Bank Expansion Project
5. Date of Checklist:	May 1, 2024
6. Case No.:	IS-21-0004

ENVIRONMENTAL ANALYSIS QUESTIONS:

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	**X**	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	**X**	☐
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?	☐	☐	**X**	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☐	**X**

Comments:

a) **Less-than-Significant Impact**. Implementation of the proposed project would not have an adverse effect on a scenic vista. The proposed project is in the Otay River Valley, which is designated as a scenic resource and Open Space Preserve by the City of Chula Vista General Plan (City of Chula Vista 2015). The Otay River Valley, along with several other open space areas, make up the majority of the City's open space and park system and are also valued as scenic resources (City of Chula Vista 2015). Open space also bounds the western, eastern, and southern boundaries of the project site as well as large portions of the northern boundary.

The visual setting of the proposed project site includes the valley floor of the Otay River Valley. The valley floor is approximately 1,000 to 1,500 feet within the proposed project area. Elevations of the valley floor range from approximately 215 feet at the downstream end to 250 feet at the upstream end; typically the valley floor is 10 to 20 feet below the adjacent ground of the surrounding foothills. Given the rolling topography of the surrounding area and the location of the project site on the river valley floor, the only public views of the project site are from the Otay Lakes County Park and recreational trails surrounding the area. The viewer groups include users of the park facilities and nearby trails. It is likely that only the easternmost portion of the project site would be visible to viewers.

Implementation of the proposed project would restore and enhance the proper hydrology of the river and channels and native habitat within the boundaries of the restoration site, bringing the area back to its natural state. This would improve views of the project site by removing invasive species and improving hydrological conditions. In addition, the proposed project would include the creation, modification, and expansion of trails within the project site.

The City of Chula Vista Greenbelt Master Plan includes guidelines for signs that state that visitors should be greeted by a consistent, unique logo that identifies the Greenbelt and guides users along the Greenbelt. The Otay Valley Regional Park (OVRP) Trail Guidelines describe appropriate design

selections for sign post, sign face, fonts, and color. The proposed project would comply with the OVRP Trail Guidelines (County of San Diego et al. 2003) and Greenbelt Master Plan design standards for signage and educational kiosks (City of Chula Vista 2003a). Wayfinding signs and interpretive opportunities would be installed and utilized along scenic points of the river and riparian areas. There are several viewpoints and other nodes along the trail corridor for interpretive opportunities that would be further identified following trail construction. Wayfinding signs would be limited to the trail intersections to minimize the number of signs in the open space. Typical sign dimensions highlighted in the plans are 4- by 4- by 2-foot wood trail signs constructed on and attached to a 6-foot-tall post with 4-foot-tall trail markers. All signs would be painted with graffiti-resistant paint and be in English and Spanish. The number of wayfinding signs for the proposed project site could range from 35 to 50 signs distributed across the proposed project site at primary trail intersections.

The City of Chula Vista Greenbelt Master Plan also states that Greenbelt kiosks should be located at active trailheads and staging areas and include the Greenbelt logo, a trail map, regulations for use of the trails, community events, and other information (City of Chula Vista 2003a). The 2003 OVRP Concept Plan (County of San Diego et al. 1997) and Trail Guidelines include guidance for kiosks to include regulatory, interpretive, and directional information, and state that kiosks should be placed at strategic access points along trails. As part of the proposed project, educational kiosks would be installed at key viewing locations within the disturbed areas to help inform the readers of the importance of the restoration site as well as to keep users on the trails and outside of the restoration area. Kiosks could be up to 8 feet tall.

Fencing would follow the natural grades along the trails and could be up to 4 feet tall. The fencing would be constructed using treated wood posts and dowels. Most of the small sections of fence would be proposed at transition points in the trail network where the multi-use trails intersect with the secondary trails. Fence locations would be determined in the field to best fit the landscape setting, and gates intended to restrict vehicular access would be designed to allow unrestricted access for pedestrians and cyclists.

The proposed project would not have a substantial adverse effect on scenic vistas of the project site due to the short-term, phased nature of construction activities associated with the creation, modification, and expansion of trails and mitigation bank expansion. In the long term, operational activities of the proposed project, specifically maintenance and biological monitoring of the project area, would improve scenic views by improving site conditions as compared to the existing setting. Impacts would be less than significant and no mitigation is required.

b) **Less-than-Significant Impact**. Implementation of the proposed project would not substantially damage scenic resources along a scenic highway. There are no officially designated state scenic highways in the vicinity of the proposed project (California Department of Transportation 2015). According to Figure 5-4 of the General Plan's Land Use and Transportation Element, the nearest scenic roadway is Hunte Parkway approximately 1 mile north of the project site (City of Chula Vista 2015). However, given the rolling topography of the surrounding area and the location of the project site on the river valley floor, the project site is not visible from this scenic roadway. The proposed project would improve habitat and hydrological conditions as well as create, modify, and expand trails within the proposed project limits. The proposed project would not remove any sensitive trees. Therefore, the proposed project would not substantially damage scenic resources along a state scenic highway or local roadway. Impacts would be less than significant and no mitigation is required.

c) **Less-than-Significant Impact**. Implementation of the proposed project would not significantly degrade the existing visual character of the site or its surroundings. The proposed project would enhance the existing visual quality of the site. The visual character of the site vicinity is best described as being in a natural but disturbed state, with mounds from mine tailings and dense stands of invasive nonnative plants in the river valley and existing dirt roads and unofficial trails used for a variety of purposes by the U.S. Border Patrol, San Diego Gas and Electric (SDG&E), City of San Diego, and Otay Water District, as well as by hikers, cyclists, and equestrians crossing the site. The proposed

project would keep the current character and enhance it by restoring native habitat and hydrological functions and creating, modifying, and expanding trails. Additionally, certain segments of roads have been identified as redundant and unnecessary and would be graded where appropriate and revegetated to blend into the surrounding landscape. As a result, the proposed project would not substantially degrade the character or quality of the site or its surroundings; impacts related to visual quality of the project site would be less than significant and no mitigation is required.

d) **No Impact**. Implementation of the proposed project would not create a new source of substantial light or glare. The proposed project would not install any lighting, nor would the implementation, monitoring, and maintenance effort require any lighting because all such work would be conducted during daylight hours. Furthermore, no glare would be produced because there are no reflective surfaces proposed as part of the improvements. No impacts would occur and no mitigation is required.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURAL RESOURCES. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	**X**	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	**X**
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	**X**	☐
d) Result in the loss of forest land of conversion of forest land to non-forest use?	☐	☐	☐	**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	**X**

Comments:

a) **Less-than-Significant Impact.** Implementation of the proposed project would not convert farmland to a non-agricultural use. The proposed project is within and adjacent to areas of Farmland of Local Importance and Grazing Land per Farmland Mapping and Monitoring Program data for San Diego County, as shown on Figure 12. There are approximately 89.1 acres of Farmland of Local Importance and 39.9 acres of Grazing Land identified within the proposed project site (California Department of Conservation 2016). However, the project site and the surrounding area are designated as Open Space Preserve by the City of Chula Vista General Plan, and zoned Residential by the City of Chula Vista's Zoning Code. Upon completion of the proposed project, no further project activities would take place in this area and future agricultural uses would not be precluded within the restoration site. However, no agricultural activities currently occur or are planned in these areas. The proposed project would keep the current character and enhance it by restoring native habitat and hydrological functions and creating, modifying, and expanding trails. The existing land uses associated with the sites would remain unchanged. Long-term agricultural use is not planned for in the General Plan area but is allowed where it is consistent with the City of Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan and zoning, including within portions of the Chula Vista Greenbelt open space system (City of Chula Vista 2015).

The proposed project would not result in the conversion of existing Farmland of Local Importance and would not involve significant changes in the existing land use. Notably, the proposed project would improve ecological conditions as part of the Expanded Mitigation Bank. Therefore, the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, and impacts would be less than significant.

b) **No Impact.** Implementation of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract. There are no Williamson Act contracts or land zoned for agricultural use within the proposed project site. The proposed project site and surrounding area

are designated as Open Space Preserve by the City of Chula Vista General Plan and are within the planning boundaries of the City of Chula Vista MSCP Subarea Plan. Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and there would be no impact.

c) **Less-than-Significant Impact**. Implementation of the proposed project would not involve other changes that would result in conversion of farmland to a non-agricultural use. See thresholds II. and II.b. Future agricultural uses would not be precluded within the proposed project site after implementation of proposed project activities. In addition, the proposed project would improve ecological conditions as part of the Expanded Mitigation Bank. Therefore, the proposed project would not involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use, and impacts would be less than significant.

d) **No Impact.** The proposed project is not within an area designated as forest land, timberland, or timberland production zone. Therefore, the proposed project would not result in the loss forest land or the conversion of forest land to non-forest use. No impact would occur.

e) **No Impact.** The proposed project is designated as Open Space Preserve by the City of Chula Vista. The proposed project would not result in the conversion of farmland to non-agricultural use or conversion of forest to non-forest uses. Therefore, no impact would occur.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY. Would the project:				
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 applicable air quality plan?	☐	☐	**X**	☐
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?	☐	☐	**X**	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	**X**	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** The San Diego Air Pollution Control District (SDAPCD) is required, pursuant to the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), to reduce emissions of criteria pollutants for which the San Diego Air Basin (defined as all of San Diego County) is not in attainment (i.e., ozone [O_3], particulate matter 10 microns or fewer in diameter [PM_{10}], and particulate matter 2.5 microns or fewer in diameter [$PM_{2.5}$]). SDAPCD has adopted air quality plans to attain the air quality standards, with the most recent being the 2016 Regional Air Quality Strategy (RAQS) and the 2016 O_3 attainment plan. The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3, while the 2016 O_3 attainment plan includes SDAPCD's plans and control measures for attaining the NAAQS for O_3. The RAQS relies on mobile source emission projects from the California Air Resources Board (CARB) and growth projections from the San Diego Association of Governments to project future emissions and determine appropriate emissions reduction strategies. In turn, the CARB mobile source emission projections and San Diego Association of Governments growth projections are based on population and vehicle trends and land use plans developed by the region's cities and by the County of San Diego. The 2016 O_3 attainment plan represents SDAPCD's portion of the State Implementation Plan, which is a comprehensive plan consisting of previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls that describes how each nonattainment area in the state will attain and/or maintain the NAAQS.

A determination that a project would not conflict with applicable air quality plans is typically made if a project proposes development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the RAQS and O_3 attainment plan prepared for the San Diego region. If the project is consistent with anticipated growth, the project would be consistent with the RAQS and O_3 attainment plan. As discussed in Section XI, *Land Use and Planning*, several planning documents apply to portions of the project area, including the City's General Plan, which designates the project site as an Open Space Preserve. Because the proposed project would involve expanding the existing Mitigation Bank area and the creation and modification of trails and would not add any housing or commercial development such that population growth would occur,

implementation of the proposed project would not affect the growth assumptions used in the development of the RAQS and O_3 attainment plan. While the proposed project would generate emissions during construction (discussed below under threshold III.b), these emissions would be short term and would cease upon completion of the construction activities. Additionally, while pollutant emissions would also be generated during operations from the use of construction equipment for maintenance of the Mitigation Bank area, these emissions would not be substantial and would only occur periodically. Furthermore, the proposed project would be required to comply with SDAPCD rules that have been implemented to reduce regional particulate matter and O_3 emissions—Rule 50 (Visible Emissions), Rule 51 (Nuisance), Rule 52 (Particulate Matter), Rule 54 (Dust and Fumes), and Rule 55 (Fugitive Dust Control). Overall, emissions generated from project construction and operations are not expected to impede attainment or maintenance of the NAAQS or CAAQS. Therefore, the impact related to project implementation conflicting with or obstructing implementation of an applicable air quality plan is considered less than significant, and no mitigation is required.

b) **Less-than-Significant Impact.** Construction of the proposed project would result in the short-term generation of criteria pollutant emissions. Emissions were estimated based on a construction phasing schedule and details regarding the types and numbers of construction equipment; haul, delivery, and employee vehicle trips; and material volumes obtained from the construction contractor. Estimates of construction-period emissions are based on the contractor's work on the Original Mitigation Bank, and were quantified using the Road Construction Emissions Model, version 9.0.0. Assumptions used in the estimates of construction-period emissions are provided in the technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021a). As discussed in the Project Description, construction of the proposed project is anticipated to commence in the fall of 2020 and be completed in the spring of 2021 and would be undertaken in two stages: (1) Site Preparation/Clearing and (2) Grading and Site Finish. Because construction activities in the Site Preparation/Clearing stage could potentially overlap with the Grading and Site Finish Stage, for the purpose of conducting a conservative analysis, the emissions from each of these two construction stages have been summed to present the maximum emissions that could be generated by the proposed project during a peak construction day.

   Estimated construction-period emissions are shown in Table 2-1. As shown therein, the proposed project's criteria pollutant emissions would not exceed the Air Quality Impact Analysis (AQIA) thresholds established by SDAPCD for either construction stage or the period during which stages overlap. Therefore, because the SDAPCD AQIA thresholds have not been exceeded, the proposed project would not result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment (i.e., O_3, PM_{10}, and $PM_{2.5}$) and construction-period emissions would be less than significant. As identified above, standard compliance measures would be implemented, including fugitive dust control.

   Long-term operations of the proposed project would involve periodic maintenance of trails, pest management, and small-scale weeding efforts, and would require approximately three workers and the potential use of chainsaws, line trimmers, and a skid steer. Operational emissions were estimated using the California Emissions Estimator Model version 2020.4.0 and assumptions provided by the contractor based on the work on the Original Mitigation Bank. Because maintenance activities would vary by day, a range in the number of equipment pieces (i.e., chainsaws and line trimmers) that could be used on a given day was provided by the contractor. For the purpose of conducting a conservative analysis, the emissions generated by the operation of the maximum number of chainsaws and line trimmers that could potentially occur in a given day along with the skid steer were modeled to capture a peak day of operational emissions. Table 2-2 shows estimated daily emissions from long-term operational activities. As shown therein, the proposed project's criteria pollutant emissions during operations would not exceed the AQIA thresholds. Therefore, because the SDAPCD AQIA thresholds would not be exceeded, the proposed project would not result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment (i.e., O_3, PM_{10}, and $PM_{2.5}$) and impacts resulting from long-term operation of the proposed project would be less than significant.

Table 2-1. Estimated Construction-Period Emissions (pounds per day)

Phase	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_X
Site Preparation/Clearing	3	40	17	9	3	< 1
Grading and Site Finish	5	55	29	10	4	< 1
Maximum Daily Emissions [a]	8	96	46	19	7	< 1
Thresholds	75	250	550	100	55	250
Exceed Threshold?	No	No	No	No	No	No

Source: SDAPCD (2016) Regulation II, Rule 20.2.

[a] Maximum daily emissions are representative of the emissions generated during a peak construction day when activities associated with the Site Preparation/Clearing stage and Grading and Site Finish stage are concurrent.

Note: Daily thresholds are used for assessing impacts from standard construction and operational emissions. Emissions may not sum due to rounding.

Modeling outputs and assumptions included in technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021a).

CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic compounds; SO_X =-sulfur oxides

Table 2-2. Estimated Operational Emissions (pounds per day)

Phase	ROG	NO_X	CO	PM10	PM2.5	SO_X
Area	6	< 1	< 1	< 1	< 1	< 1
Energy	< 1	< 1	< 1	< 1	< 1	< 1
Mobile	< 1	< 1	< 1	< 1	< 1	< 1
Off-road	2	15	18	1	1	< 1
Maximum Daily Emissions	8	15	18	1	1	< 1
Thresholds	75	250	550	100	55	250
Exceed Threshold?	No	No	No	No	No	No

Source: SDAPCD (2016) Regulation II, Rule 20.2.

Note: Daily thresholds are used for assessing impacts from standard construction and operational emissions. Emissions may not sum due to rounding.

CO = carbon monoxide; NO_X = nitrogen oxides; ROG = reactive organic compounds; SO_X =-sulfur oxides

In the California Supreme Court's decision in *Sierra Club v. County of Fresno*, 6 Cal. 5th 502 (2018) (hereafter referred to as the Friant Ranch Decision), the court determined that under conditions when significant and unavoidable exceedances of criteria pollutant thresholds occur, environmental documents must attempt to connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis. As discussed above, the proposed project's construction and operational emissions would not exceed SDAPCD's AQIA thresholds. Accordingly, the proposed project's air quality impacts would be less than significant, and no analysis of human health impacts is required.

c) **Less-than-Significant Impact.** Diesel particulate matter (DPM), which is classified as a carcinogenic toxic air contaminant by CARB, is the primary pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered construction equipment as well as heavy-duty truck movement and hauling both on and off site would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. Other localized pollutants of concern to human health are fugitive dust (particulate matter) and carbon monoxide (CO). Dust can be an irritant and cause watering eyes or irritation to the lungs, nose, and throat. Breathing CO can cause headaches, dizziness, vomiting, and nausea, and long-term exposure has been linked to increased risk of heart disease. According to SDAPCD, sensitive receptors include facilities that generally house people that may experience adverse effects from unhealthful concentrations of air pollutants (e.g., schools, hospitals, jails, clinics, elderly housing, and residences). The closest sensitive receptors to the project site are High Tech High, Middle, and Elementary Chula Vista, which are 0.9 mile north of the northern boundary of the Mitigation Bank expansion area.

The proposed project's construction activities would be short term and are expected to occur for less than a 1-year period, which is much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. Also, construction activities would be sporadic, transitory, and short term in nature. Once construction activities have ceased, so too will the source emissions. Diesel activity occurring on site would be short term and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations. Long-term maintenance activities associated with project operations would be limited to periodic vehicle trips and minimal onsite fuel combustion. Onsite truck idling would be limited to a maximum of 5 minutes per truck, consistent with CARB's Heavy Duty Idling Reduction Program. Additionally, adherence to SDAPCD Rules, particularly Rule 55 (Fugitive Dust Control), would limit emissions that could affect nearby receptors. Therefore, the potential human health impact from exposure to DPM and localized fugitive dust is considered to be minimal. In addition, the proposed project would not create congestion at nearby roadways or intersections, so the exposure to elevated CO concentrations is considered minimal. Overall, implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. This impact would be less than significant.

d) **Less-than-Significant Impact.** According to CARB's *Air Quality and Land Use Handbook*, land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, and manufacturing (CARB 2005). Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, and schools, warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

Potential sources of odor during construction and operational activities include diesel exhaust. Given the distance of project construction and operational activities from existing receptors and that such odor emissions would be temporary in nature, no violations of SDAPCD Rule 51 are anticipated. Construction and operational odor impacts would be limited to the circulation routes, parking areas, and areas immediately adjacent to the Mitigation Bank area, and would not change existing odor conditions substantially. Although such brief exhaust odors may be considered unpleasant, they would not affect a substantial number of people, and any odor-related impacts would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	**X**	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** Project-related greenhouse gas (GHG) emissions would be generated during short-term construction activities as well as long-term project operations as a result of equipment use and vehicle commute trips. GHG emissions are fundamentally a cumulative impact issue. No single development project would result in sufficient GHG emissions to affect global warming or climate change in isolation. Instead, it is the cumulative global emissions that are of a sufficient scale to change the radiative balance of the atmosphere. As such, project-level effects in isolation would be less than significant and the analysis below is a cumulative impact analysis.

The CEQA Guidelines do not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). Several agencies throughout the state, including multiple air districts, have drafted and/or adopted varying threshold approaches and guidelines for assessing the significance of GHG emissions in CEQA documents. However, none of these are binding; they are only recommendations for consideration by CEQA lead agencies. Currently, neither SDAPCD nor the City have adopted project-level numerical thresholds for GHG emissions. At the local level, the City has been implementing its most recent Climate Action Plan (CAP) that was adopted by the City Council on September 26, 2017. However, the City's CAP does not yet qualify for "tiering" per Section 15183.5 of the State CEQA Guidelines, as the CAP has not undergone CEQA review, and is not legally binding. Therefore, this analysis utilizes the 900-metric-ton-carbon-dioxide-equivalent ($MTCO_2e$) screening level threshold from the California Air Pollution Control Officers Association 2008 *CEQA & Climate Change* White Paper (California Air Pollution Control Officers Association 2008). This numerical bright-line threshold was recommended by the California Air Pollution Control Officers Association to identify the point at which additional analysis and mitigation of project-related GHG emission impacts is necessary. Projects that generate GHG emissions below this 900 $MTCO_2e$ level are sufficiently small enough that the incremental contribution of GHGs would not be cumulatively considerable, while projects that generate emissions above this 900 $MTCO_2e$ level would require further analysis and identification of project design features or potential mitigation measures to reduce GHG emissions. This 900 $MTCO_2e$ screening level, which is based on emission sources associated with typical land use development projects (e.g., on-road passenger vehicle and trucks, electricity consumption), was previously recommended by the County of San Diego. In light of the numerous numerical thresholds that have been recommended by agencies in the state, including multiple air districts, the 900 $MTCO_2e$ screening level currently remains as the lowest numerical GHG threshold developed in the state. As such, the use of this threshold for the proposed project serves as a reasonable worst-case and conservative criterion.

Table 2-3 shows the estimates of construction-period GHG emissions that would result from the proposed project and Table 2-4 shows annual GHG emissions from long-term operations. As discussed above in threshold III.b above, the maximum number of pieces of equipment used per day for long-term operations was modeled to capture a peak day of operational emissions. Given that it is unlikely that the peak number of pieces of equipment would be used every day, GHG emissions from long-term project operations would be lower than identified in Table 2-4, but such estimates provide a reasonable worst-case scenario to analyze the proposed project's GHG emissions. Consistent with established protocols for GHG emission analyses, the proposed project's construction-related GHG emissions are amortized over a 30-year period and added to the proposed project's total operational GHG emissions. As shown in Table 2-4, the total annual GHG emissions generated by the proposed project would be 343 $MTCO_2e$. This is far below the 900 $MTCO_2e$ numerical screening criteria. As such, the proposed project would not generate GHG emissions to a level that would be cumulatively considerable, and impacts would be less than significant.

Table 2-3. Estimated Construction Greenhouse Gas Emission Estimates (metric tons)

Construction Stage	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Site Preparation/Clearing	130	< 0.1	< 0.1	132
Grading and Site Finish	189	< 0.1	< 0.1	192
Total Construction Emissions	319	< 0.1	< 0.1	324
Amortized Construction (averaged over a 30-year period)	-	-	-	11

Modeling outputs and assumptions included in technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Projec*t (ICF 2021a).
CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide

Table 2-4. Estimated Annual GHG Emissions from Project Operations (metric tons per year)

Operational Element	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Mobile	0.1	< 0.1	< 0.1	0.1
Off-road	331	< 0.1	< 0.1	332
Total Annual Operational Emissions	331	< 0.1	< 0.1	332
Amortized Construction (averaged over a 30-year period)	-	-	-	11
Total Operational Emissions	-	-	-	343

Modeling outputs and assumptions included in technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021a).
CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide

b) **Less-than-Significant Impact.** At the local level, the City's most recent CAP was adopted by the City Council in September 2017. The CAP demonstrates how the City would achieve GHG emissions reductions in line with state legislation. However, the proposed project represents a project type not specifically contemplated in the CAP's implementation actions. Therefore, the CAP has limited applicability to the proposed project. Nevertheless, the proposed project's consistency with the CAP is discussed in Table 2-5. As shown therein, the proposed project would not conflict with the CAP.

Table 2-5. Consistency of Proposed Project with the City of Chula Vista's Climate Action Plan Objectives and Strategies

Objective/Strategy	Proposed Project Consistency Analysis
Objective 1.1 – Water Education & Enforcement Performance Metric: Directly engage 8% of households on water conservation per year Strategy 1. Expand education and enforcement targeting landscape water waste.	This policy is a City program that requires no action at the project level. No water use is proposed, and therefore the proposed project would not conflict with this objective.
Objective 1.2 – Water Efficiency Upgrades Performance Metric: Retrofit 1,000 homes per year with water-efficient devices (including landscaping) Strategy 1. Update the City's landscaping regulations to promote more water-wise designs Strategy 2. Require water-savings retrofits in existing buildings at a specific point in time.	This policy is a City program that requires no action at the project level. No water use is proposed, and therefore the proposed project would not conflict with this objective.
Objective 1.3 – Water Reuse Plan & System Installations Performance Metric: Install 3,750 water reuse systems citywide by 2020 (6,000 by 2035) Strategy 1. Develop a Water Reuse Framework for storm water, graywater, and onsite water reclamation. Strategy 2. Facilitate simple graywater systems for Laundry-to-Landscape applications. Strategy 3. Streamline complex graywater systems permit review.	This policy is a City program that requires no action at the project level. No water use is proposed, and therefore the proposed project would not conflict with this objective.
Objective 2.1 – Zero Waste Plan Performance Metric: Divert 75% of solid waste from the landfill by 2020 (90% by 2035) Strategy 1. Develop a Zero Waste Plan to supplement statewide green waste, recycling, and plastic bag ban efforts.	This policy is a City program that requires no action at the project level. Waste generation from the proposed project would be minimal, and therefore the proposed project would not conflict with this objective.
Objective 3.1 – Energy Education & Enforcement Performance Metric: Engage 8% of households and businesses on energy conservation per year Strategy 1. Expand education targeting key community segments and facilitate energy performance disclosure. Strategy 2. Leverage the building inspection process to deter unpermitted, low-performing energy improvements.	This policy is a City program that requires no action at the project level. No electricity use is proposed, and therefore the proposed project would not conflict with this objective.
Objective 3.2 – Clean Energy Sources Performance Metric: Provide more than 50% of electricity from renewable sources by 2020 (100% by 2035) Strategy 1. Incorporate solar into all new buildings to help transition to Zero Net Energy design. Strategy 2. Provide more grid-delivered clean energy (up to 100%) through Community Choice Aggregation or other mechanism.	This policy is a City program that requires no action at the project level. No electricity use is proposed, and therefore the proposed project would not conflict with this objective.
Objective 3.3 – Energy Efficiency Upgrades Performance Metric: Retrofit 13% of single family & multifamily homes and 10% of commercial square feet to save 25% by 2020 (20% of both with 50% savings by 2035) Strategy 1. Reauthorize the City's "cool roof" standards and expand to include re-roofs and western areas.	This policy is a City program that requires no action at the project level. No electricity use is proposed, and therefore the proposed project would not conflict with this objective.

Objective/Strategy	Proposed Project Consistency Analysis
Strategy 2. Facilitate more energy upgrades in the community through incentives, permit streamlining (where possible), and education. Strategy 3. Require energy-savings retrofits in existing buildings at a specific point in time.	
Objective 3.4 – Robust Urban Forests Performance Metric: Expand urban tree canopy cover to 15% by 2020 (25% by 2035) Strategy 4. Plant more shade trees to save energy, address heat island issues, and improve air quality.	This policy is a City program that requires no action at the project level. The proposed project would involve maintenance of a natural area within the City's boundaries, and therefore would not conflict with this objective.

Source: City of Chula Vista 2017.

At the state level, the most applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions is CARB's 2017 Climate Change Scoping Plan (Scoping Plan), which outlines the framework and strategies the state will take to achieve its emission reduction targets. Table 2-6 provides a discussion of the proposed project's consistency with the Scoping Plan. As shown therein, nearly all policies are state programs that require no action at the local or project level. Therefore, the proposed project would not conflict with implementation of the Scoping Plan. Because the proposed project would not conflict with either the City's CAP or CARB's Scoping Plan, impacts would be less than significant.

Table 2-6. Consistency of Proposed Project with Climate Change Scoping Plan[a] Policies

Policy	Primary Objective	Proposed Project Consistency Analysis
Senate Bill 350	Reduce GHG emissions in the electricity sector through the implementation of the 50 percent Renewables Portfolio Standard, doubling of energy savings, and other actions as appropriate to achieve GHG emissions reductions planning targets in the Integrated Resource Plan process.	This policy is a state program that requires no action at the local or project level. No electricity use is proposed, and therefore the proposed project would not conflict with this statewide policy.
Low Carbon Fuel Standard	Transition to cleaner/less-polluting fuels that have a lower carbon footprint.	This policy is a state program that requires no action at the local or project level. Project construction and maintenance vehicles and equipment would use fuels that are commercially available as a result of this policy. Therefore, the proposed project would not conflict with this policy.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario)	Reduce GHGs and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled.	This policy is a state program that requires no action at the local or project level. No substantial long-term trip generation would result from the proposed project. Therefore, the proposed project would not conflict with this policy.
Senate Bill 1383	Approve and Implement Short-Lived Climate Pollutant strategy to reduce highly potent GHGs.	This policy is a state program that requires no action at the local or project level and thus does not apply to the proposed project.
California Sustainable Freight Action Plan	Improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system.	This policy is a state program that requires no action at the local or project level and thus does not apply to the proposed project.

Policy	Primary Objective	Proposed Project Consistency Analysis
Post-2020 Cap-and-Trade Program	Reduce GHGs across largest GHG emissions sources.	This policy is a state program that requires no action at the local or project level. The proposed project does not include any facilities that would be regulated under the Post-2020 Cap-and-Trade Program. As such, the proposed project would not conflict with this program.

Source: CARB 2017.
Notes:
[a] The Scoping Plan policies included in this table are those representing the state strategy for meeting the 2030 GHG target of Senate Bill 32.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. 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?	☐	**X**	☐	☐
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 U.S. Fish and Wildlife Service?	☐	**X**	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	**X**	☐	☐
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?	☐	**X**	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	**X**
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	**X**

Comments:

The discussions of project effects on biological resources provided below are based on the analysis of project impacts included in technical attachment *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report 2021 Update* (BRR), dated March 2021 (ICF 2021b). Refer to the BRR for a detailed discussion of the environmental setting, including surveys conducted of sensitive biological resources and impact analysis of biological resources.

The project area is defined as the Mitigation Bank Expansion Area and the Trails Work Areas; refer to the BRR's list of defined terms for full descriptions of the project elements and to Figure 3a of the BRR's Appendix A for a map of the project area and project elements. Refer to the BRR Section 1.2.3., *Restoration Activities*, for impact area definitions according to restoration activity level (e.g., "heavy," "moderate," and "low" activity impact level areas) and to Figure 5b of the BRR's Appendix A for visual

representation of these areas. Heavy restoration activities would include restoration of the mainstem Otay River and floodplain areas, restoration of tributaries, depressional and vernal pool establishment, and soil placement for slope repair. Moderate restoration activities would include dethatching, weeding, grow/kill cycles, and planting. Low restoration activities would include upland enhancement and weeding. Other heavy activities would include the construction of trails and crossings. Other moderate activities would include trail reclamation.

Figure 5b of the BRR's Appendix A shows the areas of permanent and temporary impacts. Permanent impacts would occur from the creation of new trails and from channel armoring on at least two existing stream crossings. All other impacts from habitat restoration and establishment/re-establishment are considered temporary because the proposed project is a restoration activity, and any affected area would be restored with native vegetation, ultimately leading to a net gain in viable habitat and native plant communities as well as overall improvement in river conditions.

Vegetation mapping and focused surveys for special-status species and jurisdictional resources were conducted within the portions of the project area in 2018 and 2019. Refer to BRR Section 1.4.2, *Field Surveys and Wetland Delineation*, for a description of the focused biological resources surveys conducted, methodology, and timing. See Figure 3B in the BRR's Appendix A for the various survey areas' coverages. In summary, the following biological resources surveys were conducted within the project area:

- Vegetation mapping
- Special-status plant surveys
- Special-status wildlife surveys: listed fairy shrimp surveys, coastal California gnatcatcher surveys, least Bell's vireo surveys, Quino checkerspot butterfly habitat assessments, and western burrowing owl surveys
- Jurisdictional delineation

The mitigation measures identified in the analysis that follows were developed in the BRR in response to the evaluation of potential project impacts on biological resources; the numbering of the mitigation measures is consistent with the order they are discussed in the BRR.

a) **Less than Significant with Mitigation Incorporated**. The proposed project has the potential to impact species listed as federally or state endangered or threatened, non-listed special-status species, and their habitats. The proposed project would ultimately improve and enhance sensitive native and naturalized habitat function and suitability for native, sensitive, and special-status species through restoration and enhancement activities. As explained below, impacts on federally and state-listed plant and animal species, on non-listed special-status plant and wildlife species, and on their habitats are considered less than significant with mitigation incorporated.

Listed Special-Status Plants

No listed plant species have been documented within the heavy impact areas associated with the proposed project that are subject to grading. Five federally or state-listed as threatened or endangered plant species have moderate to high potential to occur within the project area: Otay mesa mint (high potential to occur), Otay tarplant (high potential to occur and adjacent to project area), San Diego ambrosia (moderate), San Diego button-celery (high), and California Orcutt grass (moderate). If present within the project area, these species have the potential to be impacted by direct removal of individuals during grading activities or increased trampling from restoration personnel during restoration and enhancement activities. Absent mitigation, these impacts would be significant if these species were present.

Spreading navarretia, federally listed as threatened, occurs in a localized area within the southeastern portion of the proposed project within the upland restoration area (a low impact activity level area). As described in the BRR, the location would be confirmed, flagged, and avoided during project activities (weeding and planting). No spreading navarretia individuals occur within areas proposed for permanent impacts or grading. As a result, no direct impacts on this species would occur.

Otay tarplant, federally listed as threatened and state-listed as endangered, occurs outside of but adjacent to the proposed project boundary and would not be directly impacted as a result of project implementation. Specifically, Otay tarplant occurs adjacent to an access route that would be part of the trail system work (e.g., trail widening and grading for future utility access; see Figure 7 of the BRR's Appendix A). As described in the BRR, flagging would be placed around the known occurrence to ensure avoidance during all project work activities, especially grading.

Impacts on federally listed plant species, such as removal during grading activities or increased trampling from restoration personnel, would be avoided through implementation of **Mitigation Measures BIO-9** and **BIO-11.** Thus, impacts on federally listed plant species would be less than significant with mitigation incorporated.

Listed Special-Status Wildlife

Five species listed as federally or state endangered or threatened have been observed within the project area during focused species surveys: San Diego fairy shrimp, Quino checkerspot butterfly, western yellow-billed cuckoo (nesting),[1] least Bell's vireo (nesting), and coastal California gnatcatcher.

A small amount of permanent impacts on suitable and occupied habitats for San Diego Fairy shrimp, Quino checkerspot butterfly, least Bell's vireo, and coastal California gnatcatcher would occur due to habitat removal for trail creation and armoring of existing stream crossings, which could result in direct mortality of individuals. Within temporary impact areas subject to grading activities, vegetation removal could result in direct mortality of individuals, particularly eggs or chicks present within that vegetation. Filling of road ruts that contain San Diego fairy shrimp could also result in mortality if that filling occurred during the wet season when San Diego fairy shrimp individuals were present (i.e., not in cyst form). A direct loss of individuals of these federally listed species would be significant, absent mitigation.

Implementation of **Mitigation Measures BIO-2** through **BIO-6** and **BIO-8** through **BIO-10** would ensure avoidance of known locations of habitats occupied by federally listed species to the maximum extent practicable. Overall, suitable habitat for federally listed species within the project area would ultimately increase in quality as a result of restoration and enhancement activities because areas would be managed against nonnative plant species, host plants would be further seeded, and sensitive habitats would be restored and enhanced. Furthermore, San Diego fairy shrimp, Quino checkerspot butterfly, least Bell's vireo, and coastal California gnatcatcher are Covered Species in the City of Chula Vista MSCP Subarea Plan, and the proposed project is a Covered Project under that plan (City of Chula Vista 2003b).

Once the trail alignments have been finalized to further avoid impacts on these species, the applicant would enter into consultation with the U.S. Fish and Wildlife Service (USFWS) to document how the proposed project is consistent with the City of Chula Vista MSCP Subarea Plan, as described in **Mitigation Measure BIO-1**. As a result of the consultation process, the USFWS would provide a Biological Opinion on the proposed project's potential effects on these species. The applicant would adhere to any conservation measures provided by the USFWS in their Biological Opinion as required by law. Implementation of these mitigation measures and anticipated conservation measures from the Biological Opinion would reduce impacts on federally listed species to less than significant with mitigation incorporated.

Non-Listed Special-Status Plant Species

Five California Rare Plant Rank (CRPR) 1B or 2B, County Group A or B plant species, or narrow endemic plant species under the City of Chula Vista MSCP Subarea Plan are present within the project area inside of the heavy restoration activity areas (i.e., permanent impact area or temporary impact areas where heavy grading will occur; refer to the BRR Section 1.3.3 for activity level definitions):

[1] Western yellow-billed cuckoo is considered protected while nesting. The individual observed on site was a transient foraging migrant, and the site does not have suitable habitat to support nesting cuckoo.

singlewhorl burrobrush (CRPR 2B.2), San Diego barrel cactus (CRPR 2B.1, County List B, City of Chula Vista MSCP), Tecate cypress (CRPR 1B.1, County List A, City of Chula Vista MSCP), San Diego marsh-elder (CRPR 2B.2, County List B), and Munz's sage (CRPR 2B.2, County List B). Six CRPR 3 or 4, County Group C or D special-status plant species or covered plant species under the City of Chula Vista MSCP Subarea Plan are also present within the project area in heavy restoration activity areas: San Diego County viguiera (CRPR 4.2, County List D), Palmer's grapplinghook (CRPR 4.2, County List D), graceful tarplant (CRPR 4.2, County List D), southwestern spiny rush (CRPR 4.2, County List D), ashy spike-moss (CRPR 4.1, County List D), and San Diego County needle grass (CRPR 4.2, County List D).

Permanent impacts, such as direct removal of individual plants, would not result in a regional long-term decline in any of these species, especially considering the conservation objectives and preserve assembly occurring within the larger Chula Vista and Otay area as a result of the County of San Diego MSCP. As a result, these impacts would be less than significant. Plants that only occur within restoration activities areas subject to "moderate" and "low" restoration activity levels but not within areas subject to new trail creation or grading would not experience significant mortality, if any, during restoration activities. As a result, impacts on these species would not result in a regional long-term decline of these species, and would be less than significant.

Impacts from trail creation and restoration activities' grading would be avoided further through implementation of **Mitigation Measure BIO-9**, which includes rare plant salvage and avoidance measures (e.g., exclusionary flagging and fencing, and salvage and relocation). Implementation of **Mitigation Measure BIO-11** would ensure persistence of viable populations of these species within the project area by limiting trespassing into the restoration areas and special-status plant populations. Additionally, as described in the BRR, the project's footprint and trail alignment would be further refined in the design finalization and permitting process, which is anticipated to further reduce impacts on special-status species through avoidance. For example, the Tecate cypress within the current grading footprint may be required to be avoided entirely in the final design of the grading footprint. The proposed project is a restoration project that will ultimately improve and enhance habitat and populations of these species within the project area. Therefore, impacts on these special-status plant species would be less than significant.

Narrow Endemic Species

Narrow endemic species, as identified in the City of Chula Vista MSCP Subarea Plan, that are present or have a moderate to high potential to occur within the project area include: Otay tarplant (high potential to occur), San Diego ambrosia (moderate potential to occur), Orcutt's brodiaea (high potential to occur), snake cholla (high potential to occur), and variegated dudleya (present).

A very small amount of permanent impacts on natural habitats that can support narrow endemic species may occur due to the construction of new trails and armoring of existing stream crossings; however, the project would primarily result in temporary impacts on natural habitats and narrow endemic species during restoration and enhancement activities. All narrow endemic plant species would be avoided to the maximum extent practicable. Under the current project design, no known narrow endemic plant species are within the area of permanent or temporary grading impacts, and no direct mortality is anticipated. Fencing or staking would be provided around narrow endemic species, where necessary within the project area, and every effort would be made to completely avoid trampling or impacting narrow endemic species. If individuals must be removed under future design limits, less than 5 percent of the population of a narrow endemic plant species within the project area would be removed, in accordance with the provisions in the MSCP. Implementation of **Mitigation Measures BIO-2, BIO-3, BIO-4, BIO-5, BIO-8,** and **BIO-9** would further minimize temporary impacts and avoid direct impacts on narrow endemic species. Overall, the proposed project would increase habitat quantity and quality for narrow endemic species. Therefore, impacts on narrow endemic species would be less than significant.

Non-Listed Special-Status Wildlife Species

In summary, 40 non-listed special-status species are known to be present or have a moderate to high potential to occur within the project area, including species considered Covered Species under the City of Chula Vista MSCP Subarea Plan. A small amount of potential habitat for special-status wildlife species is considered as being permanently impacted by the proposed project. Special-status wildlife habitat would be temporarily impacted by the project; grading and restoration activities would result in the temporary loss of vegetation that could result in direct and indirect impacts on special-status wildlife species. These temporary impacts include removal of potentially suitable habitat for sensitive species prior to revegetation and restoration completion and indirect impacts due to construction-related disturbance (e.g., increased human activity, noise, dust). Direct loss of individuals and their habitat could occur in the areas of permanent and temporary impacts such as where grading and vegetation removal would occur. Direct loss of special-status wildlife species and disturbance resulting in direct mortality of individual special-status wildlife would be significant impacts absent mitigation.

Direct impacts as a result of grading and vegetation removal activities would be minimized or avoided to the maximum extent practicable through implementation of mitigation measures. Specifically, grading and ground disturbance activities would be conducted outside of the nesting season, when feasible, to avoid direct impacts on nesting birds, including those protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (**Mitigation Measure BIO-6**). Preconstruction burrowing owl surveys would be completed to avoid impacts on burrowing owl (**Mitigation Measure BIO-7**), which are discussed further below. Therefore, no special-status bird nests would be directly impacted. Additionally, implementation of **Mitigation Measure BIO-12** will minimize direct impacts on western spadefoot toads.

Indirect impacts on special-status wildlife would be minimized or avoided through implementation of **Mitigation Measures BIO-2, BIO-3, BIO-5,** and **BIO-11**. The proposed project is a restoration project that would ultimately improve and enhance function of native habitats that are suitable for special-status wildlife species. In addition, the proposed project is a Covered Project under the City of Chula Vista MSCP and many of these special-status wildlife species are Covered Species that would directly benefit from the proposed project in the long term. Therefore, impacts on special-status wildlife species would be less than significant with mitigation incorporated.

Designated Critical Habitat

Otay Tarplant

Activities associated with grading, trails creation and reclamation, and upland enhancement within the project area would impact approximately 140.61 acres of designated Otay tarplant critical habitat. Approximately 3.6 acres of Otay tarplant critical habitat would be permanently impacted due to the creation of new trails. However, these permanent impacts would occur primarily within existing access roads that do not provide the physical and biological features (PBFs)[2] necessary to support Otay tarplant. Only approximately 1.94 acres of critical habitat that has PBFs for Otay tarplant (Diegan coastal sage scrub and non-native grasslands) would be permanently affected by construction of the trails.

Revegetation, rehabilitation, and enhancement activities would occur in areas of temporary impact totaling approximately 134.91 acres of Otay tarplant critical habitat. However, only 30.6 acres of the total temporary impact area would be affected by "heavy" temporary work activities involving grading

[2] Physical or biological features essential for the conservation of the species, also called primary constituent elements, are defined in the Designation of Critical Habitat for *Deinandra conjugens* (Otay tarplant); Final Rule (USFWS 2002). All areas designated as critical habitat are within the species' currently known range and contain one or more of these physical or biological features essential for the conservation of the species. The primary constituent elements of *Deinandra conjugens* critical habitat consist of, but are not limited to, soils with a high clay content (generally greater than 25 percent) (or clay intrusions or lenses) that are associated with grasslands, open coastal sage scrub, or maritime succulent scrub communities between 25 meters (80 feet) and 300 meters (1,000 feet) in elevation.

prior to restoration that could temporarily remove suitable Otay tarplant habitat. Within these heavy grading areas, only approximately 49.08 acres contain PBFs for Otay tarplant because they are within coastal sage scrub and non-native grassland vegetation communities. Indirect and direct impacts resulting from restoration-related activities could occur on the areas that contain PBFs, such as increased dust deposition, spills of pollutants, and trampling of plants if present. Absent mitigation, permanent and temporary impacts would be significant.

With implementation of **Mitigation Measure BIO-9**, no Otay tarplant individuals potentially occurring within critical habitat are anticipated to be impacted by either permanent impacts or heavy grading in temporary impact areas. Implementation of **Mitigation Measures BIO-2** through **BIO-5** would ensure indirect and direct impacts on Otay tarplant critical habitat that could result during restoration-related activities are minimized to the maximum extent practicable. Furthermore, upland enhancement and trail reclamation, as well as implementation of **Mitigation Measure BIO-11**, would likely result in improved conditions of critical habitat for Otay tarplant in the temporary impact area and an overall positive effect of improved quality of critical habitat is anticipated within Otay tarplant critical habitat. Therefore, impacts on Otay tarplant critical habitat would be less than significant with mitigation incorporated.

Spreading Navarretia, Quino Checkerspot Butterfly, and San Diego Fairy Shrimp

There is no designated critical habitat for spreading navarretia, Quino checkerspot butterfly, and San Diego fairy shrimp within the project area; however, there is critical habitat for these species located adjacent to the project area. No activities associated with the proposed project would impact designated critical habitat for spreading navarretia, Quino checkerspot butterfly, or San Diego fairy shrimp. Thus, no impact would occur on designated critical habitat of spreading navarretia, Quino checkerspot butterfly, or San Diego fairy shrimp.

b) **Less than Significant with Mitigation Incorporated**. Project-related construction, grading, clearing, or other activities would temporarily and permanently remove sensitive native or naturalized habitat within the project area. As shown in the BRR technical attachment Section 2.2.1 (ICF 2021b), permanent impacts would occur on sensitive native and naturalized habitats. Approximately 2.96 acres of Tier I, II, and III habitats and 0.19 acre of riparian and wetland habitats would be permanently impacted by the proposed project.[3] Temporary impacts could occur on up to 166.21 acres of Tier I, II, or III habitats (67.06 acres of which would be subject to grading during restoration activities, with the remainder associated with disturbance during enhancement activities such as weeding and invasive species treat). Temporary impacts would also occur on up to 40.97 acres of riparian and wetland habitats (35.39 acres of which would be subject to grading during channel and floodplain restoration activities, with the remainder associated with disturbance during enhancement activities).

The proposed project includes a wetland buffer adequate to protect the functions and values of existing wetlands; no permanent structures would be built within or near wetlands with the exception of armoring of existing low-flow stream crossings. One of the primary goals of the proposed project is to enhance the functions and values of the wetlands on site. Any work performed would only have temporary impacts on wetlands, and the result of the work would include an overall net gain in functions and values of the existing wetlands. The proposed project would ultimately improve and enhance sensitive native and naturalized habitat function, including wetland and riparian habitats, and suitability for native, sensitive, and special-status species through restoration and enhancement activities.

[3] Under the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003b), upland vegetation communities, defined according to the Holland classification system, are grouped into habitat tiers, Tier I through Tier IV, based on species composition and rarity within the region. Tier I (rare uplands), Tier II (Uncommon Uplands), and Tier III (common uplands) are considered to be sensitive habitats. Tier IV habitats (other uplands) consist of disturbed and developed habitats and are not considered sensitive. In addition, all wetland and riparian areas are considered sensitive under the Wetlands Protection Program described in Section 5.2.4 of the City of Chula Vista MSCP Subarea Plan.

The proposed project was designed to prevent long-term indirect impacts on natural habitats within the project area by closing specific trail segments and minimizing trespass through strategically placed fencing adjacent to native habitats. The proposed project involves construction activities that would be active for a short period and would not introduce unnecessary human access or domestic animals. Overall, the proposed project is designed as a restoration and enhancement project to improve natural habitats within the project area. The proposed project would re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. This would serve to improve hydrologic conditions, significantly reduce the upstream invasive species seed sources, preserve connectivity between adjacent areas of preserved land and natural habitats, and preserve wildlife movement corridors, and would result in a net gain in functions and services following restoration activities.

Implementation of **Mitigation Measures BIO-2** through **BIO-5** and **BIO-11** would avoid and minimize impacts on sensitive native and naturalized habitats to the maximum extent practicable. The proposed project would apply for and comply with all regulatory aquatic permits for impacts on jurisdictional riparian or wetland habitats per **Mitigation Measure BIO-1**. Therefore, impacts on sensitive native and naturalized habitats, including wetland and riparian habitats, would be less than significant with mitigation incorporated.

c) **Less than Significant with Mitigation Incorporated**. The proposed project would cause temporary and permanent impacts on wetlands and jurisdictional waters as defined by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW). Grading (for both trail construction and restoration activity purposes), vegetation removal, reconstruction of road (trail) crossings, placement of fill (for crossing armoring), and limited dewatering activities (if a high groundwater table is encountered) could occur within these areas.

As mentioned above, the ultimate goal of the proposed project is to restore the Otay River and surrounding communities to an ecologically functional, self-sustaining wetland that is resilient to a range of natural disturbances (e.g., drought, flood). Temporary impacts associated with the proposed project are focused on two restoration activities: habitat restoration (habitat enhancement and rehabilitation) and grading (for habitat establishment and reestablishment). A relatively small amount of permanent impacts would occur due to creation of new trails (including grading) and from work on at least two existing stream crossings (i.e., channel armoring). All habitat restoration and establishment/reestablishment impacts are considered temporary because the proposed project is a restoration project, and any impacts would be restored with native vegetation and ultimately lead to a net gain in viable habitat, native plant communities, and overall improved river conditions. Habitat restoration would involve invasive vegetation removal followed by re-establishment of native vegetation communities. Enhancement and rehabilitation activities would generate little to no ground disturbance, and invasive plant species removal would target select species of plants in order to minimize potential impacts on native and sensitive species. Grading activities would involve considerable ground disturbance, with the ultimate goal of redefining the channel and other hydrologic features along the Otay River.

Wetlands and Non-Wetland Waters of the U.S.

As described in the BRR technical attachment Section 2.2.5 (ICF 2021b), a total of 232 linear feet/0.10 acre of waters of the U.S. subject to jurisdiction of the USACE and RWQCB (0.09 acre of non-wetland and 0.01 acre of wetland) would be permanently impacted by the proposed project. A total of 3,340 linear feet/31.42 acres of waters of the U.S. (0.95 acre of non-wetland and 30.46 acres of wetland) would be temporarily impacted by the proposed project. Absent mitigation, these impacts would be significant. However, permanent and temporary impacts would be mitigated on site as part of the proposed project (**Mitigation Measure BIO-1**), including rehabilitation and reestablishment of the river channel and its floodplain. In addition to restoring existing wetlands, waterways, and riparian habitat, the proposed project would expand and reestablish both federal wetlands and waterways,

including over 30 acres of waters of the U.S. and more than 3,300 feet of restored channel length. In addition, hydrology would be restored, and invasive vegetation removed, further improving conditions for native species composition, diversity, and abundance throughout the site. Implementation of **Mitigation Measures BIO-2** (biological awareness training for all workers), **BIO-3** (temporary fencing of sensitive resources), **BIO-4** (onsite biological monitor during grading and vegetation removal activities), **BIO-5** (implementation of best management practices [BMPs]), and **BIO-11** (management of public access, trails, and recreation to deter trespassing and protect sensitive resources) would minimize indirect impacts on federal jurisdictional resources. As mentioned above, the proposed project would also apply for and comply with all regulatory permits as appropriate per **Mitigation Measure BIO-1**. Therefore, impacts on federal jurisdictional wetlands and waterways would be less than significant with mitigation incorporated.

Streambed and Riparian Waters of the State

As described in the BRR technical attachment Section 2.2.5 (ICF 2021b), a total of 232 linear feet/0.14 acre of waters of the state subject to jurisdiction of CDFW (232 linear feet/0.13 acre of streambed and 0.02 acre of riparian) would be permanently impacted by the proposed project. A total of 5,554 linear feet/55.98 acres of waters of the state (5,554 linear feet/19.66 acres of streambed and 36.32 acres of riparian) would be temporarily impacted by the proposed project. Absent mitigation, these impacts would be significant.

However, permanent and temporary impacts would be mitigated on site as part of the proposed project (**Mitigation Measure BIO-1**), including rehabilitation and reestablishment of the river channel and its floodplain. In addition to restoring existing wetlands and riparian habitat, the proposed project would also expand and reestablish both federal and state wetlands, including over 55 acres of waters of the state and more than 5,500 feet of restored channel length. In addition, hydrology would be restored, and invasive vegetation removed, further improving conditions for native species composition, diversity, and abundance throughout the site. Implementation of **Mitigation Measures BIO-2** (biological awareness training for all workers), **BIO-3** (temporary fencing of sensitive resources), **BIO-4** (onsite biological monitor during grading and vegetation removal activities), **BIO-5** (implementation of BMPs), **and BIO-11** (management of public access, trails, and recreation to deter trespassing and protect sensitive resources) would minimize indirect impacts on jurisdictional resources. As mentioned above, the proposed project would also apply for and comply with all regulatory aquatic permits as appropriate per **Mitigation Measure BIO-1**. Therefore, impacts on state jurisdictional wetlands and/or riparian habitats would be less than significant with mitigation incorporated.

d) **Less than Significant with Mitigation Incorporated**. The proposed project is within a core habitat area under the City of Chula Vista MSCP Subarea Plan and, as a result, has the potential to temporarily impact a core wildlife area but would not result in the loss of a core wildlife area. The proposed project would not prevent wildlife access to habitat, nor would it create a barrier to wildlife movement. The proposed project would not permanently prevent wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction; overall, the proposed project would improve these characteristics of the site. Wildlife nursery areas within the project area could include vegetation communities that support nesting birds, riparian habitat, wetlands, and stream habitat.

A very small amount of permanent impacts on natural habitats would occur due to conversion to trails, though this would not be expected to negatively impact wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction due to the existing trail networks in the project area. Additionally, some existing trails would be reclaimed, improving these characteristics on the site. Temporary impacts on natural habitats would occur due to implementation of restoration activities in the Otay River channel and floodplain, such as large areas of grading. Temporary disturbances from project activities include increased human activity, noise, and dust, and temporary removal of natural habitats during restoration activities; however, these impacts would be

less than significant in regards to wildlife movement and connectivity because they would be temporary in nature and would not result in the permanent loss of a core wildlife area.

Overall, native plant revegetation, restoration of the river and wetland hydrology, and enhancement of riparian vegetation communities (e.g., invasive species treatment) is expected to improve the habitat quality of the riparian corridor, wetlands, and stream habitat, which would benefit wildlife movement and wildlife corridor areas. Therefore, impacts on wildlife corridors and wildlife movement resulting from grading and vegetation removal would be less than significant. The proposed project would not impact visual continuity within a wildlife movement corridor. No permanent buildings or elevated human-made structures would be built within the project area. The only permanent structures to be built would be reinforced at-grade stream crossings and fencing/signage to prevent human trespass into sensitive resource areas. The proposed project also does not propose to permanently increase noise or nighttime lighting within a wildlife corridor. No nighttime lighting would be employed during construction activities for the restoration and enhancement project. However, temporary indirect impacts, like increased noise, could occur due to construction activities within wildlife habitats, including corridor habitats along the Otay River channel. Absent mitigation, this would be a significant impact.

However, implementation of **Mitigation Measures BIO-2** through **BIO-5** and **BIO-11** would minimize impacts on core wildlife areas, edge of open space or other natural areas, connectivity habitat, and wildlife corridors. All personnel would undergo comprehensive environmental training (**Mitigation Measure BIO-2**), fencing would be installed during construction to focus work areas and illustrate avoidance areas (**Mitigation Measure BIO-3**), a qualified biological monitor would be on site to ensure minimization of impacts on biological resources during vegetation removal and grading activities (**Mitigation Measure BIO-4**), BMPs would be implemented throughout the project work area to minimize impacts on adjacent resources (**Mitigation Measure BIO-5**), and signage and wood split-rail fencing would be installed to limit trespassing and protect sensitive biological resources (**Mitigation Measure BIO-11**). The proposed project is a restoration project that would provide a net improvement and enhancement of habitat for wildlife species and the functions and values of these areas, consistent with the goals and objectives of the City of Chula Vista MSCP Subarea Plan. Therefore, impacts on the edge of open space or other natural areas, connectivity habitat, and wildlife corridors would be less than significant with mitigation incorporated.

e) **No Impact**. As described in the BRR technical attachment Section 1.6.3 (ICF 2021b), there are multiple local environmental regulations applicable to the proposed project, including: the City of Chula Vista General Plan, the City of Chula Vista Greenbelt Master Plan, the City of Chula Vista MSCP Subarea Plan, the Otay Ranch General Development Plan/Otay Subregional Plan and Otay Ranch Resource Management Plan, the Otay River Watershed Management Plan and Special Area Management Plan, the Otay Valley Regional Park Concept Plan, and the Otay Regional Park Habitat Restoration Plan & Non-Native Plant Removal Guidelines.

Ultimately, the proposed project would restore and enhance existing preserve land and minimize impacts on sensitive biological resources protected under local policies and ordinances. As described in the Project Description, the proposed project is designed specifically to be consistent with the plans mentioned above. As such, the proposed project would not conflict with local policies or ordinances protecting biological resources that are listed above and no impact would occur.

f) **No Impact.** The project area is within the City of Chula Vista's MSCP Subarea Plan area, which provides a blueprint for conservation of covered species and their associated habitats and forms the basis for federal and state incidental take permits for 86 plant and animal species within the City. Lands that are managed under the MSCP are designated as 100 percent Conservation Areas, where the habitat is protected on site from development and impacts. The City of Chula Vista and the County of San Diego manage these Conservation Areas together (City of Chula Vista 2003b). The 100 percent Conservation Areas are either already in public ownership or will be dedicated to the MSCP Preserve

as part of the development approval process for Covered Projects.[4] Any portions of Covered Projects that are within 100 percent Conservation Areas must be consistent with conditions allowing specific land uses within the MSCP Preserve, as outlined in Chapter 6.0 of the Subarea Plan, and are subject to the narrow endemic species policy (avoidance and minimization) as outlined in Section 5.2.3, and the Wetlands Protection Program as outlined in Section 5.2.4 of the Subarea Plan (City of Chula Vista 2003b). In compliance with the City of Chula Vista MSCP Subarea Plan, and as a condition of issuance of take authorization by the wildlife agencies, the City established a development standard and an implementing ordinance, the Habitat Loss and Incidental Take Ordinance (HLIT). The HILT is consistent with the conservation and mitigation goals of the San Diego County MSCP Subregional Plan and the City of Chula Vista MSCP Subarea Plan, which require impacts on sensitive vegetation communities to be avoided and minimized to the maximum extent practicable.

The proposed project is considered a "Covered Project" under the City of Chula Vista MSCP Subarea Plan. The proposed project is within the 100 percent Conservation Areas of Covered Projects (i.e., within the MSCP Preserve) and is therefore limited to the compatible uses described in Section 6.2 of the Subarea Plan, which include habitat restoration and enhancement activities. The proposed project is also subject to approval by the City and/or Appropriate Managing Entity, as applicable, and the underlying landowner, including obtaining any necessary permits. All activities must be consistent with the Subarea Plan including any conditions associated with RWQCB 401 certifications, USACE 404 permits, CDFW 1600 permits, or other resource conservation permits. In addition, reasonable access would be provided to the wildlife agencies (CDFW and USWFS) for the purposes of monitoring species and habitat and evaluating compliance with the take permit. Any take resulting from management and/or scientific activities undertaken pursuant to Section 7.0 of the Subarea Plan, including Section 7.5 – City Planning Component Framework Management Plan – and the Otay Ranch Resource Management Plan (Appendices D, E, and/or F), and/or pursuant to area-specific management directives prepared pursuant to the Subarea Plan, will be authorized by the MSCP take authorizations.

Impacts on natural vegetation, narrow endemic species, and wetlands are addressed in the City of Chula Vista MSCP Subarea Plan with protection requirements and guidelines, as follows:

- **Natural Vegetation Protection:** Natural vegetation is vegetation identified as Tier I, II, or III on Table 5-3 of the City of Chula Vista MSCP Subarea Plan. Impacts on Tier I, II, and III habitats will be mitigated pursuant to HLIT mitigation standards contained in Table 5-3 of the Subarea Plan. To ensure complete assembly of the Preserve as planned by this Subarea Plan, the City will encourage all mitigation to be conducted within the Preserve.
- **Narrow Endemic Species Protection:** Impacts on covered Narrow Endemic Species from planned and future facilities located within the 100 percent Conservation Areas of Covered Projects will be avoided to the maximum extent practicable. Where impacts are demonstrated to be unavoidable, impacts will be limited to 5 percent of the total Narrow Endemic Species population within the project area. Unavoidable impacts on narrow endemics are subject to the equivalency findings, limitations, and provisions of Section 5.2.3.6, Equivalency Findings, of the Subarea Plan. If impacts exceed 5 percent of the covered Narrow Endemic Species population within the project area after comprehensive consideration of avoidance and minimization measures, the City must make a determination of biologically superior preservation consistent with Section 5.2.3.7 of the Subarea Plan. Regardless of the percent of impact on Narrow Endemic Species, the findings of equivalency and wildlife agency concurrence are required.
- **Wetlands Protection Program:** As part of the CEQA review, development projects that contain wetlands will be required to demonstrate that impacts on wetlands have been avoided to the greatest extent

[4] Covered Projects are defined in the City of Chula Vista MSCP Subarea Plan as, "Those projects involving land use development within the City of Chula Vista for which hard-line Preserve boundaries have been established pursuant to the approved Chula Vista Subarea Plan, and where conservation measures consistent with the MSCP Subregional Plan and Chula Vista Subarea Plan have been or will be specified as binding conditions of approval in such Project's plans and approvals. Covered Projects are shown on Figure 5-1 of [the] Subarea Plan. The conditions of coverage for each Covered Project are specified at 7.5.6 of the Subarea Plan" (City of Chula Vista 2003b).

practicable and, where impacts are nonetheless proposed, that such impacts have been minimized. For unavoidable impacts on wetlands within the Development Area, the mitigation ratio will be in accordance with the wetland mitigation ratios identified in the Subarea Plan. The wetlands mitigation ratios provide a standard for each habitat type but may be adjusted depending on both the functions and values of the impacted wetlands and the wetlands mitigation proposed by the project. The City may also consider the wetland habitat type(s) being impacted and utilized for mitigation in establishing whether these standards have been met.

As discussed above, the proposed project would be consistent with the City of Chula Vista MSCP Subarea Plan. Ultimately, the proposed project would restore and enhance existing preserve land and minimize impacts on sensitive resources defined by the City of Chula Vista HLIT Ordinance. The proposed project would directly benefit the primary goals of the City of Chula Vista MSCP Subarea Plan, which are to conserve covered species and their habitat through the conservation of interconnected significant habitat cores and linkages. The proposed project would restore over 1 mile of lost river channel and its floodplain and further enhance existing preserved upland habitats all while minimizing impacts on sensitive resources. Ultimately, the proposed project would improve habitat functions and directly benefit many of the MSCP covered flora and fauna.

As described in thresholds V.a through V.c above, a small amount of permanent impacts on sensitive resources would occur due to the construction of new trails and armoring of existing stream crossings; however, the project would primarily result in temporary impacts on sensitive resources during restoration and enhancement activities. As described above, avoidance and minimization of impacts on sensitive resources would be accomplished to the maximum extent practicable through implementation of **Mitigation Measures BIO-1** through **BIO-12**. Overall, the proposed project would increase habitat quantity and quality for narrow endemic species; restore protected riverine, wetland, and riparian habitats; and enhance and restore Tier I, Tier II, and Tier III upland habitats. Therefore, the proposed project would not conflict with the provisions of the City of Chula Vista MSCP Subarea Plan.

Mitigation:

Mitigation Measure BIO-1: Obtain Approval of All Necessary Resource Agency Permits

Prior to the issuance of a grading permit, the applicant will obtain all necessary resource agency permits and provide copies to the City. All conditions identified within each of the resource agency permits will be implemented in accordance with the permit. The applicable resource agency permits for the proposed project include a Clean Water Act (CWA) Section 404 Permit from the USACE, a CWA Section 401 Water Quality Certification from the RWQCB, a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) from the RWQCB, and a Section 1602 Streambed Alteration Agreement from the CDFW. In addition to the agency permits, a conservation easement or other approved site protection mechanism and endowment would be established per the USACE and Environmental Protection Agency Compensatory Mitigation Rule.

The applicant will also enter into consultation with the USFWS under Section 7 of the Federal Endangered Species Act (FESA) to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan.

Mitigation Measure BIO-2: Biological Awareness Training

Prior to initiation of grading activities, biological resource awareness training will be provided by a qualified biologist to all construction personnel. The training will include information regarding sensitive species with the potential to occur at the site as well as minimization and avoidance measures to reduce potential indirect effects on the habitat. A log of personnel who have completed the training and a copy of the training report/outline (including special-status species photos, targeted invasive

plant species, and descriptions of the measures discussed in the training session) will be maintained at the construction office.

Mitigation Measure BIO-3: Temporary Fencing

Prior to the initiation of grading activities, the limits of grading will be clearly marked by well-installed temporary fencing that is prominently colored. The fence will be installed by the construction contractor and will remain in place during all grading activities.

Mitigation Measure BIO-4: Biological Monitor

A qualified biological monitor will be on site during vegetation clearing activities to ensure that grading activities occur within designated areas. The monitor will also ensure that any special-status species that becomes entrapped within the grading limits is moved away from construction equipment. The biological monitor will also periodically inspect the limits of disturbance fence to ensure that it is in good condition. Any parts of the fence that need attention will be brought to the contractor's attention to be fixed immediately. In the event that a special-status species is located within the grading limits, the biological monitor will temporarily stop construction. Removal of special-status species should be done by a biologist qualified to handle that specific species. If needed, the CDFW will be informally consulted if there is a question on the best manner to safely address a situation with a special-status wildlife species.

Mitigation Measure BIO-5: Best Management Practices

BMPs will be implemented during all grading activities to reduce potential indirect effects on special-status species and habitat. BMPs will include the following.

- All trash will be properly stored and removed from the site daily to prevent attracting wildlife to the construction area.
- Vehicles and equipment will be stored only on pre-designated staging areas in disturbed or developed areas. Fueling should be conducted in a manner that prevents spillage of fuel into the Otay River or into riparian or wetland habitats.
- All maintenance of vehicles and equipment will be conducted in a manner so that oils and other hazardous materials will not discharge into the Otay River, or into riparian habitat areas (including Freshwater and Freshwater Marsh).
- Dust control measures will be implemented to minimize the settling of dust on vegetation.
- Appropriate firefighting equipment (e.g., extinguishers, shovels, water tankers) will be available on the site during all phases of proposed project construction, and appropriate fire prevention measures will be taken to help minimize the chance of human-caused wildfires.
- All construction will be performed between dawn and dusk to the degree feasible to minimize potential indirect effects (e.g., increased depredation) on the species beyond the limits of disturbance.

Mitigation Measure BIO-6: Nesting Bird Avoidance

To avoid any direct impacts on nesting coastal California gnatcatchers, least Bell's vireo, burrowing owl, raptors, or other birds protected under the Migratory Bird Treaty Act (MBTA), removal of any vegetation that may support active nests on within the project area will occur outside of the breeding season when feasible. The breeding season is defined as February 15–September 15. If work must be conducted during the breeding season, including any trail improvement work and upland enhancement, a qualified biologist will conduct nesting bird surveys within the work area and a 500-foot buffer in order to clear the area or locate active nests for avoidance. Adequate avoidance buffers would be established around any active nests in coordination with the wildlife agencies.

Mitigation Measure BIO-7: Preconstruction Burrowing Owl Survey

A biologist will conduct preconstruction take-avoidance surveys for burrowing owls within 150 meters of project areas in suitable habitat no more than 14 days prior to ground-disturbing activities according to methods outlined in the CDFW's 2012 (or most recent) *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Surveys will provide data on whether burrowing owls occupy the site and, if so, whether the owls are actively nesting. If preconstruction take-avoidance surveys detect the presence of any active burrowing owl burrows during breeding season, the burrows will be avoided, and construction activities within 150 meters will be enclosed by construction fencing. Buffer sizes are outlined in CDFW's *Staff Report on Burrowing Owl Mitigation*. Active burrowing owl burrows will be monitored regularly to ensure no adverse effects on the burrowing owls are occurring. Avoidance buffers will remain in place until the nest fledges or fails. If, in consultation with the CDFW, it is determined that project activities require removal of occupied burrows, or burrows potentially occupied by burrowing owls, eviction and burrow closure may be required to ensure against "take" of owl or nests. If eviction is required, it will occur only after consulting with CDFW and CDFW approval. Monitoring will be conducted to ensure take is avoided during eviction procedures. Owls may not be evicted or captured without prior authorization from the CDFW.

Mitigation Measure BIO-8. Vernal Pool and Vernal Pool–Dependent Species Avoidance

The trails alignment described in this report is planned to be further refined in order to avoid all permanent impacts on federally listed branchiopods. To avoid potential fairy shrimp habitat areas and potential impacts on San Diego fairy shrimp and western spadefoot (*Spea hammondii*), ephemeral basins, which were primarily seasonally ponding features such as road ruts and road ponds, were identified by an aquatic resource and fairy shrimp specialist. Prior to any ground disturbing work on site, mapped ephemeral basins will be reevaluated using the finalized spatial extents of trails and all work areas. Vernal pools resources will be differentiated from all other ephemeral basins (e.g., unvegetated road ruts and road ponds) in a refined jurisdictional delineation and the potential for impacts will be re-evaluated using the finalized design and alignments.

In creation of the final extents of trails and work areas, to avoid direct impacts on San Diego fairy shrimp to the maximum extent practicable, road and trail improvements and creation will avoid existing ephemeral basins that are known to support or could potentially support San Diego fairy shrimp by moving the alignment prior to construction, as needed. Final trail alignments and access routes will avoid impacts to the quantity and long-term quality of water flow to the vernal pools supporting listed fairy shrimp. Construction access routes will also be rerouted within the proposed grading footprint to avoid these ponding features to the maximum extent practicable.

During construction and restoration activities, occupied and potentially occupied habitat for San Diego fairy shrimp will be avoided during the wet season to the maximum extent practicable. Prior to ground disturbance, occupied and potentially occupied fairy shrimp habitats will be temporarily fenced and avoided during construction activities to the maximum extent practicable. No staging of any equipment will be allowed within vernal pools, road ruts, or other ephemeral basins occupied by or potentially occupied by San Diego fairy shrimp at any time. A biological monitor will be present during construction activities occurring adjacent to vernal pools and occupied or potentially occupied habitats, and will ensure that vehicles are fueled and maintained at least 100 feet away from such pools.

In addition, where appropriate, the adjacent upland areas surrounding road ruts, vernal pools, and other ephemeral basins will be restored with native species. Wood split-rail fencing, boulders, and signage will be used to inform the public of the sensitivity of the area and deter them from trespassing into the ponded areas and into the river restoration areas. Though the majority of grading will occur within the Otay River floodplain, some grading and staging of equipment will occur in upland areas outside of the floodplain. Grading activities will include vernal pool establishment and enhancement activities, as described in the *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report 2021 Update (*ICF 2021b) at Section 1.3.3. In accordance with **Mitigation Measure BIO-1,** should any pools occupied by or potentially occupied by San Diego fairy shrimp be unable to be avoided in

the final project design, the applicant will consult with the USFWS under Section 7 of FESA to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan. Mitigation of impacts on fairy shrimp will be addressed in the Section 7 consultation process either with onsite pool enhancement/habitat creation or additional avoidance through project re-design prior to construction. Mitigation of impacts on jurisdictional vernal pool habitats will be also be mitigated for, as needed, to obtain CWA Section 401 and 404 permits from the RWQCB and USACE.

Mitigation Measure BIO-9: Special-Status Plant, Quino Host Plant, and Succulent Plant Salvage Plan

During grading and enhancement activities, special-status plants, Quino checkerspot host plants (e.g., dot-seed plantain) and succulent plants (i.e., target plant species) will be avoided where feasible. Prior to ground-disturbing work on site, special-status plant surveys will be conducted to locate target plant species within defined work limits to determine areas to be avoided. Salvage and relocation of target plant species will occur to the extent feasible in accordance with a Plant Salvage Plan. The Plant Salvage Plan will be prepared for the areas where temporary grading and habitat enhancement activities will occur, with an emphasis on collecting and relocating to adjacent areas the target plant species. The plan will be prepared and implemented prior to grading and enhancement activities. The Plant Salvage Plan will include a list of target plant species list, seed collection methods, succulent plant salvage techniques, transplanting methods, and applicable monitoring activities for transplanted individuals, as appropriate.

Mitigation Measure BIO-10: Quino Checkerspot Butterfly Seasonal Avoidance

Due to the presence Quino checkerspot butterfly within the project area and known populations nearby, no removal of any host plant vegetation or any native vegetation within 50 feet of host plants, will occur within the Quino flight season, defined by the USFWS 2014 protocol as the third week of February to the second Saturday in May. Biological monitors will stake locations of host plants for avoidance and will be present during vegetation removal activities within potentially suitable habitat for Quino located outside of the mapped host plant locations and 50 ft buffer to ensure that construction activities do not result in harm to individual Quino checkerspot butterflies that may be foraging or nectaring in the area.

Mitigation Measure BIO-11: Public Access, Trails, and Recreation

To deter trespassing into the restoration site, wood split-rail fencing will be installed to designate road/trail corridors along existing roads and existing unofficial trails that border the restoration site. Other barriers (boulders, brush piles, logs, and plantings) will be placed at strategic locations when protection of sensitive resources is required where fencing is not present. For safety purposes, reflective material will be placed on the wood fencing at specific locations to aid Border Patrol and other night-time users from unintentionally breaking through fencing into sensitive habitat. Additionally, signage and informational kiosks will be installed for educational purposes and to inform the public of the sensitivity of the restoration site and adjacent habitats. All installation activities (signage, fencing, kiosks) and reflective materials will occur outside of the breeding season defined as February 15–September 15 or be in accordance with **Mitigation Measure BIO-6** and require preconstruction surveys.

Mitigation Measure BIO-12: Western Spadefoot Survey and Relocation Plan

Prior to the start of any ground disturbance, construction, or site preparation activities, a qualified biologist will conduct pre-construction surveys for western spadefoot within all portions of the Project site containing suitable breeding habitat. Surveys shall be conducted beginning the first week of January or following the first one-inch or greater rain event and will be repeated as necessary to monitor their development. An estimate of the total larval population for each pond and total density for all impacted ponds will be recorded.

A Western Spadefoot relocation plan will be developed and approved by the Wildlife Agencies prior to ground disturbance. The relocation plan will include:

- Suitable relocation sites a minimum 50-foot from the impact area (a 100- foot buffer is recommended when feasible), of similar or greater size to breeding habitat impacted, and as far away as possible from recreation activities
- Methods for relocation
- Monitoring of relocation sites bimonthly for tadpoles between January 1 and June 1 for five years. Monitoring will include estimated tadpole density at each site and observations of adults as well as for egg masses. Survey data will be provided to the Wildlife Agencies in an annual report summarizing the monitoring results.
- Success criteria, including documented natural reproduction of spadefoot toad in each of the relocation sites, as indicated by the presence of tadpoles in the relocation sites.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section in State CEQA Guidelines § 15064.5?	☐	☐	☐	**X**
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines § 15064.5?	☐	**X**	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	**X**	☐

Comments:

a) **No Impact**. As described in technical attachment *CEQA Cultural Resources Technical Report, Otay River Restoration Project* (ICF 2021c), a records review and cultural resources survey identified no existing structures or buildings within the project area. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in State CEQA Guidelines Section 15064.5.

b) **Less than Significant with Mitigation Incorporated**. As described in technical attachment *CEQA Cultural Resources Technical Report, Otay River Restoration Project* (ICF 2021c), a record search and pedestrian surveys were conducted for the proposed project. Seventeen previously identified resources were recorded within the project site, and the pedestrian survey relocated artifacts associated with 10 of the resources. In addition, one archaeological resource (a prehistoric lithic scatter) and five isolated artifacts were newly identified during the survey efforts.

The pedestrian survey identified artifacts associated with the following cultural resources: P-37-004732, P-37-004728, P-37-004735, P-37-010875, P-37-014566, P-37-014575, P-37-014585, P-37-031366, P-37-032254, and P-37-034106. The pedestrian survey did not relocate artifacts for portions of seven previously documented sites; although, in some instances, the project site intersected with a very small portion of the resource. No attempt was made to relocate portions of sites outside of the project site. The pedestrian survey did not relocate portions of seven resources that intersect with the project site (P-37-004733, P-37-007212, P-37-008649, P-37-014583, P-37-015386, P-37-015391, and P-37-031365).

Of the 10 relocated cultural resources (sites P-37-004732, P-37-004728, P-37-004735, P-37-010875, P-37-014566, P-37-014575, P-37-014585, P-37-031366, P-37-032254, and P-37-034106) and one newly recorded archaeological site, none have been formally evaluated for their eligibility for listing in the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP). In accordance with guidance from the California Office of Historic Preservation, the unevaluated sites must be considered eligible for the CRHR. Therefore, for the purposes of the proposed project, these sites are assumed to be eligible for the CRHR.

Five isolates were newly recorded within the project site. Intensive pedestrian surveys in the vicinity of the isolates revealed no additional artifacts or features. Although it is unknown whether there are buried archaeological deposits associated with these isolates, it is inferred that these isolates would have limited potential for being eligible for listing in the CRHR and/or NRHP because of a paucity of associated artifacts and features. No mitigation measures are necessary for isolates because they lack association and context with other archaeological materials; therefore, they are by definition not eligible for listing in the NRHP or CRHR.

Proposed project activities would include ground disturbance as part of road reclamation, installation of signage, stream recontouring and vegetation removal. Potential impacts on eligible resources could occur from these proposed activities if ground disturbance occurs within cultural resource boundaries. However, in order to reduce or minimize impacts on cultural resources, the proposed project would incorporate **Mitigation Measures CUL-1** through **CUL-3.** As part of the mitigation measures, the proposed project would establish environmentally sensitive areas (ESAs) around areas of artifact concentration and prohibit ground-disturbing activities, thereby avoiding impacts in the ESAs **(Mitigation Measure CUL-1**). In addition to establishing ESAs, areas requiring archaeological and Native American monitoring would be established within an existing cultural resources boundary but in areas where no artifact concentrations were identified during survey efforts. These areas are referred to as Monitoring Areas (MAs); ground-disturbing activities occurring within MAs will require the presence of an archaeological monitor and a Native American monitor.

The ESAs and MAs would be incorporated into the cultural resources monitoring and treatment plan (**Mitigation Measure CUL-2**) and would be made available to non-archaeological staff for scheduling purposes.

Table 2-7 summarizes proposed activities that would occur, the applicable mitigation measures that would reduce impacts to a less-than-significant level, and where they would apply within ESAs and MAs.

Table 2-7. Proposed Project Activities and Applicable Mitigation Measures

Proposed Project Activity	Mitigation Measure to Implement	Applies to ESA/MA
Herbicide and seeding with no ground disturbance	CUL-1	ESA 1 through ESA 4
Ground-disturbing activities	CUL-2, CUL-3	MA 1 through MA 8
Ground-disturbing activities within mining extent	None	None
Stream improvements	CUL-2, CUL-3	MA 1 through MA 8
Road improvements/closure	CUL-2, CUL-3	MA 1 through MA 8
Weed control-mechanical	CUL-2, CUL-3	MA 1 through MA 8
Sign installation	None	None
Fence installation	CUL-2, CUL-3	MA 3

In addition to the record search and survey, on September 18, 2018, ICF contacted the Native American Heritage Commission (NAHC) to conduct a Sacred Lands File search. NAHC responded on September 20, 2018, stating that the Sacred Lands File failed to indicate the presence of Native American cultural resources in the study area. NAHC also provided a list of Native American individuals and organizations that may have knowledge of cultural resources in the study area and recommended contacting the representatives from 10 Native American groups. On October 8, 2018, ICF sent due diligence outreach letters to all individuals and organizations identified by NAHC. In response to the due diligence outreach, a letter was received on October 22, 2018, from the Viejas Band of Kumeyaay Indians requesting that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities. Given the prehistoric archaeological sensitivity of the proposed project area, and to minimize impacts on prehistoric resources, the proposed project would incorporate **Mitigation Measure CUL-3**. Therefore, with implementation of **Mitigation Measures CUL-1** through **CUL-3**, impacts on sensitive archaeological resources would be less than significant.

c) **Less-than-Significant Impact.** The record search review, pedestrian survey, and Sacred Lands File search in support of the proposed project did not identify human remains. The proposed project area is not within or near a known cemetery or burial ground. Additionally, portions of the proposed project area have undergone extensive ground disturbance in the form of mining activities. Therefore, it is highly unlikely that the proposed project would disturb any human remains during construction at the project site. In the unlikely event that human remains are discovered, the project construction manager would be required to comply with Health and Safety Code Section 7050.5 and Public Resources Code Section 5097. These regulations outline the procedures to follow in the event that human remains are uncovered, and the penalty for disobeying these procedures. Therefore, given the low likelihood of discovering human remains, as well as the existing laws in place that govern the handling of human remains, impacts related to the disturbance of human remains would be less than significant.

Mitigation:

Mitigation Measure CUL-1: Establishing Environmentally Sensitive Areas

- To reduce potential impacts on archaeological resources, Environmentally Sensitive Areas (ESAs) will be established in areas of artifact concentrations.
- In order to avoid impacts on ESAs 1 through 4, only non-ground-disturbing methods of seeding and herbicide control of nonnative species will be used.
- Cultural resources monitoring will not be required for seeding and herbicide control of nonnative species.

Mitigation Measure CUL-2: Archaeological Monitoring

To reduce potential impacts on archaeological resources, a qualified archaeologist will monitor initial ground-disturbing activities within Monitoring Areas (MAs) in order to minimize disturbance of archaeological deposits. Specifically, the following measures will be implemented to reduce impacts:

- Prior to the start of construction, a monitoring and treatment plan will be prepared that describes the nature of the archaeological monitoring work, procedures to follow in the event of an unanticipated discovery, and reporting requirements. The plan will include confidential maps of ESAs and MAs. The plan will be submitted for review to the City of Chula Vista.
- All monitoring will be conducted by individuals with experience monitoring for archaeological resources in southern California. All monitors will be under the supervision and direction of a qualified archaeologist(s) who meets the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations (CFR), Title 36, Section 61.
- Monitoring of initial ground disturbance will occur within MAs 1 through 8.
- The following activities will require the presence of an archaeological monitor when they occur within MAs 1 through 8:
    - Manual weed pulling, fence installation, mechanical work that includes ground disturbance, and other ground-disturbing activities necessary for the implementation of the project
- If intact subsurface deposits are identified during construction, the archaeologist will be empowered to divert construction activities away from the find and will be given sufficient time and compensation to investigate the find and determine its significance. No soil will be exported off site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered.
- Recovered items will be treated in accordance with current professional standards by being properly provenienced, cleaned, analyzed, researched, reported, and curated in a collection facility meeting the Secretary of the Interior's Standards, as promulgated in 36 CFR 79, such as the San Diego Archaeological Center. The costs for curation will be included in the budget for recovery of the archaeological remains.

- A final cultural resources report will be produced and provided to the City of Chula Vista, which will discuss the monitoring program and its results and will provide interpretations of any recovered cultural materials.
- The qualified archaeologist will have the discretion to increase or decrease the level of monitoring based on profession judgment and field conditions.

Mitigation Measure CUL-3: Native American Monitoring

A Kumeyaay tribal monitor will be retained to conduct Native American monitoring for MAs and activities identified in **Mitigation Measure CUL-2** when an archaeological monitor is present.

- Attendance by Native American monitors during ground-disturbing activities is at the discretion of the tribe, and the absence of a Native American monitor, should the tribe choose to forgo monitoring for some reason, will not delay work.
- Interpretation of a find will be requested from Native American monitors involved with the discovery, evaluation, or data recovery of unanticipated finds for inclusion in the final cultural resources report.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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?	☐	☐	**X**	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	**X**

Comments:

a) **Less-than-Significant Impact**. Construction activities associated with implementation of the proposed project would involve onsite energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling, and materials delivery truck trips; operation of off-road construction equipment; and other intermittent sources. Energy expenditures during construction would be temporary, lasting for approximately 24 weeks. Site grading and earthwork activities would be limited to smaller (rubber-tired or small-tracked) equipment and a greater reliance on hand tools in waterways and ecologically sensitive areas. Larger equipment would be used in areas with less ecological sensitivity, such as the larger upper and lower floodplain areas. Assumptions used in the estimates of construction-period energy consumption are provided in the technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021a).

Table 2-8 shows energy consumption during construction and operation of the proposed project. Construction fuel consumption represents total fuel use over the 24-week construction period. Energy use associated with construction of the proposed project would not be considered an inefficient, wasteful, and unnecessary consumption of energy, and impacts on energy resources would be less than significant.

Table 2-8. Energy Consumption Estimate for Construction and Operation

	Fuel Use (gal)	MMBTU[a]
Construction	31,866.64	4,419.90
Operation	32,638.44[b]	4,526.95

[a] MMBTU= million British Thermal Units

[b] Assumptions made in the modeling outputs conservatively estimated six line trimmers, four chainsaws, and eight skid steers operating 8 hours a day, every day.

Modeling outputs and assumptions included in technical attachment *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021a).

Likewise, the proposed project would use a minimal amount of energy during operation and would comply with local general plan policies to avoid inefficient and unnecessary energy use. Due to the nature of the proposed project, long-term operational activities are expected to be minimal and would involve periodic maintenance of trails, pest management, and small-scale weeding efforts, and would require approximately three workers and the potential use of chainsaws, line trimmers, and a skid steer. Because maintenance activities would vary by day, a range in the number of equipment pieces (i.e., chainsaws and line trimmers) that could be used on a given day was provided by the contractor. For the purpose of conducting a conservative analysis, the energy consumption generated by the operation of the maximum number of chainsaws and line trimmers that could potentially occur in a given day

along with the skid steer was modeled to capture a peak day of operational energy consumption. The proposed project would not require the construction or expansion of recreational facilities and, therefore, would not increase the number of visitors traveling to the site. Energy use associated with operation of the proposed project would not be considered an inefficient, wasteful, and unnecessary consumption of energy, and impacts on energy resources would be less than significant.

b) **No Impact**. Construction would be consistent with the policies in the City of Chula Vista CAP. Since 2000, Chula Vista has been implementing a CAP to address climate change issues and its impacts on the City. The City's CAP is a group of documents including various GHG emission inventories, the original Carbon Dioxide Reduction Plan (2000), Mitigation Strategy Updates (2008), and new Climate Adaptation Strategies (2010). The City's Increased Energy Efficiency Ordinance, Green Building Standards, and Solar Ready Ordinances are products of the CAP (City of Chula Vista 2017). As described above in threshold XII.a, the proposed project would have only short-term, minimal impacts on energy resources during construction and operational activities. Therefore, no impact would occur, and no mitigation is required.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GEOLOGY AND SOILS, AND PALEONTOLOGICAL RESOURCES. 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?	☐	☐	☐	**X**
ii. Strong seismic ground shaking?	☐	☐	**X**	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	**X**	☐
iv. Landslides?	☐	☐	**X**	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	**X**	☐	☐
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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	**X**	☐
d) Be located on expansive soil, creating substantial direct or indirect risks to life or property?	☐	☐	**X**	☐
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?	☐	☐	☐	**X**
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	**X**	☐

Comments:

a) i. **No Impact**. According to the City of San Diego General Plan Public Facilities, Services and Safety Element (City of San Diego 2008), there are no active faults or fault zones within or adjacent to the proposed project's location The closest fault zone is the La Nacion Fault Zone approximately 5 miles to the west, which runs parallel to Interstate (I-) 805. Therefore, the proposed project would not directly or indirectly be affected by a condition that would cause potential impacts related to fault rupture or exacerbate such conditions. No impact would occur.

ii. **Less-than-Significant Impact**. Although the project area is not within or adjacent to a fault zone, the project site is in the seismically active region of Southern California. As mentioned above, the La Nacion Fault Zone is approximately 5 miles to the west. The next closest fault zone is the Newport-Inglewood-Rose Canyon Zone, approximately 13.5 miles to the northeast. Proposed project features involve the expansion of the Original Mitigation Bank (the Original Mitigation Bank Expansion is

described in detail in the Project Description) and the creation, modification, and expansion of trails. Consequently, no structures of significance or structures intended for human occupancy would be built as part of the proposed project. In addition, construction personnel (during the construction phase) and visitors (during operations) to the project site would be on site only temporarily; therefore, potential risks associated with seismic ground shaking are considered low. Furthermore, the proposed project does not contain features that would directly or indirectly cause or intensify the effects of seismic ground shaking. Therefore, impacts would be less than significant.

iii. **Less-than-Significant Impact.** Liquefaction occurs when saturated, low-density, and loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure. The increase in pressure is caused by strong ground motion from an earthquake. Liquefaction most often occurs in areas underlain by silts and fine sands and where shallow groundwater exists. According to Figure 9-7, Geologic Hazards Map, of the City of Chula Vista General Plan (City of Chula Vista 2005), the project site is identified as an area with shallow groundwater and poorly consolidated granular sediments, and is thus susceptible to liquefaction. However, and as previously mentioned, no structures of significance or structures intended for human occupancy would be built as part of the proposed project. In addition, construction personnel (during the construction phase) and visitors (during operations) would be on site only temporarily, making potential impacts associated with liquefaction negligible. Also, the proposed project does not contain features that would directly or indirectly cause or intensify the effects of liquefaction. Therefore, impacts would be less than significant.

iv. **Less-than-Significant Impact.** According to Figure 9-7, Geologic Hazards Map, of the City of Chula Vista General Plan (City of Chula Vista 2005), the southwestern portion of the proposed project is just beyond (approximately 600 feet to the northeast) an area identified as containing active landslide-prone terrain (characterized as areas containing incompetent sedimentary rocks with slopes generally greater than 25 degrees). Although the proposed project is just outside a landslide-prone area, the proposed project is in the Otay River Valley with elevated topography to the north and south (approximately a 300-foot elevation from the valley floor to the top of the hillside), making landslides as a result of seismic activity a possibility. However, similar to what has been described above, no structures intended for human occupancy would be built and people would be on site only temporarily. Also, the proposed project does not contain features that would directly or indirectly cause or intensify the effects of landslides; on the contrary, the proposed project intends to restore the area through the re-contouring of slopes (with the intent of mirroring adjacent natural slopes), further reducing risk of slope instability. Therefore, impacts would be less than significant.

b) **Less-than-Significant Impact with Mitigation Incorporated.** Implementation of the proposed project would not result in substantial soil erosion or the loss of topsoil. Erosion is a condition that could adversely affect development on any site. The proposed project would include enhancement, rehabilitation, and re-establishment of hydrological processes, vegetation communities, and wildlife habitats. It would also re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. Additional improvements would include modifications to existing trail routes. Therefore, the proposed project would not add any new impervious surfaces. Construction activities could exacerbate erosion conditions by exposing soils and adding water to the soil from irrigation during construction. As discussed in more detail below in Section X, *Hydrology and Water Quality*, the National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities (Construction General Permit), which was adopted by the State Water Resources Control Board as Water Quality Order 2012-0006-DWQ on July 17, 2012, is required for soil disturbance activities greater than 1 acre. Compliance with the Construction General Permit requires development and implementation of a site-specific Storm Water Pollution Prevention Plan (SWPPP) by a Qualified SWPPP Developer that includes BMPs to be employed during construction to control soil erosion. The selection of erosion control BMPs is based on minimizing disturbed areas, stabilizing disturbed areas, and protecting water quality. Preliminary

erosion control measures (as part of the SWPPP) for the proposed project could include, but not be limited to, the use of hydraulic mulch, soil binders, geotextiles and mats, hydroseeding, straw mulch, earthen dikes, and velocity dissipation devices. Furthermore, as discussed above in Section V, *Biological Resources*, the proposed project would implement **Mitigation Measure BIO-1** to ensure all necessary agency permits, including a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) from the RWQCB, have been approved before initiating grading activities, and impacts on geology and soils would be minimized per the conditions set forth in the permits. As a result, with implementation of **Mitigation Measure BIO-1**, the proposed project would result in less-than–significant impacts related to soil erosion during construction activities.

Project operations would not increase erosion because the restoration site would be restored to the desired functions with native habitat that would prevent substantial erosion or siltation on or off site. Furthermore, a restoration ecologist, to be retained by the project applicant, would work in coordination with the installation and maintenance contractors and oversee the protection of existing native vegetation, nonnative plant removal, contour grading, site preparation, planting and seeding, maintenance and monitoring, and reporting. If deemed necessary by the restoration ecologist, maintenance activities would include remedial measures for erosion control. In addition, maintenance of the trail improvements would be managed per a long-term management plan,[5] further minimizing the potential for conditions leading to erosion. Therefore, long-term operational impacts related to soil erosion or loss of topsoil would be less than significant.

c) **Less-than-Significant Impact.** According to the Natural Resources Conservation Service's *Web Soil Survey* (Natural Resources Conservation Service 2019), the primary soil unit that underlies the project site is characterized as Riverwash. Riverwash is described as material originating from sandy, gravelly, or cobbly alluvium derived from mixed sources. Other soil units underlying the project area include huerhuero loam (moderately well-drained, calcareous alluvium derived from sedimentary rock), Salinas clay loam (well-drained alluvium derived from mixed sources) and olivenhain cobbly loam (well-drained, gravelly alluvium derived from mixed source). As mentioned under threshold VIII.a, portions of the project site are located in an area susceptible to instability (for both landslides and liquefaction). However, no structures intended for human occupancy would be built as part of project implementation and people, either during construction activities or visiting during operation, would be on site only temporarily. In addition, the proposed project does not contain features that would directly or indirectly cause or intensify the effects of soil or geologic instability; on the contrary, the proposed project intends to restore and rehabilitate the project area to enhance and re-establish original hydrological processes, vegetation communities, and wildlife habitats. Therefore, impacts would be less than significant.

d) **Less-than-Significant Impact.** Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. Although onsite soils (described under threshold VIII.c) have some clay content, project features include expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails; as such, no significant structures or structures intended for human occupancy would be built as part of project implementation. In addition, project features do not include features that would directly or indirectly create or exacerbate expansive soil conditions. Therefore, impacts would be less than significant.

[5] The purpose of the long-term management plan is to maintain control over factors that could adversely affect the site. Otay Land Company would evaluate the potential factors that could adversely affect the proposed project site in light of the location and the condition of riparian/wetland areas surrounding the proposed project site. The long-term management plan would be a "living" document and would include a provision to be updated every 5 years so that changes in the physical or anthropogenic environments can be adequately addressed.

e) **No Impact.** Project features do not include the use of septic tanks or alternative wastewater disposal systems. No impacts would occur.

f) **Less-than-Significant Impact**. The proposed project would not directly destroy a unique paleontological resource, site, or unique geologic feature. Project activities such as grading, vegetation removal, floodplain recontouring, plantings, installation of at-grade channel crossings, and decommissioning of existing roads would primarily occur in an area that was previously disturbed to great depths by gravel mining operations (ICF 2021c) or on Holocene-aged alluvial landforms (Tan and Kennedy 2002). In these locations, paleontological sensitivity is considered to be low. In instances where the proposed project would occur on Pleistocene-aged landforms composed of sedimentary rock, which tend to be paleontologically sensitive, project activities would be limited to plantings, decommissioning of existing roads, and minor trail improvements. All of these activities would result in disturbance limited to the topsoil and would not be sufficient to encounter as-yet undocumented paleontological resources. Therefore, impacts related to paleontological resources would be less than significant.

Mitigation:

Implement **Mitigation Measure BIO-1**.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	**X**	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	**X**	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	**X**
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	**X**	☐	☐
e) Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	**X**	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	**X**	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** Implementation of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails; the addition of protective fencing; and the inclusion of educational kiosks. Construction activities would involve the routine transport, use, and disposal of hazardous materials such as fuel, solvents, paints, oils, and grease. Such transport, use, and disposal must comply with applicable federal and state regulations, such as the Resource Conservation and Recovery Act and Department of Transportation Hazardous Materials Regulations, among others. Although small amounts of solvents, paints, oils, and grease would be transported, used, and disposed of during construction, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. In addition, construction activities would be conducted using BMPs as required under the Construction General Permit (Order

No. 2012-0006-DWQ). BMPs used during construction activities could include, but would not be limited to, practices related to controls for vehicle and equipment fueling and maintenance; material delivery, storage, and use; spill prevention and control; and solid and hazardous waste management. The proposed project includes the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails; as such, no significant amounts of hazardous materials would be used, handled, or stored as part of normal operations. Small-scale weed or pest infestations would be addressed as they are discovered during routine site monitoring and maintenance; however, the herbicides and pesticides to be used would be used in small, localized amounts and any spills would be cleaned as they occur. Therefore, impacts would be less than significant.

b) **Less-than-Significant Impact with Mitigation Incorporated.** Construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, chemicals, and oils, for the operation of construction equipment. It is possible that any of these substances could be released in small amounts during construction activities. However, compliance with federal, state, and local regulations in combination with construction BMPs implemented from a SWPPP as required under the State Water Resources Control Board's Construction General Permit would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the construction phase of the proposed project. Furthermore, **Mitigation Measure BIO-1** would ensure all necessary agency permits, including a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012- 0006-DWQ) from the RWQCB, have been approved before initiating grading activities. No hazardous materials are expected to be transported, used, disposed of, or stored on site during the operational phase.

An environmental database search was conducted via the State Water Resources Board's GeoTracker (State Water Resources Control Board 2015) and Department of Toxic Substances Control's EnviroStor (Department of Toxic Substances Control 2019) websites to determine if there are any known hazardous materials sites within or adjacent to the project site that could result in a significant hazard due to project implementation. The following summarizes the findings of this records search.

Brown Field Bombing Range Formerly Used Defense Site

The southern portion of the proposed project site is within the Brown Field Bombing Range Formerly Used Defense Site (FUDS). The site is approximately 2 miles northeast of Otay Mesa and approximately 63 acres of the project site overlap with the FUDS site. Figure 11 shows the project footprint in correlation with the FUDS property boundaries. The Brown Field Bombing Range was identified in the EnviroStor database as being part of the Department of Toxic Substances Control's Site Cleanup Program with a status of *Inactive – Needs Evaluation* (as of July 2018). The Brown Field Bombing Range (also known as the Otay Mesa Bombing Range, the Otay Bombing Target, or Otay Mesa Bombing Target #32) was used by the Navy between 1942 and 1960 as a dive-bombing practice range, and later as an aerial rocket range. In 1961, the bombing range was assigned for disposal (Parsons 2007). Construction of the proposed project could create a significant hazard to construction workers or the environment by potentially exposing any remaining unearthed unexploded ordnances (UXO[6]), munitions and explosives of concern (MEC[7]), and munitions debris (MD[8]) associated with these types of facilities.

[6] UXO are defined as military munitions that have been prepared for action, remain unexploded, and have been fired, dropped, launched, projected, or placed in such a manner as to constitute an explosive hazard.

[7] MEC are military munitions that may pose unique explosives safety risks, including UXO, Discarded Military Munitions (DMM), or Munitions Constituents (MC) present in high enough concentrations to pose an explosive or other health hazard.

[8] MD is remnants of munitions (i.e., penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal (Parsons 2007).

2007 Parsons Site Inspection Report

A site inspection evaluation consisting of a qualitative reconnaissance and surface soil sampling was conducted by Parsons in 2007 to evaluate the presence of MEC, MD, and MC within the Brown Field Bombing Range. The qualitative reconnaissance encompassed 15.9 miles of the former bombing range and a total of 10 soil samples (Figure 11). Results of the sampling event were as follows:

- Explosives were not detected in any of the soil samples collected.
- MC contamination was detected in surface soil samples, in particular aluminum, copper, iron, lead, potassium, manganese, and zinc.

Due to the laboratory results, an MC Screening Level Risk Assessment (SLRA) and a Screening Level Ecological Risk Assessment (SLERA) were conducted for aluminum, copper, lead, manganese, and zinc (iron and potassium were determined to not pose an unacceptable risk). Based on the results of the SLRA and SLERA, the Brown Field Bombing Range was determined not to pose an unacceptable risk to human health or ecological receptors resulting from potential exposure to MC in surface soil. As surface water and sediment samples were not collected at the time of the evaluation, the site inspection recommended the need for further investigation to determine the presence of MEC hazards in these types of media. **Mitigation Measure HAZ-1** would reduce potential impacts associated with unacceptable risks to human health or ecological receptors resulting from exposure to MC in surface water and sediment by requiring sampling and completion of the associated SLRA and SLERA studies, along with either avoidance or remediation of any affected areas before any construction activities may proceed.

The site inspection stated that, based on the MD observed during the investigation as well as the MD identified at the Brown Field Bombing Range in the past, it is likely that additional MD and/or MEC currently exist within the former Brown Field Bombing Range site. Implementation of **Mitigation Measure HAZ-2** would further reduce potential impacts related to the historical Brown Field FUDS site activities by performing a surface clearance sweep prior to initiating any construction activities and removing and disposing of any remaining unearthed UXO, MEC, and MD. In addition, **Mitigation Measure HAZ-2** would require a UXO-qualified technician to support the proposed project's restoration and grading activities to detect the presence of MEC in disturbed soil. Impacts would be less than significant with mitigation incorporated.

Other Nearby Sites

East Mesa Regional Firing Range

The East Mesa Regional Firing Rage was identified as a Cleanup Program Site and is located at 440 Alta Road, approximately 0.50 mile to the southeast of the proposed project. According to a Case Closure Summary letter from the County of San Diego Department of Environmental Health (County of San Diego 2011), in January of 2010 soil and surface water samples were taken on site, as impacts were suspected due to discolored soil and free-standing liquid that were identified during a site reconnaissance. Contaminants were not detected in any of the soil samples collected. One surface water sample exhibited elevated petroleum hydrocarbons as diesel concentrations; however, this reading was later attributed to heavy equipment used on the firing range. The County of San Diego Department of Environmental Health Land and Water Quality Division granted case closure in April of 2011.

Richard J. Donovan Correctional Facility

The Richard J. Donovan Correctional Facility was identified as a Cleanup Program Site and is located at 480 Alta Road, approximately 0.58 mile to the south of the proposed project. According to a County of San Diego Department of Environmental Health Voluntary Assistance Program application (County of San Diego 2019), approximately 44,000 cubic yards of inert fill were illegally placed within the correctional facility property. The State of California is requesting San Diego County oversight to remove concrete debris and stabilize remaining fill. The site is listed as *Open and Active* as of April, 2019; however, the case involves soils (fill) only. As such, the site is not considered a risk to the proposed project.

The site was also listed on the Leaking Underground Storage Tank Cleanup Site list for a waste oil release to onsite soils. Upon completion of a site investigation and corrective actions, the site was granted *No Further Action* status by the County of San Diego Department of Environmental Health as of July 2007.

East Mesa Detention Center

The East Mesa Detention Center was identified as a Leaking Underground Storage Tank Cleanup Site and is located at 446 Alta Road, approximately 0.70 mile to the southeast of the proposed project. According to a Case Closure Summary letter from the County of San Diego Department of Environmental Health (County of San Diego 2007), affected soil was discovered during the removal of two 12,000-gallon Underground Storage Tanks in 2005. Samples collected during the Underground Storage Tank removal contained elevated concentrations of petroleum hydrocarbons. Through sampling it was determined that contaminant impacts were exclusive to soils only. Upon completion of a site investigation and corrective actions, the site was granted *No Further Action* status by the County of San Diego Department of Environmental Health Land and Water Quality Division in December of 2007.

Based on the details described above, the likelihood of contamination migrating to the proposed project area and adversely affecting construction workers or the environment from the East Mesa Regional Firing Range, Richard J. Donovan Correctional Facility and East Mesa Detention Center sites is very low. Impacts related to the other nearby sites would be less than significant.

c) **No Impact.** Implementation of the proposed project would not create any impacts associated with hazardous emissions or handling of acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. There are no schools within 0.25 mile of the proposed project. The closest school is High Tech High Chula Vista, located at 1949 Discovery Falls Drive, approximately 0.85 mile to the north. No impact would occur.

d) **Less-than-Significant Impact with Mitigation Incorporated.** As discussed above, an environmental database search was conducted via the State Water Resources Board's GeoTracker and Department of Toxic Substances Control's EnviroStor websites to determine if there are any known hazardous materials sites within or adjacent to the project site that could result in a significant hazard due to project implementation. The project footprint was not identified in any environmental database; however, as mentioned under threshold VIX.b, the project site overlaps with the former Brown Field Bombing Range. As previously mentioned, the former Brown Field Bombing Range exhibits the potential for surface water and sediment contamination, as well as the potential for additional MD and/or MEC on site. Although there is a possibility of encountering affected media on site (described in detail under threshold VIX.b above), implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would reduce potential impacts associated with the former Brown Field Bombing Range by incorporating a surface water and sediment sampling study and providing site surface clearance prior to construction. Impacts would be less than significant with mitigation incorporated.

e) **Less-than-Significant Impact.** According to *the Brown Field Municipal Airport Land Use Compatibility Plan* (San Diego County Airport Land Use Commission 2010a), the proposed project is within Review Area 2 of the Brown Field Municipal Airport's Airport Influence Area. Review Area 2 consists of airspace protection and/or overflight notification areas. In addition, overflight notification documents are required in locations within Review Area 2.[9] According to the airport land use compatibility plan, limits on the heights of structures, particularly in areas of high terrain, are the only restrictions on land uses within Review Area 2. In addition to being within Review Area 2, the proposed project site sits within the Federal Aviation Administration (FAA) Part 77 Airspace

[9] An *Overflight Notification* informs property owners that the property is subject to aircraft overflight, aircraft noise exposure, and other airport-related impacts. No restrictions on the height of objects, requirements for marking or lighting of objects, or access to the property for these purposes are included in an Overflight Notification. An Overflight Notification serves only as buyer acceptance of overflight conditions.

Protection Height Notification Boundary for the airport. FAA Part 77 height restrictions within the project site vary from 876.3 feet above mean sea level farthest away from the airport to 676.3 feet above mean sea level. As previously mentioned, the proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails. Therefore, the proposed project does not include features that would surpass any of the height restrictions as part of the FAA Part 77 airspace protection and would not create the potential for airport navigational hazards. In addition, the proposed project does not contain permanent features that would exacerbate or worsen existing noise levels in the project area. During construction, equipment used on site would likely increase noise levels; however, the increase would be typical of construction projects and would only be temporary. Impacts would be less than significant.

f) **Less-than-Significant Impact.** The proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the upper portion of the Lower Otay River watershed, in an area surrounded by open space with no major arterials immediately adjacent. Therefore, construction and operational activities conducted on the project site would not impair the implementation of any local emergency response plan and the effectiveness with which emergency personnel respond. Additionally, the proposed project would not result in any substantial traffic queuing along Wiley Road and would not allow any construction vehicles or equipment to park or remain stationary within the roadway. Moreover, the proposed project does not include any characteristics (e.g., permanent public road closures, long-term blocking of public road access) that would physically impair or otherwise interfere with emergency response or evacuation in the project vicinity. All large construction vehicles entering and exiting the site would be guided by personnel using signs and flags to direct traffic.

During construction activities, the proposed project would be required to comply with applicable requirements set forth by the County of San Diego Office of Emergency Services' Emergency Operations Plan, Chula Vista Police Department, and City of Chula Vista Fire Department, such as requirements related to evacuation during wildfires. The Office of Emergency Services provides coordination of emergency response at the local level in the event of a disaster, including wildland fires. This emergency response coordination is facilitated by the Operational Area Emergency Operations Center and responding agencies to the proposed project, the Chula Vista Police Department, and City of Chula Vista Fire Station No. 3. Furthermore, development of trails and access roads on the project site has been conducted in coordination with the U.S. Border Patrol to ensure the proposed project provides adequate access for vehicular surveillance. In addition, the proposed project would support establishment of a Greenbelt system that limits the use of multi-use trails to non-motorized uses except for motorized wheelchairs and utility, maintenance, and emergency vehicles, making emergency response in the project area more effective. Impacts would be less than significant.

g) **Less-than-Significant Impact.** The project site is within both High Fire Hazard Severity Zones and Very High Fire Hazard Severity Zones (VHFHSZ) (CAL FIRE 2009a, 2009b). However, due to the nature of the proposed project, it is not expected to draw a substantial amount of people, either during project implementation activities or permanently; therefore, the site would remain similar to existing conditions. No structures intended for human occupancy would be built as part of the proposed project. In addition, construction personnel and visitors during operations of the project site would be on site only temporarily, thereby reducing potential risks associated with wildland fires. Furthermore, the proposed project is expected to follow fire management policies, rules, and regulations established by the County of San Diego Office of Emergency Services, City of Chula Vista Fire Department, and California Department of Forestry and Fire Protection (CAL FIRE) such as policies and regulations addressing wildfire evacuation and fire prevention. Lastly, the proposed project would support establishment of a Greenbelt system that limits the use of multi-use trails to non-motorized uses except for motorized wheelchairs and utility, maintenance, and emergency vehicles, making emergency response to potential fires in the project area more effective. Impacts would be less than significant.

Mitigation:

Implement **Mitigation Measure BIO-1**.

Mitigation Measure HAZ-1: Sampling and Screening Level Risk Assessment (SLRA)/Screening Level Ecological Risk Assessment (SLERA) Studies for Onsite Surface Water and Sediment and Water/Sediment Remediation (if necessary)

Prior to construction activities associated with the project, surface water and sediment sampling will be conducted by an environmental consultant with experience in proper sample handling procedures. Samples will be collected from portions of the site where the project site overlaps with the Brown Field Bombing Range Formerly Used Defense Site, the number and location of which will be determined by a qualified environmental professional with experience in screening level risk assessments. Using the laboratory results, SLRA and SLERA studies will be conducted to assess potential risk associated with munitions constituents exposure to human and ecological receptors. A report will be prepared with the results of the study and submitted to the City for review and approval. Should results indicate the presence of contamination levels that would pose a risk to human health, the project proponent (in consultation with the City) will coordinate with the San Diego County Department of Environmental Health, the Department of Toxic Substances Control, and the Regional Water Quality Control Board (as necessary) regarding avoidance or remediation of affected water and soils in compliance with applicable federal, state, and local laws prior to any project-specific construction activities occurring. If the condition at the site requires it, the project proponent will not proceed with construction activities until a letter of closure is provided by the lead hazardous materials agency. Should the results indicate that no serious risk is present, project-related construction activities may proceed, pending compliance with any other applicable mitigation.

Mitigation Measure HAZ-2: Surface Clearance Prior to Construction

Prior to initiating project activities, a surface clearance will be conducted where project elements intersect with the Brown Field Bombing Range Formerly Used Defense Site boundary. The surface clearance would be employed to identify all munitions and explosives of concern (MEC) and munitions debris (MD) in the project site. A qualified survey company with experience in unearthed unexploded ordnances (UXO) will be retained to sweep the area for metallic items including those that may be obscured by vegetation or surface debris, and MD will be evaluated to determine if any explosive residue remains. If it is determined that there is the potential for an explosive hazard, the City of Chula Vista and County of San Diego will be contacted to respond to the item and dispose of it appropriately. Upon identifying an explosive hazard, the survey company will establish an exclusion zone around the material. The exclusion zone radius will depend on the type of material identified and will be expanded, if needed, while material is being worked on or if setting a charge to explode the material in place. If setting a charge, all personnel will be required to evacuate the area. All personnel will be required to remain out of the exclusion zone until the responders provide clearance. All MD determined to no longer contain explosive residue will be inspected by qualified personnel and containerized in lockable 55-gallon drums for later disposal by an approved recycler.

During construction, the qualified survey company will supply a UXO-qualified technician to support the project. The technicians will use magnetometers to detect the presence of MEC in disturbed soil. If no MEC items are identified, excavations will be advanced to desired depth. If MEC are detected during excavation/grading, these activities will stop immediately and the survey company technician(s) will contact the City of Chula Vista and County of San Diego for disposal of the material. The technician(s) will remain on site during disposal response actions to provide site safety and security and for technical consultation with emergency responders.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY.				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	**X**	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	**X**	☐
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 that would:				
i. Result in substantial erosion or siltation on or off site;	☐	☐	**X**	☐
ii. Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	☐	☐	**X**	☐
iii. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	**X**
iv. Impede or redirect flood flows?	☐	☐	**X**	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	**X**
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact**. The proposed project would not result in an increase in pollutant discharges to receiving waters, result in significant alteration of receiving water quality during or following construction, or violate any water quality standards or waste discharge requirements. The project area is situated within the Otay River Watershed and contains the floodplain of the Otay River main channel downstream of Savage Dam and Lower Otay Reservoir. Two named creeks, O'Neal Canyon Creek and Salt Creek, flow into the Otay River project area. A total of 19 jurisdictional features were delineated on site, including the Otay River, several ephemeral drainages, and wetland depressions, as detailed further in technical attachment *Draft Otay River Mitigation Bank Jurisdictional Delineation Memorandum* (ICF 2021d). The Otay River is not listed as 303(d) impaired water body (State Water Resources Control Board 2018).

Construction activities would include the removal of invasive, nonnative tree, shrub, and herbaceous species followed by grading of the channel and floodplain areas to remove spoil piles, berms, and pits to re-establish the Otay River mainstem and the creation of a secondary channel and floodplain terrace to maximize the hydrologic function of the overall floodplain. The construction area would be treated for nonnative species and revegetated with native species such as sage scrub and cactus scrub. These improvements to the vegetative cover are expected to result in improved hydrology and flood capacity, bio-filtration, and sediment and toxicant trapping. As a result, the proposed project is anticipated to have a net benefit to water quality.

All vegetation debris would be removed off site or, as appropriate, mulched for use as erosion control at a later time. Excess soil material would be redistributed on site rather than exported. In order to minimize unwanted ecological impacts, site grading and earthwork activities would be limited to smaller (rubber-tired or small-tracked) equipment and a greater reliance on hand tools in waterways and ecologically sensitive areas. Larger equipment would be used in areas with less ecological sensitivity, such as the larger upper and lower floodplain areas, and in order to construct seasonal ponds. In addition to the proposed restoration activities, a trail crossing on an unnamed drainage north of the river would be improved to facilitate the connection of tributaries to the mainstem Otay River, and a trail crossing on Salt Creek would be part of a future phase of work. The trails would be installed as part of the restoration effort but are expected to be installed after the major earthwork in the river is complete. Installation would include recontouring of existing trails for proper drainage, select material placement, focused rock sills, strategic fencing and boulder placement, and signage and educational kiosk implementation.

The potential impacts of these construction activities on water quality are primarily related to sediment and sediment-bound pollutants that may be mobilized during construction when a rain event occurs. Ground-disturbing construction activities, such as grading, excavation, and stockpiling of spoil materials, and stormwater runoff from construction areas could result in soil erosion and sedimentation and reduce water quality in the Otay River. Additionally, hazardous materials (e.g., gasoline, oils, grease, lubricants) from construction equipment could be accidentally released during construction. Accidental discharge of these materials to surface waters could adversely affect water quality, endanger aquatic life, and/or result in a violation of water quality standards.

Because the proposed project would grade up to 130 acres of land, the proposed project is subject to the State Water Resources Control Board's Construction General Permit. Compliance with the Construction General Permit requires the development and implementation of a SWPPP by a Qualified SWPPP Developer, the elimination of non-stormwater discharge downstream into Otay River, and the implementation of various types of BMPs throughout the construction period to control the discharge of pollutants. The SWPPP requires a description of the restoration site, identification of sources of sediment and other pollutants that may affect the quality of stormwater discharges, a list of BMPs to provide sediment and erosion control, waste-handling measures, and non-stormwater management. Various BMPs may be needed at different times during construction because activities are constantly changing site conditions. Selection of erosion control BMPs is based on minimizing disturbed areas, stabilizing disturbed areas, and protecting water quality. Selection of sediment control BMPs is based on retaining sediment on site and controlling the site perimeter. The SWPPP would contain the final BMP list and would meet or exceed measures required by the Construction General Permit. In addition, the SWPPP is required to be implemented by a Qualified SWPPP Practitioner to ensure all BMPs are implemented correctly to protect water quality. The City would review the SWPPP and ensure that it meets the requirements of the Construction General Permit, the City's Municipal Permit, and the City's Storm Water Manual. As a result, the proposed project would result in less-than-significant impacts related to water quality standards during construction activities.

Limited dewatering may be required for construction during periods of higher flows in the river channel, or in areas with a high groundwater table. Dewatering activities, if needed, would be minimal and conducted in a manner that allows for completion of the proposed channel improvements without adversely affecting adjacent plant communities. The proposed project would comply with the

Groundwater Dewatering Permit. The proposed project would comply with dewatering requirements imposed by the San Diego RWQCB general waste discharge requirements for discharges from temporary groundwater extraction and similar waste discharges to surface waters (Order R9-2015-0013). To obtain coverage under this order, a discharger must submit a complete Notice of Intent application package to the San Diego RWQCB office at least 60 days before proposed commencement of the discharge. The project proponents would be required to maintain compliance with the effluent limitations applicable to the receiving water, as specified in Order R9-2015-0013 (refer to Table 5 of the order). For example, the permit has effluent limitations for settleable solids, total suspended solids, turbidity, pH, and a number of additional parameters. In addition, Order R9-2015-0013 identifies the monitoring and reporting program requirements. The purpose of the monitoring and reporting program is to determine and ensure compliance with effluent limitations and other requirements established in the order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. The San Diego RWQCB may specify increased monitoring requirements as necessary to ensure that applicable water quality objectives are maintained in the receiving water. Any dewatering or construction-related non-stormwater discharges would be controlled in compliance with the San Diego RWQCB permit for dewatering. The permit requires permittees to conduct monitoring of dewatering discharges and adhere to effluent and receiving water limitations contained within the permit so that water quality of surface waters is protected. As such, the proposed project is not anticipated to affect groundwater quality or surface water quality.

The proposed project would restore a portion of the Otay River and recreate appropriate channel morphology and a floodplain composed of low and high terraces that would be activated at various flood events. As a result, the proposed project is designed to enhance, rehabilitate, and re-establish hydrological processes and vegetation communities within the Lower Otay River Watershed that would be self-sustaining and can adjust to dynamic natural processes. Long-term operation of the proposed project would result in stabilized banks and channels that would result in a reduction in sediment load from the restoration site compared to existing conditions. This would result in a small improvement of the quality of water discharging from the restoration site. Because the proposed project would re-establish primary and secondary flow channels, low and high flood terraces, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation, this would serve to improve hydrological conditions. Due to the nature of the proposed project, long-term operational activities are expected to be minimal and would include maintaining vegetation overgrowth on the multi-use and secondary trails, erosion control and fencing, and signage and education kiosk maintenance. Ongoing maintenance of the proposed project would include nonnative weed control. As a result, operation and maintenance-related impacts on water quality standards would be less than significant, and no mitigation is required.

b) **Less-than-Significant Impact**. The proposed project is within the Coastal Plain of the San Diego Basin (California Groundwater Basin 9-033). In late 2016, the California Department of Water Resources approved state-recognized boundaries for the Coastal Plain of the San Diego Groundwater Basin, consolidating the San Diego Formation, Lower Sweetwater River Valley, Otay River Valley, and Tijuana River Valley basins (California Department of Water Resources 2018a). The basin is bound on the west by the San Diego Bay and the Pacific Ocean, on the south by the international border with Mexico, on the north by the alluvium of the Mission Valley Basin, and on the east by the La Nacion fault and the lateral extents of the San Diego Formation and the alluvial areas in Otay Valley and Sweetwater Valley. The surface waters are drained westerly toward the Pacific Ocean by the Sweetwater River, the Otay River, the Tijuana River, and various creeks. Average annual precipitation ranges from about 12 to 20 inches (California Department of Water Resources 2018b). Groundwater flow within the watershed generally mimics surface topography. Most of the groundwater in the watershed occurs west and downstream of the project area. Although the project site is degraded as a result of past activities, there are still various functions provided by the existing project site, including groundwater recharge due to the underlying alluvium soils on site.

The proposed project would not result in groundwater pumping or include sources of impervious surface that would impede groundwater recharge. However, the restoration of the channels could intercept shallow groundwater from the alluvium layer, which would subject shallow groundwater to small losses from evaporation and transpiration. Interception of shallow groundwater would not be expected to cause a significant drawdown in groundwater levels, as the existing presence of dense stands of invasive, nonnative trees and other invasive species already intercept shallow groundwater from the alluvium layer. These invasive species would be removed and replaced with native vegetation, which would utilize less groundwater. In addition, grading and contouring would improve the flood banks, allowing for stormwater during rain events to flow onto the upland areas. These improvements would potentially increase the recharge characteristics of the project area over existing conditions during large storm events. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. In addition, because the proposed project would not utilize groundwater and would potentially improve groundwater recharge, the proposed project would not impede sustainable groundwater management of the basin. Impacts would be less than significant.

c) i. **Less-than-Significant Impact**. The existing channel has been disturbed through gravel and sand mining during the twentieth century. Dozens of mine tailing mounds exist within the historic channel, and drainage patterns have been severely altered as a result. In addition, regular vehicular and foot traffic have created disruptions in the floodplain hydrology. Construction activities would include the removal of all invasive nonnative tree, shrub, and herbaceous species followed by grading of the channel and floodplain areas to remove spoil piles, berms, and pits to restore the area to the desired functions. The SWPPP, required as part of compliance with the Construction General Permit identified in threshold X.a above, would address impacts from erosion or siltation on or off site during construction to less-than-significant levels.

Operation of the proposed project would restore the portion of the Otay River within the boundaries of the restoration site by creating complex channel morphology including primary and secondary channels. A floodplain would be recreated with low and high terraces that would be activated at various flood events. This would be an improvement to drainage patterns over existing conditions and would not increase erosion or siltation off site because the restoration site would be restored to the desired functions with native habitat that would prevent substantial erosion or siltation on or off site. Moreover, any project improvements to OVRP-designated trails would be required to comply with OVRP Trail Guidelines, which identify erosion control requirements for trail design, especially for soft-surface, multi-use trails, including regarding installation of the proposed fence, signs, and educational kiosks. Per City requirements, the OVRP Trail Guidelines shall be implemented to reduce soil erosion and any ensuing trail damage. A restoration ecologist would be retained by the project applicant, would work in coordination with the installation and maintenance contractors, and would oversee the protection of existing native vegetation, nonnative plant removal, contour grading, site preparation, planting and seeding, maintenance and monitoring, and reporting. Therefore, the proposed project would not substantially alter the existing drainage pattern of the restoration site or area in a manner that would result in substantial erosion or siltation on or off site, and impacts would be less than significant.

ii. and iv. **Less-than-Significant Impact**. The project site is within the floodway and flood zone (A and AE) associated with the Otay River, according to the Federal Emergency Management Agency's Flood Insurance Rate Map 06073C2177G (Federal Emergency Management Agency 2012). The proposed project would alter an existing stream but would represent an improvement in drainage patterns over existing conditions. The proposed project would re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative, invasive species and restore native vegetation. This would improve hydrologic conditions, preserve connectivity between adjacent areas of preserved land and natural habitats, and result in a net gain in functions and services following restoration activities. Before it was disturbed, the Otay River

throughout the proposed project area consisted of a braided river channel and associated floodplain; therefore, the intent of the restoration phase of the proposed project is to rehabilitate the channel and re-establish these conditions through the creation of a series of secondary channels. The created channels would connect to the up- and downstream existing mainstem and would include a low and high terrace along with sandy bar complexes and would be designed to accommodate flood events. In particular, the active low floodplain is intended to accommodate a 10-year flood event, while the high floodplain would likely correspond to a 25-year event, with larger events inundating the entire valley floor with water rising into the upland areas as needed. Rehabilitation activities would include removing flow-impeding features left behind by the sand mining operation, including existing berms, cobble rows, and sediment piles, and recontouring the transitional upland area to mirror adjacent natural slopes and accommodate rising floodwaters. This area would also be treated for nonnative species and revegetated with native species such as sage scrub and cactus scrub. These improvements to the vegetative cover are expected to result in improved hydrology and flood capacity, bio-filtration, and sediment and toxicant trapping. No increase in runoff would occur as a result of the proposed project given the proposed project would not increase impervious surfaces on site. The proposed project would result in an incremental improvement to drainage patterns over existing conditions and would not affect flooding off site. Therefore, the proposed project would not substantially alter the existing drainage pattern of the restoration site or area, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, or place structures within a 100-year flood hazard area that would impede or redirect flood flows. Impacts would be less than significant.

iii. **No Impact**. The proposed project would not create or contribute additional runoff, nor would it provide additional sources of polluted runoff. The proposed project would not add impervious surfaces to the site that could increase runoff. In addition, the proposed project is located along the Otay River and there are no storm drain facilities given the land is undeveloped. The proposed project would remove spoil piles, berms, and pits to restore the area to the desired hydrologic functions. In addition, the construction area would be treated for nonnative species and revegetated with native species such as sage scrub and cactus scrub. These improvements to the vegetative cover are expected to result in improved hydrology and flood capacity, bio-filtration, and sediment and toxicant trapping. As a result, the proposed project would not provide additional sources of polluted runoff. No impacts would occur.

d) **No Impact**. The project site is within the floodway and flood zone (A and AE) associated with the Otay River, according to the Federal Emergency Management Agency's Flood Insurance Rate Map 06073C2177G. The project site is not within a tsunami zone given its distance from the Pacific Ocean. The project site is within a potential seiche zone from inundation of the upstream dam. The City of Chula Vista General Plan shows the project site is within the Savage Dam potential zone of dam inundation (City of Chula Vista 2015). Savage Dam is a 149-foot dam operated by the City of San Diego to store water from the San Diego Aqueduct. The original dam failed in 1916 and was subsequently reconstructed in 1919. Since its reconstruction, Savage Dam has experienced 27 spill events in 11 of the water years from 1919 to 2015. The proposed project would improve hydrological conditions because the it would re-establish primary and secondary flow channels, low and high flood terraces, and native transitional habitat. The created channels would connect to the up- and downstream existing mainstem and would include a low and high terrace along with sandy bar complexes and would be designed to accommodate flood events. In particular, the active low floodplain is intended to accommodate a 10-year flood event, while the high floodplain would likely correspond to a 25-year event, with larger events inundating the entire valley floor with water rising into the upland areas as needed. In addition, the proposed project would remove flow-impeding features left behind by the sand mining operation, including existing berms, cobble rows, and sediment piles, and would result in stabilized banks and channels that would result in a reduction in sediment load from the restoration site compared to existing conditions. No pollutants would be located on site that could be released during inundation. As a result, the proposed project would not risk release of pollutants due to project inundation. No impacts would occur.

e) **Less-than-Significant Impact**. As discussed in threshold X.a, the proposed project is subject to the Construction General Permit and requires the development and implementation of a SWPPP and various types of BMPs to control the discharge of pollutants. The SWPPP requires BMPs to provide sediment and erosion control, waste-handling measures, and non-stormwater management. The SWPPP would be implemented by a Qualified SWPPP Practitioner to ensure all BMPs are implemented correctly to protect water quality. The City would review the SWPPP and ensure that it meets the requirements of the Construction General Permit, the City's Municipal Permit, and the City's Storm Water Manual. The proposed project would comply with the Groundwater Dewatering Permit and would be required to maintain compliance with the effluent limitations applicable to the receiving water and implement the monitoring and reporting program requirements to ensure that applicable water quality objectives are maintained in the receiving water. As such, the proposed project is not anticipated to conflict with or obstruct implementation of a water quality control plan.

As discussed in threshold X.b, the proposed project would not result in groundwater pumping or include sources of impervious surface that would impede groundwater recharge. The restoration of the channels could intercept shallow groundwater from the alluvium layer, which would subject shallow groundwater to small losses from evaporation and transpiration. However, the groundwater would not be expected to cause a significant drawdown in groundwater levels because the invasive, nonnative trees would be removed and replaced with native vegetation that requires less water and the restoration of the floodplain would improve the flood banks allowing for stormwater during rain events to flow onto the upland areas and potentially recharge the basin. Therefore, the proposed project would not conflict with or obstruct a sustainable groundwater management plan. Impacts would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	**X**
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?	☐	**X**	☐	☐

Comments:

a) **No Impact.** Implementation of the proposed project would not physically divide an established community. The proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails, the addition of protective fencing, and the inclusion of educational kiosks. No structures that could divide an established community are proposed. Therefore, the proposed project would not physically divide an established community, and no impacts would occur.

b) **Less-than-Significant Impact with Mitigation Incorporated**. The proposed project would enhance, rehabilitate, and re-establish hydrological processes, vegetation communities, and wildlife habitats associated with the Lower Otay River watershed. The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. Implementation of the proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project. The project site is designated as Open Space Preserve by the City of Chula Vista General Plan and is zoned Residential by the City of Chula Vista's Zoning Code. Other applicable planning documents include the Brown Field Municipal Airport Land Use Compatibility Plan, Otay Ranch Phase 1 and 2 Resource Management Plan (RMP), Otay River Watershed Management Plan (WMP) (Aspen Environmental Group 2006), Draft Otay River Watershed Special Area Management Plan (SAMP), City of Chula Vista Greenbelt Master Plan, and OVRP Concept Plan and Trail Guidelines. The following describes the proposed project's consistency with these plans.

Chula Vista General Plan

In 2005, the Chula Vista City Council approved an updated General Plan that guides the City's future growth and development through 2030. This plan, last amended in 2017, is complemented by more detailed planning documents for discrete elements and regions within the City. Of particular relevance is the Otay Ranch General Development Plan (GDP) (City of Chula Vista 2019), which was approved by the City of Chula Vista and County of San Diego as part of the Sub-Regional Plan in 1993 and updated through 2018. The Otay Ranch GDP planning area covers three separate land parcels covering almost 10,000 acres in the City. The Otay Ranch GDP is an integrated policy document, combining the requirements of the City of Chula Vista and the County of San Diego. It identifies the land use pattern and intensities for the Otay Ranch community (including the Villages) as well as environmental, economic, and social goals, objectives, and policies. Implementation of the proposed project would restore and enhance the Otay River Valley and would be consistent with the General Plan Open Space Preserve designation for the site in both the Chula Vista General Plan and the Otay Ranch GDP.

Brown Field Municipal ALUCP

According to the *Brown Field Municipal Airport Land Use Compatibility Plan* (San Diego County Airport Land Use Commission 2010a), the proposed project is within Review Area 2 of the Brown Field Municipal Airport's Airport Influence Area. Review Area 2 consists of airspace protection and/or overflight notification areas. In addition, overflight notification documents are required in locations within Review Area 2.[10] According to the airport land use compatibility plan, limits on the heights of structures, particularly in areas of high terrain, are the only restrictions on land uses within Review Area 2. The proposed project site also sits within the FAA Part 77 Airspace Protection Height Notification Boundary for the airport. FAA Part 77 height restrictions within the project site vary from 876.3 feet above mean sea level farthest away from the airport to 676.3 feet above mean sea level. As previously mentioned, the proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails. Therefore, the proposed project does not include features that would surpass any of the height restrictions as part of the FAA Part 77 airspace protection and would not create the potential for airport navigational hazards. The proposed project would comply with regulations outlined within the *Brown Field Municipal Airport Land Use Compatibility Plan*.

Otay River Watershed Management Plan and Special Area Management Plan

Over the past decade, two key documents have been created for the Otay River watershed: the Otay River WMP (Aspen Environmental Group 2006) and the SAMP. In 2006, the County of San Diego, with partial funding from a Proposition 13 grant, prepared the WMP in collaboration with the U.S. Army Corps of Engineers (USACE), RWQCB, CDFW, City of Chula Vista, City of Imperial Beach, and Port of San Diego. That same year, a SAMP for the Otay River watershed in San Diego County was initiated with the County of San Diego as a facet of the County's broader watershed management program and following a species conservation planning effort. Although no final SAMP framework was developed, USACE compiled the extensive data and analyses in a geospatial database and summary report (USACE 2016) that are available resources to inform decision-making processes, i.e., permitting and mitigation.

SAMPs are intended to strike a balance between aquatic resources and reasonable economic development and uses in the watershed or region in which they are developed. Together, these two documents provide a framework program that is consistent with the local general plans (County and City), the San Diego RWQCB National Pollutant Discharge Elimination System Permit, and the County of San Diego MSCP. They also represent a proactive watershed planning and permitting approach that identified the areas within the watershed of "low value" that are more suitable for development and areas of "high value" that should be protected.

The WMP includes implementation strategies to ensure the protection of existing beneficial uses and natural resources, including methods to monitor, maintain, and/or enhance existing water quality levels using non-structural and structural BMPs. In addition, recommendations for appropriate aquatic resource enhancement and monitoring programs are provided in the WMP. Implementation of the proposed project would restore and enhance the Otay River Valley within the limits of the project boundaries and would be not only consistent with the WMP but would facilitate the largest restoration recommendation in the WMP.

Otay Ranch Phase 1 and 2 Resource Management Plan

The Otay Ranch Phase 1 and Phase 2 RMP is a comprehensive planning document that addresses the preservation, enhancement, and management of sensitive natural and cultural resources and is designed to be the functional equivalent of the County of San Diego Resource Protection Ordinance for Otay

[10] An *Overflight Notification* informs property owners that the property is subject to aircraft overflight, aircraft noise exposure, and other airport-related impacts. No restrictions on the height of objects, requirements for marking or lighting of objects, or access to the property for these purposes are included in an Overflight Notification. An Overflight Notification serves only as buyer acceptance of overflight conditions.

Ranch. Phase 1 of the RMP provides overall objectives and policies that guide implementation and designated the 11,375-acre preserve to protect and enhance the multiple resources present within Otay Ranch. Phase 2 of the RMP, which was updated in 2018, encompasses a series of tasks that must be performed over time to implement the program. The goal of the RMP is "to establish a permanent preserve within Otay Ranch to protect and enhance biological, paleontological, cultural and scenic resources, maintain biological diversity, and promote the survival and recovery of native species and habitats." Phase 2 includes additional studies that have been or will be performed, including a Vernal Pool Study, Wildlife Corridor Study, Raptor Study, and Resource Identification and Mapping. Additional tasks are identified in the document to acknowledge their importance, including development of an Otay Valley Riparian Habitat Restoration Plan, Demonstration Agricultural Plan, and OVRP Active Use Plan.

The proposed project would not only be in compliance with RMP Phase 1 but would help to implement policies and tasks identified in RMP Phase 2. The proposed project would accomplish this in part by developing and implementing a Development Plan, including the development of all associated technical studies, which require approval from USFWS, USACE, CDFW, and RWQCB, as well as the City of Chula Vista (CEQA compliance). These documents and approvals can be used to achieve the identified "Otay Valley Riparian Habitat Restoration Plan." Other policies that are implemented within the project area include, but are not limited to, Policy 5.2 and tasks that include maintenance of existing high-quality resources, implementation and monitoring of restoration activities, and implementation of maintenance activities such as removal of exotic plant species (weeds). In summary, the proposed project is in compliance with these plans by designing and funding a portion of the Otay River Valley restoration in the watershed, facilitating restoration opportunities downstream, and funding long-term maintenance and monitoring for five parcels in the Otay River Valley, including an approximately 300-acre parcel owned by HomeFed.

City of Chula Vista Greenbelt Master Plan

The Greenbelt Master Plan provides guidance and continuity for planning open space and constructing and maintaining trails that encircle the City of Chula Vista. The plan's primary purpose is to provide goals and policies, trail design standards, and implementation tools that guide the creation of the Greenbelt system. The Greenbelt system is composed of a series of open space segments connected by a multi-use trail extending through each segment from the channelized Sweetwater River, along golf courses and banks of the Otay Lakes, following the Otay River Valley to the Chula Vista Bayfront.

The proposed project would implement improvements to a portion of the existing dirt roads and trails identified within the OVRP East/Otay Ranch Village Greenway Segments. The trail improvement elements of the proposed project would be consistent with goals and policies of the Greenbelt Master Plan that aim to provide connected open space areas around the City and to enhance and protect native biological and sensitive habitats. The proposed project would also support establishment of a Greenbelt system that ensures public access utilizing existing fire roads, access roads, and/or utility easements for the trail system when possible and limiting the use of multi-use trails to non-motorized uses except for motorized wheelchairs and utility, maintenance, and emergency vehicles. To ensure all trail improvements are consistent with the City's Greenbelt Master Plan, **Mitigation Measure LU-1** is required. **Mitigation Measure LU-1** would ensure the Greenbelt trail is accommodated through identification of a realistic corridor and installation of trail signage, split-rail fencing, and educational kiosks while avoiding any sensitive resources. The existing roads and trails would be moved or modified as needed to avoid road ponds and protect the San Diego fairy shrimp (*Branchinecta sandiegonensis*) and the proposed project's restoration areas. The proposed project would also focus solely on those trails that interact with the restoration effort and would not preclude the future implementation of other new or upgraded trail facilities identified in the City of Chula Vista Greenbelt Master Plan. The Greenbelt trail may be moved or modified as needed to avoid road ponds, protect the San Diego fairy shrimp, and protect the restoration area.

Otay Valley Regional Park Concept Plan and Trail Guidelines

The OVRP is in the southern portion of San Diego County, 4 miles north of the United States/Mexico International Border. It is a 13-mile linear park, covering more than 8,000 acres and crossing three jurisdictions: City of San Diego, City of Chula Vista, and County of San Diego. It encompasses the core of the Otay River Valley from South San Diego Bay to the Otay Lake Reservoirs and is under private, semi-private, and public land ownership. The OVRP Concept Plan provides for the protection of ESAs and important cultural resources in the open space core of the OVRP; identifies areas adjacent to the open space for active and passive recreational development opportunities; includes a trail system with staging areas, viewpoints, and overlooks and connections to adjacent public lands and trails; and envisions two interpretive centers for environmental and educational programs. The OVRP Trail Guidelines focuses on the development of the trail system within the park and provides guidelines for development, management, and maintenance of this trail system.

The proposed project has identified trail corridors in compliance with the OVRP Concept Plan. Improvements would include installation of wood split-rail fencing that would help to minimize trespassing from trail users who would otherwise be unaware of the sensitivity of the habitat restoration area as well as signage that would indicate the general sensitivity of the restoration site and provide wayfinding. In addition, educational kiosks would be installed at key viewing locations within the disturbed areas near the existing dirt roadway to help inform the readers of the importance of the restoration site. The existing roads and trails would be moved slightly to accommodate the installation of the fencing and signage while also avoiding road ponds that support San Diego fairy shrimp. Only disturbed areas would be used to designate the narrow trail corridor or pathway. The proposed project would include at least two improved trail crossings to facilitate the connection of tributaries to the mainstem Otay River, including an unnamed drainage north of the river as well as Salt Creek. The trails would be installed as part of the restoration effort but are expected to be installed after the major earthwork in the river is complete. Installation would include recontouring of existing trails for proper drainage, select material placement, focused rock sills, strategic fencing and boulder placement, and signage and educational kiosk implementation. The proposed project would be consistent with goals and policies to site and develop park features and facilities; be consistent with the requirements and guidelines of the MSCP and all federal, state, and local policies; encourage recreational uses as buffers between the Open Space/Core Preserve Area and new private development; and encourage development standards for new roads across the Otay River to minimize impacts on habitat and wildlife movement as well as trail connectivity. The proposed project would also comply with the OVRP Trail Guidelines for education, design and layout, erosion control, signage, fencing, and kiosks; also, to ensure the proposed improvements are consistent with the OVRP Trail Guidelines, **Mitigation Measure LU-1** is required. As with the considerations taken into account regarding the City of Chula Vista Greenbelt Master Plan, the intent of this component of the proposed project is to ensure the OVRP Concept Plan is accommodated as part of the proposed project and to not preclude the future implementation of the OVRP Concept Plan in the project area.

The proposed project would restore and enhance hydrologic and sediment transport processes and native habitats in the Otay River Valley as well as provide City of Chula Vista Greenbelt Master Plan and OVRP Concept Plan trail improvements and has been designed to be in compliance and alignment with the goals and policies of the documents mentioned above. Therefore, with mitigation, the proposed project would not conflict with any applicable land use plan, policy, or regulation, and impacts would be less than significant.

Mitigation:

Mitigation Measure LU-1: Trail Improvements Consistent with Applicable City of Chula Vista Greenbelt Master Plan and Otay Valley Regional Park Trail Guidelines

All applicable trail guidelines from the City of Chula Vista's Greenbelt Master Plan and Otay Regional Park Trail Guidelines shall be shown on all applicable grading plans as details, notes, or as otherwise appropriate. All proposed designs for signage and fencing will be submitted to the City to verify consistency with the above mentioned guidelines. Finally, installation of all trail-related improvements will be subject to inspection by the City to confirm the improvements were constructed in accordance with the approved designs.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	**X**	☐
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?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact**. Implementation of the proposed project would not result in the loss of availability of a known mineral resource. Valuable mineral resources to the region and state that are also present in the City of Chula Vista include sand, gravel, and crushed rock resources. These are collectively known as construction aggregate. According to General Plan Figure 9-4, most of the project site is in a portion of the Otay River Valley that has been identified as a Mineral Resource Zone (MRZ)-2 area (City of Chula Vista 2015). This is an area where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists (City of Chula Vista 2015). The Otay River Valley is known to contain significant deposits of construction-quality sand reserves, and sand mining activities took place on the project site from 1982 to 1985. However, Nelson and Sloan Materials ceased its operations in 1985 because it was unable to complete new permitting processes required for in-stream mining. Since that time, the project site has been relatively unaltered and left in a highly disturbed state. It has also been designated as Open Space Preserve and delineated within the jurisdiction of the Chula Vista MSCP Preserve where the long-term vision for the entire preserve area, including the project site, is to cease mining, extraction, and processing activities altogether (City of Chula Vista 2015). Therefore, because mining activities at the project site ceased three decades ago and the future plans for the Chula Vista MSCP Preserve are to cease mining-related activities altogether, the proposed project would not 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. Impacts would be less than significant.

b) **Less-than-Significant Impact**. Implementation of the proposed project would not result in the loss of availability of a locally important mineral resource. As discussed above under threshold XII.a, although the project site is within a portion of the Otay River Valley that has been identified as an MRZ-2 area for construction aggregate resources and mining activities have occurred on the project site in the past, no such activities have occurred on site in the last three decades and there are no plans to commence such activities in the future. Furthermore, the project site is designated as Open Space Preserve per the General Plan and is within the planning boundaries for the Chula Vista MSCP Preserve, which has long-term goals to cease mining-related activities altogether within the entire preserve. Moreover, because the proposed project does not include the construction of physical structures, it would not preclude access to such resources in the future. Therefore, the proposed project would not 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, and impacts would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE. Would the project result in:				
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	**X**	☐
b) Generate excessive groundborne vibration or groundborne noise levels?	☐	☐	**X**	☐
c) Be 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 and expose people residing or working in the project area to excessive noise levels?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** Temporary traffic volume increases due to construction worker commutes, deliveries, and haul truck trips would not increase noise levels on local roadways by a significant amount. Noise levels associated with construction activities are predicted to be well below the 75-A-weighted-decibel (dBA) threshold set by the San Diego County Code, and construction noise would only occur during the permitted hours of 7 a.m. to 7 p.m., Monday through Friday. In addition, ongoing routine maintenance and monitoring activities would generate very low noise levels. Construction noise would be temporary and, as such, would not cause any permanent increases in ambient noise levels. After completion of the restoration process, the proposed project is not anticipated to generate any operational noise or significant vehicular traffic.

Existing Conditions

The closest noise-sensitive receptors to the proposed project are High Tech High Chula Vista (a public charter school serving approximately 600 students in grades 9 through 12), Otay Lakes County Park, George Bailey Detention Facility, and Richard J. Donovan Correctional Facility. Otay Lakes County Park also contains one residence used by the park ranger and staff. All of these noise-sensitive locations are shielded from the Otay River Valley floor to various degrees by the intervening topography.

In order to document the existing noise levels, three short-term measurements were obtained near the project site (see Figure 13) on October 23, 2015, for the 2016 Otay River Restoration Project HMMP and Initial Study (IS)/Mitigated Negative Declaration (MND) (City of Chula Vista 2016). These locations were selected to document the ambient noise levels at the nearest noise-sensitive receptors, as well as at the project site itself. Ambient noise levels were not directly measured at High Tech High Chula Vista or the Richard J. Donavan Correctional Facility because they are farther from the project site than the other measurement locations. However, it can reasonably be assumed that ambient noise levels at High Tech High Chula Vista would be at least as high as those measured at Otay Lakes County Park; this is considered to be a conservative assumption because the school is in a more developed area than the park and would be exposed to higher ambient noise levels. It can also be assumed that ambient noise levels at the Richard J. Donavan Correctional Facility would be at least as high as those measured at the George Bailey Detention Facility due to their proximity to one another. Each short-term measurement was conducted over a period of approximately 20 minutes. Noise measurements indicate that the average noise levels at these locations range from approximately 39 to 48 dBA

equivalent sound level (L_{eq}) (1-hour average noise level). Additional details and a summary of the measurement results are provided in Table 2-9. Field noise survey sheets are included in the technical attachment *Noise Field Sheets and Construction Noise Analysis for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021e) to this document.

Table 2-9. Existing Ambient Noise Levels in Study Area

Location Number, Location Description (date, time)	Measured Noise Levels, dBA							
	L_{eq}	L_{min}	L_{90}	L_{50}	L_{25}	$L_{8.33}$	$L_{1.67}$	L_{max}
ST-1: Otay Lakes County Park (10/23/2015, 11:39 a.m.–12:05 p.m.)	40.9	32.7	34.4	37.2	40.5	45.7	48.7	54.9
ST-2: South of the Otay Water Treatment Plant, adjacent to proposed project site (10/23/2015, 12:54 p.m.–1:20 p.m.)	39.3	26.5	27.9	31.9	38.8	44.5	47.9	58.5
ST-3: George Bailey Detention Facility (10/23/2015, 10:02 a.m.–10:56 a.m.)	47.5	38.2	40.5	44.1	47.2	51.1	56.6	63.7

Notes: ST= short-term; dBA = A-weighted sound level, the sound pressure level in decibels as measured using the A weighting filter network, which de-emphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear; L_{eq} = equivalent sound level, the average of the sound energy occurring over the measurement period; L_{max} = maximum sound level; L_{min} = minimum sound level; L_{xx} = percentile-exceeded sound level, the sound level exceeded for a given percentage of a specified period (e.g., L_{25} is the sound level exceeded 25% of the time, and L_{50} is the sound level exceeded 50% of the time)

The project site and High Tech High Chula Vista are within the City of Chula Vista. The Otay Lakes County Park, George Bailey Detention Facility, and Richard J. Donovan Correctional Facility are in unincorporated San Diego County. Because the study area spans both municipalities, the noise standards for both are considered in the discussion and analyses, below.

Construction

Two types of short-term noise impacts could occur during construction of the proposed project. First, construction workers who commute to the site and trucks that transport equipment and materials would incrementally increase noise levels on access roadways. The proposed project is anticipated to generate up to 20 daily vehicle round trips. This includes up to eight daily haul truck round trips associated with removal of vegetative debris during hours of construction activity, two daily vendor/delivery truck round trips, and 10 daily vehicle round trips associated with worker commutes. Worker commutes would access the site using Interstate 805, Main Street, and Wiley Road. Trucks, primarily hauling materials to the Otay Landfill (at the northern terminus of Maxwell Road), would access the site using Maxwell Road, Main Street, and Wiley Road. Noise impacts associated with construction worker commutes and truck trips would be less than significant for the following reasons:

- According to the *Traffic Analysis Report* (Chen Ryan Associates 2015) prepared for the 2016 Otay River Restoration Project HMMP and IS/MND (City of Chula Vista 2016), average daily traffic volumes on Main Street are in excess of 39,000 vehicles per day. The 20 daily vehicle round trips generated by the proposed project would add 40 daily vehicles to the average daily traffic. This would represent a very minor increase (much less than 1 percent), resulting in a negligible increase in average traffic noise levels.
- There are no noise-sensitive receptors within 1,000 feet of Wiley Road. This large distance, combined with the low number of project-generated vehicle trips, would result in extremely low average traffic noise levels at the closest noise-sensitive receptors to Wiley Road.
- Up to eight daily truck round trips would be generated on Maxwell Road. Although there could be a relatively high single-event noise level associated with each truck trip (e.g., passing trucks at 50 feet could generate up to 76 dBA), the truck pass-by at any single location would be very brief and the contribution of project-generated truck traffic to average noise levels (such as the daily Community Equivalent Noise Level) would be low due to the extremely low truck traffic volume.

The second type of short-term noise impact is related to noise generated from construction equipment. Project construction is anticipated to last a total of approximately 24 weeks. Chapter 19.68 of the City of Chula Vista Municipal Code provides the noise control ordinance of the City of Chula Vista, but it is noted that construction/demolition activities are exempted from the City's exterior noise standards. However, Chapter 17.24 of the City of Chula Vista Municipal Code prohibits the operation of construction equipment in residential zones on weekdays between 10:00 p.m. and 7:00 a.m., and on weekends between 10:00 p.m. and 8:00 a.m. Chapter 4, Sections 36.408 and 36.409, of the San Diego County Code set limits on the level and duration of noise that may be produced by construction equipment. Section 36.408 prohibits the operation of construction equipment on any day between 7 p.m. and 7 a.m., or at any time on a Sunday or a holiday. Section 36.409 provides thresholds for noise levels produced by construction equipment when operated during the permitted hours; it states the following:

> Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7 a.m. and 7 p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

All project-related construction activities would occur on weekdays between the hours of 7:00 a.m. and 5:00 p.m. As such, the proposed project's construction noise would be exempt from the City of Chula Vista's exterior noise standards. For this reason, and to provide a consistent analysis at each of the closest noise-sensitive receptors, all construction noise levels are calculated and assessed based on the County's 8-hour L_{eq} standard of 75 dBA.

Construction-related noise was analyzed based on the Federal Highway Administration's Roadway Construction Noise Model (Federal Highway Administration 2008), which predicts average noise levels (L_{eq}) at nearby receptors by analyzing the type of equipment, usage factor, number of hours in a workday, distance from source to receptor, ground type, and presence or absence of intervening shielding between source and receptor.

The anticipated equipment needed for each phase of construction is shown in Table 2-10. The distances used in the modeling were the acoustical average distances from the project site to nearby noise-sensitive receptors. The acoustical average distance is calculated by multiplying the shortest distance by the farthest distance and then taking the square root of the product. The topography of the project area provides shielding for nearby noise-sensitive receptors. However, shielding effects due to topography were not considered in this analysis in order to provide a conservative estimate of noise levels at receptor locations. It is also noted that the construction equipment used on any given day could be mobile across the entire project site. Therefore, actual noise levels during construction would vary depending on the relative distance from a given receptor to the current construction activities.

The results of the analysis at the closest noise-sensitive receptors are provided in technical attachment *Noise Field Sheets and Construction Noise Analysis for the Otay Trails and Mitigation Bank Expansion Project* (ICF 2021e) and summarized in Table 2-10. Figure 13 shows the locations of the noise-sensitive receptors in relation to the project site.

At all four receptor locations, the predicted noise level associated with construction activities would be well below the 75 dBA threshold set by the San Diego County Code. Because the noise would occur during the permitted hours of 7 a.m. to 7 p.m. and would be well below the 75 dBA threshold, the impact would be less than significant.

Table 2-10. Predicted Construction Noise Levels at Noise-Sensitive Receptors

Phase	Expected Equipment Needed (Number needed)	Estimated $L_{eq}(h)$, dBA			
		Receptor 1: High Tech High Chula Vista (6,300 feet*)	**Receptor 2: Otay Lakes County Park (3,900 feet*)**	**Receptor 3: George Bailey Detention Facility (6,000 feet*)**	**Receptor 4: Richard J. Donovan Correctional Facility (4,700 feet*)**
Phase 1: Site Preparation / Clearing	Bulldozer (2)	34	39	34	37
	Haul Truck (1)				
	Loader (1)				
	Grader (1)				
	Excavator (2)				
	Water Truck (3)				
Phase 2: Grading and Site Finish	Bulldozer (3)	37	42	37	40
	Haul Truck (4)				
	Loader (1)				
	Grader (1)				
	Excavator (2)				
	Grizzly Screen (1)				
	Water Truck (3)				

* Acoustical average distance to construction site
$L_{eq}(h)$ = hourly equivalent noise level

Implementation of the proposed project would result in a short-term, temporary increase in ambient noise levels in the project vicinity associated with construction equipment. Table 2-10 shows that construction noise levels are predicted to range from approximately 34 to 42 dBA (L_{eq}) at the closest noise-sensitive receptors. Average (L_{eq}) ambient noise levels at the George Bailey Detention Facility and Otay Lakes County Park are provided in Table 2-9. As discussed under *Existing Conditions*, above, ambient noise levels at High Tech High Chula Vista can conservatively be assumed to be the same as those measured at Otay Lakes County Park, and ambient noise levels at the Richard J. Donavan Correctional Facility can be assumed to be the same as those measured at the George Bailey Detention Facility. Predicted construction noise levels at the George Bailey Detention Facility, Richard J. Donavan Correctional Facility, and High Tech High Chula Vista are below the existing ambient noise levels at those locations, and the impact would be less than significant. Predicted construction noise levels at the Otay Lakes County Park would range from being 2 dB below (Phase 1) to 1 dBA above (Phase 2) the measured ambient noise level at that location. While construction noise would be minimally audible at the park during Phase 2 of construction, the overall impacts would be less than significant because construction noise would only occur during the permitted hours of 7 a.m. to 7 p.m. and the noise levels would be well below the County's standard of 75 dBA (8-hour L_{eq}). Therefore, impacts related to temporary ambient noise level increases would be less than significant.

Construction noise would be temporary and, as such, would not cause any permanent increases in ambient noise levels. Therefore, all permanent noise impacts related to construction would be less than significant.

Project Operation

Following completion of the construction phases, ongoing routine maintenance and monitoring, which would include trash, debris, and weed removal and could include the use of line trimmers, chainsaws, and skid steers, would continue. Due to the low levels of activity, the large distances to the closest

noise-sensitive receptors, and the low volume of traffic associated with commuting workers and dumpster hauling during routine maintenance and monitoring, noise impacts would be less than significant.

After completion of the restoration process, the proposed project is not anticipated to generate any operational noise or significant vehicular traffic. Therefore, all permanent noise impacts would be less than significant.

b) **Less-than-Significant Impact.** Groundborne vibration generated by construction activities would be well below the applicable criteria for perceptibility, and operation of the proposed project would not include any new activities or equipment that would generate perceptible groundborne vibration levels.

Heavy construction equipment has the potential to produce groundborne vibration levels that would be perceptible to people in the surrounding area. Section 19.68 of the Chula Vista Municipal Code defines the vibration perception threshold to be a motion velocity of 0.01 inch per second (in/sec). The County of San Diego does not provide any quantitative vibration standards or thresholds. Therefore, all construction vibration levels are calculated and assessed based on the City's threshold of 0.01 in/sec.

Based on the anticipated construction equipment list for the project, the worst-case vibration levels would be associated with the operation of heavy earthmoving equipment such as excavators and bulldozers. Based on data published by the California Department of Transportation (California Department of Transportation 2013), similar heavy equipment items (large bulldozers) produce peak particle velocity (PPV) vibration levels of 0.089 in/sec at a distance of 25 feet.

Vibration levels from construction equipment attenuate as they radiate from the source. The equation to determine vibration levels at a specific distance states that:

(*Equation 1*) $PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$

where PPV_{ref} is the PPV at a reference distance of 25 feet, and D is the distance from the equipment to the sensitive receptor (California Department of Transportation 2013). The value of 1.1 is determined based on the soil conditions at the project site and was chosen to represent hard soil to provide a conservative estimate of vibration levels. Using this equation, Table 2-11 summarizes the estimated vibration levels at the closest sensitive receptors to the project site and compares them to the City's vibration perception threshold.

Table 2-11. Construction Vibration Levels at Sensitive Receptors

Receptor	Distance to Closest Earthmoving Equipment (ft.)	Predicted Vibration level, PPV (in/sec)	Vibration Perception Threshold (in/sec)	Exceeds Vibration Perception Threshold?
Receptor 1: High Tech High Chula Vista	4,600	0.0003	0.01	No
Receptor 2: Otay Lakes County Park	1,900	0.0008	0.01	No
Receptor 3: George Bailey Detention Facility	3,800	0.0004	0.01	No
Receptor 4: Richard J. Donovan Correctional Facility	3,100	0.0004	0.01	No

Vibration levels at nearby sensitive receptors are predicted to be well below the City's vibration perception threshold of 0.01 in/sec, and the impact would be less than significant.

c) **Less-than-Significant Impact.** The closest private airstrip to the project site is John Nichol's Field Airport, which is over 3 miles northeast of the project site. The closest public airport to the project site is the Brown Field Municipal Airport, which is approximately 2 miles southwest of the project site. Brown Field Municipal Airport accommodates both general aviation aircraft and military aircraft. The project site is outside of the 60-decibel Community Noise Equivalent Level contour as illustrated in Exhibit III-1 in the *Brown Field Municipal Airport Land Use Compatibility Plan* (San Diego County Airport Land Use Commission 2010b). Therefore, the impact is considered less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 road or other infrastructure)?	☐	☐	☐	**X**
b) Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	**X**

Comments:

a) **No Impact**. The proposed project would not construct any homes or businesses, extend roads, or involve the addition of any growth-inducing infrastructure. As such, impacts would not be considered substantially growth-inducing either directly or indirectly, and no impacts would occur.

b) **No Impact**. The proposed project is located in the Otay River Valley where no housing or residential uses occur. Therefore, the proposed project would not displace any people and would not require the construction of replacement housing elsewhere. No impacts would occur.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES. 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 objectives for any public services:				
a) Fire protection?	☐	☐	☐	**X**
b) Police protection?	☐	☐	☐	**X**
c) Schools?	☐	☐	☐	**X**
d) Parks?	☐	☐	**X**	☐
e) Other public facilities?	☐	☐	☐	**X**

Comments:

a) **No Impact.** The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. No buildings or habitable structures that may require fire protection services are proposed. Moreover, once operational, the proposed project would be similar to the existing condition in terms of the need for fire protection services. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered fire protection facilities, and no impacts would occur.

b) **No Impact.** The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. No buildings or habitable structures that may require police protection services are proposed. Moreover, no people would reside on the project site. Once operational, the proposed project would be similar to the existing condition in terms of the need for police protection services. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered police protection facilities, and no impacts would occur.

c) **No Impact.** The proposed project would not result in adverse impacts on schools. Physical impacts on school facilities and services are usually associated with population in-migration and growth, which increases the demand for schools. The proposed project would have no effect on population growth and school demand. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered school facilities, and no impact would occur.

d) **Less-than-Significant Impact**. The proposed project would not result in adverse impacts on parks. Physical impacts on parks are usually associated with population in-migration and growth, which increase the demand for and use of parks. The proposed project would have no effect on population growth, although it is possible that use of onsite trails could increase slightly due to the proposed trail improvements and improved habitat available to view from the trail. This slight increase in trail use would not substantially degrade the existing trails. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered park facilities, and any related impact would be less than significant.

e) **No Impact**. The proposed project would not result in adverse impacts on other public facilities. As discussed above, physical impacts on public services are usually associated with population in-migration and growth, which increase the demand for public services and facilities. The proposed project would not increase the local population. Therefore, the proposed project would not result in increased demand requiring the need for new or physically altered public facilities, and no impacts would occur.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION. Would the project:				
a) 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?	☐	☐	**X**	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which have an adverse physical effect on the environment?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact**. The proposed project would not increase the use of existing neighborhood and regional parks. An increase in the use of existing parks and recreational facilities typically results from an increase in housing or population in an area. The proposed project would not result in an increase in housing or residents in the project vicinity; however, it is possible that the proposed trail improvements and enhanced and restored habitat may bring additional trail users to the project site and Otay Lakes County Park to view the project site. Any potential increase would be minimal, however, because trails, dirt roads, and unofficial trails already exist currently and are already in use. The proposed project's improvements, aimed at preventing disturbance to the restoration area, would not increase the use of existing recreation facilities such that substantial physical deterioration of recreation facilities would occur. Therefore, impacts on recreation would be less than significant.

b) **Less-than-Significant Impact.** The proposed project does not include recreational facilities or require the construction or expansion of such facilities. The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. Although it is possible that use of the trails would increase slightly due to the proposed trail improvements and improved habitat, the slight increase in trail use would not result in a substantial impact on recreational facilities because dirt roads and unofficial trails are already present and able to accommodate pedestrian, bicycle, and equestrian traffic. Therefore, the proposed project would not require the construction or expansion of recreational facilities such that a significant and adverse physical effect on the environment would occur. As a result, impacts on recreation would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	**X**	☐
b) Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	**X**	☐
c) Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	**X**
d) Result in inadequate emergency access?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** There are no transit lines, bus stops, transit stations, or transit facilities within a 0.25-mile radius of the project site. There are also no bicycle or pedestrian facilities within the project site. In addition, construction activities are not expected to result in a significant increase in traffic volumes. There are dirt roads within the project site that are used by SDG&E and the United States Border Patrol. SDG&E and the United States Border Patrol would be consulted prior to any temporary road closures. The proposed project would not require any modifications or closures to the public right-of-way. Construction of the proposed project is anticipated to occur in a single phase over approximately 24 weeks, beginning in the fall of 2020 and completing in spring of 2021. A maximum of eight haul truck round trips are expected to occur during a peak construction day to remove trash, invasive plant material, and construction debris from the project site to local county landfills in the area, such as the Otay Landfill. The Otay Landfill is approximately 3 miles west of the proposed project site. It is anticipated that trips to the landfill would exit the project site via Wiley Road, head west on Main Street, and then head north on Maxwell Road to access the landfill. Trucks would then return to the project site via the same route. According to the City of Chula General Plan, Land Use and Transportation Element (2005), Wiley Road is classified as a "Gateway Street (6 Lane)" east of State Route 125 and a "4 Lane Major" and "6 Lane Prime" west of State Route 125. Wiley Road eventually turns into Main Street, which is classified as a "6 Lane Prime." Maxwell Road is unclassified. Table 2-12 below describes the City's street segment performance standards and volumes for each classification mentioned above.

Table 2-12. Street Segment Performance Standards and Volumes

Street Classification	Acceptable LOS	Acceptable Volume (ADT)
Prime Arterial	C	50,000
Major Street (six lanes)	C	40,000
Major Street (four lanes)	C	30,000
Gateway Street (six lanes)	D	61,200

ADT = average daily traffic; LOS = level of service

A traffic analysis was conducted in December 2015 for the 2016 Restoration Project (Chen Ryan Associates 2015). The traffic analysis assumed a construction base year under Year 2020 conditions with construction trip generation rates similar to those of the proposed project. The traffic analysis was based on 20 total daily vehicle trips for construction workers and six total daily vehicle truck trips per day during the peak of project construction. The proposed project assumes 20 total daily construction worker trips (10 round trips) and 20 total daily vehicle truck trips (10 round trips) per day during the peak of project construction. The results of the 2015 traffic study found that all the intersections within the study area were anticipated to operate at acceptable level of service (LOS) D or better under Year 2020 conditions. Because the trip generation rates used in the traffic study are similar to those of the proposed project, it is expected that all the intersections within the proposed project area would also operate at acceptable LOS D or better under Year 2020 conditions. Post construction, the proposed project is not anticipated to generate any additional vehicular traffic except for periodic maintenance. This would include a maximum of one round trip per day for an operational worker. Therefore, the proposed project is not anticipated to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

b) **Less-than-Significant Impact.** State CEQA Guidelines §15064.3(b) generally requires CEQA documents for land use and transportation projects to evaluate impacts of such projects on vehicle miles traveled. This guideline applies prospectively and is effective statewide as of July 2019. As a restoration and recreation project, the proposed project would not generate substantial operational vehicular traffic and thus would not generate additional vehicle miles traveled. Short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas or cause congestion, as construction vehicles would be mainly contained on site and would be present temporarily. Additionally, according to the Governor's Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018), projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

   As described above in threshold XVII.a, a maximum of eight haul truck round trips are expected to occur during a peak construction day to remove trash, invasive plant material, and construction debris from the project location to local county landfills in the area, such as the Otay Landfill. The Otay Landfill is approximately 3 miles west of the proposed project site. A maximum of 10 round trips per day would be attributed to construction workers traveling to and from the project site. Additionally, there would be a maximum of two round trips per day for vendor/delivery truck trips. Therefore, there would be a total of 20 daily round trips from construction worker trips and truck trips during a peak construction day. Considering this is a temporary, minor increase in daily trips that would cease after the 24-week construction period, impacts are considered to be less than significant. Additionally, the number of trips associated with construction of the proposed project is below the Office and Planning and Research's threshold of significance of 110 trips per day. Post construction, the proposed project is not anticipated to generate any additional vehicular traffic except for periodic maintenance. This would include a maximum of one round trip per day for the operational worker. As described in threshold XVI.b, the proposed project would not require the construction or expansion of recreational facilities and, therefore, would not increase the number of visitors traveling to the site. As such, impacts related to vehicle miles traveled would be less than significant.

c) **No Impact.** The proposed project would include project features such as not allowing construction vehicles and equipment to park or stop along Wiley Road or using flag personnel to ensure the continued flow of traffic, which would ensure that the proposed project would not result in increased hazards or incompatible uses. No change to the local circulation network, including a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), are proposed. Therefore, no impact would occur.

d) **Less-than-Significant Impact.** The proposed project would not impair emergency access to the project site. Traffic in the surrounding areas is anticipated to be minimal and limited to onsite construction-related equipment entering and exiting the project area. The proposed project would not result in any substantial traffic queuing along Main Street or any other roadway with access to and from the site and would not allow any construction vehicles or equipment to park or remain stationary within the roadway. Moreover, the proposed project does not include any characteristics (e.g., permanent road closures, long-term blocking of road access) that would physically impair or otherwise interfere with emergency access in the project vicinity. All large construction vehicles entering and exiting the site would be guided by personnel using signs and flags to direct traffic. All access points, storage, and staging areas would be located in a manner that has the least impact on vehicular and pedestrian traffic. Any closures of access roads would be conducted in coordination with the Border Patrol, utility entities, the County and City of San Diego, and others. Implementation of the proposed project would not result in inadequate access for the Border Patrol or any other entity. Because no habitable structures or buildings are proposed and the proposed project would only improve the existing onsite natural habitat, emergency access would be adequate. Project features such as not allowing construction vehicles and equipment to park or stop along Wiley Road, using flag personnel to ensure the continued flow of traffic, and complying with programs, rules, and regulations for emergency response would ensure that the proposed project would not result in inadequate emergency access. Therefore, impacts would be less than significant.

Mitigation:

No mitigation is required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, 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:				
a) 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 section 5020.1(k), or	☐	☐	☐	**X**
b) 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	**X**	☐	☐

Comments:

a) **No Impact.** A records search at the South Coastal Information Center was conducted for the proposed project to determine if tribal cultural resources are present within the project site. No tribal cultural resources that are listed in or eligible for listing in the CRHR were identified during the records search; however, tribal cultural resources are not typically recorded. Additionally, a Sacred Lands File search of the project area was obtained from NAHC. No sacred lands were identified by NAHC. Therefore, the proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the CRHR or in a local register of historical resources, and no impact would occur.

b) **Less-than-Significant Impact with Mitigation Incorporated.** Pursuant to California Public Resources Code Section 21080.3.1 (Assembly Bill 52), California Native American tribes traditionally and culturally affiliated with the project area can request notification of projects in their traditional cultural territory. No tribes have requested notification from the City of Chula Vista. However, in the event that a tribal cultural resource is unexpectedly identified during the course of the proposed project, and the City determines that the project may cause a substantial adverse change to a tribal cultural resource, the City will rely on mitigation measures described in the Public Resources Code that, if the City determines to be feasible, may avoid or minimize the significant adverse impacts (Public Resources Code Section 21084.3 (b)). Therefore, **Mitigation Measure TCR-1** is the standard mitigation set forth in Assembly Bill 52.

Mitigation:

Mitigation Measure TCR-1: Protection of Resources

In the event that a tribal cultural resource is unexpectedly identified during the course of implementation of the proposed project, and the City of Chula Vista determines that the proposed project may cause a substantial adverse change to a tribal cultural resource, the City of Chula Vista will work with the consulting tribe(s) to employ one or more of the following standard mitigation measures.

1. Avoidance and preservation of the resources in place including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria
2. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
    i. Protecting the cultural character and integrity of the resource
    ii. Protecting the traditional use of the resource
    iii. Protecting the confidentiality of the resource
    iv. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places
3. Protecting the resource

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	**X**
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	**X**	☐
c) 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?	☐	☐	☐	**X**
d) 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?	☐	☐	**X**	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	**X**

Comments:

a) **No Impact.** As described in the Project Description, the proposed project would involve habitat and hydrological process restoration and the creation, modification, and expansion of trails. No new permanent water or wastewater facilities, or the expansion of existing facilities, are proposed. Under existing conditions, the proposed project site does not drain to the municipal storm drain system and would not contribute to the City's stormwater drainage network. The proposed project would not require the relocation or construction of any electric power, natural gas, or telecommunications facilities. Therefore, no impact would occur.

b) **Less-than-Significant Impact.** The proposed project is within the Otay Water District (OWD) service area (Otay Water District 2019). OWD is a member agency of the San Diego County Water Authority, which is responsible for the supply of imported water into San Diego County through its membership with Metropolitan Water District of Southern California. OWD's water service area is generally located within the south-central portion of San Diego County and includes approximately 126 square miles (CH2M 2016). OWD serves a wide spectrum of communities including southern El Cajon, La Mesa, Rancho San Diego, Jamul, Spring Valley, Bonita, eastern City of Chula Vista, East Lake, Otay Ranch, and Otay Mesa areas. The proposed project would not require significant water supplies, as there is no development of land uses proposed that would require the long-term use of water supplies. Temporary watering would occur during implementation of the proposed project as a method to control dust and during the planting and

establishment phase. No groundwater wells or pumps are included as part of the proposed project. A temporary irrigation system was put in place as part of the 2016 Restoration Project and would be reused for the proposed project.

OWD meets all of its potable water demands with imported water from the San Diego County Water Authority from Pipeline Number 4 of the Second San Diego County Aqueduct and from the 36-inch Jamacha Pipeline that are owned and operated by the San Diego County Water Authority. OWD has established a goal to sustain a 10-day outage of supply from the Water Authority Pipeline Number 4 at any time of the year without a reduction in service level. OWD seeks to obtain this level of supply reliability through the development of alternative water supplies, through agreements with neighboring water districts, and through treated water storage. For emergency events longer than the 10-day aqueduct shutdowns noted previously, OWD will utilize emergency supplies developed by the Water Authority's Emergency Storage Project. OWD also has two sources of recycled water supply: OWD's Ralph W. Chapman Water Recycling Facility and the City of San Diego's South Bay Water Reclamation Plant (CH2M 2016)

According to OWD's 2015 Urban Water Management Plan Update, both the San Diego County Water Authority and Metropolitan Water District of Southern California have determined in their respective Urban Water Management Plans that they will be able to meet projected demands through 2040, which include potable water demands for OWD. Therefore, in turn, OWD predicts that it is capable of meeting potable water demands through 2040 (CH2M 2016). Approximately 90 percent of OWD's customers are single-family residences, and much of the anticipated development in OWD's service area is expected to be single-family residential. OWD's actual water demands for 2015 as compared to actual water demands for 2010 are shown in Table 2-13, and Table 2-14 shows OWD's projected potable water demands through 2040.

It is estimated the proposed project would require approximately 10.8 million gallons,[11] or 33.1 acre-feet, of water during construction for dust control and 41.4 million gallons,[12] or 127.1 acre-feet, of water during maintenance and monitoring. Given that the proposed project's water demand would be temporary and would make up less than 0.1 percent of OWD's total projected water demand through 2040, it is anticipated OWD would have sufficient water supplies to serve the proposed project, and new or expanded entitlements and resources would not be required. Therefore, impacts would be less than significant.

Table 2-13. Demands for Potable Water in 2010 and 2015: Actual

Use Type	Level of Treatment When Delivered	2015 Actual Volume (acre-feet)	2010 Actual Volume (acre-feet)
Single Family	Drinking Water	16,641	17,165
Multi-Family	Drinking Water	3,403	3,605
Commercial	Drinking Water	2,675	2,243
Industrial	Drinking Water		
Institutional	Drinking Water	2,026	1,867
Landscape/Irrigation	Drinking Water	4,121	3,732
Losses	Drinking Water	920	1,854
Other	Drinking Water	513	709
Total		30,299	31,175

[11] Estimated 24 weeks (120 working days) with three 2,000-gallon water trucks utilizing 15 loads each per day.
[12] Estimated 5 gallons per plant planted (total of 120,000 plants) per week from April to November for 2 years.

Table 2-14. Demands for Potable Water: Projected 2020, 2025, 2030, 2035, and 2040

Use Type	2020 volume (acre-feet)	2025 volume (acre-feet)	2030 volume (acre-feet)	2035 volume (acre-feet)	2040 volume (acre-feet)
Single Family	17,072	19,806	20,752	20,649	23,224
Multi-Family	5,557	6,732	7,342	7,585	8,837
Commercial	6,578	7,949	8,654	8,924	10,378
Industrial					
Institutional					
Landscape/Irrigation	4,400	4,600	4,700	4,900	5,200
Near Term Annexations	2,973	2,973	2,973	2,973	2,973
Other	470	470	470	470	470
Total	37,050	42,530	44,891	45,501	51,082

c) **No Impact.** The proposed project would not involve the development of land uses that would generate wastewater. The project proposes habitat and hydrological process restoration and the creation, modification, and improvement of trails and would not require wastewater services such that capacity would need to be expanded to support the project. During site preparation activities, a portable toilet may be provided. The toilet would be hauled away and the waste disposed of at an approved facility in accordance with solid waste laws. As such, no project impacts would occur related to wastewater treatment requirements.

d) **Less-than-Significant Impact.** Waste and recycling disposal in the City of Chula Vista are provided by private companies. Recyclable materials are transferred to third-party providers, and municipal solid waste, commercial waste, and non-hazardous industrial waste are transported to the Otay Landfill, located at 1700 Maxwell Road, Chula Vista, CA 91911. The Otay Landfill is estimated to reach capacity in the year 2027 (Otay Landfill 2019).

The project would not 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 goals. The proposed project would not significantly affect the capacity of a landfill or require the expansion of local infrastructure by accommodating the proposed project's solid waste disposal needs.

During site preparation and removal of invasive species, green waste would be generated and completely removed from the project sites and disposed of at the closest acceptable landfill or composting facility in San Diego County. Except for routine maintenance associated with ensuring the health of the vegetation, the proposed project would not generate waste of any kind once operational. Therefore, the proposed project would have no impact related to solid waste.

e) **No Impact.** The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. See threshold XIV.d. Green waste would be disposed of in accordance with applicable statutes and regulations. Only small amounts of green waste would be generated once the proposed project is operational and such waste would only be related to ensuring the health of the vegetation. Therefore, no impact would occur.

Mitigation:

No mitigation is required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	**X**	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	**X**	☐
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 on the environment?	☐	☐	**X**	☐
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?	☐	☐	**X**	☐

Comments:

a) **Less-than-Significant Impact.** An emergency plan describes a comprehensive emergency management system that provides for the planned response to disaster situations associated with natural disasters, technological incidents, terrorism, and nuclear-related incidents. The County of San Diego, including the City of Chula Vista, uses the Operational Area Emergency Operations Plan to respond to major emergencies and disasters. The plan identifies a broad range of potential hazards and a response plan.

According to Annex Q, Evacuation, primary evacuation routes identified in the plan consist of the major interstates, highways, and primary arterials within San Diego County (County of San Diego 2018). The primary evacuation route closest to the project site is State Route 125, which is approximately 0.8 mile west of the project site. However, as noted in the plan, specific evacuation routes would be determined based on the location and extent of the incident and would include as many predesignated transportation routes as possible (County of San Diego 2018).

In addition to the Operational Area Emergency Operations Plan, the proposed project would be required to comply with applicable requirements set forth by the County of San Diego Office of Emergency Services' Emergency Operations Plan, Chula Vista Police Department, and City of Chula Vista Fire Department, such as requirements related to evacuation during wildfires. The Office of Emergency Services provides coordination of emergency response at the local level in the event of a disaster, including wildland fires. This emergency response coordination is facilitated by the Operational Area Emergency Operations Center and responding agencies to the proposed project, the Chula Vista Police Department, and City of Chula Vista Fire Station No. 3. Furthermore, development of trails and access roads on the project site would be conducted in coordination with the U.S. Border Patrol to ensure the proposed project provides adequate access.

The proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails, the addition of protective fencing, and the inclusion of educational kiosks in an area surrounded by open space with no major arterials immediately adjacent. Therefore, construction and operational activities conducted on the project site would not impair the implementation of any local emergency response plans and the effectiveness of emergency response personnel. Additionally, the proposed project would support establishment of a Greenbelt system that limits the use of multi-use trails to non-motorized uses except for motorized wheelchairs and utility, maintenance, and emergency vehicles, making emergency response in the project area more effective. Impacts would be less than significant.

b) **Less-than-Significant Impact.** CAL FIRE's Fire Hazard Severity Zone Maps evaluate the likelihood that an area will burn over a 30- to 50-year period. These maps are used to inform building construction standards on building permits; natural hazard disclosure at time of sale; defensible space clearance around buildings; and property development standards such as road widths, water supply, and address signs. These maps are also used in city and county general plans. The project site is within both High Fire Hazard Severity Zones and VHFHSZs in San Diego County's Local Responsibility Area (CAL FIRE 2009a, 2009b).

   The proposed project involves the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails, the addition of protective fencing, and the inclusion of educational kiosks. Proposed project improvements could introduce new potential ignition sources in high fire hazard areas in the form of vegetation from restoration activities, vehicles, and small machinery for invasive species removal. The Otay Ranch GDP and Chula Vista's General Plan require development projects to develop firebreaks and fuel modification plans. Because the proposed project would not construct any homes or businesses or extend roads, the proposed project does not require a firebreak or fuel modification plan. However, all activities under the proposed project would be required to comply with applicable construction and design standards that ensure the incorporation of fire prevention features.

   Although fire can be a potential threat in some areas of the proposed project site, the proposed project does not include housing or commercial development and would not draw a substantial amount of people during construction activities. Impacts would be less than significant.

c) **Less-than-Significant Impact.** As discussed above, the project site is in a Local Responsibility Area and fire hazard severity zone designations in the project site range from high fire hazard to very high fire hazard. The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. Implementation of the proposed project could occur in VHFHSZs mapped by CAL FIRE (discussed above). If implementation of the proposed project would occur within a VHFHSZ, the proposed project would comply with the policies of the City of Chula Vista General Plan, the County of San Diego Operational Area Emergency Operations Plan, and the County of San Diego's Multi-Jurisdictional Local Hazard Mitigation Plan. Impacts would be less than significant.

d) **Less-than-Significant Impact.** As discussed in more detail in Section VIII, *Geology, Soils, and Paleontological Resources*, and Section X, *Hydrology and Water Quality*, construction and operation of the proposed project would comply with general plan policies that would specify design requirements to minimize risk of exposure to geologic and hydrologic hazards, including flooding, landslides, runoff, and drainage changes. Furthermore, the proposed project would comply with the County of San Diego's Multi-Jurisdictional Local Hazard Mitigation Plan, which includes strategies to reduce the loss of life, personal injury, and property damage that can result from disasters, including wildfire. As discussed in thresholds X.c.ii and iv, the proposed project would result in an incremental improvement to drainage patterns over existing conditions and would not affect flooding off site. Therefore, the proposed project would not substantially alter the existing drainage pattern of the restoration site or area or result in a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on or off site. Therefore, impacts would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. CITY THRESHOLDS: Will the proposal adversely impact the City's Threshold Standards?				
A) Library The City shall construct 60,000 gross square feet (GSF) of additional library space, over the June 30, 2000 GSF total, in the area east of Interstate 805 by buildout. The construction of said facilities shall be phased such that the City will not fall below the citywide ratio of 500 GSF per 1,000 population. Library facilities are to be adequately equipped and staffed.	☐	☐	☐	**X**
B) Police a) Emergency Response: Properly equipped and staffed police units shall respond to 81 percent of "Priority One" emergency calls within seven (7) minutes and maintain an average response time to all "Priority One" emergency calls of 5.5 minutes or less. b) Respond to 57 percent of "Priority Two" urgent calls within seven (7) minutes and maintain an average response time to all "Priority Two" calls of 7.5 minutes or less.	☐	☐	☐	**X**
C) Fire and Emergency Medical Emergency response: Properly equipped and staffed fire and medical units shall respond to calls throughout the City within 7 minutes in 80% of the cases (measured annually).	☐	☐	☐	**X**
D) Traffic The Threshold Standards require that all intersections must operate at a Level of Service (LOS) "C" or better, with the exception that Level of Service (LOS) "D" may occur during the peak two hours of the day at signalized intersections. Signalized intersections west of I-805 are not to operate at a LOS below their 1991 LOS. No intersection may reach LOS "E" or "F" during the average weekday peak hour. Intersections of arterials with freeway ramps are exempted from this Standard.	☐	☐	**X**	☐
E) Parks and Recreation Areas The Threshold Standard for Parks and Recreation is 3 acres of neighborhood and community parkland with appropriate facilities/1,000 population east of I-805.	☐	☐	☐	**X**

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
F) Drainage The Threshold Standards require that storm water flows and volumes not exceed City Engineering Standards. Individual projects will provide necessary improvements consistent with the Drainage Master Plan(s) and City Engineering Standards.	☐	☐	☐	**X**
G) Sewer The Threshold Standards require that sewage flows and volumes not exceed City Engineering Standards. Individual projects will provide necessary improvements consistent with Sewer Master Plan(s) and City Engineering Standards.	☐	☐	☐	**X**
H) Water The Threshold Standards require that adequate storage, treatment, and transmission facilities are constructed concurrently with planned growth and that water quality standards are not jeopardized during growth and construction. Applicants may also be required to participate in whatever water conservation or fee off-set program the City of Chula Vista has in effect at the time of building permit issuance.	☐	☐	**X**	☐

Comments:

A. **No Impact.** The proposed project would not adversely affect the City's threshold standards for libraries. As discussed in Sections XIV, *Population and Housing*, and XV, *Public Services*, the proposed project would not induce substantial population growth or increase the demand for public facilities, including library services. Therefore, no impacts on library facilities would occur.

B. **No Impact.** The proposed project would not adversely affect the City's threshold standards for police. As discussed in threshold XV.b, the proposed project would not result in an increased demand requiring the need for new or physically altered police protection facilities. No buildings or habitable structures that may require police protection services are proposed. Moreover, no people would reside on the project site. Once operational, the proposed project would be similar to the existing condition in terms of the need for police protection services. Therefore, the proposed project would not adversely affect emergency response times for police, and no impacts would occur.

C. **No Impact.** The proposed project would not adversely affect the City's threshold standards for fire and medical. As discussed in threshold XV.a, the proposed project would not result in an increased demand requiring the need for new or physically altered fire protection facilities. No buildings or habitable structures that may require fire protection services are proposed. Moreover, once operational, the proposed project would be similar to the existing condition in terms of the need for fire protection services. Therefore, the proposed project would not adversely affect emergency response times for fire and medical units, and no impacts would occur.

D. **Less-than-Significant Impact.** As described in threshold XVII.a, construction activities of the proposed project are not expected to result in a significant increase in traffic volumes or delay. Construction of the proposed project is anticipated to occur in a single phase over approximately 24 weeks, beginning in the fall of 2020 and completing in spring of 2021. A maximum of eight haul truck round trips are expected to occur during a peak construction day to remove trash, invasive plant material, and construction debris from the project site to local county landfills in the area, such as the Otay Landfill. The Otay Landfill is approximately 3 miles west of the proposed project site. It is anticipated that trips to the landfill would exit the project site via Wiley Road, head west on Main Street, and then head north on Maxwell Road to access the landfill. Trucks would then return to the project site via the same route. According to the City of Chula General Plan, Land Use and Transportation Element (2005), Wiley Road is classified as a "Gateway Street" east of State Route 125 and a "4 Lane Major" and "6 Lane Prime" west of State Route 125. Wiley Road eventually turns into Main Street, which is classified as "6 Lane Prime." Maxwell Road is an unclassified roadway. Table 2-12, as shown in threshold XVII.a, describes the street segment performance standards and volumes. A maximum of 10 construction workers would be coming to/from the project site during a peak construction day. It is assumed that all construction worker traffic will access the proposed project from Interstate 805, head east on Main Street, and access the project site via Wiley Road. Additionally, there would be a maximum of two round trips per day for vendor/delivery truck trips. Therefore, during a peak construction day, there would be a maximum total of 20 round trips occurring.

   As mentioned above, a traffic analysis was conducted in December 2015 for the 2016 Restoration Project (Chen Ryan Associates 2015). The traffic analysis assumed a construction base year under Year 2020 conditions with construction trip generation rates similar to those of the proposed project. The traffic analysis was based on 20 total daily vehicle trips for construction workers and six total daily vehicle truck trips per day during the peak of project construction. The proposed project assumes 20 total daily construction worker trips (10 round trips) and 20 total daily vehicle truck trips (10 round trips) per day during the peak of project construction. The results of the traffic study found that all the intersections within the study area were anticipated to operate at acceptable LOS D or better under Year 2020 conditions. Because the trip generation rates used in the traffic study are similar to those of the proposed project, it is expected that all the intersections within the proposed project study area would also operate at acceptable LOS D or better under Year 2020 conditions. Post construction, the proposed project is not anticipated to generate any additional vehicular traffic except for periodic maintenance. This would include a maximum of one round trip per day. No impact related to operational traffic would result with implementation of the proposed project. As such, overall impacts of the proposed project on traffic of the surrounding area would not significantly affect any of the study intersections evaluated and no operational impacts would result.

E. **No Impact.** The proposed project would not adversely affect the City's threshold standards for parks and recreation areas. As discussed above, the proposed project would not result in an increase in housing or residents in the project vicinity that would result in increased demand for parks and recreation areas. No impact would occur.

F. **No Impact.** The project site does not drain to the municipal storm drain system and would not contribute to the City's stormwater drainage network. The project site is within the Otay River Valley, and implementation of the proposed project would involve restoration and enhancement of the hydrology of the river and channels and native habitat within the project boundaries. The proposed project would not generate additional stormwater flows or volumes. In fact, the proposed project would serve to improve existing hydrological conditions and would slightly decrease 100-year flood elevations in the project vicinity. Therefore, the proposed project would not exceed City Engineering Standards, and no impacts would occur.

G. **No Impact.** The proposed project would not adversely affect the City's threshold standards for sewer flows. As discussed in Section XIV, *Utilities and Service Systems*, the proposed project would not generate any sewer wastewater, and no impacts would occur.

H. **Less-than-Significant Impact.** As discussed above in Sections X, *Hydrology and Water Quality*, and XV, *Public Services*, the proposed project is not growth-inducing and would not violate any water quality standards. The proposed project would affect water storage, treatment, or transmission facilities, and impacts would be less than significant.

Mitigation:

No mitigation measures are required.

Issues:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXII. MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:				
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?	☐	**X**	☐	☐
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.)	☐	☐	**X**	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	**X**	☐	☐

Comments:

a) **Less-than-Significant Impact with Mitigation Incorporated**. As discussed in Section V, *Biological Resources*, and in the BRR, the ultimate goal of the proposed project is to restore the Otay River and surrounding natural communities and create an ecologically functional, self-sustaining wetland that is resilient to a range of natural disturbances (e.g., drought, flood) within the project area. Temporary impacts associated with the proposed project would result from two restoration activities: habitat restoration (habitat enhancement and rehabilitation) and grading (for habitat establishment and re-establishment). A relatively small amount of permanent impacts would occur from the creation of new trails, which would include grading, and from work (channel armoring) on at least two existing stream crossings. All habitat restoration and establishment/re-establishment impacts are considered temporary because the proposed project is a restoration activity, and any affected area would be restored with native vegetation, ultimately leading to a net gain in viable habitat and native plant communities as well as overall improvement in river conditions. Impacts on special-status plant and wildlife species would be mostly avoided and minimized through avoidance as part of the proposed project's design. Potentially significant impacts on special-status plants and wildlife would be reduced to less than significant through implementation of proposed project mitigation measures discussed herein (**Mitigation Measures BIO-1** through **BIO-12**). Therefore, the proposed project would not degrade the quality of the environment or reduce sensitive or special-status plant or wildlife species' populations, communities, or ranges.

As described in Section VI, *Cultural Resources*, no existing structures or buildings occur within the project boundary and, therefore, implementation of the proposed project would not cause a substantial adverse change in the significance of a historical resource. Furthermore, despite the paucity of

archaeological deposits identified within the project area during previous surveys, there is the potential for cultural resources eligible for the CRHR to occur within the project site. Potential impacts on eligible resources could occur from these proposed activities if ground disturbance occurs within cultural resource boundaries. However, in order to reduce or minimize impacts on cultural resources, the proposed project would incorporate **Mitigation Measures CUL-1** through **CUL-3**. As part of the mitigation measures, the proposed project would establish ESAs around areas of artifact concentration and prohibit ground-disturbing activities and avoid impacts in the ESAs **(Mitigation Measure CUL-1**). In addition to establishing ESAs, areas of archaeological and tribal monitoring would be established within an existing cultural resources boundary but in areas where no artifact concentrations were identified during survey efforts. Ground-disturbing activities occurring within MAs will require the presence of an archaeological monitor.

The ESAs and MAs would be incorporated into the cultural resources treatment and monitoring plan (**Mitigation Measure CUL-2**) and would be made available to non-archaeological staff for scheduling purposes. In addition, given the prehistoric archaeological sensitivity of the proposed project area, and in order to minimize impacts on prehistoric resources, the proposed project would incorporate **Mitigation Measure CUL-3**. Therefore, with implementation of **Mitigation Measures CUL-1** through **CUL-3**, impacts on important California history or prehistory would be less than significant.

b) **Less-than-Significant Impact**. A cumulative impact would occur if the proposed project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present, and reasonably foreseeable future projects for each resource area. The City of Chula Vista identified seven individual projects within the City to be considered for cumulative impacts because of the proximity to the project site. The projects are described below and shown on Figure 14 (see Attachment 1 for all figures).

- **University Park & Innovation Center**, located within Otay Ranch, on Hunter Parkway, east of highway 125, south of Birch Road. This project proposes development of approximately 383.8 acres in the Otay Ranch community in the City of Chula Vista as a university site with a mix of retail and residential land uses that transition to open space areas south of the project site toward the Otay River Valley. This development is composed of two properties: the Main Campus Property (approximately 353.8 acres) and the Lake Property (approximately 30 acres). The project has been approved and construction is anticipated through 2030.
- **University Village Ten**, located east of Highway 125 and south of Hunte Parkway, north of Wiley Road. This development proposes 691 single-family dwelling units and 1,049 multi-family dwelling units. The project site is 363.4 acres. The project has been approved and construction is anticipated from 2023 through 2029.
- **University Village Nine**, located within Otay Ranch east of Village Eight West and Highway 125. This development proposes 266 single-family dwelling units, 3,734 multi-family dwelling units, 1,500,000 square feet of commercial, 5.0 acres of community purpose facilities, 19.8 acres dedicated to school property, 27.5 acres of park land, 85.0 acres of industrial/research technology park, and 50.0 acres for the future University site. The project has been approved and construction is anticipated through 2030.
- **University Village Eight East**, located within Otay Ranch, west of Highway 125, south of Rock Mountain Road. This development proposes 963 single-family dwelling units, 2,597 multi-family dwelling units, and 20,000 square feet of commercial on 576 acres. The project has been approved and Section Planning Area and Tentative Map Amendments are currently under review. Construction is anticipated through 2024.
- **Millenia**, located within Otay Ranch, west of Highway 125, south of Rock Mountain Road. This development proposes 2,983 multi-family dwelling units and 3,487,000 square feet of office/commercial on 207 acres. The project has been approved and is currently under construction. It is assumed the project would still be under construction during implementation of the proposed project.
- **University Village Eight West**, located within Otay Ranch south of Santa Luna Street. This development proposes 621 single-family dwelling units, 1,429 multi-family dwelling units, 300,000 square feet of commercial land use, 5.8 acres of community purpose facilities, 31.6 acres dedicated to school property,

and 27.9 acres of park land. The project has been approved and Section Planning Area and Tentative Map Amendments are currently under review. Construction is anticipated through 2030.

- **University Village Four**, located within Otay Ranch west of Village 8 West and east of Wueste Road. This development proposes 73 single-family dwelling units and 277 multi-family dwelling units on 166 acres. The project has been approved and entitlement and commencement of construction is expected shortly. It is assumed the project would still be under construction during implementation of the proposed project.

As discussed in Sections I through XX, the proposed project would not result in any significant impacts. Resource areas where the proposed project could potentially contribute to cumulative impacts are discussed for the resources below; however, the proposed project would not result in a cumulatively considerable impact for the following reasons.

Aesthetics

As described in the University Village Project Final Environmental Impact Report for Village Four, Village Eight East, Village Eight West, Village Nine, Village Ten, and the University Park and Innovation Center, the impacts on aesthetics and landform alteration as a result of these projects would contribute to a significant and unavoidable cumulative impact. Development of the cumulative projects would result in the permanent alteration of the cumulative projects' area from undeveloped rolling hills to high-density urbanized uses (City of Chula Vista 2014).

The visual setting of the proposed project site includes the valley floor of the Otay River Valley, which is designated as a scenic resource and Open Space Preserve by the City of Chula Vista General Plan. As described in Section I, *Aesthetics*, the proposed project would not result in an adverse effect on a scenic vista due to the short-term, phased nature of construction activities associated with the creation, modification, and expansion of trails and mitigation bank expansion. In addition, the trail improvements proposed as part of the proposed project would be implemented in compliance with the City of Chula Vista Greenbelt Master Plan and the OVRP Concept Plan. Furthermore, the proposed project would not substantially damage any scenic resources along a scenic highway, and once completed would enhance the visual quality of the site. Therefore, although implementation of the cumulative projects listed above would contribute to a significant and unavoidable cumulative impact, the proposed project would result in beneficial aesthetic impacts and thus would not contribute to the existing cumulatively significant impact.

Agriculture and Farmland Resources

None of the cumulative project sites are designated for agricultural uses by either the City of Chula Vista General Plan or Zoning Code. Therefore, development of these projects would not contribute to or create a cumulatively significant impact related to agricultural resources.

As described in Section II, *Agricultural Resources*, the proposed project is within and adjacent to areas of Farmland of Local Importance and Grazing Land per Farmland Mapping and Monitoring Program data for San Diego County. There are approximately 89.1 acres of Farmland of Local Importance and 39.9 acres of Grazing Land identified within the proposed project site. However, the project site and the surrounding area are designated as Open Space Preserve by the City of Chula Vista General Plan and zoned Residential by the City of Chula Vista's Zoning Code, and no agricultural activities occur in the area. The proposed project would not result in the conversion of existing Farmland of Local Importance and would not involve significant changes in the existing land use. Therefore, the proposed project would not contribute to or create a cumulatively significant impact.

Air Quality

The cumulative study area for air quality is the San Diego Air Basin (defined as all of San Diego County). The San Diego Air Basin is currently designated as a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The designations are a result of emissions generated by past and present projects, and will continue to be influenced by reasonably foreseeable future projects. Cumulative impacts could result

if a project exceeds established thresholds for pollutants for which the region is designated as nonattainment. In addition, if a project does not exceed established pollutant thresholds and is determined to have less-than-significant impacts at the project level, it may still contribute to a significant cumulative air quality impact if emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, a project would only be considered to have a significant cumulative impact if the project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

All of the cumulative projects (#1 through #7) would contribute varying amounts of criteria pollutant emissions, which, when combined with the proposed project, could exceed established thresholds and thus result in a cumulatively significant impact on air quality. Given the rural nature of the project area and the short duration of construction for the proposed project, it is not anticipated that extensive construction or operation of cumulative projects would occur while the proposed project is being constructed. Possible cumulative impacts on air quality as a result of construction activities in the area would be addressed by compliance with SDAPCD rules and regulations, which apply to all construction projects. As discussed in Section III, *Air Quality*, the proposed project would not result in construction or operational emissions that would exceed SDAPCD's trigger levels and, therefore, would not negatively affect regional air quality. Because both the proposed project's construction and operational emissions would be well below the SDAPCD trigger levels, the proposed project would not contribute to any significant cumulative impacts related to the nonattainment status for O_3, PM_{10}, or $PM_{2.5}$. Therefore, the proposed project's pollutant emissions contribution would not be cumulatively considerable.

Biological Resources

Cumulative impacts occur when biological resources are either directly or indirectly affected to a minor extent as a result of a specific project, but the project-related impacts are part of a larger pattern of similar minor impacts. The overall result of these multiple minor impacts from separate projects is considered a cumulative impact on biological resources.

Development of the cumulative projects listed above would likely include both direct and indirect significant and unavoidable permanent and temporary impacts on biological resources. In 2005, the City of Chula Vista updated the Otay Ranch General Development Plan, which was originally approved in 1993 along with its Program Environmental Impact Report (EIR) (City of Chula Vista 2019). The General Development Plan followed the adoption of the City of Chula Vista MSCP Subarea Plan (City of Chula Vista 2003b) in 2003 and the Otay Ranch Resource Management Plan in 1996, as updated in 2018 (RECON 2018), and was therefore compliant with the regulations set forth in the plans; the General Development Plan was further amended in 2013 and recently updated in 2019 (City of Chula Vista 2019). In 2005, the City of Chula Vista prepared an EIR for the City's General Plan, which addressed amendments to the Otay Ranch General Development Plan; the EIR was updated in 2012 (City of Chula Vista 2012). Because compliance with the City of Chula Vista MSCP Subarea Plan and Otay Ranch Resource Management Plan reduces significant impacts on biological resources, including by use of biological mitigation measures required for development projects, the impacts of the General Development Plan were found to not be significant (due to impacts being self-mitigated by implementation of General Plan Objectives and Policies).

The University Village Project Final EIR (which included a portion of Village Four, Village Eight East, and Village Ten), the Village Four Final EIR, the University and Innovation District Final EIR, and the Eastern Urban Center Final EIR identified significant unavoidable impacts on biological resources in Otay Ranch due to loss of sensitive plant species, loss of habitat for special-status wildlife species, loss of sensitive vegetation communities, loss of jurisdictional waters, and indirect impacts from increased human presence and temporary construction-associated activities (City of Chula Vista 2014, Dudek 2018, HELIX 2018, City of Chula Vista 2009). However, these impacts would be mitigated through sensitive species-specific mitigation measures, conveyance of preserve lands to the

City of Chula Vista for acres of jurisdictional and sensitive species habitats impacted, along with habitat restoration, as required by the Otay Ranch Resource Management Plan and City of Chula Vista MSCP Subarea Plan. Wetlands mitigation is also expected as conditions of wetlands permits, and temporary construction areas would be revegetated with native species. The conveyance program, coupled with habitat restoration, is intended to conserve a greater or equal amount of sensitive vegetation types within Otay Ranch.

In a regional context, the Otay Ranch Preserve Resource Management Plan provides CEQA mitigation for development of less sensitive areas within the areas proposed for development on Otay Ranch. Therefore, the proposed project design must demonstrate conformance with the conservation goals and preserve boundaries of the General Development Plan, Resource Management Plan, and City of Chula Vista MSCP Subarea Plan. As described in the BRR, the proposed project is consistent with the conservation goals and preserve boundaries of the GDP, RMP, and City of Chula Vista MSCP Subarea Plan. The proposed project is mostly limited to the grading, revegetation, and restoration/enhancement of the project area associated with restoration of the Otay River and surrounding natural communities. The proposed project would result primarily in temporary impacts on sensitive species' use of the area; very limited permanent impacts would occur from a small amount of natural habitat conversion to maintained trails and armored stream crossings. The proposed project vicinity is immediately surrounded by extant undeveloped land, the existing resources of which would not significantly change during the time that the proposed project is active. In addition, the mitigation bank restoration project adjacent to and upstream of the proposed project (i.e., 2016 Restoration Project composed of the Original Mitigation Bank and Pre-Bank areas) will also be improving the function and quantity of natural habitats for special-status or sensitive species, riparian habitats, and sensitive vegetation communities in the vicinity. The proposed project would comply with all regulatory requirements as appropriate, per **Mitigation Measure BIO-1**. Temporal loss of habitat for listed species, in particular, may be addressed during Section 7 consultation and the extent to which the upstream river restoration project has begun to provide for habitat functions and values during the timeframe for the restoration enhancement activities envisioned in the proposed project. Implementation of **Mitigation Measures BIO-2** through **BIO-5**, **BIO-11**, and **BIO-12** would further minimize impacts on special-status species, sensitive habitats, and jurisdictional resources. Overall, the proposed project, with mitigation measures incorporated, would result in a site with permanent net gains in special-status and sensitive species' habitats and functions and values of jurisdictional wetlands and waters; therefore, impacts would not be cumulatively significant when considered in conjunction with those of the cumulative projects described above.

Cultural Resources

The geographic scope of the cumulative cultural resources analysis includes the seven projects described above. As discussed above and in technical attachment *CEQA Cultural Resources Technical Report, Otay River Restoration Project* (ICF 2021d), impacts on historical resources may include both direct (i.e., physical) and indirect (i.e., noise and visual) impacts. No documented historical or tribal resources are known to exist within the project boundary. Therefore, no direct impacts on these resource types are anticipated. It is unknown whether any historical resources exist outside of the project boundary, both within and outside the sites of the seven projects listed above. The purpose of the proposed project is to restore and enhance the Otay River floodplain to its pre-late-twentieth century conditions. This is anticipated to result in no long-term change to existing noise conditions and minimal change to existing visual conditions. Construction-related visual and noise impacts would be minimal and temporary. Therefore, the proposed project would not contribute to a significant cumulative indirect impact on historical resources.

Impacts on archaeological resources tend to be limited to those that would directly compromise an archaeological resource's physical integrity—a key element of the significance of these resources. Therefore, a project would be unlikely to contribute to a significant cumulative impact on an archaeological resource if it were located entirely outside of the project's construction footprint.

Artifacts associated with eight previously recorded cultural resources were identified within the project site as well as two previously recorded isolated artifacts and four newly identified isolated artifacts. The isolated artifacts are not eligible for the CRHR (Public Resources Code SS5024.1, Title 14, Section 4852) under any of the required criteria.

None of the eight relocated cultural resources have been formally evaluated for their eligibility for listing in the CRHR. In accordance with guidance from the California Office of Historic Preservation, the unevaluated sites must be considered eligible for the CRHR. Therefore, for the purposes of this project, these sites are assumed to be eligible for the CRHR. However, in order to reduce or minimize impacts on eligible cultural resources, the proposed project would incorporate **Mitigation Measures CUL-1** through **CUL-3** to reduce impacts to a less-than-significant level. Therefore, the proposed project would not contribute to a significant cumulative impact on any known archaeological resources.

As with archaeological resources, impacts on cemeteries and paleontological resources tend to be limited to those that would directly compromise their physical integrity. As no previously documented cemeteries or paleontological resources are located within the project footprint, the project would not contribute to a significant cumulative impact on any known resources.

Energy

The study area for cumulative energy impacts is San Diego County, within which all project-related electricity, fuel, and natural gas consumption would occur. It is anticipated that implementation of the proposed project, as well as cumulative development in the area, would comply with applicable state and local energy efficiency and conservation regulations. As discussed in Section VII, the proposed project would use a minimal amount of energy during construction and operation, and would also comply with existing state and local plans regarding energy. Therefore, the proposed project in conjunction with cumulative development is not expected to result in the inefficient or wasteful use of large amounts of energy or conflict with existing state and local plans related to energy efficiency. Consequently, the proposed project would not result in a cumulatively considerable contribution to significant energy impacts.

Geology and Soils

Development in a seismically active region can put people and structures at risk from a wide range of earthquake-related effects. The existing level of seismic risk exposure represents a significant cumulative impact. However, the proposed project is not expected to draw a substantial amount of people, either during project activities or permanently; therefore, the project site would remain similar to existing conditions. Furthermore, no structure intended for human occupation (or otherwise) would be built; therefore, potential risk to people would be extremely limited and there would be no potential for impacts on property. Although construction activities could exacerbate soil erosion conditions by exposing soils and adding water to the soil from irrigation during construction, compliance with permit requirements and implementation of **Mitigation Measure BIO-1** would result in less-than-significant impacts related to soil erosion during construction activities. As such, the proposed project would not contribute considerably to the existing cumulative impact related to seismic hazards.

Greenhouse Gas

GHG emissions and climate change are exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective. Climate change is the result of cumulative global emissions. No single project, when considered in isolation, can cause climate change because a single project's emissions are not of a sufficient quantity to change the radiative balance of the atmosphere. Because climate change is the result of GHG emissions and GHGs are emitted by innumerable sources worldwide, global climate change will have a significant cumulative impact on the natural environment as well as human development and activity. As such, GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited.

Therefore, the cumulative study area is worldwide. The project-level analysis conducted for the proposed project in essence analyzes the cumulative contribution of project-related GHG emissions.

All of the cumulative projects would contribute varying amounts of GHG emissions, which, when combined with the proposed project, would be considered cumulatively significant. As discussed under threshold IV.a, because the proposed project's total annual GHG emissions from construction (amortized over 30 years) and operations would be well below the 900 $MTCO_2e$ screening level threshold recommended by the California Air Pollution Control Officers Association, the proposed project would not generate GHG emissions to a level that would be cumulatively considerable. Additionally, as discussed under threshold IV.b, the proposed project would not conflict with the City's CAP or CARB's 2017 Climate Change Scoping Plan, as none of the measures outlined in the plans are directly applicable to the proposed project. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment. The proposed project's contribution to cumulative GHG emissions would be less than cumulatively considerable.

Hazards and Hazardous Materials

The hazardous materials geographic study area considered for cumulative impacts consists of the area that could be affected by the proposed project and the areas affected by other projects whose activities could directly or indirectly affect the proposed activities on the project site or nearby. In general, only projects occurring adjacent or very close to the project site are considered due to the limited potential impact area associated with the release of hazardous materials into the environment.

There are several residential, commercial, and industrial development projects planned to be constructed to the north and to the west of the project site. These include the University Villages Project for Village Four, Village Eight East, Village Eight West, Village Nine, Village Ten, and the University Park and Innovation Center. Although construction of these cumulative projects would involve the handling of hazardous materials such as fuel, solvents, chemicals, and oils, it is expected that such handling would be compliant with applicable regulations. Furthermore, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. Any releases would be localized and cleaned up after they occur. Additionally, the proposed project would not cumulatively contribute to hazardous materials or hazardous impacts in the region because it would comply with all federal, state, and local regulations, the details of which are discussed in Section IX, *Hazards and Hazardous Materials*, concerning the handling of hazardous materials and/or waste.

As mentioned in Section IX, the southern portion of the proposed project site is within the Brown Field Bombing Range FUDS. The Brown Field Bombing Range was identified in the EnviroStor database as being part of the Department of Toxic Substances Control's Site Cleanup Program with a status of *Inactive – Needs Evaluation* (as of July 2018). Construction of the proposed project could create a significant hazard to construction workers or the environment by exposing or encountering any remaining unearthed UXO, MEC, and MDs. However, implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would reduce potential impacts to less-than-significant levels by determining if water or sediment contamination is present, remediating any contaminated soils if posing a risk to human health, and clearing all UXO within the area; therefore the proposed project would not contribute to cumulative hazardous materials or hazardous impacts.

Hydrology and Water Quality

For purposes of the cumulative effects analysis, the geographic context for the impacts relative to water quality and hydrology include portions of the Otay River receiving runoff from these projects. This is defined as the Otay River between Wueste Road and Otay Lakes County Park.

The cumulative projects have the potential to affect hydrology and degrade water quality through the introduction of stormwater pollutants. Construction activities could mobilize sediment via stormwater runoff that would affect the Otay River. Sediment and sediment-bound pollutants have the potential to

degrade water quality in the Otay River. Hazardous materials from construction equipment could be accidentally released during construction of these projects, and discharge of these materials to surface water could adversely affect water quality, endanger aquatic life, and/or result in a violation of water quality standards.

All projects would be required to adhere to the Construction General Permit, which requires the elimination or reduction of non-stormwater discharge off site. Each project would be required to develop a site-specific SWPPP and implement stormwater BMPs to control stormwater pollution from construction activities. Through adherence to the Construction General Permit, these projects would have a less-than-significant cumulative impact on hydrology and water quality. Other impacts related to the creation of new impervious surfaces from cumulative projects could have an effect on hydrology and water quality; however, the proposed project would not create new impervious surfaces and would not contribute to cumulative effects on runoff. In fact, the proposed project is designed to enhance, rehabilitate, and re-establish hydrological processes and vegetation communities within the Lower Otay River Watershed that would be self-sustaining and could adjust to dynamic natural processes.

As described in Section X, *Hydrology and Water Quality*, the proposed project's drainage and water quality impacts would be limited primarily to the site preparation and planting phase when ground disturbance would occur. Construction activities that have the potential to affect water quality would be required to adhere to the General Construction Permit, which requires the development and implementation of a SWPPP by a Qualified SWPPP Developer, the elimination or reduction of non-stormwater discharge off site into storm drainage systems or other water bodies, and the implementation of BMPs. This would result in a less-than-significant impact on water quality. Therefore, because water quality would not be adversely affected by the proposed project, the proposed project's contribution to cumulative hydrology and water quality impacts would not be cumulatively considerable.

Land Use and Planning

The geographic scope for cumulative impacts related to land use and planning is the City as a whole, surrounding land uses, and the boundaries of the applicable habitat conservation plans. The projects listed above could result in a cumulative impact when combined with the impacts of the proposed project; however, all of the cumulative projects were (or are being) developed in accordance with the underlying land use designations and would not divide established communities. Furthermore, the cumulative projects would not conflict with habitat conservation plans because adequate mitigation has been provided, including implementation of the proposed project mitigation site. Therefore, the impacts of the cumulative projects on land use and planning would not be cumulatively significant.

As discussed in Section XI, *Land Use and Planning*, the project site would not divide an established community, nor would it conflict with the Chula Vista General Plan, Brown Field Municipal Airport Land Use Compatibility Plan, Otay River WMP and SAMP, Otay Ranch Phase 1 and 2 RMP, City of Chula Vista Greenbelt Master Plan, or OVRP Concept Plan and Trail Guidelines. The project site would also be consistent with the Open Space Preserve designation by the City of Chula Vista General Plan. The project site is zoned Residential by the City of Chula Vista's Zoning Code, and it is consistent with this zone because it would leave the project site in a generally undeveloped state. Other applicable planning documents include the MSCP.

The proposed project is consistent with each of these plans as explained in detail under Section XI. Specifically, to ensure all trail improvements would be designed consistent with the City's Greenbelt Master Plan and the OVRP Concept Plan and Trail Guidelines, **Mitigation Measure LU-1** is required. Therefore, because the proposed project would not result in a significant land use and planning impact after mitigation and, furthermore, because a significant cumulative land use impact is not present from past, present, and reasonably foreseeable future projects, the proposed project's cumulative contribution would not be cumulatively significant.

Mineral Resources

The geographic scope for cumulative impacts related to mineral resources is the area of the City designated as MRZ-2. The projects listed above could result in a cumulative impact when combined with the impacts of the proposed project given that the boundaries of the Village Eight East and Village Ten projects would overlap within an area designated as MRZ-2. However, as described in the University Villages Project Final Environmental Impact Report (City of Chula Vista 2014) and similar to the proposed project, the majority of the overlapping area is within the Chula Vista MSCP Preserve and any development would be required to comply with applicable regulations. In addition, only a small portion of planned development from these projects would overlap with the MRZ-2 zone, which include a community park, portions of the associated access and emergency access roads, and two water quality basins and associated access road. As determined in the University Villages Project Final Environmental Impact Report (City of Chula Vista 2014), these uses would not preclude potential future extraction, and under the MSCP projects would still have the option of extracting aggregate prior to development. Therefore, because only a small portion of development would overlap with the MRZ-2 zone and the potential for future extraction would not be precluded, the impacts of the cumulative projects would be less than cumulatively significant.

As discussed in Section XII, *Mineral Resources*, the project site is in a portion of the Otay River Valley that has been identified as an MRZ-2 zone and was previously the location of sand mining activities between 1982 and 1985. However, operations ceased in 1985 and the site has been left in a highly disturbed state. The project site is also designated as Open Space Preserve and delineated within the jurisdiction of the Chula Vista MSCP Preserve where the long-term vision for the entire preserve area, including the project site, is to cease mining, extraction, and processing activities altogether (City of Chula Vista 2015). Therefore, because mining activities at the project site ceased three decades ago and the future plans for the Chula Vista MSCP Preserve are to cease mining-related activities altogether, implementation of the proposed project would not result in the loss of valuable mineral resources and would not contribute to a cumulatively significant impact.

Noise

There are several residential, commercial, and industrial development projects planned to be constructed to the north and west of the project site. The projects listed would not be completed and occupied prior to the completion of construction activities of the proposed project. Therefore, they would not be affected by construction noise from the proposed project. Depending on the construction sequence and timing of the related projects, it is possible that their construction could overlap with that of the proposed project and the combined noise levels could affect the nearest noise-sensitive receptors to the project site (High Tech High Chula Vista, Otay Lakes County Park, George Bailey Detention Facility, and Richard J. Donovan Correctional Facility). Because some of the related projects are adjacent to existing noise-sensitive receptors, short-term noise levels could be high and it is possible that a cumulative construction noise impact could occur under this scenario. However, as described in Section XIII, *Noise*, the noise level contribution from the proposed project would be 42 dBA or less. Compared to the established threshold of 75 dBA (based on the San Diego County Code), this represents a negligible increase in the overall noise level.[13] Therefore, the proposed project's contribution to any significant construction noise impacts would not be cumulatively considerable and the impact would be less than significant. In addition, proposed project construction would only occur within the daytime hours permitted by the San Diego County Code and the Chula Vista Municipal Code, so there would be no contribution to construction noise outside of the permitted hours.

As noted in Section XIII, *Noise*, construction traffic volumes would be very low and the contribution to overall traffic noise levels would be negligible. The same would be true under a cumulative construction scenario, so there would be no cumulatively considerable contribution from proposed project construction traffic and the impact would be less than significant.

[13] 75 dBA + 42 dBA = 75.002 dBA

The other type of potential cumulative impact that could occur would be as a result of related projects being developed and creating noise-sensitive receptors in closer proximity to the proposed project than the existing receptors in the area. The Otay Ranch Village Ten would be the closest development to the proposed project site and would develop noise-sensitive residences. The routine periodic maintenance and monitoring of the proposed project could occur after completion of Otay Ranch Village Ten or other cumulative projects. Noise from these activities could affect the cumulative projects. Following completion of the construction phases, routine maintenance and monitoring could include the use of line trimmers, chainsaws, and skid steers. Given the nature of the work and the equipment used, it is assumed that this activity would be treated as construction under the local municipal code and would be subject to the same construction-related noise standards. Therefore, the associated threshold of 75 dBA 8-hour L_{eq} is considered appropriate for assessing potential impacts. At close range there could be relatively high short-term noise levels associated with the use of chainsaws or skid steers (e.g., a chainsaw and skid steer at 50 feet could generate noise levels up to 77 and 75 dBA 1-hour L_{eq}, respectively). However, given the size of the project site, the average distance to neighboring receivers would be much greater than 50 feet and the use of mechanized equipment in proximity to any individual receptor is anticipated to be brief. As a result, the contribution to long-term average noise levels would be low and would not exceed the threshold of 75 dBA 8-hour L_{eq}.

The use of a skid steer during the maintenance and monitoring of the proposed project would produce PPV vibration levels of approximately 0.003 in/sec at a distance of 25 feet. The predicted vibration levels associated with maintenance and monitoring activities would therefore be well below the City of Chula Vista's vibration perception threshold of 0.01 in/sec. None of the related project operations propose substantial sources of groundborne vibration in the proposed project vicinity, so there would be no cumulative increase in overall vibration levels and the levels would remain below the threshold. Therefore, construction vibration impacts would not be cumulatively considerable.

Noise-sensitive locations have the potential to be affected by temporary traffic volume increases on local roadways due to worker commutes and truck trips associated with routine periodic maintenance and monitoring of the restoration site. The proposed project is anticipated to generate a total of two daily vehicle round trips during maintenance and monitoring. This volume would be negligible when compared to existing traffic volumes on local roads and even less noticeable when compared to the level of growth and traffic that would be generated by the related projects themselves. Therefore, maintenance and monitoring traffic and would not result in any significant noise impacts along affected roadways and the impact would not be cumulatively considerable.

As described in Section XIII, after completion of the restoration process, the proposed project is not anticipated to generate operational noise or vibration, or additional vehicular traffic. Therefore, upon completion, the proposed project would not contribute to cumulative operational noise or vibration levels in the project vicinity, and the impact would not be cumulatively considerable.

Public Services

The cumulative projects would increase population in the surrounding area, which would subsequently increase the use of existing parks and potentially create a demand for additional parkland. Similar to other development projects in the City, the cumulative projects would be required to comply with the parkland requirements in the Chula Vista Municipal Code and Public Facilities Finance Plan for the provision of parks and would ensure that cumulatively considerable impacts would not occur.

As discussed in Section XV, *Public Services*, the proposed project would not induce population growth that could increase the demand for and use of parks. However, it is possible that use of onsite trails could increase slightly due to the proposed trail improvements and improved habitat available to view from the trails. This slight increase in trail use would not substantially degrade the existing trails. Therefore, the proposed project would not contribute to a cumulatively significant impact or create a new cumulatively significant impact related to the provision of park facilities.

Recreation

Cumulative impacts related to recreational facilities would be the same as those described above for park facilities under *Public Services*.

Transportation

Impacts of the proposed project in relation to vehicle miles traveled were evaluated as part of Section XVII, *Transportation*, which concluded that direct impacts would not exceed vehicle miles traveled standards and a less-than-significant impact would result. The traffic analysis was focused on nearby roadway segments along Wiley Road, Main Street, and Maxwell Road. Furthermore, Section XXI, *City Thresholds*, found that all the intersections within the study area were anticipated to operate at LOS D or better under Year 2020 conditions.

Temporary construction-related trips would result in a minimal increase in trips on the surrounding roadway network. As discussed in Section XVII, traffic associated with project construction would not comprise more than 20 total daily construction worker trips (10 round trips) and 20 total daily vehicle truck trips (10 round trips) per day during the peak of project construction, and all intersections and roadway segments within the project study area are projected to operate at LOS D or better. Therefore, no cumulative impacts would result. The adjacent roadway network would be able to accommodate the anticipated additional construction trips, and project construction traffic, in combination with other cumulative projects, is not anticipated to have a cumulative impact along any of the study intersections evaluated. Furthermore, the proposed project would not generate substantial operational vehicular traffic and thus would not generate additional vehicle miles traveled. Therefore, the proposed project would not contribute to a cumulatively significant impact or create a new cumulatively significant impact related to construction traffic.

Once construction is complete, the road and access conditions would be unchanged, and long-term traffic associated with any maintenance would not differ from the current situation. As discussed in Section XXI, post construction, the proposed project is not anticipated to generate any additional vehicular traffic except for periodic maintenance. There would be no operational cumulative impact.

Tribal Cultural Resources

Impacts on tribal cultural resources may include both direct (i.e., physical) and indirect (i.e., noise and visual) impacts. No documented tribal cultural resources are known to exist within the project site. Therefore, no direct impacts on tribal cultural resource types are anticipated. The proposed project is anticipated to have no long-term change to existing noise conditions and minimal change to existing visual conditions. Therefore, no indirect impacts are anticipated on tribal cultural resources. With implementation of **Mitigation Measure TCR-1**, the proposed project would not result in significant cumulative impacts related to tribal cultural resources.

Utilities and Service Systems

The proposed project's contribution to an increased need for utilities and service systems is considered in the context of the seven cumulative projects. If constructed, these projects would cumulatively contribute to impacts on water and solid waste. However, public agencies and utilities are given an opportunity to respond to inquiries for information regarding the potential increase in demand for services. Furthermore, development fees are assessed on a project-by-project basis to mitigate the increased demand on public services and utilities.

Significant cumulative impacts would occur if the other projects would overburden utilities and service systems and the agencies would be unable to provide adequate services, thereby resulting in significant combined impacts related to the need for the development of new facilities. However, as noted above, the proposed project's water demand would be temporary and amount to less than 0.1 percent of OWD's total projected water demand through 2040 for water during construction and maintenance and monitoring. Therefore, the proposed project's incremental contribution to water demand is

considered less than cumulatively considerable, and impacts on water supply would be less than cumulatively considerable.

The proposed project would generate a minimal amount of waste and, therefore, is not expected to affect any of the six landfills in the County. As such, the proposed project's contribution to this cumulative impact would be less than significant. The proposed project and the other cumulative projects would comply with State and local waste-reduction policies; therefore, the proposed project would not result in a cumulative impact on County landfills.

Wildfire

The potential for wildfire represents a hazard where development is adjacent to open space or near wildland fuels or designated fire severity zones. New development located in any fire hazard severity zone within State Responsibility Areas, any VHFHSZ within Local Responsibility Areas, or any wildland-urban interface fire area can put people and structures at risk.

There are several residential, commercial, and industrial development projects planned to be constructed to the north and west of the project site. These include the University Villages Project for Village Four, Village Eight West, Village Nine, Village Ten, Millenia, and the University Park and Innovation Center. These project sites are located in VHFSZs within a Local Responsibility Area. Similar to the proposed project, if any of the related projects would occur within a High Fire Hazard Severity Zone or VHFHSZ, they must comply with the policies of the City of Chula Vista General Plan, the County of San Diego Operational Area Emergency Operations Plan, and the County of San Diego's Multi-Jurisdictional Local Hazard Mitigation Plan. Furthermore, any development constructed in any fire hazard severity zone within State Responsibility Areas and any VHFHSZ within Local Responsibility Areas must comply with the California Government Code Section 65302 minimum requirements for building materials and construction methods to improve exterior wildfire exposure protection.

As mentioned in Section XX, *Wildfire*, the proposed project does not include housing or commercial development and would not draw a substantial amount of people during construction activities. As such, the proposed project would not contribute considerably to the existing cumulative impact related to wildfire hazards.

c) **Less-than-Significant Impact with Mitigation Incorporated**. Based on the analysis above, the proposed project could have environmental effects related to hazards and hazardous materials that could cause adverse effects on human beings. However, implementation of **Mitigation Measures HAZ-1** and **HAZ-2**, as provided in Section XIX, *Hazards and Hazardous Materials*, would reduce project-related significant impacts to less-than-significant levels. Therefore, after implementation of **Mitigation Measures HAZ-1** and **HAZ-2**, the proposed project would result in a less-than-significant environmental impact on human beings.

Mitigation:

Implement **Mitigation Measures BIO-1** through **BIO-12, CUL-1** through **CUL-3, HAZ-1** through **HAZ-2, LU-1, and TCR-1.**

XXIII. PROJECT REVISIONS OR MITIGATION MEASURES:

Project mitigation measures are contained in Section F, *Mitigation Necessary to Avoid Significant Impacts*, and Table 1, Mitigation Monitoring and Reporting Program, of Mitigated Negative Declaration IS-21-0004.

XXIV. AGREEMENT TO IMPLEMENT MITIGATION MEASURES

By signing the line(s) provided below, the Applicant stipulates that it has read and understood and has its respective company's authority to and do agree to the mitigation measures contained within the Mitigated Negative Declaration, IS-21-0004, and will implement same to the satisfaction of the Development Services Director. Failure to sign the line(s) provided below prior to posting of this Mitigated Negative Declaration with the County Clerk shall indicate the Applicant's desire that the project be held in abeyance without approval and that the Applicant shall apply for an Environmental Impact Report.

_____

Printed Name and Title of Applicant
(or authorized representative)

_____ _____

Signature of Applicant Date
(or authorized representative)

N/A

Printed Name and Title of Operator
(if different from Applicant)

N/A _____

Signature of Operator Date
(if different from Applicant)

XXV. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated," as indicated by the checklist on the previous pages.

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

XXVI. DETERMINATION:

On the basis of this initial evaluation:

I find that the proposed project **could not** have a significant effect on the environment, and a **Negative Declaration** will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A **Mitigated Negative Declaration** will be prepared. ■

I find that the proposed project **may** have a significant effect on the environment, and an **Environmental Impact Report** is required. ☐

I find that the proposed project **may** have a significant effect(s) on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impacts" or "potentially significant unless mitigated." An **Environmental Impact Report** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, there **will not** be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. An addendum has been prepared to provide a record of this determination. ☐

Dai Hoang
Senior Planner
City of Chula Vista

6/4/2024
Date

Bob Penner
HomeFed Corporation

6/4/2024
Date

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ICF. 2021c. *Draft Otay River Mitigation Bank Jurisdictional Delineation Memorandum.*

ICF. 2021d. *CEQA Cultural Resources Technical Report, Otay River Restoration Project; City of Chula Vista Mitigation Bank Expansion and Trail Alignment, San Diego County, California*. Prepared for Otay Land Company, LLC. A subsidiary of HomeFed Corporation.

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TECHNICAL STUDIES

The following technical studies were used to prepare this Initial Study:

ICF 2021a. *Estimates of Air Pollutant/GHG Emissions and Energy Consumption for the Otay Trails and Mitigation Bank Expansion Project*. November

ICF. 2021b. *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report, 2021 Update*.

ICF. 2021c. *Draft Otay River Mitigation Bank Jurisdictional Delineation Memorandum*.

ICF 2021d. *CEQA Cultural Resources Technical Report, Otay River Restoration Project; City of Chula Vista Mitigation Bank Expansion and Trail Alignment, San Diego County, California*. Prepared for Otay Land Company, LLC. A subsidiary of HomeFed Corporation.

ICF 2021ec. *Noise Field Sheets and Construction Noise Analysis for the Otay Trails and Mitigation Bank Expansion Project*. November.

OTAY TRAILS & MITIGATION BANK EXPANSION PROJECT

STATE CLEARINGHOUSE NO. 2022040069

MITIGATION MONITORING AND REPORTING PROGRAM

June 2023

Purpose

The City of Chula Vista would adopt this Mitigation Monitoring and Reporting Program (MMRP) in accordance with Public Resources Code (PRC) Section 21081.6 and Section 15097 of the California Environmental Quality Act (CEQA) Guidelines. The purpose of the MMRP is to ensure that the Otay River Trails and Mitigation Bank Expansion Project complies with all applicable environmental mitigation requirements identified in the Final Mitigated Negative Declaration (MND) for the proposed project. The mitigation measures for the project would be adopted by the City of Chula Vista, in conjunction with the adoption of the Final MND. The mitigation measures have been integrated into this MMRP. The MMRP provides a mechanism for monitoring the mitigation measures in compliance with the MND, and general guidelines for the use and implementation of the monitoring program are described below. Within this document, the approved mitigation measures are organized and referenced by subject category. The specific mitigation measures are identified, as well as the method and timing of verification and the responsible party that would ensure that each action is implemented.

The mitigation measures applicable to the project include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, and/or reducing or eliminating impacts over time by maintenance operations during the life of the action.

PRC Section 21081.6 requires the Lead Agency, for each project that is subject to CEQA, to monitor performance of the mitigation measures included in any environmental document to ensure that implementation takes place. The City of Chula Vista is the designated Lead Agency for the MMRP. The City of Chula Vista is responsible for review of all monitoring reports, enforcement actions, and document disposition. The City of Chula Vista would rely on information provided by the monitor as accurate and up to date and would field check mitigation measure status as required.

Format

Mitigation measures applicable to the project include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, and/or requiring supplemental structural controls. Within this document, approval mitigation measures are organized and referenced by subject category. Each of the mitigation measures has a numerical reference. The following items are identified for each mitigation measure.

- Mitigation Language and Numbering
- Mitigation Timing
- Methods for Monitoring and Reporting
- Responsible Parties

Mitigation Language and Numbering

This MMRP provides the language of the mitigation measure in its entirety.

Mitigation Timing

The mitigation measures required for the project will be implemented at various times before construction, during construction, prior to project completion, or during project operation.

Methods for Monitoring and Reporting

The MMRP includes the procedures for documenting and reporting mitigation implementation efforts. As the project proponent, the County of San Diego DPR is responsible for implementation of all mitigation measures.

Responsible Parties

For each mitigation measure, the party responsible for implementation, monitoring and reporting, and verifying successful completion of the mitigation measure is identified.

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
V. Biological Resources				
MM-BIO-01: Obtain Approval of All Necessary Resource Agency Permits. Prior to the issuance of a grading permit, the applicant will obtain all necessary resource agency permits and provide copies to the City. All conditions identified within each of the resource agency permits will be implemented in accordance with the permit. The applicable resource agency permits for the proposed project include a Clean Water Act (CWA) Section 404 Permit from the USACE, a CWA Section 401 Water Quality Certification from the RWQCB, a CWA Section 402 National Pollutant Discharge Elimination System Construction General Permit (Order No. 2012-0006-DWQ) from the RWQCB, and a Section 1602 Streambed Alteration Agreement from the CDFW. In addition to the agency permits, a conservation easement or other approved site protection mechanism and endowment would be established per the USACE and Environmental Protection Agency Compensatory Mitigation Rule. The applicant will also enter into consultation with the USFWS under Section 7 of the Federal Endangered Species Act (FESA) to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan	Prior to vegetation clearing, grading and during construction	Adhere to USFWS conservation measures	Homefed	City of Chula Vista
MM-BIO-02: Biological Awareness Training. Prior to initiation of grading activities and every 2 months through implementation, biological resource awareness training will be provided by a qualified biologist to all construction personnel. The training will include information regarding sensitive species with the potential to occur at the site as well as minimization and avoidance measures to reduce potential indirect effects on the habitat. A log of personnel who have completed the training and a copy of the training report/outline (including special-status species photos, targeted invasive plant species, and descriptions of the measures discussed in the training session) will be maintained at the construction office.	Prior to vegetation clearing, grading and during construction	Conduct biological awareness training prior to construction	Qualified biologist provided by the Homefed	City of Chula Vista
MM-BIO-03: Temporary Fencing. Prior to the initiation of grading activities, sensitive resources, as identified by the designated biologist, will be clearly marked by well-installed temporary fencing	Prior to vegetation clearing, grading	Ensure grading activities only occurs within	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
that is prominently colored. The fence will be installed by the construction contractor and will be maintained and remain in place during all grading activities. In addition, the construction contractor is required to use machinery equipped with GPS systems programmed with the limits of grading, sensitive resources, and any other avoidance areas. The avoidance data will be provided to the contractor to ensure accuracy and will be verified in the field by the designated biologist.	and during construction	proper fenced area		
MM-BIO-04: Biological Monitoring. A qualified biological monitor will be on site during vegetation clearing activities to ensure that grading activities occur within designated areas. The monitor will also ensure that any special-status species that becomes entrapped within the grading limits is moved away from construction equipment. The biological monitor will also periodically inspect the limits of disturbance fence to ensure that it is in good condition. Any parts of the fence that need attention will be brought to the contractor's attention to be fixed immediately. In the event that a special-status species is located within the grading limits, the biological monitor will temporarily stop construction. Removal of special-status species should be done by a biologist qualified to handle that specific species. If needed, CDFW and USFWS will be informally consulted if there is a question on the best manner to safely address a situation with a special-status wildlife species.	During vegetation clearing, grading and construction	Conduct biological monitoring during construction	Homefed	City of Chula Vista
MM-BIO-5: Best Management Practices (BMPs). BMPs will be implemented during all grading activities to reduce potential indirect effects on special-status species and habitat. BMPs will include the following: ● All trash will be properly stored and removed from the site daily to prevent attracting wildlife to the construction area. ● Vehicles and equipment will be stored only on pre-designated staging areas in disturbed or developed areas. Fueling should be conducted in a manner that prevents spillage of fuel into the Otay River or into riparian or wetland habitats.	During vegetation clearing, grading and construction	Implement BMPs	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
● All maintenance of vehicles and equipment will be conducted in a manner so that oils and other hazardous materials will not discharge into the Otay River, or into riparian habitat areas (including Freshwater and Freshwater Marsh). ● Dust control measures will be implemented to minimize the settling of dust on vegetation. ● Appropriate firefighting equipment (e.g., extinguishers, shovels, water tankers) will be available on the site during all phases of proposed project construction, and appropriate fire prevention measures will be taken to help minimize the chance of human-caused wildfires. ● All construction will be performed between dawn and dusk to the degree feasible to minimize potential indirect effects (e.g., increased depredation) on the species beyond the limits of disturbance.				
MM-BIO-6: Nesting Bird Avoidance. To avoid any direct impacts on nesting coastal California gnatcatchers, least Bell's vireo, burrowing owl, raptors, or other birds protected under the Migratory Bird Treaty Act (MBTA), removal of any vegetation that may support active nests within the project area will occur outside of the breeding season when feasible. The breeding season is defined as February 15–September 15. If vegetation removal must be conducted during the breeding season a qualified biologist will conduct nesting bird surveys within the work area and a 250-foot buffer in order to clear the area or locate active nests for monitoring and avoidance. Adequate avoidance buffers would be established around any active nests in coordination with the wildlife agencies. Following vegetation removal, biological monitors will regularly monitor the perimeter of the work area for nests in the remaining vegetation and will work with the contractor to avoid any disturbance associated with construction activities.	Prior to vegetation clearing, grading and during construction	Conduct biological monitoring during construction	Qualified biologist provided by Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
MM-BIO-07: Preconstruction Burrowing Owl Survey. A biologist will conduct preconstruction take-avoidance surveys for burrowing owls within 150 meters of project areas in suitable habitat no more than 14 days prior to ground-disturbing activities according to methods outlined in the CDFW's 2012 (or most recent) *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Surveys will provide data on whether burrowing owls occupy the site and, if so, whether the owls are actively nesting. If preconstruction take-avoidance surveys detect the presence of any active burrowing owl burrows during breeding season, the burrows will be avoided, and construction activities within 150 meters will be enclosed by construction fencing. Buffer sizes are outlined in CDFW's *Staff Report on Burrowing Owl Mitigation*. Active burrowing owl burrows will be monitored regularly to ensure no adverse effects on the burrowing owls are occurring. Avoidance buffers will remain in place until the nest fledges or fails. If, in consultation with the CDFW, it is determined that project activities require removal of occupied burrows, or burrows potentially occupied by burrowing owls, eviction and burrow closure may be required to ensure against "take" of owl or nests. If eviction is required, it will occur only after consulting with CDFW and CDFW approval. Monitoring will be conducted to ensure take is avoided during eviction procedures. Owls may not be evicted or captured without prior authorization from the CDFW.	Prior to vegetation clearing, grading and during construction	Conduct pre-construction biological monitoring for sensitive species	Qualified biologist provided by Homefed	City of Chula Vista
MM-BIO-8: Vernal Pool and Vernal Pool–Dependent Species Avoidance. The trails alignment described in this report is planned to be further refined in order to avoid all permanent impacts on federally listed branchiopods. To avoid potential fairy shrimp habitat areas and potential impacts on San Diego fairy shrimp and western spadefoot (*Spea hammondii*), ephemeral basins, which were primarily seasonally ponding features such as road ruts and road ponds, were identified by an aquatic resource and fairy shrimp specialist. Prior to any ground disturbing work on site, mapped ephemeral basins will be reevaluated using the finalized spatial extents of trails and all work areas. Vernal pools resources will be differentiated from all other ephemeral basins (e.g., unvegetated road ruts and road ponds) in a	Prior and during vegetation clearing, grading and construction	Implement vernal pool and vernal pool-dependent specifies avoidance protocols	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
refined jurisdictional delineation, and the potential for impacts will be re-evaluated using the finalized design and alignments. In creation of the final extents of trails and work areas, to avoid direct impacts on San Diego fairy shrimp to the maximum extent practicable, road and trail improvements and creation will avoid existing ephemeral basins that are known to support or could potentially support San Diego fairy shrimp by moving the alignment prior to construction, as needed. Final trail alignments and access routes will avoid impacts to the quantity and long-term quality of water flow to the vernal pools supporting listed fairy shrimp. Construction access routes will also be rerouted within the proposed grading footprint to avoid these ponding features to the maximum extent practicable. During construction and restoration activities, occupied and potentially occupied habitat for San Diego fairy shrimp will be avoided during the wet season to the maximum extent practicable. Prior to ground disturbance, occupied and potentially occupied fairy shrimp habitats will be temporarily fenced and avoided during construction activities to the maximum extent practicable. No staging of any equipment will be allowed within vernal pools, road ruts, or other ephemeral basins occupied by or potentially occupied by San Diego fairy shrimp at any time. A biological monitor will be present during construction activities occurring adjacent to vernal pools and occupied or potentially occupied habitats, and will ensure that vehicles are fueled and maintained at least 100 feet away from such pools. In addition, where appropriate, the adjacent upland areas surrounding road ruts, vernal pools, and other ephemeral basins will be restored with native species. Wood split-rail fencing, boulders, and signage will be used to inform the public of the sensitivity of the area and deter them from trespassing into the ponded areas and into the river restoration areas. Though the majority of grading will occur within the Otay River floodplain, some grading and staging of equipment will occur in upland areas outside of the floodplain. Grading activities will include vernal pool establishment and enhancement activities, as described in the *Otay Trails and Mitigation Bank Expansion Project Biological Resources Report 2020 Update (*ICF				

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
2021a) at Section 1.3.3. In accordance with **Mitigation Measure BIO-1**, should any pools occupied by or potentially occupied by San Diego fairy shrimp be unable to be avoided in the final project design, the applicant will consult with the USFWS under Section 7 of FESA to seek concurrence that the proposed project is consistent with the City of Chula Vista's MSCP Subarea Plan and that incidental take authorization is provided for the proposed project under the City of Chula Vista's MSCP Subarea Plan. Mitigation of impacts on fairy shrimp will be addressed in the Section 7 consultation process either with onsite pool enhancement/habitat creation or additional avoidance through project redesign prior to construction. Mitigation of impacts on jurisdictional vernal pool habitats will be also be mitigated for, as needed, to obtain CWA Section 401 and 404 permits from the RWQCB and USACE.				
MM-BIO-9: Special-Status Plant, Quino Host Plant, and Succulent Plant Salvage Plan. During grading and enhancement activities, special-status plants, Quino checkerspot host plants (e.g., dot-seed plantain), and succulent plants (i.e., target plant species) will be avoided where feasible. Prior to ground-disturbing work on site, special-status plant surveys will be conducted to locate target plant species within defined work limits to determine areas to be avoided. Salvage and relocation of target plant species will occur to the extent feasible in accordance with a Plant Salvage Plan. The Plant Salvage Plan will be prepared for the areas where temporary grading and habitat enhancement activities will occur, with an emphasis on collecting and relocating to adjacent areas the target plant species. The plan will be prepared and implemented prior to grading and enhancement activities. The Plant Salvage Plan will include a list of target plant species list, seed collection methods, succulent plant salvage techniques, transplanting methods, and applicable monitoring activities for transplanted individuals, as appropriate.	During vegetation clearing, grading and construction	Implement Plant Salvage Plan	Homefed	City of Chula Vista
MM-BIO-10: Quino Checkerspot Butterfly Seasonal Avoidance. Due to the presence of Quino checkerspot butterfly within the project area and known populations nearby, no removal of any host plant	Prior to vegetation clearing, grading and construction	Biological monitor will establish 50-foot buffer on host plant locations for	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
vegetation or any native vegetation within 50 feet of host plants will occur within the Quino flight season, defined by the USFWS 2014 protocol as the third week of February to the second Saturday in May. Biological monitors will stake locations of host plants for avoidance and will be present during vegetation removal activities within potentially suitable habitat for Quino located outside of the mapped host plant locations and 50foot buffer to ensure that construction activities do not result in harm to individual Quino checkerspot butterflies that may be foraging or nectaring in the area.		Quino Checkerspot Butterfly		
MM-BIO-11: Public Access, Trails, and Recreation. To deter trespassing into the restoration site, wood split-rail fencing will be installed in select locations to designate road/trail corridors along existing roads and existing unofficial trails that border the restoration site. Other barriers (boulders, brush piles, logs, and plantings) will be placed at strategic locations when protection of sensitive resources is required where fencing is not present. For safety purposes, reflective material will be placed on the wood fencing at specific locations to aid Border Patrol and other night-time users from unintentionally breaking through fencing into sensitive habitat. Additionally, signage and informational kiosks will be installed for educational purposes and to inform the public of the sensitivity of the restoration site and adjacent habitats. All installation activities (signage, fencing, kiosks) and reflective materials will occur outside of the breeding season defined as February 15–September 15 or be in accordance with **Mitigation Measure BIO-6** and require preconstruction surveys.	During vegetation clearing, grading and construction	Implement installation of fencing, boulders, and signage to deter trespassing	Homefed	City of Chula Vista
MM- BIO-12: Western Spadefoot Survey and Relocation Plan. Prior to the start of any ground disturbance, construction, or site preparation activities, a qualified biologist will conduct pre-construction surveys for western spadefoot within all portions of the Project site containing suitable breeding habitat. Surveys shall be conducted beginning the first week of January or following the first one-inch or greater rain event and will be repeated as necessary to monitor their development. An estimate of the total larval population	Prior to vegetation clearing, grading and construction	Implement western spadefoot survey and replaction plan	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
for each pond and total density for all impacted ponds will be recorded. A Western Spadefoot relocation plan will be developed and approved by the Wildlife Agencies prior to ground disturbance. The relocation plan will include: • Proposed suitable relocation sites outside the area of disturbance, • Proposed methods for relocation, • Proposed monitoring of relocation sites, • Proposed success criteria.				
VI. Cultural Resources				
MM-CUL-1: Establishing Environmentally Sensitive Areas. ● To reduce potential impacts on archaeological resources, Environmentally Sensitive Areas (ESAs) will be established in areas of artifact concentrations. ● In order to avoid impacts on ESAs 1 through 4, only non-ground-disturbing methods of seeding and herbicide control of nonnative species will be used. ● Cultural resources monitoring will not be required for seeding and herbicide control of nonnative species.	Prior to ground disturbing activities	Establish ESAs and conduct only non-ground disturbing methods of seeding and herbicide	Qualified archaeologist provided by Homefed	City of Chula Vista
MM-CUL-2: Archaeological Monitoring. To reduce potential impacts on archaeological resources, a qualified archaeologist will monitor initial ground-disturbing activities within Monitoring Areas (MAs) in order to minimize disturbance of archaeological deposits. Specifically, the following measures will be implemented to reduce impacts: Prior to start of construction, a monitoring and treatment plan will be prepared that describes the nature of the archaeological monitoring work, procedures to follow in the event of an unanticipated discovery, and reporting requirements. The plan will include confidential maps of ESAs and Mas. The plan will be submitted for review to the City of Chula Vista.	During ground disturbing activities	Conduct archaeological monitoring during construction, and prepare Cultural Resources Monitoring Report	Qualified archaeologist provided by Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
• All monitoring will be conducted by individuals with experience monitoring for archaeological resources in Southern California. All monitors will be under the supervision and direction of a qualified archaeologist(s) who meets the Secretary of the Interior's Professional Qualifications Standards, as promulgated in Code of Federal Regulations (CFR), Title 36, Section 61. • Monitoring of initial ground disturbance will occur within MAs 1 through 8. • The following activities will require the presence of an archaeological monitor when they occur within MAs 1 through 8: • Manual weed pulling, fence installation, mechanical work that includes ground disturbance, and other ground-disturbing activities necessary for the implementation of the project. • If intact subsurface deposits are identified during construction, the archaeologist will be empowered to divert construction activities away from the find and will be given sufficient time and compensation to investigate the find and determine its significance. No soil will be exported off site until a determination can be made regarding the significance of the resource specifically if Native American resources are encountered. • Recovered items will be treated in accordance with current professional standards by being properly provenienced, cleaned, analyzed, researched, reported, and curated in a collection facility meeting the Secretary of the Interior's Standards, as promulgated in 36 CFR 79, such as the San Diego Archaeological Center. The costs for curation will be included in the budget for recovery of the archaeological remains.				

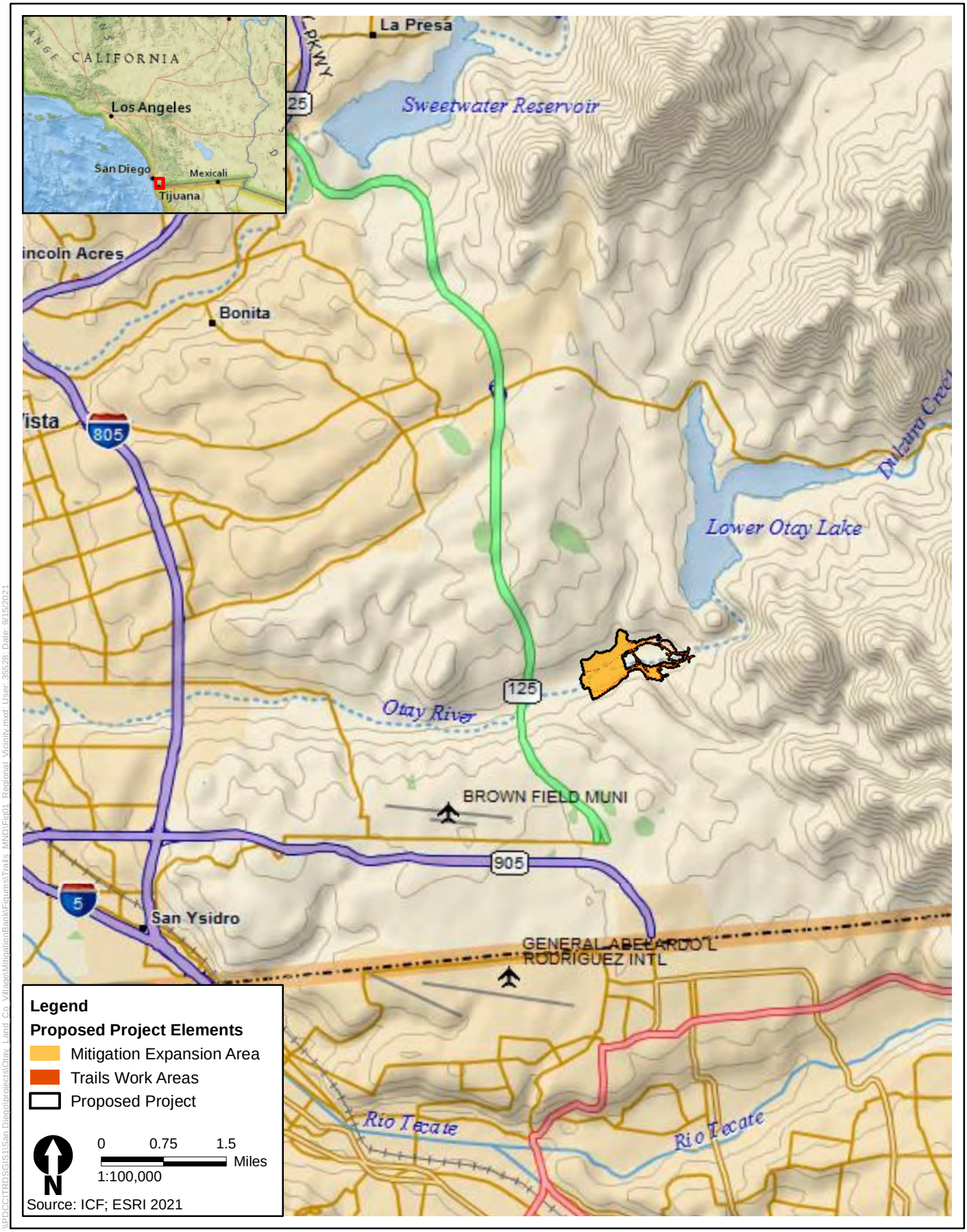
Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
• A final cultural resources report will be produced and provided to the City of Chula Vista, which will discuss the monitoring program and its results and will provide interpretations of any recovered cultural materials. The qualified archaeologist will have the discretion to increase or decrease the level of monitoring based on profession judgment and field conditions.				
MM-CUL-3: Native American Monitoring. A Kumeyaay tribal monitor will be retained to conduct Native American monitoring for MAs and activities identified in **Mitigation Measure CUL-2** and when an archaeological monitor is present. ● Attendance by Native American monitors during ground-disturbing activities is at the discretion of the tribe, and the absence of a Native American monitor, should the tribe choose to forgo monitoring for some reason, will not delay work. ● Interpretation of a find will be requested from Native American monitors involved with the discovery, evaluation, or data recovery of unanticipated finds for inclusion in the final cultural resources report.	During ground-disturbing activities	Conduct Native American monitoring	Qualified Kumeyaay tribal monitor	City of Chula Vista
VIX. Hazards and Hazardous Materials				
MM-HAZ-01: Sampling and Screening Level Risk Assessment (SLRA)/Screening Level Ecological Risk Assessment (SLERA) Studies for Onsite Surface Water and Sediment and Water/Sediment Remediation (if necessary). Prior to construction activities associated with the project, the need for surface water and sediment sampling will be evaluated by an environmental consultant with experience in proper sample handling procedures in coordination with DTSC. If needed samples will be collected from portions of the site where the project site overlaps with the Brown Field Bombing Range Formerly Used Defense Site, the number and location of which will be determined by a qualified environmental professional with experience in screening level risk assessments. Should results indicate the presence of contamination levels that would pose a risk to human	Prior to issuance of grading permit	Comply with Recommendations in Geotechnical Evaluation	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
health or ecological health, the project proponent (in consultation with the City) will coordinate the Department of Toxic Substances Control regarding avoidance or remediation of affected water and soils in compliance with applicable federal, state, and local laws prior to any project-specific construction grading activities occurring. If the condition at the site requires it, the project proponent will not proceed with construction activities until approval is provided by the lead hazardous materials agency. Should the results indicate that no serious risk is present, project-related construction activities may proceed, pending compliance with any other applicable mitigation as well as coordination with DTSC. A summary report of all coordination, analysis, results, and project actions will be provided to the agencies for inclusion in the documentation record.				
MM-HAZ-02: Surface Clearance Prior to Construction. Prior to initiating project activities, a surface clearance will be conducted where project elements intersect with the Brown Field Bombing Range Formerly Used Defense Site boundary. The surface clearance would be employed to identify all munitions and explosives of concern (MEC) and munitions debris (MD) in the project site. A qualified survey company with experience in unearthed unexploded ordnances (UXO) will be retained to sweep the area for metallic items including those that may be obscured by vegetation or surface debris, and MD will be evaluated to determine if any explosive residue remains. If it is determined that there is the potential for an explosive hazard, the City of Chula Vista and County of San Diego will be contacted to respond to the item and dispose of it appropriately. Upon identifying an explosive hazard, the survey company will establish an exclusion zone around the material. The exclusion zone radius will depend on the type of material identified and will be expanded, if needed, while material is being worked on or if setting a charge to explode the material in place. If setting a charge, all personnel will be required to evacuate the area. All personnel will be required to remain out of the exclusion zone until the responders provide clearance. All MD determined to no longer contain explosive	Prior to construction activities	Implement surface clearance prior to construction	Homefed	City of Chula Vista

Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
residue will be inspected by qualified personnel and containerized in lockable 55-gallon drums for later disposal by an approved recycler. During construction, the qualified survey company will supply a UXO-qualified technician to support the project. The technicians will use magnetometers to detect the presence of MEC in disturbed soil. If no MEC items are identified, excavations will be advanced to desired depth. If MEC are detected during excavation/grading, these activities will stop immediately and the survey company technician(s) will contact the City of Chula Vista and County of San Diego for disposal of the material. The technician(s) will remain on site during disposal response actions to provide site safety and security and for technical consultation with emergency responders.				
XI. Land Use and Planning				
MM-LU-01: Trail Improvements Consistent with Applicable City of Chula Vista Greenbelt Master Plan and Otay Valley Regional Park Trail Guidelines. All applicable trail guidelines from the City of Chula Vista's Greenbelt Master Plan and Otay Regional Park Trail Guidelines shall be shown on all applicable grading plans as details, notes, or as otherwise appropriate. All proposed designs for signage and fencing will be submitted to the City to verify consistency with the above mentioned guidelines. Finally, installation of all trail-related improvements will be subject to inspection by the City to confirm the improvements were constructed in accordance with the approved designs.	Throughout construction	Follow City of Chula Vista Greenbelt Master Plan and Otay Valley Regional Park Trail Guidelines	Homefed	City of Chula Vista
XVIII. Tribal Cultural Resources				
MM-TCR-01: Protection of Resources. In the event that a tribal cultural resource is unexpectedly identified during the course of implementation of the proposed project, and the City of Chula Vista determines that the proposed project may cause a substantial adverse change to a tribal cultural resource, the City of Chula Vista will work with the consulting tribe(s) to employ one or more of the following standard mitigation measures.	During all ground disturbance activities	Conduct tribal monitoring during ground disturbance activities	Qualified tribal member provided by Homefed	City of Chula Vista

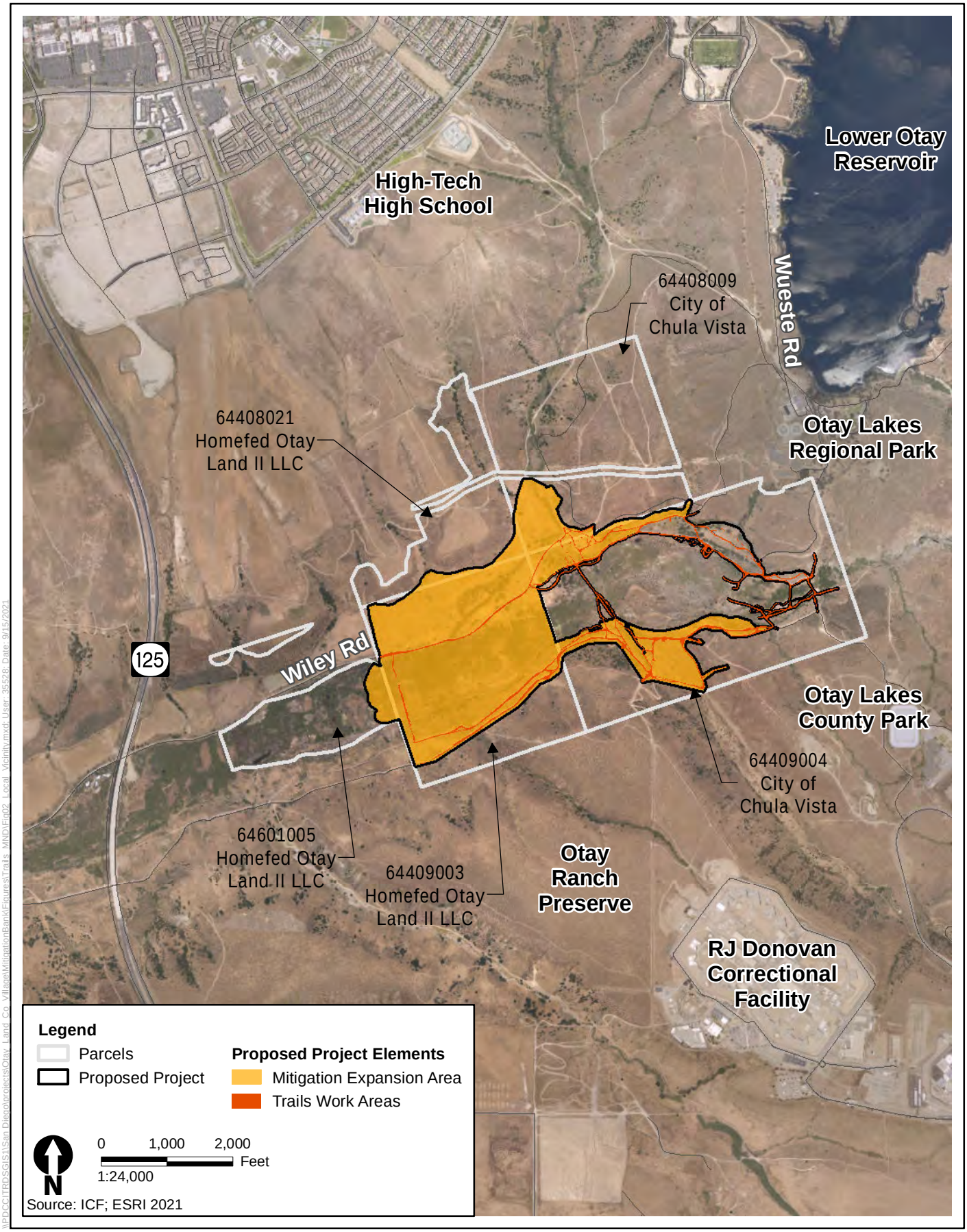
Mitigation Measure	Implementation Time Frame	Monitoring Method	Implementation Responsibility	Verification Responsibility
1. Avoidance and preservation of the resources in place including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria. 2. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: i. Protecting the cultural character and integrity of the resource ii. Protecting the traditional use of the resource iii. Protecting the confidentiality of the resource iv. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places. **3.** Protecting the resource				

ATTACHMENT 1: FIGURES



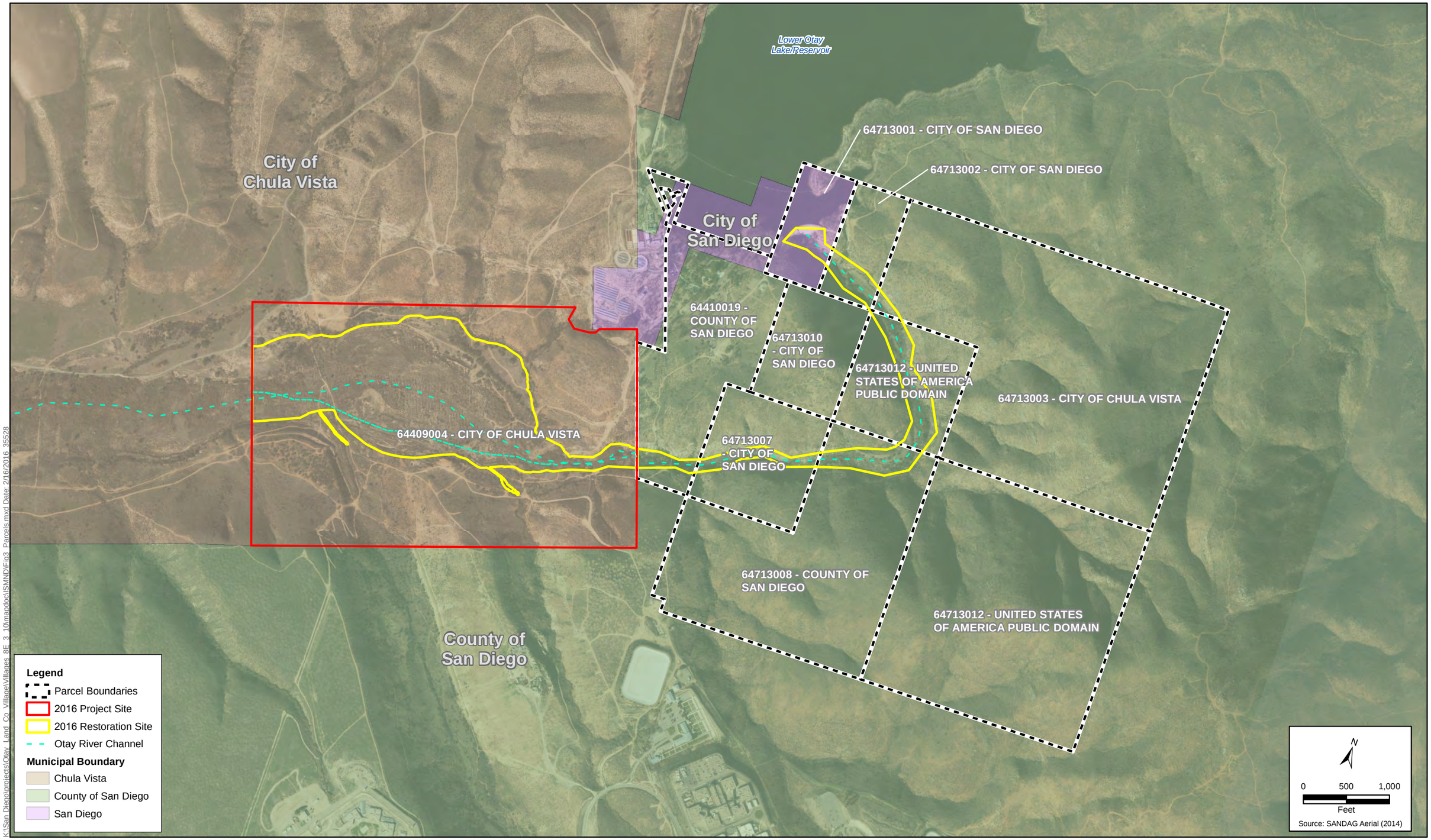
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Figure 1
Regional Vicinity



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Figure 2
Local Vicinity



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Figure 3
2016 Restoration Project Parcels

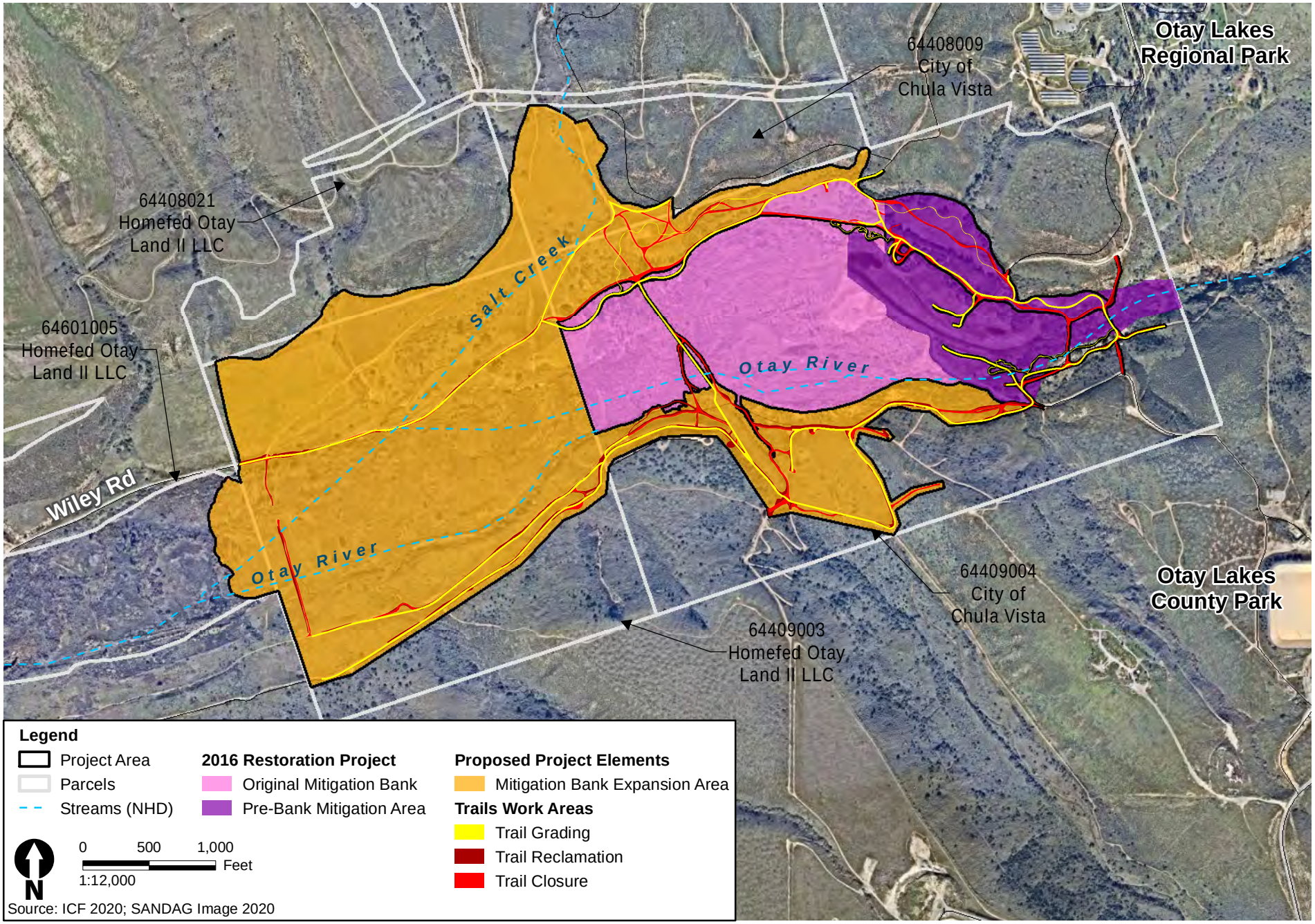


Figure 4
Project Overview

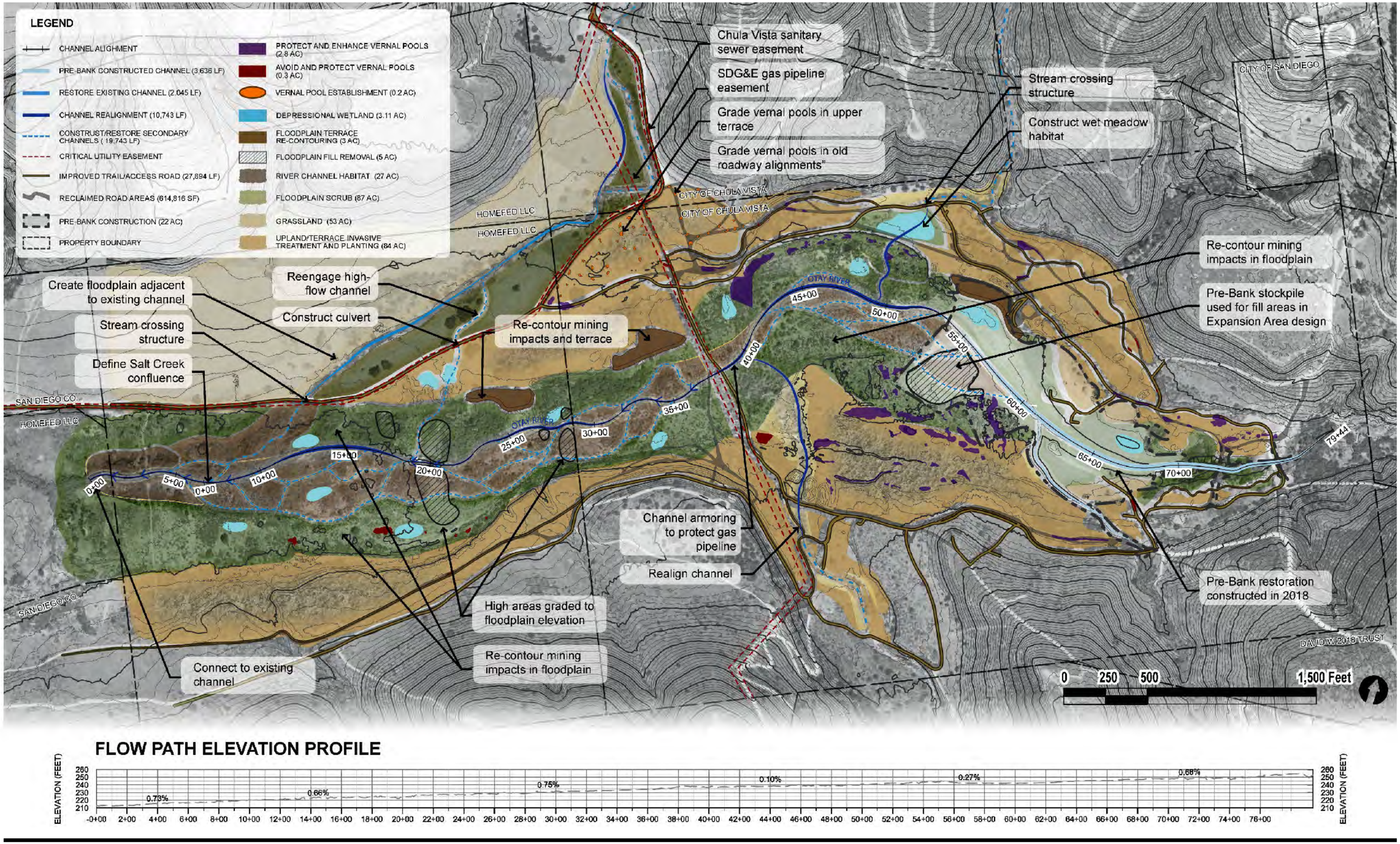
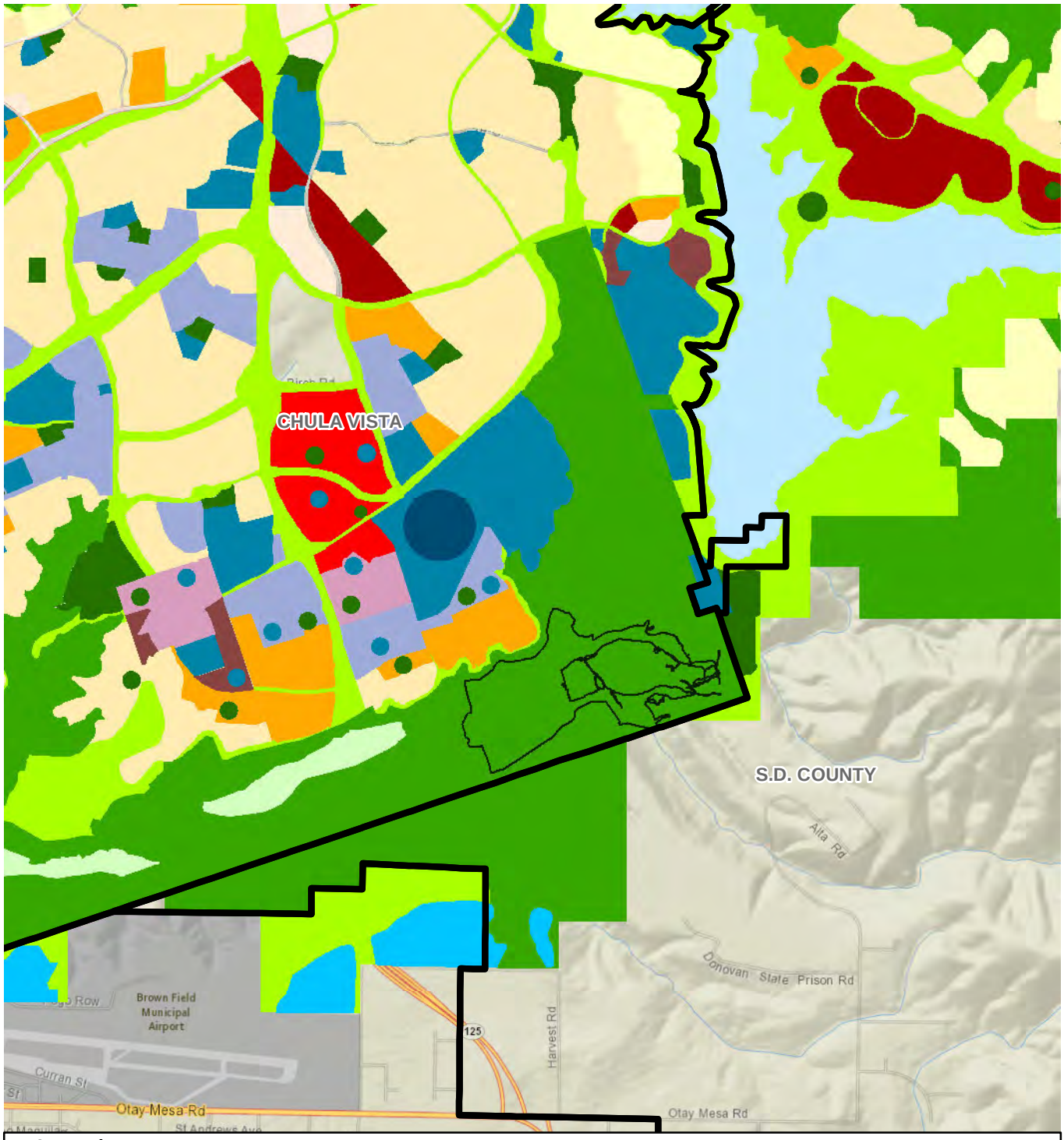


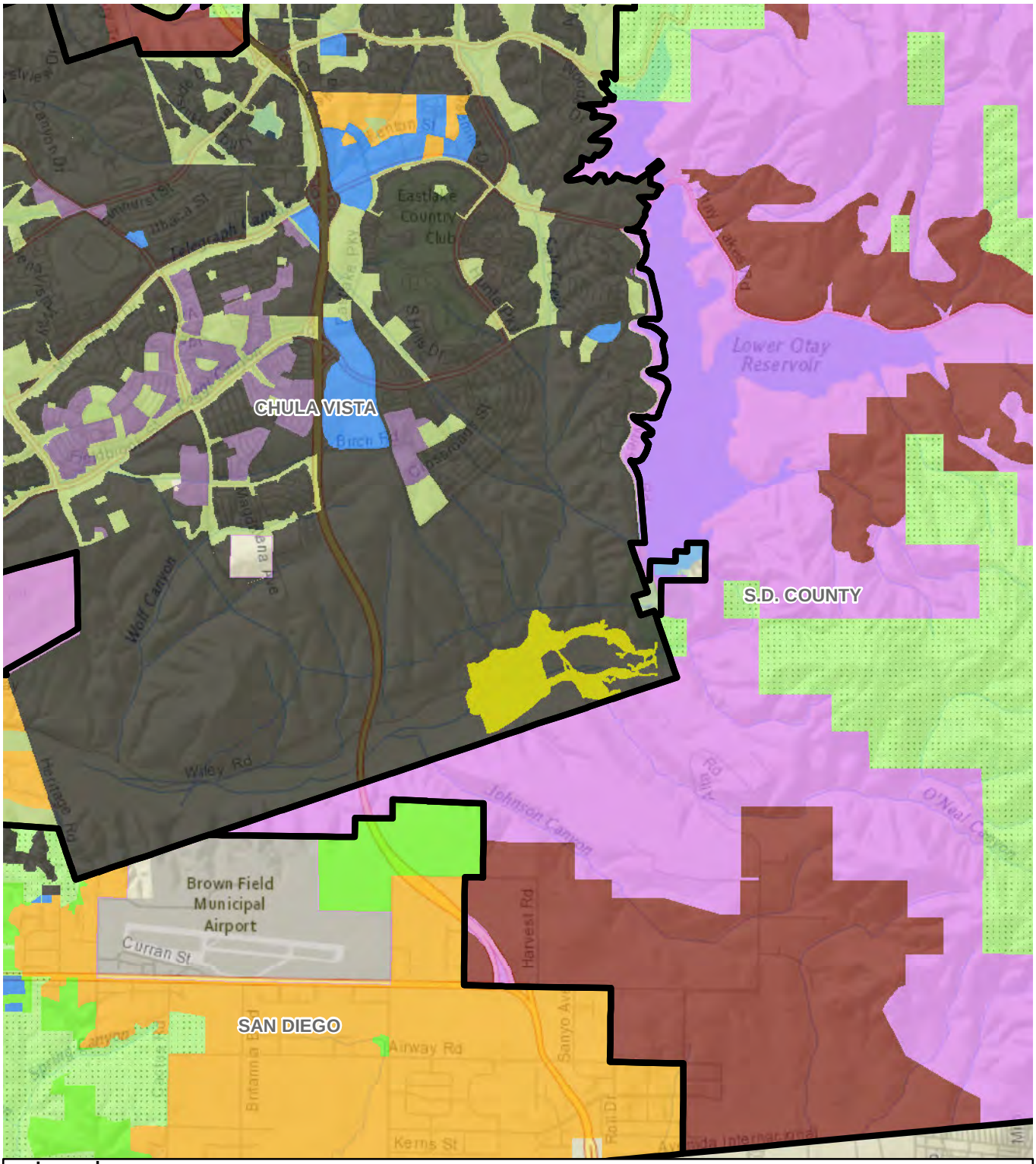
Figure 5
Proposed Project, Mitigation Bank Expansion Component Concept Plan



Source: ICF; SanGIS; ESRI 2021

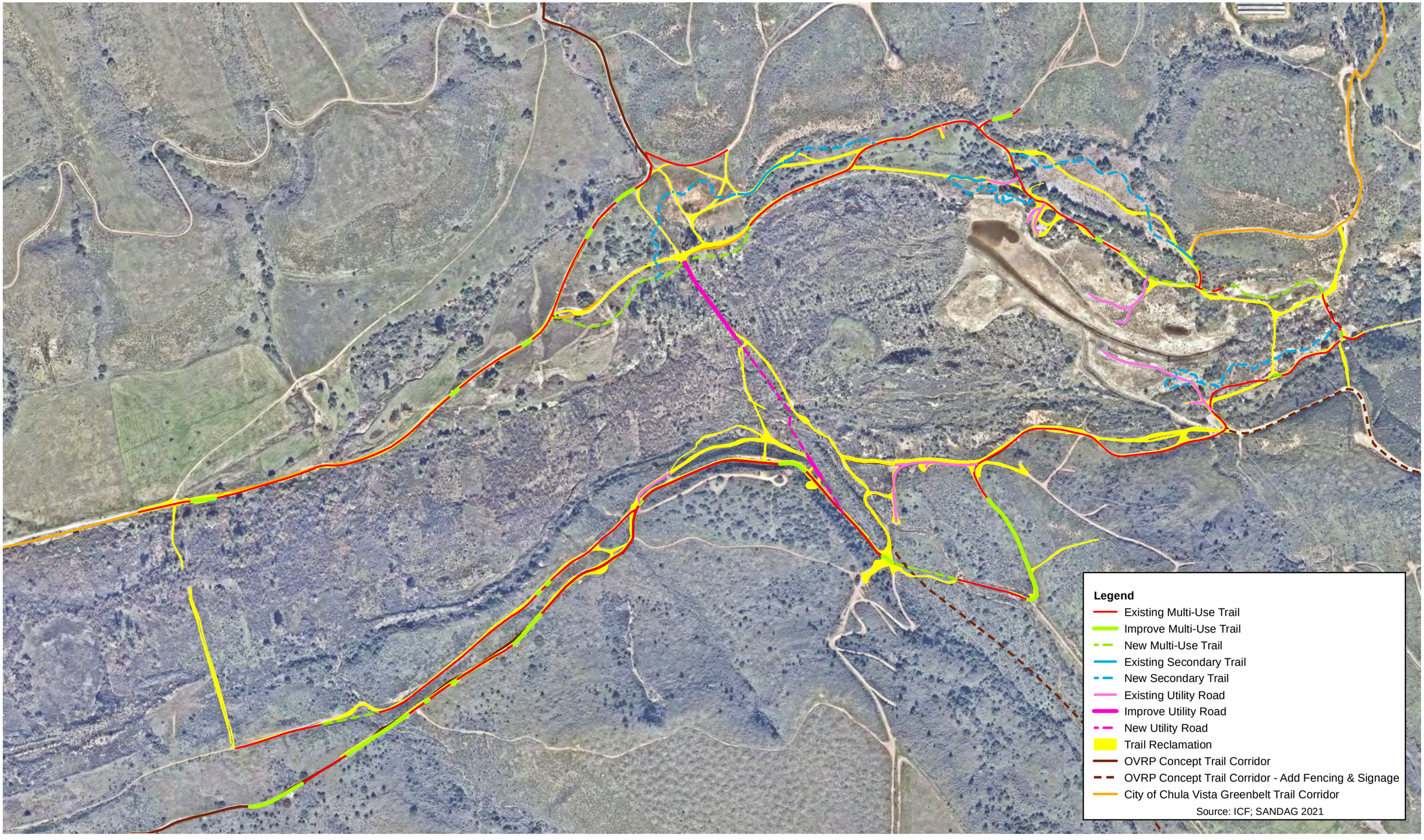
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Figure 6
Land Use



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Figure 7
Zoning



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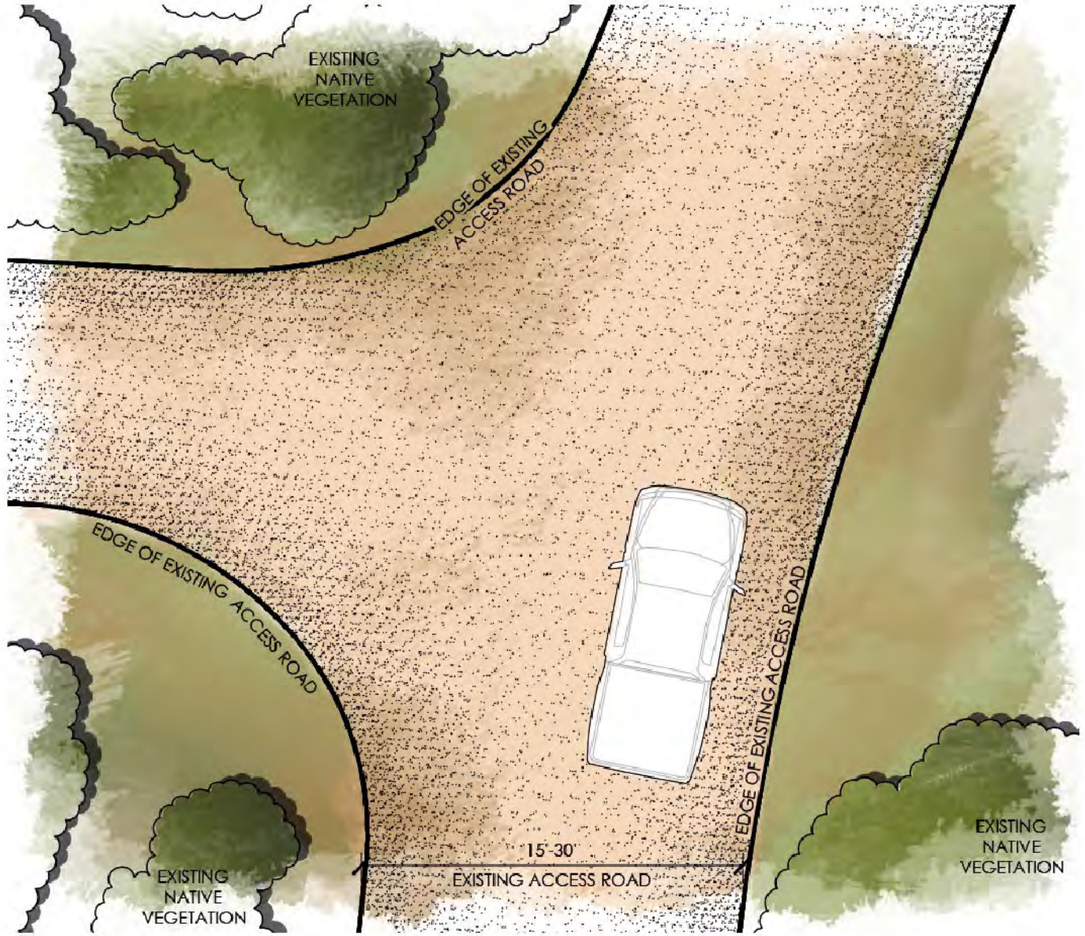
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Figure 8
Proposed Project, Trails Component Concept Plan

Trail Intersection, Before



Trail Intersection, After

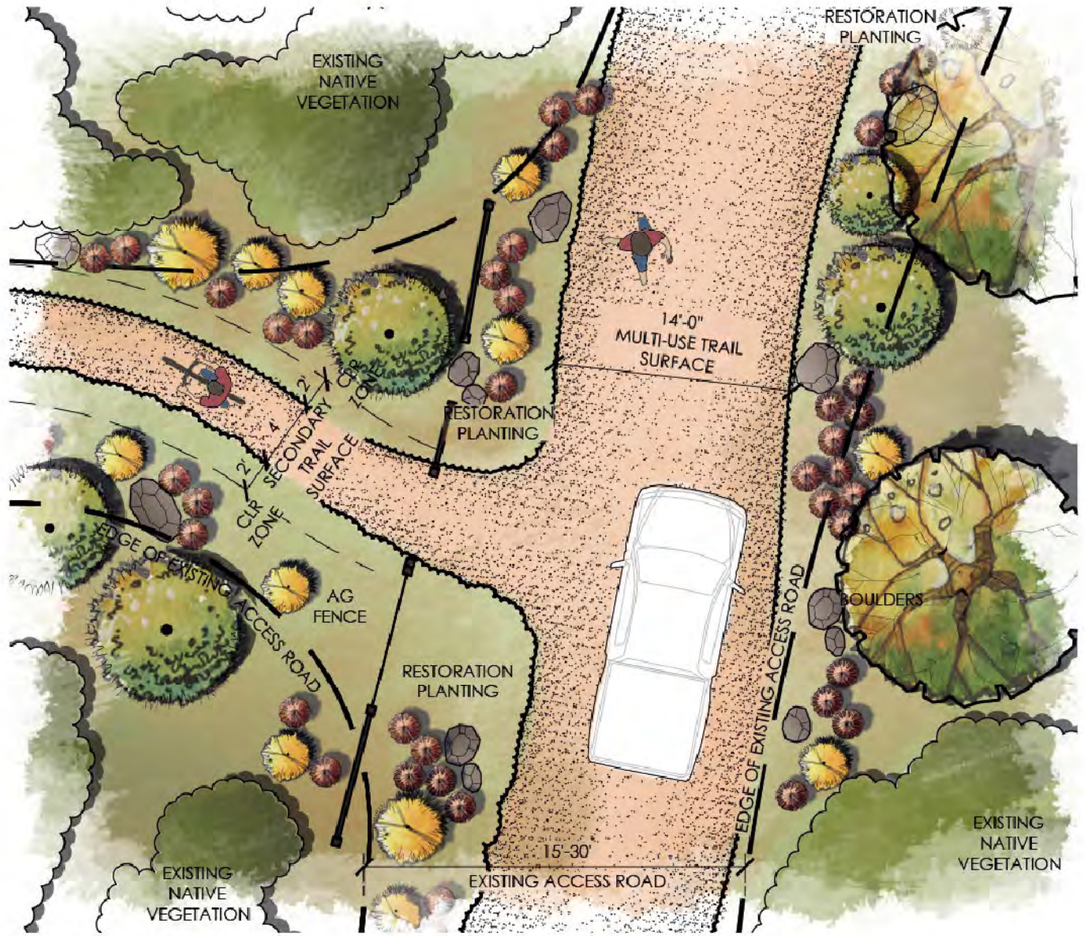
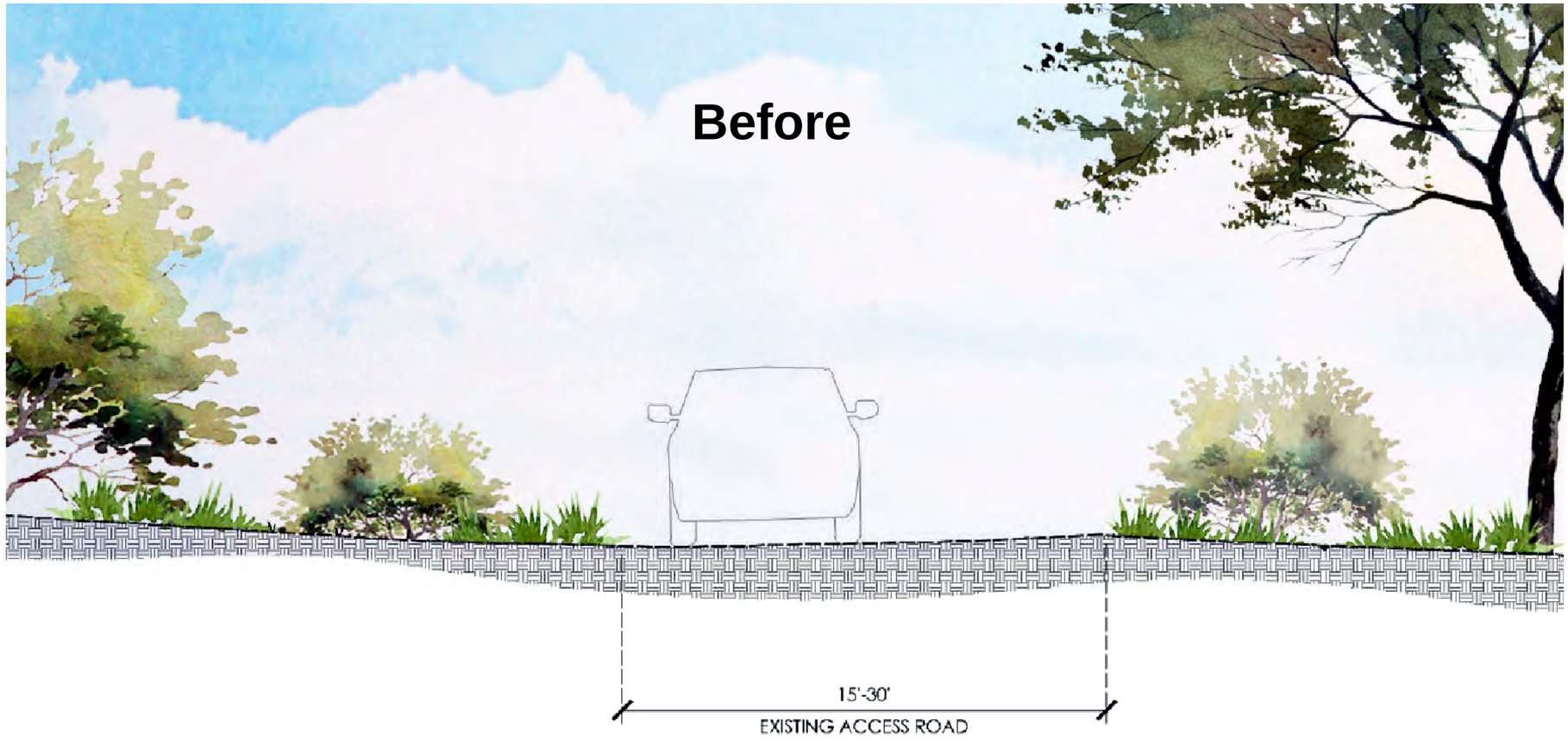
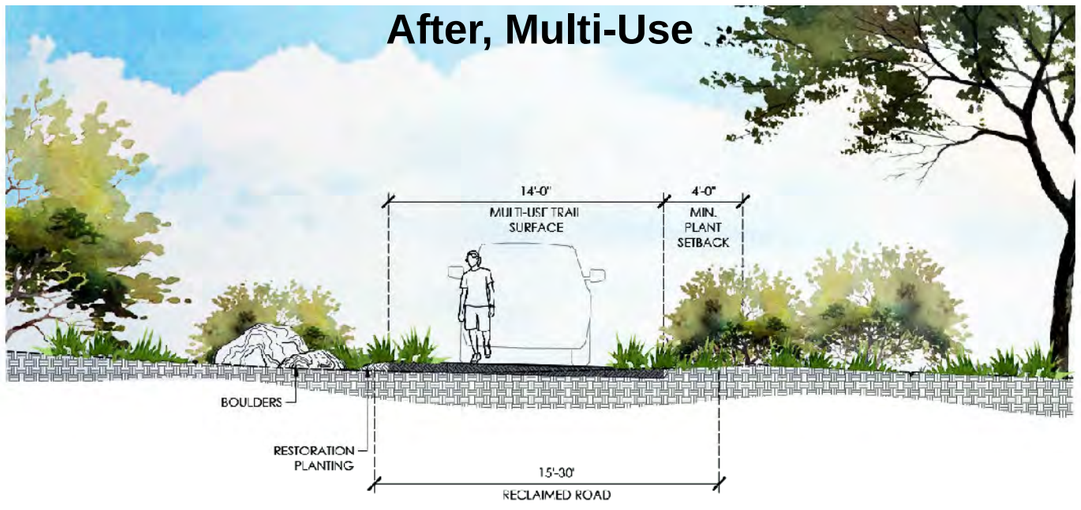


Figure 9
Trails Detail, Plan View





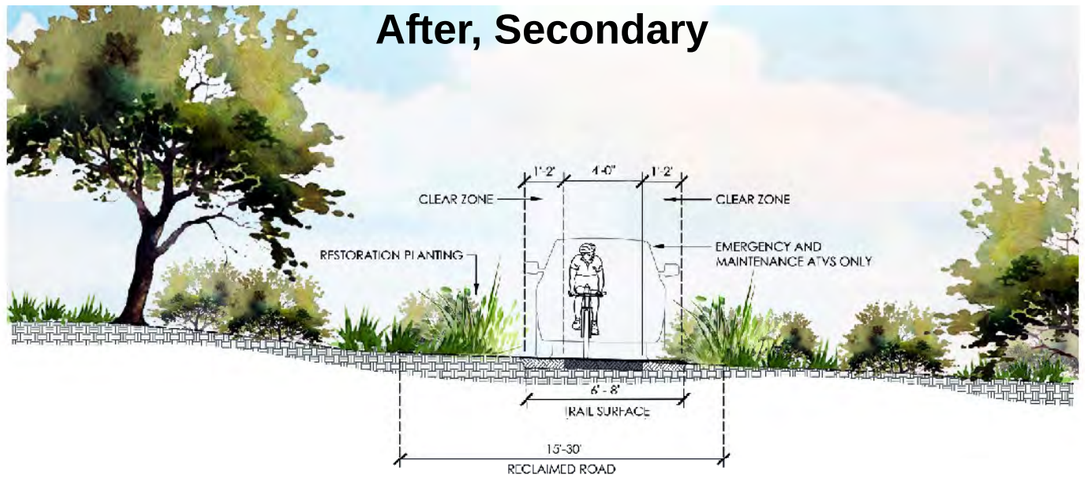
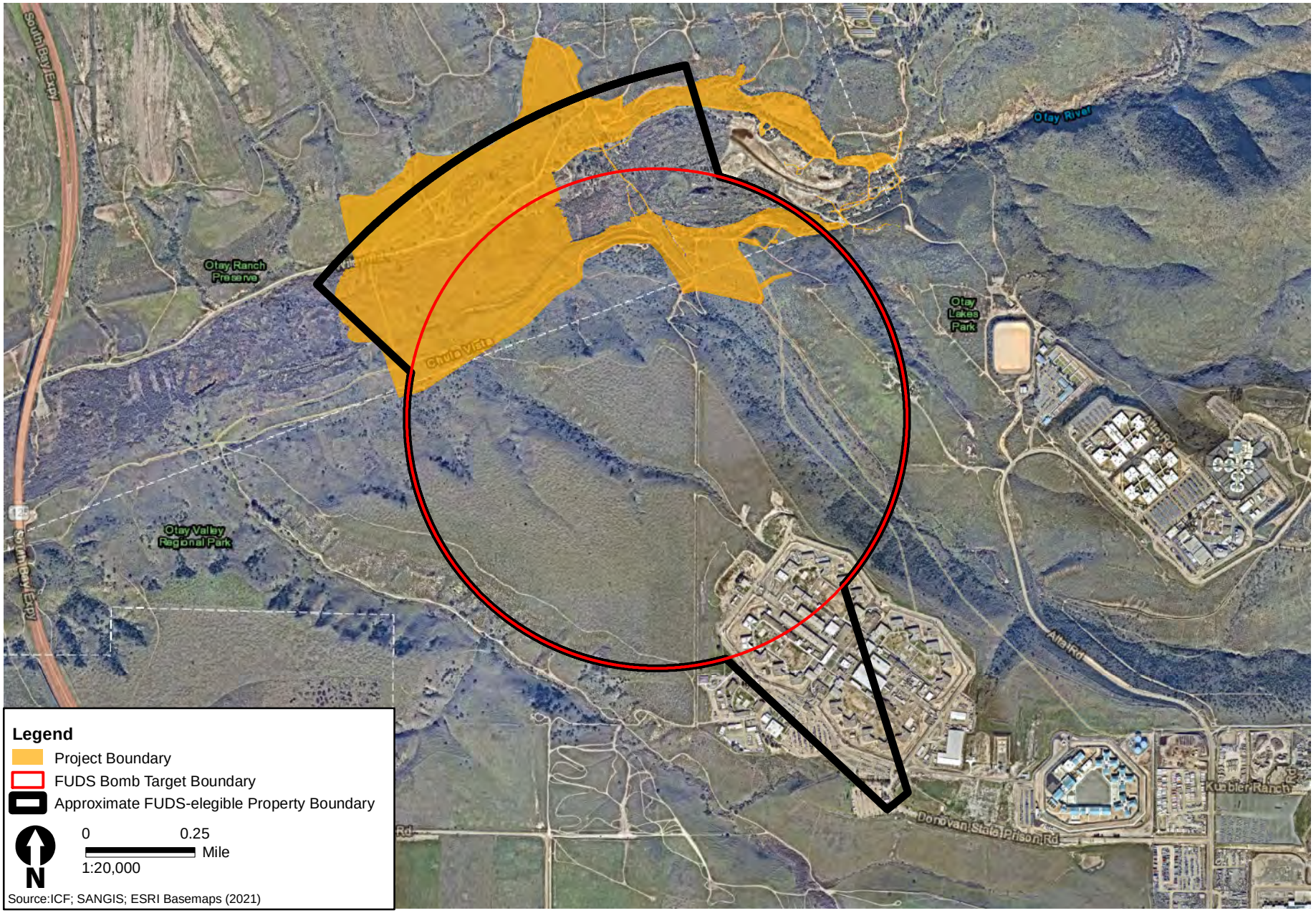


Figure 10
Trails Detail, Cross Section

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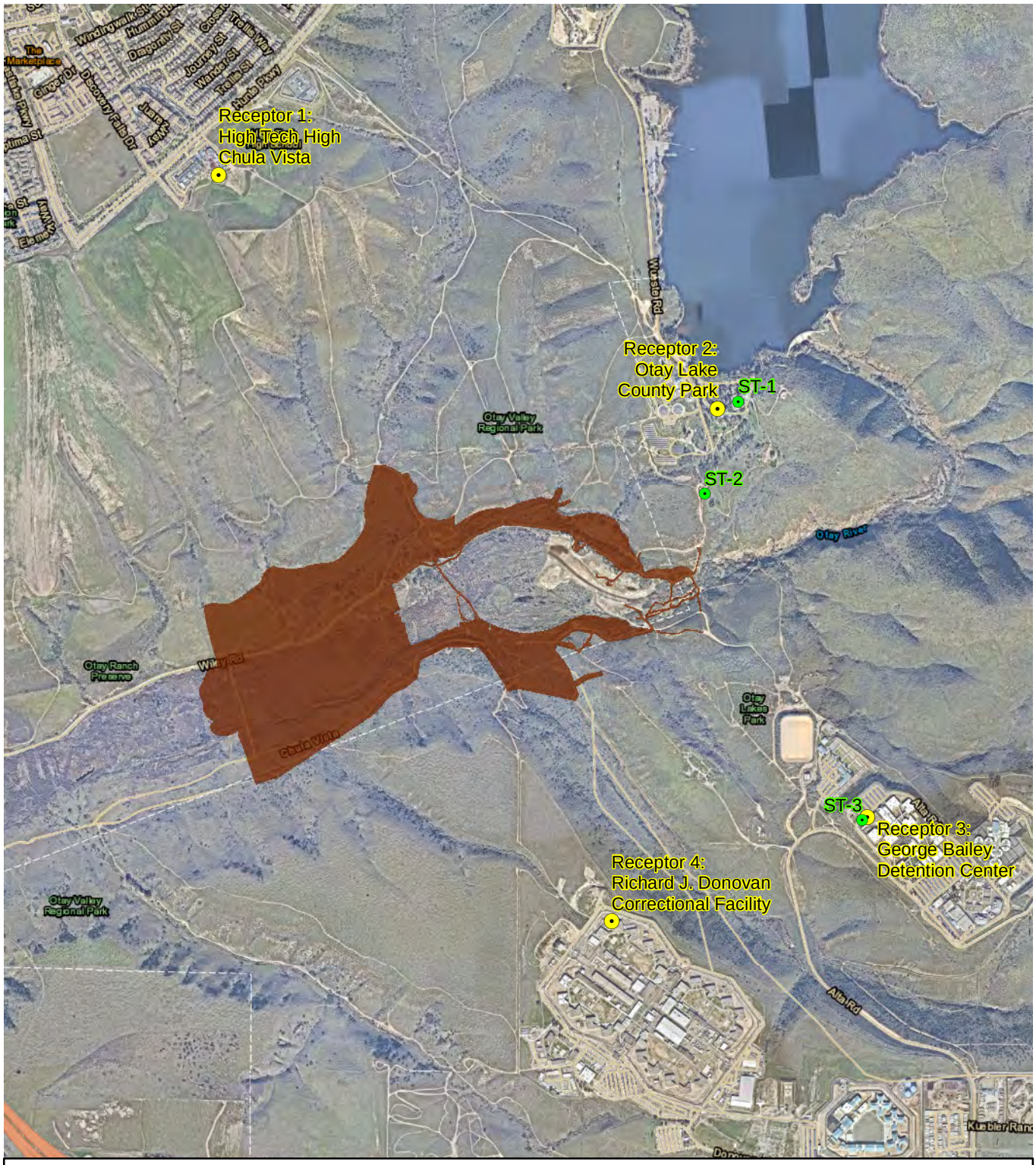
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Figure 11
Former Brown Field Bombing Range Location



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Figure 12
Farmland



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Figure 13
Noise Measurement and Modeling Locations

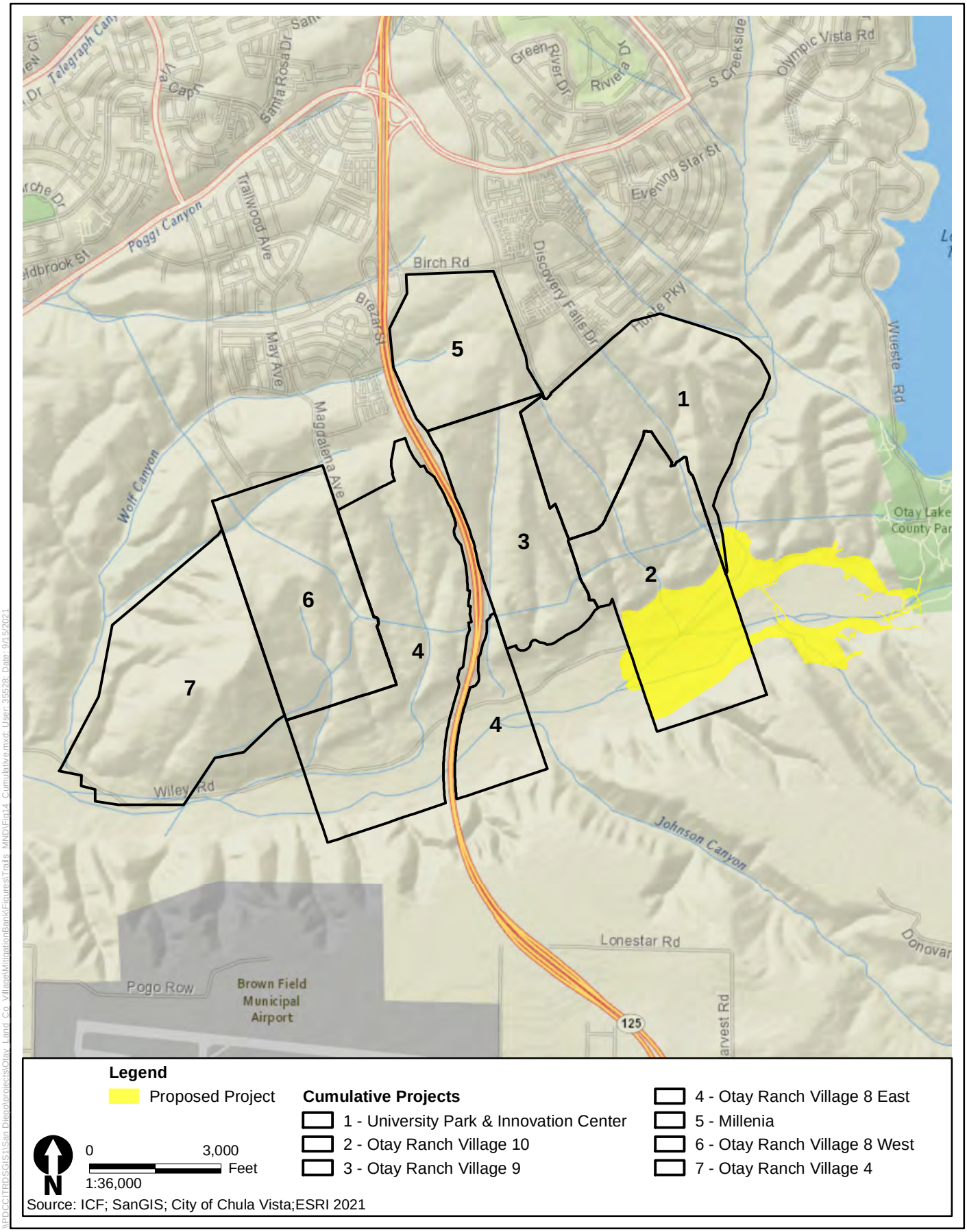


Figure 14
Cumulative Projects

ATTACHMENT 2: DETAILED PROJECT DESCRIPTION

Otay Trails and Mitigation Bank Expansion – Project Description

Terms

Otay River: The Otay River is in southern San Diego County, California. The 25-mile-long river begins at San Miguel Mountain, flows through the Upper and Lower Otay Reservoirs, and continues between the southern part of the Chula Vista and the Otay Mesa West district of San Diego, entering into the San Diego Bay.

Mitigation Bank: The preservation, enhancement, restoration, or creation of a wetland, stream, or habitat conservation area that offsets, or compensates for, expected adverse impacts on similar nearby ecosystems. For purposes of this report, the Mitigation Bank includes the Original Mitigation Bank and the expansion included as part of the proposed project.

City Parcel: Land owned by the City of Chula Vista (City) within the Otay River floodplain that was identified as an appropriate location to focus restoration efforts within the Lower Otay River watershed.

HomeFed Parcel: Land within the Otay Trails and Mitigation Bank Expansion Project (proposed project) site that would be restored as part of the proposed project. This land is owned by Otay Land Company, LLC.

Otay Villages: A design approach to community development composed of mixed-use centers that focuses on shops, plazas, and parks, with housing arranged strategically; encourages walking and biking; and provides a wide variety of housing types to meet the diverse community needs. Each Village has well-defined edges such as the Chula Vista Greenbelt, open spaces, or wildlife corridors.

HomeFed: HomeFed Corporation (HomeFed) is a real estate development company that specializes in mixed-use master-planned communities. HomeFed was incorporated in 1988 and is headquartered in Carlsbad, California. HomeFed is one of the primary developers working in Otay Village at this time. An agreement was made to allow HomeFed to proceed with mitigation design and implementation to meet its immediate permitting needs for Village 3 and Village 8 in addition to a portion of Village 2 on behalf of another developer.

Otay Land Company, LLC: subsidiary of HomeFed, a development company.

2016 Otay River Restoration Project Habitat Mitigation and Monitoring Plan (HMMP) (2016 Restoration Project): Consists of the Pre-Bank and Original Mitigation Bank and was evaluated in the 2016 initial study/mitigated negative declaration (IS/MND).

Pre-Bank: Part of the 2016 Restoration Project, totaling more than 38 acres of permittee-responsible mitigation to satisfy mitigation requirements for aquatic resource impacts associated with Village 3, Village 8W, and Village 2. It was implemented in 2018 and included river, floodplain, and upland restoration.

Original Mitigation Bank: Part of the 2016 Restoration Project focused on restoration for future development and mitigation needs for HomeFed and the City. The Original Mitigation Bank encompasses the remaining floodplain within the City Parcel that was not part of the Pre-Bank.

Expanded Mitigation Bank: Part of the proposed project. An expansion of Original Mitigation Bank farther downstream to maximize the mitigation opportunities for the larger development community while also providing added security for the currently planned projects.

Bank Enabling Instrument (BEI): A legally binding document that details the responsibilities of each party and includes the establishment of the mitigation bank, a management plan, endowment funding agreement, and other documents detailing the operations of the mitigation bank.

Prospectus: An abbreviated Development Plan that outlines the mitigation activities to occur in enough detail for the agencies to review and for the public to provide comments.

Development Plan: Addresses the same criteria as an HMMP. The Development Plan will be the document attached to the BEI as **Exhibit C-1** that is the overall plan governing construction and habitat establishment, as well as restoration and enhancement activities required to be conducted on the mitigation bank property to establish credits.

Habitat Mitigation and Monitoring Pan (HMMP): The document that was completed for the Pre-Bank in order to describe the specific and detailed mitigation activities and plans, performance criteria to measure success, initial monitoring and management actions, and long-term management activities.

Proposed Project: Consists of two primary components: the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits. The expansion includes enhancement, rehabilitation, and re-establishment of hydrological processes, vegetation communities, and wildlife habitats associated with the Lower Otay River watershed that will be self-sustaining and can adjust to dynamic natural processes.

Secondary Trails: Smaller trails (3 to 5 feet wide) precluding vehicular use while still allowing for mountain biking, equestrian uses, and hiking. Often facilitates unique routes and loops to enhance the user experience.

Multi-Use Trails: Primary trail providing full access for all trail users while also serving as agency and utility vehicular access throughout the proposed project site, including for San Diego Gas & Electric Company (SDG&E) and U.S. Customs and Border Protection. These trails would be a minimum of 14 feet wide but still be designed to project a trail-like atmosphere.

Introduction

The City of Chula Vista is one of the fastest-growing cities in San Diego County. Part of the rapid growth over the last decade has been in the Otay Ranch area, where the Otay Ranch General Development Plan (GDP) covers almost 10,000 acres in the City and provides guidelines for the buildout of its various phases, identified as “Villages” (City of Chula Vista 2018). As indicated in the GDP, the Otay Villages are intended to have well-defined boundaries such as the Chula Vista Greenbelt, open spaces, or wildlife corridors; be composed of mixed-use centers focused on shops, plazas, and parks, with housing arranged strategically; encourage walking and biking; and provide a wide variety of housing types to meet the diverse community needs. The most recent Village development phase has been led by HomeFed, one of the primary developers working in Otay Village at this time.

In 2014 at the request of the project proponent (HomeFed), ICF conducted a survey of the Lower Otay River watershed to identify restoration opportunities to serve as compensatory mitigation for impacts on jurisdictional waters and wetlands associated with one of the Otay Villages being developed by HomeFed. This ultimately led to a discussion between HomeFed and the City of Chula Vista (lead agency) about mitigation on public lands, specifically the City's land in the Lower Otay River watershed approximately a mile downstream of Savage Dam. The watershed survey brought ICF to the City Parcel in the floodplain where remnants of the historical sand mining activities and subsequent invasive species had reduced riverine functions substantially, making the location an ideal opportunity for mitigation.

The City and HomeFed entered into a Memorandum of Agreement (MOA) to allow HomeFed to proceed with mitigation design and implementation to meet its immediate permitting needs for Village 3, Village 8, and a portion of Village 2. This immediate mitigation need resulted in completion of the 2016 Restoration Project, which included more than 38 acres of river, floodplain, and upland restoration (Pre-Bank). In addition to the immediate needs (Pre-Bank), the 2016 Restoration Project included the design, environmental review, and permitting for a mitigation bank (Original Mitigation Bank) to meet the maximum mitigation required for HomeFed and the City's future projects including various Otay Village projects and planned City projects as described in the Otay Ranch GDP. These development projects included the Otay Ranch Village 3, Village 8 West, Village 2, Village 8 East, and Villages 9 and 10. The mitigation needs of the Otay River Valley Regional Park and the City of Chula Vista University Project were also considered. Part of the agreement to allow HomeFed to mitigate on City land included the design and installation of trails within the proposed project limits including the City of Chula Vista Greenbelt and the Otay Valley Regional Park (OVRP) Trails. Since initiating the construction of the Pre-Bank and the development of the prospectus for the Original Mitigation Bank, additional future City projects have been identified, which may exhaust the excess acreage generated in the Original Mitigation Bank, leaving little to no "credits" available for unexpected needs or to support other projects in the watershed. In 2018, the City and HomeFed determined that it would be appropriate and worthwhile to expand the Original Mitigation Bank farther downstream to maximize the mitigation opportunities for the larger development community while also providing added security for the currently planned projects. In addition, the expansion allows for connection to Salt Creek, one of the largest tributaries to the Lower Otay River watershed. The restoration of Salt Creek has also been evaluated in this report; however, this aspect is not committed to undergoing construction at this time and will require a refined design and supplemental analysis if implemented in the future. The trail alignment has been vetted and the approach to creating a functional trail system has been refined to include activities not previously identified in the 2016 Restoration Project. An updated prospectus, along with a Bank Enabling Instrument (BEI) containing the Development Plan will be developed in coordination with, and reviewed by, the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) in order to encompass the original and expanded mitigation bank. The expanded mitigation bank and expanded trail system are the basic elements of the proposed project evaluated in this document. See Figure 1, Project Overview.

Previous Environmental Documentation

In May 2016, the City approved the 2016 Otay River Restoration Project HMMP and IS/MND (City of Chula Vista 2016). These documents evaluated implementation of the Otay River Restoration Project HMMP on approximately 100 acres within the 300-acre City Parcel (2016 Restoration Project). The

2016 Restoration Project include three primary components: (1) upstream enhancement, (2) permittee responsible mitigation, and (3) establishment of a mitigation bank. Restoration implementation was initiated in January 2018 with the installation of the 35-acre permittee-responsible mitigation for Village 3, Village 8 West, and Village 2. The mitigation bank component of the 2016 Restoration Project (Original Mitigation Bank) is now being expanded under the proposed project. The upstream enhancement has also been implemented and crosses the City Parcel and seven additional parcels adjacent to Savage Dam. The parcels are owned by the County of San Diego, City of San Diego, and federal agencies. Figure 1 shows the 2016 Restoration Project limits as well as the proposed project limits.

Proposed Project Overview

The proposed project consists of the expansion of the Original Mitigation Bank and the creation, modification, and expansion of trails within the entire proposed project limits (Figure 1).

Mitigation Bank Expansion

The mitigation bank expansion is located on land owned by HomeFed and includes enhancement, rehabilitation, and re-establishment of hydrological processes, vegetation communities, and wildlife habitats associated with the Lower Otay River watershed that will be self-sustaining and can adjust to dynamic natural processes. The proposed project would also re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat as well as remove nonnative invasive species and restore native vegetation. This will serve to improve hydrologic conditions, significantly reduce the upstream invasive species seed sources, preserve connectivity between adjacent areas of preserved land and natural habitats, and preserve wildlife movement corridors, and would result in a net gain in functions and services following restoration activities.

The proposed project would provide mitigation opportunities to offset impacts on waters of the U.S. and state, including wetlands, and CDFW jurisdiction within a designated service area, currently proposed to include the Otay River watershed, Tijuana watershed, and portions of the San Diego River watershed. As stated above, the 2016 Restoration Project was designed to meet the compensatory mitigation needs associated with unavoidable impacts on jurisdictional waters of the U.S., waters of the state, and associated habitats due to the implementation of the Otay Ranch University Villages and future City projects.

The expansion was further justified to provide flexibility, as project designs and permitting for the Villages and City projects are still in progress with the possibility of additional mitigation acreage requirements. In addition, over the last 2 years, multiple local agencies and private entities have inquired about mitigation credit availability, stressing their need for opportunities now and in the future. It was decided by HomeFed and the City that the proposed project mitigation bank expansion was appropriate to meet the larger regional needs for aquatic mitigation. When evaluating the extent to which the Original Mitigation Bank should be expanded, consideration was given to cost effectiveness and maximum ecological benefit. This resulted in the recommendation to connect the mainstem of Otay River to the confluence of Salt Creek. This location is ecologically significant, as it represents a major input of water in the river valley and the first true connection point for the river. In addition, this key connection point would facilitate future restoration opportunities downstream. See Figure 2a, Proposed Project, Mitigation Bank Expansion Component Concept Plan.

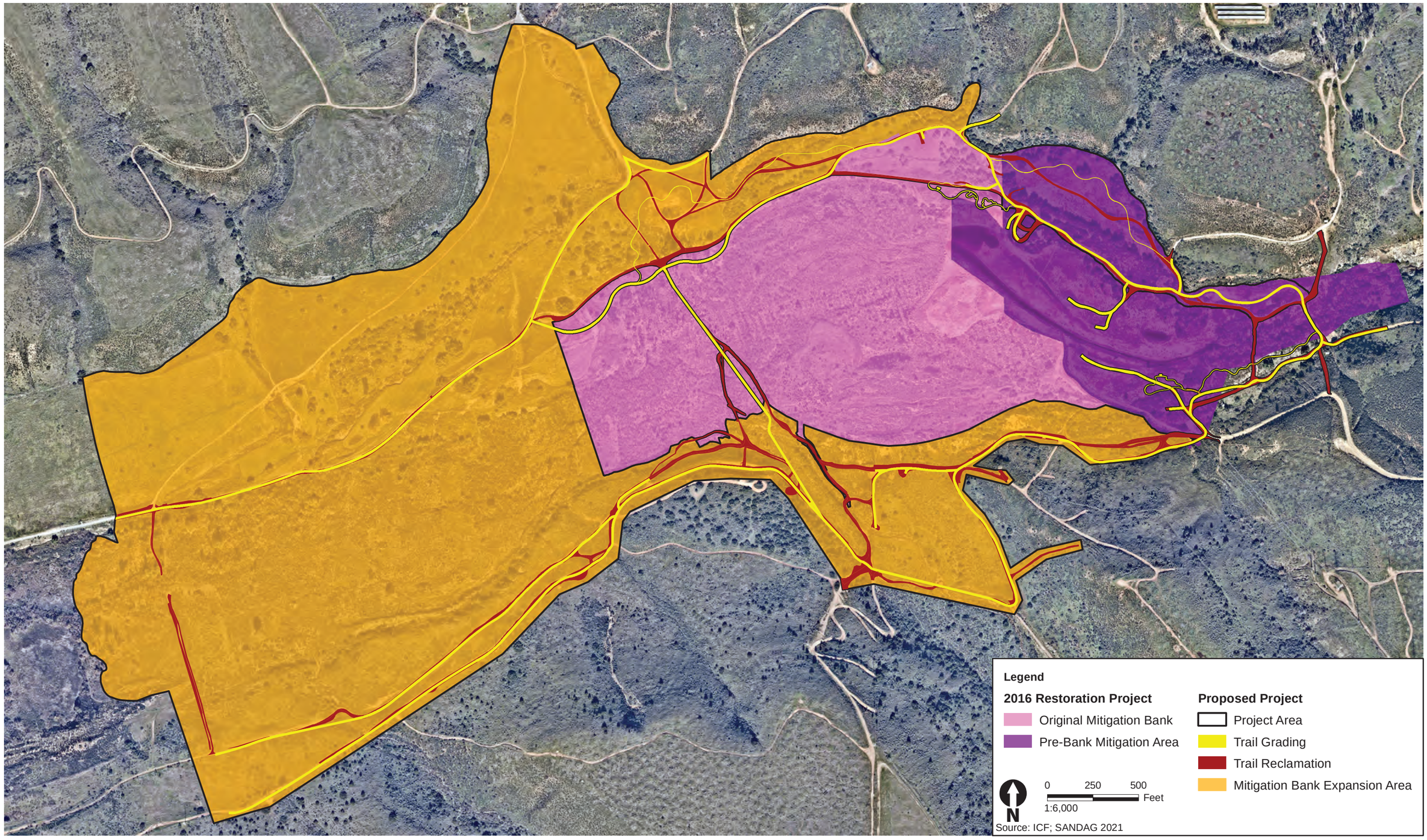
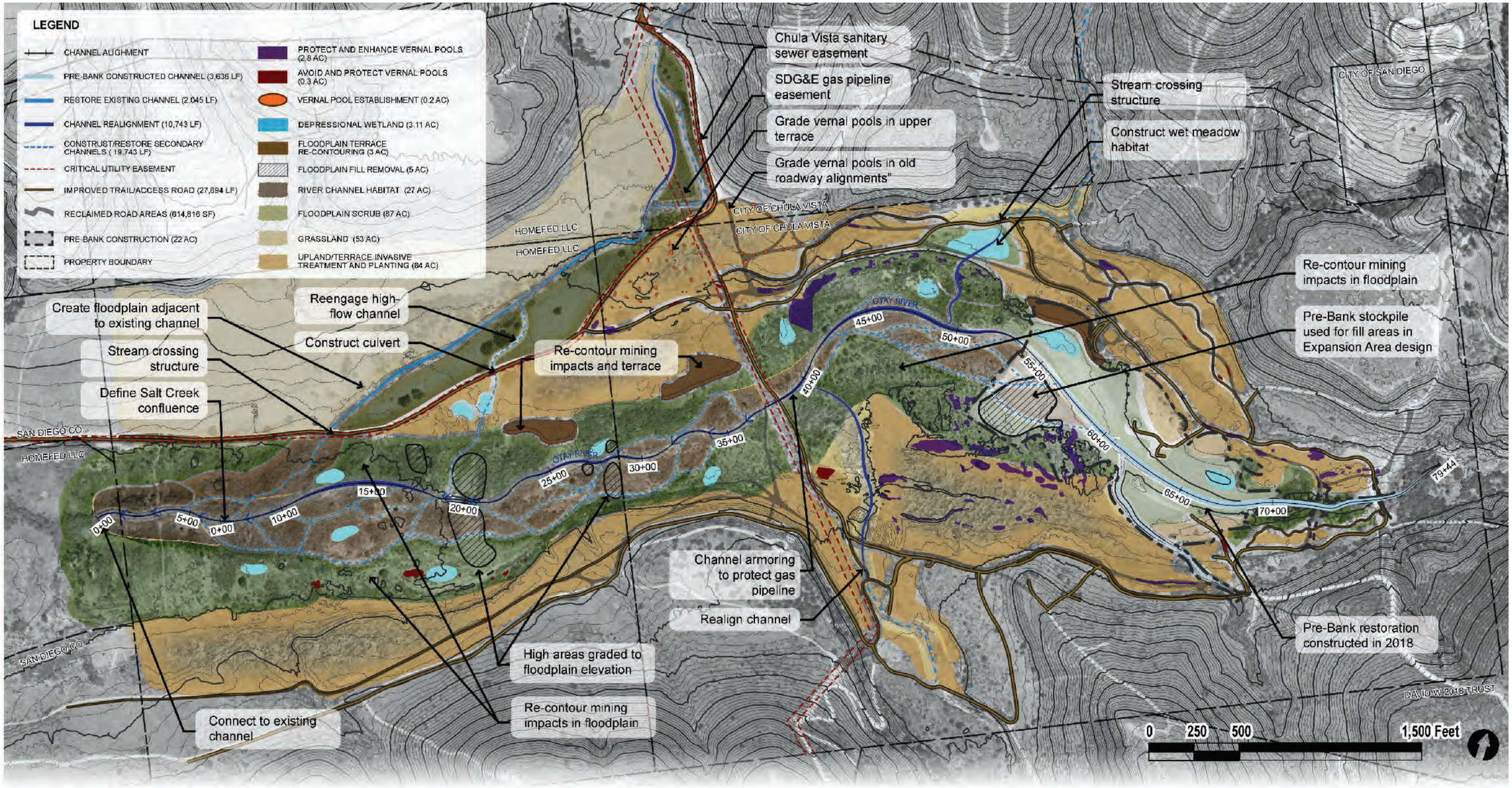


Figure 1
Project Overview

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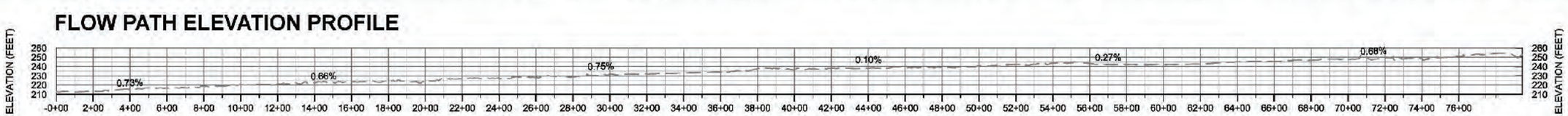


Figure 2a
Proposed Project, Mitigation Bank Expansion Component Concept Plan

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Trails

The 2016 Restoration Project included trail improvements as part of the project with a focus on fencing, signage, and crossing improvements. As these informal trails are part of the City of Chula Vista Greenbelt Master Plan (City of Chula Vista 2003) and the OVRP Concept Plan (County of San Diego et al. 2016), both high-level planning documents, additional stakeholder outreach was required in addition to agency input. As a result of a series of multi-agency meetings that included the City of Chula Vista, County of San Diego, CDFW, USFWS, California Department of Transportation, Border Patrol, Otay Water District (OWD), and OVRP Citizens Advisory Committee, including both committee meetings and field visits, it was determined that the activities required to finalize the installation of the trail network within the proposed project limits would require additional environmental review and permitting. The proposed project includes modifications to existing trail routes beyond those described as part of the 2016 Restoration Project. These proposed modifications include trail improvements (grading and contouring) to facilitate drainage and reduce ponding and water damage; new trail alignments to avoid sensitive resources and improve the trail experience for the users; select fencing and placement of natural barriers (boulders and logs) to keep pedestrian and vehicles on trail routes; and trail reclamation and road width reduction. See Figure 2b, Proposed Project, Trails Component Concept Plan.

Project Setting

The proposed project is within five parcels in the Otay River Valley, including an approximately 300-acre parcel owned by HomeFed. All parcels are in southwestern San Diego County, California, in the City of Chula Vista and encompass the floodplain area immediately downstream of Savage Dam and Lower Otay Reservoir. See Figure 3, Regional Vicinity, and Figure 4, Local Vicinity.

The proposed project occurs within the upper portion of the Lower Otay River watershed, approximately 1.2 miles downstream from Savage Dam. It is generally south and west of the Lower Otay Reservoir and surrounded by open space largely within the Multiple Species Conservation Program (MSCP) preserve system managed in partnership by the City of Chula Vista, City of San Diego, and County of San Diego. Specifically, the City Parcels are owned in fee title by the City of Chula Vista and are designated as Open Space Preserve in the City's General Plan (City of Chula Vista 2017). Fee title was transferred to the City as open space mitigation for a previous Otay Ranch development project. Additionally, the City and HomeFed Parcels, where the proposed project is located, are part of the City's MSCP Subarea Plan, which designates the parcel as a 100 percent Conservation Area, and protects the habitat on site from development and impacts. The City of Chula Vista and the County of San Diego together, via a Joint Powers Agreement, are the Otay Ranch Preserve Owner/Manager. The Preserve Owner/Manager is responsible for the long-term management of the upland portion of the property. Land management activities are guided by the Otay Ranch Resource Management Plan and funded through a Community Facility District. The existing land uses surrounding the site are as follows:

North: Chula Vista Water Treatment Plant, County Park, and Open Space

East: Open Space including County MSCP, Bureau of Land Management, and CDFW lands

South: Open Space with the exception of a cluster of development (OWD Roll Reservoir, George F. Bailey Detention Facility, City of San Diego's Otay Treatment Plant, and Richard J. Donovan Correctional Facility)

West: Open Space and the Otay River Valley, both publicly and privately owned

The proposed project site is undeveloped land with utility corridors (electric, gas, and water) along the northern, eastern, southern, and western boundaries. Several undesignated trails and dirt roads traverse the proposed project site. The roads and trails are accessed by recreational users (hikers, cyclists, equestrians, and off-road vehicles) and by U.S. Customs and Border Protection for routine patrols and by SDG&E, OWD, the City of San Diego, and the City of Chula Vista for utility inspection and maintenance (see Figure 2b).

Relationships with Other Plans

Guidance and policies pertaining to open space planning and protection of sensitive resources on the proposed project site and surrounding area are provided through an MOA between the City of Chula Vista and HomeFed, and planning documents adopted by the County of San Diego and Cities of Chula Vista and San Diego. The relevant guidance and policies of the MOA and planning documents are provided in the following paragraphs.

General Plan(s)

The City has established economic development initiatives focused on infrastructure, developing a strong consumer base and attracting a well-educated and experienced workforce. Over the past few decades, the City has acquired a large volume of commercial/industrial development lands, pursued a progressive business and employment investment policy, and completed acquisition of the 375-acre University Park and Innovation District site.

A variety of documents have been prepared to facilitate redevelopment and growth within the City. In 2005, the Chula Vista City Council approved an updated General Plan that guides the City's future growth and development through 2030. This plan, last amended in 2017, is complemented by more detailed planning documents for discrete elements and regions within the City. Of particular relevance is the Otay Ranch GDP (City of Chula Vista 2018), which was approved by the City of Chula Vista and County of San Diego as part of the Sub-Regional Plan in 1993 and updated through 2018. The Otay Ranch GDP planning area covers three separate land parcels including almost 10,000 acres in the City. The Otay Ranch GDP is an integrated policy document, combining the requirements of the City of Chula Vista and the County of San Diego. It identifies the land use pattern and intensities for the Otay Ranch community (including the Villages) as well as environmental, economic, and social goals, objectives, and policies. The proposed project is designated as a scenic resource and Open Space Preserve by the City of Chula Vista General Plan (City of Chula Vista 2015).

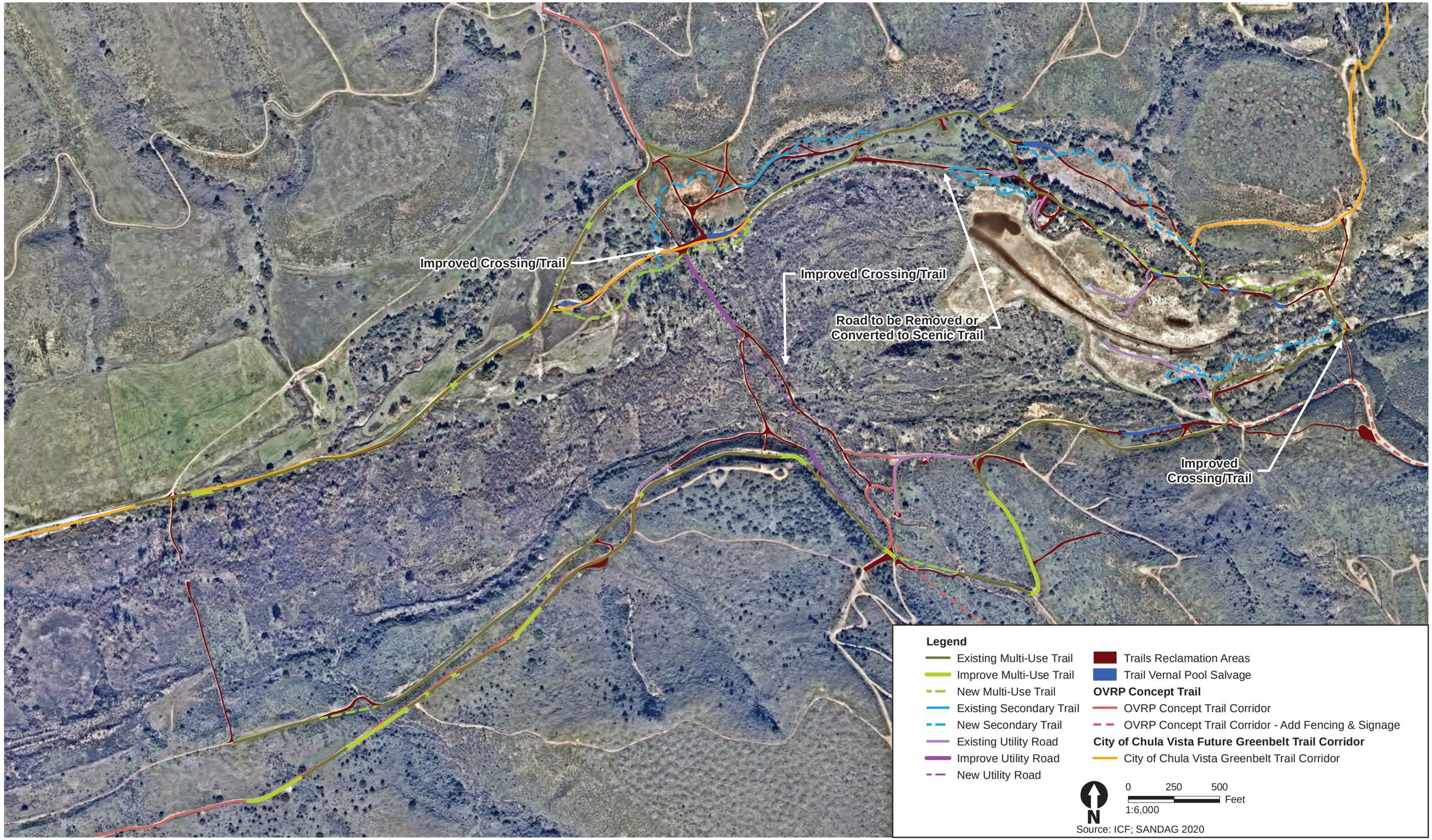
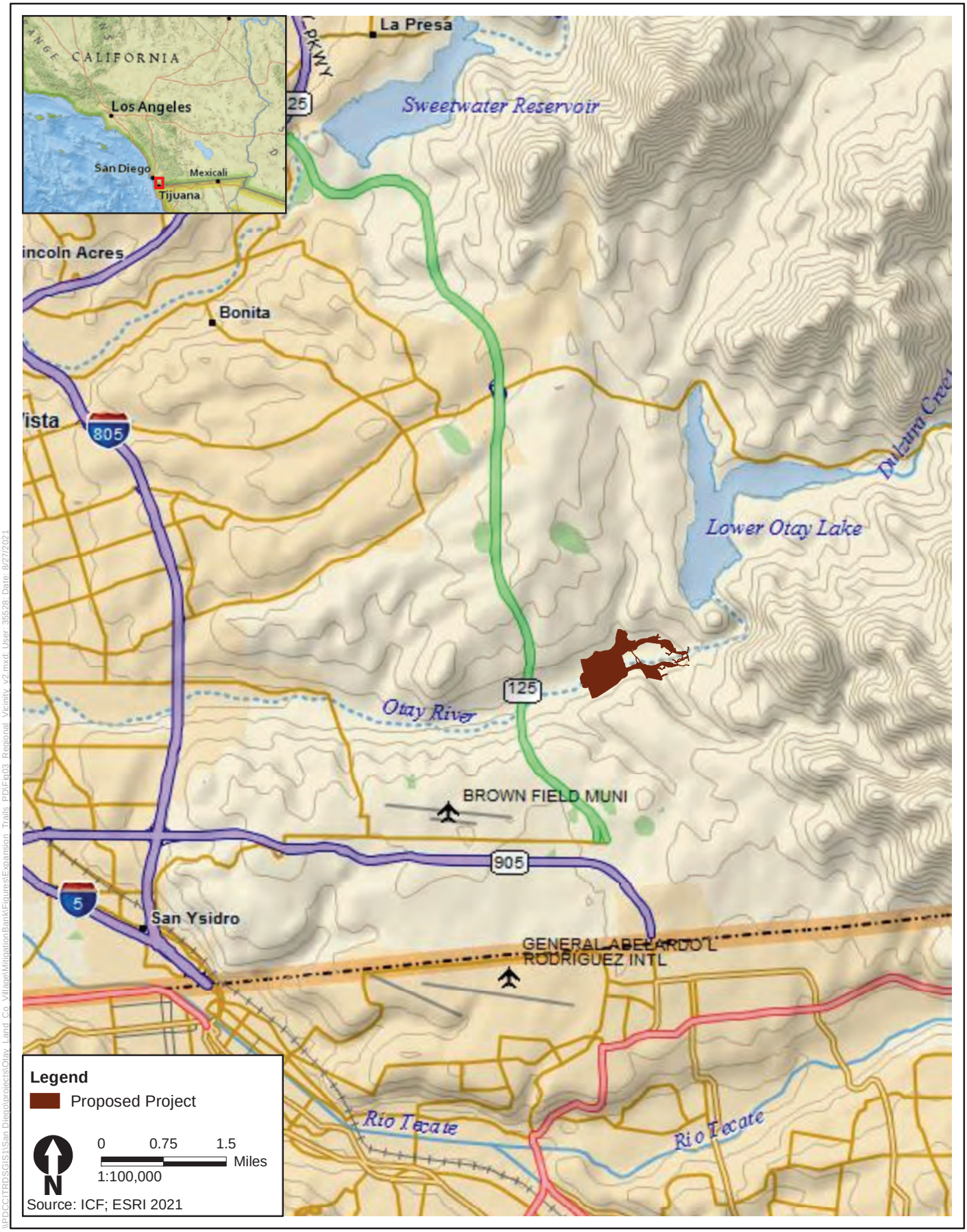


Figure 2b
Proposed Project, Trails Component Concept Plan

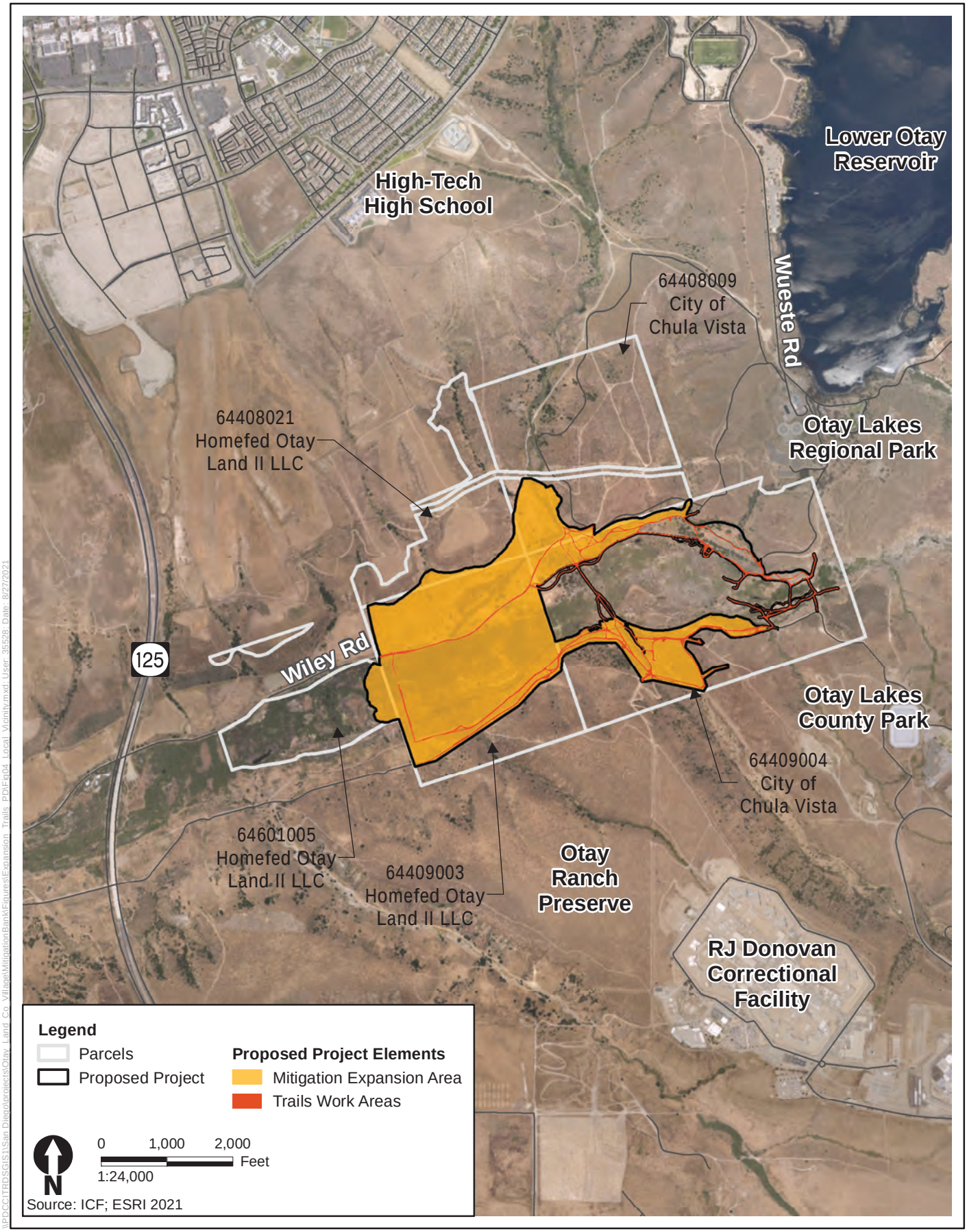
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Figure 3
Regional Vicinity

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Figure 4
Local Vicinity

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Memorandum of Agreement, HomeFed and City of Chula Vista

A portion of the proposed project site is within the City and is designated as Current or Future Open Space under the City's General Plan (City of Chula Vista 2017) and Otay Ranch Resource Management Plan (County of San Diego and City of Chula Vista 2018), and is within the City's MSCP hardline preserve area. Although the much of the proposed project site is on publicly owned land and/or is intended for open space and habitat preservation, the existing vegetation and soils are highly disturbed at the upper reach of the lower watershed boundary, making it an ideal location for ecological restoration.

Securing funding for a project of this magnitude is challenging for a local municipality; therefore, the proposed project presents a unique opportunity for a public (City of Chula Vista) and private (HomeFed) partnership. To this end, HomeFed and the City entered into an MOA, which was approved by the City of Chula Vista City Council in 2016. The MOA outlines the commitments of and benefits to each party, sets milestones, and guides funding decisions. The MOA is also currently being revised to update timelines and formally document the decision and associated trade-offs to expand the mitigation project onto HomeFed property and intersect Salt Creek.

Otay Valley Regional Park Concept Plan

The OVRP Concept Plan was prepared in 1997 and last updated in 2016 as part of a multi-jurisdictional planning effort between the County of San Diego, City of Chula Vista, and City of San Diego (County of San Diego et al. 2016). The proposed project lies within the boundary of the OVRP Concept Plan, which provides recommendations for open space/core preserve areas, recreation areas, trail corridors, staging areas, viewpoint and overlook areas, and interpretive centers. The proposed project would establish trail corridors in compliance with the OVRP Concept Plan and would implement trail improvements to a portion of the existing dirt roads and undocumented trails within the City Parcel. Trails would also be designated through and adjacent to the 2016 Restoration Project site. Wooden split-rail fencing, trail signage, and educational kiosks would be installed as part of the proposed project to more clearly delineate roads and trails, protect the public from unsafe locations, and protect sensitive resources from trail/road uses.

City of Chula Vista Greenbelt Master Plan

The City of Chula Vista Greenbelt Master Plan provides guidance and continuity for planning open space and constructing and maintaining trails in the City (City of Chula Vista 2003). The primary purpose of the Greenbelt Master Plan is to provide goals and policies, trail design standards, and implementation tools that guide the creation of the Greenbelt system. The Greenbelt system is a series of open space segments connected by a multi-use trail extending through each segment from the channelized Sweetwater River, along golf courses and banks of the Otay Lakes, following the Otay River valley to the Chula Vista Bayfront.

The proposed project would implement improvements to a portion of the existing dirt roads and trails identified within the OVRP East/Otay Ranch Village Greenway Segments. The trail improvement elements of the proposed project would be consistent with goals and policies of the Greenbelt Master Plan that aim to provide connected open space areas around the City and to enhance and protect native biological and sensitive habitats. The proposed project would also support establishment of a Greenbelt system that ensures public access utilizing existing fire roads, access roads, and/or utility easements for the trail system when possible and limiting the use of

multi-use trails to non-motorized uses except for motorized wheelchairs and utility, maintenance, and emergency vehicles. The intent of the proposed project is to ensure the Greenbelt trail is accommodated through identification of a realistic corridor and installation of trail signage, split-rail fencing, and educational kiosks while avoiding any sensitive resources. The existing roads and trails would be moved or modified as needed to avoid road ponds and protect the San Diego fairy shrimp (*Branchinecta sandiegonensis*) and the proposed project's restoration areas. The proposed project would also focus solely on those trails that interact with the restoration effort and would not preclude the future implementation of other new or upgraded trail facilities identified in the City of Chula Vista Greenbelt Master Plan.

City of Chula Vista Multiple Species Conservation Plan

The proposed project site is within the City's 2003 MSCP Subarea Plan, which provides a blueprint for conservation of covered species and their associated habitats and forms the basis for federal and state incidental take permits for 86 plant and animal species within the City. Lands that are managed under the MSCP are designated as 100 percent Conservation Areas, where the habitat is protected on site from development and impacts. The City of Chula Vista and the County of San Diego manage these Conservation Areas together.

The proposed project is considered a "Covered Project" under the Chula Vista MSCP Subarea Plan. The 100 percent Conservation Areas are either already in public ownership or will be dedicated to the MSCP Preserve as part of the development approval process for Covered Projects. Any portions of Covered Projects that are within 100 percent Conservation Areas must be consistent with conditions allowing specific land uses within the MSCP Preserve, as outlined in Chapter 6.0 of the Subarea Plan, and are subject to the narrow endemic species policy (avoidance and minimization) as outlined in Section 5.2.3, and the Wetlands Protection Program as outlined in Section 5.2.4 of the Subarea Plan.

In compliance with the County of San Diego MSCP Subarea Plan (County of San Diego 1997), the City of Chula Vista Subarea Plan, and as a condition of issuance of take authorization by the wildlife agencies, the City established a development standard and an implementing ordinance, the Habitat Loss and Incidental Take Ordinance. The Habitat Loss and Incidental Take Ordinance is consistent with the conservation and mitigation goals of the MSCP Subregional Plan and the City Subarea Plan, which require impacts on sensitive vegetation communities to be avoided and minimized to the maximum extent practicable. The proposed project is within the 100 percent Conservation Areas of Covered Projects (i.e., within the MSCP Preserve) and is therefore limited to the compatible uses described in Section 6.2 of the Subarea Plan, which include habitat restoration and enhancement activities. The proposed project is also subject to approval by the City and/or Appropriate Managing Entity, as applicable, and the underlying landowner, including obtaining any necessary permits. All activities must be consistent with the Subarea Plan including any conditions associated with Regional Water Quality Control Board 401 certifications, U.S. Army Corps of Engineers 404 permits, CDFW 1600 permits, or other resource conservation permits. All of the above activities would be carried out under a regional program implemented by the CDFW, U.S. Fish and Wildlife Service, City of Chula Vista, or Preserve Owner/Manager.

Otay River Watershed Management Plan and Special Area Management Plan

Over the past decade, two key documents have been created for the Otay River watershed: the Otay River Watershed Management Plan (WMP) (County of San Diego et al. 2006) and the Special Area Management Plan (SAMP). In 2006, the County of San Diego, with partial funding from a Proposition 13 grant, prepared the WMP in collaboration with the U.S. Army Corps of Engineers, Regional Water Quality Control Board, CDFW, City of Chula Vista, City of Imperial Beach, and Port of San Diego. That same year, a SAMP for the Otay River watershed in San Diego County was initiated with the County of San Diego as a facet of the County's broader watershed management program and following a species conservation planning effort. Although no final SAMP framework was developed, the U.S. Army Corps of Engineers compiled the extensive data and analyses in a geospatial database and summary report (U.S. Army Corps of Engineers 2016) that are available resources to inform decision-making processes, i.e., permitting and mitigation.

The WMP includes implementation strategies to ensure the protection of existing beneficial uses and natural resources, including methods to monitor, maintain, and/or enhance existing water quality levels using non-structural and structural best management practices. In addition, recommendations for appropriate aquatic resource enhancement and monitoring programs are provided in the WMP. SAMPs are intended to strike a balance between aquatic resources and reasonable economic development and uses in the watershed or region in which they are developed. Together, these two documents provide a framework program that is consistent with the local general plans (County and City), the San Diego Regional Water Quality Control Board National Pollutant Discharge Elimination System Permit, and the County of San Diego MSCP. They also represent a proactive watershed planning and permitting approach that identified the areas within the watershed of "low value" that are more suitable for development and areas of "high value" that should be protected.

Proposed Project Objectives

The primary objective of the proposed project is to create an ecologically functional, self-sustaining riverine wetland system that is resilient to a range of natural disturbances (e.g., drought, flood) and to enhance, rehabilitate, and re-establish hydrological processes, vegetation communities, and wildlife habitats associated with the Lower Otay River watershed that will be self-sustaining and can adjust to dynamic natural processes.

A list of more detailed objectives for the proposed project is provided below. These goals were developed based on historical conditions, existing resources (aquatics and sensitive species), current and future constraints, and the various watershed planning documents including the Otay River WMP and SAMP and the MSCP Subarea Plan. The goals have been further informed by input obtained through engagement with the various users, stakeholders, and regulatory agencies.

Hydrogeomorphologic Goals

1. Restore proper hydrology and sediment processes to maximize function based on existing conditions and facilitate a dynamic system.
2. Re-establish primary and secondary flow channels, low and high floodplains, and native transitional habitat.
3. Create complex channel morphology including primary and secondary channels.
4. Remove flow obstructions including berms, rows of cobble piles, and sediment and spoil piles.
5. Re-establish the intermittent Otay River mainstem.
6. Re-establish secondary ephemeral channels throughout the floodplain.
7. Re-establish the connection of tributaries to the floodplain.
8. Rehabilitate the connection of Salt Creek and the Otay River and re-establish the historical delta at the confluence, thereby allowing Salt Creek more movement potential.
9. Recreate a floodplain with low and high terraces capable of conveying various flood events.
10. Enhance and create seasonal ponds in the northern high floodplain.

Invasive Species Goals

1. Remove nonnative, invasive species and restore native vegetation appropriate for current conditions.
2. Reduce the significant upstream invasive species seed source beginning at Savage Dam.
3. Treat all large, woody trees within the proposed project limits including eucalyptus (*Eucalyptus* spp.), Brazilian pepper trees (*Schinus terebinthifolius*), and date and fan palms.
    a. Treatment must be done in a manner to avoid impacts on sensitive birds and raptors.

Buffer Goals

1. Maximize buffer condition and wetland protection by restoring and enhancing the adjacent transitional and upland habitat including sage scrub and grassland habitat as well as maritime succulent scrub.
2. Where possible, extend the restored buffer to the toe of the hills but at minimum include a buffer of approximately 100 feet.
3. Remove and restore redundant trails.
4. Reduce trails to the minimum width required for vehicular use and regrade to improve drainage and future rutting and associated trail widening.

Trails and Access Goals

1. Protect existing and proposed native riparian habitat by focusing users (i.e., U.S. Customs and Border Protection) to key access roads and closing others permanently.
2. Design trails to maximize the user experience while avoiding sensitive resources and ensuring access as needed for U.S. Customs and Border Protection, SDG&E, OWD, and the County.
3. Establish OVRP Concept Plan and City of Chula Vista Greenbelt Master Plan trail corridors to minimize the potential impacts on the restoration area from existing and potential future uses.
4. Avoid impacts on all road ponds that support San Diego fairy shrimp.
5. Install split-rail fencing, trail signage, and educational kiosks at select locations to keep users on the trails and outside of the restoration area and to avoid dangerous locations and sensitive species/habitats.
6. Maintain vehicular use of the site by U.S. Customs and Border Protection, SDG&E, OWD, and rangers while limiting the impact on future trail users and natural resources.
7. Upgrade one permanent at-grade channel crossing at the downstream end of the proposed project using rock and other natural, hard material and protect the existing SDG&E gas transmission line.
8. Reconnect tributaries to the mainstem river floodplain while also maintaining vehicle and trail user access. This includes the confluence with Salt Creek and O'Neil Canyon as well as the smaller, unnamed tributaries to the north.

Habitat and Other Ecology Goals

1. Create and maximize habitat diversity and structural complexity.
2. Preserve connectivity between adjacent areas of preserved land and natural habitats.
3. Preserve wildlife movement corridors.
4. Maximize wildlife use opportunities including local listed species.
5. Seek opportunities to restore vernal pools in areas where redundant roads containing road ruts, with the potential to support fairy shrimp and indicator species, are able to be reclaimed.

Detailed Description of Project Elements

As previously discussed, the proposed project is an expansion of the 2016 Restoration Project and includes rechanneling the mainstem channel and tributaries, grading and restoring the lower and upper floodplains, and restoring and enhancing upland, transitional, and riparian habitats. The proposed project also incorporates improvements to the multi-use and secondary trails for public use, adds fencing to protect sensitive resources and minimize trespassing, and includes educational kiosks to inform recreationalists on the restoration efforts and sensitive resources inhabiting the Otay River. These project components are further described below.

Mitigation Bank Expansion

Mitigation bank expansion and ecological restoration activities associated with the proposed project would begin with removal and management of nonnative, invasive species within the Otay River followed by the re-establishment of the Otay River mainstem and the creation of a secondary channel and floodplain terrace to maximize the hydrologic function of the overall floodplain. The transitional areas and upland habitat buffering the site would then be rehabilitated through the recontouring of slopes, removal of invasive plant species, and revegetation with appropriate native species.

Before it was disturbed, the Otay River through the proposed project area consisted of a braided river channel and associated floodplain; therefore, the intent of the restoration phase of the proposed project is to rehabilitate the channel and re-establish these conditions through the creation of a series of secondary channels. The created channels would connect to the up- and downstream existing mainstem and would include a low and high terrace along with sandy bar complexes and would be designed to accommodate flood events. In particular, the active low floodplain is intended to accommodate a 10-year flood event, while the high floodplain would likely correspond to a 25-year event, with larger events inundating the entire valley floor with water rising into the upland areas as needed.

Rehabilitation activities would include removing flow-impeding features left behind by the sand mining operation, including existing berms, cobble rows, and sediment piles, and recontouring the transitional upland area to mirror adjacent natural slopes and accommodate rising floodwaters. This area would also be treated for nonnative species and revegetated with native species such as sage scrub and cactus scrub. These improvements to the vegetative cover are expected to result in improved hydrology and flood capacity, bio-filtration, and sediment and toxicant trapping.

Enhancement activities would include removing and managing nonnative, invasive species such as arundo, dense tamarisk stands, and eucalyptus. Removal of nonnative, invasive plant species would help lower the overall distribution of nonnative seed and propagules within the watershed area and protect the proposed project.

Potential Future Restoration of Salt Creek

Salt Creek is a major tributary to the Otay River. The lower reach of Salt Creek bounded by Wiley Road to the north and south has significant potential for channel and floodplain restoration. Salt Creek is currently incised with low sinuosity. Its floodplain is disconnected with only a few breakout areas. The proposed restoration will be implanted if approved as a future phase and focuses on creating a more sinuous main channel that can access its floodplain more frequently. Future restoration activities include:

- Creating a two-stage channel with added low flow sinuosity to match conditions of representative reaches upstream. This creates a broader riparian corridor, adds channel length and complexity at low flows and allows the channel to access the floodplain more frequently.
- Creating multiple breakout or overflow channels that connect flow across the floodplain from Salt Creek to the Otay River floodplain.

- Realigning 3,560 linear feet of Wiley Road and sewer owned by City of Chula Vista from the lower floodplain (left bank) to upland (north bank). This realignment of utility access and sewer allows for extensive floodplain inundation. It also allows for the removal of two culverts along Wiley Road, which allows for increased floodplain inundation.
- Reconnecting significant tributaries along Salt Creek including Kumeyaay Creek which flows into Salt Creek to the north and Corral Creek with flows into the Otay River floodplain to the south. Both tributaries will meander through wet meadows and Corral Creek will flow around the historic Otay Rancho Corral.
- Re-habilitating and enhancing areas surrounding the re-established primary channel and Salt Creek with a focus on removal of invasive species such as tamarisk (*Tamarix* spp.) and Arundo (*Arundo donax*).

The Salt Creek Restoration site is adjacent to the proposed vernal pool restoration, which is included in the Otay River Mainstem Restoration activities. Shallow overflow from the Salt Creek floodplain, will only enhance vernal pool form and function over time.

Trails

The trail network within the proposed project site would consist of two trail types (multi-use trails and secondary trails) to serve both recreational resources and routine maintenance access to the site. In addition, a series of existing roads and road shoulders would be reclaimed as part of proposed project implementation.

Certain segments of roads have been identified as redundant and unnecessary and would be graded where appropriate and revegetated to blend into the surrounding landscape. In some instances, large rocks or woody material would also be used to close entry points to trails, allowing the natural regrowth of native plant species. In addition, existing roads would be narrowed (either entirely or in specific segments) by reclaiming portions of the shoulders to be more accommodating to pedestrians (see Figure 5, Trails Detail, Plan View, and Figure 6, Trails Detail, Cross Section).

Trail improvements would include wayfinding signs and interpretive opportunities along scenic points of the river and riparian areas. The Mitigation Bank Expansion would include at least two stream crossings with the trails. For these locations, a semi-hardened crossing is proposed to meet the creek at grade to allow water to flow. The crossings on the proposed project would be constructed with interlocking, permeable, concrete surface bedding in the river bottom. The voids in the concrete bedding would be filled with gravel to both stabilize the surface from storm flow events and provide a stable surface for trail users to walk or ride across. The gravel would consist of crushed, 0.75-inch, compacted rock and smaller material. The trail surface would transition back to a compacted, decomposed, granite, crushed-rock surface or the existing natural material above the creek bed (see Figure 2b).

Currently utility access across the Otay River for SDG&E follows the centerline of O'Neal Canyon. In order to improve ecological function to O'Neal Canyon as well as improve long-term utility access to the SDG&E gas line, the access route will be rerouted away from the centerline of O'Neal Canyon.

Multi-Use Trails

Multi-use trails would provide full access for all trail users and serve as agency and utility vehicular access throughout the proposed project site. The multi-use trail system is designed along both existing dirt road alignments and new alignments that work with the site topography and wildlife sensitive areas. Multi-use trails would be wider than secondary trails and serve as a utility corridor throughout the Otay Valley River corridor. The multi-use trail system would be designed to a width of 12 to 14 feet of gravel surface with 2-foot-wide clear, earthen areas on each side of the trail surface for fire safety during vehicle use. The multi-use trails would serve as the main trail system through the Otay River area and extend the Otay Valley River Trail network to the region. The multi-use trails would allow vehicular access from existing roadways at the edge of the proposed project site to utility power poles and existing sewer lines in the proposed project site. The multi-use trails would also provide utility access for U.S. Customs and Border Protection vehicular surveillance, routine maintenance access, and sustainable access to monitor river and wildlife along the river corridor and trail system.

New multi-use trails have been added to some areas of the site. These trails will provide opportunities for pedestrians, mountain bikers, and equestrians to leave the larger roads and travel at a more intimate scale, and to visit viewpoints that overlook the larger site. The trails will be designed to be sinuous, gently undulating over mounds, curving around boulders and trees, and crossing shallow ephemeral creek swales. To provide additional interest to all users and technical challenges to mountain bikers, these trails will include features such as banked berm turns, boulders to wind through, and semi-buried logs to travel over in places. The technical elements of the mountain bike trails will be designed in conjunction with local mountain bike groups.

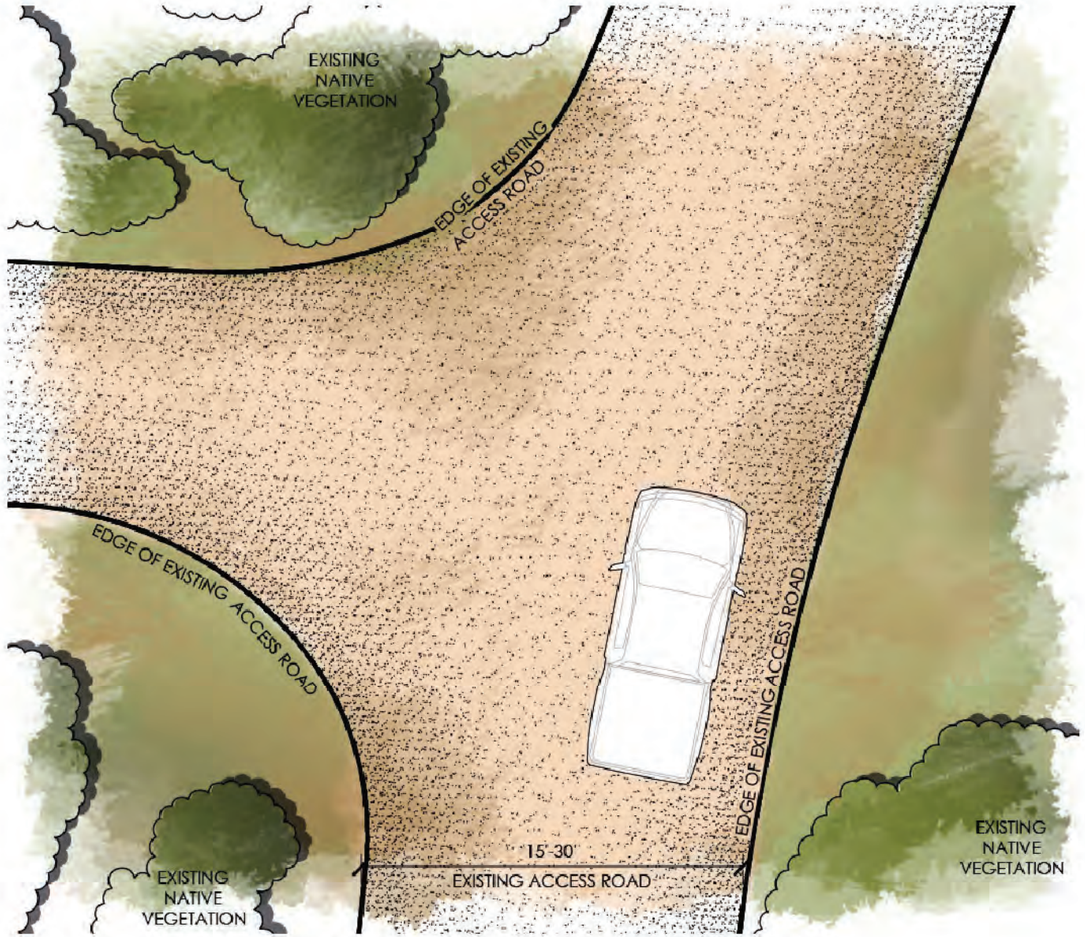
Secondary Trails

Secondary trails would include a narrower trail for mountain biking and hiking with limited or no vehicle access. The secondary trail system would be designed with a smaller footprint, limiting use to mountain bikes and hiking. The secondary trails would be 3 to 5 feet wide with 3 to 4 feet of clear areas on each side of the natural surface trail. The secondary trails would be designed with small fence segments to limit vehicle access to emergency use only.

Fencing

The multiuse trails would be designed with small fence segments to limit vehicle access to emergency use only, protect sensitive resources, and ensure public safety. The fencing would be constructed using treated wood posts and dowels. Most of the small sections of fence would be proposed at transition points in the trail network where the multi-use trails intersect with the secondary trails. Fence locations would be determined in the field in order to best fit the landscape setting, and gates intended to restrict vehicular access would be designed to allow unrestricted access for pedestrians and cyclists.

Trail Intersection, Before

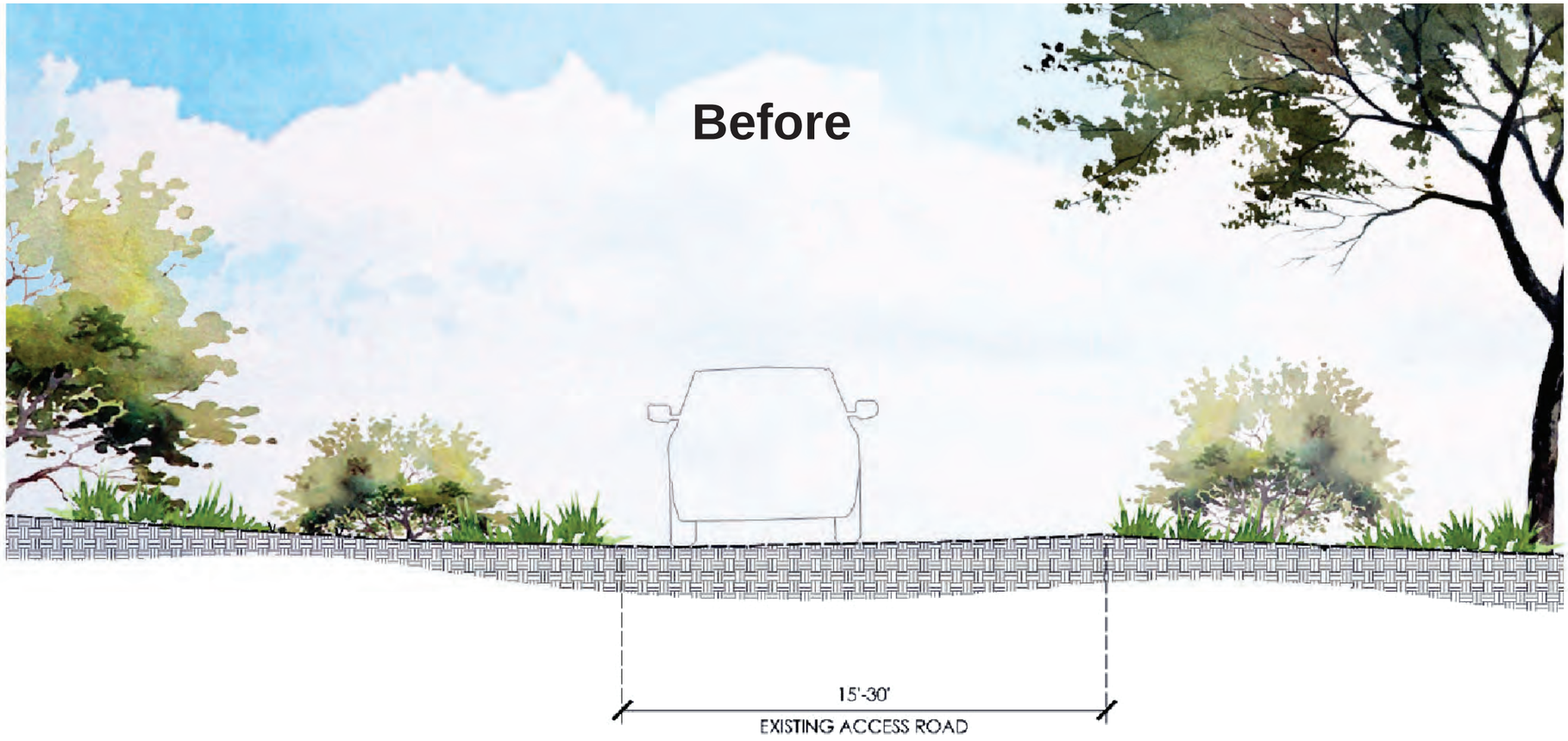


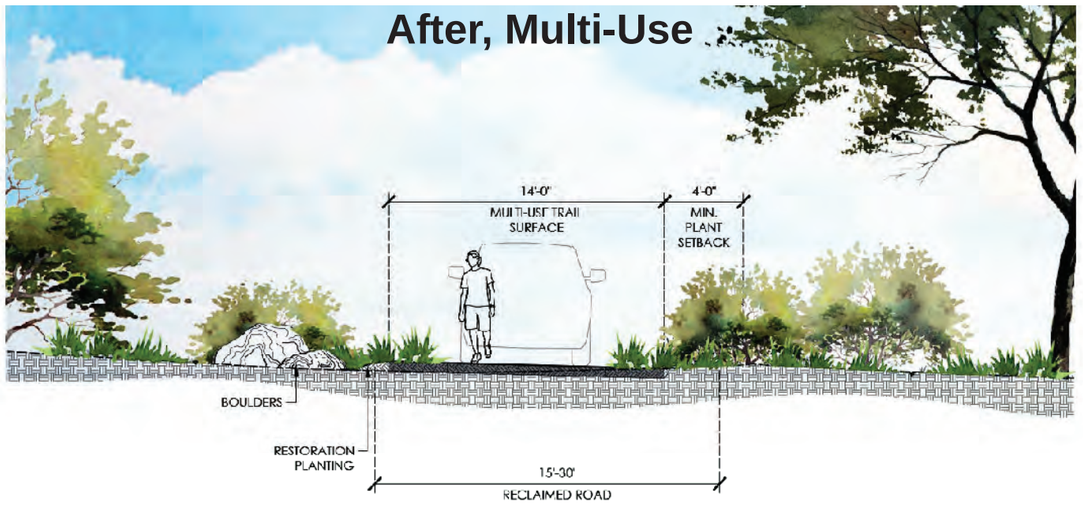
Trail Intersection, After

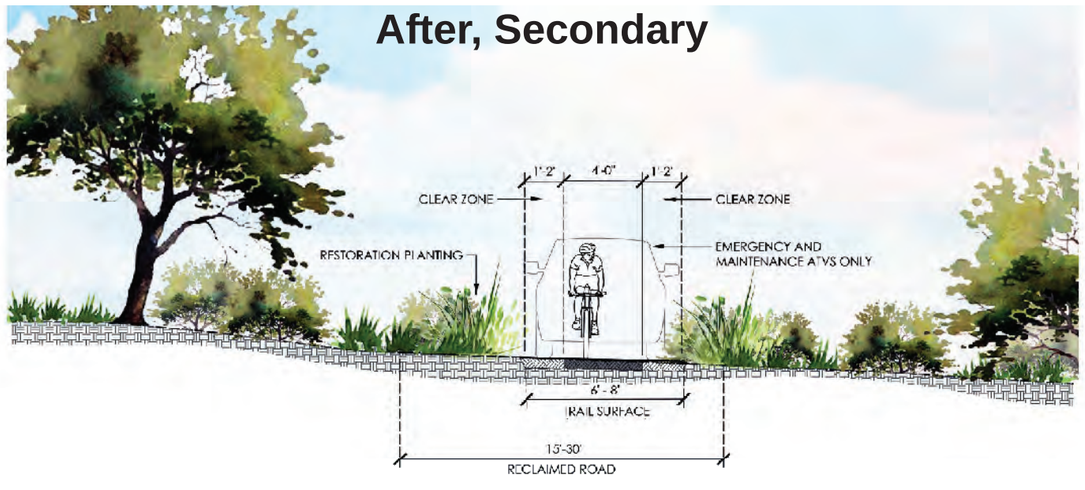


Figure 5
Trails Detail, Plan View

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Figure 6
Trails Detail, Cross Section

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Educational Elements (Signage, Wayfinding, and Kiosks)

The proposed project would also comply with the OVRP Trail Guidelines (County of San Diego et al. 2003) and Greenbelt Master Plan design standards for signage and educational kiosks (City of Chula Vista 2003). Educational kiosks would be installed at key viewing locations within the disturbed areas to help inform the readers of the importance of the restoration site as well as to keep users on the trails and outside of the restoration area. Additional design elements would include wayfinding signs and interpretive opportunities along scenic points of the river and riparian areas. There are several viewpoints and other nodes along the trail corridor for interpretive opportunities that would be further identified following trail construction. Wayfinding signs would be limited to the trail intersections to minimize the number of signs in the open space. The wayfinding signs would follow the OVRP Trail Guidelines for sign post, sign face, fonts, and color. The number of wayfinding signs for the proposed project site could range from 35 to 50 signs distributed across the proposed project site at primary trail intersections. This would also help to minimize incursions by trail users into the restored habitat and ecologically sensitive areas of the proposed project site.

Restoration Activities

As an expansion of the 2016 Restoration Project, the proposed project would include restoration activities within the proposed project limits. Restoration activities would range among heavy, moderate, and light (see Figure 7, Restoration Activity Levels). Heavy restoration activities include grading of the mainstem Otay River and floodplain areas, grading and restoration of tributaries, grading and establishment of mounds, depressional and vernal pools, grading of the trails and crossings, as well as soil placement for slope repair. Moderate restoration activities include trail reclamation, dethatching, mechanical weeding (more intense weeding), grow/kill cycle, planting and seeding and stock pile areas. Light restoration activities include habitat enhancement and minimal weeding (hand removal and low herbicide application).

Table 1. Restoration Activity Types

Activity Ranking	Restoration Activity Types*
Heavy	All grading activities Permanent trails and crossings
Moderate	Dethatching Mechanical Weeding Grow/kill cycles Planting/Seeding Stock pile areas
Light	Enhancement Minimal weeding As needed management Monitoring

*Rankings are classified based on the highest intensity restoration activity that would occur in that specific area.

Project Construction

Construction Overview

Construction of the proposed project is anticipated to occur in a single phase over approximately 24 weeks, beginning in the fall of 2020 and completing in spring of 2021. While a single-phase development approach would be most cost effective and ecologically preferred, the proposed project could be constructed in phases if necessitated by resource permitting requirements, field conditions, or other constraints. Construction activities would include the removal of invasive, nonnative tree, shrub, and herbaceous species followed by grading of the channel and floodplain areas to remove spoil piles, berms, and pits to restore the desired hydrologic functions of the channel. Excess soil material would be redistributed on site rather than exported. In addition to the proposed restoration activities, at least two trail crossings would be improved to facilitate the connection of tributaries to the mainstem Otay River, including an unnamed drainage north of the river as well as Salt Creek.

The trails would be developed as part of the restoration effort but are expected to be completed after the major earthwork in the river has concluded. Trail construction would include recontouring of existing trails for proper drainage, select material placement, focused rock sills, strategic fencing and boulder placement, and signage and educational kiosk implementation. In addition, almost 2 miles of trails are planned to be reclaimed, including redundant trails as well as shoulders of wider trails. Reclamation would include two primary options: replanting to match adjacent native habitat or select recontouring for vernal pool establishment.

Construction Sequencing

Equipment and labor force would begin by clearing the proposed project site of any vegetation, trash, and other debris before grading can take place. All debris ~~would be removed off site or mulched for use as erosion control at a later time~~ will be mulched and solarized on site and buried under the soil spoils location. Special considerations would be taken while clearing in riverine and sensitive environments, including biological monitoring to determine invasive versus native vegetation and emphasis on tree trimming over complete tree removal.

In order to minimize unwanted ecological impacts, site grading and earthwork activities would be limited to smaller (rubber-tire or small-tracked) equipment and a greater reliance on hand tools in waterways and ecologically sensitive areas. Larger equipment would be used in areas with less ecological sensitivity, such as the larger upper and lower floodplain areas, and in order to construct seasonal ponds. Limited dewatering may be required for construction during periods of higher flows in the river channel, or in areas with a high groundwater table. Dewatering activities, if needed, would be minimal and conducted in a manner that allows for completion of the proposed channel improvements without adversely affecting adjacent plant communities.

Earthwork activities would include construction of the proposed river channel, floodplain areas, seasonal ponds, trails, and crossings. Placement of materials such as riprap, landscape boulders, and other aggregate products throughout the site would occur after all major earthwork is complete, ensuring that all products meet the proposed project plans and specifications. Final site walks would be performed with engineers, developers, and jurisdictional authorities for acceptance of work completed. As-built plans would be generated and submitted for closure of grading scope of the

proposed project. If any final erosion-control devices are needed, they would be installed at that point and interim grading best management practices would be removed.

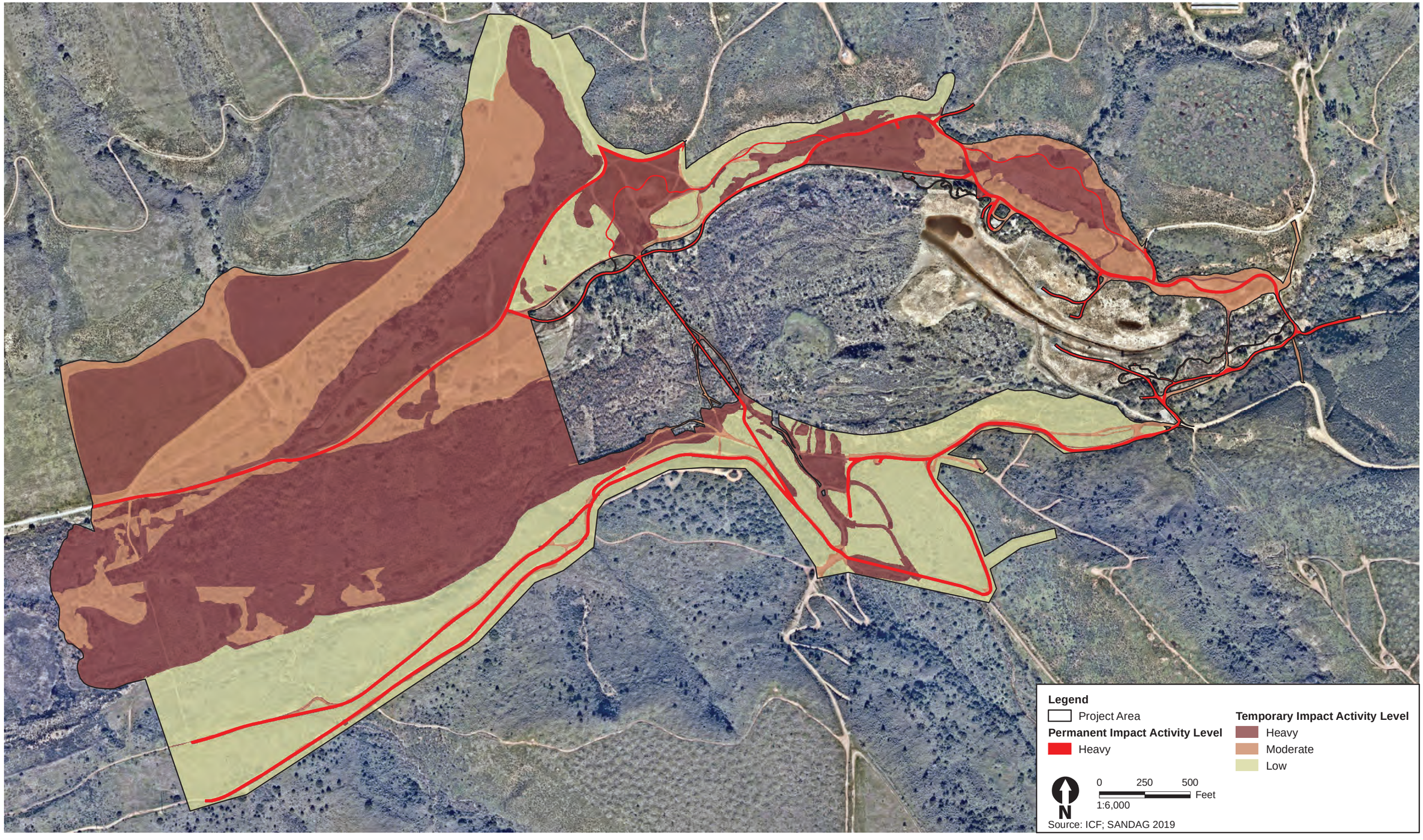


Figure 7
Restoration Activity Levels

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Table 2. Proposed Construction Equipment Type and Quantity

Site Preparation/Clearing	Grading and Site Finish
One John Deere 350G Track Excavator or equivalent Two John Deere 644 Wheel Loaders One John Deere 60D Mini Track Excavator (Sensitive Areas) Two CAT D8T Track Dozers One Rubber Track Skid Steer (Sensitive Areas) Two Water Trucks One Volvo A40 Articulated Haul Truck Miscellaneous clearing equipment (chain saw, tree chipper, sump pump, etc.)	One John Deere 350G Track Excavator One John Deere 470 Track Excavator One John Deere 60D Mini Track Excavator (Sensitive Areas) One CAT D6 Track Dozer One CAT D8T Track Dozer One CAT D9T Track Dozer One John Deere 644 Wheel Loader One Rubber Track Skid Steer (Sensitive Areas) One CAT 140M Motor Grader Two Water Trucks Three Volvo A40 Articulated Haul Trucks Miscellaneous equipment (sump pump, water tower, vibratory hand compactor, 5x5 sheep foot)

Routine Monitoring and Maintenance

Routine monitoring and maintenance would be performed following construction throughout the proposed project site. ICF would perform qualitative and quantitative monitoring efforts and document any problems, such as trash, vandalism, isolated instances of plant mortality, or small-scale weed or pest infestations, which would be rectified as they are discovered during routine site monitoring and maintenance and included in annual reporting. Monitoring results would also be used to determine native and nonnative cover across each of the restoration areas during the 5-year maintenance and monitoring program. Monitoring would improve the ability to detect positive or negative trends in the restoration area and would allow the project biologist and Otay Land Company to make prompt adaptive management decisions. If the mitigation site has not met the performance criteria, and the criteria are considered accurate and reasonable, the maintenance and monitoring obligations would continue until performance criteria are achieved or alternative contingency measures would be negotiated with regulatory agencies

Long-Term Management

Pursuant to 33 Code of Federal Regulations 332.7(a) of the Mitigation Rule, Otay Land Company would prepare a specific long-term management plan that would govern the long-term management of the proposed project site after all performance standards have been met. Long-term management would be required to ensure that target goals and maintenance of the site are maintained. The purpose of the long-term management plan is to maintain control over factors that could adversely affect the site, such as invasive species, trespassing, and urban encroachment. Otay Land Company would evaluate the potential factors that could adversely affect the proposed project site in light of the location and the condition of riparian/wetland areas surrounding the proposed project site. The long-term management plan would be a "living" document and would include a provision to be updated every 5 years so that changes in the physical or anthropogenic environments can be adequately addressed.

Operational Activities

Due to the nature of the proposed project, long-term operational activities are expected to be minimal and would include maintaining vegetation overgrowth on the multi-use and secondary trails, erosion control and fencing, and signage and education kiosk maintenance. In addition, ongoing biological monitoring of resources would occur to ensure the proposed project maintains its goals and does not warrant an adaptive management activity. Biological monitoring includes qualitative and quantitative monitoring to ensure no major infestation of invasive, nonnative plants occur within the proposed project site. These monitoring efforts would also help to ensure that performance standards outlined in the future Development Plan are being met.

Required Discretionary Approvals

The City of Chula Vista is the lead agency under the California Environmental Quality Act and responsible for permitting the proposed project; the U.S. Army Corps of Engineers, CDFW, and Regional Water Quality Control Board have some approval and/or discretionary authority over the proposed project. Table 3, below, indicates the discretionary approvals that would be required to implement the proposed project.

Table 3. Discretionary Approvals Required

Agency	Role	Permit/Approval
City of Chula Visa	Lead agency	• Mitigated Negative Declaration adoption ○ Mitigation Monitoring and Reporting Program adoption ○ Prospectus and BEI approval ○ ○ Finance Plan approval (including retaining the appropriate qualified personnel, as described in the BEI [e.g., landscape installation/ maintenance contractor, restoration ecologist]). ○ Habitat Loss and Incidental Take approval • Grading permit
San Diego Gas and Electric	Responsible agency	• Grading permit and Letter of Authorization
U.S. Army Corps of Engineers	Federal agency with permitting authority and National Environmental Policy Act Lead Agency	• Section 404 permit
U.S. Fish and Wildlife Service	Federal agency with permitting authority	• Section 7 consultation • Prospectus and BEI
California Department of Fish and Wildlife	Trustee/responsible agency	• Section 1602 Streambed Alteration Agreement • California Endangered Species Act consultation • Prospectus and BEI
Regional Water Quality Control Board	Responsible agency	• Section 401 Water Quality Certification • Construction General Permit/Storm Water Pollution Prevention Plan

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Acronyms

City of Chula Vista (City 1
Otay Trails and Mitigation Bank Expansion Project (Proposed Project 1
HomeFed Corporation (HomeFed 1

Habitat Mitigation and Monitoring Plan (HMMP 1
2016 Otay River Restoration Project Habitat Mitigation and Monitoring Plan (2016 Restoration Project 1
initial study/mitigated negative declaration (IS/MND 1
Bank Enabling Instrument (BEI 2
Habitat Mitigation and Monitoring Pan (HMMP 2
San Diego Gas & Electric Company (SDG&E 2
General Development Plan (GDP 2
Memorandum of Agreement (MOA 3
Otay Valley Regional Park (OVRP 3
California Department of Fish and Wildlife (CDFW 3
U.S. Fish and Wildlife Service (USFWS 3
Otay Water District (OWD 9
Multiple Species Conservation Program (MSCP 9
Watershed Management Plan (WMP 19
Special Area Management Plan (SAMP 19

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ATTACHMENT 3: DEVELOPMENT PLAN

Development Plan

Exhibit C-1

Otay River Mitigation Bank Development and Interim Management Plan

Otay River Mitigation Bank Development and Interim Management Plan City of Chula Vista, San Diego County, California

OCTOBER 2022

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AA	Assessment Area
APN	Assessor Parcel Number
BEI	Bank Enabling Instrument
BMP	best management practice
BPJ	best professional judgment
Border Patrol	U.S. Customs and Border Patrol
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH	critical habitat
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
dS/m	deciSiemens per metre
DoD	Department of Defense
FESA	Federal Endangered Species Act
FR	Federal Register
FUDS	Formerly Used Defense Site
GDP	Otay Ranch General Development Plan
GPS	global positioning system
Greenbelt Master Plan	City of Chula Vista Greenbelt Master Plan
HEC-HMS	Hydrologic Engineering Center-Hydrologic Modeling System
HEC-RAS	Hydrologic Engineering Center's River Analysis System
HUC	hydrologic unit code
ICF	ICF International, Inc.
IRT	Interagency Review Team
MBTA	Migratory Bird Treaty Act
Mitigation Rule	Compensatory Mitigation for Losses of Aquatic Resources
MMRP	Military Munitions Response Program
MRZ	Mineral Resource Zone
MSCP	Multiple Species Conservation Plan

NCCP	Natural Communities Conservation Plan
OHWM	ordinary high water mark
POM	Otay Ranch Preserve Owner/Manager
ORWMP	Otay River Watershed Management Plan
OVRP	Otay Valley Regional Park
OVRP Concept Plan	Otay Valley Regional Park (OVRP) Concept Plan
OWD	Otay Water District
PEP	plant establishment period
Pre-Bank	Pre-Bank Mitigation Area
Quino	Quino checkerspot butterfly
RMP	*Otay Ranch Resource Management Plan*
RWQCB	Regional Water Quality Control Board
SAMP	Special Area Management Plan
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas and Electric
SHPO	State Historic Preservation Office
SPD	South Pacific Division
Sponsor	HomeFed Otay Land II, LLC
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WMP	*Otay River Watershed Management Plan*
WSE	Water Surface Elevation
USFWS	U.S. Fish and Wildlife Service

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CHAPTER 1. PROJECT DESCRIPTION

1.1 PURPOSE

The purpose of this Development Plan is to outline the mitigation/restoration activities that will occur within the Otay River Mitigation Bank (Bank) and how those activities will be implemented, maintained, monitored, and measured for success. The Bank will provide compensatory mitigation for unavoidable adverse impacts to waters of the United States (WOUS) and State (WOS) (including wetlands) as well as California Department of Fish and Wildlife (CDFW) jurisdiction that results from activities authorized under Sections 401 and 404 of the Clean Water Act, California's Porter-Cologne Act, and Section 1602 of the California Fish and Game Code. The Bank will also provide compensatory mitigation for unavoidable adverse impacts to the federally and state listed as endangered least Bell's vireo (*Vireo bellii pusillus*, vireo/LBV) and the federally listed as endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), as well as the potential to mitigate for protected habitat under the Multiple Species Conservation Plan (MSCP)/Natural Communities Conservation Plan (NCCP) (City of Chula Vista 2003a). It is assumed that any activities causing unavoidable adverse impacts have met all applicable requirements and are authorized by the appropriate authority.

1.2 PROJECT SUMMARY

1.2.1 Bank Location

The Bank site covers approximately 230.39 acres (plus an additional 65 acres for the subsequent phase) in the Otay River Valley in southwestern San Diego County, California, as shown on the Otay Mesa U.S. Geological Survey [USGS] 7.5-minute quadrangle map (32.599, -116.944) (Figures 1-1 and 1-2). It is within the upper portion of the Lower Otay River Watershed, approximately 1.75 miles downstream of Savage Dam. The Bank boundary begins immediately downstream of a 33-acre mitigation area (referred to as the Pre-Bank) previously approved as permittee responsible mitigation (PRM) for the Otay Village 3 Project (U.S. Army Corps of Engineers [USACE] Permit No. SPL-2012-00181, Water Quality Certification No. 12C-026, and CDFW Agreement No. 1600-2012-0052-R5), the Otay Village 8W Project (USACE Permit No. SPL-2013-00495, Water Quality Certification No. R9-2014-0104, and CDFW Agreement No. 1600-2013-0147-R5), and Otay Village 2 Project (Waste Discharge Requirement # R9-2017-0179) (Figure 1-3). Access to the site is achieved by entering the Vulcan Materials property off Main Street and Heritage Road and driving east on Hard Rock Road, which then turns into Wiley Road for approximately 4 miles. Historic-age aerials of the Bank and surrounding area are included as Appendix A.

As Figure 1-4 shows, the Pre-Bank and Bank project boundaries have a geographic overlap. However, the aquatic resources in this area were not included as mitigation for the Pre-Bank project. The aquatic resource credits will be included in the Bank.



Figure 1-1. Regional vicinity.

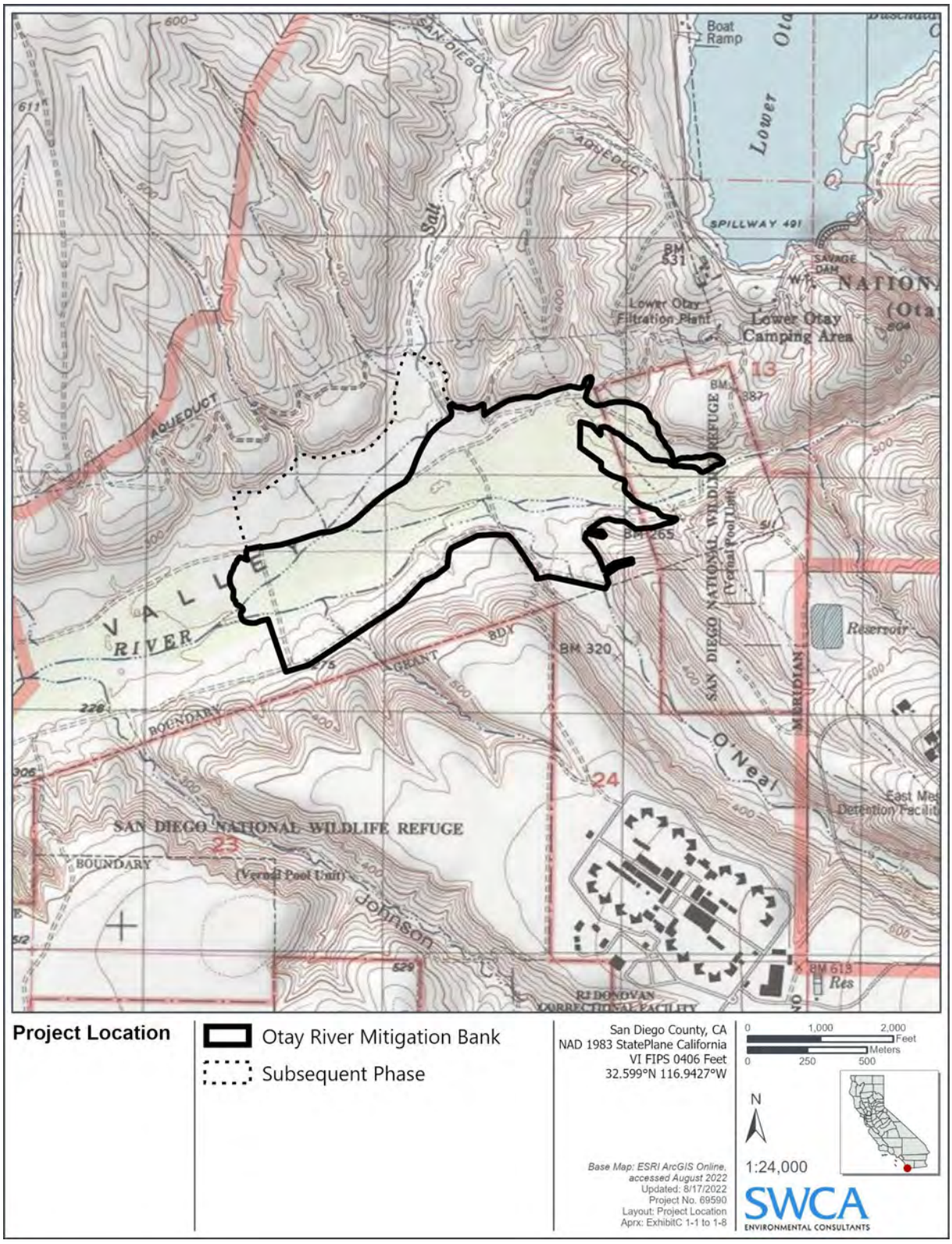


Figure 1-2. Project location.

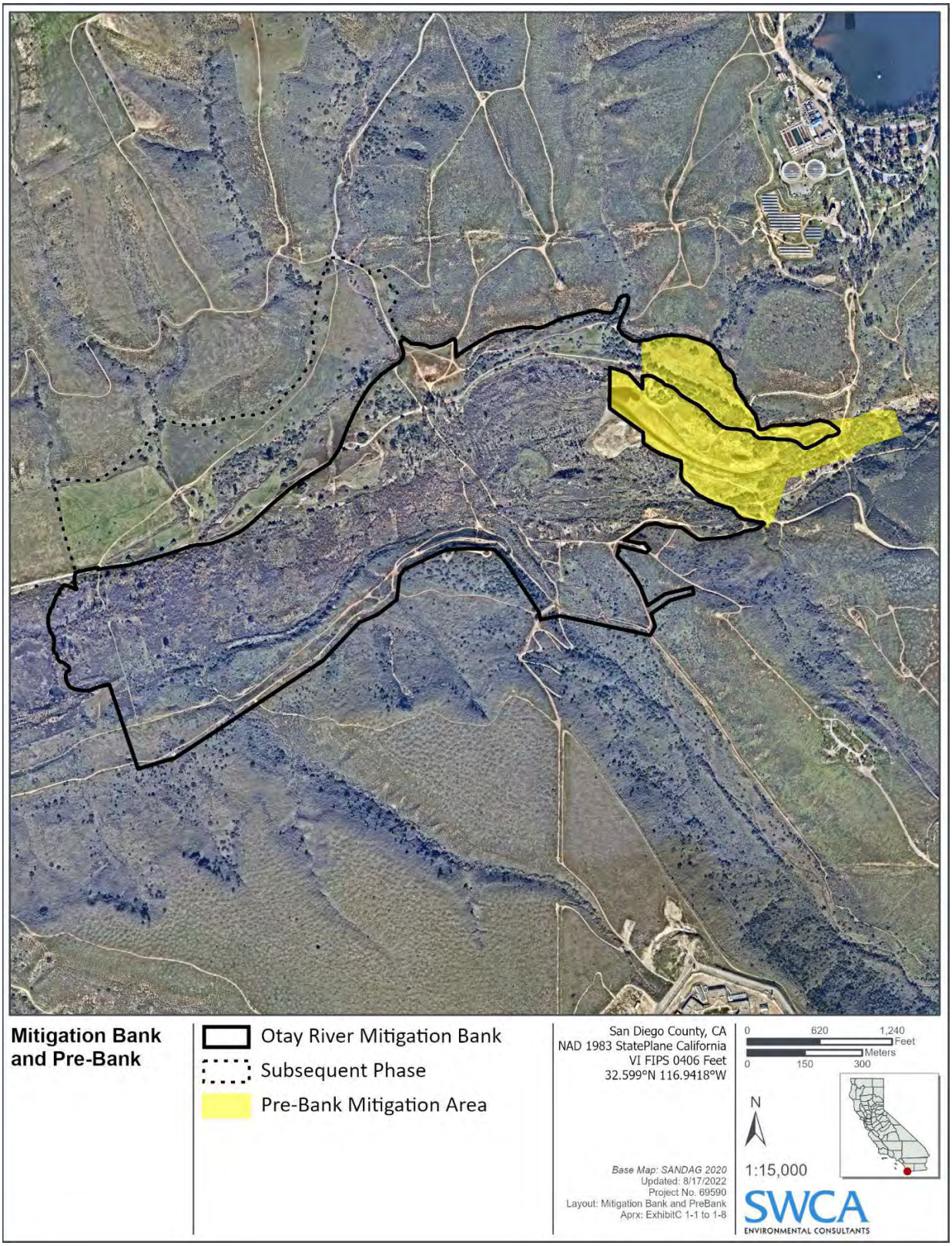


Figure 1-3. Bank and Pre-Bank.



Figure 1-4. Pre-Bank and Bank overlap.

1.2.2 Anticipated Need

The Bank will provide mitigation opportunities for aquatic resources, listed species, and protected habitat in the proposed service area, and may provide mitigation for the future Otay Village projects and planned City of Chula Vista projects as described in the Otay Ranch General Development Plan (GDP) (City of Chula Vista 2018). Additionally, there are no existing mitigation banks with service areas that overlap with the proposed service area, and based on the 2000 U.S. Census (census.gov) and the San Diego Association of Governments (SANDAG) Demographic and Economic Forecasting Model (SANDAG 2021) , the San Diego region is projected to grow by 40% between 2008 and 2050. The incorporated cities, including Chula Vista, would accommodate the largest amount of population growth over the forecast period (43%). SANDAG anticipates that approximately 50% of regional future job and housing growth would be in the smart growth opportunity areas in southern San Diego County, such as Otay Ranch. The area is also identified as a transit priority area in the 2050 Regional Growth Forecast. As such mitigation credits will likely be needed within the Bank's proposed service area immediately and in the coming years.

1.2.3 Local Planning Context

Several important planning documents have been created for the Otay River Watershed, including the *Otay River Watershed Management Plan* (WMP) (Aspen Environmental Group [Aspen] 2006) and the draft *Otay River Special Area Management Plan* (SAMP) (Jones and Stokes 2006). The WMP includes implementation strategies to ensure the protection of existing beneficial uses and natural resources, including methods to monitor, maintain, and/or enhance existing water quality levels using nonstructural and structural best management practices (BMPs). Recommendations for appropriate aquatic resource enhancement and monitoring programs are also provided. The draft SAMP (which was never officially finalized but offers a great deal of useful information) provides a comprehensive planning instrument to serve as a basis for development of a programmatic permitting mechanism for unavoidable impacts within the watershed. Together these two documents provide a framework program that is consistent with the local general plans (County and City of San Diego), the San Diego Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System Permit, and the City of Chula Vista Multiple Species Conservation Program Subarea Plan (MSCP Subarea Plan). They also present a proactive watershed planning and permitting approach that identifies areas within the watershed of "low value" that are more suitable for development and areas of "high value" that should be protected.

Other planning documents of importance to the area include the following.

- The Otay Valley Regional Park (OVRP) Concept Plan (OVRP Concept Plan) (County of San Diego et al. 2016), which resulted from a multijurisdictional planning effort in the Otay River Valley by the County of San Diego and the Cities of Chula Vista and San Diego and included recommendations for open space/core preserve areas, recreation areas, trail corridors, staging areas, viewpoint and overlook areas, and interpretive centers. The OVRP Concept Plan boundary includes the entire limits of the Bank.
- The Otay Ranch Resource Management Plan (RMP) (County of San Diego and City of Chula Vista 2018) was adopted by the County of San Diego and City of Chula Vista, concurrent with the 1993 enactment of the Otay Ranch GDP. The RMP identified an approximately 11,000-acre preserve (Otay Ranch Preserve) to protect, preserve, enhance, and manage sensitive natural and cultural resources within Otay Ranch. The Bank site lies within the Otay Ranch Preserve.
- The City of Chula Vista's (City) 2003 MSCP Subarea Plan, which provides a blueprint for conservation of covered species and their associated habitats and forms the basis for federal and

state incidental "take" permits for 86 plant and animal species within the City. The Otay Ranch Preserve, which includes the Bank site, will be included in the MSCP Subregional preserve. The City's Preserve, which includes MSCP lands and some Otay Ranch Preserve Lands, will eventually encompass approximately 5,000 acres of the City's most sensitive open space areas. In addition, another approximately 4,200 acres outside the City's jurisdiction will be preserved as a result of development occurring within the City's urban boundaries. Lands set aside within the Preserve will be appropriately managed while still providing passive recreational opportunities for area residents and the public at large.

- The City of Chula Vista Greenbelt Master Plan (Greenbelt Master Plan) (City of Chula Vista 2003b). The Greenbelt Master Plan provides guidance and continuity for planning open space and constructing and maintaining trails that encircle the City of Chula Vista. The plan’s primary purpose is to provide goals and policies, trail design standards, and implementation tools that guide the creation of the greenbelt system. The greenbelt system is composed of a series of open space segments connected by a multiuse trail extending through each segment; from the channelized Sweetwater River, along golf courses and banks of the Otay Lakes, following the Otay River Valley to the Chula Vista Bayfront. The Bank would implement minor improvements to a portion of the existing dirt road/trail identified within the Otay Valley Regional Park East/Otay Ranch Village Greenway segments.

1.2.4 Site Description

The approximately 295-acre Bank site (mainstem and subsequent phase) is currently undeveloped, and open space borders its western and northern sides (Figure 1-5) (Section 3.14 contains additional info on adjacent land uses). The OVRP and City of Chula Vista Greenbelt concept trails are also shown on Figure 1-5. The Bank site is currently owned by two entities, with the City of Chula Vista owning the eastern portion of the site (Assessor Parcel Numbers [APNs] 64409004, 64408009) and HomeFed Otay Land II, LLC (Bank Sponsor) owning the western portion (APNs 64409003, 64601005 and 64408021) (Figure 1-6). Once all credits in the Bank have been sold and Bank Closure has occurred, fee title of the western portion of the site owned by the Bank Sponsor will be transferred to the City of Chula Vista.

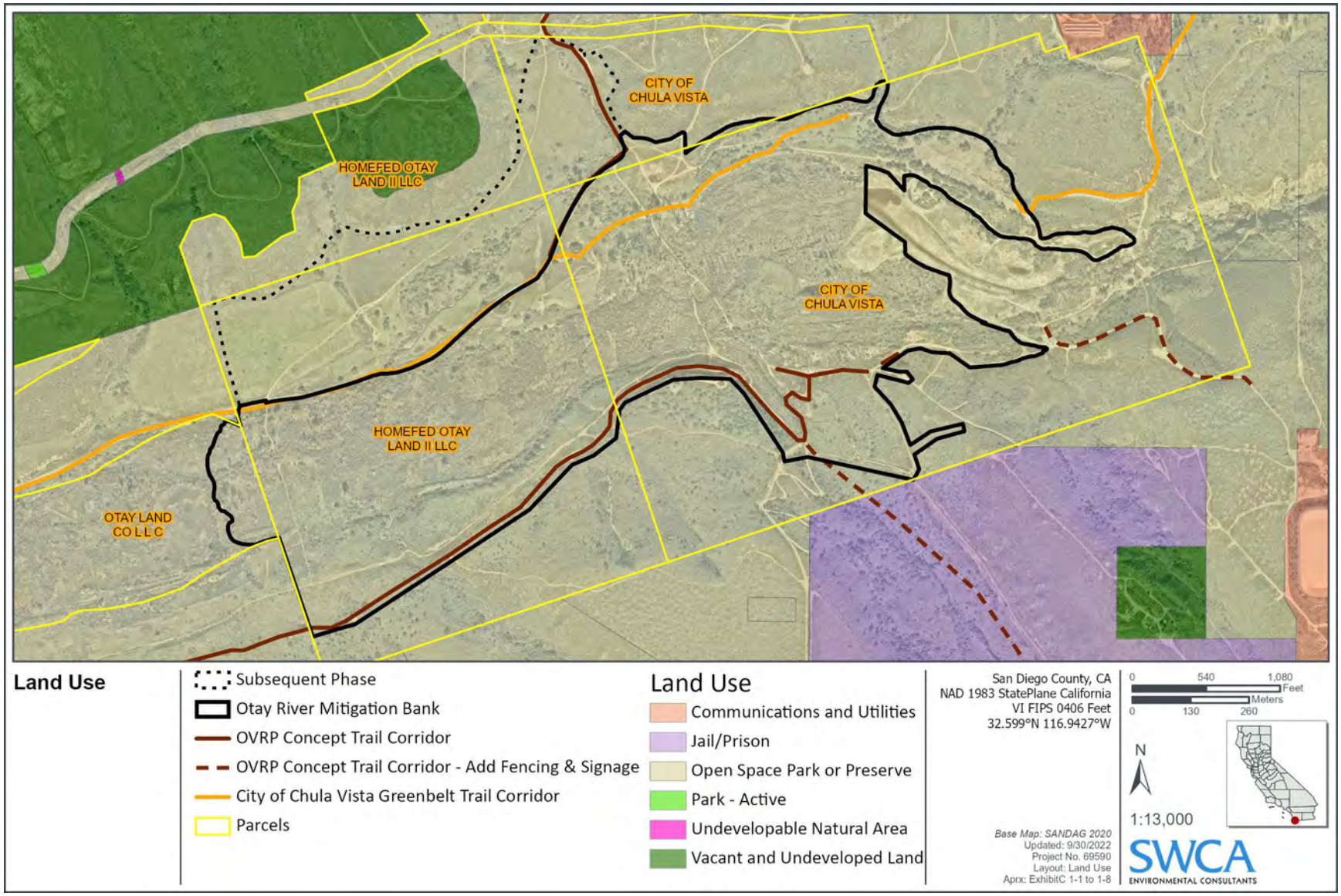


Figure 1-5. Land use.

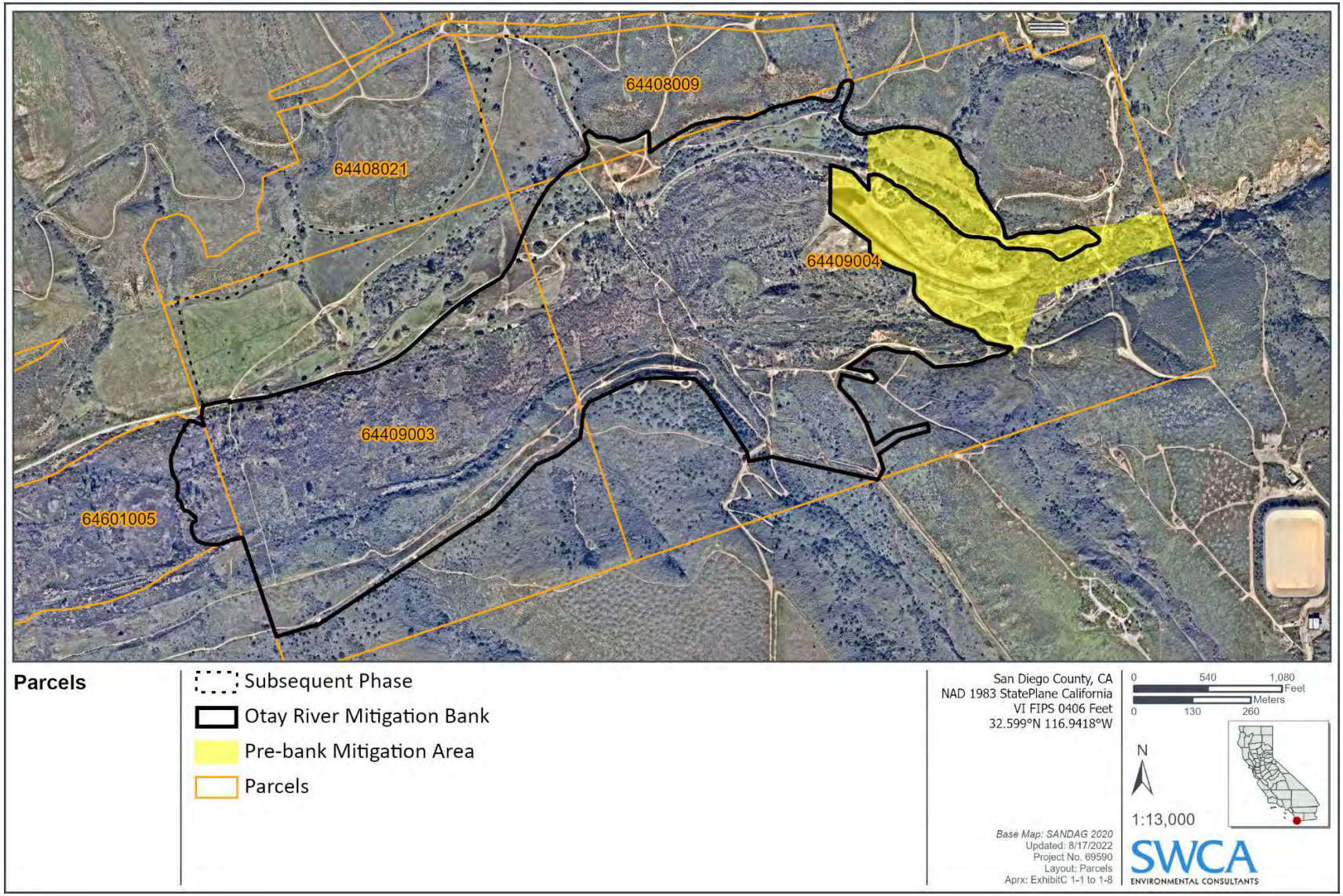


Figure 1-6. Parcel map.

A small portion of the Bank is within the Greenbelt Master Plan boundaries and entirely within the OVRP Concept Plan boundaries. Both of these plans identify future multiuse trails within the Bank limits including prioritizing the use of existing dirt roads and unofficial trails as well as select new trails where needed to improve trail user experience, avoid sensitive resources, and complement other uses onsite. The vast majority of the proposed trails are in the upland areas and are outside of the Bank limits (see Figure 1-5). However, a few select trails do cross into the Bank limits. These trails are generally existing dirt roads and easements and are currently used by the Border Patrol, San Diego Gas and Electric Company (SDG&E), City of San Diego, and Otay Water District (OWD), as well as by hikers, cyclists, and equestrians; several are official utility rights-of-way (Section 3.14.1 contains additional info on trails).

The location of the Bank site represents the uppermost reach of the Lower Otay River Watershed that has not been restored and provides an ideal opportunity for mitigation. Immediately upstream of the Bank site is a PRM site that is currently being implemented. The PRM site is approximately 0.75 mile downstream of Savage Dam, after which the Otay River travels through a narrow canyon before opening onto the valley floor. Because Savage Dam does not release water except when the lake overtops (on average every 10 years) and because high flows are restricted, it acts like a hydrologic break in the Otay River watershed with the area below the dam functioning as independent watershed from the area upstream of the dam (i.e., Lower Otay River Watershed and Upper Otay River Watershed).

This PRM site was designed by ICF International, Inc. (ICF) as part of a larger mitigation project to include future downstream mitigation opportunities, including the Bank. In addition, the PRM project includes removal of invasive perennial vegetation through the narrow canyon of the Otay River up to Savage Dam. As Savage Dam represents a hard break in the watershed, this focused treatment will reduce nonnative seeds/plant material from entering the PRM site and the Bank and all other areas downstream. The restoration activities associated with the Bank will integrate seamlessly with the PRM mitigation site and were designed to be complementary. As with the Bank site, the PRM site includes removal of old mine tailings in the river and floodplain, removal of nonnative vegetation, grading a new primary river channel where one currently does not exist along with several floodplain terraces, and establishment of several seasonal ponds. The Bank would continue this restoration design downstream until the confluence with Salt Creek, one of the more substantial tributaries in the lower watershed and would include the construction of several floodplain channels outside the main river channel.

The mainstem channel and floodplain in the lower valley, including the Bank site, were highly disturbed by a record flood event in 1916 (Figures 1-7 and 1-8), which resulted in the failure of the original Savage Dam (an earthen and steel structure) and the release of over 13 billion gallons of water, which left a substantial amount of sediment and debris on the floodplain surface.



Figure 1-7. Otay River Valley after 1916 flood (courtesy of San Diego Historical Society).



Figure 1-8. Location of previous dam after the 1916 flood (courtesy of San Diego Historical Society).

The dam was reconstructed in 1918 and remains intact with water leaving the dam only when the lake reaches capacity. The flood material that was deposited in the valley floor was mined for sand and gravel over several decades, beginning in the 1960s and continuing until approximately the mid-1980s (Kohler and Miller 1982) (Figures 1-9, 1-10, 1-11). In 1982, Nelson and Sloan Materials had permits to mine in three locations in the river valley and two locations along terrace deposits adjacent to the river valley. Sand mining operations ended in approximately 1985 because the company was unable to complete new permitting processes required for in-stream mining (Miller 1996).

The flood of 1916, subsequent deposition and intensive harvesting of alluvium material, as well as the presence of the dam itself, have substantially altered the natural topography and hydrologic and sediment transport functions of the Otay River within the Bank site. In particular, the mainstem channel was filled in and further manipulated, with the consequence that surface flows now dissipate, and water flows down-gradient from east to west as shallow groundwater through much of the Bank site with no distinct river channel present. Similarly, the floodplain has been manipulated, with much of the area characterized by artificial mounding from the mine tailings of varying size classes ranging from silt to large car size boulders. The disturbed hydrology and topography of the site are further exacerbated by the presence of dense stands of invasive vegetation, including tamarisk (*Tamarix* spp.), arundo (*Arundo donax*), and Peruvian pepper tree (*Schinus molle*). These species provide a significant nonnative seed source to downstream habitats and use much of the available water in the upper soil profile.

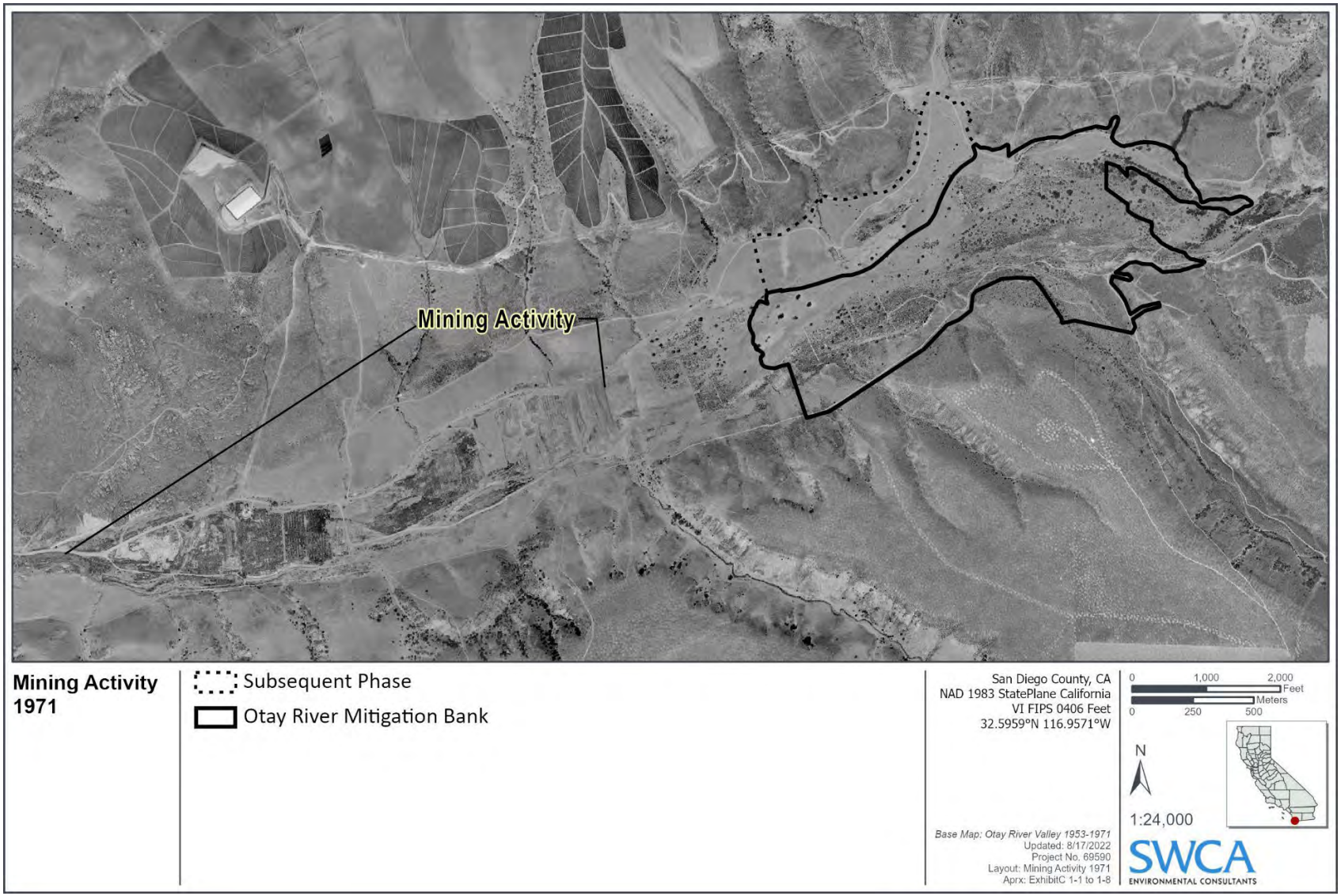


Figure 1-9. Mining activity, 1971.



Figure 1-10. Mining activity, 1981.

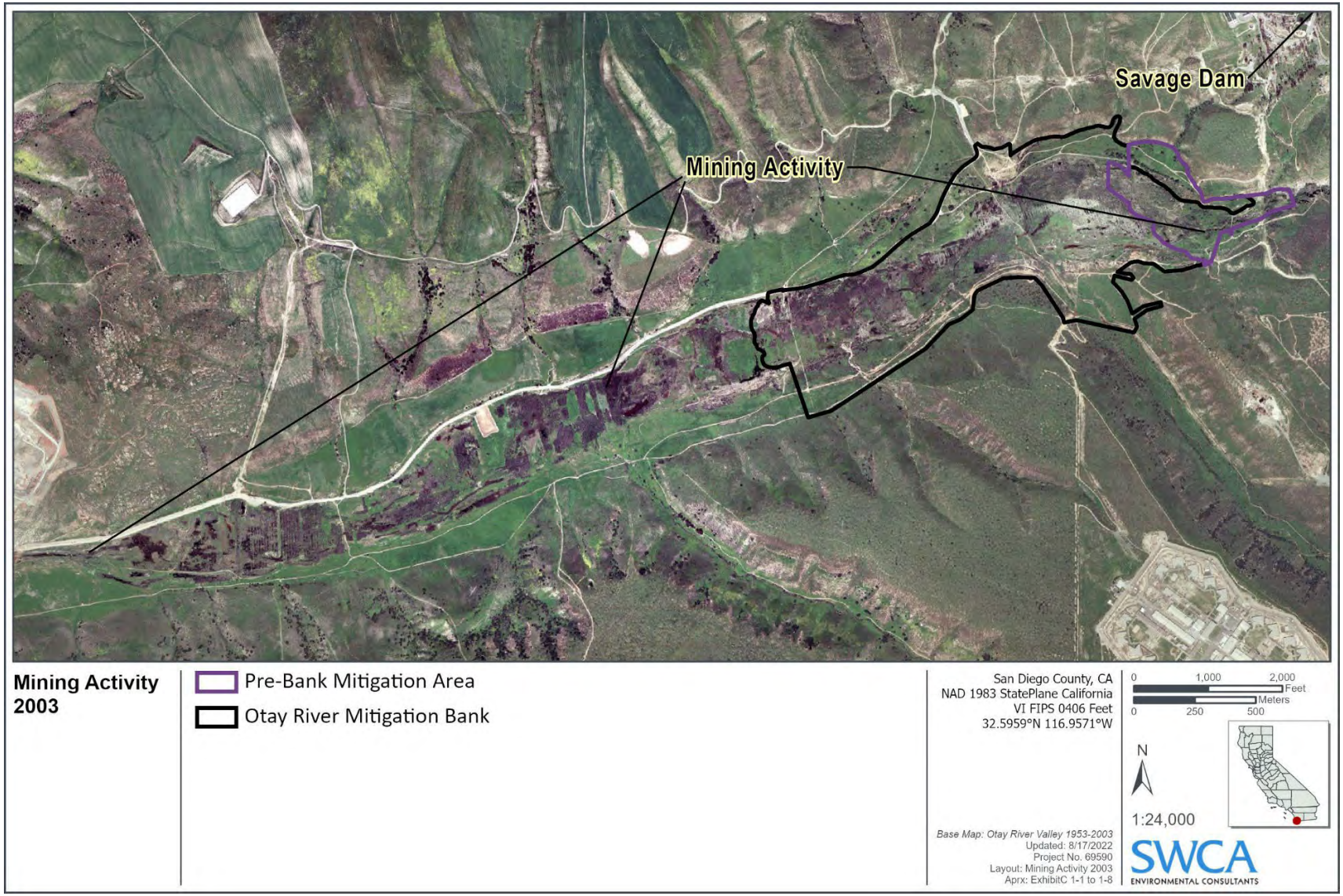


Figure 1-11. Mining activity, 2003.

1.2.5 Integration of Watershed Planning

The Bank project would be consistent with the restoration recommendations described in the WMP, which was completed in partnership with the County of San Diego, City of Chula Vista, City of San Diego, USACE, RWQCB, CDFW, and community stakeholders. The WMP provides an evaluation of the baseline conditions of the Upper and Lower Otay River Watersheds and recommendations for BMPs and restoration opportunities based on five key goals identified by the WMP stakeholders.

The WMP provides 17 strategies intended to protect, enhance, restore, and manage watershed resources in consideration of expected natural and anthropogenic stressors. Each strategy is focused on achieving one or more of the stakeholder identified WMP goals. Specifically, the Bank addresses one of the key strategies identified in the WMP: "Restore the Lower Otay River Floodplain to Enhance the Quality of Water Entering San Diego Bay." The strategy is ranked as a high priority along with eight other strategies based on their expected large benefits to the watershed and their capacity to build upon other efforts being planned or underway (Aspen 2006).

1.3 RESPONSIBLE PARTIES AND ROLES

1.3.1 Bank Sponsor and Qualifications

HomeFed Otay Land II, LLC, as the Bank Sponsor, would be the party responsible for (1) implementation of the Bank, (2) interim management of the Bank (maintenance and monitoring until all performance standards are met and the site has been transferred to long-term management), and (3) establishment of a non-wasting endowment fund to cover long-term management activities. The Bank Sponsor would be legally responsible for the mitigation once a permittee secures credits from the Sponsor.

The Bank Sponsor has not previously implemented any mitigation banks or in-lieu fee programs; however, they are implementing the PRM site immediately upstream and are in the process of installing upland mitigation for several of the Otay Ranch Village residential/commercial mixed-use projects nearby. The Bank Sponsor would be responsible for contracting a qualified habitat Restoration Specialist and landscape contractor(s) for installing, maintaining, and monitoring the Bank. The Bank Sponsor may select separate contractors for the installation and maintenance phases. Both contractors would meet the minimum requirements described below. The Bank Sponsor would establish contractual mechanisms to ensure the completion of installation, maintenance and monitoring activities. The Bank Sponsor may, with sole discretion, replace any of these parties.

The Bank Sponsor or the contracted consultant would obtain all required permits for Bank implementation, which may include the following:

- Initial Study/Mitigated Negative Declaration and Grading Permit
- CDFW Lake and Streambed Alteration Agreement
- Clean Water Act 401 Water Quality Certification
- Clean Water Act 404 Verification/Permit
- California Endangered Species Act Permit
- U.S. Fish and Wildlife Service (USFWS) Endangered Species Act Permit

1.3.2 Restoration Contractor

A multidisciplinary Restoration Contractor would provide a team composed of members with expertise and training in implementing similar restoration projects and would work collectively to perform supervision during construction and conduct performance period maintenance and monitoring. Members would include the following:

- **Restoration Ecologist:** An individual or team of individuals with a degree in botany, ecology, or related field, and a minimum of 10 years of experience in southern California with successful wetland restoration (preferably riverine and vernal pools). The lead Restoration Ecologist must have knowledge of the riverine, vernal pool, and upland vegetation associations proposed for the restoration effort as well as the nonnative species of concern. The Restoration Ecologist would oversee much of the construction and make routine inspections during the planting and maintenance period.
- **Licensed Civil Engineer:** A civil Professional Engineer with a current license in the State of California and experience working in creek restoration projects. A civil professional engineer would be onsite at the start and during key points of all phases of construction to ensure the work is completed according to the stamped engineering drawings.
- **Licensed Landscape Architect:** A landscape architect with a current license in the State of California. Where needed they would make routine inspections during construction and planting.
- **Fluvial Geomorphologist**: A certified Professional Hydrologist with a graduate degree in fluvial geomorphology.

The Restoration Contractor would be responsible for the following:

- Supervision of all phases of restoration installation, including contractor education, site protection, site preparation, grading, planting installation, seeding, and final installation inspection and approvals as delineated in this Development Plan.
- Halting work by the Installation/Maintenance Contractor at any point where the provisions of this Development Plan are not being adhered to until such times as the inconsistency is resolved with the Bank Sponsor.
- Monitoring and making remedial recommendations (regarding weeding, irrigation frequency, erosion control, etc.) after installation for ongoing maintenance activities performed by the Installation/Maintenance Contractor after installation, as specified herein.
- Carrying out the biological monitoring and reporting program described in this Development Plan. The program would include the following tasks: agency notification, as needed, qualitative and quantitative data collection, as required, to measure success progress, photographic documentation, performance period monitoring reports documenting progress, and a final assessment of success at the end of the performance period maintenance and monitoring program.

1.3.3 Installation/Maintenance Landscape Contractor

The Installation/Maintenance Contractor would be a qualified firm (or more than one firm) with successful experience in southern California and direct experience installing and maintaining native habitat mitigation projects.

- **Installation Contractor**: The Installation Contractor would be responsible for installation of a temporary irrigation system for the floodplain and upland transitional habitats in consultation with the Restoration Contractor. Subsequently, the Installation Contractor would be responsible

for site protection and installation of all vegetation in accordance with the provisions of this plan and as approved by the Restoration Contractor. In addition, the Installation Contractor would prepare a Storm Water Pollution Prevention Plan (SWPPP) and any other requirements of the permits to avoid impacts on adjacent resources and water quality. The responsibilities of the Installation Contractor would end with the completion of the requirements for the 120-day plant establishment period.

The Installation Contractor would verify in writing to the Bank Sponsor prior to starting work the following minimal qualifications: a C-27 California Landscape Contractor's license, certification as a California Pest Control Applicator, previous successful experience with at least three prior native habitat restoration project installations of similar size and scope, and knowledge of local flora and fauna.

- **Maintenance Contractor**: After the 120-day plant establishment period, a separate Maintenance Contractor may be hired to maintain the restoration site for the remaining balance of the performance period according to the provisions of this Development Plan. The same contractor may be chosen for both installation and performance period maintenance if the contractor meets both sets of qualifications. Prior to starting work, the Maintenance Contractor would demonstrate the same qualifications as the Installation Contractor, including demonstrating past maintenance experience with habitat restoration projects, previous successful experience maintaining at least three native restoration projects, and knowledge of local flora and fauna.

1.3.4 Grading Contractor

The Grading Contractor would be a qualified firm with successful experience in southern California and direct experience with grading native habitat mitigation projects including riverine and vernal pools.

CHAPTER 2. MITIGATION GOALS AND OBJECTIVES

2.1 GOALS

The primary goal for the Bank is to create an ecologically functional, self-sustaining mosaic of wetland and non-wetland habitats that are resilient to a range of natural disturbances (drought, flood, fire, etc.). The following are the specific goals of the Bank. These goals mirror those of the upstream PRM site since the sites are envisioned to function as one unit. No specific water quality goals are sought because water quality within the Otay River Watershed is generally good (San Diego State University 2019); however, many of the goals below will improve water quality overall.

- Restore proper hydrology based on existing conditions and create complex channel morphology including primary and secondary channels.
- Tie the reestablished main river channel into the existing channel upstream and downstream of the Bank site.
- Recreate a floodplain with low and high terraces capable of conveying various flood events.
- Establish and rehabilitate vernal pools to provide new habitat or improved habitat for the federally listed San Diego fairy shrimp and sensitive vernal pool plant species such as the federally listed spreading navarretia (*Navarretia fossalis*)
- Maximize buffer condition by restoring and enhancing the adjacent upland habitat.
- Create and maximize habitat diversity and structural complexity, in part through removal of invasive species.
- Maximize wildlife use opportunities including local, state, and federally listed species.
- Identify all potential water crossings for the mainstem river and tributaries and include appropriate low impact design features to avoid ponding and trail/road degradation. This includes the SDG&E pipeline crossing as well and O'Neil Canyon, Bobcat Creek, Vireo Creek, and Quino Creek in addition to many small unnamed drainages that currently bisect the existing roads.

2.2 OBJECTIVES

Restoration activities for the Bank project would occur within the Otay River mainstem and floodplain as well as tributaries and upland buffer areas. This area was targeted for establishment, reestablishment, and rehabilitation due to its location near the upstream origination point of the Otay River at Savage Dam and its adjacency to an existing mitigation site. This mitigation location is an appropriate step in the overall restoration of the Lower Otay River subbasin that exists below Savage Dam. The reestablishment of the river channel and adjacent floodplains and removal of invasive species within the Bank site would improve the biological, physical, and chemical functions of the existing resources and support native flora and fauna.

The following is a list of objectives for the Bank project. The objectives are organized by restoration category.

2.2.1 Mainstem River and Floodplain

- Reestablish and rehabilitate the Otay River mainstem that has been substantially altered from past mining activities and the invasion of non-native species. Grading would remove flow obstructions including berms, rows of cobble piles, and sediment and spoil piles, and would re-create the

contours of the Otay River mainstem and tributary connections, connect existing low-lying pooling areas, and create floodplains. These actions would improve flow conditions during rain events and hydrological conditions for native plants.

- Reestablish and rehabilitate the floodplain habitat by removing structures such as berms, rows of cobble piles, and sediment and spoil piles that impede flow, and by removing and managing invasive species. This area within the Bank currently supports a large, nearly monotypic stand of tamarisk. The tamarisk and other non-native vegetation would be removed, the natural floodplain contours that were corrupted by mining activities would be re-created, and native plants would be installed following invasive plant removal and regrading.
- Reestablish secondary and tertiary channels along the northern and southern high floodplain. This would improve flow conditions during rain events and create hydrologic flow complexity, as well as habitat complexity.
- Reestablish and improve existing mainstem river crossing and add tributary crossings to improve hydrologic conditions onsite and reduce existing artificial ponding and ongoing trail degradation.

2.2.2 Salt Creek Tributary (Subsequent Phase)

- Reestablish braided channel setwork and broad confluence connection with the Otay River Mainstem. Facilitate connectivity to the mainstem by closing Wiley Road across the confluence and relocating access and the Salt Creek Sewer Line to the north side of the valley bottom. Add sinuosity to the mainstem creek channel and re-engage with the currently cutoff floodplain by setting back slopes, changing creek baseline elevation, and encouraging breakouts onto the valley floor.
- Remove non-native/invasive species in the creek and revegetate with appropriate riparian and floodplain species.
- Reconnect the small tributary (Corral Creek) west of Salt Creek to the mainstem floodplain and support the development of alkali/grass seasonal wetlands.
- Replace non-native grassland dominated by invasive annuals with native grassland and coastal sage shrub communities dominated by elderberry, toyon (*Heteromeles arbutifolia*), and laurel sumac (*Malosma laurina*).
- Extend the maritime succulent scrub habitats on the south facing slope lower onto the foothill bottom.
- Add educational signage highlighting the historical corral and land uses in the area along with the changes to the landscape.

2.2.3 Seasonal Wetland

- Protect the final trails and avoid erosion and ponded water by reconnecting the three smaller tributaries on the north side of the mainstem Otay River including Bobcat Creek, Little Quino Creek, and Quino Creek. These small ephemeral to intermittent creeks are currently disengaged at the base of the foothills as a result of the roads and trails created for historical site access. Small sinuous drainages and swales will be extended from the base on the foothills where each of these tributaries exits and will extend through the valley bottom.
- During heavy rainfall years and larger events water can leave the small drainages and swales and engage the adjacent floodplain, creating opportunities for grassland and alkali marsh seasonal wetlands and ongoing engagement with the existing vernal pool features.

- Reclaim redundant roads and enhance road ruts currently supporting endangered fairy shrimp including weed management, select planting, and addition of structure like boulders.
- Create new smaller secondary trails and varied topography to interest trail users while encouraging on-trail use and avoidance of sensitive resources.
- Add educational kiosk near Bobcat Creek entrance to engage visitors entering from Otay Parks.

2.2.4 Vernal Pools

- Establish vernal pools at one location in the upper terrace, north of the Otay River and the main river crossing, adjacent to the Quino checkerspot butterfly (*Euphydryas editha quino,* quino) enhanced terrace. Rehabilitate and enhance the remaining pool features onsite including the southern floodplain, pre-bank staging area, and select road rut features. Where appropriate new vernal pools will be added to increase the overall complexity of the site, increasing the habitat for endangered fairy shrimp species and many sensitive vernal pool plant species as well as terrestrial invertebrates like the quino. Select mounds will be created around the new pools and planted with maritime succulent scrub.
- Existing road rut features will be enhanced and rehabilitated by removing non-native species, adding topographic complexity (cobble), and potentially seeding with vernal pool plant species. Rehabilitated pools will provide higher quality habitat for fairy shrimp and other invertebrates as well as amphibians and vernal pool plant species. The buffer surrounding the pools will also be managed free of non-native species including non-native grasses that can be detrimental to the function of vernal pools.
- Salvage soil from two impacted features that support San Diego fairy shrimp and work with USFWS to identify locations (new vernal pools and existing features) onsite to inoculate with soil material and cysts.

2.2.5 Upland Buffer

- Rehabilitate adjacent transitional and upland habitat surrounding the variety of aquatic resources onsite in both the northern and southern portions of the site. This includes select recontouring, revegetation, and removal of non-native species. This habitat serves as a buffer to the restored aquatic resources and vernal pools. In addition to protecting the resources from outside stressors such as human visitation and invasive species, the buffer areas and the associated ecotones provide foraging and breeding habitat for many native species as well as refugia for riparian species during high flood events.

2.2.6 Other

- Protect existing and proposed native habitat by focusing trail and access road users (i.e., Border Patrol, SDG&E, OWD, hikers, equestrian users, etc.) to key multiuse trails and closing other redundant roads/trails permanently. Fencing, trail signage, and educational kiosks would be installed at key locations.
- Establish OVRP Concept Plan and Greenbelt Master Plan trails within the Bank limits. The trails would primarily be constructed on existing access roads and trails and unauthorized and redundant trails currently in place would be closed. Several new trail connectors, the majority of which are located outside the Bank limits, would be established in order to direct users to designated trail locations and away from sensitive resources, such as vernal pools/road ruts that support San Diego fairy shrimp or upland areas that support habitat for quino checkerspot butterfly. The closed trails would be reclaimed and restored with native vegetation. Split-rail

fencing, trail signage, and educational kiosks would be installed to keep users on the trails and outside of the Bank.

CHAPTER 3. BASELINE INFORMATION

3.1 CLIMATE

Climate in the mitigation area is characterized as Mediterranean, with generally warm, dry summers (June through September) and mild, wet winters (October through May) (Major 1977). The Mediterranean climate results in relatively long periods of low-flow dry conditions, with minimal runoff into the Otay River. These dry conditions are punctuated by brief, seasonal episodes of heavy rainfall and higher volume runoff. Monthly average extreme temperatures generally range between a mean low of 48 degrees Fahrenheit (°F) in December through January and a mean high of 75°F in July through September (Western Regional Climate Center 2014). Mean annual rainfall in the mitigation area is 11.3 inches per year (National Weather Service 2013).

The Otay River Watershed occurs within a naturally fire-prone landscape. Data from the U.S. Forest Service Database indicate the mainstem Otay River region immediately below Savage Dam has burned four times since 1994, most recently during the 2007 Harris Fire. The downstream river portion and floodplain has burned once during that period: in the 1994 Otay Fire. Many species in the Southern California region produce seeds capable of germinating only as a result of exposure to fire or smoke from a fire; however, a too-frequent fire regime may burn areas before native vegetation has time to reach maturity and the ability to produce seed. The frequent fires in the upstream region may have had negative effects on the watershed by affecting the hydrological processes indirectly by altering the physical and chemical properties of soil and converting plant cover to soluble ash, thereby increasing soil runoff, erosion, and sedimentation in the channel.

3.2 HYDROLOGIC CONDITIONS

3.2.1 Watershed

The Bank site is part of the approximately 145-square-mile (92,920-acre) Otay River Watershed, which is situated between the Sweetwater River Watershed to the north and the Tijuana River Watershed to the south (Figure 3-1). The 25-mile-long Otay River originates at San Miguel Mountain, flows through the Upper and Lower Otay Reservoirs, continues west, and empties into San Diego Bay (Aspen 2006). The Bank is situated approximately in the middle of the Otay River Watershed and exists in a post-disturbance state; the floodplain was mined for sand/gravel in the 1980s, and a portion near the Savage Dam was most recently burned in 2003.

3.2.2 Historic Hydrological Conditions

Historically, the mitigation area was part of a large watershed that drained into San Diego Bay at the river's western terminus. The Upper and Lower Otay Dams currently impound flow from the Otay River. The Upper Otay Dam was built in 1901; it forms the Upper Otay Reservoir, which serves as a municipal water supply. The Lower Otay Dam, which is approximately 1.75 miles upstream of the Bank, was originally built in 1897, as rock- and earth-fill based on massive masonry with a riveted steel plate diaphragm. It was erected by the Southern California Mountain Water Company to provide water storage. Information about the Otay River Watershed before the construction of the original dam is extremely limited (Aspen 2006). The original Lower Otay Dam failed catastrophically during a high rain event in 1916. The canyon immediately downstream of the dam was completely scoured of vegetation and boulders (McGlashan and Ebert 1918).

The Lower Otay Reservoir Dam was replaced in 1919, after the flood of 1916, with a concrete gravity-arch structure known as the Savage Dam, which still stands today. The Savage Dam forms the approximately 49,510-acre-foot Lower Otay Reservoir and supplies drinking water to parts of Southern California. The Lower Otay Reservoir was designed primarily to provide a water supply for the local community; it impounds approximately 60% of the Otay River's tributary watershed along with its sediment supply and has limited flood control capacity (Aspen 2006). However, both the Upper and Lower Otay Reservoirs effectively handle increased flow from small rain events in the upper watershed and have mostly eliminated major flood events along the Otay River; dam spills are infrequent and minor. The modeled hydrology does not include dam spillover, so flow results are based on a conservative approach.

3.2.3 Existing Hydrological Conditions

Existing conditions for the Bank site are primarily defined by the construction of Savage Dam in 1919, as development in the immediate watershed has remained minimal. The dam has experienced spillovers resulting in water entry to the Otay River a total of 12 times since 1919 (1927, 1932, 1937, 1941, 1980, 1981, 1982, 1983, 1993, 1998, 2005) (Aspen 2006), including most recently in February 2017, when the area experienced an above average rain year including a 500–1,000-year storm event. As such, the Otay River immediately downstream of the dam does not receive water from the upper watershed except during infrequent dam spills. The dam and reservoir have distorted the sediment equilibrium of the Otay River by retaining all of the upstream sediment, causing a sediment deficit and channel degradation for the portion of the mainstem below the Savage Dam. The 1916 dam failure had temporary effects on the shape of the river, and channel-forming events have not occurred since the flood of 1916; therefore, the planform of the Otay River below Savage Dam has remained largely stable during the twentieth century. The Lower Otay River currently has a low degree of sinuosity and consists of braided streams with multiple bars and islands. However, sand and gravel extraction activities have affected the topography of the Otay River mainstem and make braiding patterns difficult to evaluate (Aspen 2006). Thirty percent of the total watershed area contributing to Otay is developed land, primarily in the Salt Creek watershed. It is possible that permits may allow future developments to re-direct natural drainage to more downstream reaches of the Otay River, reducing future inputs to the project site. No significant changes in hydrology are anticipated following restoration.

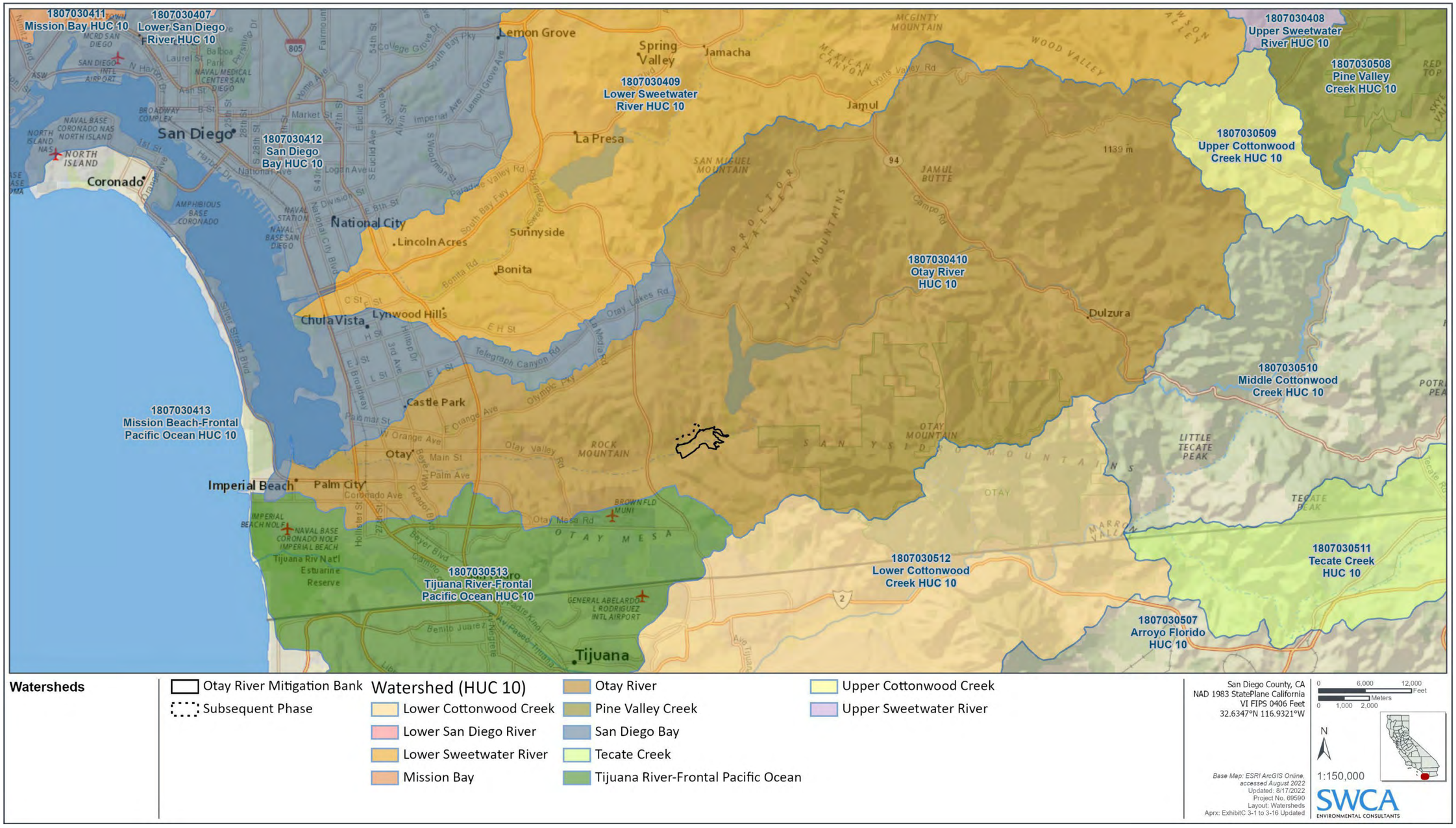


Figure 3-1. Project area watersheds.

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Several tributary creeks flow into the Bank, with the two primary being O'Neal Canyon Creek (Feature 5), which meets the Otay River toward the center of the Bank on the southern side of the river and originates in the Otay Mountain Wilderness near Otay Mountain, and Salt Creek (Feature 10) from the north side, which originates in National Wildlife Refuge land near San Miguel Mountain. None of the drainages are gauged, and no readily available flow information exists to better describe the current flow conditions of these creeks. O'Neal Canyon Creek runs primarily through undeveloped land with the exception of the R.J. Donovan Correctional Facility. The creek flows through a culvert and through a significant embankment supporting the access road connecting the East and West Mesa portions of the facility. This culvert acts as a significant flood management facility as the slopes are very steep and the high road embankment is greater than 20 feet. Upstream of the culvert and detention facility, O'Neal Creek flows through undeveloped land that is inaccessible by automobile (Aspen 2006). The occurrence of plant material introduced via O'Neal Canyon into the Otay River Valley is significant as this confluence facilitates the introduction into the floodplain of rare plant species originating from Otay Mountain.

The impounding of river waters by the installation of Savage Dam has changed the hydrological functions of the Otay River mainstem, and sand and gravel extraction activities and migration of foreign materials into the area have changed the original sediment distribution on the Otay River (Aspen 2006). In-stream mining typically degrades and destabilizes streambeds by causing a reduction of downstream sediment supply and also dilutes and removes soil organic matter, nutrients, and native seed banks. Disruption of the soil profile leads to leaching of nutrients and soil moisture loss (Aspen 2006).

Similarly, because the Bank site is situated immediately below Savage Dam it no longer receives perennial water. It is, therefore, no longer fully functional as a river and river floodplain, and primarily provides hydrologic, biogeochemical, and habitat functions associated with intermittent/ephemeral streambeds and dry alluvial fans, although several areas persist that support riparian habitat and wetlands. The river channel immediately south of the dam runs through a deep canyon and contains scattered areas of riparian habitat that support native trees, such as willows (*Salix* spp.). However, due to dry conditions, it also supports Diegan coastal sage scrub species, such as laurel sumac and abundant non-native species such as eucalyptus (*Eucalyptus* sp.), pepper tree, palm trees (*Arecaceae* spp.), and tamarisk.

The downstream floodplain area that was mined for sand was not restored to natural conditions post mining. The departure of Nelson and Sloan Materials from the river valley potentially preceded laws requiring reclamation after site abandonment, and site conditions indicate that the company removed its equipment and left the floodplain in a highly disturbed condition. Literature indicates that at least the top 15 feet of soil was removed from the site (Aspen 2006); conditions onsite indicate that at least the top 20 feet of soil was removed from some areas, thereby reducing the elevation of possibly a majority of the floodplain area and removing topsoil along with associated native seedbank, microorganisms, and nutrients. Sediment and gravel piles appear in abundance throughout the floodplain, and several deep pits and large berms remain. In addition, dozens of smaller, roughly parallel gravel berms exist in the floodplain that run in a north–south direction, opposite to that of flow, and are easily seen in aerial photographs.

Previous studies of the Otay River Watershed have concluded that it is not a major source of groundwater. Groundwater in the watershed occurs within unconsolidated alluvium, semi-consolidated sedimentary bedrock, and bedrock surrounding the alluvium, and the flow generally mimics surface topography. Most of the groundwater in the watershed occurs west and downstream of the mitigation area. Significant changes to the hydrologic and sediment regimes of the Otay River mainstem have occurred as a result of the curtailment of channel discharge and sediment deposit due to the installation of the Savage Dam. Because of these changes, it is expected that over time the Otay River would experience flattening of

slopes and downcuts in the upper reaches and aggrade in the lower reaches. SANDAG (1985) characterizes the Otay groundwater basin to be in hydrologic equilibrium, such that recharge and discharge are approximately equal. The portion of the Bank that is directly in the river floodplain provides minimal short- and long-term storage of surface water in scattered areas within the mainstem and within the floodplain (watershed management).

The floodplain and lower terraces in the river valley have a restrictive clay layer that allows the development of vernal pools. The vernal pools are seasonally filled by precipitation directly falling into the basin or drained from the micro-watershed surrounding the vernal pools or a vernal pool complex.

3.2.4 Water Rights

The Bank Sponsor is not currently aware of any conflicting water rights within the Bank site. Based on review of the preliminary title report (Fidelity National Title 2022), there is an easement granted from 1869 to the Kimball Brothers Water Company for the construction and maintenance of flumes, canals, or aqueducts on APN 64409004; however, it appears the right was to bring water to the property, not remove water from the property. In addition, given that the easement was granted prior to 1914, it is highly unlikely it is still valid as the right would have been abandoned if it was not used for three consecutive years.

The upstream portion of the Bank (APN 64409004) is currently owned by the City of Chula Vista and the downstream portion (APN 64409003) by HomeFed Otay Land II, LLC, a division of Otay Land Company (Bank Sponsor). Water rights for both parcels are held with each property owner and will remain with each property owner. Any water that flows onsite will remain in its natural amount, course and direction and the groundwater basin that provides groundwater support will remain unchanged. A conservation easement will be recorded over both properties eliminating any alterations to water that could occur. Upstream parcels from the Bank are undeveloped until reaching Savage Dam and are designated open space; therefore, alteration to water resources will not occur.

3.3 WATER QUALITY

Water quality monitoring data are not available for the Bank site. Groundwater quality downstream of the Bank site is rated as marginal to inferior for domestic and irrigation purposes because of high total dissolved solids and high chloride concentrations, respectively (Aspen 2006). Groundwater upstream generally meets safe drinking standards; however, some sampling locations have high iron, manganese, chloride, nitrate, and/or total dissolved solids concentrations (Aspen 2006). The Pacific Ocean near Coronado is the only potion of the Otay watershed that is listed as a 303(d) waterbody (coliform bacteria), however this section of the Otay watershed is not generally influenced by the Otay River. Water quality is generally good in the watershed likely because the vast majority of the watershed is undeveloped (44% undeveloped and 30.4% parks and recreation) (San Diego State University 2019).

3.4 TOPOGRAPHY

The Bank site is completely contained within the existing Otay River Valley. Approximately 1.75 miles upstream of the site, the valley is narrow (ranging between 100 and 200 feet) for several hundred feet before widening noticeably to approximately 1,000 to 1,500 feet. Most of the Bank site resides in this wide section of the valley floor. The proposed channel alignment meanders through the wide valley before tying back into the existing channel near the downstream end of the Bank where the valley walls close back in to approximately 500 feet. The valley floor itself is mostly flat, but does feature several topographic features: on both the north and south sides of the proposed channel alignment there are

dozens of mine tailing mounds (approximately 8 to 10 feet tall), which were left behind as a result of instream sand and gravel mining in the twentieth century. The flat terraces in the floodplain and in the river valley allow for the development of vernal pools with depths ranging from 1 inch to over 3 feet. Mima mounds are commonly found in vernal pool landscapes in San Diego. Mima mounds are low, flattened, circular to oval, domelike, natural mounds that are composed of loose, unstratified, often gravelly sediment that is an overthickened A horizon. However, no mima mound topography occurs in these vernal pool areas. Several ponds are present north of the proposed channel alignment, with an average depth of approximately 5 to 8 feet relative to adjacent ground. Elevations of the valley floor itself range from approximately 228 feet at the downstream end to 252 feet at the upstream end; typically, the valley floor is 10 to 20 feet below the adjacent ground of the surrounding foothills.

3.5 FORMERLY USED DEFENSE SITE

A portion of the Bank site is within the Brown Field Formerly Used Defense Site (FUDS) (Figure 3-2). The Brown Field Bombing Range (also known as the Otay Mesa Bombing Range, the Otay Bombing Target, or Otay Mesa Bombing Target #32) was used by the Navy between 1942 and 1960 as a dive-bombing practice range and later as an aerial rocket range. By mid-1961, the bombing range and the easement had been determined to be surplus and assigned to the General Services Administration for disposal. The Department of Defense (DoD) has established the Military Munitions Response Program (MMRP) to address DoD sites suspected of containing Munitions and Explosives of Concern or Munitions Constituents. Under the MMRP, USACE is conducting environmental response activities at FUDS for the Army, DoD's Executive Agent for the FUDS program.

An MMRP Site Inspection report was prepared for the Brown Field FUDS boundary (Parsons 2007). The study found that munitions debris (fragments of Mk 15 Mod 3 100-lb practice bombs and fragments of AN-Mk23 practice bombs) were located within the site. There were no other visual indicators (distressed vegetation, stained soil, ground scars, or craters) identified. Ten surface soil samples were also analyzed for explosives and metals; explosives were not detected but metals were detected. The report found aluminum, copper, iron, potassium, manganese, and zinc in the surface soils from bombing activities. The report concluded that the site does not pose an unacceptable risk to human health resulting from exposure to munitions constituents in the surface soil and there are no risks expected to ecological receptors resulting from exposure to CERCLA-hazardous munitions constituents in the surface soil. There is an unknown potential risk to human and ecological receptors due to the potentially complete surface water/sediment pathway. The risk is unknown because there are no quantitative data for surface water/sediment at this time. The study recommended a remedial investigation/feasibility study with surface water/sediment sampling for munitions constituents. Because the site generally has a low unexploded ordnance risk and it is planned as open space a remedial investigation/feasibility study is not likely to happen (personal communication, email from Brian Wied, EA Engineering, to Lindsay Teunis, Project Manager, ICF, December 19, 2019). According to the 2018 *Brown Field Bombing Range Formerly Used Defense Sites Program Management Action Plan* (USACE 2018) the site is not scheduled to be remediated until 2088, and the completion of the MMRP is to be complete in 2116. The FUDS program has an extensive backlog, and the Brown Field site is not on the National Priorities List.

Ongoing conversations with the USACE have occurred over the last year in an effort to remove any risk associated with future remediation actions. As a result, a draft agreement between the USACE and the two landowners (HomeFed and the City of Chula Vista) was developed and is included as Appendix B. This agreement will be signed prior to construction and any release of mitigation credits and provided to the IRT.

Although sand mining activities occurred for more than two decades after range activities ceased, there is still a potential to unearth unexploded ordinances. As such, safety measures will be implemented, including having dedicated unexploded ordnance monitors during construction activities. See BEI Exhibit K-1 for additional FUDS documentation.

3.6 SOIL CHARACTERISTICS

Soils in the Otay East subbasin are predominantly clay, with some pockets of loam in O'Neal Canyon. The riparian areas and previously active floodplains of the Otay River lack distinct layers and are generally well drained and poorly developed (Aspen 2006). Soils in the floodplain area are characterized as having a high infiltration rate when thoroughly wetted, comprising primarily deep, well-drained sand and gravel. The water transmission rate is high, while runoff potential is low. The California Division of Mines and Geology has classified lands according to the presence or absence of significant sand and gravel deposits and crushed rock source areas in the form of Mineral Resource Zones (MRZs). The Otay River Valley in the mitigation area is classified as MRZ-2, which consists of Quaternary river channel and floodplain deposits, Tertiary and Quaternary conglomerate and alluvial fans, Cretaceous granitic rocks, and Jurassic meta-volcanic rocks (California Department of Conservation 1982). MRZ-2 areas are locations where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. The Bank lands are currently owned by the City of Chula Vista and the Bank Sponsor, and all surface and sub-surface mineral rights lie with the property owners. A conservation easement will be placed over the Bank, which includes both properties, prohibiting the extraction of minerals.

Otay River well logs indicate that the depth of sand and gravel is approximately 90 feet; however, mining did not occur much below 15 feet due to a clay layer that was reported by mining companies to occur at approximately that depth. The sand-to-gravel ratio was reported to be 50:50 (California Department of Conservation 1982). Five soil types, as defined by the U.S. Department of Agriculture (USDA), are mapped within the Bank: Olivenhain cobbly loam, Huerhuero loam, Visalia gravely sandy loam, Riverwash, and Salinas clay loam (Bowman 1973; Natural Resources Conservation Service 2014) (Figure 3-3).

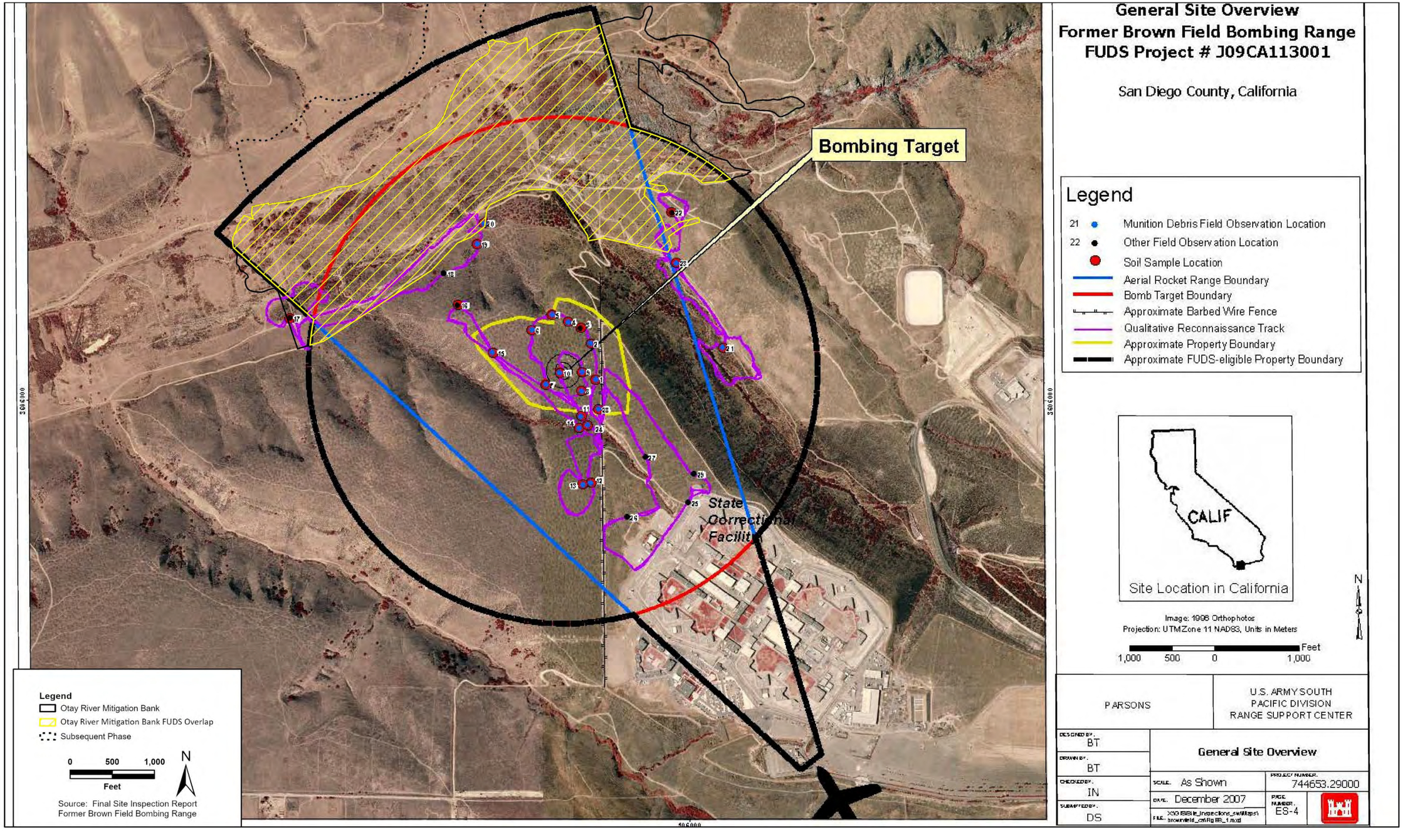


Figure 3-2. FUDS and Mitigation Bank overlay.

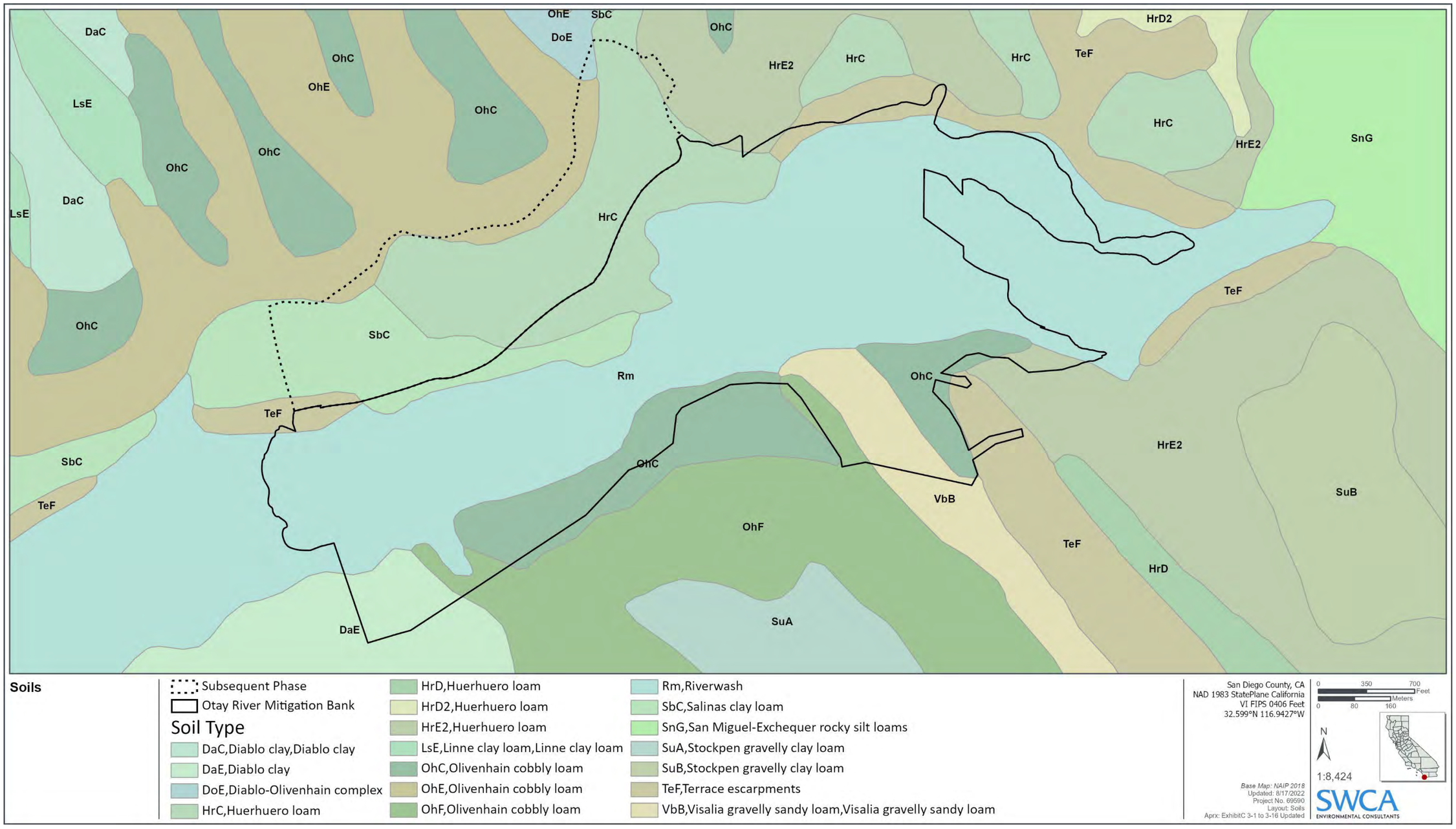


Figure 3-3. Soils.

- **Olivenhain cobbly loam** soils are well-drained, moderately deep to deep, cobbly loams with a cobbly clay subsoil and form in old gravelly or cobbly alluvium. They occur on gentle to strong slopes on dissected marine terraces at elevations of 100 to 600 feet. They are generally well-drained with slow or medium runoff and very slow permeability.
- **Huerhuero loam** soils are moderately well-drained loams with a clay subsoil that have developed in sandy marine sediments at elevations of 10 to 400 feet and slopes of 2 to 30%.
- **Visalia gravely sandy loam** soils consist of moderately well-drained, very deep sandy loams that occur on alluvial fans and floodplains and are derived from granitic alluvium. They occur on slopes of 0 to 15% at elevations of 100 to 2,000 feet.
- **Riverwash** typically occurs in intermittent stream channels. The material is typically sandy, gravelly, or cobbly, and is well-drained and rapidly permeable. Shrubs and forbs occur in patches and many areas are bare. This soil type is often mined for sand and gravel.
- **Salinas clay loam** consists of deep, well drained soils that formed in alluvium weathered from sandstone and shale. Salinas soils are on alluvial plains, fans, and terraces, have slopes of 0 to 9 percent, and occur at elevations of 50 to 2,000 feet.

3.7 VEGETATION COMMUNITIES AND HABITAT TYPES

The southern portion of the floodplain within the Bank has self-vegetated primarily with plants consistent with Diegan coastal sage scrub and alluvial fan communities. These plants include buckwheat (*Eriogonum fasciculatum*), laurel sumac, California sagebrush (*Artemisia californica*), toyon, and broom baccharis (*Baccharis sarothroides*), although the area also contains numerous non-native invasive species such as pepper tree and tamarisk. The area where O'Neal Canyon merges with the Otay River Valley supports a large expanse of Tecate cypress (*Hesperocyparis forbesii*), although most is just outside the Bank limits. The northern portion of the floodplain is a near-monotypic stand of tamarisk. The downstream floodplain also contains scattered areas of riparian habitat containing native trees, such as willows and several areas of freshwater marsh; however, these areas also contain abundant individuals of eucalyptus, pepper tree, palm tree, and tamarisk. In addition, a large eucalyptus woodland has established in the floodplain near the center of the Bank, which also contains numerous individuals of pepper trees and tamarisk.

In October 2014, ICF biologists conducted a vegetation mapping exercise of the eastern portion of the Bank located on City of Chula Vista property, including adjacent areas. This information along with addition biological data is included in the Biological Resource Report (Exhibit H of the Bank Enabling Instrument [BEI]) (it should be noted that some of the project elements outlined in Exhibit H have slightly changed and the document was created partially to fulfill California Environmental Quality Act (CEQA) requirements; therefore not all text is applicable to the Bank; however, biological information contained within is still valuable). In May 2018, ICF biologists conducted vegetation mapping of the western portion of the Bank and verified the previous upstream mapping. In March 2022, SWCA biologists conducted vegetation mapping to update the 2018 vegetation map and document ocular estimates of relative cover of nonnative species for areas of similar nonnative vegetation cover by vegetation community. Vegetation communities were categorized using the standard classifications of Oberbauer et al. (2008). A total of 22 vegetation communities and land cover types were mapped within the Bank site (Table 3-1, Figure 3-4). Of these 22 vegetation communities, nine are classified as disturbed or nonnative vegetation communities and comprise 127 of the approximately 230 acres or 55% of the Bank. Nonnative vegetation in these disturbed or nonnative communities ranges from 25 to 100% cover (Figure 3-5).

Table 3-1. Vegetation Communities and Land Cover Types Occurring within the Bank

	Modified Holland Code	Existing Vegetation Communities and Land Cover Types	MSCP Habitat Category[a]	Total Area in Mitigation Bank
Anthropogenic Land Covers	11300	Disturbed Habitat (Bare Ground)	N/A	15.35
Uplands	32510	Diegan Coastal Sage Scrub	Tier II	81.15
		Diegan Coastal Sage Scrub (Disturbed)	Tier II	21.36
	32530	Diegan Coastal Sage Scrub (Baccharis dominated)	Tier II	8.66
	32800	Flat-topped Buckwheat	Tier II	1.42
	42110	Valley Needlegrass Grassland	Tier I	0.04
	42130	Saltgrass Grassland	Tier I	0.34
	42200	Non-Native Grassland	Tier III	6.18
	42210	Non-Native Grassland (Broadleaf dominated)	Tier III	18.63
	79000	Non-Native Woodland	Tier IV	2.07
	79100	Eucalyptus Woodland	Tier IV	5.85
	83330	Southern Interior Cypress Forest	Tier I	4.50
Riparian and Wetlands	44322	San Diego Mesa Vernal Pool	W	0.03
	52410	Coastal and Valley Freshwater Marsh	W	3.31
	52440	Emergent Wetland (Disturbed)	W	0.46
	52510	Herbaceous Wetland	W	0.05
	61330	Southern Cottonwood-Willow Riparian Forest	W	1.62
	63310	Mulefat Scrub	W	1.75
	63320	Southern Willow Scrub (Disturbed)	W	0.003
	63810	Tamarisk Scrub	W	57.54
	64140	Freshwater	W	0.08
	Grand Total[b]			**230.38**

[a] City of Chula Vista's MSCP Subarea Plan Habitat Categories:

W – Wetlands the community considered sensitive under the Wetlands Protection Program

Tier I – Rare Uplands

Tier II – Uncommon Uplands

Tier III – Common Uplands

Tier IV – Other Uplands

[b] Rounded acreages do not exactly sum to the total areas because of the rounding of raw values in GIS.

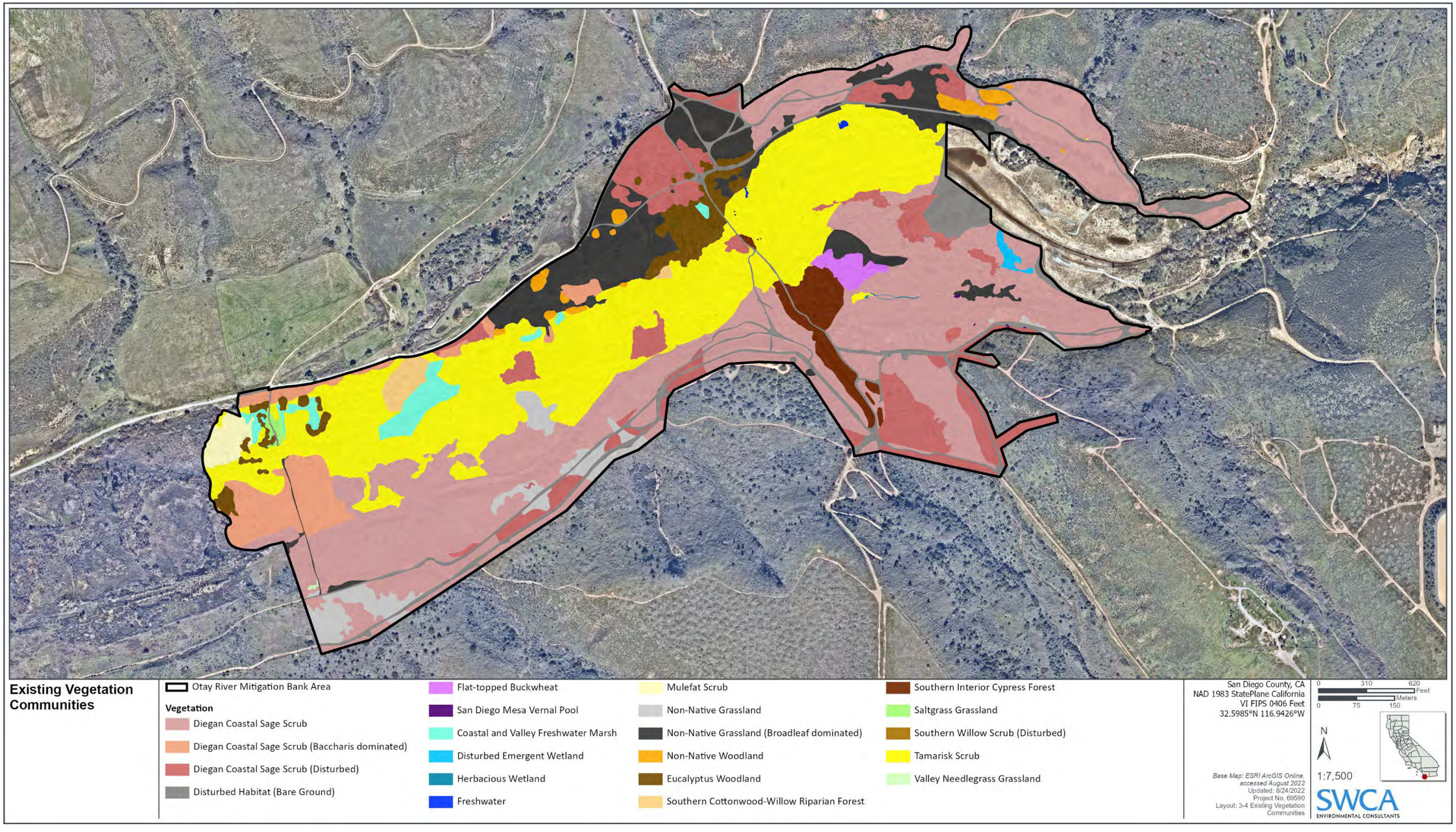


Figure 3-4. Existing vegetation communities.

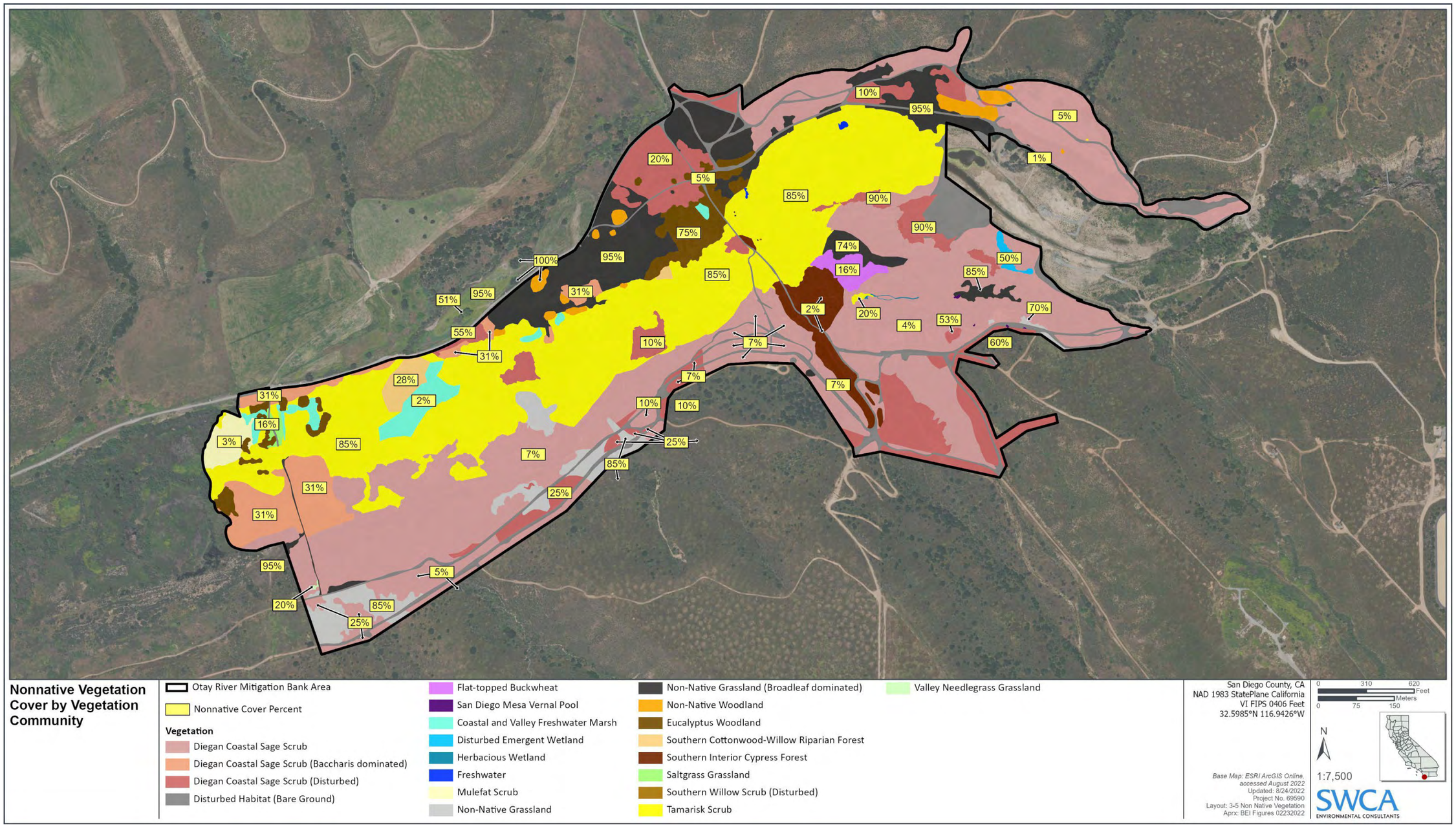


Figure 3-5. Nonnative vegetation cover by vegetation community.

3.7.1 Coastal and Valley Freshwater Marsh

This community occurs in areas where water tends to accumulate and supports emergent plant species such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.). Freshwater marsh occurs in scattered locations within the Otay River channel and the floodplain and is relatively intact with an average of 1% nonnative cover in this marsh habitat. This community provides nesting habitat for the red-winged blackbird (*Agelaius phoeniceus*) and marsh wren (*Cistothorus palustris*), and provides foraging habitat for numerous avian species.

3.7.2 Diegan Coastal Sage Scrub

Diegan coastal sage scrub is considered to be a sensitive habitat by USFWS, CDFW, and many local jurisdictions and is thought to be one of the most endangered vegetation types in California (Atwood 1993). It is characterized by low-growing, woody, drought-deciduous aromatic shrubs and typically occurs on hotter, south-facing slopes. Diegan coastal sage scrub was the dominant habitat type on the coastal plains of San Diego County; its occurrence has been greatly reduced by development. Because of prior significant disturbance in the Bank, Diegan coastal sage scrub exists in tracts of varying quality and species composition. This habitat exists in the Bank along roadsides and hillsides, which is often dominated by California buckwheat, deerweed (*Acmispon glaber*), and white sage (*Salvia apiana*), with scattered individuals of lemonade berry (*Rhus integrifolia*) and California sagebrush. Other areas along roads and streambeds are heavily dominated by broom baccharis. The Diegan coastal sage scrub community in the floodplain is dominated by California buckwheat, laurel sumac, toyon, and lemonade berry while low-lying areas with more moisture contain abundant San Diego marsh-elder (*Iva hayesiana*; California Rare Plant Rank [CRPR] 2.2). A few drought-affected individuals of San Diego barrel cactus (*Ferocactus viridescens*) occur within the Bank. This vegetation type is mostly intact with an average of 10% nonnative cover and 90% native cover. This community provides nesting habitat for a variety of avian species including those protected by the Migratory Bird Treaty Act (MBTA) and it has the potential to support state- and/or federally listed species protected by the Endangered Species Act, including federally listed as threatened and California species of special concern coastal California gnatcatcher (*Polioptila californica californica*) and the federally listed as endangered Quino checkerspot butterfly.

3.7.3 Diegan Coastal Sage Scrub (Disturbed)

Disturbed Diegan coastal sage scrub is the same community described above with a high level of disturbance. At the Bank, this community has an average of 27% nonnative cover composed of nonnative grasses (*Avena* sp., brome grasses) and nonnative herbs (redstem stork's bill [*Erodium cicutarium*] and Russian thistle [*Salsola tragus*]).

3.7.4 Diegan Coastal Sage Scrub: Baccharis dominated

Diegan coastal sage scrub typically occurs on disturbed sites or sites with nutrient-poor soils. In addition, it is often found within other forms of Diegan coastal sage scrub on upper terraces of river valleys (Oberbauer et al. 2008). This form of coastal sage scrub is dominated by broom baccharis. Within the Bank, Diegan coastal sage scrub is associated with species such as buckwheat, California sage, mulefat (*Baccharis salicifolia*), and San Diego marsh-elder (CRPR 2.2). This community occurs within disturbed areas along roads and in small pockets along the margins of riparian vegetation and has 30% nonnative cover contributed by tree tobacco (*Nicotiana glauca*), mustard (*Hirschfeldia incana*), tocolote (*Centaurea melitensis*), fennel (*Foeniculum vulgare*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and California burclover (*Medicago polymorpha*). It is found within the Mitigation Bank Area proposed for grading.

3.7.5 Disturbed Habitat (Bare Ground)

Disturbed habitat consists of areas that have experienced persistent mechanical disturbance that has resulted in severely limited native plant growth. These areas may be depauperate or may support sparsely distributed non-native or native vegetation. Disturbed areas exist in the floodplain area as dirt roads and dirt road intersection areas that experience heavy use by unauthorized off-road vehicles.

3.7.6 Emergent Wetland (Disturbed)

This community is a generally persistent wetland dominated by low growing, perennial wetland species. In the Bank the vegetation type was found in the Otay River floodplain, south of the Pre-Bank Restoration Site and is freshwater. 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 and that seems to be the case within the Bank as the wetland is 100% nonnative and contains such species as tamarisk, Canary island date palm (*Phoenix canariensis*), wild oat (*Avena barbata*), brome grasses (*Bromus diandrus* and *Bromus madritensis* ssp. *rubens*), yellow sweet clover (*Melilotus indicus*), and bristly ox-tongue (*Helminthothca echioides*). This area seemed previously disturbed due to mining, and has thus, established as a mix of upland and wetland herbaceous non-native species occupying unnaturally uneven topography that includes swales. Due to the intense mine tailing disturbance, the plant community composition and landscape setting is unusual for typical emergent wetlands.

3.7.7 Eucalyptus Woodland

This habitat often consists of monotypic stands of introduced eucalyptus trees. The understory is typically depauperate or sparse due to allelopathic properties of the eucalyptus leaf litter. While not described in Holland (1986) as a distinct vegetation community, it is assigned a category in the *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008**Error! Bookmark not defined.**); it is widespread throughout San Diego County, often occupying large tracts of land and displacing native plant communities. Eucalyptus trees are found as individuals or in small populations throughout both the Otay River channel and the Otay River floodplain and is 75% nonnative. A large eucalyptus woodland exists in the central portion of the site that also contains tamarisk and pepper trees. Eucalyptus woodlands provide habitat and foraging value for many native animals and are used by raptors for nesting and roosting sites and may therefore be considered a resource for those species.

3.7.8 Flat-topped Buckwheat

This vegetation community is a near monoculture of flat-topped buckwheat. It is found south of the Otay River floodplain in the central area of the Bank. And within the Bank this community has been invaded and has approximately 17% nonnative cover comprised of foxtail brome, yellow sweet clover, black mustard (*Brassica nigra*), redstem stork's bill, and Mediterranean grass (*Schismus barbatus*). This is a seral community arising after mining disturbance and may evolve to support a more diverse plant community more indicative of Diegan coastal sage scrub.

3.7.9 Freshwater (Open Water)

Fresh water areas are composed of year-round bodies of fresh water (extremely low salinity) in the form of lakes, streams, ponds, or rivers. This includes those portions of water bodies that are usually covered by water and contain less than 10% vegetative cover. Within the Bank, these areas are predominantly located in seasonal ponds, which are deep enough to hit groundwater on the northern side of the floodplain. In the primarily arid setting, these year-round fresh water sources are a unique habitat.

3.7.10 Herbaceous Wetland

This vegetation community is a seasonal wetland that supports mainly annual species and does not support emergent species typically associated with Freshwater Marsh. In San Diego County these wetlands may only occur during wetter than average years. In the Bank, this vegetation type was found south of the Otay River floodplain in the central portion of the Bank in a swale as is common for this vegetation type. During the time of the vegetation community surveys, the swale pattern was evident, but most of the visible species were non-native, upland annuals. It is a disturbed native habitat with approximately 22% nonnative cover documented. The dominant non-native species observed include brass buttons (*Cotula coronopifolia*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), whitestem filaree (*Erodium moschatum*), and mustard.

3.7.11 Mulefat Scrub

This is a depauperate, tall herbaceous riparian scrub that is strongly dominated by mulefat and commonly found in intermittent stream channels with fairly coarse substrate (Oberbauer et al. 2008). This early seral community is maintained by frequent flooding, and absence disturbance, most stands would succeed to riparian forests or woodlands dominated by cottonwood (*Populus fremontii*) or western sycamore (*Platanus racemosa*). Mulefat within the project area is dominated by uniform stands of mulefat, with an understory composed of weedy annuals and biennials such as non-native mustards and poison hemlock that provide an average of 3% cover. Mulefat scrub occurs at a few locations within the Otay River channel and tributaries of the project area but outside the proposed grading within the project area. This habitat is heavily used for both nesting and foraging birds, including coastal California gnatcatcher and LBV.

3.7.12 Non-Native Grassland

Non-native grassland is a dense to sparse cover of annual grasses with flowering culms less than 1 meter high. The vegetation community often occurs where native habitats, such as native grassland and coastal sage scrub habitat, have been disturbed or removed. It is often associated with numerous species of showy-flowered, native annual forbs ("wildflowers"), especially in years of favorable rainfall. In San Diego County the presence of black mustard, slender wild oats (*Avena barbata*), a variety of brome grasses (*Bromus* sp.), and red-stem filaree (*Erodium cicutarium*) are common indicators. In some areas, depending on past disturbance and annual rainfall, annual forbs may be the dominant species; however, it is presumed that grasses would soon dominate. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer–fall dry season, persisting as seeds. Remnant native species are variable.

Non-native grasslands are considered sensitive habitat by some local jurisdictions because they may serve as habitat linkages and may support raptor foraging and sensitive plant species. Non-native grassland occurs in scattered locations within the Bank including along roadsides and upon hillsides containing species such as black mustard, slender wild oats, a variety of brome grasses, horehound (*Marrubium vulgare*), prickly lettuce (*Lactuca serriola*), and tocalote (*Centaurea melitensis*) providing 75% of the cover in the vegetation community. Some isolated individual native shrub species persist in some of these areas. This habitat supports a variety of small native mammals, such as Botta's pocket-gophers (*Thomomys bottae*) and native reptiles such as the Southern Pacific rattlesnake (*Crotalus oreganus helleri*) and is often of value to raptors as foraging areas.

3.7.13 Non-Native Grassland: Broadleaf Dominated

Non-native grassland is characterized as a non-native grassland that is co-dominated (50 percent or greater cover) by one or more non-native, broadleaf invasive weed species. It is considered an MSCP Tier III (common uplands) habitat type. This community often develops when there is periodic disturbance that prevents a heavy biomass accumulation that favors development of a monotypic stand of non-native grass but allows the establishment of invasive weeds such as black mustard, smallpod mustard (*Hirschfeldia incana*), cheeseweed mallow (*Malva parviflora*), and prickly lettuce. Some non-native species may be characterized as invasive because of their ability to out-compete and displace native species. Within the Bank, this vegetation community has an average of 87% nonnative cover. Although this community may provide some support of native animal species in the form of shelter, foraging habitat, and roosting or nesting habitat, it is generally understood to degrade natural conditions and may result in the exclusion of certain native animal species that are dependent on natural plant species and habitats for their survival.

3.7.14 Non-Native Woodland

Non-native vegetation communities are dominated by plant species that do not naturally and historically occur in this region. Some non-native species may be characterized as invasive due to their ability to out-compete and displace native species. Non-native woodland in the Bank includes pepper tree, eucalyptus, pampas grass (*Cortaderia selloana*), and tamarisk with 100% cover of these nonnative species. Although this community may provide some support of native animal species in the form of shelter, foraging habitat, and roosting or nesting habitat, it is generally understood to degrade natural conditions, and may result in the exclusion of certain native animal species that are dependent upon natural plant species and habitats for their survival.

3.7.15 Saltgrass Grassland

Saltgrass occurs in a wide range of habitat types and plant communities. In western riparian areas, saltgrass is a common understory species of willow. In deserts of the southwest, saltgrass occurs with iodinebush (*Allenrolfea occidentalis*), saltcedar (*Tamarix ramosissima*), saltbush (*Atriplex* spp.), sagebrush (*Artemisia* spp.), and black greasewood (*Sarcobatus vermiculatus*). In grasslands, saltgrass grows with alkali sacaton (*Sporobolus airoides*), brome (*Bromus* spp.), green needlegrass (*Nassella viridula*), western wheatgrass (*Pascopyrum smithii*), Nuttall's alkaligrass (*Puccinellia nuttalliana*), and blue grama (*Bouteloua gracilis*). Within the Bank, this vegetation community has an average of 16% nonnative cover contributed by a nonnative overstory of Peruvian peppertree (*Schinus molle*) and eucalyptus.

3.7.16 San Diego Mesa Vernal Pool

Vernal pools are seasonally flooded depressions that support a distinctive living community adapted to extreme variability in hydrologic conditions (seasonally very dry and very wet conditions). Although vernal pools are often associated with hummocks or mima-mounds, this feature is not always present, and are not present surrounding the vernal pools in the Bank. In San Diego, vernal pools often retain pooled water for about 2 weeks after significant rain events. Vernal pools can be differentiated from other temporary wetlands by the following criteria: (1) the basin is at least partially vegetated during the normal growing season or is unvegetated due to heavy clay or hardpan soils that do not support plant growth; and (2) the basin contains at least one vernal pool indicator species (e.g., *Psilocarphus* spp., *Downingia cuspidata*, *Eryngium aristulatum* var. *parishii*, or crustaceans – *Branchinecta* spp., *Streptocephalus* spp., and others).

3.7.17 Southern Cottonwood—Willow Riparian Forest

This habitat is composed primarily of tall tree species such as willows, cottonwood, and sycamore that are adapted to wet conditions, and are found in streambeds and other wet areas. Within the Bank, this vegetation community has an average of 28% nonnative cover contributed by Peruvian pepper tree, tamarisk, and fennel. This vegetation community still supports high avian diversity and abundance, and provide nesting habitat for species such as yellow warbler (*Setophaga petechia*), Cooper's hawk (*Accipiter cooperii*), and willow flycatcher (*Empidonax traillii*).

3.7.18 Southern Interior Cypress Forest

This community is considered a sensitive natural community by the California Natural Diversity Database (CNDDB) and applicable local jurisdictions. It is typically a dense, fire-maintained, low forest of even-aged stands of Tecate cypress, often surrounded by chaparral. The Bank contains stands of Tecate cypress, a tree found only in four isolated groves in Orange County and San Diego County, and in Baja California, Mexico and is an intact native community with only 2% cover of nonnatives. In San Diego County, groves occur on Guatay Mountain, Otay Mountain, and Tecate Peak. The majority of the Otay Mountain population burned during the Otay Fire in 2003, and most of the Tecate Peak population burned during the Harris Fire of 2007. The rare Thorne's hairstreak butterfly (*Callophrys* [*Mitoura*] *gryneus thornei*) is completely dependent on this species for its survival; this butterfly lays eggs only upon this species of cypress.

3.7.19 Southern Willow Scrub (Disturbed)

Southern willow scrub communities are riparian thickets dominated by several willow species, mulefat, and occasionally western cottonwood. Many stands are too dense to allow much understory development. Within the Bank this community included Goodding's black willow (*Salix gooddingii*), cattail, Mexican fan palm (*Washingtonia robusta*), arundo, Canary Island date palm, and Peruvian pepper tree. The nonnative species contribute 25% of nonnative cover. Southern willow scrub in the Bank supports the federally and state-listed as endangered LBV and provides suitable nesting habitat for a variety of bird species protected by the MBTA.

3.7.20 Tamarisk Scrub

This community comprises a weedy, virtual monoculture of tamarisk species. These stands often occur as a result of major disturbance. Tamarisk outcompetes native species due to its extensive lateral root system that can draw down the water table, and it develops very deep roots. Its leaves secrete salt crystals that when introduced into the soil can prevent native plants from establishing. Tamarisk is also a prolific seeder and has replaced riparian habitat within the floodplain that was disturbed as a result of sand-mining activities. Tamarisk is widespread throughout the river and floodplain in the Bank providing 85% nonnative cover within this vegetation type.

3.7.21 Valley Needlegrass Grassland

Valleys and Foothill Grassland are a low-growing (less than 2 feet) grassland habitat dominated by perennial, tussock-forming purple needlegrass (*Stipa* [previously *Nasella*] *pulchra*). Native and introduced annuals occur between the perennials, often actually exceeding the bunchgrasses in cover. In San Diego County, native perennial herbs such as sanicles (*Sanicula* spp.), checkerbloom (*Sidalcea* spp.), blue-eyed grass (*Sisirynchium bellum*), California poppy (*Eschscholzia californica*), or goldfields (*Lasthenia* spp.) are present. Non-native grasses occurring include those described in the non-native grassland vegetation community above. The percentage cover of native species at any one time may be

quite low but is considered native grassland if 20% aerial cover of native species is present. Within the Bank, this vegetation community only has 20% nonnative cover; 80% of the cover is native. The nonnative cover is composed of Australian saltbush (*Atriplex semibaccata*), wild oat, foxtail brome, Italian rye grass (*Festuca perennis*), and redstem stork's bill.

3.8 SPECIAL-STATUS SPECIES

At this time, the presence of many wildlife species within the Bank site is limited due to the lack of suitable habitat and the disturbed nature of the site; however, the site does still contain several listed and unlisted species. Special-status species surveys, including pre-field work database searches, have been conducted over the last several years for the eastern portion of the Bank located on City of Chula Vista property (BEI Exhibit H), and surveys for the western portion of the site were conducted in spring/summer 2018. Prior to conducting fieldwork, the CNDDB was reviewed for the most recent distribution information for special-status plant and wildlife species within the Otay Lakes USGS quadrangles.

Special-status species are those that meet any of the following criteria.

- Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (Code of Federal Regulations [CFR], Title 50, Section 17.12 [listed plants]); 50 CFR 17.11 (listed animals); and various notices in the *Federal Register* (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the FESA (79 FR 72450, December 5, 2014).
- Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Plant species listed as rare under the California Native Plant Protection Act (California Fish and Game Code 1900, et seq.).
- Species that meet the definitions of “rare” or “endangered” under the California Environmental Quality Act (CEQA Guidelines Sections 15380 and 15125).
- Special vascular plants, bryophytes, and lichens listed on the California Rare Plant Ranking.
- Animal species of special concern to the CDFW.
- Bird species of conservation concern as identified by USFWS in Birds of Conservation Concern 2008.
- Animals that are fully protected in California (California Fish and Game Code Sections 3511 [birds], 4,700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Species protected by the following regional and local plans:
    - County of San Diego, South County Multiple Species Conservation Program
    - County of San Diego Multiple Species Conservation Subarea Plan
    - City of Chula Vista Multiple Species Conservation Subarea Plan
    - City of San Diego Multiple Species Conservation Subarea Plan
    - City of Chula Vista Wetlands Protection Program
    - Otay Ranch Resource Management Plan

Annual Reports for the Otay Ranch Preserve (RECON 2009–2018) and the CNDDB (CDFW 2018) were reviewed for information on special-status plant and wildlife species observed or potentially occurring within the Bank. The CNDDB search was conducted within a 1-mile radius centered on the Otay Mesa USGS 7.5-minute quadrangle map.

The CNDDB search revealed 53 species of plants and wildlife (29 plants and 24 wildlife) that were recorded within 1 mile of the Bank. An additional 66 plant species and 49 wildlife species with no CNDDB records within 1 mile of the Bank were also evaluated for potential to occur within the project area based on species range, habitat requirements, and observations by biologists.

Federally and/or state-listed plant and wildlife species that are known to occur in the Bank or within 1 mile are presented in Table 3-2.

Table 3-2. Federally and/or State-Listed Species with CNDDB Records Within a 1-Mile Radius of the Bank

Scientific Name	Common Name	Status	Nearest Distance (feet)
Plants			
Deinandra conjugens	Otay tarplant	FT, SE	Found on site
Eryngium aristulatum var. parishii	San Diego button-celery	FE, SE	180
Navarretia fossalis	Spreading navarretia	FT	Found on site
Pogogyne nudiuscula	Otay Mesa mint	FE, SE	1,982
Wildlife			
Branchinecta sandiegonensis	San Diego fairy shrimp	FE	Found on site
Streptocephalus woottoni	Riverside fairy shrimp	FE	423
Euphydryas editha quino	Quino checkerspot butterfly	FE	660
Vireo bellii pusillus	Least Bell's vireo	FE, SE	Found on site
Polioptila californica	Coastal California gnatcatcher	FT	Found on site
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FT, SE	4

Federal

FE = listed as endangered under the federal Endangered Species Act.

FT = listed as threatened under the federal Endangered Species Act.

State

SE = listed as endangered under the California Endangered Species Act.

3.8.1 Special-Status Plant Species Known from Within or Adjacent to the Bank

Based on searches of the CNDDB and California Native Plant Society Online Inventory, 67 sensitive plant species are known from the vicinity of the Bank, 22 of which were detected within or adjacent to the Bank. These 22 species are discussed below and displayed on Figures 3-6a–e. Eleven sensitive plant species have a "high" probability of occurring within the Bank due to presence of suitable habitat and proximity of extant populations to the Bank. These 11 sensitive plant species are also discussed below.

Special-status plant species observed or with a high potential to occur within and adjacent to the Bank include California adolphia (*Adolphia californica*), San Diego bur-sage (*Ambrosia chenopodifolia*), singlewhorl burrobush (*Ambrosia monogyra*), Otay manzanita (*Arctostaphylos otayensis*), south coast

saltscale (*Atriplex pacifica*), San Diego sunflower (*Bahiopsis laciniata*), San Diego goldenstar (*Bloomeria clevelandii*), Orcutt's brodiaea (*Brodiaea orcuttii*), round-leaved filaree (*California macrophylla*), Otay Mountain ceanothus (*Ceanothus otayensis*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), snake cholla (*Cylindropuntia californica* var. *californica*), Otay tarplant (*Deinandra conjugens*), variegated dudleya (*Duldleya variegata*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), San Diego barrel cactus (*Ferocactus viridescens*), Palmer's grapplinghook (*Harpagonella palmeri*), Tecate cypress (*Hesperocyparis forbesii*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), San Diego marsh-elder (*Iva hayesiana*), southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*), little mousetail (*Myosurus minimus* ssp. *apus*), spreading navarretia (*Navarretia fossalis*), Nuttall's scrub oak (*Quercus dumosa*), Munz's sage (*Salvia munzii*), ashy spike-moss (*Selaginella cinerascens*), chaparral ragwort (*Senecio aphanactis*), blue streamwort (*Stemodia durantifolia*), Otay Mesa Mint (*Pogogyne nudiuscula*), and San Diego County needlegrass (*Stipa diegoensis*).

3.8.1.1 Special-Status Plant Species Observed Within or Adjacent to the Bank

3.8.1.1.1 SINGLEWHORL BURROBUSH (*AMBROSIA MONOGYRA*) – CRPR LIST 2B.2

Singlewhorl burrobush is an evergreen shrub in the sunflower family (Asteraceae) that ranges from southern California to Texas, and south to Sonora, Mexico. This species typically occurs along the edge of intermittent drainages, riparian ecotones, and floodplains.

Singlewhorl burrobush was detected in scattered locations within the riparian zones, floodplains, and uplands within the Bank by RECON in 2011 through 2013 and by ICF in 2018.

3.8.1.1.2 OTAY MANZANITA (*ARCTOSTAPHYLOS OTAYENSIS*) – CRPR 1B.2; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF SAN DIEGO MSCP COVERED SPECIES

Otay manzanita is an evergreen shrub and is endemic to southern San Diego County. This species occurs within chaparral on soils derived from metavolcanic rock.

Otay manzanita was detected in one location just south of the Bank by RECON in 2011 and 2012, and by ICF in 2018.

3.8.1.1.3 SOUTH COAST SALTSCALE (*ATRIPLEX PACIFICA*) – CRPR 1B.2; SAN DIEGO COUNTY LIST A

South coast saltscale (South coast saltbush) is a small, decumbent, herbaceous annual usually occurring in open Diegan coastal sage scrub in areas devoid of larger shrubs. South coast saltscale is considered to have a high potential to occur within the Bank due to the presence of suitable habitat and an extant population occurring immediately south of the Bank. However, it is not expected to occur within the limits of grading due to a lack of suitable habitat.

South coast saltbush was detected in one location by RECON in 2012, just south of the Bank. This species was not detected by ICF in 2018. Lack of sufficient rainfall and severe drought are likely reasons for the absence of detection during the 2018 surveys.

3.8.1.1.4 SAN DIEGO SUNFLOWER (*BAHIOPSIS LACINIATA*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

San Diego sunflower (San Diego County Viguiera) is a small to medium sized shrub that typically occurs in clay soils within chaparral and coastal sage scrub on south-facing slopes from Orange County south to Baja California and Sonora, Mexico.

San Diego sunflower was detected in scattered locations in coastal sage scrub within the Bank by RECON in 2011 through 2013 and by ICF in 2018.

3.8.1.1.5 SAN DIEGO GOLDENSTAR (*BLOOMERIA CLEVELANDII*) – CRPR 1B.1; SAN DIEGO COUNTY LIST A; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

San Diego goldenstar is a corm-based herbaceous perennial that ranges from Riverside and San Diego Counties south to Baja California, Mexico. This species prefers needlegrass grasslands, especially near mima mound topography or the vicinity of vernal pools (Reiser 2001).

San Diego goldenstar was detected by RECON in 2010 about 0.25 mile east of the Bank. San Diego goldenstar was not detected by ICF in 2018. Lack of sufficient rainfall and severe drought are likely reasons for the absence of detection during the 2018 surveys.

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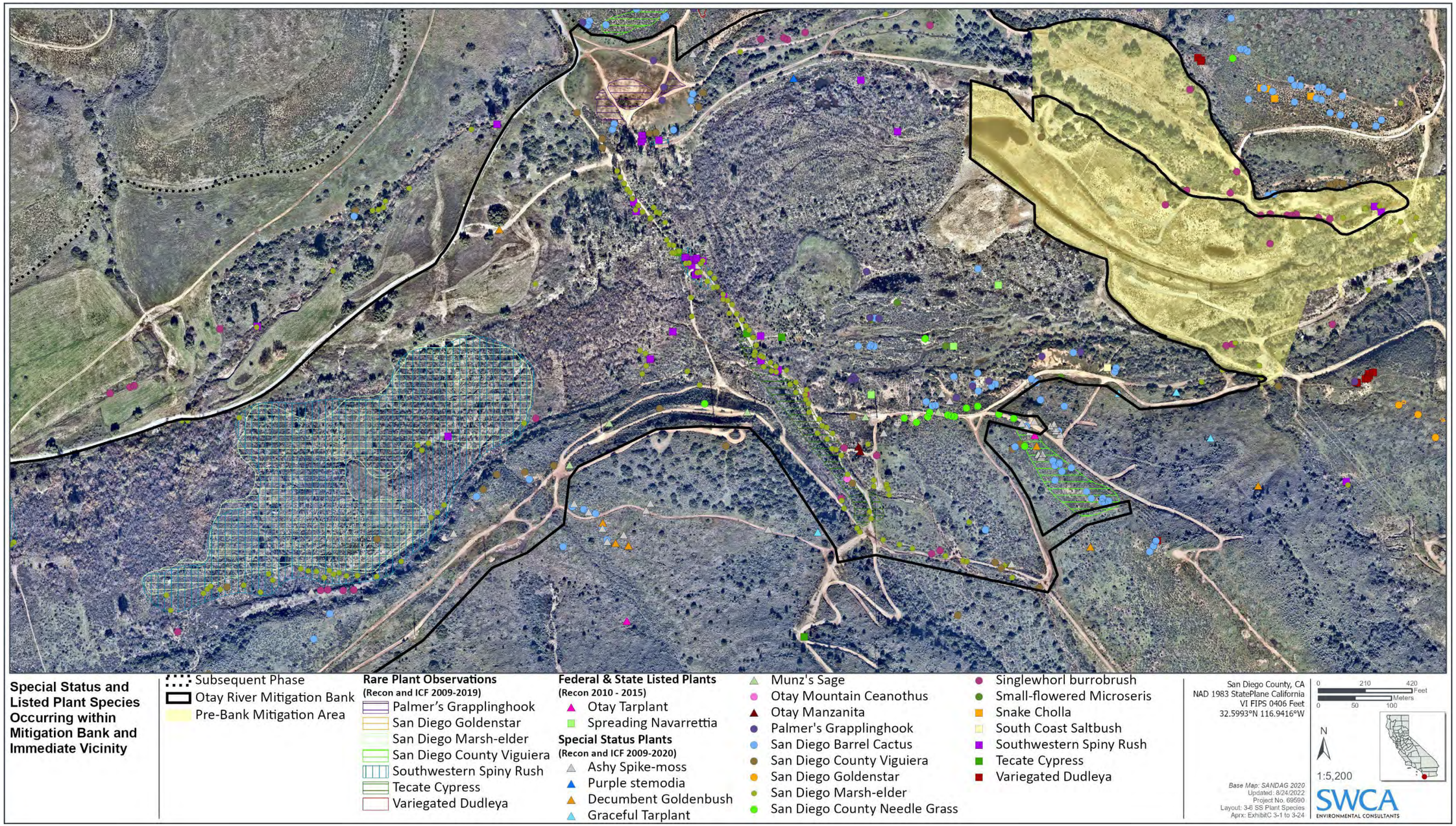


Figure 3-6a. Overview, special-status, and listed plant species occurring within the Mitigation Bank. Error! Bookmark not defined.

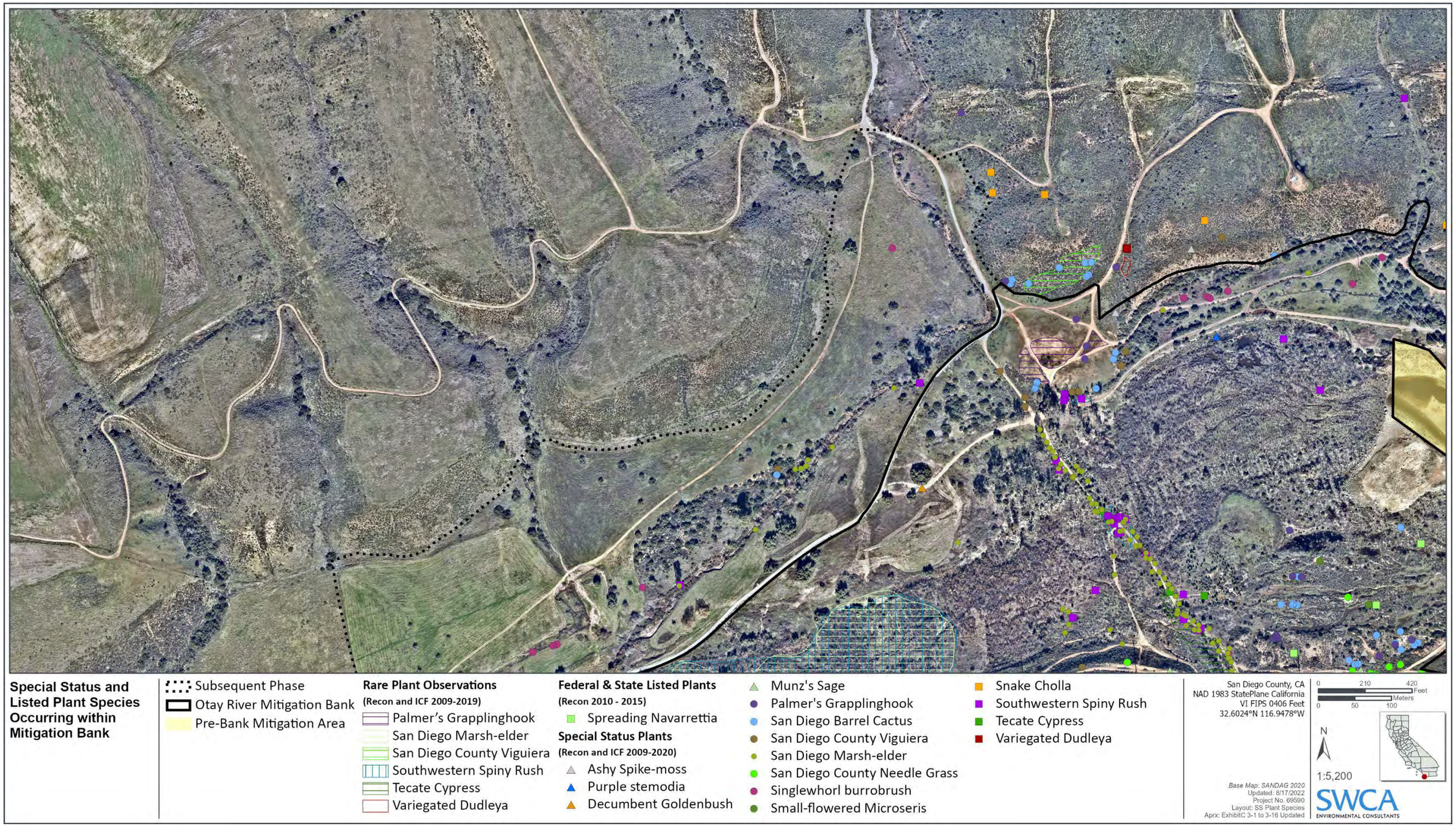


Figure 3-6b. Sheet 1, special-status and listed plant species occurring within Mitigation Bank.

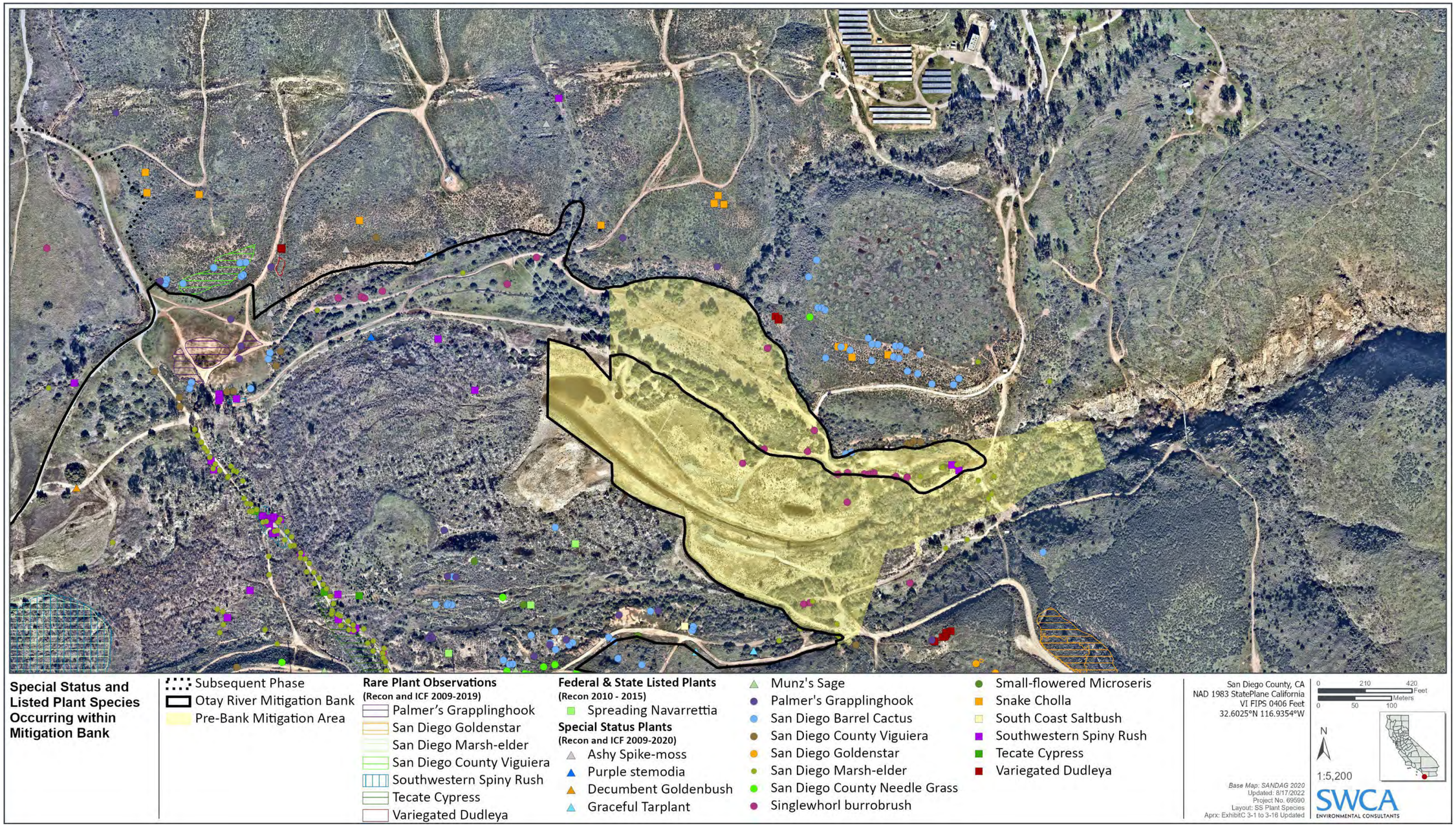


Figure 3-6c. Sheet 2, special-status and listed plant species occurring within Mitigation Bank.

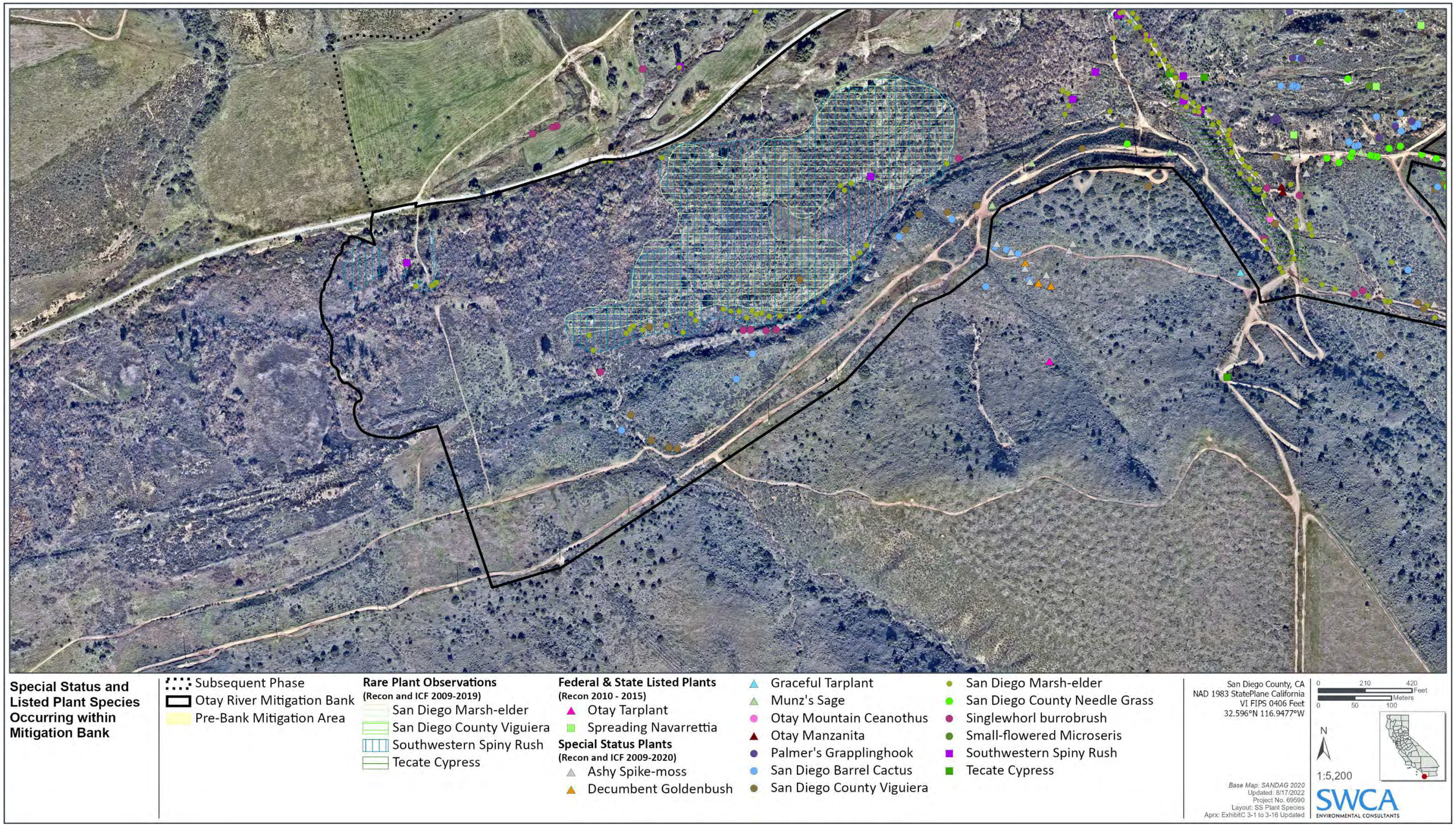


Figure 3-6d. Sheet 3, special-status and listed plant species occurring within Mitigation Bank.

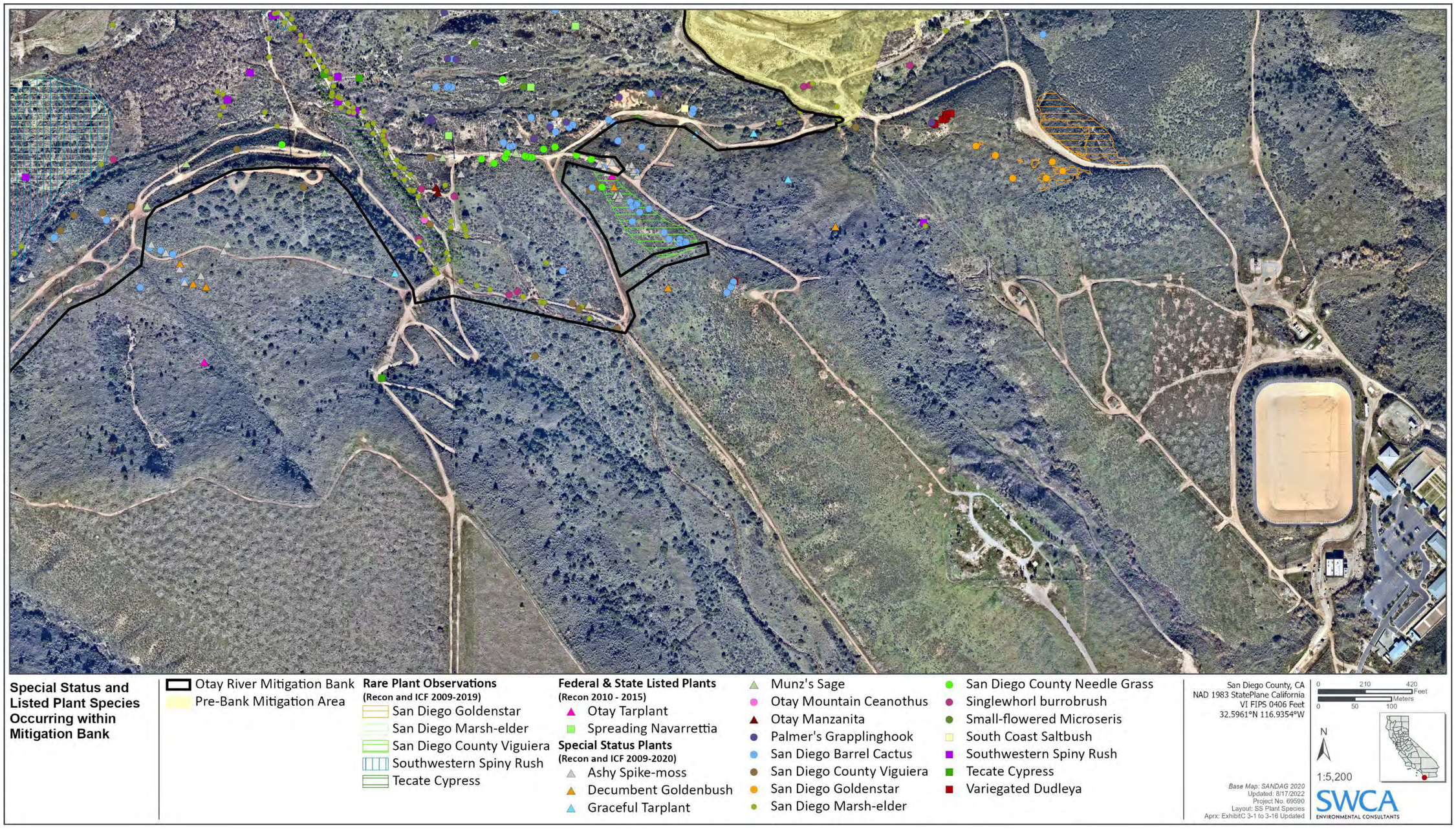


Figure 3-6e. Sheet 4, special-status and listed plant species occurring within Mitigation Bank.

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3.8.1.1.6 OTAY MOUNTAIN CEANOTHUS (*CEANOTHUS OTAYENSIS*) – CRPR 1B.2

Otay Mountain ceanothus is an evergreen shrub that ranges from southern San Diego County to Baja California, Mexico. This species occurs in chaparral on soils derived from metavolcanic or gabbroic rock.

Otay Mountain ceanothus was detected in one location in the south-central portion of the Bank vicinity by RECON in 2010 but was not observed by ICF during 2018 surveys. Due to the lack of detection of this large, evergreen shrub in 2018, it is possible that this species no longer occurs within the Bank.

3.8.1.1.7 SNAKE CHOLLA (*CYLINDROPUNTIA CALIFORNICA* VAR. *CALIFORNICA*) – CRPR 1B.1; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Snake cholla is a prostrate to suberect perennial stem succulent that ranges from southern San Diego County to Baja California, Mexico. This species occurs within Diegan coastal sage scrub, usually on xeric hillsides.

Snake cholla was detected scattered east of the Bank by RECON in 2010. Snake cholla was not detected by ICF in 2018; however, primarily only the western portion of the Bank was surveyed. It is assumed snake cholla is extant within upland areas of the Bank.

3.8.1.1.8 OTAY TARPLANT (*DEINANDRA CONJUGENS*) – FEDERALLY THREATENED, STATE ENDANGERED, CRPR 1B.1; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Otay tarplant is an annual herb that grows to approximately 20 inches in height and has aromatic deep green or gray-green leaves covered with soft shaggy hairs. The species is endemic to southwestern San Diego County and adjacent Baja California, Mexico. This species prefers heavy clay soils in valley and foothill grasslands or sparsely vegetated Diegan coastal sage scrub.

Otay tarplant surveys were conducted by RECON in 2012 within the eastern portion of the Bank on City of Chula Vista property and adjacent lands. Otay tarplant was observed in two locations on the hillside south of the Otay River outside the Bank limits. ICF conducted 2018 surveys and did not detect any plants. Lack of sufficient rainfall and severe drought are likely reasons for the absence of detection during the 2018 surveys. Figures 3-6a – 3-6e depicts the locations of Otay tarplant.

3.8.1.1.9 VARIEGATED DUDLEYA (*DUDLEYA VARIEGATA*) – CRPR 1B.2; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Variegated dudleya is found on clay soils within grassland, chaparral, and coastal scrub. This species is known only from San Diego County and Baja California, Mexico. Variegated dudleya blooms in the late spring with small, yellow, star-shaped flowers.

Variegated dudleya was observed outside the Bank limits, to the southeast and northwest by RECON in 2009 and 2011 through 2013. Variegated dudleya was not detected by ICF in 2018; however, primarily only the western portion of the Bank was surveyed. It is assumed variegated dudleya is extant within upland areas of the Bank.

3.8.1.1.10 SAN DIEGO BARREL CACTUS (*FEROCACTUS VIRIDESCENS*) – CRPR 2B.1; SAN DIEGO COUNTY LIST B; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

San Diego barrel cactus occurs within grassland, coastal sage scrub, and chaparral. It is a perennial stem succulent that occurs only in coastal and foothill areas of San Diego County and Baja California, Mexico (Reiser 2001).

San Diego barrel cactus was observed primarily outside the Bank on hillsides with open coastal sage scrub by RECON in 2011 through 2013 and by ICF in 2018. It was also observed within the southern portion of the Bank in upland and high floodplain habitat.

3.8.1.1.11 PALMER'S GRAPPLINGHOOK (*HARPAGONELLA PALMERI*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

Palmer's grappling hook occurs on heavy clay soils within grassland and coastal sage scrub openings. This diminutive annual blooms in early spring and is present in scattered locations throughout Southern California and Baja California, Mexico.

Palmer's grapplinghook was observed north, south and within the Bank in several locations by RECON in 2010 through 2013, and by ICF in 2018.

3.8.1.1.12 TECATE CYPRESS (*HESPEROCYPARIS FORBESII*) – CRPR 1B.1, SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF SAN DIEGO MSCP COVERED SPECIES

Tecate cypress is an evergreen coniferous tree that ranges from Orange County south to Baja California, Mexico. This species occurs on well-drained, north-facing slopes in closed cone coniferous forest and southern mixed chaparral. Large populations of this species on Otay Mountain are threatened by recurrent fires.

Tecate cypress was observed in the south-central portion of the Bank near the confluence of the Otay River valley and the southern tributary by RECON in 2010 through 2013, and by ICF in 2018.

3.8.1.1.13 GRACEFUL TARPLANT (*HOLOCARPHA VIRGATA* SSP. *ELONGATA*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

Graceful tarplant occurs in grasslands with clay soils but also may be found in openings in coastal sage scrub, chaparral, and woodlands. This species occurs from Riverside County south to Baja California, Mexico.

Graceful tarplant was observed south of and outside the Bank limits scattered throughout open areas within coastal sage scrub and non-native grasslands by RECON in 2010, and by ICF in 2018.

3.8.1.1.14 DECUMBENT GOLDENBUSH (*ISOCOMA MENZIESII* VAR. *DECUMBENS*) – CRPR 1B.2; SAN DIEGO COUNTY LIST A

Decumbent goldenbush is a perennial shrub that ranges from Los Angeles County south to Baja California, Mexico. This species typically occurs on clay soils within coastal sage scrub intermixed with grassland. The *Isocoma menziesii* complex is a very confusing plant taxonomic group, and, as a result, the status of decumbent goldenbush in San Diego County is poorly understood.

Decumbent goldenbush was observed south of and outside the Bank limits by RECON in 2011 through 2013. It was not observed by in 2018; however, primarily only the western end of the Bank was surveyed by ICF in 2018.

3.8.1.1.15 SAN DIEGO MARSH-ELDER (*IVA HAYESIANA*) – CRPR 2B.2; SAN DIEGO COUNTY LIST B

San Diego marsh-elder is a spring to summer flowering perennial herb. It occurs in marshes and swamps, on playas, and along stream channels in San Diego County and Baja California, Mexico.

San Diego marsh-elder was observed in numerous locations, including within the Bank, by RECON in 2010 and by ICF in 2018.

3.8.1.1.16 SOUTHWESTERN SPINY RUSH (*JUNCUS ACUTUS* SSP. *LEOPOLDII*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

Southwestern spiny rush (Leopold's rush) is a large, perennial, rhizomatous, herb, found in moderately brackish coastal salt marshes, riparian marshes, and alkaline meadows. This species ranges from San Luis Obispo County south into Baja California, Mexico.

Southwestern spiny rush was commonly observed within the riparian zone and floodplain of the Bank by RECON in 2010, and by ICF in 2018.

3.8.1.1.17 SMALL-FLOWERED MICROSERIS (*MICROSERIS DOUGLASII* SSP. *PLATYCARPHA*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

Small flowered microseris is a diminutive annual herb that ranges from Los Angeles County south to Baja California, Mexico. This species is typically found on clay lenses in grasslands, on the periphery of vernal pools, or within vernal pools.

Small-flowered microseris was observed in three locations by RECON in 2013, two within the southeastern portion of the Bank and one near these locations but outside the Bank. ICF did not observe this species during the 2018 surveys. Lack of sufficient rainfall and severe drought are likely reasons for the absence of detection during the 2018 surveys.

3.8.1.1.18 SPREADING NAVARRETIA (*NAVARRETIA FOSSALIS*) – FEDERALLY THREATENED; CRPR 1B.1; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Spreading navarretia is an annual herb, with a low, mostly spreading growth-form that can reach a height of 6 inches. The species typically blooms in May and June, producing white to lavender flowers in flat-

topped, leafy heads. It is found in vernal pool complexes extending from Los Angeles County, south through coastal San Diego County, and farther south to Baja California, Mexico.

Spreading navarretia surveys were conducted by RECON in 2012 within the eastern portion of the Bank on City of Chula Vista property and adjacent lands. Spreading navarretia was observed in two locations—one within and one outside the Bank, both on the south side of the Otay River. In 2019, spreading navarretia was observed by ICF in two vernal pools found on a floodplain terrace south of the Otay River. One pool had approximately five individuals while the second pool had over 1,000 spreading navarretia individuals. Figures 3-6a – 3-6e depicts the location of spreading navarretia from 2012 and 2019.

3.8.1.1.19 MUNZ'S SAGE (*SALVIA MUNZII*) – CRPR 2B.2; SAN DIEGO COUNTY LIST B

Munz's sage is a perennial evergreen shrub that occurs in chaparral and coastal scrub in southern San Diego County and Baja California, Mexico. This species is mostly confined to the Otay Mesa and Otay Mountain areas within San Diego County.

Munz's sage was commonly observed within coastal sage scrub, but outside the Bank, by RECON in 2010 through 2013, and by ICF in 2018.

3.8.1.1.20 ASHY SPIKE-MOSS (*SELAGINELLA CINERASCENS*) – CRPR 4.1; SAN DIEGO COUNTY LIST D

Ashy spike-moss occurs within openings of coastal sage scrub and chaparral. It is found in Orange and San Diego Counties and Baja California, Mexico. This perennial, rhizomatous herb grows as a flat groundcover on the soil surface.

Ashy spike-moss was observed in several locations within and outside the Bank by RECON in 2009 through 2013, and by ICF in 2018.

3.8.1.1.21 BLUE STREAMWORT (*STEMODIA DURANTIFOLIA*) – CRPR 2B.1; SAN DIEGO COUNTY LIST B

Blue streamwort is a small perennial herb that ranges from Riverside County, east to Texas, and south to Sonora, Oaxaca, and Baja California, Mexico. This species is typically found growing in wet sand along minor creeks and seasonal drainages.

Blue streamwort was observed within the eastern portion of the Bank by RECON in 2012, in two locations. It was not observed by ICF in 2018; however, the 2018 surveys primarily surveyed the western portion of the Bank.

3.8.1.1.22 SAN DIEGO COUNTY NEEDLEGRASS (*STIPA DIEGOENSIS*) – CRPR 4.2; SAN DIEGO COUNTY LIST D

San Diego County needlegrass is a robust perennial bunch grass that ranges from southwestern San Diego County to Baja California, Mexico. This species occurs in coastal sage scrub in southwestern San Diego County and is closely associated with metavolcanic soils.

San Diego County needlegrass was observed south of the Bank by RECON in 2012, and by ICF in 2018.

3.8.1.2 Special-Status Plant Species with High Potential to Occur Within the Bank

3.8.1.2.1 CALIFORNIA ADOLPHIA (*ADOLPHIA CALIFORNICA*) – CRPR 2B.1; SAN DIEGO COUNTY LIST B

California adolphia is a short spiny shrub, often intermixed with coastal sage scrub, but occasionally occurring on the periphery of coastal sage scrub habitats (Reiser 2001).

The Bank contains suitable soils and habitat, and an extant population occurs immediately to the southwest of the site. However, California adolphia is not expected to occur within the limits of the Bank based on the absence of detection during surveys from 2009 through 2018.

3.8.1.2.2 SAN DIEGO BUR-SAGE (*AMBROSIA CHENOPODIFOLIA*) – CRPR 2B.1; SAN DIEGO COUNTY LIST B

San Diego bur-sage is a small shrub typically found within dry exposed areas of open Diegan coastal sage scrub (Reiser 2001).

San Diego bur-sage is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring approximately 0.5 mile southwest of the Bank. This species has a high potential to occur within the limits of the Bank.

3.8.1.2.3 ORCUTT'S BRODIAEA (*BRODIAEA ORCUTTII*) – CRPR 1B.1; SAN DIEGO COUNTY LIST A; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Orcutt's brodiaea is a perennial corm-sprouting herbaceous plant often found growing in vernally moist grasslands and on the periphery of vernal pools (Reiser 2001).

Orcutt's brodiaea is considered to have a high potential to occur within the limits of the Bank due to the presence of suitable habitat and an extant population occurring approximately 0.25 mile southwest of the Bank. However, Orcutt's brodiaea was not detected within the Bank during surveys from 2009 through 2018.

3.8.1.2.4 ROUND-LEAVED FILAREE (*CALIFORNIA MACROPHYLLA*) – CRPR 1B.1; SAN DIEGO COUNTY LIST B

Round-leaved filaree is an annual herbaceous plant that is typically found in grasslands in open areas on friable clay soils (Reiser 2001).

Round-leaved filaree is considered to have a high potential to occur within the limits of the Bank due to the presence of suitable habitat and an extant population occurring approximately 0.5 mile west of the Bank. However, round-leaved filaree was not detected within the Bank during surveys from 2009 through 2018.

3.8.1.2.5 LONG-SPINED SPINEFLOWER (*CHORIZANTHE POLYGONOIDES* VAR. *LONGISPINA*) – CRPR 1B.2; SAN DIEGO COUNTY LIST A

Long-spined spineflower is a mostly prostrate annual herb typically occurring on clay lenses that are largely devoid of shrubs and can also be occasionally found on the periphery of vernal pools (Reiser 2001).

Long-spined spineflower is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring approximately 1.0 mile north of the Bank. However, long-spined spineflower was not detected within the Bank during surveys from 2009 through 2018.

3.8.1.2.6 SAN DIEGO BUTTON-CELERY (*ERYNGIUM ARISTULATUM* VAR. *PARISHII*) – FEDERALLY ENDANGERED; STATE ENDANGERED; CRPR 1B.1; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

San Diego button-celery is a spreading biennial herb usually restricted to vernal pools or mima mound areas with vernally moist conditions (Reiser 2001).

San Diego button-celery is considered to have a high potential to occur within the Bank due to the presence of suitable habitat and an extant population occurring immediately south of the Bank; however, it has not been observed in the Bank.

3.8.1.2.7 ROBINSON'S PEPPER-GRASS (*LEPIDIUM VIRGINICUM* VAR. *ROBINSONII*) – CRPR 4.3; SAN DIEGO COUNTY LIST A

Robinson's pepper-grass is an annual herb that is typically found within dry exposed locales within openings in chaparral, sage scrub, or grassland communities (Reiser 2001).

Robinson's pepper-grass is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring immediately south of the Bank. However, Robinson's pepper-grass was not detected within the Bank during surveys from 2009 through 2018.

3.8.1.2.8 LITTLE MOUSETAIL (*MYOSURUS MINIMUS* SSP. *APUS*) – CRPR 3.1; SAN DIEGO COUNTY LIST C

Little mousetail is a cryptic annual herb restricted to vernal pools, usually found in deeper portions of vernal pool basins (Reiser 2001).

Little mousetail is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring immediately south of the Bank. However, little mousetail was not detected within the Bank during surveys from 2009 through 2019.

3.8.1.2.9 OTAY MESA MINT (*POGOGYNE NUDIUSCULA*) – FEDERALLY ENDANGERED; STATE ENDANGERED; CRPR 1B.1; SAN DIEGO COUNTY LIST A; COUNTY MSCP COVERED SPECIES; CITY OF CHULA VISTA MSCP NARROW ENDEMIC; CITY OF SAN DIEGO MSCP COVERED SPECIES

Otay Mesa mint is a small aromatic herb restricted to vernal pools (Reiser 2001).

Otay Mesa mint is considered to have a high potential to occur within the Bank due to the presence of suitable habitat and an extant population occurring immediately south of the Bank. However, Otay Mesa mint was not detected within the Bank during surveys from 2009 through 2019.

3.8.1.2.10 NUTTALL'S SCRUB OAK (*QUERCUS DUMOSA*) – CRPR 1B.1; SAN DIEGO COUNTY LIST A

Nuttall's scrub oak is an evergreen shrub in the oak family (Fagaceae) that ranges from Santa Barbra County south to Baja California, Mexico. This species occurs in coastal chaparral with a relatively open canopy in areas of flatter terrain and can form dense monotypic stands on north-facing slopes.

Nuttall's scrub oak is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring immediately southwest of the Bank. However, Nuttall's scrub oak was not detected within the Bank during surveys from 2009 through 2018.

3.8.1.2.11 CHAPARRAL RAGWORT (*SENECIO APHANACTIS*) – CRPR 2B.2; SAN DIEGO COUNTY LIST B; CITY OF SAN DIEGO MSCP COVERED SPECIES

Chaparral ragwort is an annual herb found in areas of open coastal sage scrub and cismontane woodland (Reiser 2001).

Chaparral ragwort is considered to have a high potential to occur due to the presence of suitable habitat and an extant population occurring immediately south of the Bank. However, chaparral ragwort was not detected within the Bank during surveys from 2009 through 2018.

3.8.2 Special-Status Wildlife Species Detected Within and Adjacent to the Bank

Based on searches of the CNDDB Online Inventory and observations by RECON and ICF biologists, 73 special-status wildlife species are known from the vicinity of the Bank. Special-status species that have been observed within or adjacent to the Bank by RECON between 2009 and 2018 and ICF biologists between 2018 and 2021 during their field surveys are discussed below. Figure 3-7 depicts non-listed special-status species.

3.8.2.1 San Diego Fairy Shrimp (Branchinecta sandiegonensis) – Federally Listed as Endangered and Riverside Fairy Shrimp (Streptocephalus woottoni) – Federally Listed as Endangered

San Diego fairy shrimp are small freshwater crustaceans that are found in shallow vernal pools and other ephemeral basins (USFWS 2002). San Diego fairy shrimp is found in southwestern coastal California and extreme northwestern Baja California, Mexico, with all known localities below 2,300 feet and within 40 miles of the Pacific Ocean, from Santa Barbara County south to northwestern Baja California (USFWS 1997, 1998, 2002). These species can also occur in road ruts and ditches that provide suitable conditions for the species. Water temperature is an important factor for this fairy shrimp. The water must not get too hot (above 86°F) or too cold (below 41°F) for this species to occur (USFWS 2002). San Diego fairy shrimp were historically prevalent in vernal pool complexes across Otay Mesa (USFWS 2008).

Riverside fairy shrimp are limited to a small number of vernal pools, all in Riverside, San Diego, or coastal Orange counties or Baja California. This small (less than an inch long) shrimp spends late spring and summer as an encysted embryo, lying in the soil left behind when the pools dry up. After the rains of winter arrive, filling the pools again, the larvae emerge and mature into adults, filter feeding on detritus and zooplankton. This process may require as much as 2 months to complete, depending on water temperature. Because of this relatively long development period, *S. woottoni* tends to be found only in deeper, more dependable pools. Survival of this species is further challenged by its inability to tolerate muddy, salty, or alkaline conditions. Listed as endangered on August 2, 1993, major threats include habitat loss due to urban and agricultural development, unauthorized off-road vehicles, trampling, and other human-initiated disturbance.

Dry-season sampling was conducted in the eastern portion of the Bank in the City of Chula Vista parcel and adjacent lands in 2017 (Appendix C). *Branchinecta* species cysts were found in 23 of the 30 sampled pools. No Riverside fairy shrimp cysts were found. Wet season sampling is needed to positively identify if the *Branchinecta* cysts are San Diego fairy shrimp or Lindahl's fairy shrimp. Wet season sampling was conducted within the eastern portion of the Bank in the City of Chula Vista parcel and adjacent lands in winter 2017–2018 (Appendix D). Lindahl's fairy shrimp were observed in 8 of the 30 sampled pools. No San Diego fairy shrimp or Riverside fairy shrimp were observed in any of the areas sampled. Within the eastern portion of the Bank, San Diego fairy shrimp have previously been seen in road ruts along existing dirt roads during surveys conducted by RECON, with the majority occurring outside the Bank limits.

Dry-season sampling was conducted in the western portion of the Bank and adjacent lands in summer 2018 (Appendix E). *Branchinecta* species cysts were found in 13 of the 28 sampled pools. No Riverside fairy shrimp cysts were found. Wet season sampling was conducted in the Bank and adjacent lands in fall/winter 2018–2019 (Appendix F). Forty-four basins supported San Diego fairy shrimp and 59 basins supported Lindahl's fairy shrimp. No Riverside fairy shrimp were observed in any pool sampled. Dry season sampling was also conducted in the Bank in 2019. *Branchinecta* species cysts were found in 12 pools and no Riverside fairy shrimp cysts were found. Figure 3-8 depicts the compilation of all fairy shrimp surveys conducted in the project area as well as data provided by the preserve land manager.

3.8.2.2 Quino Checkerspot Butterfly (Euphydryas editha quino) – Federally Listed as Endangered

Quino checkerspot butterfly (Quino) is a subspecies of Edith's checkerspot (*E. editha*) and is a member of the Nymphalidae family, and the Melitaeinae subfamily, checkerspots and fritillaries. Primary host plants for the Quino are dot-seed plantain (*Plantago erecta*), thread-leaved bird's beak (*Cordylanthus rigidus*), and white snapdragon (*Antirrhinum coulterianum*). Larval Quino may also use other species of plantain (*Plantago* spp.) and annual owl's clover (*Castilleja exerta*) as primary or secondary host plants and would diapause in or near the base of native shrubs, such as California buckwheat. Quino are generally found in open areas and ecotone situations that may occur in a number of plant communities, and optimal habitat appears to contain little or no invasive exotic vegetation; densely vegetated areas are not known to support Quino (Mattoni et al. 1997). Habitat patch suitability is determined primarily by larval host plant density, topographic diversity, nectar resource availability, and climatic conditions (USFWS 2003).

Quino surveys were conducted by RECON within the eastern portion of the Bank located on City of Chula Vista property and adjacent lands in 2013. Quino was observed by RECON biologists east of the Bank. Quino surveys were also conducted by ICF in April and May 2018 in the western portion of the Bank and surrounding lands (Exhibit H in the BEI). No Quino were observed. Figure 3-9 depicts the survey results. Suitable habitat occurs primarily north and south of the Bank outside of the Bank limits.

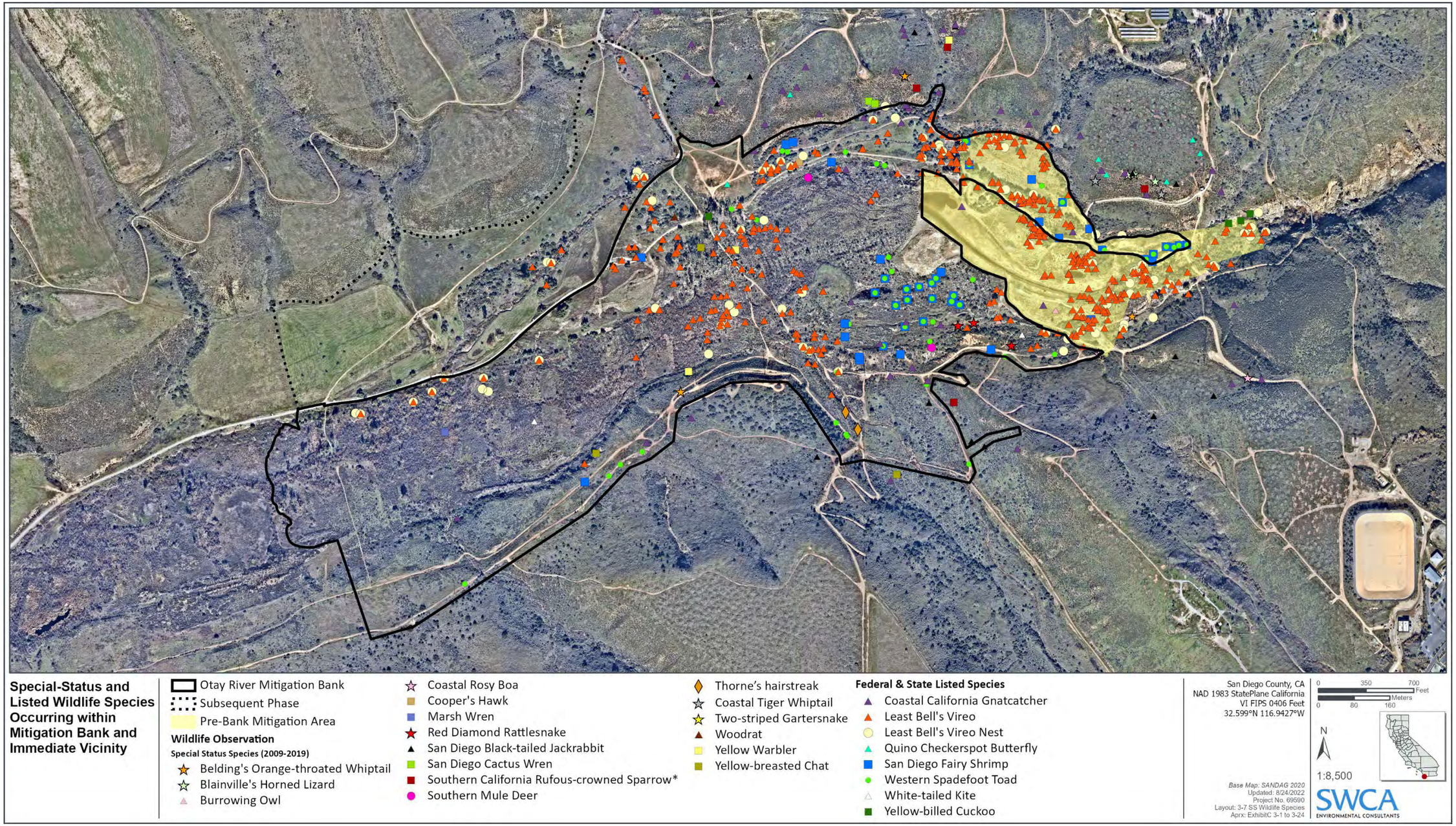


Figure 3-7. Special-status and listed wildlife species occurring within Mitigation Bank.

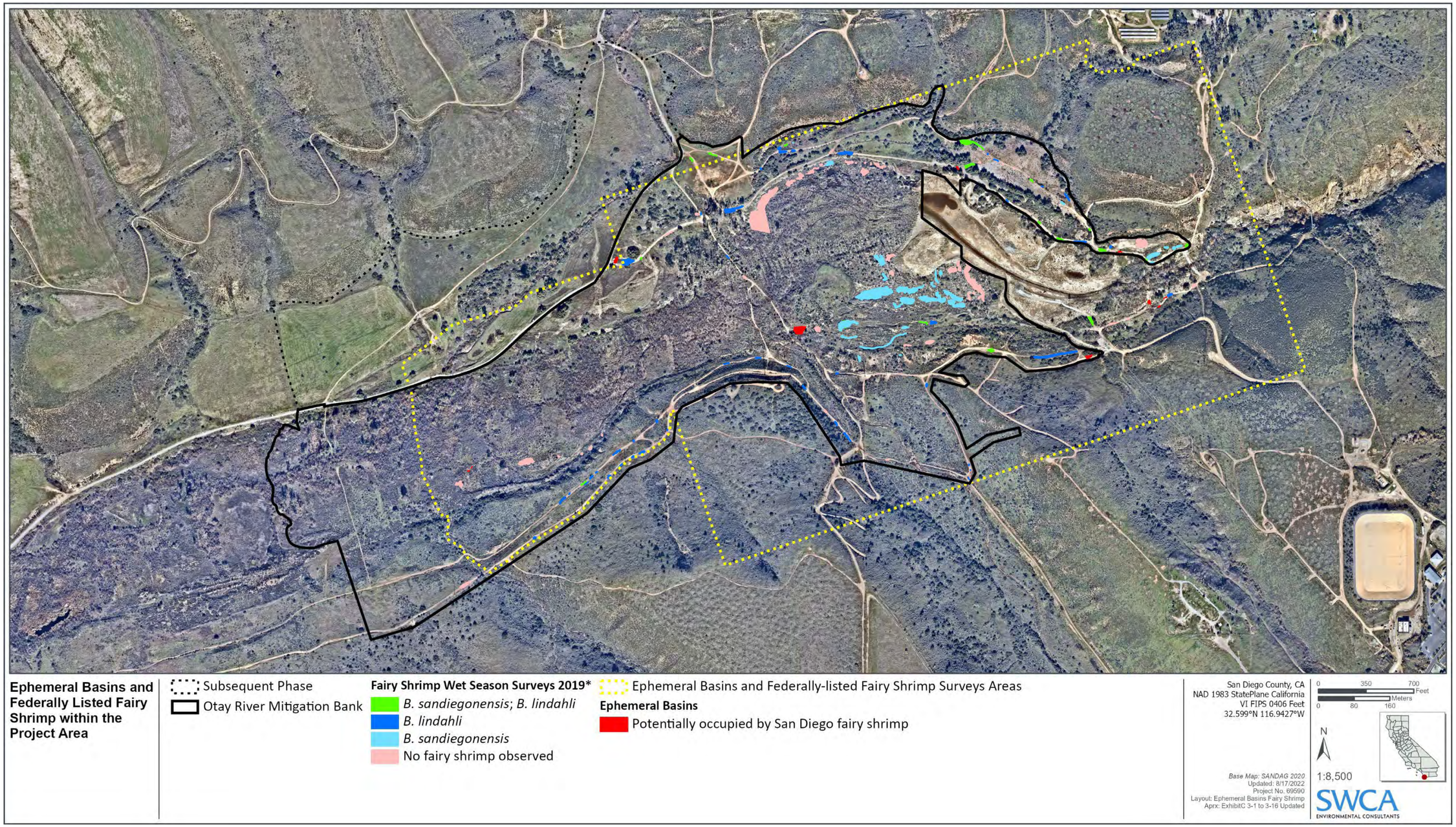


Figure 3-8. Ephemeral basins and federally listed fairy shrimp within the project area.

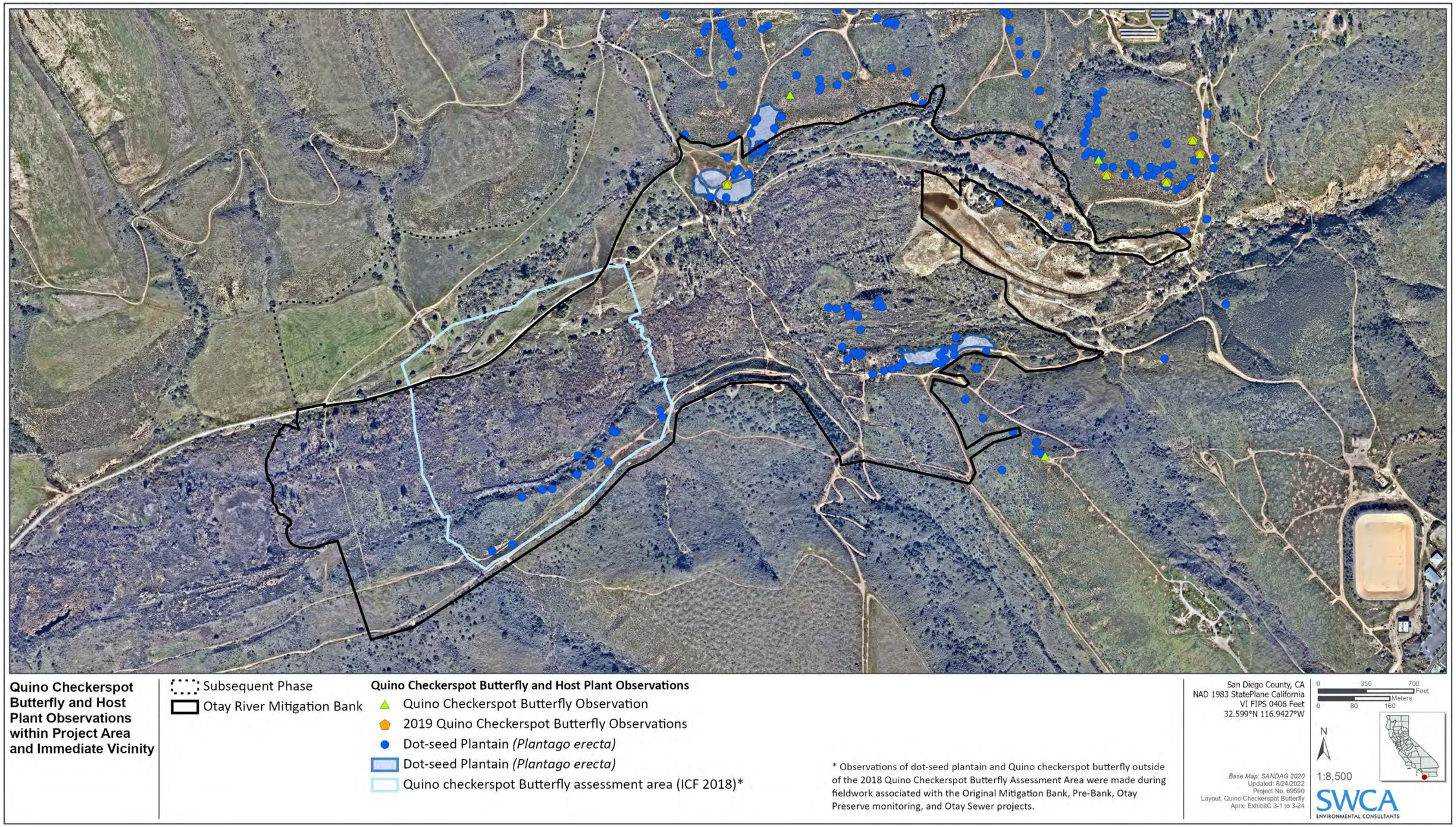


Figure 3-9. Quino checkerspot butterfly and host plant observations within the project area and immediate vicinity.

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3.8.2.3 Western Spadefoot (Spea hammondii) – California Species of Special Concern; San Diego County Group II

Western spadefoot can be found in dry grassland habitat with friable but usually not sandy soils close to seasonal wetlands such as vernal pool complexes, which it requires for reproduction and metamorphosis (Stebbins 2003). Adult western spadefoots spend most of the year in self-excavated underground retreats and possibly in mammal burrows. They emerge from underground retreats during heavy rains in autumn and winter and spawn in seasonal wetlands, such as vernal pools, in late winter or early spring. Eggs hatch in less than a week, and larvae metamorphose in 30–80 days, apparently depending on the duration of pool depth sufficient to support larvae and possibly on pool temperature (Jennings and Hayes 1994).

During the 2018–2019 wet season fairy shrimp surveys, this species was observed by ICF biologists in 49 vernal pools and road ruts. They were seen in basins across the Bank and Pre-Bank site. Figure 3-10 shows the pools that had western spadefoot tadpoles.

3.8.2.4 Belding's Orange-throated Whiptail (Aspidoscelis hyperythra hyperythra) – California Species of Special Concern; San Diego County Group II; City of Chula Vista Subarea Plan MSCP Covered Species; City of San Diego MSCP Covered Species

Orange-throated whiptail occurs in low-elevation coastal scrub, chamise–redshank chaparral, mixed chaparral, and valley–foothill hardwood habitats (Zeiner et al. 1988). Orange-throated whiptail occurs in Orange, Riverside, and San Diego Counties west of the crest of the Peninsular Ranges and in southwestern San Bernardino County near Colton. The species is found up to 3,410 feet above mean sea level (Zeiner et al. 1988). Orange-throated whiptails forage on the ground and scratch through surface debris for food. Their diet consists of a variety of small arthropods, especially termites.

Orange-throated whiptails likely lay eggs in loose, well-aerated soil under or near surface objects or at the base of dense shrubs (Zeiner et al. 1988).

This species has been observed by RECON biologists within the eastern portion of the Bank. Suitable habitat occurs throughout the Bank.

3.8.2.5 Blainville's Horned Lizard (Phrynosoma blainvillii) – California Species of Special Concern; San Diego County Group II; City of Chula Vista Subarea Plan MSCP Covered Species Covered Species; City of San Diego MSCP Covered Species

The range of the Blainville's horned lizard extends from the Sacramento Valley south to San Diego County, including the Coast Range Transverse and Peninsular Ranges below 4,000 feet. Blainville's horned lizards are found in a wide variety of vegetation communities, from grasslands and shrublands to woodlands, including open coniferous forests. Critical factors are the presence of loose soils with a high sand fraction, an abundance of native ants or other insects, especially harvester ants (*Pogonomyrmex* spp.), and the availability of both sunny basking spots and dense cover for refuge. The species apparently does not eat the introduced Argentine ant (*Linepithema humile*) (Jennings and Hayes 1994).

This species has been observed by RECON biologists near the eastern portion of the Bank. Suitable habitat occurs throughout the Bank.

3.8.2.6 Coastal Rosy Boa (Lichanura trivirgata rosefusca) – California Species of Special Concern; San Diego County Group II

Coastal rosy boas are heavy-bodied snakes that inhabit arid scrublands, semi-arid and rocky shrublands, rocky deserts, canyons, and other rocky areas. This species eats rodents, small birds, lizards, small snakes, and amphibians and kills its prey by constriction. Coastal Rosy Boas occur in southwestern California from the coastal slopes of the San Gabriel and San Bernardino mountains, and across the peninsular ranges into the desert in San Diego County (Stebbins 2003).

This species has been observed by RECON biologists near the eastern portion of the Bank. Suitable habitat occurs throughout the Bank.

3.8.2.7 Two-Striped Garter snake (Thamnophis hammondii) – California Species of Special Concern; San Diego County Group I

The two-striped garter snake is a highly aquatic snake that is rarely found far from water. Two-striped garter snakes inhabit perennial and intermittent streams with rocky beds bordered by willow thickets and other dense vegetation. They may also inhabit stock ponds or other artificially created aquatic habitats. Two-striped garter snakes occur throughout the South Coast and Peninsular Ranges west of the San Joaquin Valley from near Salinas south to La Presa, Baja California, Mexico. The species' elevation range extends from sea level to around 8,000 feet above mean sea level. Two-striped garter snakes forage primarily on fish, fish eggs, and tadpoles. They mate in the spring and bear live young in the fall (Jennings and Hayes 1994).

This species has been observed by RECON biologists in a drainage at the north side of the Bank. Suitable habitat occurs in the tributary channels that feed into the Bank.

3.8.2.8 Red Diamond Rattlesnake (Crotalus ruber) – California Species of Special Concern; San Diego County Group II

The red diamond rattlesnake is a heavy-bodied rattlesnake with a tan, link, brick red, or reddish dorsal color with a tail that is marked with broad evenly spaced distinct black rings. Its range extends from near Morongo Valley (San Bernardino County) south along the coast and desert sides of the Peninsular Range to Loreto, Baja California, Mexico. It is found in a variety of habitats, though generally is associated with habitats containing thick brush with large rocks or boulders. Typical habitats include chamise and red-shank as well as coastal sage scrub and desert slope scrub. Its elevation range extends from sea level to around 5,000 feet above mean sea level. Mating occurs in the early spring, and they bear live young between late July and September (Jennings and Hayes 1994).

This species has been observed by RECON and ICF biologists within the Bank.

3.8.2.9 Least Bell's Vireo (Vireo bellii pusillus) – Federally Listed as Endangered; State-Listed as Endangered

The LBV is a small, grayish songbird whose breeding distribution extends northwest from San Diego County to Santa Barbara County (rarely to Monterey County and formerly to the northern Sacramento Valley), northeast to Inyo County, south into northern Baja California, Mexico, and east into the edges of the deserts at a few points such as at the Mojave River (USFWS 1998). Nesting elevation ranges from below sea level to at least 4,100 feet. The subspecies winters in southern Baja California (Howell and Webb 1995). LBV numbers are currently increasing, with a 400 to 500% increase estimated between 1986 and 1996. However, they remain imperiled in the long term, primarily by brown-headed cowbird (*Molothrus ater*) nest parasitism and threats to the quantity and quality of remaining potential habitat (USFWS 1998).

LBV select dense vegetation low in riparian zones for nesting. As discussed in Franzreb (1989), among 126 locations of California nests recorded in the literature and in museum records, 71 (56%) were in willows and 14 (11%) were in wild rose (*Rosa* spp.). The remaining nests were distributed among 20 other species of vines, shrubs, herbs and trees. At least locally, LBV would also fairly commonly use non-riparian habitats such as chaparral for foraging and even nest location when more typical habitat is adjacent (Kus and Miner 1989).

Willows often dominate the canopy layer in the species' territories, with a mean canopy height of about 26 feet (Salata 1983). Salata believed that a dense, shrubby layer near the ground was a critical component in the breeding habitat. Goldwasser (1981) found that the most critical structural component is a dense shrub layer from 2 to 10 feet from the ground, which agrees with findings of both Salata (1983) and Gray and Greaves (1984). Vegetation preferences are well-summarized in the study by Goldwasser: "Willows are chosen most frequently as nest sites, although nearly all other common riparian shrub species are used. The frequency with which a given plant is chosen seems to be consistent with the relative abundance of shrubs growing in riparian woodlands. There is no obvious preference for any of the uncommon shrubs as nest sites and no apparent avoidance of the abundant species such as willows."

As determined from field data for Southern California (RECON 1989) vireo nest sites are most frequently located in riparian stands between 5 and 10 years old. Even though mature trees are present at many of the sites, the average age of willow vegetation in the immediate vicinity of most nests was between 4 and 7 years. When mature riparian woodland is selected, vireos nest in areas with a substantial robust understory of willows and other plant species (Goldwasser 1981). Based on rigorous statistical analysis of vireo habitat structure and composition (RECON 1990), vireos appear to select sites with large amounts of both shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover.

LBV surveys have been conducted annually within the eastern portion of the Bank in the City of Chula Vista parcel and surrounding lands since 2010, with LBV nests and observations occurring frequently. LBV surveys were conducted within the entire Bank and adjacent lands in 2018, 2019, and 2020 by the San Diego Natural History Museum. In 2018, four successful nests were observed within the Bank limits and 20 were adjacent to the Bank. In 2019, six successful nests were observed within the Bank limits and 19 were adjacent to the Bank. In 2020, four successful nests were observed within the Bank limits and 21 were adjacent to the Bank. All reports are available, the most current for 2020 is included as Appendix G. Figure 3-11 depicts the 2018, 2019, and 2020 LBV survey results.

3.8.2.10 Western Yellow-billed Cuckoo (Coccyzus americanus occidentalis) – Federally Listed as Threatened; State-Listed as Endangered

This neotropical migrant is a relative of the roadrunner and an inhabitant of extensive riparian forests. It formerly occurred from southwestern British Columbia south to the highlands of northern Mexico and the Yucatan Peninsula, wintering in South America. It has declined from a fairly common, local breeder in much of California 60 years ago, to virtual extirpation, with only a handful of tiny populations remaining in all of California today. Losses are tied to obvious loss of nearly all suitable habitat, but other factors may also be involved. Relatively broad, well-shaded riparian forests are utilized, although it tolerates some disturbance. A specialist to some degree on tent caterpillars, young develop remarkably quickly covering only 18 to 21 days from incubation to fledging (Hughes 2015).

Yellow-billed Cuckoo was observed upstream of the Bank site in riparian woodland in 2012, during field surveys conducted by RECON. The field survey included the eastern portion of the Bank site located on City of Chula Vista property and adjacent lands. The species was not observed during field surveys conducted in 2009, 2010, 2011, 2013, 2017, 2018, or in 2020 when the San Diego Natural History Museum conducted surveys for the entire Bank and adjacent land (Appendix G; however, it was observed a single time in 2016 immediately adjacent and upstream of the Bank during LBV surveys (Appendix G). One yellow-billed cuckoo was also observed during the final survey on 3 September 2019 near the eucalyptus grove within the Bank limits (Appendix G). Suitable nesting and foraging habitat occurs in riparian habitat located upstream of the Bank. Once the Bank is established and vegetation has matured, the Bank site may provide additional suitable habitat.

3.8.2.11 Coastal California Gnatcatcher (Polioptila californica californica) – Federally Listed as Threatened

The coastal California gnatcatcher is a small, gray, insect-gleaning bird. It is the only subspecies of the California gnatcatcher occurring in the United States. It is a year-round resident of sage scrub of several subtypes and is currently listed by USFWS as a threatened species (USFWS 1993, 1995). Within California it is found from the Mexican border north to extreme eastern and southern Los Angeles County with several small, disjunct populations known north to the Moorpark area of Ventura County. It extends east into western San Bernardino County and well across cismontane Riverside County. Habitat losses, degradation, and fragmentation due to land alteration and development are considered the major threats (Atwood 1990, 1993).

Coastal California gnatcatcher surveys have been conducted on the eastern portion of the Bank on City of Chula Vista property and adjacent lands. Coastal California gnatcatcher was observed within coastal sage scrub in the Bank site and adjacent areas during protocol surveys conducted by RECON between 2009 and 2013 and by ICF during 2016 surveys (BEI Exhibit H). Surveys were conducted by ICF within the western portion of the Bank in 2018 (Appendix H). Four gnatcatcher territories were observed within the southwest portion of the Bank. Breeding was confirmed at all four territories. An additional two territories were located within 300 feet from the southwest limits of the Bank. Breeding was confirmed at one of the two adjacent territories. Figure 3-12 depicts the survey results.



Figure 3-10. Western spadefoot observation within the project area and immediate vicinity.

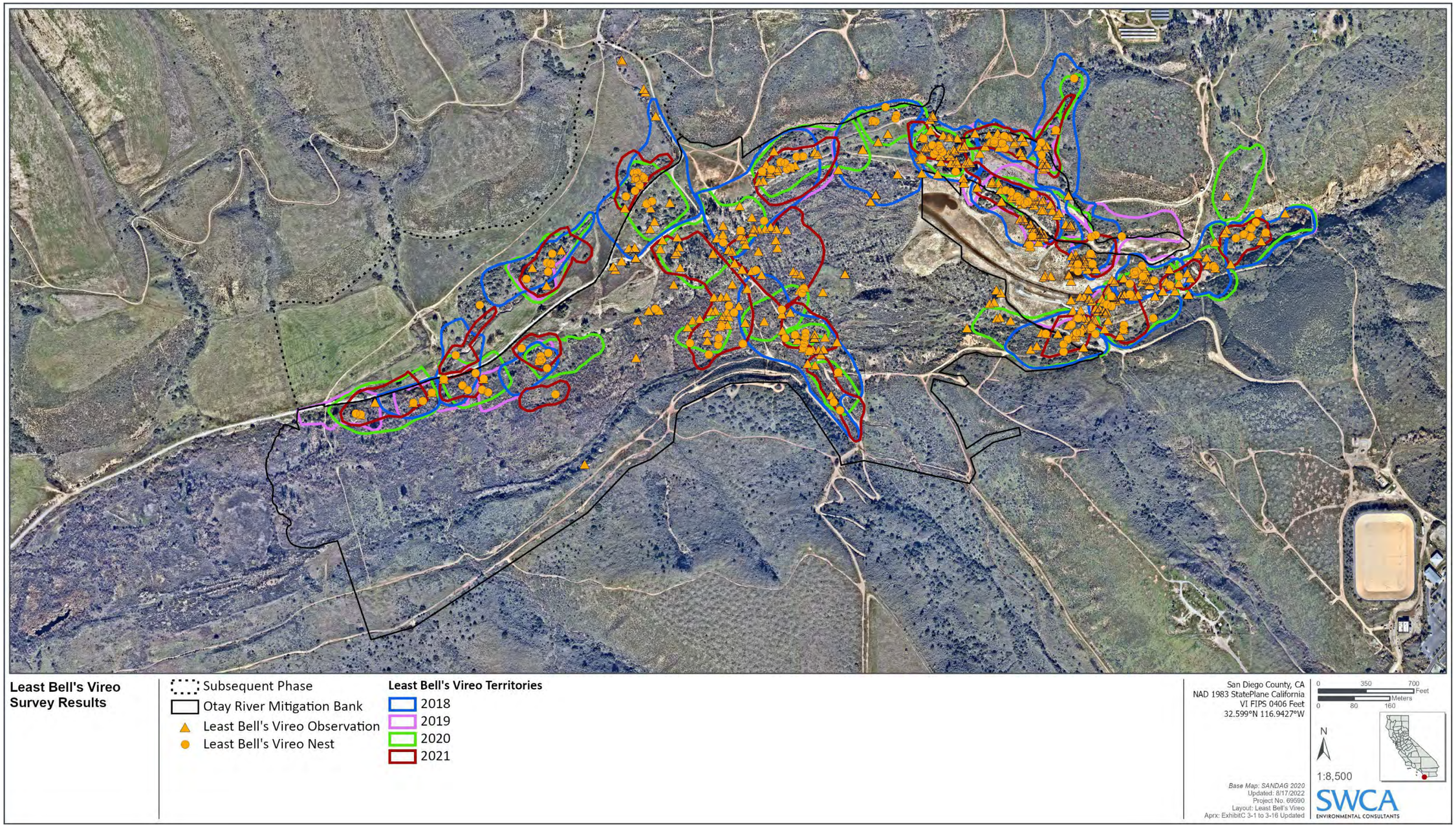


Figure 3-11. Least bell's vireo survey results.

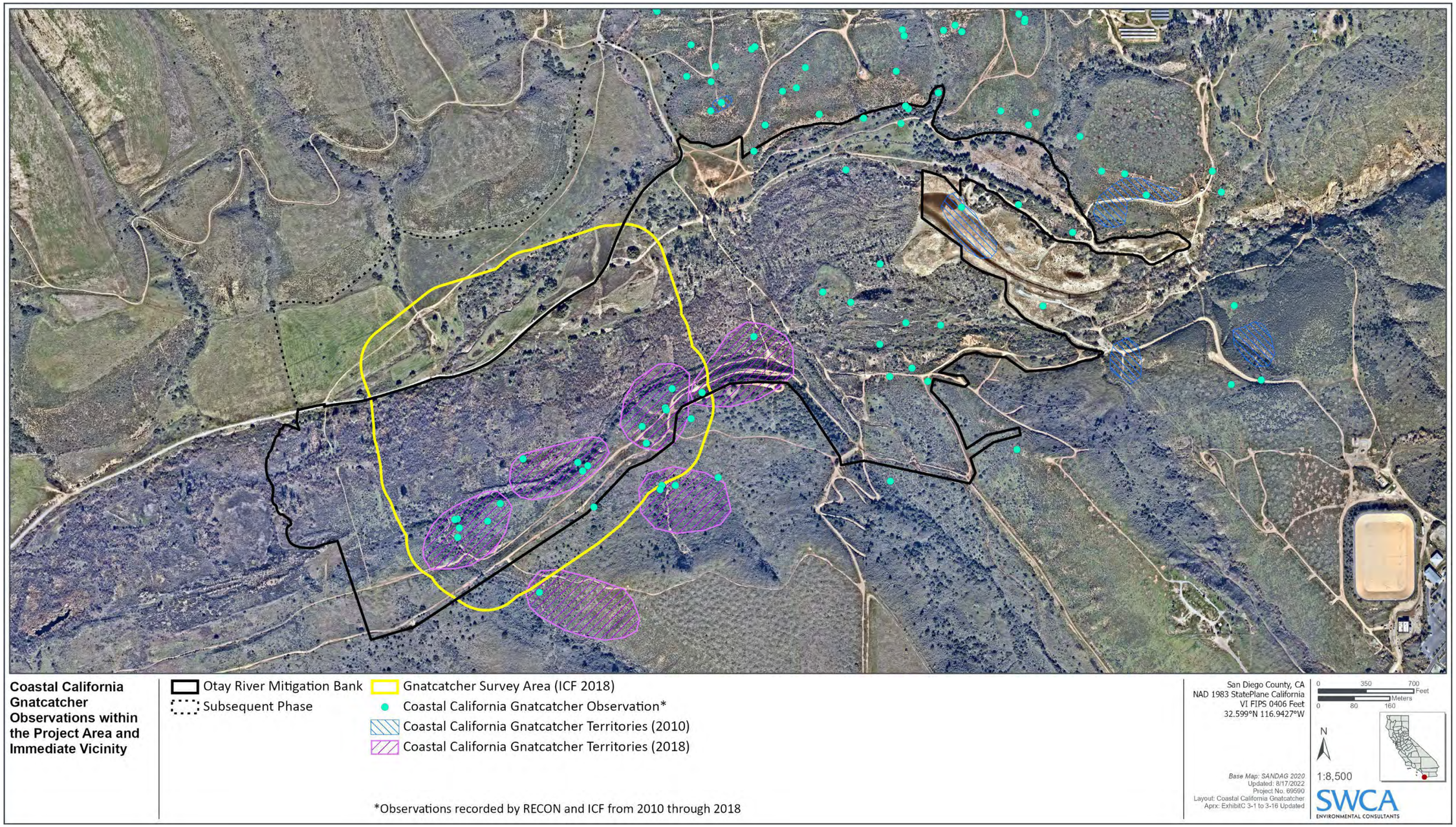


Figure 3-12. Coastal California gnatcatcher observations within the project area and immediate vicinity.

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3.8.2.11.1 WHITE-TAILED KITE (*ELANUS CAERULEUS*) – CALIFORNIA FULLY PROTECTED SPECIES (NESTING)

White-tailed kites were threatened with extinction in North America during the early twentieth century. Populations recovered throughout their range in the U.S. from small populations that survived in California, Texas, and Florida. However, since the 1980s, many white-tailed kite populations have been declining, apparently because of loss of habitat and increased disturbance of nests (Dunk 1995).

The breeding season generally extends from early February through early August. White-tailed kites usually nest in large native trees, although non-native trees also are occasionally used. Nest trees are generally at the edge of wooded habitat next to open fields. Large trees in areas that have been developed may also be used, although the trees need to be close to open fields for foraging (Dunk 1995). White-tailed kites feed primarily on small mammals including voles (*Microtus* sp.), pocket mice (*Perognathus* sp.), and harvest mice (*Reithrodontomys* sp.) (Dunk 1995).

The white-tailed kite population is on the decline mostly due to urban sprawl; however, this species is still considered fairly widespread throughout the foothills of San Diego County (Unitt 2004). This species has been observed annually by biologists within the Bank. Suitable nesting habitat occurs in the larger trees located within the Bank.

3.8.2.11.2 SAN DIEGO CACTUS WREN (*CAMPYLORHYNCHUS BRUNNEICAPILLUS SANDIEGENSIS*) – CALIFORNIA SPECIES OF SPECIAL CONCERN, SAN DIEGO COUNTY GROUP II; CITY OF CHULA VISTA SUBAREA PLAN MSCP COVERED SPECIES; CITY OF SAN DIEGO MSCP COVERED SPECIES

Cactus wrens are a locally common resident in the Mojave and Colorado Deserts, from Mexico to Inyo and Kern Counties. The San Diego subspecies is found in arid parts of Southern California's westward-draining slopes. The San Diego cactus wren occurs in desert succulent shrub, Joshua tree, and desert wash habitats. It forages for insects, spiders, other small invertebrates, cactus fruits, other fruits, nectar, and seeds. The coastal cactus wren breeds from March to June, commonly with two broods per season and four to five eggs per clutch (Zeiner et al. 1990).

This species has been observed by RECON and ICF biologists within the Bank. Suitable nesting and foraging habitat occurs in the upland portions of the Bank.

3.8.2.11.3 SOUTHERN CALIFORNIA RUFOUS-CROWNED SPARROW (*AIMOPHILA RUFICEPS CANESCENS*) – CDFW WATCH LIST; SAN DIEGO COUNTY GROUP I; CITY OF CHULA VISTA SUBAREA PLAN MSCP COVERED SPECIES; CITY OF SAN DIEGO MSCP COVERED SPECIES

Southern California rufous-crowned sparrow inhabits mixed chaparral and coastal sage scrub. In California, its range extends southward from Mendocino and Tehama Counties; this species is most numerous in the western part of this range (Zeiner et al. 1990). Southern California rufous-crowned sparrows breed and forage on dry grass and/or forbs on hillsides with scattered shrubs and rock outcrops. Nests are usually made on the ground, at the base of grass tussock or shrubs. It is a year-round resident and diurnally active, eating mostly insects and spiders during the breeding season and seeds, grass, and forb shoots throughout the year. It breeds from mid-March to mid-June with a peak in May. In Southern California coastal sage scrub, the average sized territory is about 2 acres (Zeiner et al. 1990).

This species has been observed by RECON and ICF biologists near the Bank. Suitable nesting and foraging habitat occurs in sage scrub habitat located within the Bank.

3.8.2.11.4 YELLOW WARBLER (*DENDROICA PETECHIA BREWSTERI*) – CALIFORNIA SPECIES OF SPECIAL CONCERN, SAN DIEGO COUNTY GROUP II

The yellow warbler is a summer breeding bird in San Diego County strongly associated with mature riparian woodland. This species is also common as a migrant but rare in winter.

This species has been observed by RECON and ICF biologists within the Bank. The riparian habitats located throughout the Bank provide suitable nesting and foraging habitat.

3.8.2.11.5 YELLOW-BREASTED CHAT (*ICTERIA VIRENS*) – CALIFORNIA SPECIES OF SPECIAL CONCERN; SAN DIEGO COUNTY GROUP I

The yellow-breasted chat is a summer breeding bird in San Diego County strongly associated with mature, dense riparian woodland. This species is also common as a migrant but rare in winter.

This species has been observed by RECON and ICF biologists within the Bank. The riparian habitats provide suitable nesting and foraging habitat.

3.8.2.11.6 SAN DIEGO BLACK-TAILED JACKRABBIT (*LEPUS CALIFORNICUS BENNETTII*) – CALIFORNIA SPECIES OF SPECIAL CONCERN; SAN DIEGO COUNTY GROUP II

Black-tailed jackrabbits are habitat generalists (Howard 1995). They prefer open areas with sparse vegetation with scattered cacti and shrubs (Best 1996). Black-tailed jackrabbits require shrubs for hiding, nesting, and thermal cover (Howard 1995). They are common in deserts, grasslands, and agricultural areas (Jameson and Peeters 2004) and can also occur in oak woodlands, pinyon-juniper woodlands, and low- to mid-elevation conifer forests (Howard 1995). In areas with high density of chamise chaparral, jackrabbits prefer open areas interspersed with grasses and tend not to occupy closed canopy chaparral (Howard 1995).

Black-tailed jackrabbits breed year-round. Reproduction is generally dependent on the availability of food (Jameson and Peeters 2004). They can have up to four litters of one to eight young in a year and are strictly vegetarian and opportunistic foragers. Black-tailed jackrabbits prefer grasses and forbs, but will eat any kind of vegetation. Diet will change during the seasons as forage availability changes, shifting from foraging on grasses and forbs to woody perennials during dry periods (Lightfoot et al. 2010). They will also forage on agricultural plants when available (Best 1996).

This species has been observed by RECON and ICF biologists within the Bank. Suitable habitat occurs throughout the Bank.

3.8.2.11.7 SAN DIEGO WOODRAT (*NEOTOMA LEPIDA INTERMEDIA*) – CALIFORNIA SPECIES OF SPECIAL CONCERN, SAN DIEGO COUNTY GROUP II

The desert woodrat as a whole is distributed from central California southward well into Baja California, Mexico, and across much of the Great Basin as far north as eastern Oregon and southwestern Idaho. The San Diego subspecies is found along the coast of California from San Luis Obispo (San Luis Obispo

County) southward and inland to San Fernando (Los Angeles County), the western foothills of the San Bernardino Mountains (San Bernardino County), and Julian (San Diego County).

It is a medium-sized native rat locally common in a variety of sunny shrub habitats, frequently in rocky and/or steep terrain and upper drainages. This mainly nocturnal vegetarian often builds its dens low in cactus or rock crevices but will use other sites as needed. Habitats for this subspecies are dry and/or sunny shrub lands, especially (but not necessarily) areas with cactus and abundant rocks and crevices. Desert woodrats do not require a source of drinking water. Sage scrub communities are frequently occupied, but other communities are also used as suitable microhabitats when available.

Woodrat middens have been observed by RECON biologists within the Bank. Suitable habitat occurs throughout the Bank.

3.8.2.11.8 SOUTHERN MULE DEER (*ODOCOILEUS HEMIONUS FULGINATA*) – SAN DIEGO COUNTY GROUP II; CITY OF CHULA VISTA SUBAREA PLAN MSCP COVERED SPECIES; CITY OF SAN DIEGO MSCP COVERED SPECIES

Southern mule deer are common across the western U.S. in a variety of habitats from forest edges to mountains and foothills (Whitaker 1996). Mule deer prefer edge habitats, rarely travel or forage far from water, and are most active around dawn and dusk.

This species has been observed by RECON and ICF biologists within the Bank. Suitable habitat occurs throughout the Bank.

3.9 CRITICAL HABITAT

Several areas of critical habitat (CH) are located within and adjacent to the Bank (Figure 3-13). San Diego fairy shrimp CH is located to the south of the Bank on the mesa tops, spreading navarretia CH is located to the south-east of the Bank, Quino checkerspot butterfly CH is located to the east and south, and Otay tarplant CH surrounds all sides of the Bank and extends into the Bank site along the northern and southern edges. Otay tarplant CH is the only CH that lies within the Bank limits. Although grading will impact Otay tarplant CH, the physical or biological features essential to the species, specifically soils with high clay content (>25%) are not expected to be impacted by grading activities.

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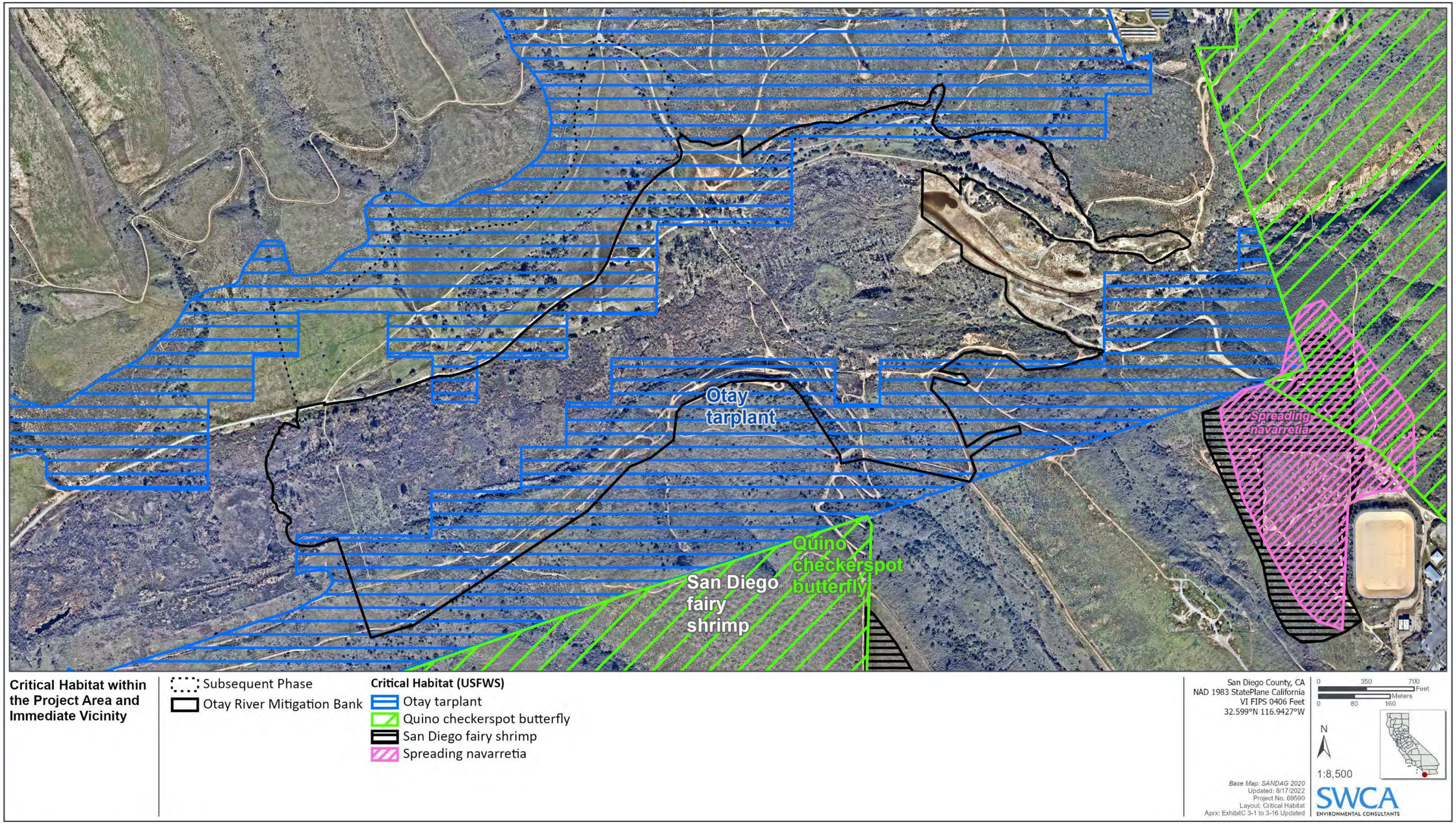


Figure 3-13. Critical habitat within the project area and immediate vicinity.

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3.10 LEAST BELL'S VIREO HABITAT STRUCTURE

A vegetation monitoring survey was conducted to characterize the composition and structure of LBV habitat within the Otay River Restoration Project. The purpose of this data collection was to acquire reference vegetation data of existing high-quality LBV territories and establish baseline vegetation structure of the existing marginal territories and areas of predicted LBV habitat post-restoration to document ecological lift. The vegetation survey methodology was consistent with the USGS Vegetation Handbook for LBV at the San Luis Rey River Flood Control Project Area (USGS 2021). Vegetation was assessed using the "stacked-cube" method (Kus 1998), which consists of recording the percent cover of vegetation, by species, of 2-meters x 2-meters quadrats at 1-meter height intervals for the full height of stacked canopy.

Project biologists assessed vegetation at randomized locations, collecting vegetation cover by species using an electronic data form. Vegetation percent cover was classified using a modified Daubenmire (1959) cover scale. Five "stacked cube" replicates were assessed in each existing LBV territory. Six high-quality LBV territories provided reference LBV habitat structure data, and baseline conditions were monitored in seven marginal LBV territories. Another 30 locations were assessed in anticipated LBV habitat to establish the baseline vegetation structure of the degraded habitat (Figure 3-14).

While high-quality territory vegetation data was used inform the LBV habitat structure performance standards for the Bank, it will also be used to document ecological lift of moderate to low quality territories. The pre-restoration vegetation structure of both moderate to low quality existing territories and areas predicted to become LBV habitat will serve as a baseline for measuring habitat restoration success in support of LBV conservation.

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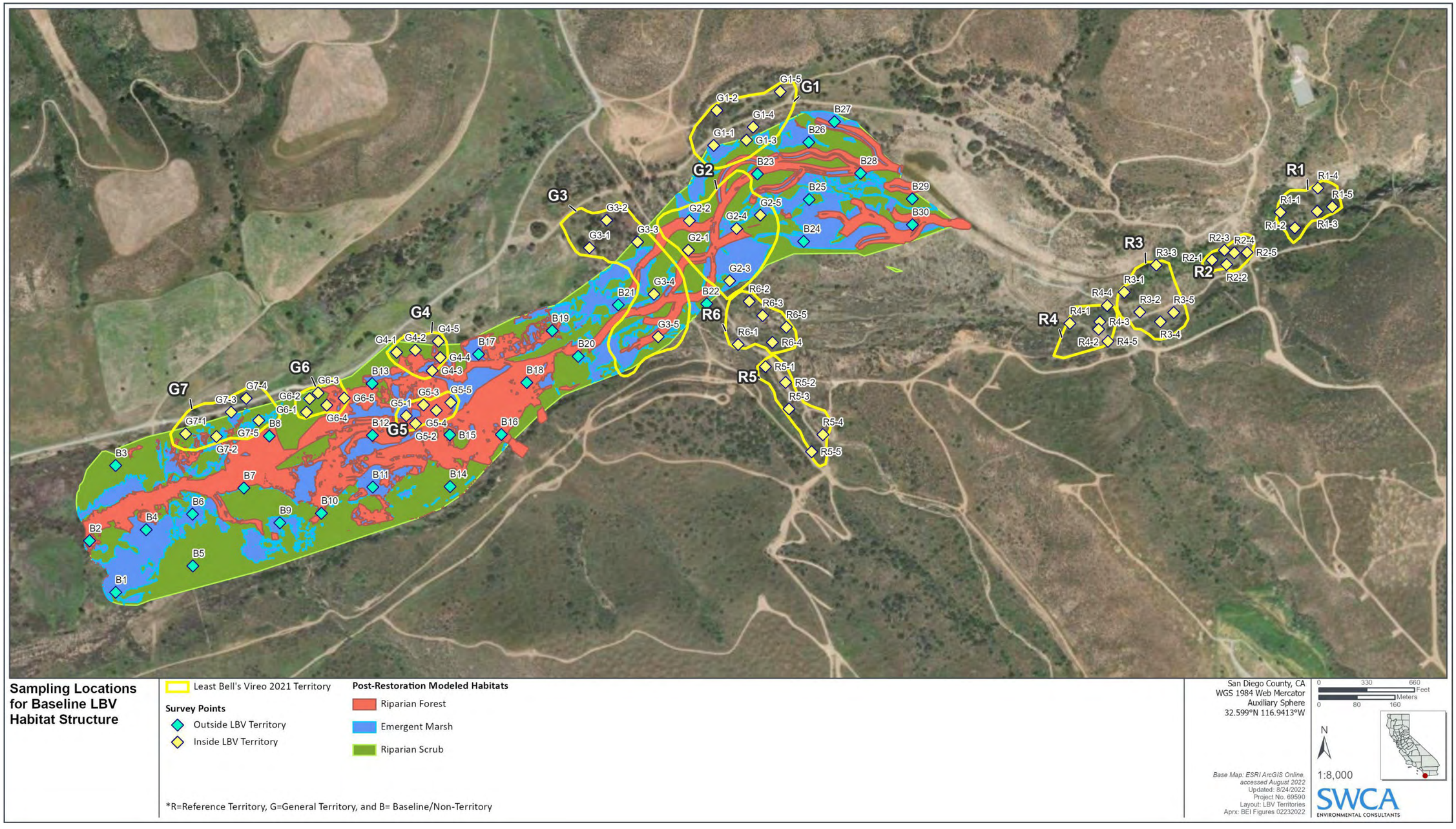


Figure 3-14. Sampling locations for baseline LBV habitat structure.

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3.10.1.1 Reference Least Bell's Vireo Territory Habitat Structure

LBV reference territory data was collected by SWCA project biologists Marcus Goncalves and Parker Richardson between May 2 and May 5, 2022. Five "stacked cube" replicates were assessed within each of the six 2021 reference territories. Table 3-3 presents average native percent cover per height class. Native percent cover was greater at "0-1 meter" height class (39.83%), decreasing to 0.37% at "7-8 meter" height class (Figure 3-15).

Table 3-3. Reference LBV Territory Habitat Structure

	Meter								
	0-1	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8+**
Average Native Cover (%)	39.83	22.55	17.27	11.47	9.78	4.92	1.82	0.37	0.00
Standard Deviation	22.81	20.74	24.51	18.72	18.70	10.61	4.74	1.40	0.00
90% Confidence Interval	(32.75, 46.91)	(16.07, 28.93)	(9.67, 19.87)	(5.66, 17.28)	(3.98, 15.58)	(1.63, 8,21)	(0.35, 3.29)	(-0.06, 0.80)	

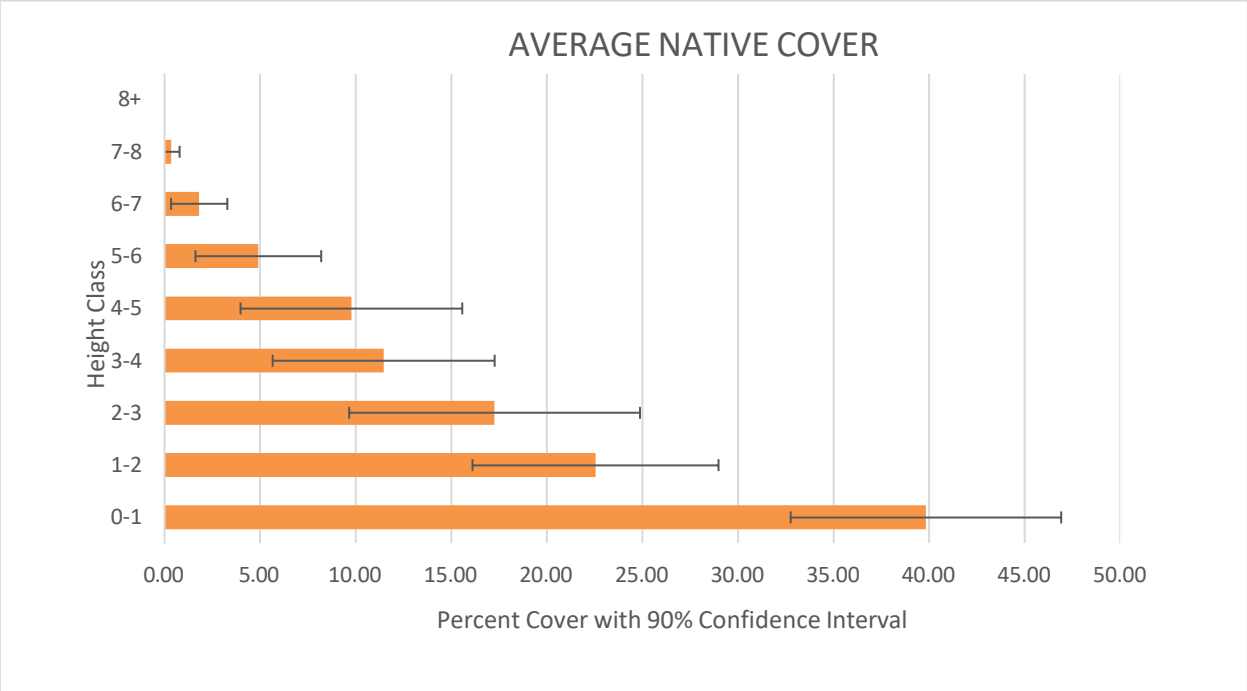


Figure 3-15. Reference LBV territory habitat structure.

3.10.1.2 Marginal LBV Territory Habitat Structure

Marginal LBV territory data was collected by SWCA project biologists Marcus Goncalves and Parker Richardson between May 6 and May 20, 2022. Five "stacked cube" replicates were assessed within each of the seven 2021 marginal territories. Table 3-4 presents average native percent cover per height class. Native percent cover was greater at "0-1 meter" height class (32.47%), decreasing to 1.09% at "7-8

meter" and "8+ meter" height classes (Figure 3-16). Overall, average native cover is lower in the marginal LBV territories than the reference LBV territories.

Table 3-4. Marginal LBV Territory Habitat Structure

	Meter								
	0-1	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8+**
Average Native Cover (%)	32.47	13.07	5.73	2.97	1.91	1.24	1.11	1.09	1.09
Standard Deviation	26.97	18.79	10.97	8.01	7.07	6.46	6.42	6.42	6.42
90% Confidence Interval	(24.76, 40.18)	(7.70, 18.44)	(2.59, 8.87)	(0.68, 5.26)	(-0.11, 3.93)	(-0.61, 3.09)	(-0.73, 2.95)	(-0.75, 3.93)	(-0.75, 3.93)

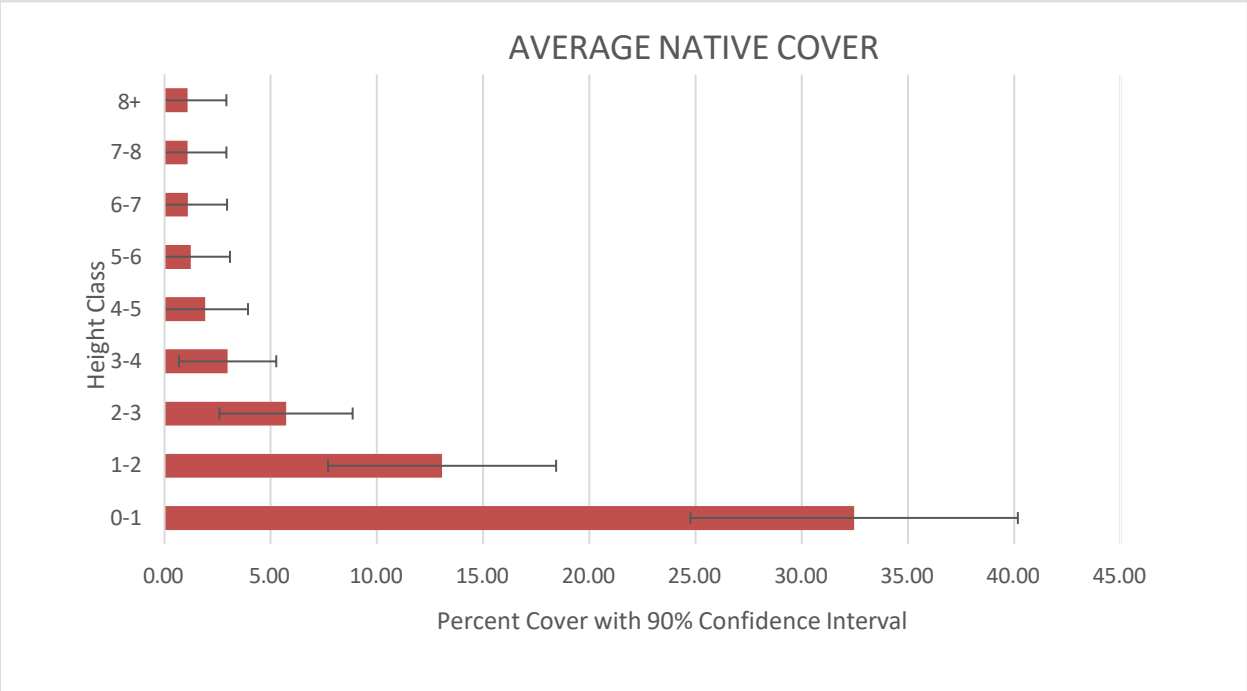


Figure 3-16. Marginal LBV territory habitat structure.

3.10.1.3 Non-territory Baseline Habitat Structure in Predicted LBV Habitat

Marginal LBV territory data was collected by project biologists Marcus Goncalves and Parker Richardson between May 6 and May 20, 2022. Thirty "stacked cube" replicates were assessed within the area of the Bank that is expected to become LBV habitat post-restoration. Table 3-5 presents average native percent cover per height class. Native percent cover was greater at "0-1 meter" height class (27.17%), decreasing to no cover at the "4-5 meter" height classes (Figure 3-17). Overall, average native cover is lowest in the non-territory baseline habitat structure which is expected as LBV are choosing not to use this area as it does not provide adequate habitat structure for LBV life needs.

Table 3-5. Non-territory Baseline Habitat Structure

	Meter								
	0-1	**1-2**	**2-3**	**3-4**	**4-5**	**5-6**	**6-7**	**7-8**	**8+**
Average Native Cover (%)	27.17	7.72	3.12	0.37	0.00	0.00	0.00	0.00	0.00
Standard Deviation	24.73	12.92	9.63	1.40	0.00	0.00	0.00	0.00	0.00
90% Confidence Interval	(19.50,34.84)	(3.71, 11.73)	(0.13, 6.11)	(-0.06, 0.80)					

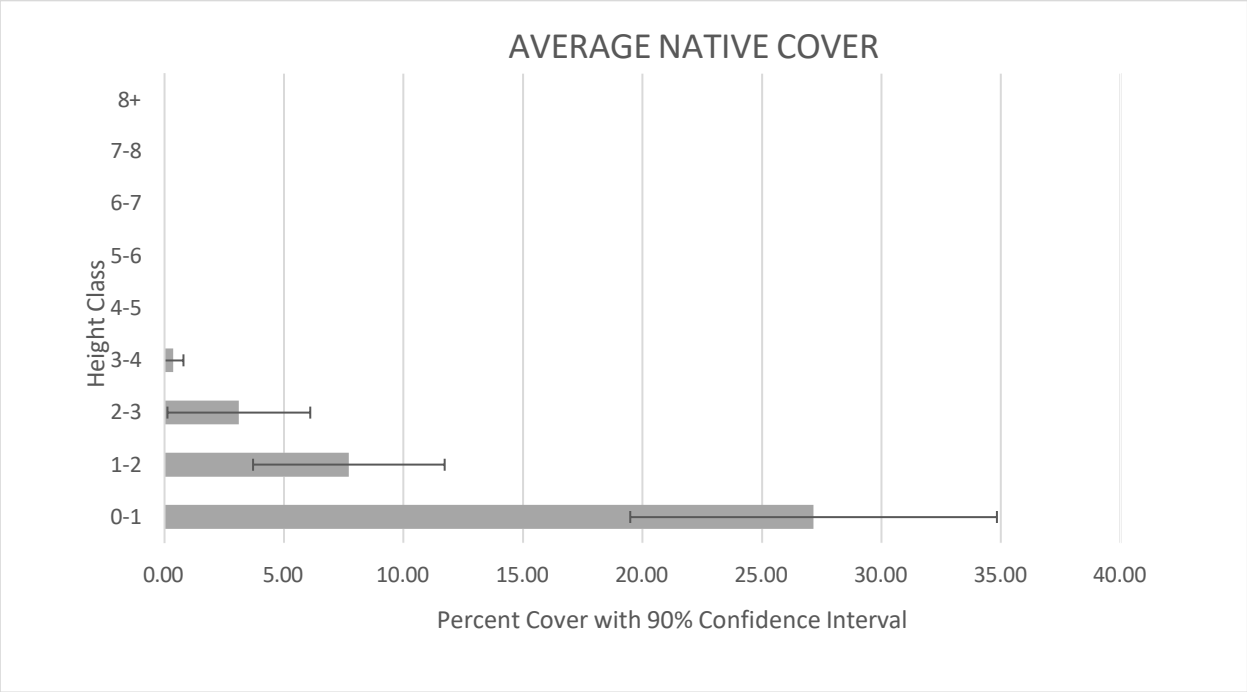


Figure 3-17. Non-territory baseline habitat structure.

3.11 JURISDICTIONAL DELINEATION

A jurisdictional delineation was performed by ICF biologists within the Bank on November 12 and 13, 2014; July 16 and 28, 2015; August 7 and 12, 2015; May 3 and 4 and September 20, 2018; and February 25 and 26, 2020 (ICF 2021a). Following the Navigable Waters Protection Rule vacate and remand decision and reversion to per-2015 Clean Water Act Rapanos Guidance, a jurisdictional delineation supplement including a significant nexus evaluation for vernal pools and change in jurisdictional status was completed by a SWCA Professional Wetland Scientist in August 2022 (SWCA 2022a). Several jurisdictional delineations have been completed over the last several years due to changes in federal and state regulations (Clean Water Rule, Navigable Waters Protection Rule, State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State) and changes in project limits, as well as at the request of USACE. Potential jurisdictional features were evaluated for the presence of a definable channel and/or wetland vegetation, soils, and hydrology. The project was analyzed for potential wetlands using the methodology set forth in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). Lateral limits of non-

wetland waters were identified using field indicators (e.g., ordinary high water mark [OHWM]) pursuant to *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Determination Manual* (USACE 2008b). While in the field, potential jurisdictional features were recorded on an iPad using ESRI Collector and a Trimble hand-held global positioning system unit with sub-meter accuracy. Vascular plants were identified using *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012) and *The National Wetland Plant List* (Lichvar 2016). Onsite vernal pool plant indicator data collected in the field in 2019 at potential vernal pool sites and wetlands was used to determine vernal pool status and condition.

In 2022 SWCA submitted the revised jurisdictional delineation memo, analyses, USACE ORM upload sheets inventorying all aquatic features, a Dry Land Approved Jurisdictional Determination request for upland depressions, and a Rapanos Approved Jurisdictional Determination request for regulated WOUS.

3.11.1 Features

A total of 16 primary jurisdictional features or complexes were delineated onsite, including the Otay River, Salt Creek, O'Neal Canyon, several unnamed drainages, and wetland depressions and vernal pools. Jurisdictional features include 10 non-wetland WOUS, 16 wetland WOUS, and two vernal pool complexes (totaling 30 vernal pools). Seventy-seven upland non-jurisdictional road ruts were also mapped. Figure 3-18 shows the location and extent of WOUS and WOS, and Figure 3-19 shows the location and extent of CDFW jurisdiction. Below is a brief description of each feature delineated. Table 3-6 lists features that are WOUS/WOS and Table 3-7 lists features that are under CDFW 1600 jurisdiction.

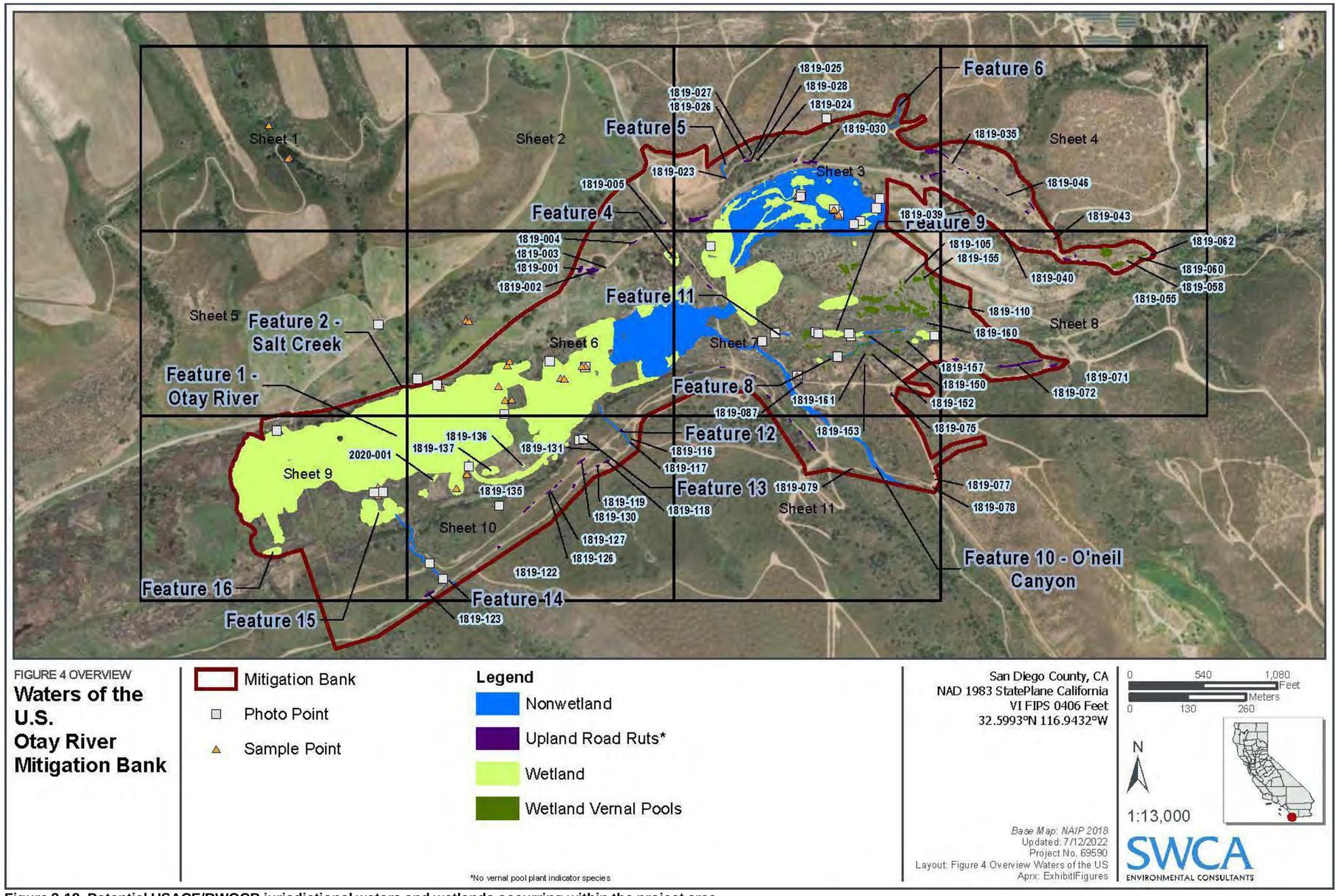


Figure 3-18. Potential USACE/RWQCB jurisdictional waters and wetlands occurring within the project area.

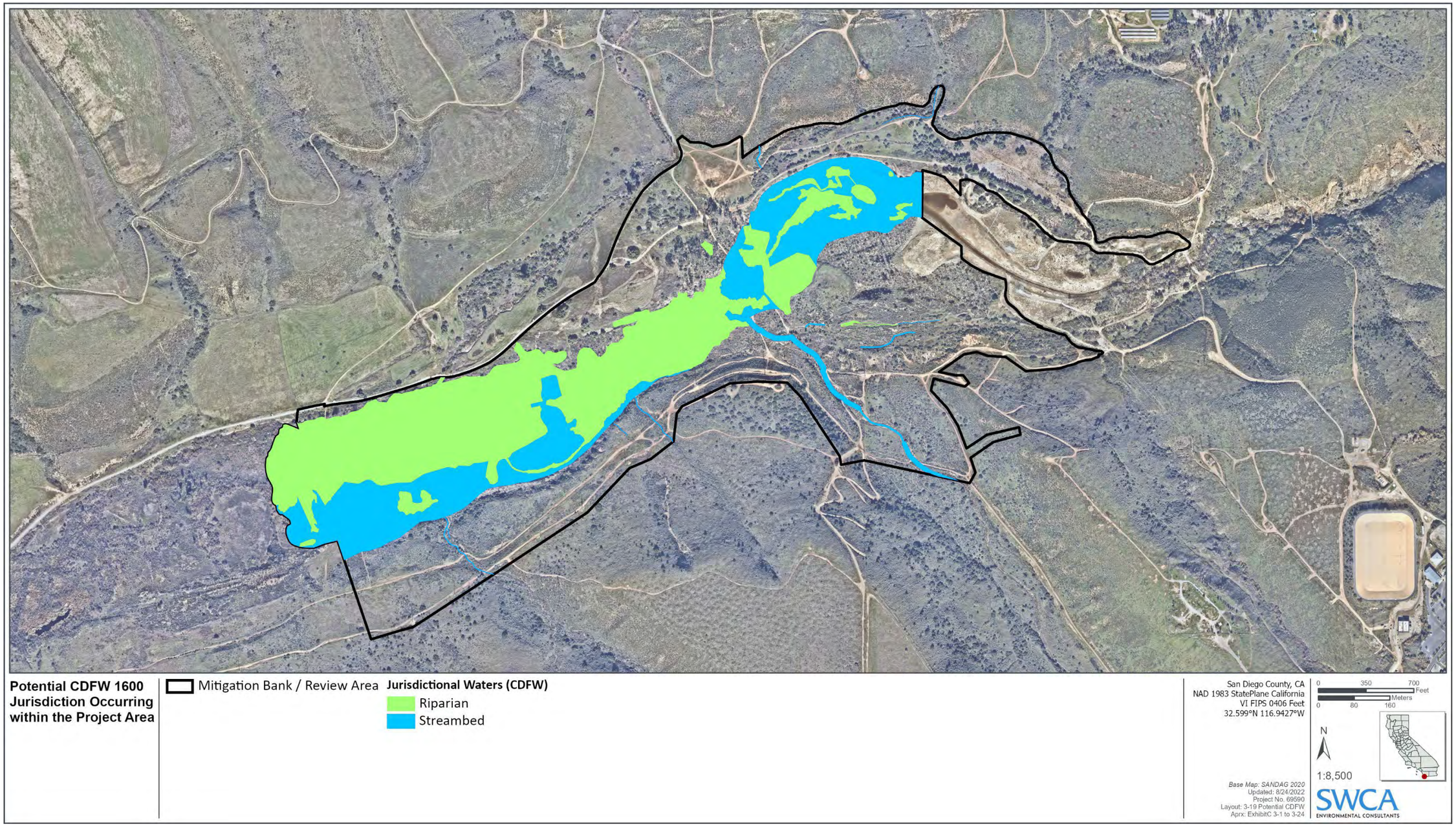


Figure 3-19. Potential CDFW 1600 jurisdiction occurring within the project area.

Feature 1 (Otay River) is a non-wetland and wetland river supported primarily by shallow groundwater. The feature is primarily non-wetland at the upstream end where its watershed is small; however, as the feature moves toward the west additional tributaries and upland areas feed into the feature, more water appears, and the drainage becomes more dominated by wetland, consisting of freshwater marsh habitat within the primary channel and cismontane alkali marsh, tamarisk scrub, and willow riparian forest within the active floodplain. The freshwater marsh is dominated by southern cattails (*Typha domingensis*) and California bulrush (*Schoenoplectus californicus*); the cismontane alkali marsh is dominated by yerba mansa (*Anemopsis californica*), spiny rush (*Juncus acutus*), and saltgrass (*Distichlis spicata*); while the willow riparian forest is dominated by tamarisk, black willow (*Salix gooddingii*), mulefat, San Diego marsh-elder, and coast goldenbush (*Isocoma menziesii*).

Feature 2 (Salt Creek) is in the northwestern end of the Bank. This feature supports wetland habitat dominated by mulefat.

Feature 4 is a wetland depression on the north side of the Otay River floodplain just east of the gas line.

Feature 5 is a small tributary on the upper terrace on the north side of the Otay River floodplain. The feature crosses a dirt road and loses definition of a channel south of the road.

Feature 6 is a small tributary on the upper terrace on the north side of the Otay River floodplain. The drainage travels south and then east just north of a dirt road, where it loses definition of a channel.

Feature 7 is a depressional wetland area on the southern side of the Otay River floodplain dominated by rabbitsfoot grass (*Polypogon monspeliensis*) and spike rush (*Eleocharis palustris*).

Feature 8 is a 10-foot-wide linear vernal pool on the south side of the Otay River floodplain. The feature may be a relict mining scare but ponds water appropriately to support vernal pool species.

Feature 9 is linear drainage/wetland depression/vernal pool on the south side of the Otay River floodplain. Water travels east to west and ponds at the eastern end of the feature where it is classified as a vernal pool. The central portion of the feature is wetland, and the eastern portion is non-wetland.

Feature 10 (O'Neal Canyon) is an intermittent drainage on the south side of the Otay River floodplain near the center of the Bank that flows in a northwesterly direction. It supports an OHWM, is characteristic of a desert wash, and is dominated by upland coastal sage scrub species.

Feature 11 is a 5-foot-wide ephemeral drainage on the southern side of the Otay River floodplain and may be a relic channel but appears to still have some flow. OHWM indicators included a bed and bank, sediment sorting, and sediment cracks.

Feature 12 is an approximately 350-foot-long ephemeral tributary on the south side of the Bank that flows from southeast to northwest. The feature crosses a small dirt road and then flows into the Otay River.

Feature 13 is a small, ephemeral tributary just west of Feature 12.

Feature 14 is an ephemeral drainage at the southwestern end of the Bank and flows in a northwesterly direction. As the drainage enters the floodplain, it flows into a wetland area (Feature 15) and likely provides additional hydrology to the wetland. The drainage is dominated by coastal sage habitat and supports a cobble bottom.

Feature 15 is a wetland depression on the south Otay River floodplain. The feature is fed partially by Feature 14 and supports tamarisk and herbaceous wetland species.

Feature 16 is a wetland depression on the south Otay River floodplain at the eastern edge of the Bank and supports tamarisk and herbaceous wetland species.

17 Wetland Vernal Pools: The Bank supports vernal pools in the far eastern portion of the site as well as in the central/southern floodplain in the eastern portion of the site. While some of the vernal pools may have been formed following past mining activities and the excavation and redistribution of sediment, vernal pools are common on the mesa tops in the area and the site contains appropriate sediment for vernal pools. Due to adjacency and proximity, a significant nexus evaluation found these pools are likely to contribute directly or indirectly to downstream jurisdictional waters of the United States and other aquatic features. The vernal pools are generally of lower quality and support native and non-native species such as *Eleocharis macrostachya*, *Lythrum hyssopifolia*, and *Psilocarphus brevissimus* var. *brevissimus*, as well as some non-typical vernal pool species such as tamarisk and *Typha*. Many of the pools also support the versatile fairy shrimp and federally listed as endangered San Diego fairy shrimp.

Table 3-6. Waters of the United States/ Waters of the State

Feature #	Stream Length (LF)	Waters of the U.S. / Waters of the State		
		Non-Wetland (acres)	Wetland (acres)	General location
1: Otay River	1,773	13.350	43.208	32.602118, -116.939858
2: Salt Creek	-	-	0.035	32.598186, -116.949501
4	-	-	0.124	32.600902, -116.943139
5	173	0.016	-	32.602757, -116.941945
6	587	0.029	-	32.603729, -116.937789
7	-	-	0.084	32.599429, -116.936929
8	435	0.102	-	32.59902400, -116.938759
9	275	0.025	0.053	32.599438, -116.938167
10: O'Neal Canyon	2,328	1.048	-	32.597943, -116.939991
11	146	0.017	-	32.599378, -116.94057
12	457	0.029	-	32.597503, -116.944497
13	130	0.008	-	32.597303, -116.945257
14	860	0.127	-	32.59489, -116.949194
15	-	-	0.720	32.595615, -116.950267
16	-	-	0.100	32.594888, -116.952677
17 Wetland Vernal Pools (Complexes 1 & 2)	-	-	1.3	32.600136, -116.938085 and 32.600895, -116.932304
Total	**7,164**	**14.75**	**44.62**	

Table 3-7. California Department of Fish and Wildlife 1600 Jurisdiction

Feature #	Stream Length (LF)	CDFW 1600 Jurisdiction	
		Riparian (acres)	Streambed (acres)
1: Otay River	3,993	52.442	30.537
2: Salt Creek	-	0.035	-
4	-	0.124	-
5	173	-	0.037
6	588	-	0.059
7	-	0.084	-
8	-	0.102	-
9	307	0.182	0.028
10: O'Neal Canyon	2,328	-	1.702
11	146	-	0.039
12	457	-	0.070
13	130	-	0.015
14	643	-	0.109
15	-	0.720	-
16	-	0.100	-
Vernal Pools (Complex 1)	-	1.19	-
Total	**8,765**	**54.97**	**32.59**

3.12 EXISTING FUNCTIONS AND SERVICES

Although the Bank site is degraded and the wetlands and non-wetlands are limited as a result of past activities, there are still multiple functions provided by the existing aquatic resources and the adjacent upland areas. These functions may include, but are not limited to, groundwater recharge due to the extensive alluvium soils onsite, sensitive wildlife habitat, wildlife movement opportunities due to the connectivity to adjacent open space and preserve land, and nesting and foraging habitat associated with existing vegetation. The Bank site provides foraging and limited water sources for a variety of mammal, avian, reptile, and amphibian species, including sensitive species. The Bank also provides habitat for sensitive crustacean species (fairy shrimp). Coastal California gnatcatcher is present within coastal sage scrub communities onsite, and the Bank has potential to support the federally listed Quino checkerspot butterfly. Southern willow scrub within the Bank site supports the federally and state listed as endangered LBV and provides suitable nesting habitat for a variety of bird species protected by the MBTA. Dry conditions in the floodplain have allowed for the establishment of several groves of the Tecate cypress. A major population of this species was severely affected by the Otay Fire of 2003; this floodplain population may be an important source for seed for restoration on Otay Mountain and other areas.

Current aquatic conditions were assessed using the California Rapid Assessment Method (CRAM) (Appendix I). CRAM measures ambient conditions of an aquatic resource and has been in development since 2005, in collaboration with resource agencies and scientists throughout California. The overall goal of CRAM is to "provide rapid, scientifically defensible, standardized, cost-effective assessments of the status and trends in the condition of wetlands and related policies, programs and projects throughout California" (California Wetlands Monitoring Workgroup [CWMW] 2013).

The final CRAM score for each Assessment Area (AA) is composed of four main attribute scores (buffer and landscape context, hydrology, physical structure, and biotic structure), which are based on the metric and submetric scores (a measurable component of an attribute) (Table 3-8). The anticipated relationships between the CRAM attributes and metrics, and various ecological services expected from conceptual models of wetland form and function, are presented in Table 3-9. The CRAM practitioners assign a letter rating (A through D) for each metric/submetric based on a defined set of condition brackets ranging from an A as the theoretical best case achievable for the wetland class across California to a D, the worst case achievable. Each metric condition level (A through D) has a fixed numerical value (A=12, B=9, C=6, D=3), which, when combined with the other metrics, results in a score for each attribute. Each metric/submetric condition level (letter rating) has a fixed numerical value, which, when combined with the other metrics, results in a raw score for each attribute. That number is then converted to a percentage of the maximum score achievable for each attribute and represents the final attribute score, ranging from 25 to 100. The final overall CRAM score is the sum of the four final attribute scores, ranging from 25 to 100.

CRAM was conducted on the Otay River just upstream of the Bank site where the river comes out of the canyon using the Riverine module, within the Bank boundaries using the Depressional module at one of the three onsite seasonal pools, and on six vernal pool systems and one individual vernal pool as well as three non-channeled wet meadows within the Bank boundaries using the Slope module (Figure 3-20). This information will be used with the restoration design to project the expected "lift" to aquatic conditions following completion of restoration activities.

Table 3-8. CRAM Attributes and Metrics

Attributes		Metrics and Submetrics
Buffer and Landscape Context		Aquatic Area Abundance Buffer: Percentage of Assessment Area with Buffer Average Buffer Width Buffer Condition
Hydrology		Water Source Hydroperiod Hydrologic Connectivity
Structure	**Physical**	Structural Patch Richness Topographic Complexity
	Biotic	Plant Community Composition: Number of Plant Layers Number of Codominant Species Percentage Invasion Horizontal Interspersion and Zonation Vertical Biotic Structure

Table 3-9. Expected Relationship Between CRAM Attributes, Metrics, and Key Services

Attributes		Buffer and Landscape Context		Hydrology		Physical Structure		Biotic Structure				
	Metrics or Submetrics	Buffer and Landscape Connectivity Metrics	Water Source	Hydroperiod	Hydrologic Connectivity	Structural Patch Richness	Topographic Complexity	Number of Plant Layers	Number of Codominant Species	Percentage Invasion	Horizontal Interspersion	Vertical Biotic Structure
Key Services	Short- or long-term surface water storage	√		√	√	√	√				√	√
	Subsurface water storage		√	√	√		√					
	Moderation of groundwater flow or discharge	√	√									
	Dissipation of energy					√	√	√			√	√
	Cycling of nutrients	√		√	√	√	√	√	√	√		√
	Removal of elements and compounds	√		√	√		√	√			√	
	Retention of particulates			√	√	√	√	√	√		√	
	Export of organic carbon			√	√			√		√	√	√
	Maintenance of plant and animal communities	√		√	√	√	√	√	√	√	√	√

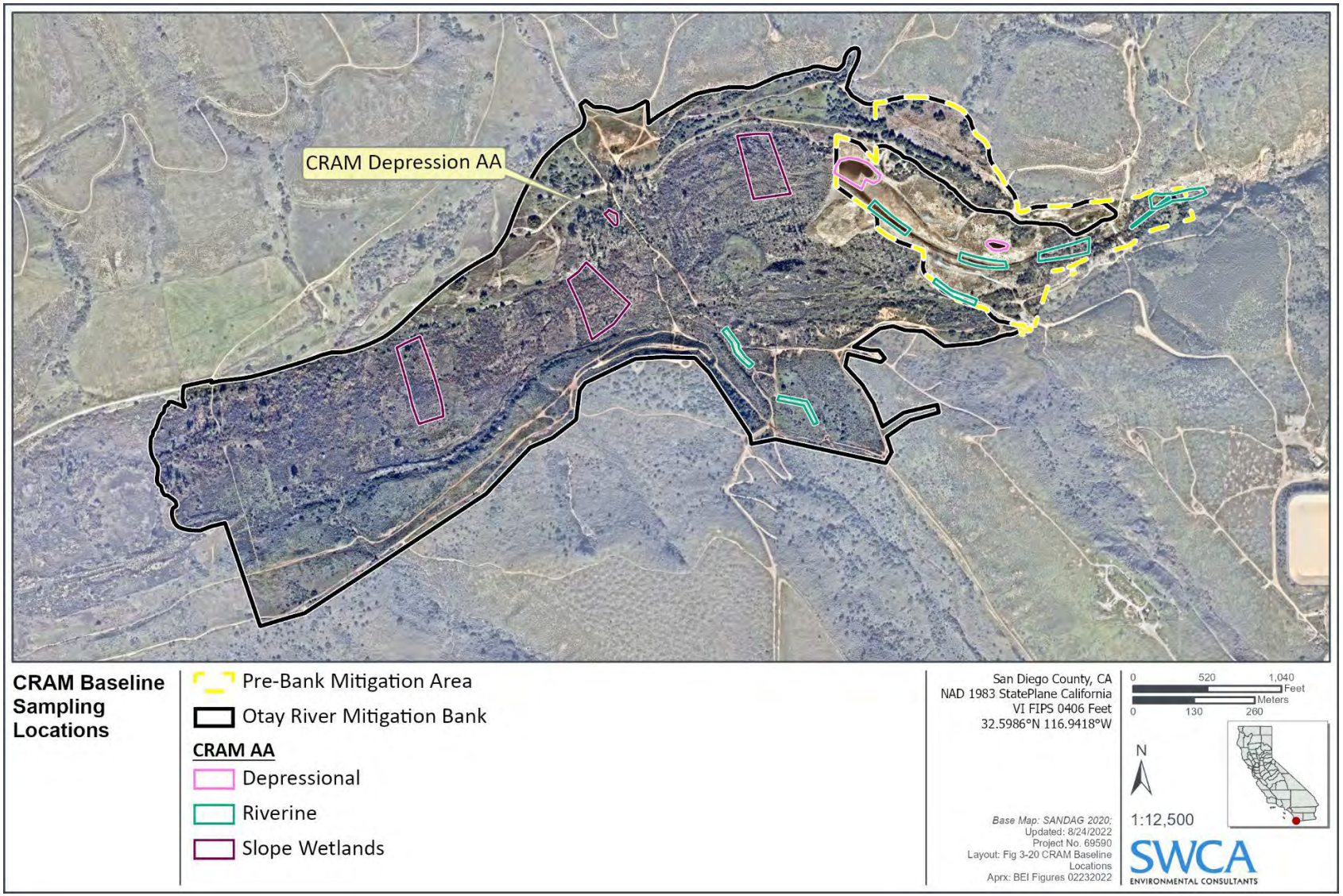


Figure 3-20. Baseline CRAM assessment areas.

A summary of the attribute scores for each of the CRAM AAs is provided in Table 3-10. The overall CRAM score for the offsite upstream segment of the Otay River was 74 and the onsite depressional wetland was 57. The average overall CRAM score for the vernal pool AAs was 70. A discussion of the scoring factors is provided below.

Table 3-10. CRAM Attribute Scores for Existing Aquatic Features

Assessment Area	Buffer and Landscape Context	Hydrology	Physical Structure	Biotic Structure	Overall CRAM Score
#1 – Riverine	93%	92%	37.5%	72%	**74**
#2 – Depressional	48%	83%	38%	61%	**57**
#1 – VP System	73%	100%	50%	25%	**62**
#2 – VP Individual	85%	100%	63%	25%	**68**
#3 – VP System	85%	100%	42%	25%	**63**
#4 – VP System	85%	100%	42%	42%	**67**
#5 – VP System	93%	100%	92%	63%	**87**
#6 – VP System	93%	100%	25%	63%	**70**
#7 – VP System	93%	92%	50%	67%	**75**
#8 – Slope	68%	58%	50%	54%	**58**
#9 – Slope	56%	58%	50%	54%	**55**
#10 – Slope	81%	58%	62%	54%	**64**

Attribute 1, Buffer and Landscape Context. Full 250-meter buffers were present throughout the AAs; however, they were primarily vegetated with non-native grasses or disturbed coastal sage scrub and subject to minor soil disturbance. The Aquatic Area Abundance score (proximity to other aquatic resources) for the Depressional AA and the Slop AAs were low due to the minimum amount of adjacent aquatic features, which affected the overall attribute score. The Aquatic Area Abundance score for the Vernal Pool AAs was high due to proximity to the Otay River and associated riparian habitat as well as other vernal pools.

Attribute 2, Hydrology. Due to the construction of the reservoir upstream, the watershed that drains to the AAs has diminished significantly. Because this has been the existing condition for the past century, the remaining watershed (i.e., excluding all areas upstream of the dam) was determined to be the appropriate watershed for this assessment. Water source throughout the site was primarily natural, with some runoff potentially occurring from the small amount of development surrounding the site. Some aggradation was observed in the Riverine AA, reducing its score to a B, while the Depressional AA received a reduced score in hydrologic connectivity due to its steep banks along approximately 60% of the AA. The Slope AAs received a reduced score due to lack of groundwater availability as well as urban discharge from Salt Creek.

The vernal pool AAs have micro-watersheds that drain directly into the pools. These were not altered, resulting in As for water source for all the vernal pool AAs. There is no artificial adding or removing of water resulting in As for Hydroperiod. Finally, flood waters are able to rise and interact with adjacent uplands without obstruction resulting in As for all but one AA.

Attribute 3, Physical Structure. Topographic Complexity and Structural Patch Richness scored low for the Riverine, Depressional, and Slope AAs. The AAs did not support benches and were generally flat along the channel/depression bottom.

One vernal pool AA scored a 92% for Physical Structure but the other six AAs scored low in this attribute due to few patch types, low pool and swale density, and little topographic complexity.

Attribute 4, Biotic Structure. Both the riverine and depressional AAs supported two to three plant layers with low species richness (three codominant species); the overall attribute scored low. However, invasive species were low in these areas, only accounting for 33% or less of the biotic structure. The Slope AAs scored moderate for species richness (four codominant species) and high percent invasion. These AAs scored moderate for plant life forms with four life forms within each AA.

The vernal pool AAs ranged from 25% to 67% for this attribute. The low scoring AAs were road ruts that had few co-dominants, few endemic species, and low horizontal zonation. The higher scoring AAs were the existing vernal pools in the floodplain that had a few more codominants and endemic species and more plant zones and edge resulting in higher Horizontal Interspersion and Zonation scores.

3.13 CULTURAL RESOURCES

Twenty-three cultural resources have been identified within the Bank site including 17 previously recorded cultural resources, one newly recorded cultural site, and five newly recorded isolated artifacts. Cultural resources surveys conducted in September 2018, April 2019, September 2019, and June 2021 relocated artifacts associated with 10 of the 17 previously recorded cultural resources. Table 3-11 provides a summary of the 23 resources located within the Bank site. All resources will be avoided, and a cultural resources monitor will be present during all initial grading activities. Portions of CA-SDI-10875 were located in the Pre-Bank portion of the project. The USACE conducted Section 106 consultation with the State Historic Preservation Office (SHPO) beginning in October 2015, for potential impacts to CA-SDI-10875. In December 2015, the SHPO concurred with the USACE determination that CA-SDI-10875 was eligible for listing on the National Register of Historic Places but that restoration activities would have No Adverse Effect. The other 22 cultural resources have not been formally evaluated for listing in the National Register of Historic Places or the California Register of Historical Resources to date. Cultural resources are treated as potentially eligible for listing in the California Register of Historical Resources until formal evaluation. SWCA will be conducting further subsurface exploration in areas of potential ground disturbance to determine if subsurface archaeological deposits exist in those areas. A treatment plan will be developed if subsurface deposits are identified. As part of the Mitigation Bank permit process, potential effects to historic resources will be assessed and the USACE will determine if Section 106 consultation is required with the SHPO for the Area of Potential Effects.

Table 3-11. Cultural Resources Located within Bank Site

Resource	Type	Description
CA-SDI-4728/ P-37-004728	Prehistoric site	Lithic scatter. Two artifacts identified within the small portion of the resource located in the Bank site.
CA-SDI-4732/P-37-004732	Prehistoric site	Lithic scatter. Six artifacts identified within the small portion of the resource located in the Bank site.
CA-SDI-4733/P-37-004733	Prehistoric site	Lithic scatter. No artifacts identified within the small portion of the resource located in the Bank site.
CA-SDI-4735/ P-37-004735	Prehistoric site	Lithic scatter. One artifact identified within the small portion of the resource located in the Bank site.

Resource	Type	Description
CA-SDI-7212/ P-37-007212	Prehistoric site	Lithic scatter
CA-SDI-8649/ P-37-008649	Prehistoric site	Lithic scatter. No artifacts identified within the small portion of the resource located in the Bank site.
CA-SDI-10875/ P-37-010875	Prehistoric site	Lithic scatter. Eligible for listing in the National Register of Historic Place
CA-SDI-14216/ P-37-14575	Prehistoric site	Lithic scatter. Lithic scatter. One artifact identified within the small portion of the resource located in the Bank site.
CA-SDI-14199/ P-37-014566	Prehistoric site	Lithic scatter
CA-SDI-14216/ P-37-014583	Prehistoric site	Lithic scatter. Not relocated during survey.
CA-SDI-14218/ P-37-014585	Prehistoric site	Lithic scatter
P-37-015386	Prehistoric isolate	Isolate (collected)
P-37-015391	Prehistoric isolate	Isolate (collected)
P-37-031365	Prehistoric isolate	Isolate
P-37-031366	Prehistoric isolate	Isolate
P-37-032254	Historic site	Historic corral
P-37-034106	Prehistoric isolate	Isolate
ICF-OH-P-001	Prehistoric site	Sparse lithic scatter
ICF-OH-ISO-001	Prehistoric isolate	Isolate
ICF-OH-ISO-002	Prehistoric isolate	Isolate
ICF-OH-ISO-003	Prehistoric isolate	Isolate
ICF-OH-ISO-004	Prehistoric isolate	Isolate
ICF-OH-ISO-005	Prehistoric isolate	Isolate

3.14 PAST, PRESENT AND PROPOSED USES OF MITIGATION SITE AND ADJACENT AREAS

The Bank site is currently undeveloped and as stated in Section 1.2.4 is located within the Otay Ranch Preserve (Preserve), a dedicated open space preserve. The Preserve was set aside as open space to protect, preserve, enhance, and manage sensitive natural and cultural resources within Otay Ranch area as part of the City of Chula Vista General Development Plan/San Diego Otay Subregional Plan Phase 2 and the Otay Ranch RMP. The Preserve was also set aside to offset impacts and provide mitigation to state and federally listed species. The Preserve is currently managed by the Preserve Owner/Manager (POM) which is composed of the County of San Diego and City of Chula Vista and the Preserve will be included in the City of Chula Vista's subarea plan which is part of the City of San Diego and County of San Diego MSCP. Although the Bank is located within lands that are currently preserved and are part of a large comprehensive mitigation approach for the MSCP, the lands are not required to be restored as part of any permits or approvals. However, restoration activities are permitted (and encouraged) with the Preserve. As stated in Section 3.2.1 of the RMP, "*Preserve management activities, including biological monitoring, habitat restoration and enhancement, and maintenance activities, are permitted within the Preserve. All such activities shall be consistent with the respective jurisdiction's MSCP Subarea Plan and are subject to approval by the POM. Preserve management, scientific, and biologic activities may include (but are not limited to) the following uses: 1. Wetland mitigation banking [2.10]. 2. Habitat restoration [3.1-3.8]. 3. Biological monitoring [5.2, 5.4]…"* Section 3.2.1.1. Mitigation banking goes on further to state, "*Mitigation banks may be established in areas with high biological values within the Preserve. The*

establishment of mitigation banks would require approvals from the respective jurisdiction and Wildlife Agencies, and would be required to comply with all applicable federal and state regulations. Opportunities and plans for mitigation banks may be developed on Preserve lands held in public and private ownership in conjunction with preparation of wetland enhancement and restoration plans for the Otay River Valley and/or the vernal pool preservation plan. All revenue generated by wetland mitigation banks established by the POM shall be used to fund Preserve activities [2.10]." (RECON 2018). All revenue generated on City of Chula Vista owned lands will be used to fund further restoration efforts in the Preserve. Revenue generated on Bank Sponsor owned lands will be the possession of the Bank Sponsors. Section 3.2.1.2 Habitat Restoration in the RMP states, "*Restoration programs intended to mitigate for disturbance of sensitive habitats associated with the development of Otay Ranch shall be funded and designed by the landowner in coordination with the POM and the appropriate jurisdiction. Implementation of such restoration programs shall be by an appropriate entity acceptable to the POM and the appropriate jurisdiction [3.2]. Restoration programs may be implemented for purposes other than compensation of impacts associated with development of Otay Ranch. Such programs shall be funded, designed, and implemented by the POM or other entity acceptable to the POM [3.3]. The POM will continue to identify potential restoration opportunities for threatened, endangered, and other sensitive species [3.8]. These restoration opportunities will be identified and implemented through the annual work plan prepared by the POM. The POM may also apply for ancillary funds (e.g., grants) to implement additional restoration activities*." (RECON 2018).

As mentioned in the sections above, the Bank was historically mined for sand and gravel and was not restored post mining activities. As such it does not contain a defined riverine channel or floodplain, and it contains large cobble and bolder piles within the floodplain area left over from mining and is vegetated with a substantial amount of invasive species. Implementation of the Bank will greatly increase the existing functions and services of aquatic resources and upland areas beyond what is required of the City of Chula Vista General Development Plan/San Diego Otay Subregional Plan Phase 2, the RMP, or the MSCP.

Open space, as part of the Otay Ranch Preserve, borders the northern and western sides of the Bank. Immediately to the east of the Bank are parcels owned by the County of San Diego and City of San Diego as well as BLM and one parcel owned by the City of Chula Vista. These parcels include the steep narrow canyon of the Otay River as well as hilly and mountainous areas. Further to the north and east of the Bank is the Otay Mountain Ecological Reserve owned by CDFW, the Otay Mountain Wilderness administered by the BLM and City of San Diego Public Utilities/Cornerstone Lands (see Figure 1-5 in Section 1). The City of San Diego Water Treatment Plant is located northwest of the Bank, and the Richard J. Donovan and George Bailey Correctional Facilities are to the south. Several residential/commercial mixed-use developments are planned to the north/northwest of the Bank up on the mesa top, including Otay Ranch Village 9, Otay Ranch Village 10, and the University District; however, these developments would not drain to the Bank, rather they would drain further west to the river valley. Further upstream above Otay Lakes, Otay Ranch Villages 13, 14, 15, and 17 are planned for the future (Figure 3-21). The diversion of natural drainage would reduce inputs to the Bank. These proposed developments, in particular, contribute flow to the bottom reach of the site, but are only a small portion of the overall contributing watershed of Salt Creek.

3.14.1 Current and Future Trails

A small portion of the Bank is within the Greenbelt Master Plan boundaries and entirely within the OVRP Concept Plan boundaries. Both of these plans identify future multiuse trails within the Bank limits, including prioritizing the use of existing dirt roads and unofficial trails as well as select new trails where needed to improve trail user experience, avoid sensitive resources, and complement other uses on site. The vast majority of the proposed trails are in the upland areas and are outside of the Bank limits.

However, a few select trails do cross into the Bank limits. These trails are generally existing dirt roads and easements and are currently used for monitoring by Border Patrol, and for utility maintenance and access by SDG&E, City of San Diego, the City of Chula Vista, and OWD. Some of the roads/trails are official easements while others are unofficial, illegal roads and trails. SDG&E accesses and uses some of the roads monthly to monitor the conditions of their power poles and underground gas line. SDG&E access is not tied down to a particular route. Instead, it is described as access by practical route or routes. This allows SDG&E to get to their facilities over the larger parcel in the most practical route possible. Most SDG&E easements have access describe this way, while some easements have a defined access route.

OWD manages a pipeline upstream of the Bank site and accesses supporting infrastructure throughout their right-of-way at the Bank. Many of the trails, although unofficial and on private property, are also periodically used by hikers, cyclists, recreational ATV riders, and equestrians; several are official utility rights-of-way. The general area surrounding the Bank is also a travel route for people entering the United States illegally from Mexico; there is immigrant foot traffic through the river valley and a corresponding significant use of the area by Border Patrol agents using off-road vehicles.

The Bank will implement several improvements to existing informal (not designated) trails and roads as well as decommission redundant roads and excess areas along trail shoulders (Figure 3-22 and 3-23). Select secondary and multiuse trails will be added where strategic access needs exist or to create a unique trail user experience while avoiding sensitive areas. Overall, more trails will be decommissioned than will be created. An SDG&E gas line crosses the mainstem river approximately halfway through the Bank limits and is located under placed rock that is also used for access. This crossing will be reconfigured into a rock-lined or concrete mat crossing to facilitate maximum ecological function while allowing SDG&E full access.

The trail network will be used by the general community including hikers, pedestrians, mountain bikers, and equestrians. To prevent the sensitive habitat at the Bank from being disturbed by existing and future users, wooden split-rail fencing would be installed at key locations along with signage to notify users of sensitive habitats in the area. In addition, large boulders and wood from downed eucalyptus will also be used for deterrents where appropriate to aid in the natural feel of the site. Educational kiosks would also be installed at key viewing locations within the disturbed areas to help inform the readers of the importance of the Bank and surrounding habitat.

All trails will be open to the public for passive recreational use. In an effort to minimize environmental impact, many of the existing onsite trail routes will remain and be improved in various ways. The trail system includes primary and secondary trails. Primary trail routes will be wide enough for authorized maintenance vehicle access including all SDG&E vehicles, while secondary trail routes include several existing trails that will be decreased in width and improved with added native vegetation along the edges and in the reclaimed shoulder areas. Primary trails will be up to 16 feet wide, with a compacted surface. Secondary trails will be 4 feet wide with compacted soil. From a construction standpoint, the existing trails onsite fall into three sub-categories: Existing, Improved, and New. Existing trails include portions of trails that will have no need for demolition, grading, or construction. Improved trails include portions of existing trails that need to be leveled out, graded, or slightly moved to improve drainage and minimize environmental impacts or work with the proposed new channel network and adjacent topography. New trails include entirely newly constructed trails that are necessary to improve the safety of pedestrians and authorized vehicles using the trail while incorporating sustainable methods for construction such as local material to minimize environmental impacts.

The trail network has been designed to weave through the habitat areas, providing views into the site, including educational kiosks (Figure 3-24). The design intent is to provide multiple lengths of trail access and varied topographic experience for different user groups.

Onsite, most of the existing trails are wide enough for vehicular traffic (border patrol and SDG&E use), with many being oversized due to ongoing impacts from authorized and unauthorized vehicle use during the rainy season. Those that are larger than needed will be reduced in size by reclaiming the shoulders with native vegetation. Many of the redundant trails will be closed and shoulders reclaimed to decrease the overall footprint. A variety of natural materials and fencing will be placed to discourage off-trail uses. Secondary trails will also include deterrents for all vehicles ensuring that they only allow pedestrian, mountain bike, and equestrian access. These secondary trails will change high-use vehicular traffic areas into recreational areas for bikes, pedestrians, and equestrians by reducing trail widths and complementing the landscape with a carefully chosen plant palette designed to match the existing native habitat. In order to limit impacts to San Diego fairy shrimp and to avoid encouraging non-natives, the reclaimed roads and shoulders will not be ripped or graded. The intent is to allow native vegetation to encroach into those areas from the adjacent habitat and supplemental plant and seed where needed. Those areas will be managed for non-native species as well.

Although not formally included in the design, select areas have been identified for potential mountain bike features. The project would work with local mountain bike groups to design and field fit features that complement the larger goals of the project while providing opportunities for mountain biker enjoyment. Features could include such as boulders, embankments, and rolling terrain. Partnering with the local mountain bike community creates ownership of the trails and discourages off-trail activities.

3.15 REFERENCE SITE

Because of the degraded nature of the Bank site due to past mining activities and the significant change in hydrology from the upstream dam and its uniqueness (broad and sandy) relative to the surrounding areas, no reference site for the development of performance standards has been identified. However, the San Luis Rey River and portions upstream of the Bank site in the Otay River were used as reference systems for the design of the project. Additionally, the area just upstream of the Pre-Bank mitigation site will be used to track regional climate trends. Monitoring, including CRAM, vegetation transects, and macroinvertebrate studies, will be performed in this area (Figure 3-23) to determine if changes within the Bank are due to restoration activities or are being experienced locally due to weather (more or less precipitation, average temperatures, etc.). Additional information on quantitative monitoring can be found in Section 6.5.

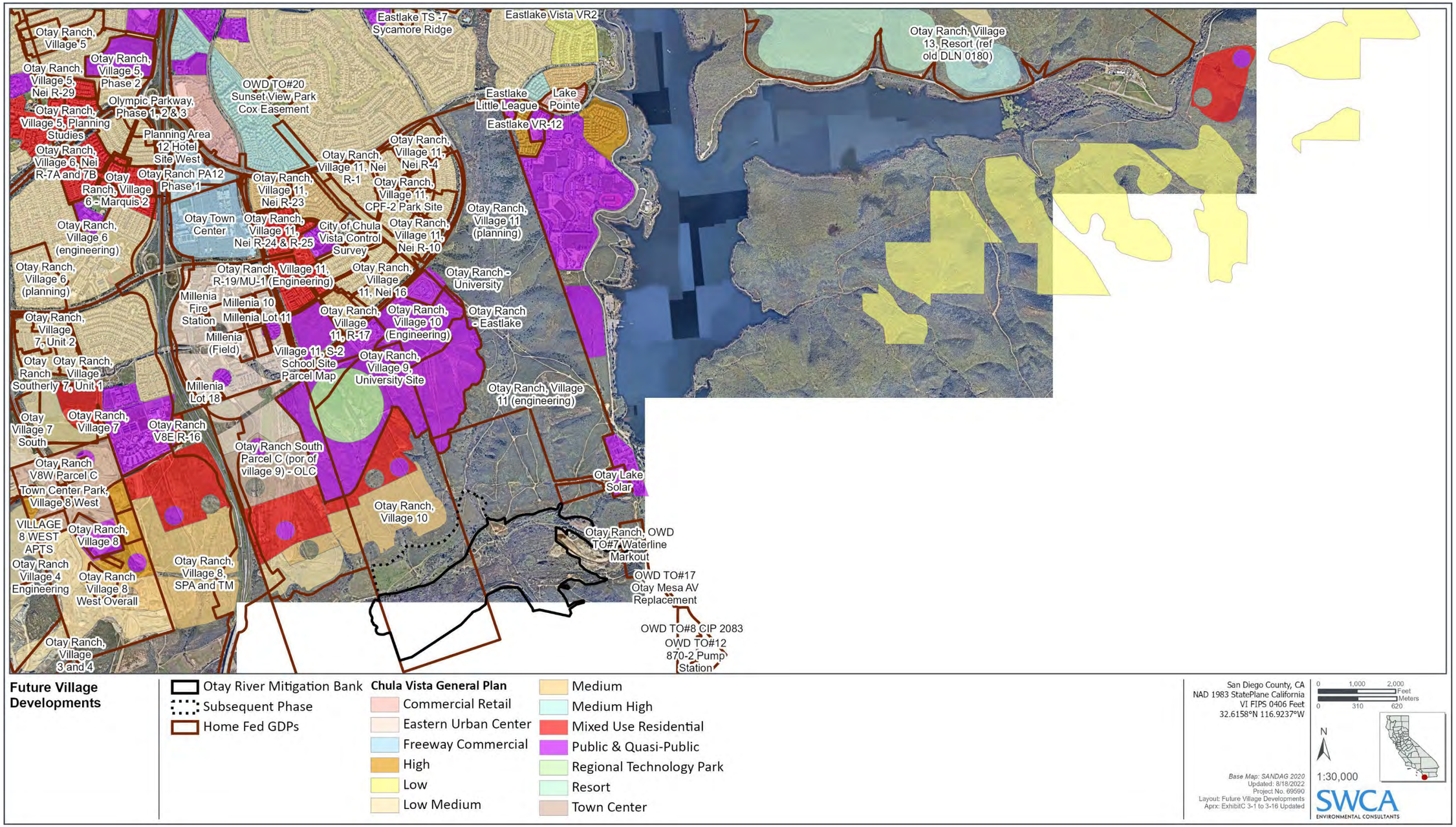


Figure 3-21. Future village developments.

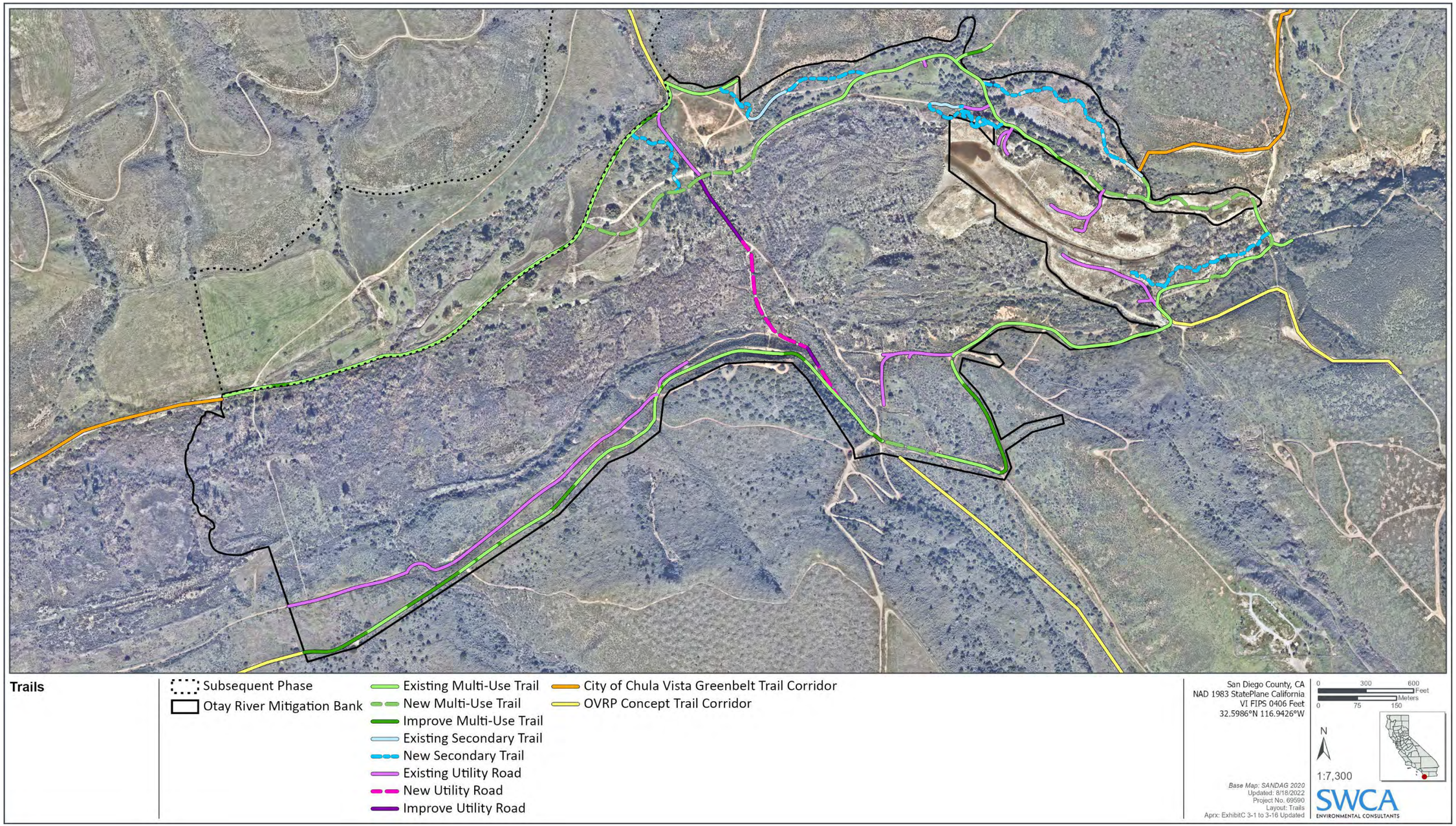


Figure 3-22. Trails.

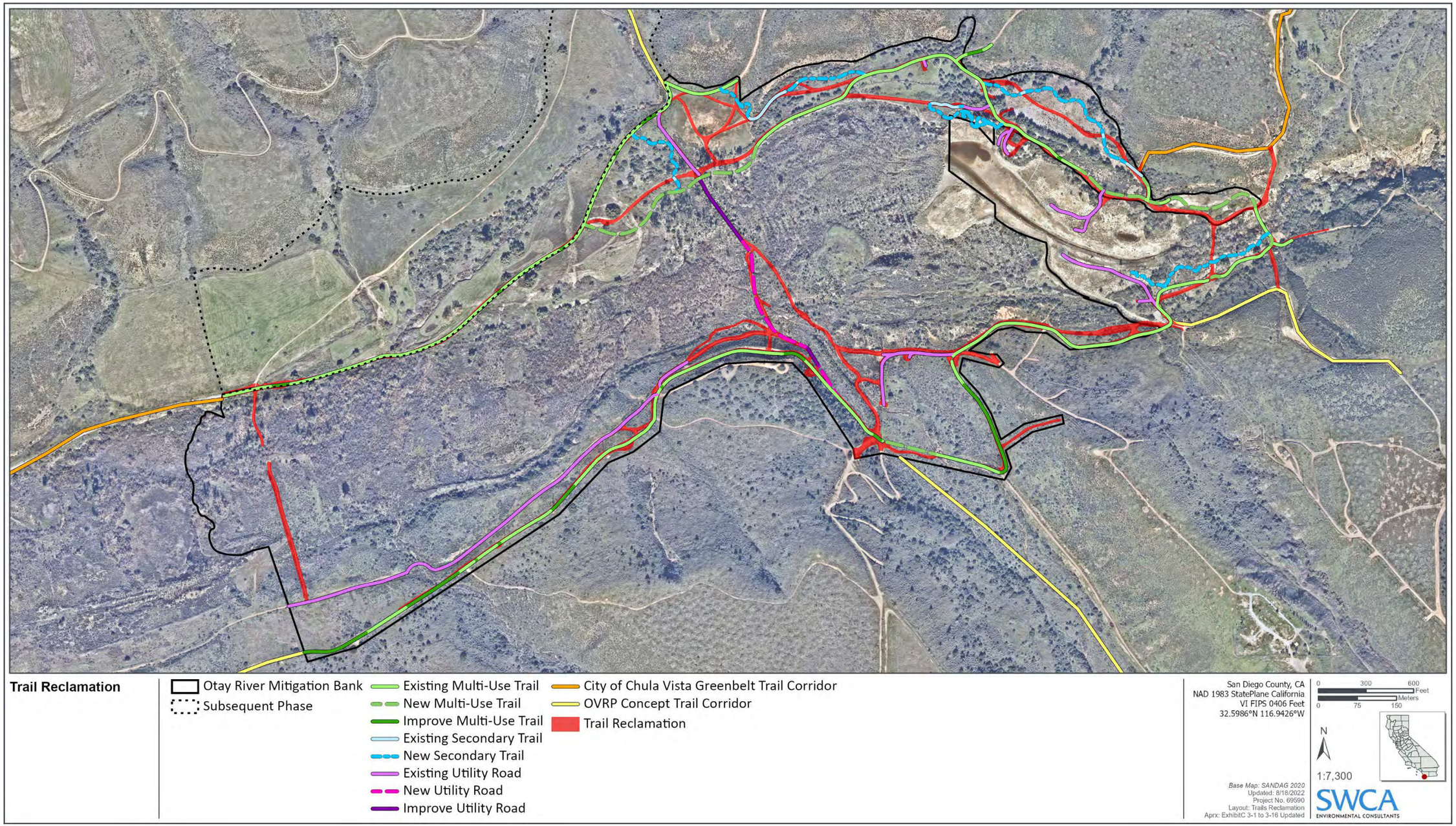


Figure 3-23. Trail reclamation.

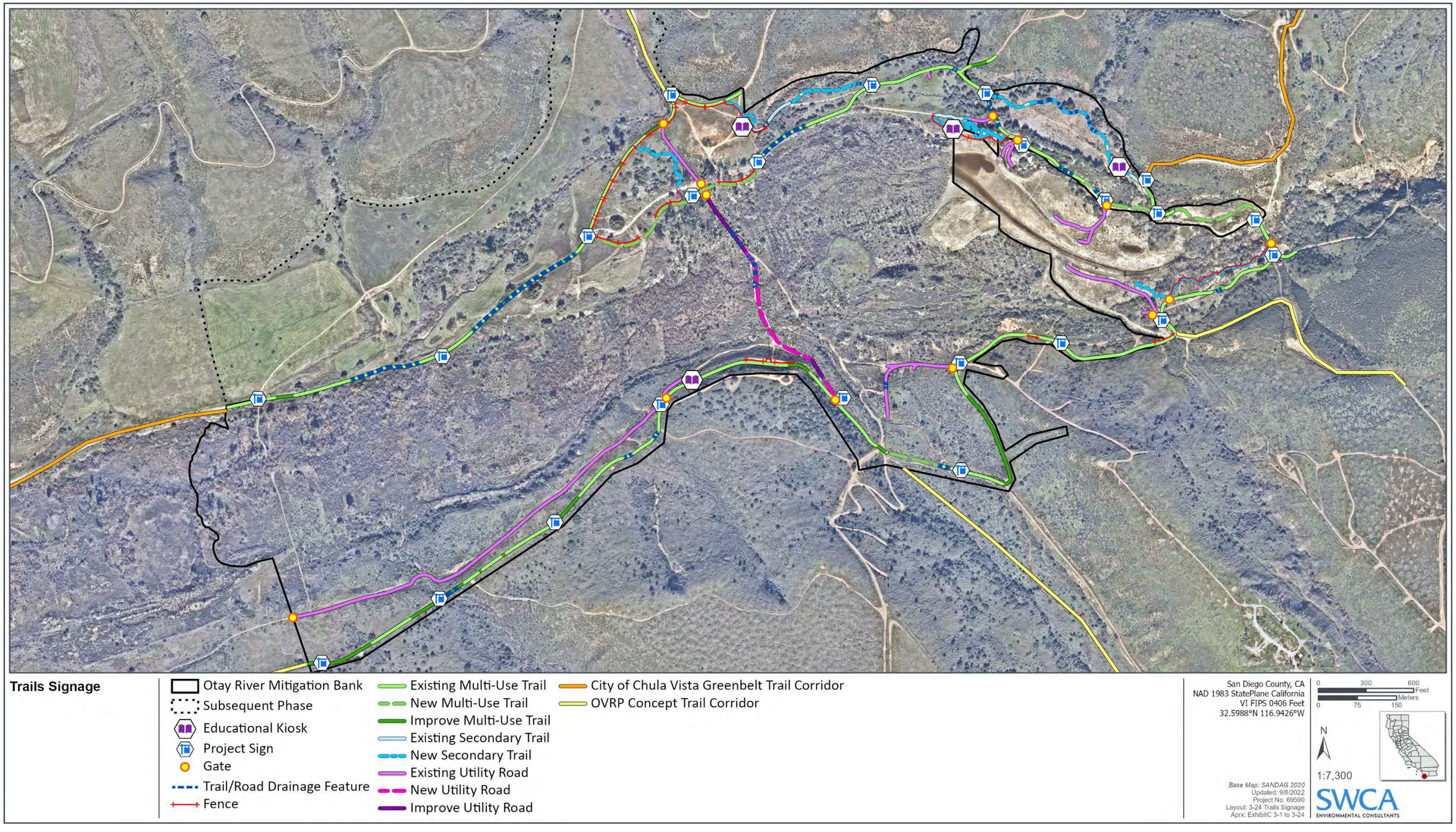


Figure 3-24. Trails signage.

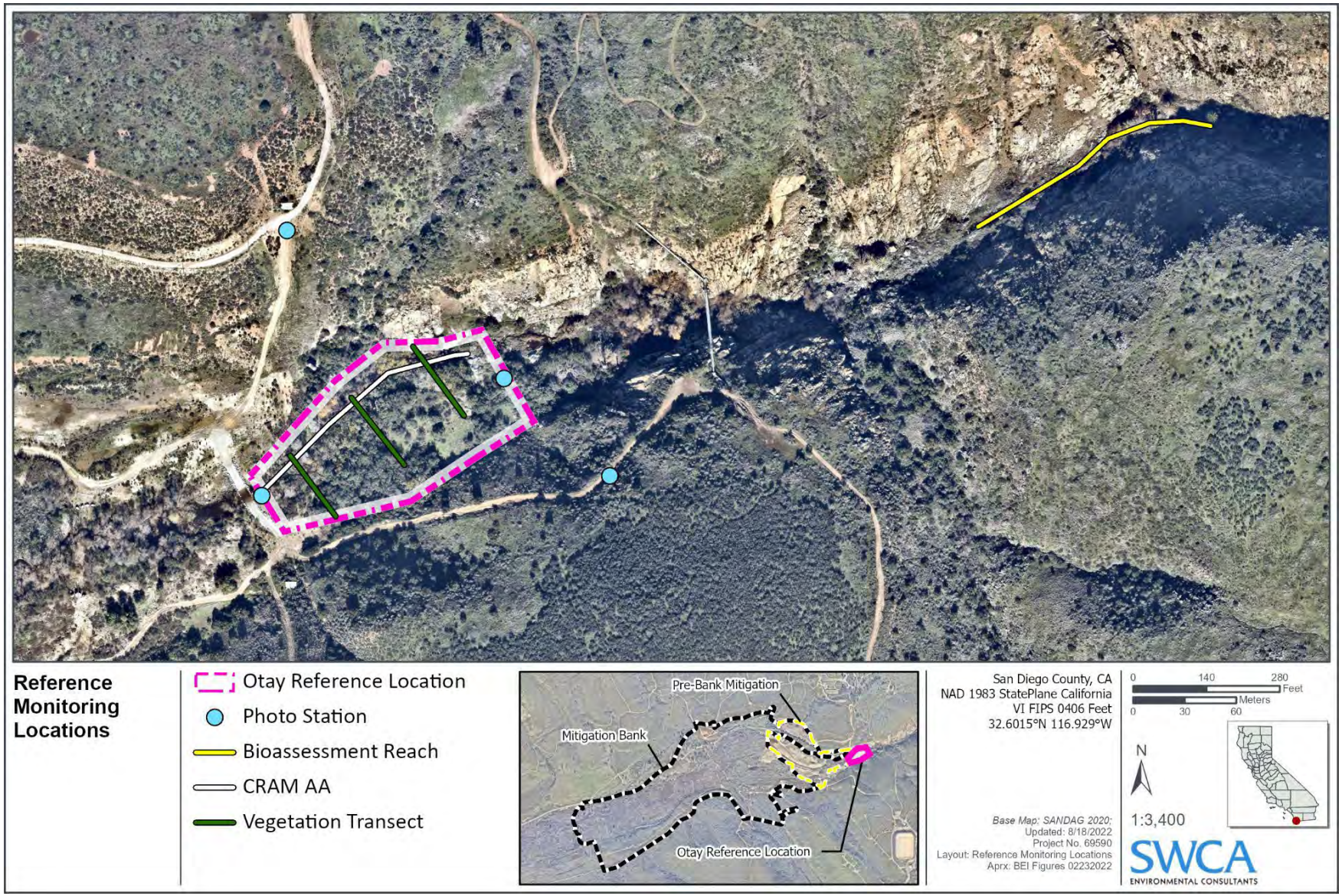


Figure 3-25. Reference monitoring locations.

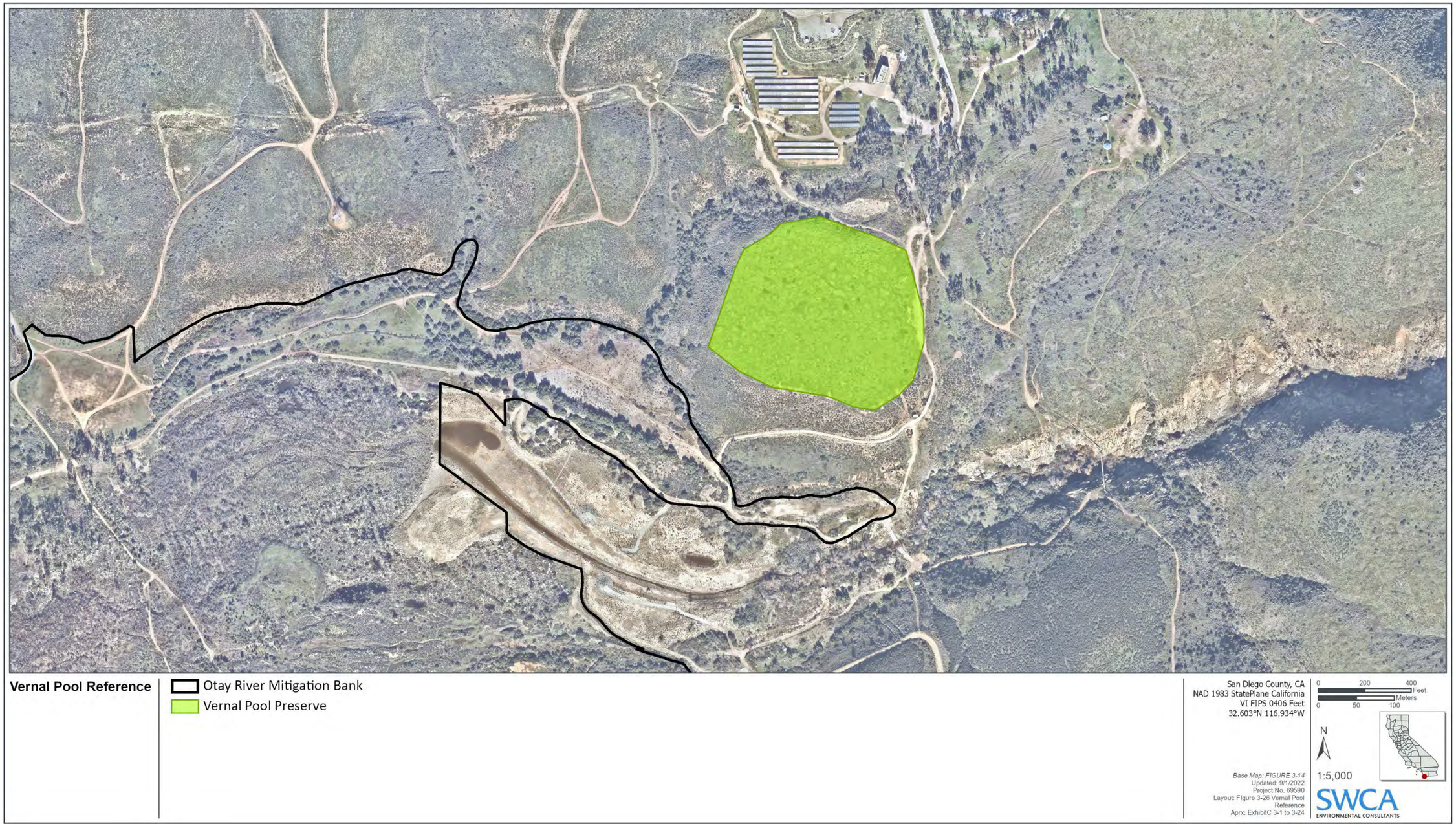


Figure 3-26. Reference vernal pool locations.

CHAPTER 4. MITIGATION DESIGN

4.1 SITE SELECTION PROCESS

The Bank site was selected after reviewing nearby compensatory mitigation opportunities and watershed planning documents including the WMP and SAMP. The Otay River Valley is an important historic waterway that has existed in a highly disturbed state for decades. This area was targeted for restoration activities due to it being the farthest upstream section of the Lower Otay River watershed (watershed below Savage Dam) that has not been restored, and its adjacency to an existing mitigation site and various surrounding open space lands. This location follows the USACE's watershed approach to site selection and represents the crucial first step in the overall restoration of the Lower Otay River subbasins that exist below Savage Dam. The project would play a critical role in the success of future downstream restoration efforts by removing significant upstream invasive seed sources and improving hydrology and wetland functions.

4.2 DESIGN HYDROLOGY AND HYDRAULICS

Development of an appropriate restoration design to meet the goals and objectives for the Mitigation Bank requires an understanding of historic, existing, and expected hydrologic and hydraulic conditions (Appendix J). Channel-forming events in the Otay River Valley are infrequent and minor due to the press disturbance of Savage Dam. Spillover events have occurred once every seven years on average since 1919, thought little is known about the exact volume or timing of water entry into the Otay River. Due to the lack of available information about dam operations, reservoir capacity, or released flows, the addition of these overtopping events has not been specifically included in design. Current hydraulic modeling does not include flows from the watershed that drains to Lower Otay Lake, therefore modeled surface flows are less than what may be expected during events larger than a 7-year return interval. Spillover events from the dam provide a rare opportunity for morphological change in the floodplain following restoration through interactions with the designed channels, depressions, and terraces.

Two types of surface flows dominate the Mitigation Bank site: lower flood flows (<10-year event) and higher flood flows (>10-year event). Runoff from subbasins downstream of Lower Otay Reservoir dominate lower flood flows of all channels and higher flood flows of tributaries. Spills over the Lower Otay Reservoir dominate higher flood flows within the Otay River floodplain. In order to determine lower flood flows and higher flood flows for tributaries for the Project site, ICF modeled hydrology using USACE's Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) (USACE 2018) and methods described in the National Engineering Handbook and the *San Diego County Hydrology Manual* (County of San Diego 2003). ICF has adopted Federal Emergency Management Agency (2109) hydrology for flood flows as published in the City of Chula Vista Flood Insurance Study. Table 4-1 shows the peak flows using in the hydraulic modeling for different areas in and around the Bank.

Table 4-1. Peak Flows for the Project Site Used in Hydraulic Modeling

	Discharge (cfs) for Recurrence Interval				
	2-Year	5-Year	10-Year	25-Year	100-Year
Below Savage Dam	72	190	282	414	640
Cactus Wren Creek	40	80	110	153	223
Bobcat Creek	43	88	121	167	244

	Discharge (cfs) for Recurrence Interval				
	2-Year	**5-Year**	**10-Year**	**25-Year**	**100-Year**
Vireo Seasonal Wetland	21	50	72	103	156
Quino East Seasonal Wetland	2	6	8	11	17
Quino West Seasonal Wetland	7	16	23	33	50
Johnson Creek	40	90	127	181	271
O'Neal Canyon	290	666	950	1353	2028
Salt Creek	456	856	1151	1566	2256

Inundation extent, velocities, and depths for historic, existing, and proposed conditions are determined using a hydraulic model. A two-dimensional hydraulic model using USACE's Hydrologic Engineering Center's River Analysis System (HEC-RAS) has been developed. The results of this analysis informed the grading design and plant palette/distribution. Existing and proposed inundation extents for the 2-, 5-, 10-, and 25-year storm event are outlined in Figures 4-1a through 4-1j.

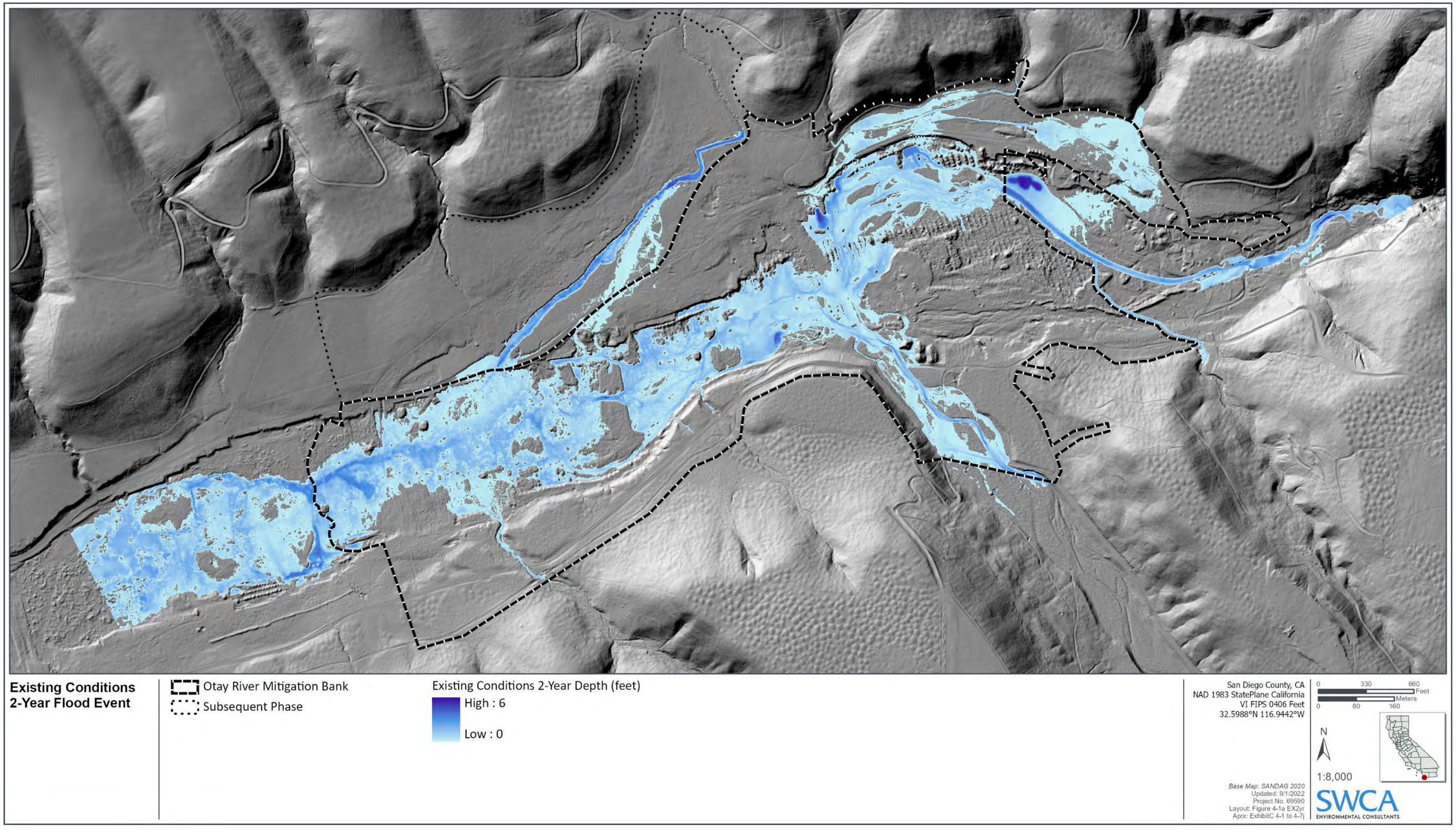


Figure 4-1a. Existing conditions 2-year flood event.

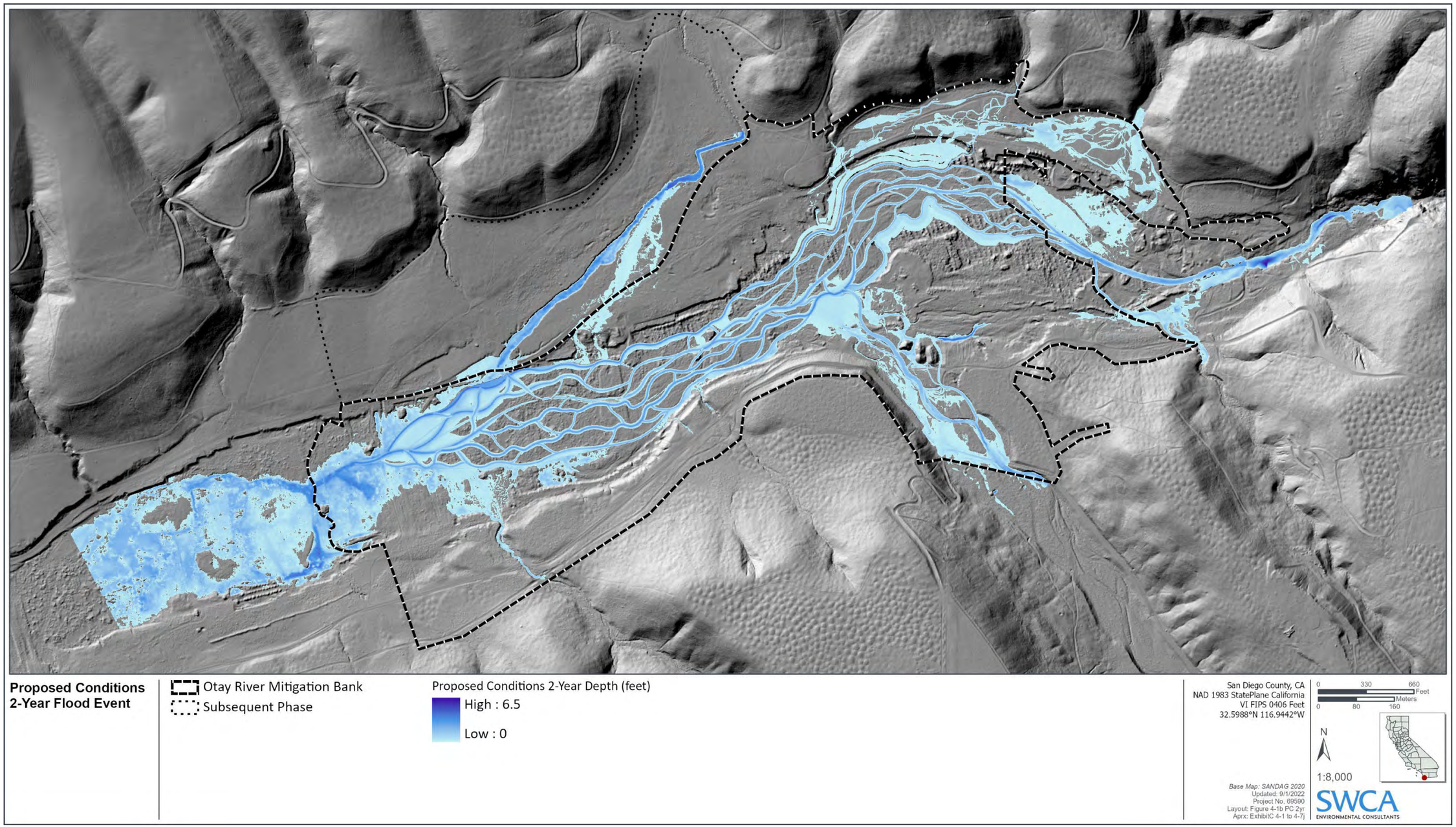


Figure 4-1b. Proposed conditions 2-year flood event.

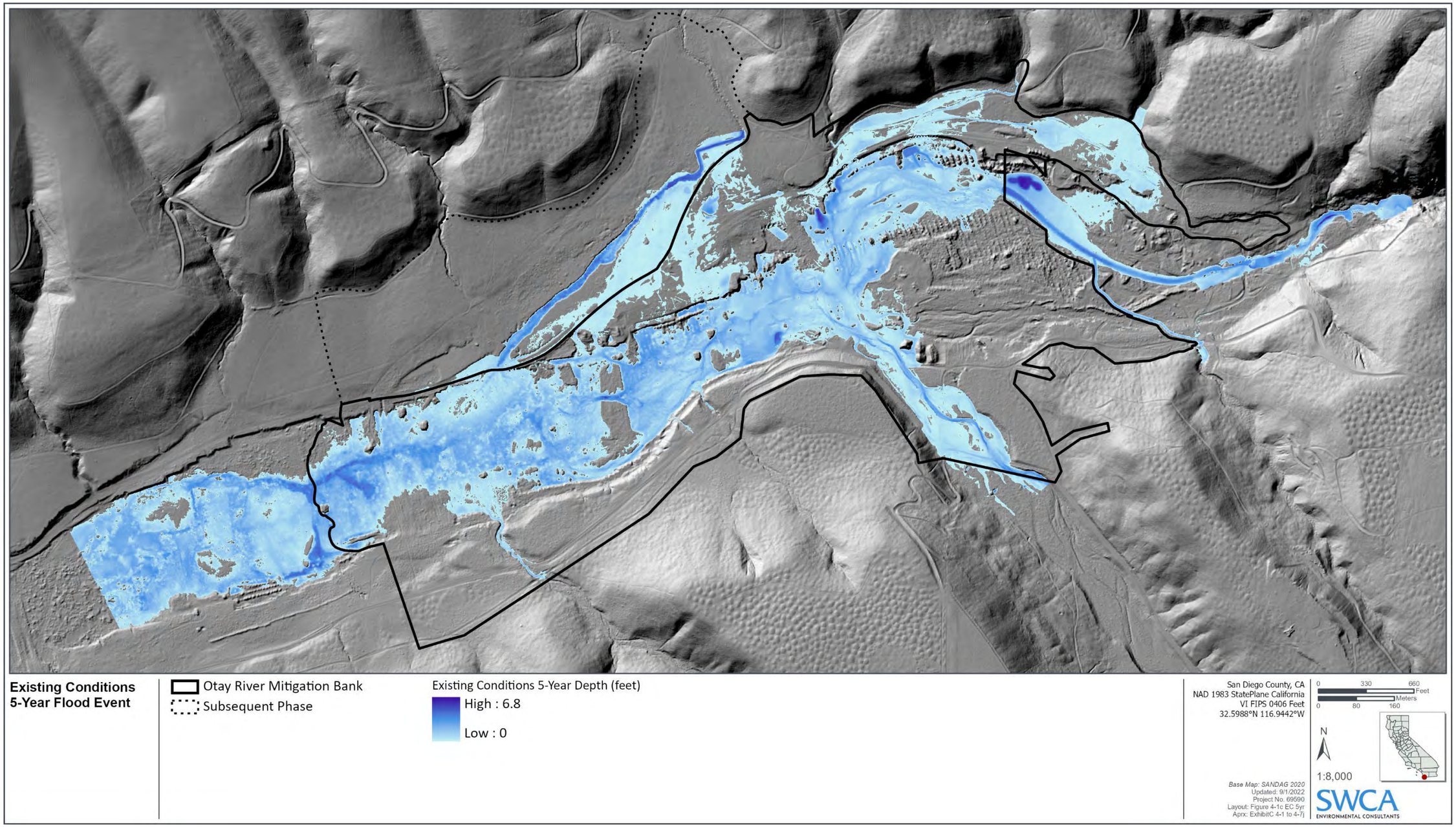


Figure 4-1c. Existing conditions 5-year flood event.

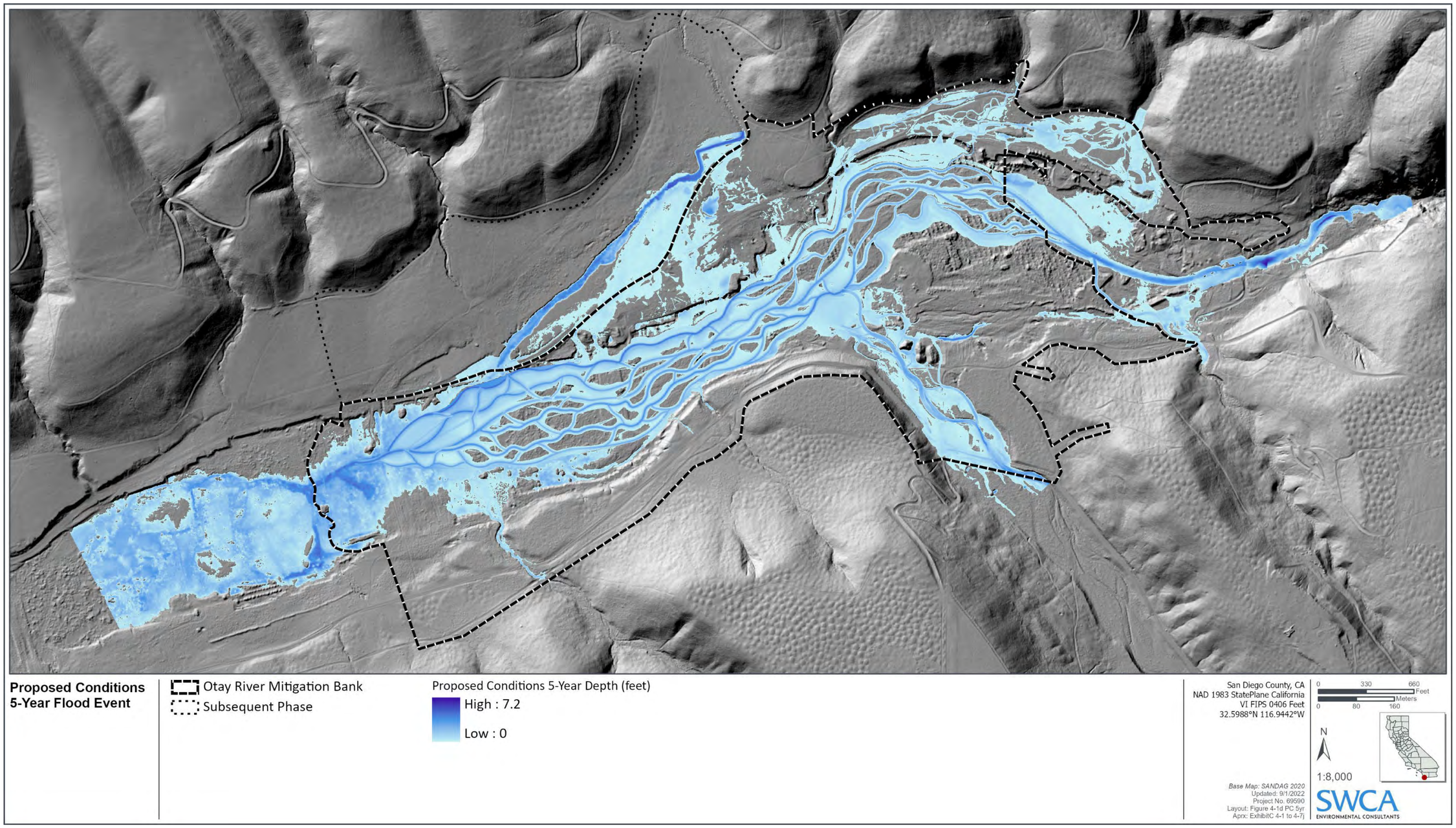


Figure 4-1d. Proposed conditions 5-year flood event.

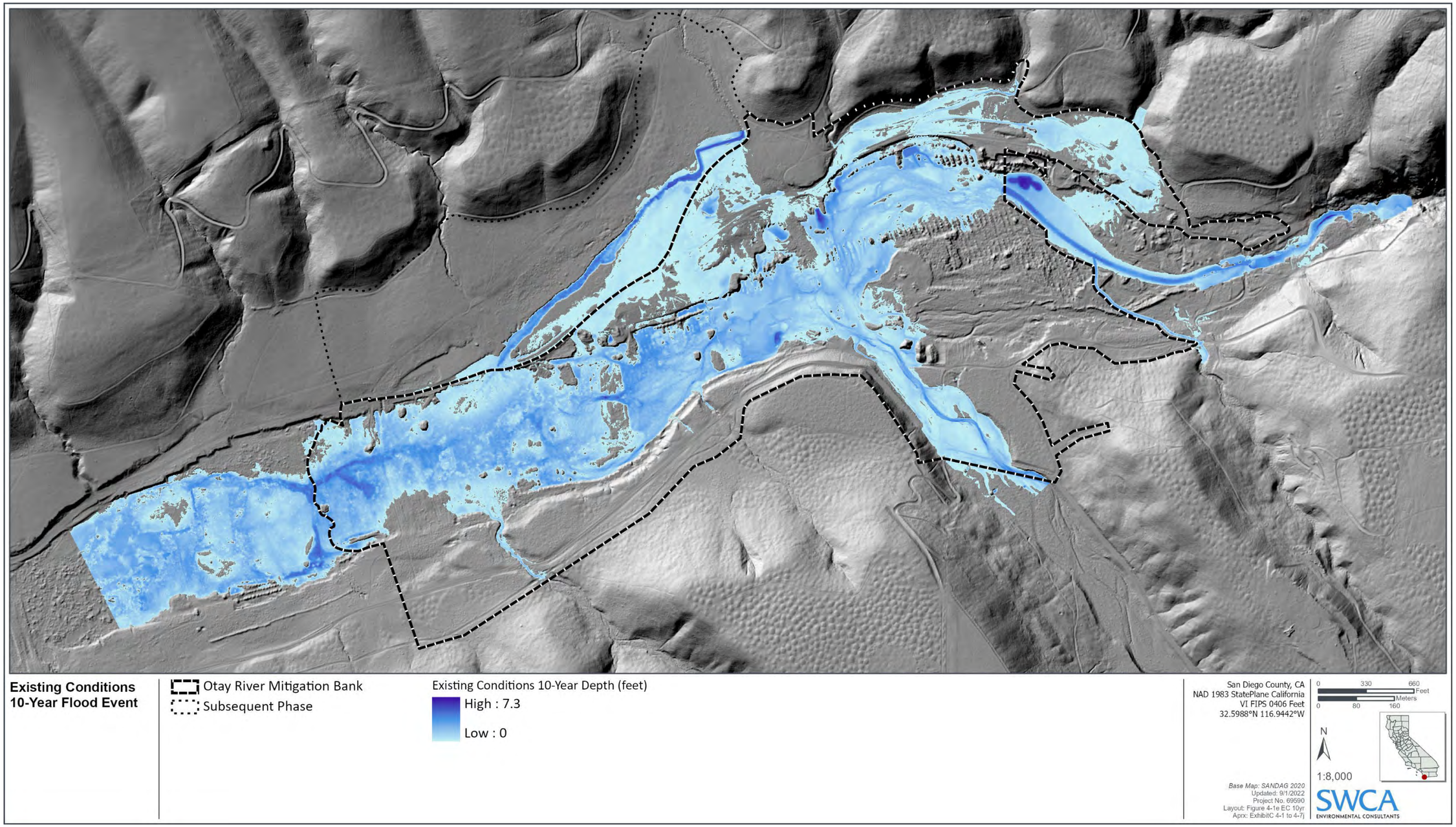


Figure 4-1e. Existing conditions 10-year flood event.

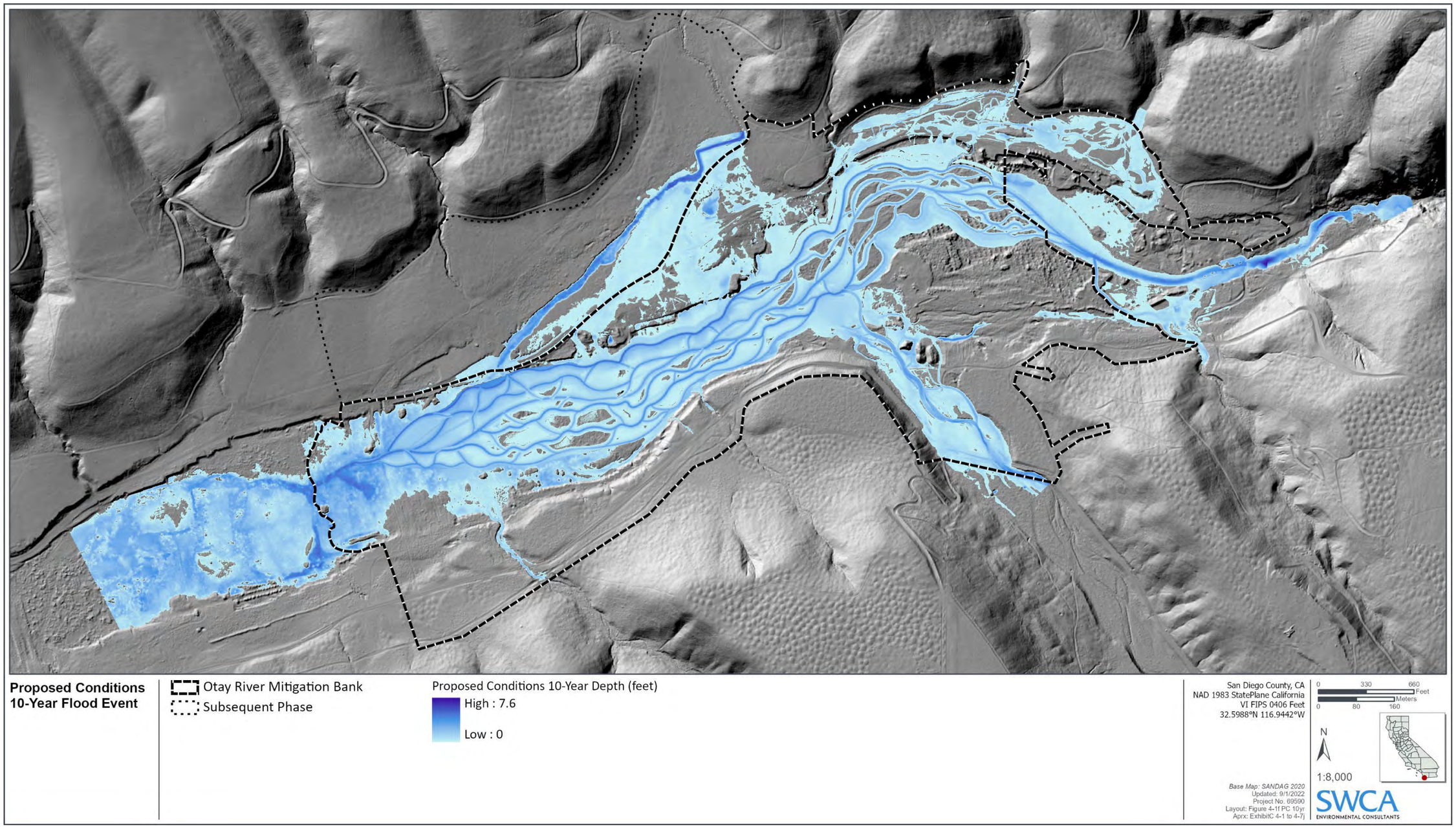


Figure 4-1f. Proposed conditions 10-year flood event.

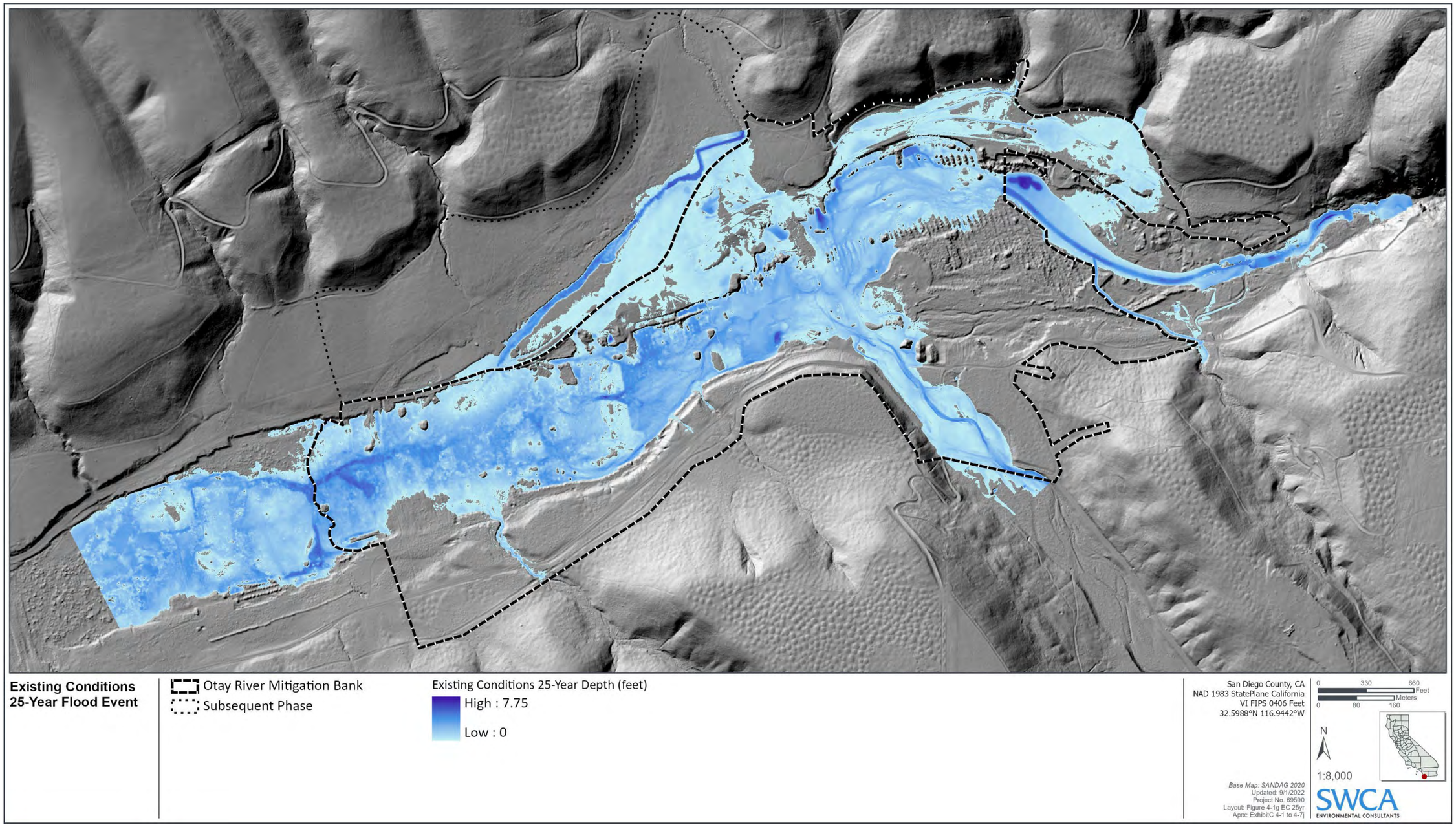


Figure 4-1g. Existing conditions 25-year flood event.

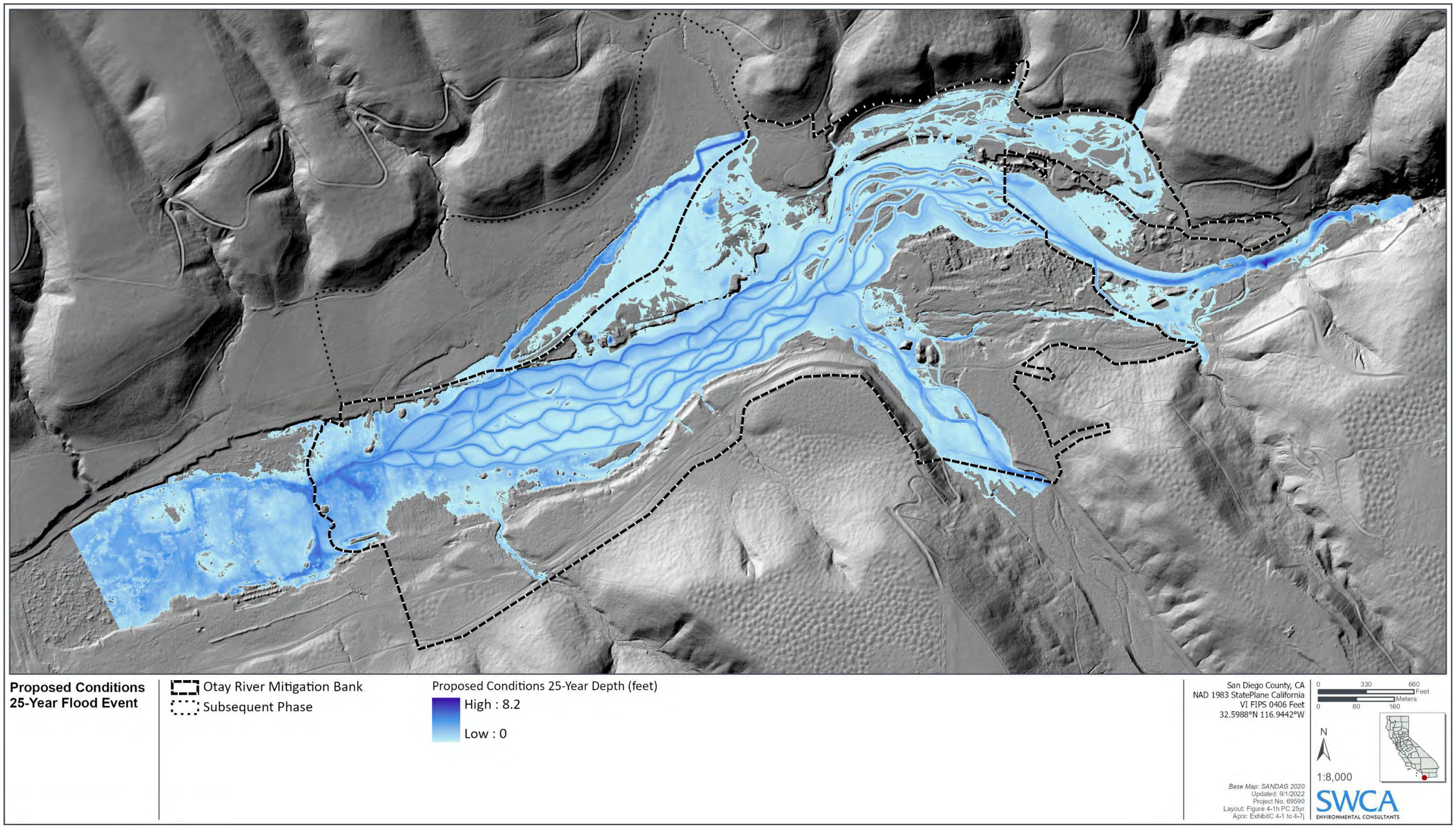


Figure 4-1h. Proposed conditions 25-year flood event.

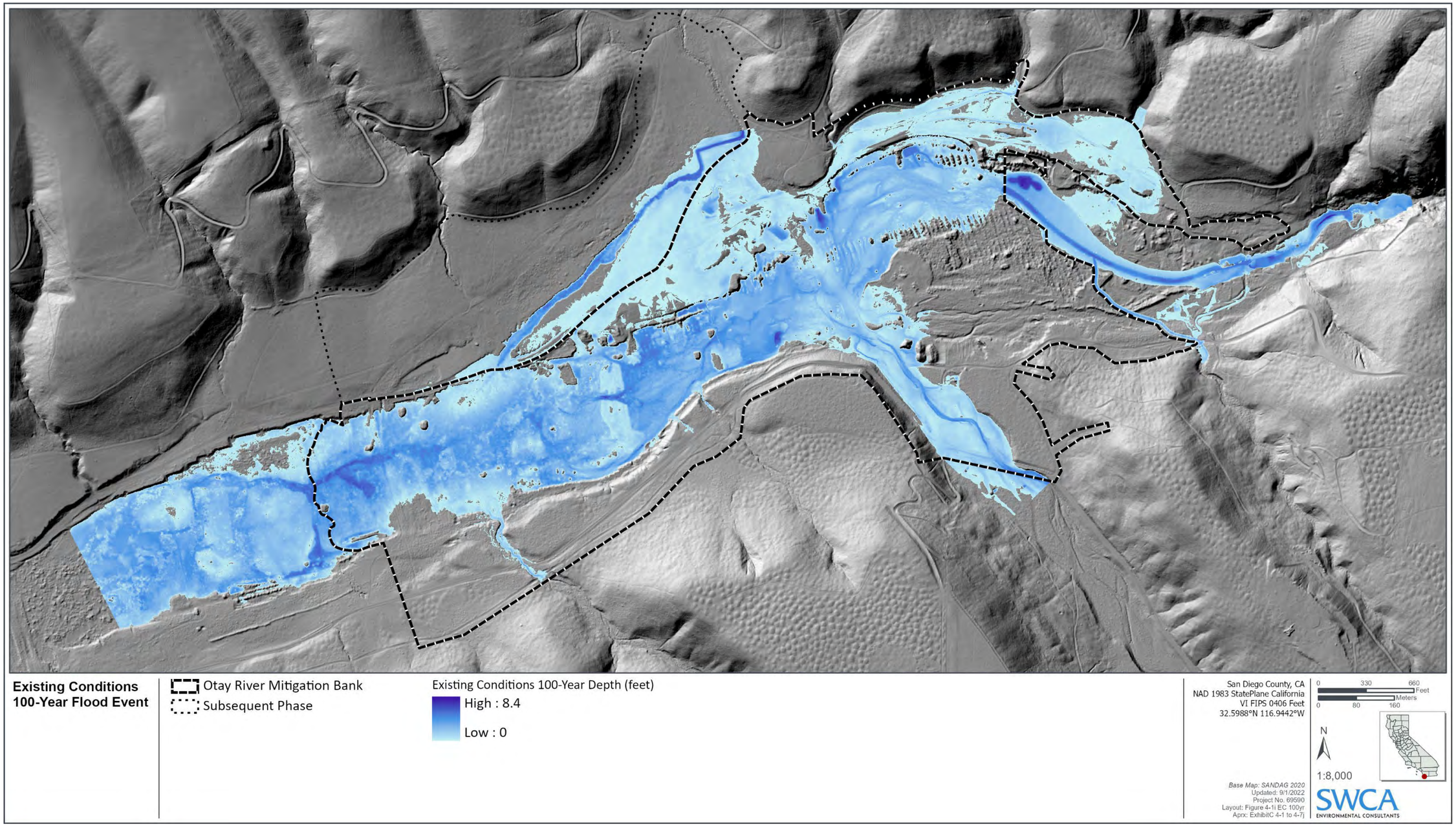


Figure 4-1i. Existing conditions 100-year flood event.

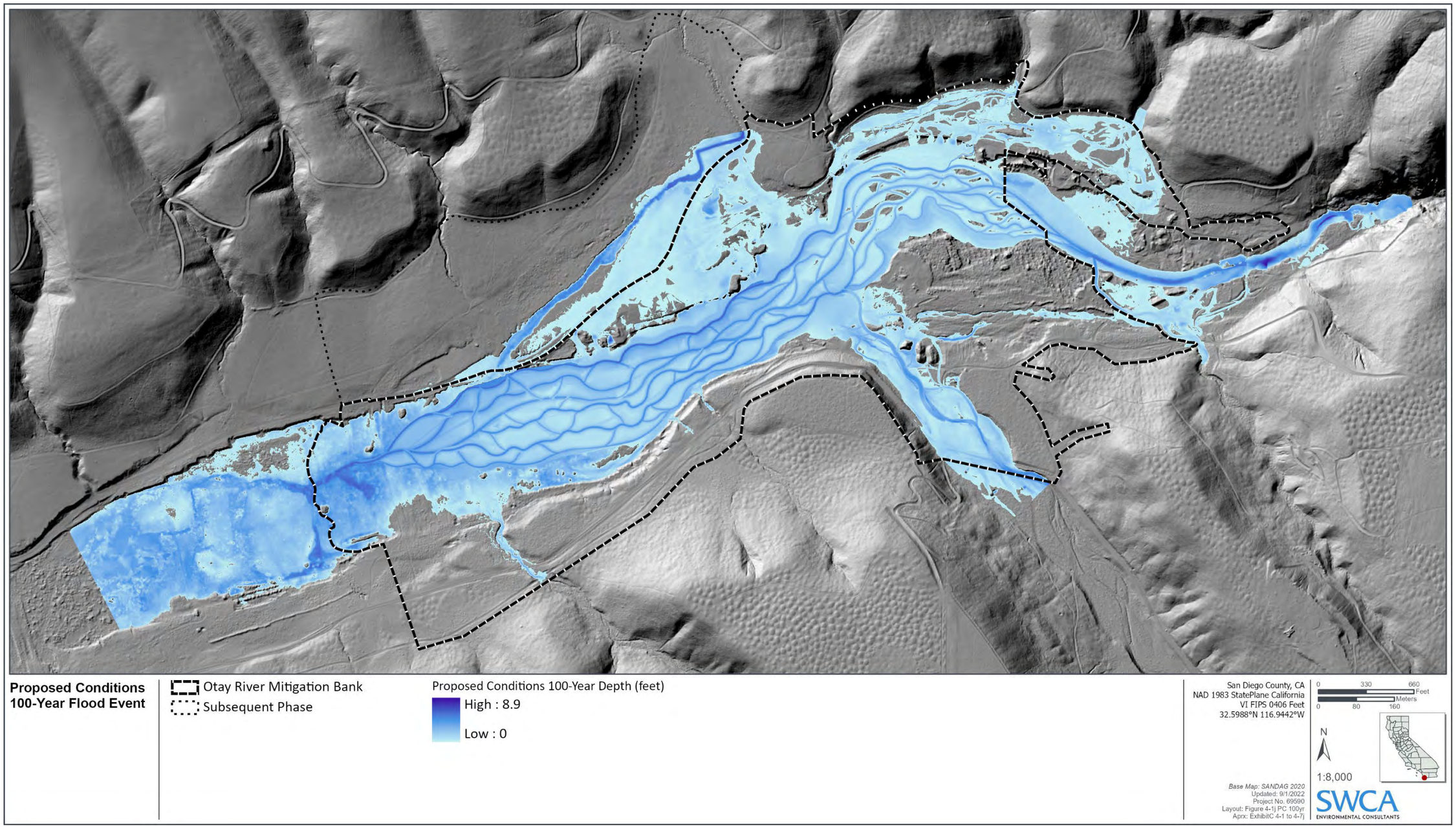


Figure 4-1j. Proposed conditions 100-year flood event.

Groundwater data has been continuously collected at 5-minute intervals via loggers in seven wells since September 28, 2020. To inform restoration design and credit calculations, the depth to groundwater was processed and analyzed through May 6, 2021 (Table 4-2, Figures 4-2a – 4-2b). The analysis indicated that the downstream most well experienced the shallowest groundwater levels during the period of record (GWW 9). The wells located on the border of the mainstem experienced the deepest groundwater levels (GWW 8 & 10). The depth to groundwater is relative to the ground surface. So positive numbers are subsurface, and negative numbers are above the ground surface. The project design is primarily based on surface flows/precipitation (hydraulic modeling results). Wetlands in particular are placed in areas where the design will hold water for longer periods of time and, where possible, groundwater is available. The respective plant palette is based off of elevations and groundwater levels throughout the project site. Riparian plant species will require the most water and it has been determined that the groundwater depth will be sufficient to support these species where they will be planted.

Table 4-2. Groundwater Statistics for the Period of Record

	Depth to Groundwater (feet)						
	GWW 1	**GWW 2**	**GWW 3**	**GWW 6**	**GWW 8**	**GWW 9**	**GWW 10**
Mean for Entire Record	-7.3	-3.2	-5.8	-7.8	-9.5	-1.8	-9.7
Maximum of the Record	-4.5	-2.1	-4.0	-4.9	-6.9	-1.0	-8.4
Minimum of the Record	-9.5	-5.1	-7.9	-10.8	-11.6	-2.6	-10.3
Standard Deviation	1.6	1.0	1.1	1.7	1.4	0.3	0.5

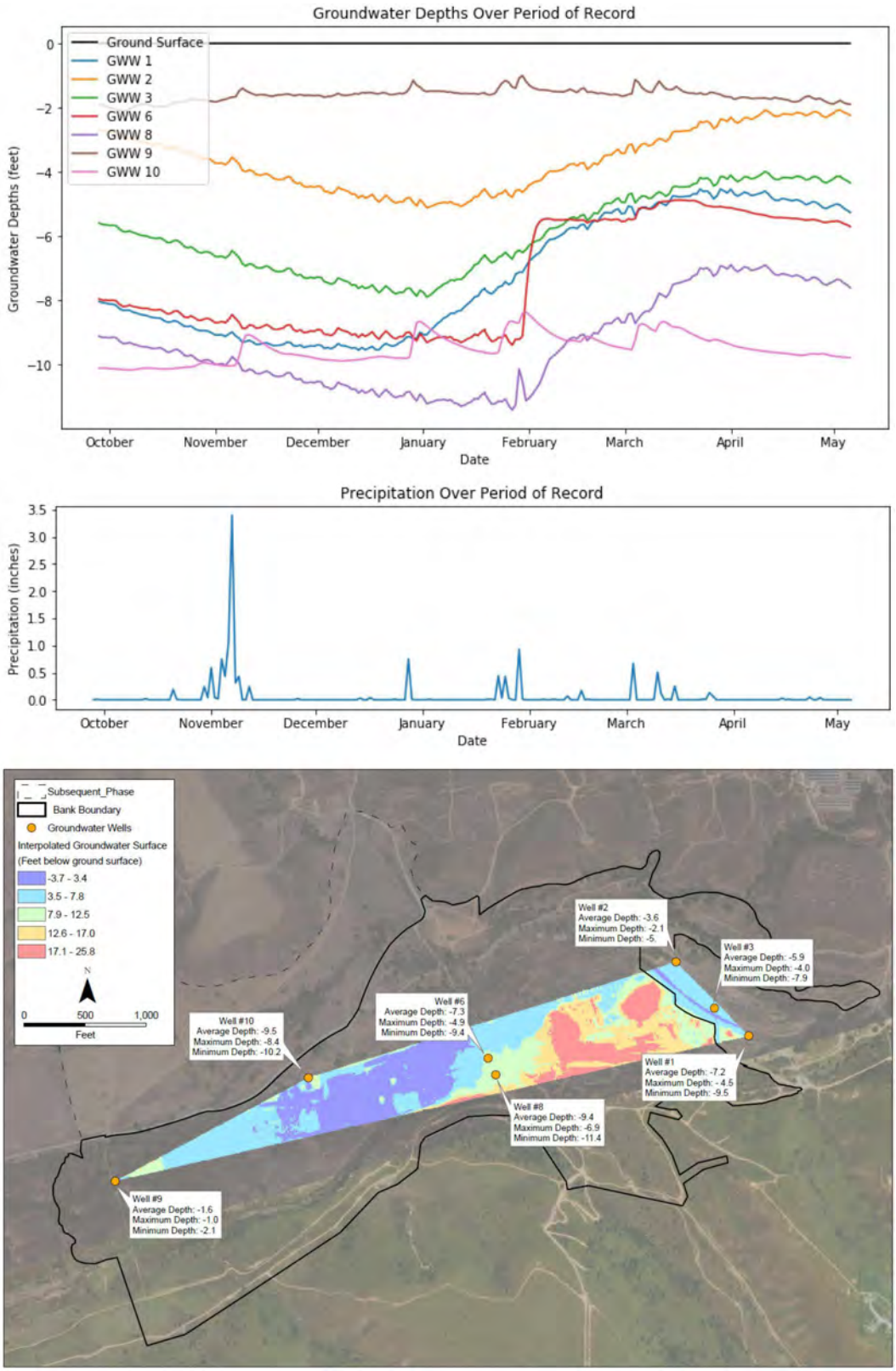


Figure 4-2a. Groundwater surface levels, sheet 1.

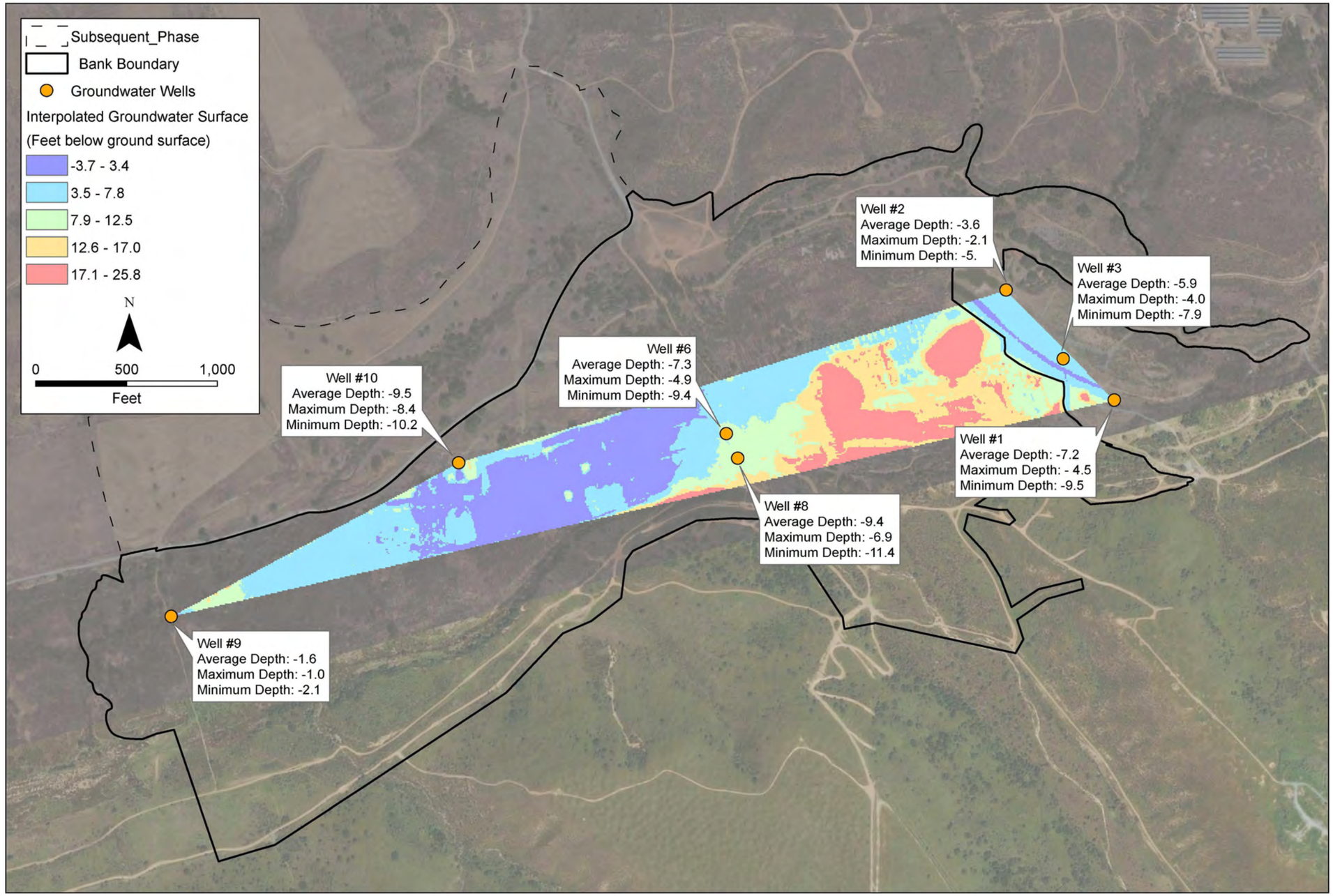


Figure 4-2b. Groundwater surface levels, sheet 2.

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4.3 MITIGATION DESIGN

The Bank will be designed to rehabilitate, establish, and reestablish hydrologic, chemical, and physical processes, vegetation communities, and wildlife habitats associated with the Lower Otay River Watershed. The Bank will be as self-sustaining as possible and adjust to dynamic natural processes.

Restoration activities would occur within the restoration categories listed below. Overall restoration design is included as Figure 4-3, typical cross sections for unique locations (i.e., Otay River Mainstem, O'Neil Canyon, and seasonal wetlands) depicting before and after construction are included as Figures 4-4 through 4-6, and vernal pool layout and design are included as Figure 4-7. Five major ecozones have been mapped for the project including the mainstem river, seasonal wetland tributaries, O'Neil Canyon, buffer and vernal pools. A few of these are further divided such as the mainstem which is broken into braided channel network, active floodplain, and high floodplain. A description of these zones follows while the rationale is described along with the crediting rationale in Section 4.6.1. The cross sections in the below figures show the water surface elevation (WSE) at multiple elevations across the channel as the inflow from the Pre-Bank is distributed across the braided network, the WSE is expected to adjust across the lateral extent of the site with respect to each channel invert. The 90% Design Plan Set can be found in Appendix K.

4.3.1 Otay River Mainstem and Floodplain

The Bank's hydrologic and geomorphic processes have been greatly disturbed. The Bank site was historically mined for gravel and sand. When mining operations ceased the site remained significantly disturbed: mine tailings and rock impede the natural flow of water through the site and inundation of the floodplain. Furthermore, Savage Dam has cut off flow and sediment supply from upstream. In addition, over time, invasive species, primarily tamarisk, established onsite.

Reestablishment and rehabilitation of the mainstem will focus on areas significantly altered from past mining activities and the invasion of non-native species. Grading would remove flow obstructions including berms, rows of cobble piles, and sediment and spoil piles, and would re-create the contours of the Otay River mainstem and tributary connections, connect existing low-lying pooling areas, create interfluve islands that provide high-flow refugia for wildlife, and create floodplains. The existing tamarisk and other non-native vegetation would be removed, and native plants would be installed following regrading. These actions would improve flow conditions during rain events and hydrological conditions for native plants.

Over the life of the Otay River Mitigation Bank design process, the restoration philosophical approach to the mainstem floodplain has shifted focus to a softer design to achieve landscape-scale hydraulic complexity and reduce indiscriminate grading. The final proposed primary channel through the site has been tied into the elevations observed in the low flow pathways throughout the site, to accentuate an undulating landscape and avoid wholesale grading to achieve a regional slope. Depressions have been uniquely located to attenuate flows from the larger tributaries, promote hyporheic exchange with groundwater, and reduce velocities in the channel network. Extensive grading has been reduced by targeting removing of only significant obstructions and keeping legacy channels and microtopography in-place where possible. Terraces of varying elevations and forms have been designed to manipulate flow patterns to protect utilities, push inundation into previously disturbed areas, and offer refugia during higher flow events.

The low flow channel is designed to accommodate a 2-year flood event and the active low floodplain is intended to accommodate a 10-year flood event, while the high floodplain would likely correspond to a

25-year event. At larger events, the entire valley floor would be inundated with some refugia on interfluves, and the water would rise into the adjacent upland areas. Within the floodplains, secondary and tertiary channels would be reestablished along the northern and southern high floodplain. All channels were sized to accommodate flow from the mainstem and additional input from tributaries along each reach. Channel inverts were also specifically designed to take advantage of existing low flow elevations, regional floodplain slopes, and opportunities to connect more closely with groundwater.

The reestablished Otay River mainstem would connect to the upstream mitigation area (Pre-Bank) and its recently reestablished mainstem and the downstream mainstem, located at the western end of the Bank site, where the river is more defined. This would improve flow conditions during rain events and create hydrologic flow complexity, as well as habitat complexity.

4.3.2 Salt Creek Tributary (Subsequent Phase)

Salt Creek originates in National Wildlife Refuge land near San Miguel Mountain and flows into the northeast section of the Bank. Its watershed originates 5 miles to the northeast where it then flows southwest through heavily developed areas for more than 90% of its reach. It is one of the primary tributary creeks of the Bank and supports both an OHWM and wetland habitat, dominated by mulefat. This area of the Bank is slated for subsequent phases of the project and may be considered for future implementation. At this time Salt Creek is heavily incised and contained within a historically rerouted channel rather than the historical alluvial confluence.

The basic concept for this phase includes reestablish the historical braided channel network and broad confluence connection with the Otay River Mainstem. To allow Salt Creek to return to its historical dynamic confluence and to facilitate connectivity to its floodplain the project would be proposing to close Wiley Road across the confluence and relocate the access needs and the Salt Creek Sewer Line to the north side of the valley bottom (Figure 4-3). In addition, the channel banks would be setback and sinuosity would be added to the mainstem creek channel. In stream structure and an increase in base elevations would help re-engage the currently cutoff floodplain and encourage breakout onto the valley floor.

Removal of non-native/invasive species in the creek would occur and the area would be revegetated with appropriate riparian and floodplain species. The small tributary west of Salt Creek (Corral Creek) would be reconnected to the mainstem floodplain via a new channel and flood flows to the location would support the development of alkali/grass seasonal wetlands. The surrounding uplands that buffer Salt Creek would be converted from non-native grassland dominated by invasive annuals to native grassland and coastal sage shrub communities including elderberry, toyon, and laurel sumac. In addition, the subsequent phase would extend the existing maritime succulent scrub habitats on the south facing slope lower onto the foothill bottom.

The current modeled design does not include the Subsequent Phase. The Subsequent Phase may increase lag time in the Salt Creek sub-basin or increase groundwater recharge. However, it is not anticipated to significantly alter the overall hydraulic model results, especially since Salt Creek contributes to the most downstream portion of the Bank.

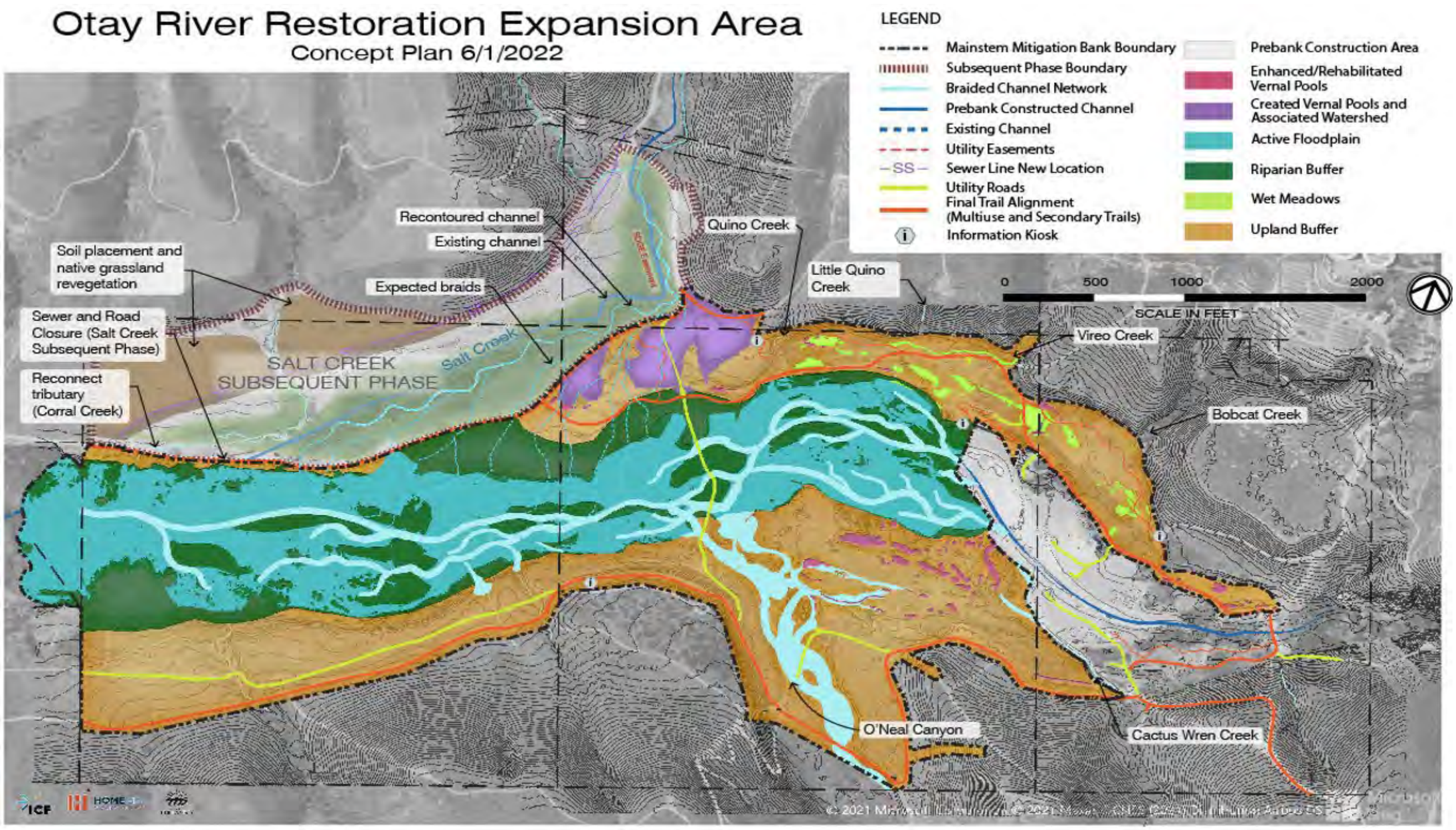


Figure 4-3. Otay mitigation bank detailed concept design.

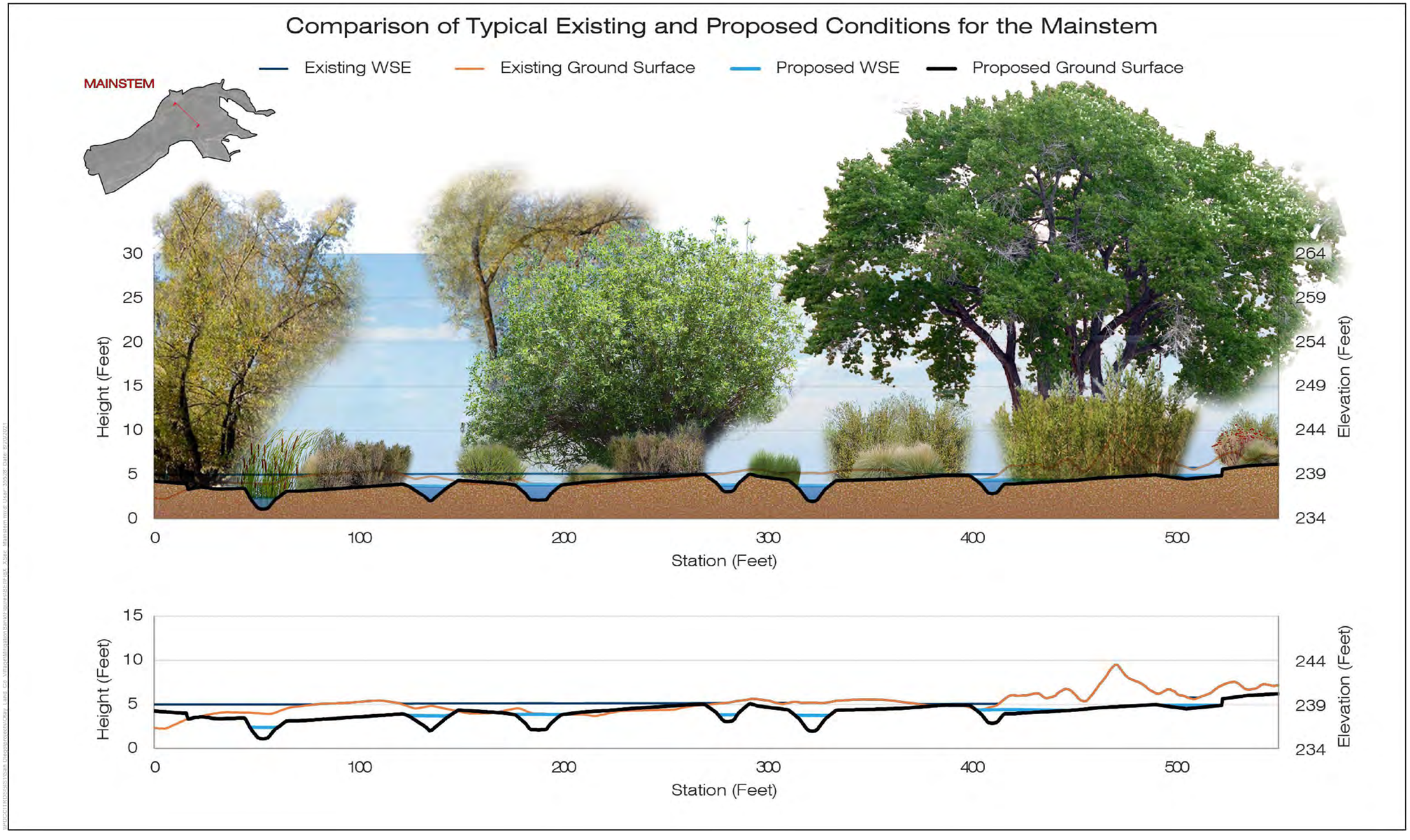


Figure 4-4. Typical cross section, mainstem.

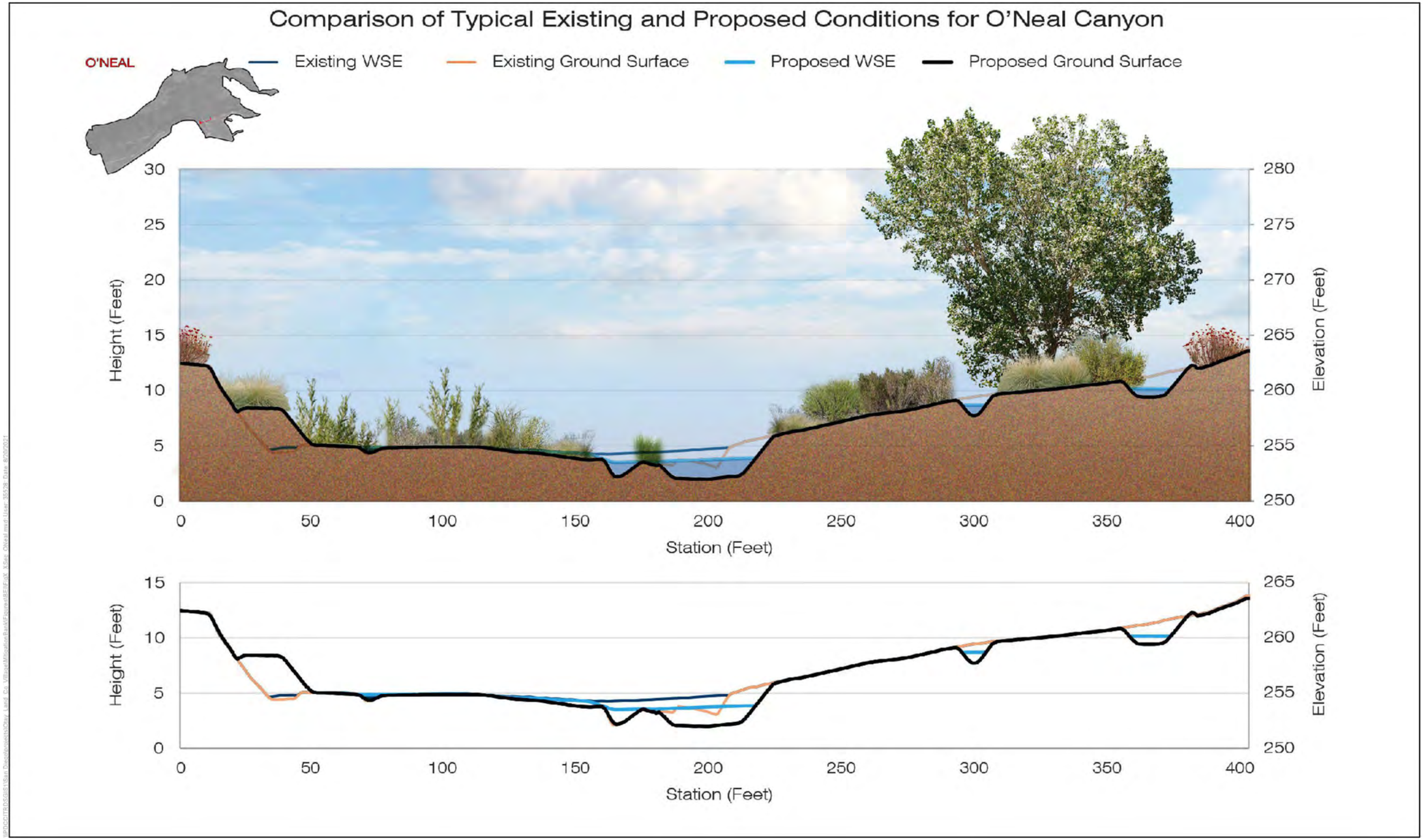


Figure 4-5. Typical cross section, O'Neal Canyon.

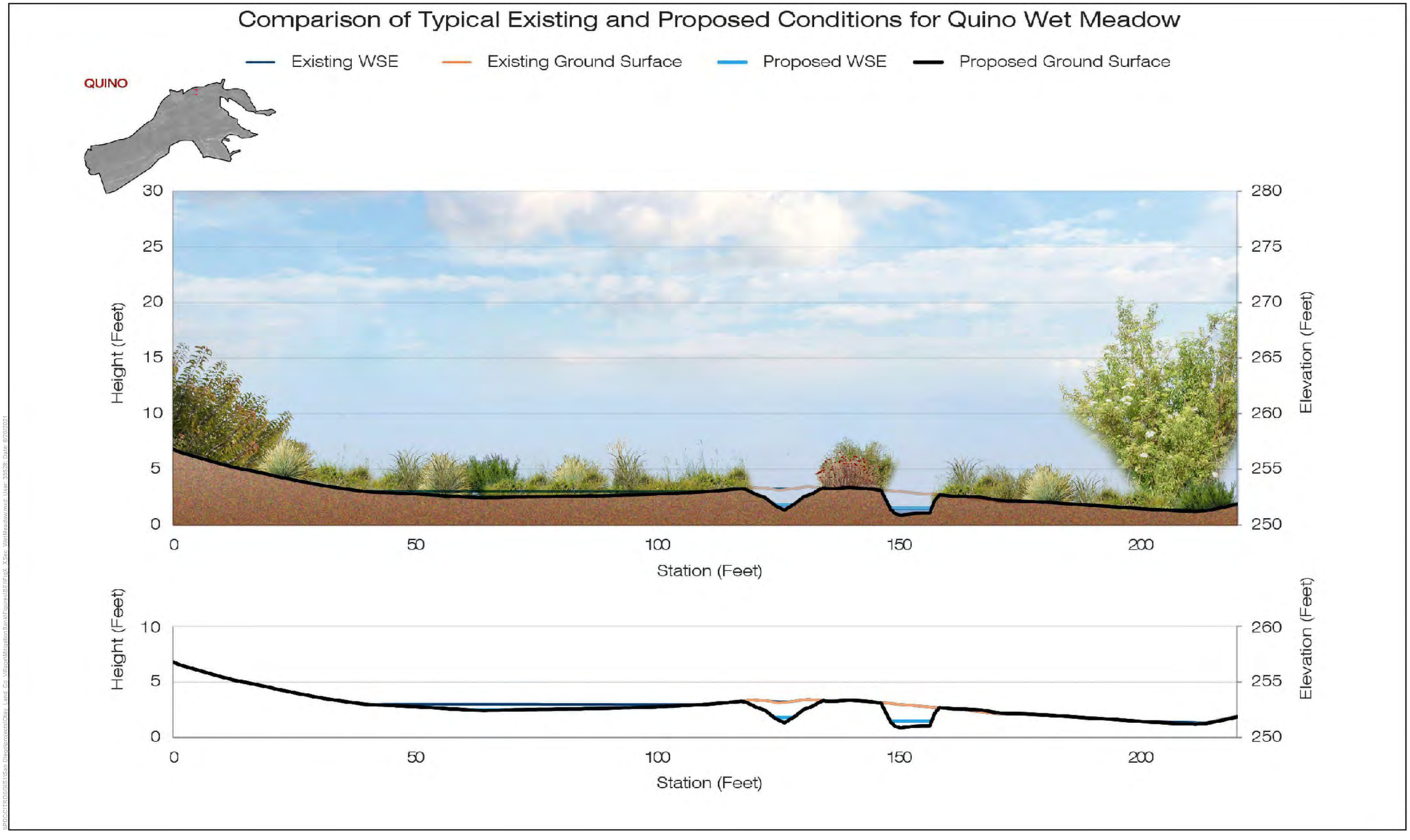


Figure 4-6. Typical cross section, seasonal wetland.

Pool No.	Design No.	Area (sf)	Watershed to Pool Area Ratio
1	5	694	21
2	8	191	40
3	2	100	60
4	9	295	24
5	4	253	33
6	10	711	82
7	1	287	35
8	2	100	41
9	8	191	29
10	3	420	33
11	11	921	12
12	9	295	36
13	6	957	19
14	1	287	35
15	2	100	102
16	3	420	21
17	6	957	20
18	11	921	19
19	7	1915	7
Total		0.23	acres

Legend

- Vernal Pool
- Pool Watershed
- Mima Mounds
- Flow Direction
- Decommissioned Trail
- Trail Grading
- Utility Road
- Secondary Trail
- Existing Vegetation

*Pool Contours = 0.1'

C:\Users\53569\Desktop\CAD_Projects\Otay\2_Mainstem\ANALYSIS\VernalPool\VP_Figure_REV05232022.dwg 8/31/2022

Figure 4-7a. Sheet 1, vernal pool concept layout.

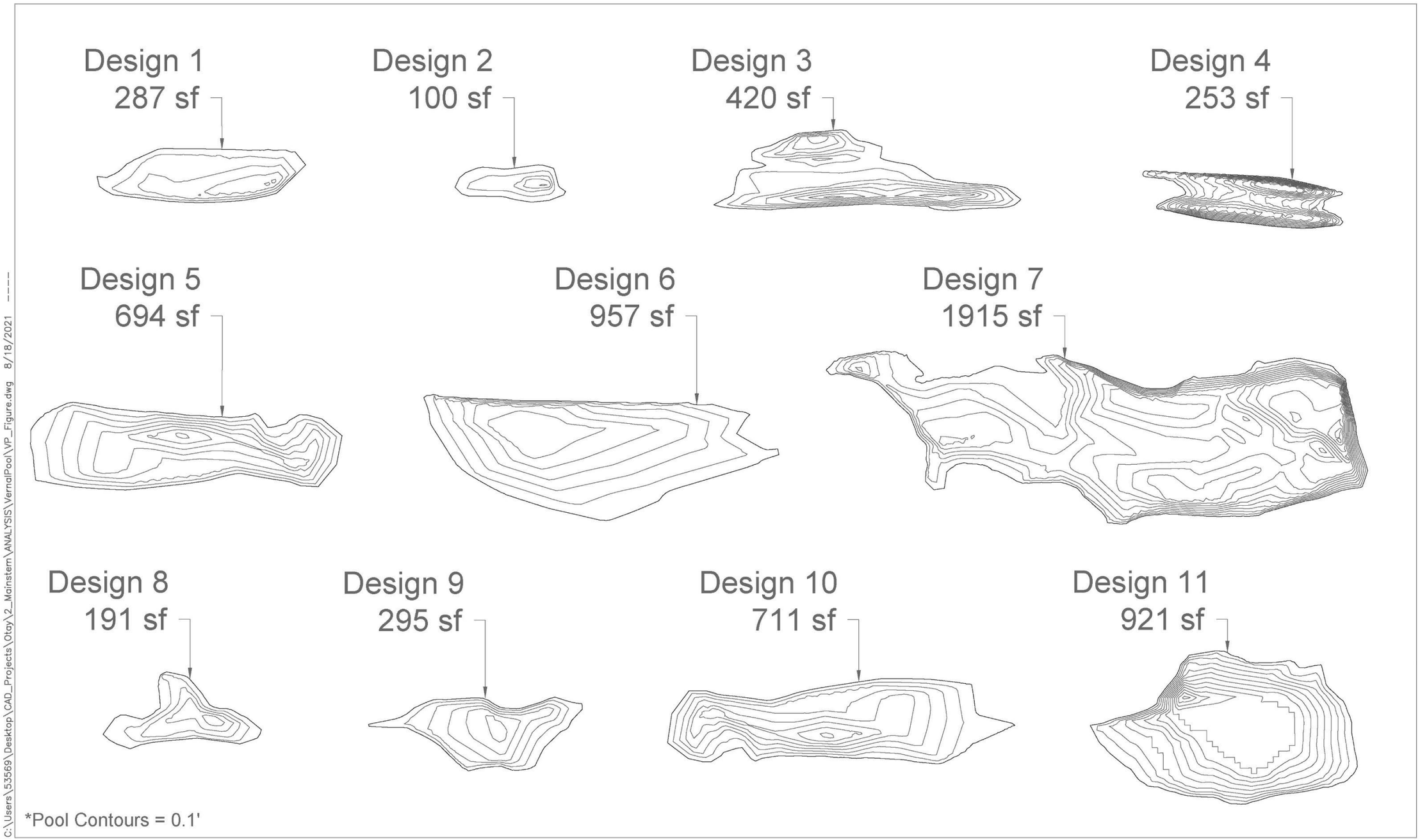


Figure 4-7b. Sheet 2, vernal pool concept designs.

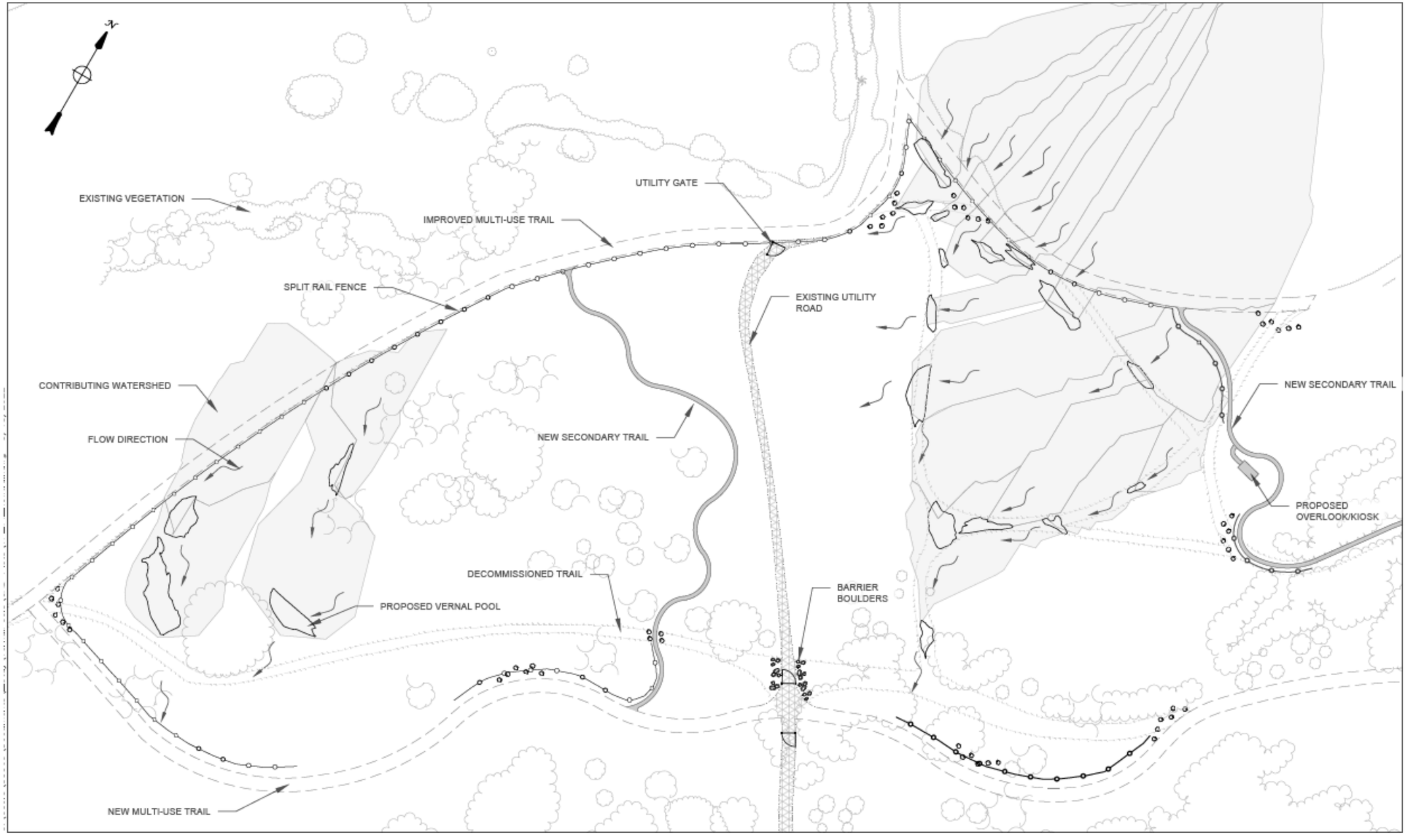


Figure 4-7c. Sheet 3, vernal pool concept design fencing, gates, and signage.

4.3.3 O'Neal Canyon Tributary

As one of the primary tributary creeks of the Bank, O'Neal Canyon contributes a significant amount of flow to the mainstem. During a 2-year event, flow in the mainstem increases from 237 cfs in Reach 2 to 470 cfs in Reach 3 after receiving input from O'Neal Canyon. To accommodate this input, many large depressions were graded in Reach 3 to attenuate flows.

Within the existing O'Neal Canyon, flow travels through a large primary channel with breakout inundation along intersecting roads. Proposed grading diverts flow to the northeast and places engineered fill to protect roads and utilities.

On the southernmost end of the canyon within the Bank boundary, the multi-use road was raised an average of 4 feet above the existing ground with engineered fill. An at-grade stream crossing with rock slope protection was implemented at the intersection of the existing primary channel and the multi-use road. From this point moving downstream, fill has been added to divert flows to the eastern side of the canyon and prevent inundation of the decommissioned utility roads and existing power poles. A slight berm was added along the left bank of the primary channel, with two new secondary channels graded in as distributaries to the northeast. Existing mounds have been graded down to promote flow towards legacy channels and vernal pools previously cut off from inundation. An earthen weir was included on the left bank berm to allow larger storm events the opportunity to breakout and flow along the existing primary channel. The banks of the existing primary channel in this area are laid back to promote flood attenuation and lateral inundation.

4.3.4 Seasonal Wetlands

The upland area north of Reaches 1 and 2 houses three distinct areas: Bobcat Creek, Quino Seasonal Wetland, and Vireo Seasonal Wetland. Similar to the mainstem, these areas have been substantially disturbed by historical mining activities. Existing roads and spoil piles disrupt natural drainageways and disconnect the seasonal wetlands from the mainstem. Proposed reestablishment and rehabilitation of the seasonal wetland areas focuses on shallow depressions and generating seasonally wet areas

Existing flow from Bobcat Creek transforms into sheet flow as it enters the flat upland area and becomes dammed as it encounters an existing road. This area was managed for non-native plants and then revegetated with native plants as part of the Pre-Bank. Proposed work in this area would increase overall wetland functions and would include removal of the existing road and the creation of small shallow depressions to attenuate flows from the creek. Graded mounds will allow for complex inundation patterns and depths to support seasonal wetland habitat. Several connections to the mainstem will be graded as channels across the terrace. Where possible native plants will be salvaged and reused.

Proposed grading in Vireo Seasonal Wetland would transfer flow across the meadow with braided channels and connected depressions. An existing flow connection from the east side of Vireo to the west side of Bobcat will be maintained. A small rock weir will direct a portion of flow from Vireo to Quino Seasonal Wetland under flows greater or equal to the 2-year event. Proposed floodplain terraces will remove existing spoil piles and improve connectivity with Reach 2 of the mainstem. Graded mounds will provide microtopography and provide high-flow refugia, while also protecting existing roads.

There are two tributaries that contribute flow on the east and west side of Quino Seasonal Wetland. Proposed grading would transform distributary sheet flow from these tributaries into meandering swales and depressions. Graded mounds will provide microtopography with varying inundation depths adjacent to the depressions. An existing road will be decommissioned and de-compacted with graded depressions.

Culverts, trail removal, and graded channels were designed to redirect runoff and reduce flooding on roads.

Figure series 4-8a – 4-8e provide details on the northern seasonal wetland restoration including the mound creation (brown) and depression creation (purple) along with the 2-year modeled depth post-restoration (0 inches – 2+ feet). The figures also show the proposed multi-use and secondary trails (red) along with where various trail improvements will be installed to facilitate water movement throughout the site. All trails onsite have been designed to work with post-restoration hydrology, limiting ponding and future trail degradation including boardwalk segments (green) in one portion of the site. Figures 4-8d and 4-8e are the design specs and detail sheets for the various types of trails and trail improvements. Note that the only credits being requested in these areas are for seasonal wetlands with depths of 6 inches and more.

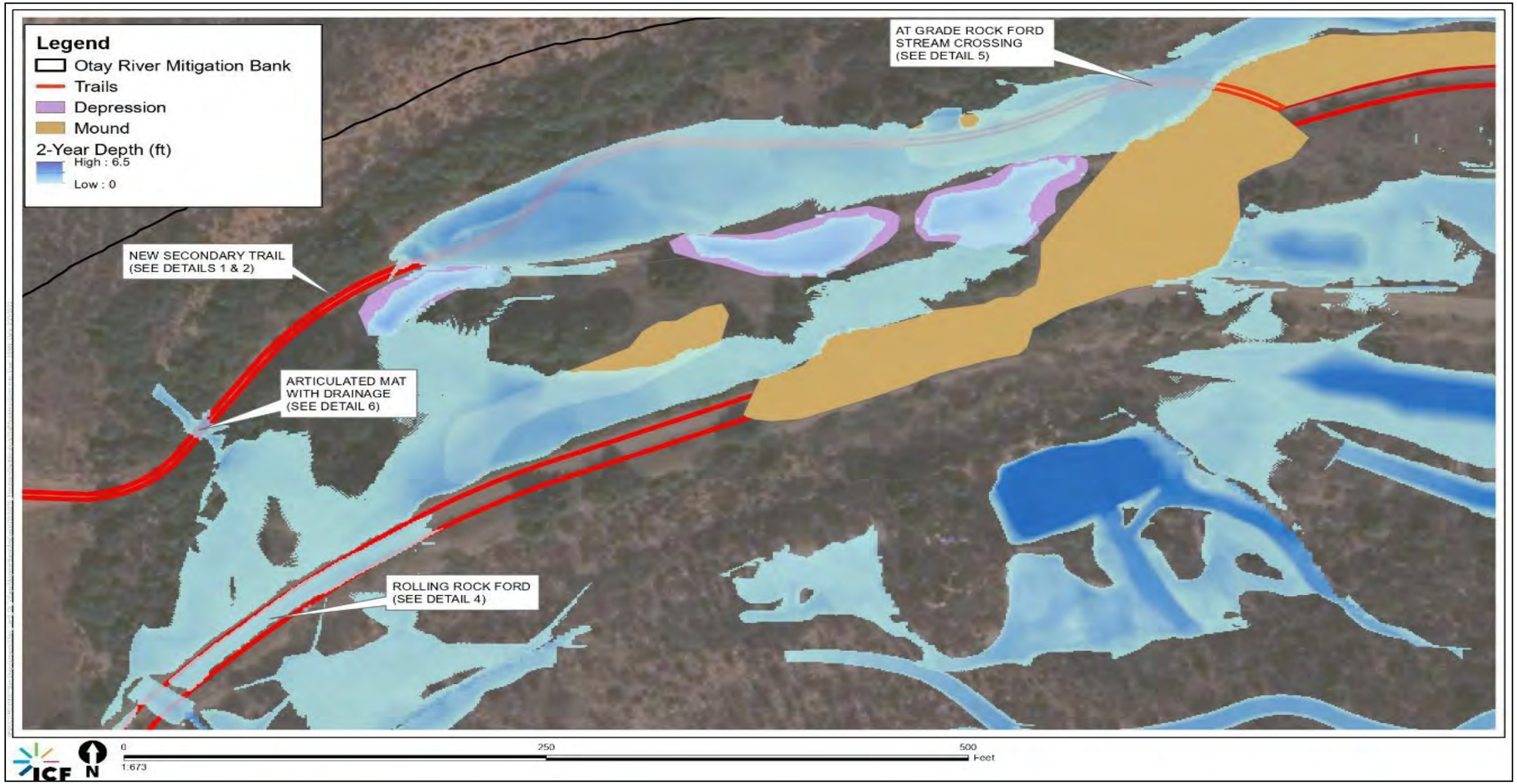


Figure 4-8a. Seasonal wetland design.

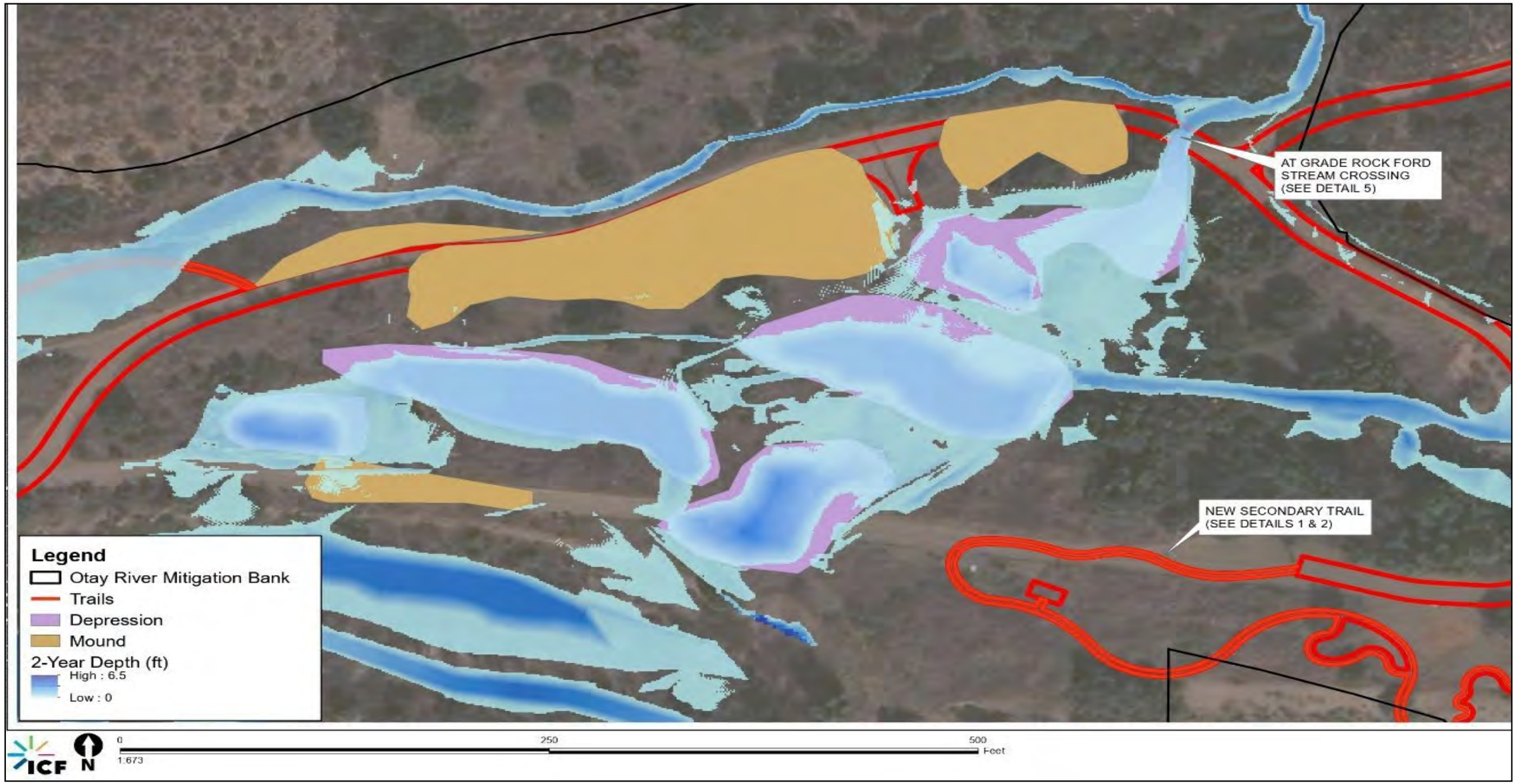


Figure 4-8b. Seasonal wetland design.

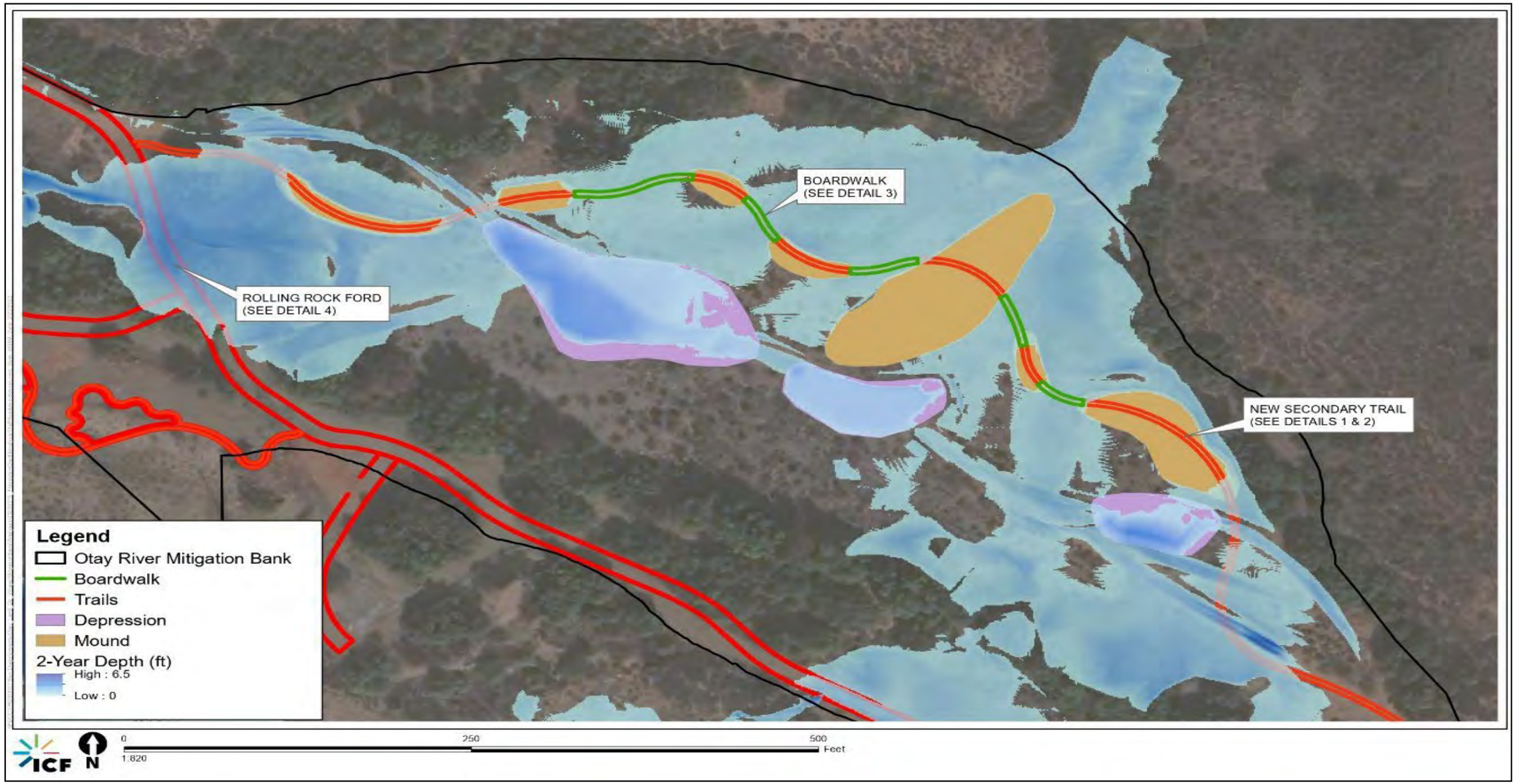


Figure 4-8c. Seasonal wetland design.

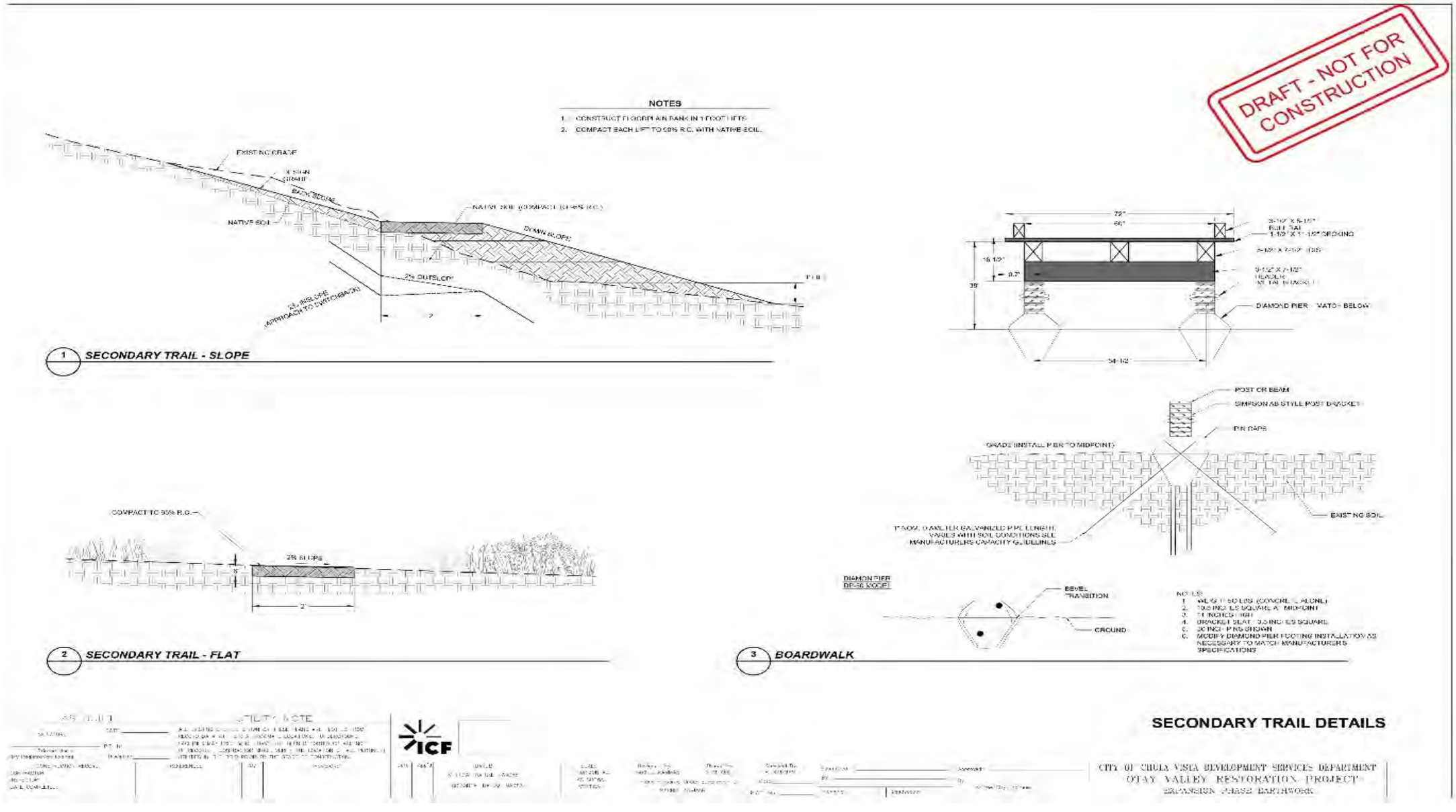


Figure 4-8d. Seasonal wetland design.

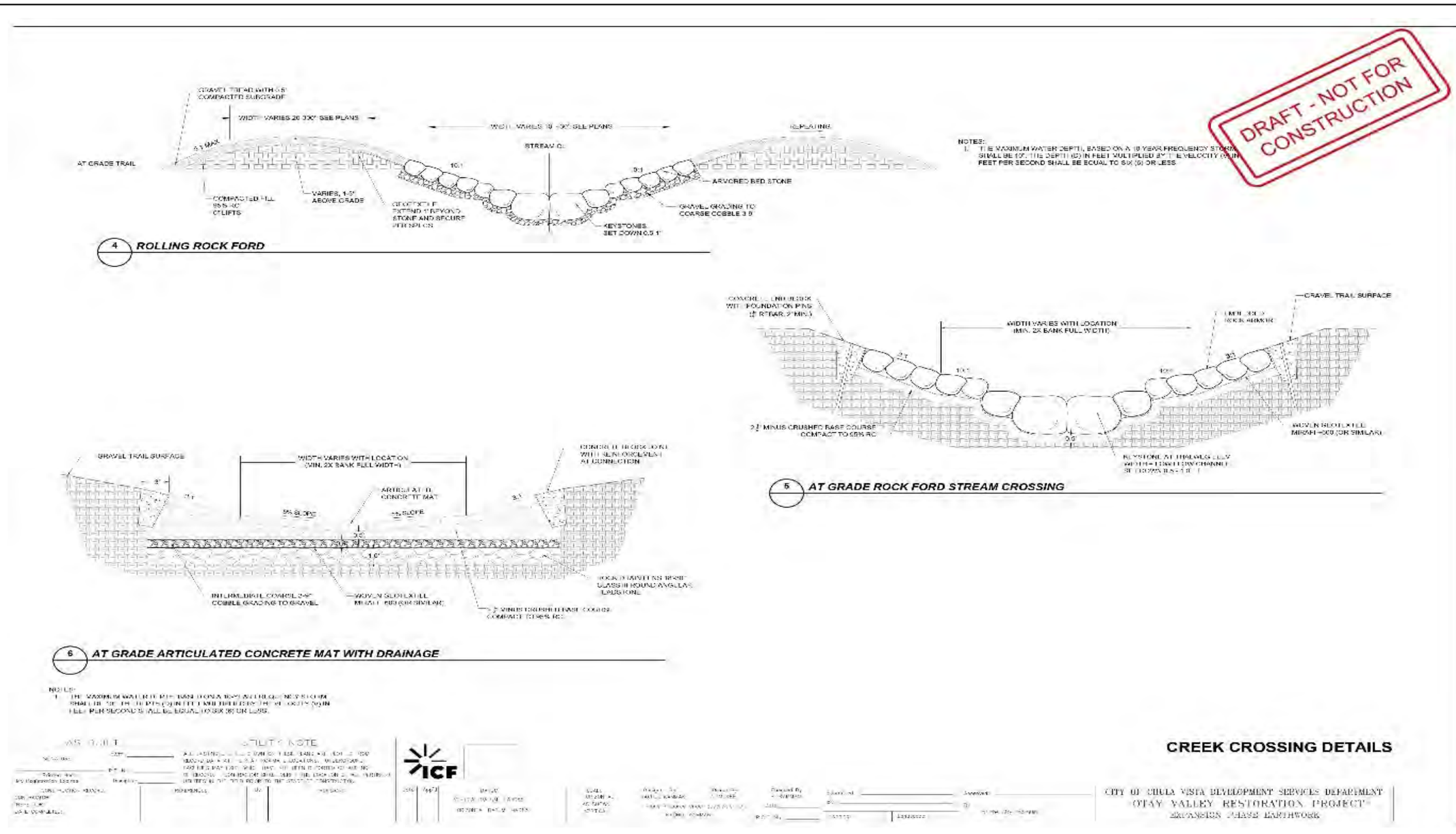


Figure 4-8e. Seasonal wetland design.

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4.3.5 Vernal Pools

Naturally occurring vernal pools in the San Diego area can be found on mesa tops, in road ruts, and in alluvial floodplains. For the Otay River Mitigation bank, an upper terrace with a series of intersecting trails at the base of a steep slope was chosen for vernal pool creation based on upstream watershed area, soil characteristics, and presence of existing pools.

Proposed vernal pool geometries are based on naturally occurring pools onsite. The size and depth of existing pools near the project area were analyzed for modeling efforts. Pool geometries were optimized based on the number and duration of fill events, while providing a range of depths and microhabitats. The vernal pools were designed to pond at least 3 centimeters deep for a two-week period during any given year based on the habitat needs and life cycle duration of fairy shrimp. A water balance model was created to calculate ponding depth, volume, and extent. Model inputs include direct precipitation, surface water runoff, and spillover from upstream pools and direct losses including infiltration and evaporation. The model was run for water years 2000-2007 based on available precipitation and evaporation data.

The proposed design includes 19 pools, with 11 different pool geometries (see Figure series 4-7). Maximum depths range from 0.5 to 1.4 feet, with maximum surface areas of 100 to 1,915 square feet. The proposed vernal pools make up 0.23 acre of the project area. By modeling historic hydrologic conditions, present soil characteristics, and natural pool geometry, the proposed design is expected to be successful.

The enhanced and rehabilitated existing road ruts will be treated for non-native plant species and may include the installation of additional microtopographic features such as mima mounds that mimic those typically found in vernal pool complexes in the region and seeding and/or planting of vernal pool species.

4.3.6 Upland/Transitional Buffer

In addition to directly improving aquatic resource functions onsite this project aims to improve the adjacent upland buffer areas thereby indirectly further improving (protecting) the aquatic resource functions. Non-native species would be removed and where appropriate planting and seeding would occur. Habitats in the upland transitional buffer are expected to include native grassland, coastal sage scrub, elderberry scrub, toyon/laurel sumac scrub, sycamore woodland, vernal pools, and maritime succulent scrub.

4.4 RATIONALE FOR EXPECTING SUCCESS

4.4.1 Riparian and Aquatic Resources

Hydrology is generally considered the most important variable driving wetland and aquatic resource development (Mitsch and Gosselink 2000). The Otay River mainstem and floodplain exist in a highly degraded state due to the upstream impounding of the Otay River, years of sediment removal by mining activities, and the invasion of non-native plant species. The site has historically supported a perennial/intermittent braided stream and floodplain; however, the conditions that formed this system originally are now changed and the watershed reduced. As such, understanding the current hydrologic and hydraulic conditions of the site with the presence of Savage Dam is key to success. With proper understanding of the current conditions, in particular hydrology and soils, restoration specialists, hydrologists, civil engineers, and landscape architects have developed a restoration strategy with appropriate elevations, contours, and slopes. This, coupled with the correct selection of local riparian, transitional, and upland species, would result in the high probability of successful enhancement,

reestablishment, establishment, and rehabilitation of a functional river channel and floodplain system. The supporting hydrology and hydraulics report and geotechnical reports can be found in Appendices L and M, respectively.

The Bank is the farthest upstream non-restored portion of the Otay River within the Lower Otay River Watershed. The Bank site design is expected to be successful because of its location adjacent to an existing mitigation site (Pre-Bank) that is currently being implemented (which includes non-native species removal all the way to Savage Dam). The Bank has been designed by the same firm (ICF) as the mitigation site and was designed to blend seamlessly together. Approximately 15 acres of tamarisk were removed from the Pre-Bank floodplain, and post-restoration annual vegetation monitoring has shown native plant establishment has been successful (SWCA 2022b). Willows and mulefat have recruited both via seed and lateral root shoots since the installation of plantings and eradication of tamarisk. Native plant cover has especially increased in the upper portion of the site, contributing to the support of LBVI territories and breeding pairs. One vireo pair was documented nesting and foraging in a young mulefat stand located on the northern edge of the restoration area (Ferree and Clark 2021) – an area previously dominated by tamarisk. The Pre-Bank mitigation site is in Year 3 of the 5-year performance management period, is meeting interim success standards, and is on a trajectory to meet final success standards. In addition, the Bank site is located adjacent to other open space parcels, and a portion of the Bank is within an open space preserve under the management of the City of Chula Vista. The adjacent open space and other potential future restoration and mitigation efforts that may occur in this area as a result of separate projects would contribute to improved native habitat connectivity and wildlife habitat in the Lower Otay River. In addition, the site's likelihood of success would be furthered by a monitoring and maintenance program following installation, combined with long-term management and funding for long-term management.

The surface hydrology and groundwater conditions currently support primarily invasive riparian vegetation (tamarisk); therefore, appropriate conditions exist to support aquatic species once grading activities and invasive species eradication is conducted. Grading and contouring would improve conditions for water and sediment flow during rain events and would optimize elevations for expansion of the riparian habitat. Species compositions for the Bank plant palettes were determined using surrounding native habitat as a reference and species observed in the area. Invasive non-native species that have displaced native species in the project area would be removed, and an upland buffer area would help protect the site from further invasion. It is expected that the invasive species (tamarisk and arundo) removal will be successful as these species have been successfully eradicated throughout the Pre-Bank site and the same methods would be used in the Bank.

Seven groundwater wells are currently established in several areas and were used to determine depth to groundwater and appropriate grading depths and limits (see Section 4.4). Although Savage Dam impounds the Otay River waters upstream, flow occurs in the channel as a result of seasonal rain events, as well as input via secondary flow channels and overland flows. Groundwater elevations are shallow in several areas onsite, as evidenced by the series of seasonal ponds in the northern section of the site, surface ponding in shallow areas during even dry years, existing riparian vegetation, and records from the projects monitoring wells, which recorded groundwater levels at a range of 1.6-9.5 feet below the existing ground surface (see Table 4-2). This information was used to establish final plant palettes and final elevations as necessary to allow for successful establishment of riparian and floodplain species (Figure 4-9).

Although Savage Dam impounds the Otay River waters upstream, flow occurs in the channel as a result of seasonal rain events, as well as input via secondary flow channels and overland flows. Willows, though crowded by tamarisk, are still strongly present within the floodplain, some sycamores are in the transitional habitats, a few cottonwoods are in the floodplain, and mulefat are dense in many areas

throughout the Otay Mitigation Bank. Water flow impoundment has reduced the leaching capacity of soil nutrients across the floodplain, increasing soil salinity. The concentration of salts near the soil surface may have been historically increased after tamarisk establishment but it does not seem to be a limiting factor according to recent soil analysis. Nineteen locations were sampled throughout the Pre-Bank Restoration area and Otay Mitigation Bank, with soil salinity ranging from 0.4 to 9.5 deciSiemens per metre (dS/m). The highest salinity value was detected from a sample located within the Pre-Bank Restoration area – an area within the floodplain where, despite low vegetation cover, willows, mulefat and sycamore are moderately thriving. Other areas with higher salinity levels seem to be mostly concentrated around the confluence of the Otay River with Salt Creek. These higher salinity levels (5.7–8.0 dS/m) are within the salinity tolerance threshold of native woody vegetation including willows (8.8–21 dS/m), mulefat (11.6 dS/m), and cottonwood (15.6 dS/m). One sampling point had salinity slightly above (8.0 dS/m) the tolerance for Western sycamore at depth of 0-6 inches, decreasing to 6.5 dS/m at 6–18 inches. It is expected that salinity will not negatively affect the success of the Bank.



Figure 4-9. Groundwater well locations.

4.4.2 Vernal Pool

Rehabilitation of existing vernal pools is expected to be successful as the pools currently exhibit the needed hydrology to support vernal pool flora and fauna including the presence of obligate species like San Diego fairy shrimp and spadefoot toad. Removing non-native species and introducing native vernal pool endemic species and structure (i.e., cobble) will enhance the existing habitat without affecting existing invertebrates.

New vernal pools created in the project area were designed based on the size and depth of existing naturally occurring pools onsite. By modeling historic hydrologic conditions, present soil characteristics, and existing natural pool geometry, the proposed design is expected to provide ponding of at least 3cm for at least 2 weeks and will provide habitat for vernal pool flora and fauna.

Precipitation data was collected from the Lower Otay Reservoir ALERT Station in one-hour increments from August 1951 to March 2008. Watershed delineation was completed to determine the size and location of areas contributing runoff. The location of each pool maximizes its individual watershed area and allows for overflow into downstream pools. The existing roads in the vernal pool establishment area will be removed and graded to tie into the existing ground and slope at 2% to avoid impeding runoff. The rational method was used to calculate the volume of runoff to each pool from each timestep of precipitation over the individual contributing watershed. The runoff coefficient was set equal to 0.4, typical for undeveloped areas with some vegetation. The model was able to account for overflow from upstream pools that spill into downstream pools, assuming no losses between ponds.

An infiltration rate of 0.7 inch per day from field testing (Figure 4-10) was selected for design, emphasizing the need for soil compaction during construction to minimize water loss through infiltration (Appendix M). Evaporation rates were collected from California Irrigation Management Information System at Otay Lake in one-hour increments from April 1999 to August 2020. Evaporative losses from each pool were calculated as a function of the evaporation rate and surface area of the pool at each timestep.

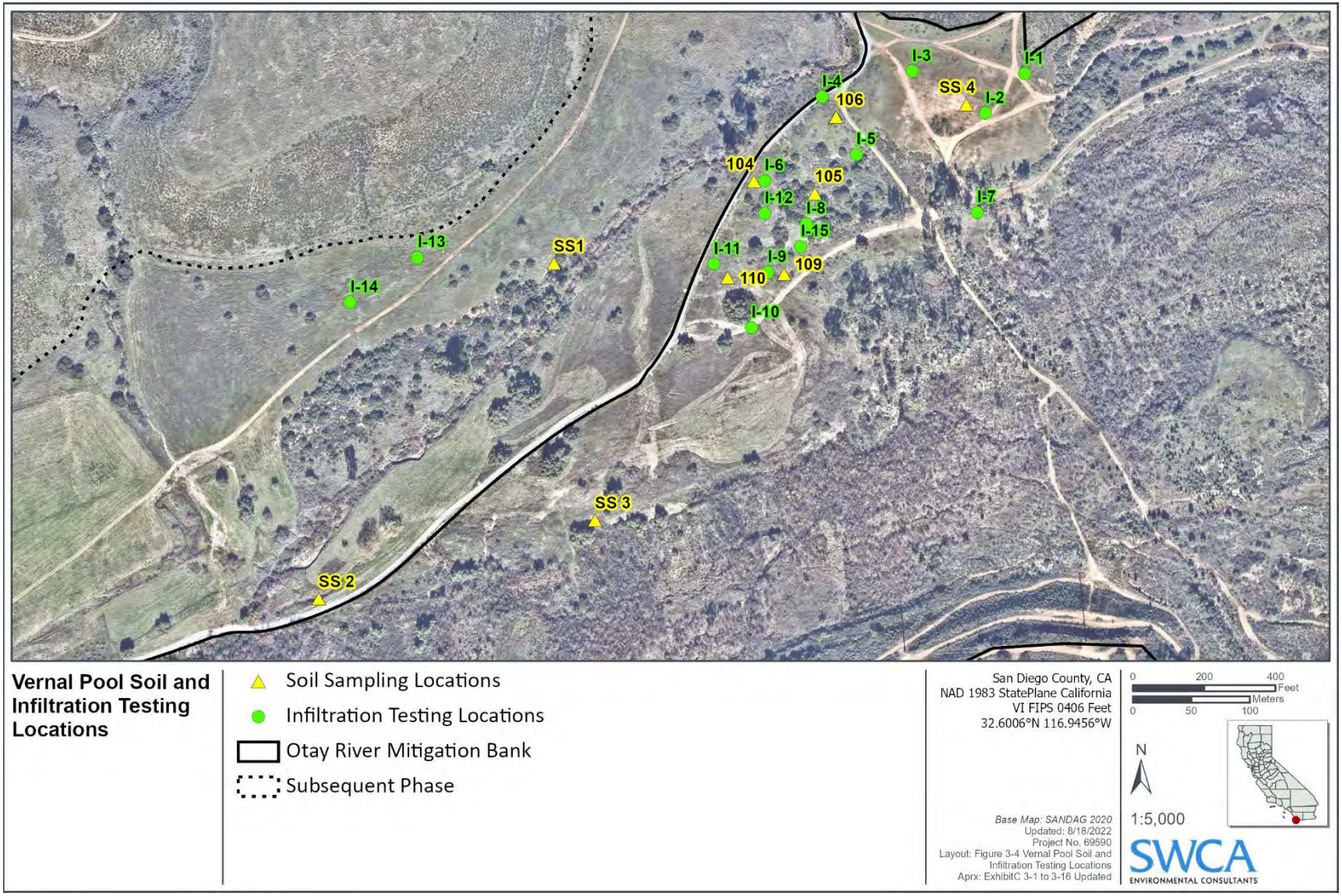


Figure 4-10. Vernal pool soil and infiltration testing locations.

4.5 PROPOSED COMPENSATORY MITIGATION CREDITS

The Bank will provide various forms of mitigation credits, including establishment, reestablishment, enhancement and rehabilitation of WOUS, WOS, and CDFW jurisdiction, in addition to Covered Species Reestablishment Credits for LBV and Covered Habitat Establishment and Covered Habitat Enhancement Credits for vernal pools. The sections that follow detail the process for determining credits and the final proposed credit amounts.

There are approximately 15.45 acres of trails and easements within the Bank that are excluded from crediting. WOUS, WOS, and CDFW Credits are based on the predicted jurisdiction of that aquatic resource type. No preservation credits are being requested as the lands owned by the City of Chula Vista are excluded since the land is already preserved within the MSCP and HomeFed-owned lands are within the hardline future preserve. Additional details on the baseline activities covered by the Otay Preserve are described below. These activities have been accounted for when considering the proposed project actions and associated lift and mitigation credits.

4.5.1 Otay Ranch Preserve Management

The following describes the Otay Preserve baseline responsibilities so that a clear distinction can be made regarding lift, credits, and funding commitments within the Otay River Mitigation Bank. Note that NO Preservation credits are included in the Bank. All credits require “extra” work over and above baseline preserve commitments and are therefore enhancement at minimum.

The majority of management actions for the Otay Ranch Preserve are the maintenance and monitoring of existing conditions with select targeted enhancement and overall planning level evaluation of opportunities. There is a limited annual budget that is allocated each year based on the recommendations of the POM and the contracted preserve steward/biologist (PSB) with a focus on monitoring and maintenance. The 2018 Otay Ranch Phase 2 RMP Update for the Otay Ranch Preserve identifies both banking and third-party habitat restoration as options to increase funding into the preserve systems to improve biological values within the preserve (RECON 2018). These types of projects are intended to be implemented in coordination with the POM and PSB and developed at the Sectional Planning Area-Level. Appendix 2 of the RMP provides a comprehensive overview of the Phase 1 RMP Policies and Standards. Objective 3 of the RMP is to "Enhance & Restore Sensitive Resources," most of these policy/standards end in planning level documents and not the funding or implementation of the recommendations hence the inclusion of banking and grant funding in the updated Otay Ranch Phase 2 Resource Management Plan (RMP) Update (RECON 2018). The influx of funding and restoration associated with the Otay River Mitigation Bank will help the Otay Ranch Preserve exceed the baseline commitments.

4.5.1.1 Former Brown Field Bombing Range FUDS

It is also important to note that the POM and their Preserve Steward Biologist conduct limited work in and around the proposed location of the Otay River Mitigation Bank as a large portion overlaps with the Former Brown Field Bombing Range FUDS boundary. Although there are no policies or guidelines regarding restoration or management and monitoring within the FUDS boundary (i.e. the various Resource Management Plans or MSCP Subarea Plan) the area presents a potential safety and liability risk and increases individual project cost significantly. Ground disturbance within the FUDS boundary triggers the need for USACE approval, staff to be trained by USACE and an Unexploded Ordinance (UXO) specialist needs to be in the field during the work in addition to potential soil and water sampling. Given the cost and liability associated with working in the FUDS area, the POM prioritizes similar management and monitoring opportunities outside of the FUDS boundary. The POM does not conduct planting, earth work, or digging within the FUDS boundary. Any work occurring within the FUDS

boundary is limited to areas near existing trails and roads and other existing ground disturbances. Although limited, select activities have and are being performed within the FUDS boundary including dethatching (without ground disturbance), herbicide application, placing cholla cuttings (not planting), wet season fairy shrimp surveys within road ruts and (currently) outside of the Otay River Valley Restoration Project footprint, repeat photo monitoring along the northern edge of the FUDS, MSP IMG survey for variegated dudleya at one location, Thorne's hairstreak surveys along a previously planted (Tecate cypress) gas pipeline, Hermes copper site check at one location, and driving on established dirt roads. These activities would not be limited by the work proposed for the Otay River Mitigation Bank.

Unlike the POM, where project by project costs can become unreasonable and therefore shift priorities, the Bank is one large privately funded project and has the efficiency to address FUDS safety within the project. The costs associated with the FUDS work (estimated at $300-500k) has been factored into the Bank project funding. Regardless of the Bank, the POM will continue to do their baseline management activities within the constraints described above. Following Bank Closure, the private properties will be conserved and incorporated into the preserve along with the long-term funding for perpetual management of the improved conditions. One additional benefit of the Bank is the establishment of the 5+ miles of trails which includes the FUDS remediation to provide recreation safety for trail users. This resolves a costly issue for the public lands and will safely allow recreation (on trails).

4.5.1.2 Otay Ranch Preserve Covered Habitats and Covered Species

The following is a subset of specific covered species and covered habitat commitments within the Preserve that are directly or indirectly targeted by the restoration activities occurring in the Bank:

- **Aquatic resources – wetlands/riparian:** Policy 2.10 of the Phase 2 RMP requires the preservation and enhancement of wetlands through no net loss of in-kind wetland quality or quantity and if feasible, plans for mitigation banks should be developed in conjunction with wetland enhancement plans for Otay River Valley. Policy 3.5 requires the development of a restoration program for riparian habitats that will be addressed at the City's Sectional Planning Area level with success criteria determined on a project-by-project basis.

- **Vernal Pools:** Within the Preserve, specific areas were designated by the Phase 1 RMP to be included in a Vernal Pool Preserve overlay zone. The purpose of this overlay zone was to fulfill Policy 2.9 of the GDP/SRP and Phase 1 RMP, which requires the preservation of vernal pool complexes J23, J24, J25, J30, and J29 (partial) in an area encompassing no less than 330 acres. The finalized Vernal Pool Preservation Area is shown on Figure 3-3 and totals 408 acres. Figure 3-3 in the RMP Phase 2 Update shows the refined boundary in relation to the southern segment of the SR-125 (completed in 2007) and illustrates the ownership status as of December 2017. The finalized Vernal Pool Preservation Area encompasses all vernal pools identified for conservation by the Phase 1 RMP and exceeds the 330-acre requirement. The features identified in the Otay River floodplain have not been mapped previously and are not included in the RMP vernal pool preserve overlay. As such, the vernal pool like features and the road ruts targeted for enhancement within the Bank limit represent lift over and above that included and funded in the preserve. This is an exciting opportunity to bring additional benefits to both vernal pool flora and fauna.

- **Least Bell's Vireo:** The City of Chula Vista's 2003 Multiple Species Conservation Program Subarea Plan considers vireo a preserved species, with no required action for habitat improvement or expansion. Its conservation is tied to wetland habitat and the associated state and federal wetland policies that ensure no net loss. Management of wetlands within the Preserve will

include brown-headed cowbird control measures but only as funding and priorities allow. Therefore, the work being proposed by the Otay River Mitigation Bank will exceed the management actions required of the Preserve manager and result in improved vireo habitat (within the floodplain) as well as restored habitat (within the floodplain).

- As a Narrow Endemic Species, **Otay tarplant (*Deinandra [Hemizonia] conjugens]*)** within the City and outside the Development Area of Covered Projects will be subject to impact restrictions pursuant to Section 5.2.3 of the Subarea Plan and the Habitat Loss and Incidental Take Ordinance. In addition, Preserve design provides for 100% conservation of major populations in the Otay River Valley and conservation of 70% overall, including populations in the Wolf Canyon area.

- The **light-footed ridgeways rail (*Rallus longirostris levipes*)** is considered covered and protected within the Subarea Plan, which calls for conservation of 100% of southern coastal salt marsh habitat in the Sweetwater Marsh National Wildlife Refuge. However, the species has been observed using freshwater marsh areas of the Sweetwater River and now in the Otay River. This expanded habitat use presents an opportunity for restoration benefitting the species not currently factored into the Preserve RMP.

4.5.1.3 Baseline Preserve Owner/Manager Responsibilities

The following are the baseline POM responsibilities as described in the Biota Monitoring Program for Otay Ranch (Appendix 4, Phase 2 RMP Update, RECON 2018). Note that most of the enhancement and restoration work are planning level documents or programs, rather than the funding and implementation of the identified opportunities.

- Maintenance and enhancement of all resources through the prevention of further disturbance, including controlling access to the resource preserve, prohibiting off-road traffic, enforcing "no trespassing" rules, and curtailing activities that degrade resources, such as grazing, shooting, and illegal dumping;

- Monitoring of resources to identify changes in the quality and quantity of sensitive resources and habitats to assure compliance with the adopted mitigation monitoring and reporting program;

- Implementation and monitoring of restoration activities, as appropriate (it is understood that some restoration activities may be carried out by individual Otay Ranch developers in coordination with the POM);

- Implementation of maintenance activities including removal of trash, litter, and other debris, maintenance of trail systems, removal and control of exotic plant species (weeds), and control of cowbirds through trapping efforts;

- Development of educational facilities and interpretive programs;

- Implementation and/or coordination and accommodation of research programs;

- Coordination with local jurisdictions, resource agencies, and adjacent ownerships;

- Coordination with the Otay Valley Regional Park Joint Exercise of Powers Agreement or subsequent park planning entity, regarding issues associated with Otay Valley Regional Park;

- Enforcement activities;
- Review of RMP Amendments, Resource Preserve boundary adjustments, infrastructure plans, plans for active recreational uses within the resource preserve, plans for land uses adjacent to the resource preserve and other activities/studies as identified in the RMP;
- Develop and implement a strategy that facilitates effective, long-term management of the resource preserve consistent with the goal of the RMP;
- Development and implementation of a management program to ensure no reduction in habitat values and no adverse impacts to biological resources occur within the resource preserve;
- Establish a comprehensive monitoring program for the biota of the resource preserve in conjunction with the Phase 2 RMP;
- Develop and implement an annual monitoring program designed to identify changes in quality and quantity of onsite biological resources, including sensitive wildlife species, sensitive plant species, and sensitive habitat types; and
- Coordination with the MSCP, NCCP, or other adopted subregional habitat planning programs to assure consistency with regional conservation efforts and plans.

4.6 COMPENSATORY MITIGATION CREDIT DEVELOPMENT PROCEDURE

The compensatory mitigation acreage and credits proposed for the Bank were estimated in a multi-step process utilizing a diverse dataset, including hydrologic and hydraulic modeling, GIS analyses, and baseline field surveys (existing vegetation, jurisdictional delineation, groundwater wells), all refined with best professional judgment (BPJ) (Figure 4-11 and Figure 4-12). Inundation extents, velocities, and depths for historic, existing, and proposed conditions were determined using a hydraulic model. ICF developed a two-dimensional hydraulic model using USACE's HEC-RAS. To best understand the morphological function of the site under various conditions, the 2-, 5-, 10-, 25-, and 100-year storm events were analyzed. The results of these analyses were imported as shapefiles (extent) and rasters (velocities, depths) into ArcMap Version 10.7.1 to evaluate each credited area. The results from proposed conditions form the basis of this crediting exercise, while historic and existing conditions acted as references for current hydrogeomorphic functions at the site.

Although it might appear ideal to be able to point to one model or one environmental variable and predict with 100% certainty what vegetation, hydrology, and soil characteristics will occur after restoration, in reality, this is not possible. All these post-restoration variables are affected by each other as well as by regional, local, and micro conditions and long- and short-term temporal patterns, making predictions difficult. However, even with uncertainty present, there are patterns to natural systems that can be observed, allowing future conditions to be inferred with moderate confidence. Where possible these inferences should be driven by data, both current and historical, if available. These data can be incorporated into models that require that a variety of assumptions be made, thus introducing uncertainty. Available data and modeled results can be overlayed to visualize how they may interact using the ecological knowledge available for a site, region, and the specific location modeled. Restoration ecologists look at the visualized data and attempt to find overlapping patterns. Where these patterns overlap, confidence increases. Where they do not overlap, often along edges and transition zones, decisions must be made using ecological BPJ.

In addition to the modeled exercise described above, the restoration team, including hydrologists, geomorphologists, and ecologists, used a series of data to make informed collective BPJ. Supplemental data were used to inform BPJ decisions. This included looking at exiting vegetation mapping and identifying the riparian (native and non-native) and emergent vegetation communities; the 3-parameter wetlands identified in the jurisdictional delineation; major contour changes from the river bottom to terrace to valley bottom; ground water well data and post-restoration elevations; 10-year modeled velocity was used to help refine potential stream reaches and floodplain extents. An image of select key datum is below. In all cases where BPJ was used, the team worked toward a reasonable yet conservative conclusion.

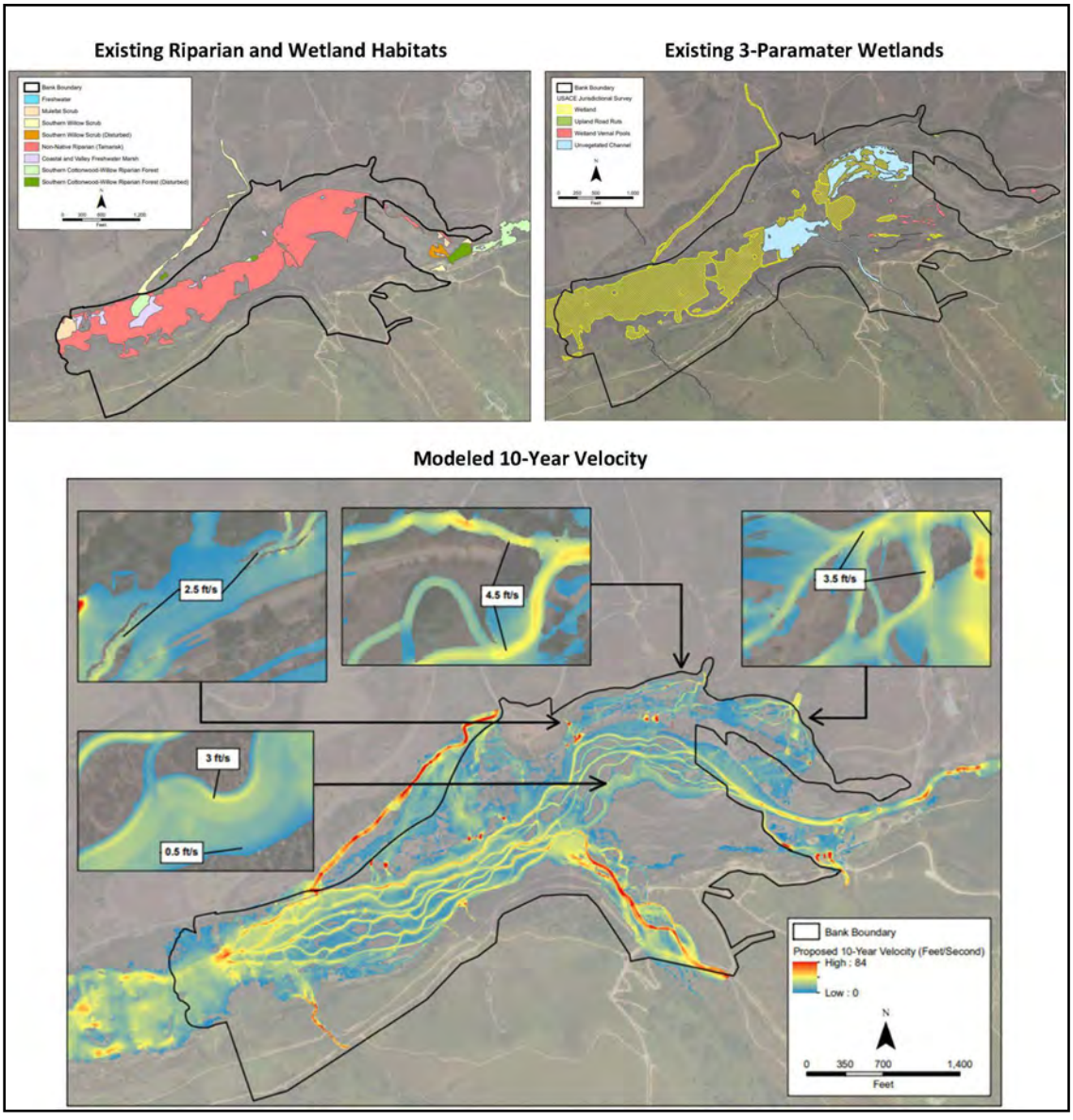


Figure 4-11. Select screenshots of supplemental datum.

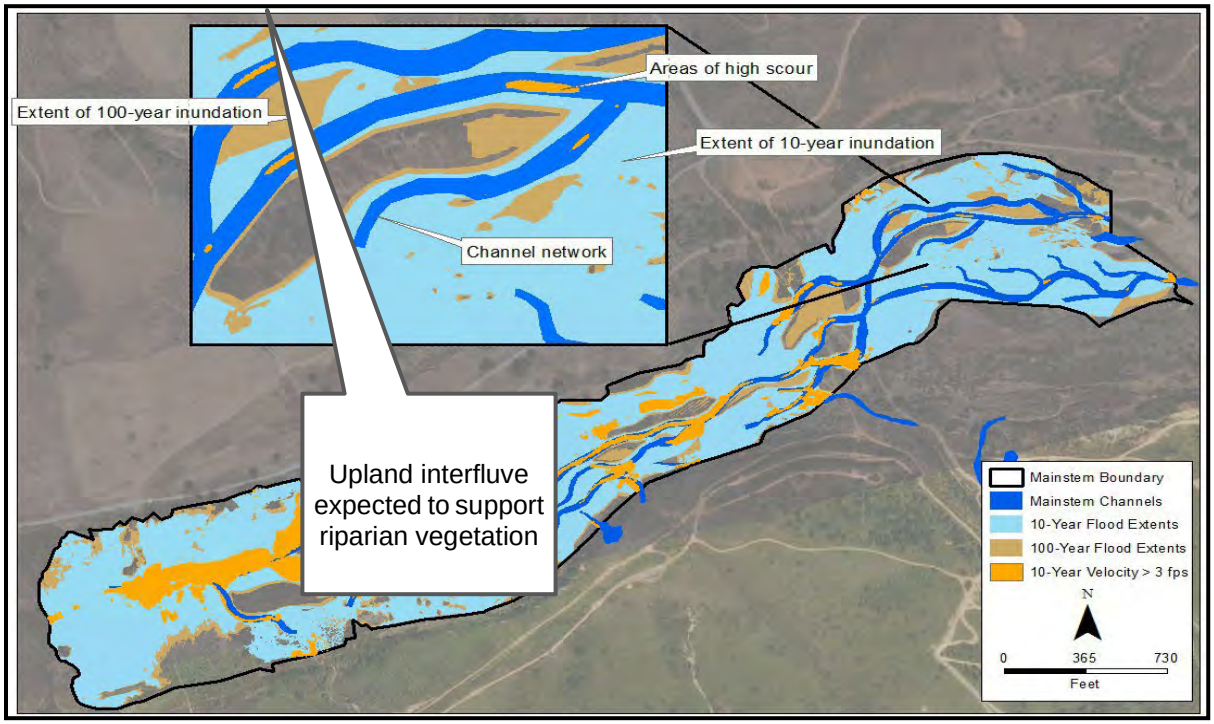


Figure 4-12. Example of supplement data used to develop mainstem credit areas.

Determining the credits expected as a result of the proposed restoration design was completed in a four-step process described in detail below.

Step 1: define post-restoration primary ecozones

Step 2: predict post-restoration jurisdiction

Step 3: model credits by jurisdiction and species (LBV and vernal pools)

Step 4: calculate overlapping/bundled credit

The classifications of ecozones and the delineation of various jurisdictional credits were made using the best available data and BPJ from a variety of specialists including hydrologists, ecologists, biologists, and geomorphologists. The outcome of each step is summarized below with Appendix N providing a detailed description of each step in the credit determination process.

4.6.1.1 Step 1: Defining Post-Restoration Primary Ecozones

Prior to identifying the post-restoration jurisdiction, it was important to understand the local ecosystem, referred to as the ecozone for this project. The ecozones represent broad distinct areas of similar ecological functions and values for aquatic resources and the associated flora and fauna. These ecozones were classified using anticipated onsite post-restoration variables including but not limited to hydrology (velocity, inundation, etc.), vegetation, geography/topography, and overall landscape setting. The final ecozone categories include tributary channels, mainstem channels, riparian transitional buffer, seasonal wetlands, active floodplain, vernal pool wetlands, and upland buffer (Table 4-3 and Figure 4-13). Details on the process for delineating post-restoration primary ecozones is described in Appendix N.

Table 4-3. Acreage of Ecozones Predicted Post-Restoration

Ecozone	Acres
Active Floodplain	61.99
Mainstem Channels	11.16
Riparian Transitional Buffer	31.23
Seasonal Wetlands	1.62
Tributary Channels	7.3
Upland Buffer	114.78
Vernal Pools Wetlands	2.29
Total	**230.39**

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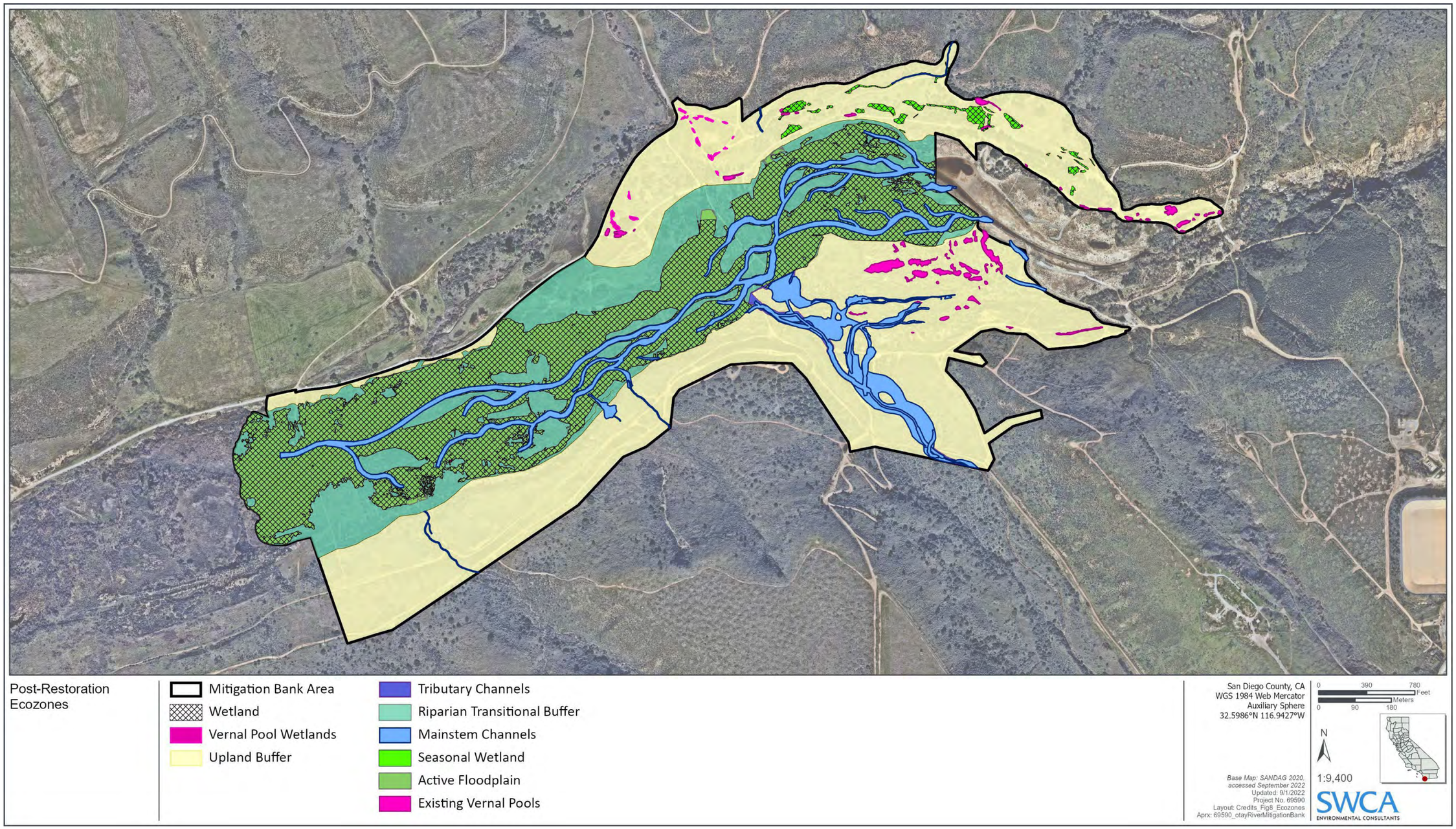


Figure 4-13. Predicted post-restoration ecozones.

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4.6.1.2 Step 2: Predict Post-restoration Jurisdiction

Table 4-4 shows the final ecozones and the corresponding aquatic resource jurisdictional assignment based on predicted post-restoration conditions and current regulatory guidance on delineating jurisdiction.

Table 4-4. Assigning Aquatic Resource Jurisdiction to Post-Restoration Ecozones

Project Ecozone (Step 1)	USACE/RWQCB (Step 2)			CDFW (Step 2)	
	Non-Wetland Waters of the U.S.	Wetland Waters	Upland Buffer	Streambed (Vegetated & Unvegetated)	Streambed (Riparian)
Mainstem Braided Channels	X Vegetated & Unvegetated			X	
Active Floodplain		X			X
Mainstem Riparian Transitional			X		X
Seasonal Wetlands		X			X
Vernal Pool Wetlands		X			X
Tributary Channels	X			X	
Upland Habitat			X		

4.6.1.2.1 USACE POST-RESTORATION PREDICTED JURISDICTION

USACE jurisdiction is a mix of non-wetland waters, as expected to be ultimately defined by the OHWM, as well as wetland waters for areas where three parameter wetlands are predicted to occur including wetland hydrology, soils, and vegetation. Figure 4-14 and Table 4-5 shows the predicted acreage for USACE jurisdiction post-restoration. While the configuration of jurisdictional features onsite will be modified as a result of designing a functioning channel network and floodplain, the overall restoration will result in no loss of jurisdictional waters and a net gain in jurisdictional resources. Table 4-5 demonstrates the net gain of USACE aquatic resources, 20.59 acres (1.09+19.50). Therefore, the total net gain of 20.59 acres is the maximum acreage allowed for reestablishment credits. Any GIS modeled reestablishment credits over this number are simply the relocated features and will be reassigned to the rehabilitation category in the ledger as they are not a gain in acreage and should not be counted as such.

Table 4-5. Predicted Acreage for USACE Jurisdiction Post-Restoration

Primary Jurisdiction	Type	Pre-Restoration Acres	Post-Restoration Acres	Difference
Non-Wetland Waters of the U.S.	Channel (Mainstem)	13.35	11.16	-2.19
	Channel (Tributary)	1.32	7.31	5.99

Primary Jurisdiction	Type	Pre-Restoration Acres	Post-Restoration Acres	Difference
	Subtotal	**15.25**	**18.43**	**3.18**
Wetland Waters	Wetland Created Vernal Pools	NA	0.23	0.23
	Wetland Existing Vernal Pools	1.29	2.06	0.77
	Wetlands Enhanced Road Ruts (Vernal Pools)	0	0.24	0.24
	Wetlands (Mainstem Floodplain)	44.32	62	17.68
	Wetlands (Seasonal)	0.45	1.62	1.17
	Subtotal	**46.35**	**65.91**	**19.56**
Upland Buffer	Riparian Transitional	NA	31.23	31.23
	Created Vernal Pools Watershed	NA	3.45	3.45
	Road Ruts	0.69	0	-0.69
	Upland	168.79	111.33	-57.46
	Subtotal	**168.79**	**146.06**	**-22.73**
	TOTAL	**230.39**	**230.39**	

Notes: (1) The baseline delineation did not use the exact categories as the post-restoration design which includes ecozones. A crosswalk was made between the two datasets and the baseline delineation was assigned to the most appropriate post-restoration jurisdiction type. (2) The difference for each jurisdiction type is a result of the restoration activities changing jurisdictions AND the nomenclature difference between the two datasets. The changes seen in the Upland category are a result of both restoration and nomenclature.

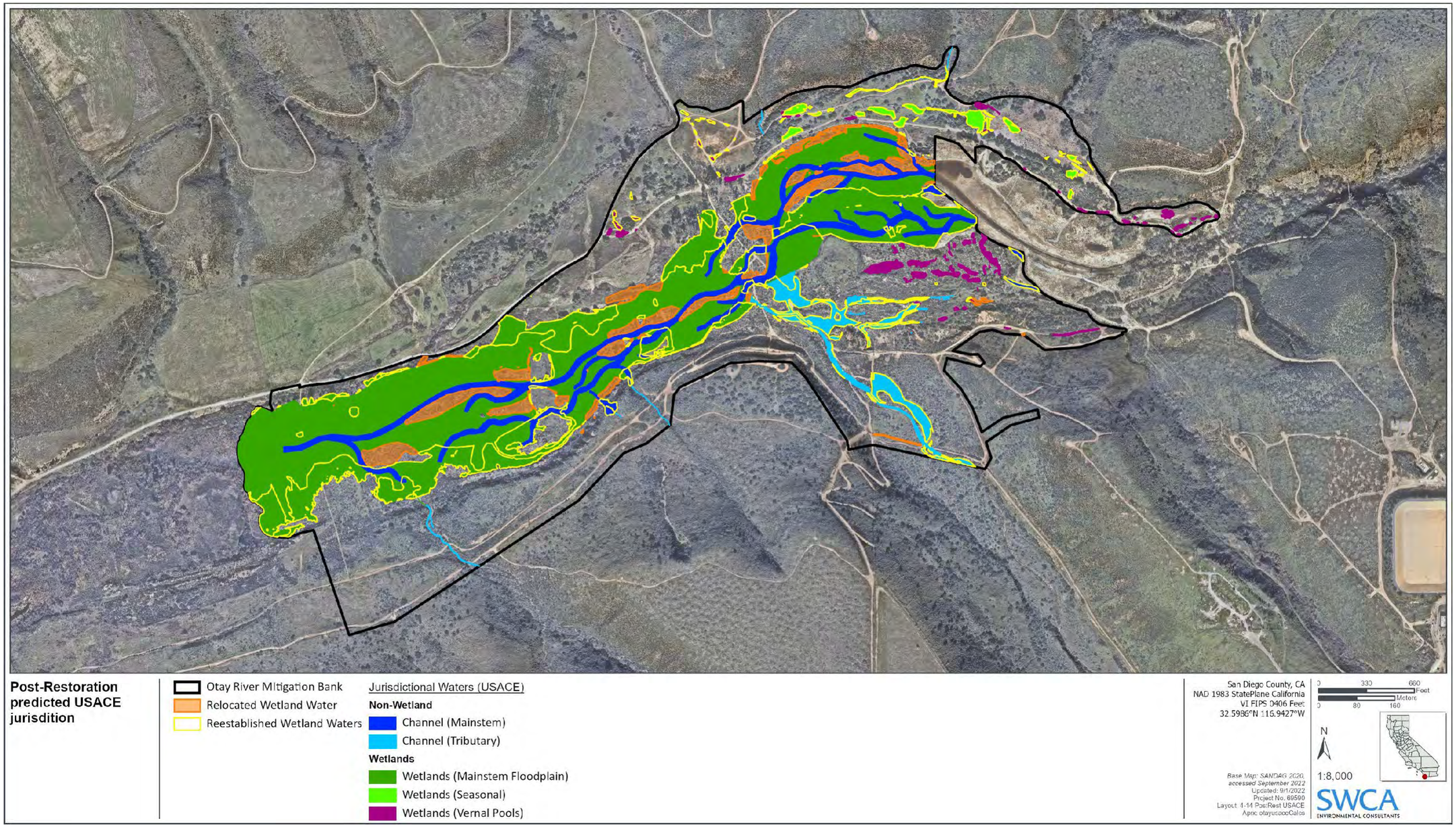


Figure 4-14. Post-Restoration predicted USACE jurisdiction.

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4.6.1.2.2 CDFW 1600 POST-RESTORATION PREDICTED JURISDICTION

CDFW Section 1600 ("1600") jurisdiction is a mix of streambed and associated riparian habitat, which is defined by the bed and bank and contiguous hydrophytic vegetation associated with the streambed and overall streambed function. Figure 4-15 and Table 4-6 show the predicted acreage for CDFW 1600 streambed jurisdiction post-restoration. The "reestablished wetland waters" category indicates the gain in CDFW jurisdiction, i.e., those areas are not currently jurisdictional but will be post-restoration.

Table 4-6. Predicted Acreage for CDFW 1600 Jurisdiction Post-Restoration

Primary Jurisdiction	Type	Pre-Restoration Acres	Post-Restoration Acres	Difference
Streambed	Channel (Mainstem)	30.54	11.16	-19.38
	Channel (Tributary)	2.08	7.25	5.17
	Subtotal	**32.62**	**18.41**	**-14.21**
Riparian	Mainstem Floodplain	NA	61.99	61.99
	Mainstem Riparian	53.52	31.23	-22.29
	Existing Vernal Pools	1.1	2.06	0.85
	Created Vernal Pools	NA	0.23	0.23
	Seasonal Wetlands	NA	1.62	1.62
	Subtotal	**54.73**	**97.13**	**43.79**
Upland Buffer	Upland	142.19	111.39	-30.8
	Created Vernal Pools Watershed	NA	3.45	3.45
	Road Ruts	0.85	NA	-0.85
	Subtotal	**143.04**	**114.84**	**-29.6**
	Total	**230.39**	**230.39**	

Note: (1) The baseline delineation did not use the exact categories as the post-restoration design which includes ecozones. A crosswalk was made between the two datasets and the baseline delineation was assigned to the most appropriate post-restoration jurisdiction type. (2) The difference for each jurisdiction type is primarily a result of the restoration activities changing jurisdictions and ecotypes (i.e., current riparian is restored to floodplain AND current upland is restored to riparian).

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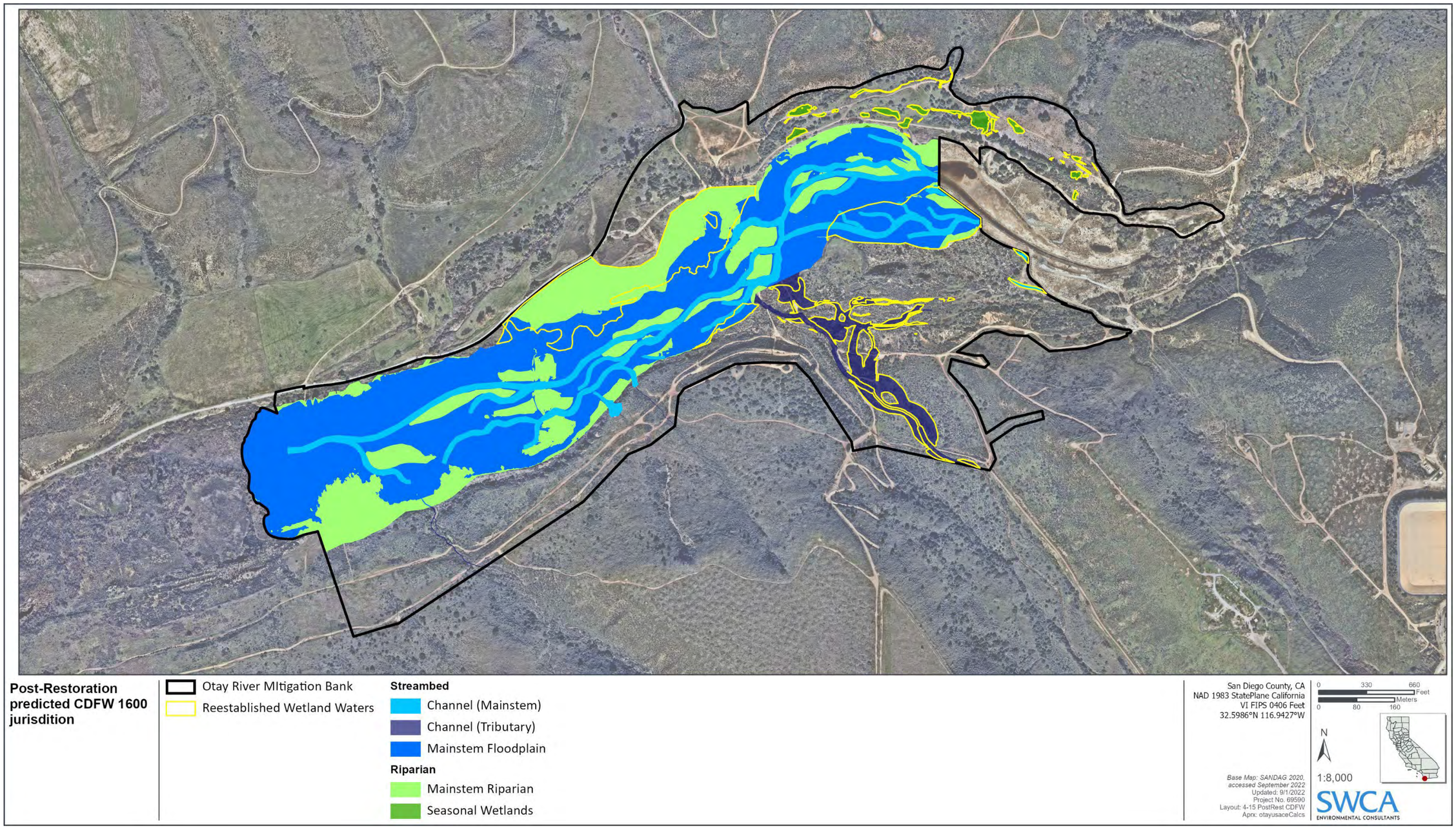


Figure 4-15. Post-Restoration predicted CDFW 1600 jurisdiction.

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4.6.1.3 Step 3: Model Credits by Jurisdiction and Species/Habitat (least Bell's vireo and vernal pools)

4.6.1.3.1 MODELED AQUATIC RESOURCE CREDITS

The following are the primary steps to credit determination:

- Break all into ecozones: mainstem channels, mainstem active floodplain, riparian transitional buffer, upland buffer, seasonal wetland, tributaries (O'Neil and others), vernal pools.
- Compare post-restoration predicted jurisdictional delineation to the pre-restoration jurisdictional delineation.
- Exclude ALL easements from credit table calculations.
- Apply definition of restoration types based on proposed work including grading, invasive species removal, planting/seeding, etc.

4.6.1.4 Definitions of Aquatic Resource Restoration Types

- **Establishment**
  - **Definition:** the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist on an upland site. Establishment results in a gain in aquatic resource area and functions.
  - **GIS exercise:** post-restoration predicts area will be jurisdictional where current jurisdiction does not occur AND there was not likely any historical jurisdiction (i.e. establishing aquatic resources where they did not previously exist).
  - **Project Specific Activities:** vernal pools will be established ("created") in the compacted (naturally and by vehicle use) northwestern portion of the project area, just east of Salt Creek. Earthwork will include shallow excavation using small mechanical equipment capable of fine grading. The in the compacted areas and creation of mounds that will direct water to the constructed pools. Seeding and planting will occur in the new features and will include vernal pool appropriate species and potentially sensitive vernal pool endemic species (with approval from USFWS). The surrounding upland watershed will be treated for invasive species and planted with coastal sage scrub species and maritime succulent scrub species. Note that the watershed is not an aquatic resource but is bundled with the created vernal pool acreage to support adequate long-term functions for vernal pools.
  - **Functional Lift:** This area does not currently support vernal pools; therefore, the creation of the feature is a direct new increase, or lift, in ecological functions. The created features have been designed to emulate adjacent reference vernal pools for size, depth, and shape, and are expected to support the seasonal hydrology necessary for vernal pool flora and fauna to persist overtime along with various sensitive species.
  - **Applicable Ecozones**
    - Vernal Pools (Created)
- **Re-establishment**
  - **Definition:** the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and function.

- **GIS exercise:** Post-restoration predicts jurisdictional areas where current jurisdiction does not exist but likely did exist historically (i.e., putting back aquatic resources that were lost).
- **Project Specific Activities:** The majority of the work onsite focuses on restoring hydrologic processes and the associated physical and biotic functions of a natural river system. The restoration activities include mass grading and contouring in the Otay River floodplain to create a channel network including primary and secondary channels, an engaged active floodplain, shallow floodplain depressions, transitional interfluves as well as higher floodplain terraces. In addition to recontouring much of the project area, heavy equipment will be used to remove over 50+ acres of dense (90% cover) invasive tamarisk scrub in the mainstem floodplain as well as acres of invasive eucalyptus, Peruvian pepper tree, and palms. A fewer number of aquatic resource areas onsite support moderate or low density non-native invasive cover and will be treated with smaller mechanical equipment as well as a variety of manual (by hand) techniques. All areas will be planted with native species and seeded as needed followed by a few years of intensive maintenance. Fencing, signage, and other natural materials will be used to reduce access into the site and many redundant trails will be closed. Select trail improvements will facilitate tributary connection to the floodplain, both improving trail conditions and maximizing hydrologic connectivity between the foothills and the restored mainstem Otay River.
- **Functional Lift:** Many areas within the historical Otay River Floodplain that were once likely jurisdictional have been degraded to the point of no longer being classified as jurisdictional and have not provided measurable wetland function for 50 to 100 years. The lack of riverine function can be directly attributed to Savage Dam, sand mining, and invasive species occupation. This project comprehensively addresses these numerous ongoing stressors by restoring the overall Otay River mainstem to a braided intermittent channel system with corresponding wetlands and floodplain. The project has been designed to function in its current environmental state including a reduced watershed, potential for dam release (every 10 years), and closer groundwater connectivity (post sand mining elevation). The functions of the Otay River will be further improved as a result of the smaller adjacent aquatic features being restored. This includes O'Neil Canyon in addition to the various small tributaries and their associated seasonal wetlands all of which will dramatically improve water and sediment delivery to the Otay River and its floodplain. Since much of the current Otay River floodplain does not support riverine function, overall connectivity, and non-jurisdictional area the restoration is predicted to have an immediate lift in many areas adjacent to current jurisdictional areas.
- **Applicable Ecozones:**
  - Channel (Mainstem)
  - Channel (Tributary)
  - Wetlands (Mainstem Floodplain)
  - Wetlands (Seasonal)
  - Riparian (CDFW 1600 Streambed)

- **Rehabilitation**
  - **Definition:** the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function but does not result in a gain in aquatic resource area.

- **GIS exercise:** Predicted to be jurisdictional post-restoration where pre-restoration jurisdiction also exists and where work occurring will have an improvement on multiple functions (i.e. making something that exists onsite **significantly** better).
- **Project Specific Activities:** Initial ground-disturbing restoration activities for rehabilitation are identical to those described above for reestablishment.
- **Functional Lift:** The only difference between rehabilitation and reestablishment is that rehabilitation applies to areas currently classified as a jurisdictional feature. Where re-establishment results in a net gain of acreage AND function rehabilitation will only result in a net gain of function. The bulk of the Bank's aquatic resources currently function in a moderate to heavily degraded state relative to historical conditions. This is a result of the upstream Savage Dam limiting hydrology, unauthorized and excessive trails and roads, historical sand mining in the river floodplain as well as the associated invasion by various riparian and upland perennial species including tamarisk, pepper tree, eucalyptus, castor bean (*Ricinis communis*), arundo, as well as many herbaceous invasive annual plants. As a result of these historical and current stressors, the Otay River functions as a degraded slope wetland, with no contiguous flow pathways or topographic structures indicative of a functioning river system. The lack of riverine function can be directly attributed to the dam, sand mining, and invasive species. This project comprehensively addresses these numerous ongoing stressors by restoring the overall Otay River mainstem to a braided intermittent channel system with corresponding wetlands and floodplain. The project has been designed to function in its current environmental state including a reduced watershed, potential for dam release (every 10 years), and closer groundwater connectivity (post sand mining elevation). The functions of the Otay River will be further improved as a result of the smaller adjacent aquatic features being restored. This includes O'Neil Canyon in addition to the various small tributaries and their associated seasonal wetlands all of which will dramatically improve water and sediment delivery to the Otay River and its floodplain.
- **Applicable Ecozones:**
  - Channel (Mainstem)
  - Channel (Tributary)
  - Wetlands (Mainstem Floodplain)

- **Enhancement**
  - **Definition:** the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area. This term includes activities commonly associated with the following terms: enhancement, management, manipulation, and directed alteration.
  - **GIS exercise:** Predicted jurisdictional post-restoration where pre-restoration jurisdiction exists and where work occurring will have an improvement on one or more functions but could also be neutral or even reduce other functions (i.e., making something that exists onsite somewhat better).
  - **Project Specific Activities:**
    - Channel, Tributary: Portions of O'Neil Canyon along the southeast reach will entail lighter restoration activities, including non-native plant removal, native seed, and plant installation. No heavy equipment will be used in these areas.
  - **Functional Lift:**
    - Existing Vernal Pool Features: This project currently supports vernal pools in both the floodplain terrace and the adjacent valley floor. It is unclear which of these are truly "natural" as most appear to be a relic from past mining activities

and other onsite earthwork. Most of these exist in a moderate to heavy state of degradation. However, many of these features are currently providing some function, in particular hydrology. Most flora is nonnative and at times invasive and many of the features have limited topographic complexity making microhabitats scarce. The proposed actions would increase native vernal pool floral diversity, habitat complexity, and likely faunal diversity as well. In addition, the ongoing management and supplemental planting in many of these features will increase sensitive vernal pool plants.

- Channel, Tributary: In addition to the lift associated with native plant cover and diversity as a result of planting/seeding and nonnative treatment, there is also expected to be lift associated with the proximity to the channel restoration and improved hydrology. These hydrologic and physical improvements are also likely to result in lift for local fauna including more complex habitat structure and increased microhabitats.

- **Applicable Ecozones:**
  - Existing Vernal Pool Features
  - Channel Tributary

- **Preservation – NOT allowed within the Bank**
  - **Definition:** the removal of a threat to, or preventing decline of, wetland conditions by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

    As the Bank occurs within the hardline preserve limit for the Otay Ranch Preserve system only Bank activities that are over and above the preserved acreage and baseline POM commitments can be considered for credits, making the minimum credit type, enhancement.

- **Buffer/Covered Habitat**
  - **Definition:** the buffer is a zone of transition between the immediate margins of an aquatic resource and its surrounding environment that is likely to help protect the aquatic resource from anthropogenic stress and natural disturbance. Buffer is an area in a natural or semi-natural state and currently not dedicated to anthropogenic uses that severely detract from its ability to entrap contaminants, discourage visitation by people and non-native predators, or otherwise protect the aquatic resource from anthropogenic stress and natural disturbance (CWMW 2013).
  - **GIS exercise:** All non-aquatic resources within the Bank limit.
  - **Project Specific Activities:** The vegetation communities in the upland buffer will be restored through nonnative species removal treatments and planting of native species

(container plants and/or seed). In addition, ongoing removal of trash as well as fence installation and signage will further protect these areas.

- **Functional Lift:** The 46+ acres of disturbed coastal sage scrub, nonnative grassland, and nonnative grassland – broadleaf dominated will be converted to native habitats with significantly reduced nonnative cover. Currently these vegetation types have between 30% and 90% nonnative cover. The nonnative species removal effort and native plantings/seeding will convert these areas to native upland buffer. Additionally, areas of intact native upland buffer will have increased function by the removal of lower density patches of nonnative often invasive species. Improved functions include habitat structure and niches for native fauna, protection of the adjacent wetland from stressors, and improved foraging resources for upland and river dependent fauna.
- **Applicable Ecozones**
  - Upland Buffer

4.6.1.4.1 MODELED USACE AQUATIC RESOURCE CREDITS

Table 4-7 and Figure 4-16 show the modeled USACE credits. These will be combined into the final bundled credits for the Bank.

Table 4-7. USACE Credit Post-Restoration

Credit Classification	Credit Type	Acres
Buffer	Channel (Tributary)	0.04
	Created Vernal Pools Watershed	3.15
	Vernal Pools – Habitat Only (Road Ruts)	0.33
	Vernal Pool (existing) – NO CREDITS	1.40
	Riparian Transitional	30.34
	Upland	98.02
	Subtotal	**133.28**
Enhancement	Channel (Mainstem)	0.00
	Channel (Tributary)	1.69
	Seasonal Wetland	0.32
	Subtotal	**2.01**
Establishment	Wetland Vernal Pools (Created)	0.23
	Subtotal	**0.23**
Reestablishment	Channel (Mainstem)	3.40
	Channel (Tributary)	3.92
	Wetlands (Mainstem Floodplain)	20.29
	Wetlands (Seasonal)	1.47

		Subtotal	**29.07****
Rehabilitation	Channel (Mainstem)		7.59
	Channel (Tributary)		1.15
	Wetlands (Mainstem Floodplain)		41.54
	Wetlands (Seasonal)		0.02
		Subtotal	**50.30**
		Total	**214.91**

** The total net gain of 22.74 acres is the maximum acreage allowed for reestablishment credits. Any GIS modeled reestablishment credits over this number are the relocated features and will be reassigned to the rehabilitation category in the ledger as they are not a gain in acreage and should not be counted as such.

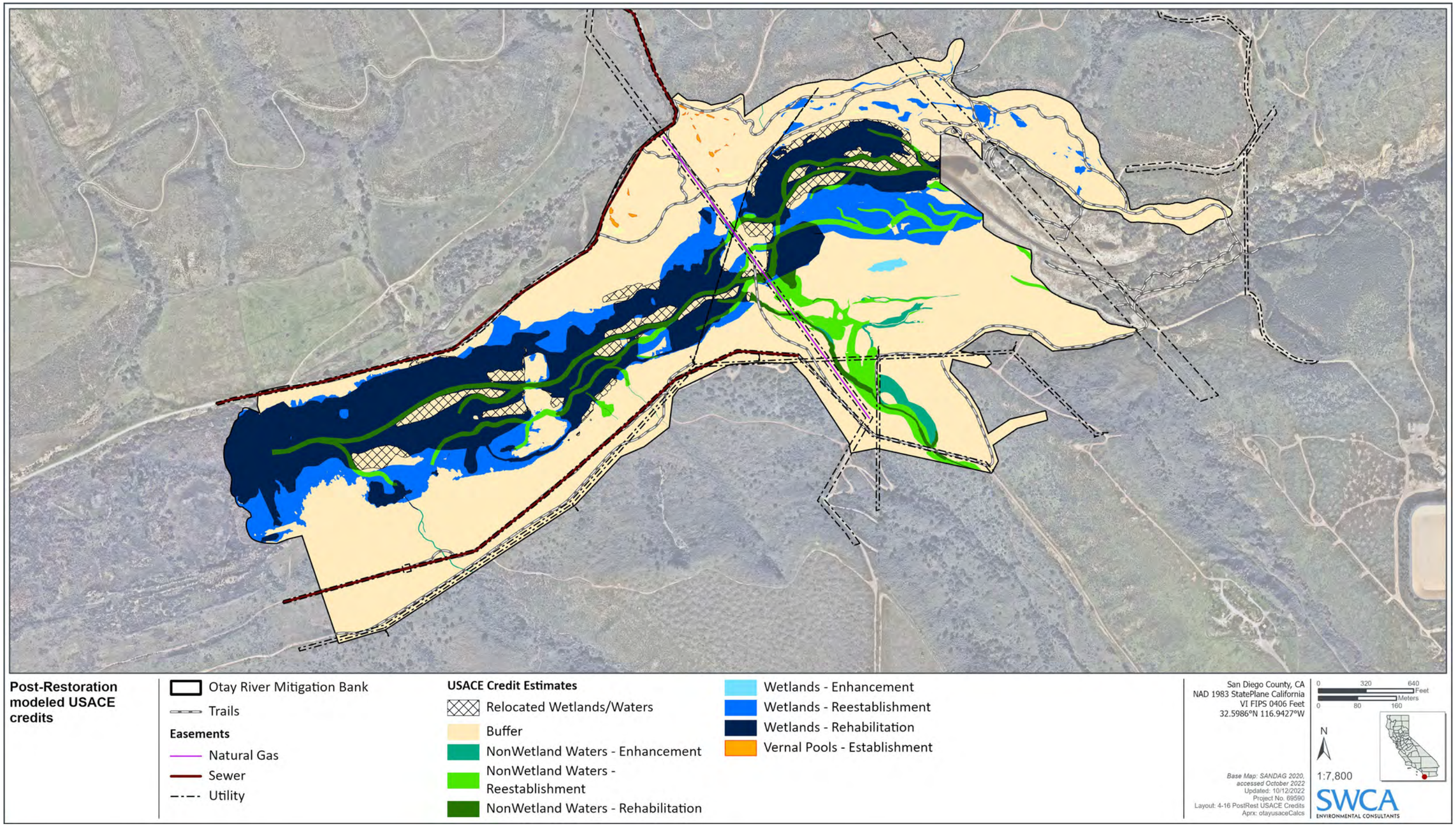


Figure 4-16. Post-Restoration modeled USACE credits.

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4.6.1.4.2 MODELED CDFW AQUATIC RESOURCE CREDITS

Table 4-8 and Figure 4-17 show the modeled CDFW credits. These will be combined into the final bundled credits for the Bank.

Table 4-8. CDFW Credit Post-Restoration

Credit Classification	Credit Type	Acres
Buffer	Created Vernal Pools Watershed	3.15
	Vernal Pool (existing) – NO CREDITS	0.07
	Upland	99.10
	Vernal Pools – Habitat Only (Road Ruts)	1.40
	Subtotal	**103.72**
Enhancement	Channel (Tributary)	2.44
	Seasonal Wetland	0.32
	Mainstem Riparian	0.01
	Subtotal	**2.77**
Establishment	Vernal Pools (Created)	0.23
	Subtotal	**0.23**
Reestablishment	Channel (Mainstem)	1.85
	Channel (Tributary)	3.60
	Mainstem Floodplain	8.23
	Mainstem Riparian	9.82
	Seasonal Wetlands	0.71
	Subtotal	**24.21****
Rehabilitation	Channel (Mainstem)	9.14
	Channel (Tributary)	0.70
	Mainstem Floodplain	53.60
	Mainstem Riparian	20.52
	Seasonal Wetlands	0.02
	Subtotal	**83.98**

	Total	**214.91**

** The total net gain of 22.74 acres is the maximum acreage allowed for reestablishment credits. Any GIS modeled reestablishment credits over this number are the relocated features and will be reassigned to the rehabilitation category in the ledger as they are not a gain in acreage and should not be counted as such.

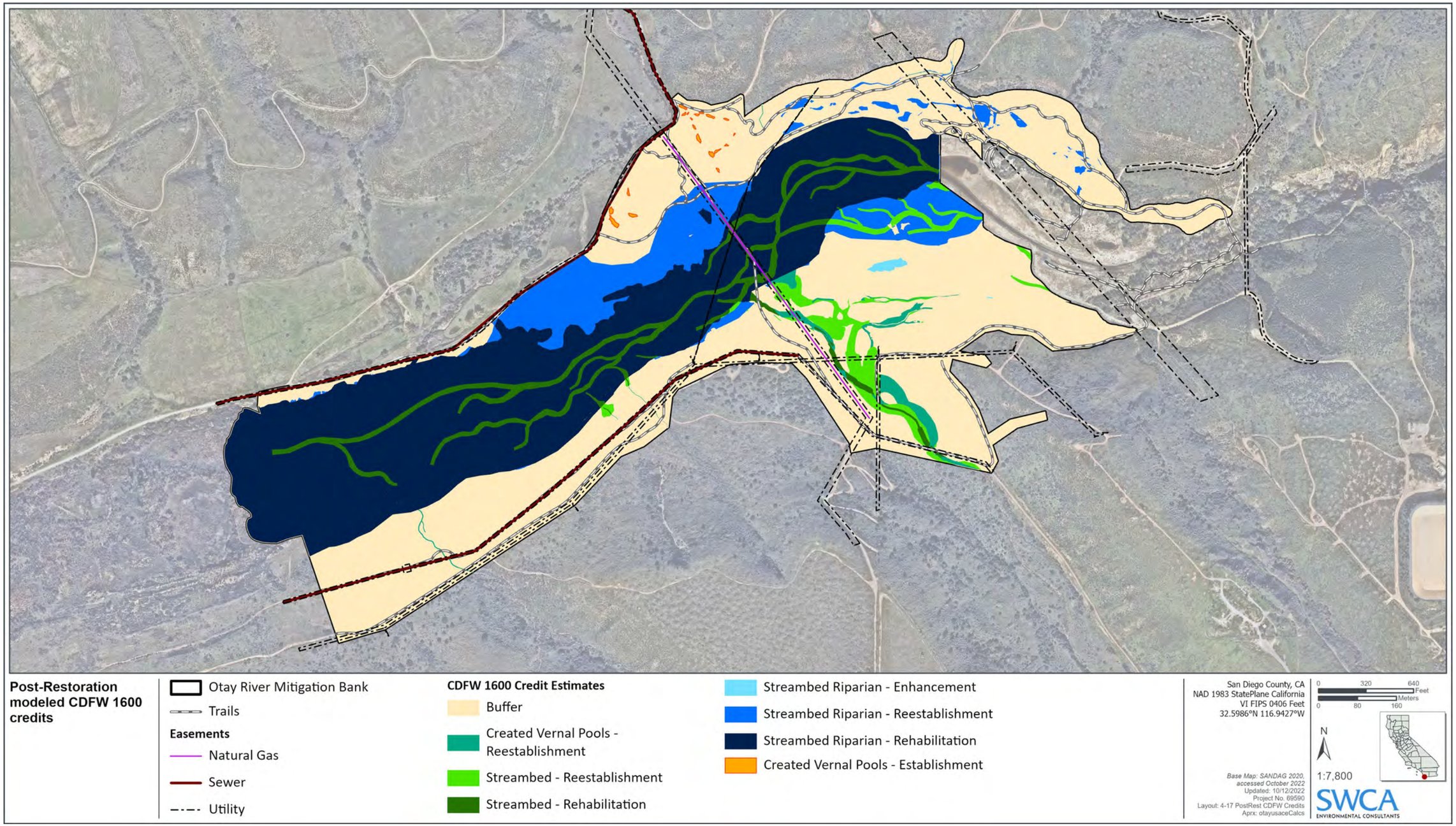


Figure 4-17. Post-Restoration modeled CDFW credits.

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4.6.1.4.3 MODELED LEAST BELL'S VIREO CREDITS

The Otay River Mitigation Project will improve existing vireo habitat and restore historical vireo habitat currently not providing the minimal functions needed to support vireo use. This work aligns with the USFWS 1998 recovery plan and supports one of the primary requirements for delisting, population expansion. The Otay River is one of the 11 Population Units identified in the Recovery Plan and as of 2005 had the second lowest numbers (36 territories) of all 11 Population Units with only Santa Ynez River having less. Given that the 10+ miles of river downstream of Savage Dam have significantly degraded riparian habitat and hydrology, the Otay River represents a location of potentially large vireo population growth with management and restoration activities. The City of Chula Vista's 2003 Multiple Species Conservation Program Subarea Plan considers vireo a preserved species, with no required action for habitat improvement or expansion. Therefore, the work being proposed by the Otay River Mitigation Bank will exceed the management actions required of the POM and result in improved vireo habitat (within the floodplain) as well as restored habitat (within the floodplain).

The Mainstem floodplain areas are expected to support an increased number of territories. These areas are not currently supporting vireo and will be restored to meet LBV target quality requirements (for foraging and breeding). These mainstem areas currently exist in a heavily degraded state including high levels of invasive species (tamarisk, eucalyptus, non-native grasses), limited hydrology/water-connectivity, proximity to quality upland habitat, and disturbed terrain. Based on the absence of LBV in these areas and the known site conditions, it is presumed that these areas currently do not support adequate foraging and nesting habitat within a reasonable proximity, thereby precluding successful long-term occupation by LBV.

Recent modeling by USGS identified several important features common to LBV habitat, such as having >60% riparian vegetation, little to no slope, and being within 130 meters of water; identifying only 6% of the riparian habitat in California as suitable for the LBV. **The target restoration elements benefiting LBV are as follows:**

- Restoration of native riparian vegetation with canopy and shrub, supporting both nesting and foraging.
- Restoration of adjacent upland habitat buffer for foraging.
- Restoration of active floodplain habitat for improved foraging
- Funding and implementing a cow-bird trapping program for the Bank limit.

The following steps were used to generate the final vireo credit estimate.

Step 1: A qualitative estimate of current vireo territory condition was completed on the 2021 territories (Figure 4-18).

Condition classification was based on existing native/invasive riparian vegetation, adjacent native upland buffer, elevation, and proximity to water. This classification was based on existing onsite information and best professional judgement regarding the key features identified by the USGS as being critical for nesting and foraging habitat. The post-restoration mainstem habitats were based on a variety of data including groundwater, 5-year inundation extent, existing vegetation, current delineation, and observations from pre-bank and surrounding "reference" habitat (Figure 4-19 and Table 4-9). Appendix O includes a series of photographs from reference habitats found in the Otay Valley that typify the post-restoration vegetation species and structure predicted post-restoration.

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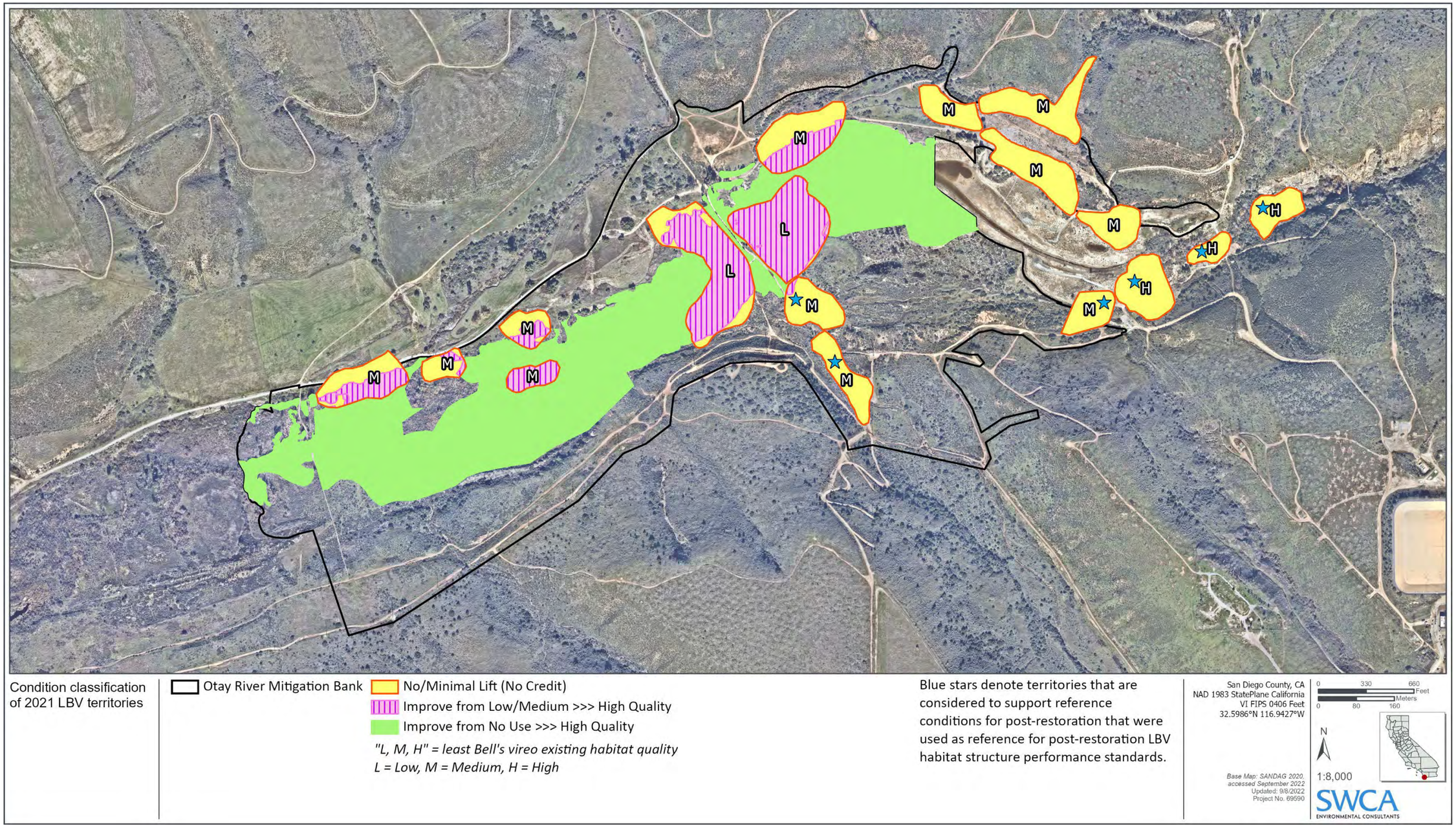


Figure 4-18. Condition classification of 2021 least Bell's vireo territories.

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Step 2: Habitat predicted to occur in the mainstem Otay River post-restoration was modeled.

Four major categories were evaluated, including Riparian Forest, Riparian Scrub, Seasonal/Emergent Wetland, and Riparian Transitional.

- Riparian Forest = Moderately tall, winter-deciduous riparian forests with broadleaved trees and several tree willows. Understories consist of shrubby willows.
- Riparian Scrub = Riparian zones dominated by small trees or shrubs, lacking taller riparian trees. Encroaching into some coastal saltmarsh habitats.
- Seasonal/Emergent Marsh = Occurs in areas where water tends to accumulate and supports emergent plant species.
- Riparian Transitional = Cottonwood forest bordered by alkali wetlands that transition to sage scrub in the foreground. Common species include spiny rush, spikerush, and San Diego marsh elder.

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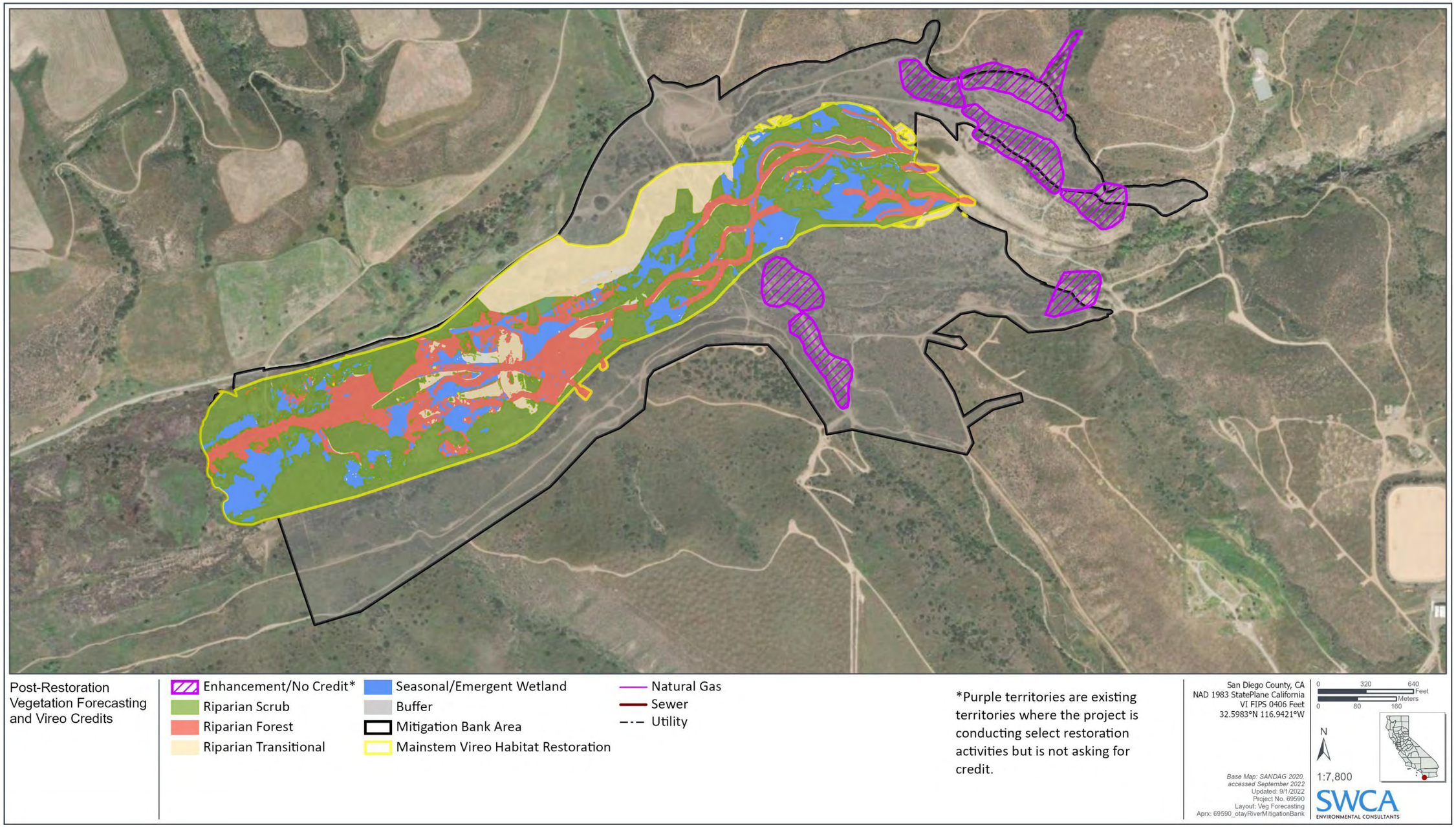


Figure 4-19. Post-Restoration predicted mainstem habitat suitable to support vireo territories. Purple territories are existing territories where the project is conducting select restoration activities but is not asking for credit.

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Table 4-9. Predicted Acreage of Suitable Vireo Habitat in the Mainstem River Post-Restoration (acres shown within and outside of the easements)

	Post-Restoration Mainstem Vegetation Community	Acres
Eligible for Vireo Restoration Credits	Riparian Forest	25.35
	Riparian Scrub	39.85
	Riparian Transitional	15.86
	Seasonal/Emergent Wetland	23.02
	Subtotal	**104.08**

Step 3: Calculate Average Reference Vireo Territory Size

The acreage of the higher quality 2021 LBV territories were evaluated to determine a reference size for predicting the number of post-restoration vireo territories that could be supported in the mainstem (see the blue stars in Figure 4-18). As shown in Table 4-10, the average territory size is 3.24 acres and the median is 2.97 acres. In order to be conservative in the estimate of post-restoration territories, the average will be used.

Table 4-10. Evaluation of Current Reference LBV Territory size including the Minimum, Maximum, Average, and Mean (the average size will be used for calculating post-restoration territory potential)

2021 Reference Territory Size	Acres
Min	0.85
Max	6.76
Average	3.24
Median	2.97

Step 4: Calculate Post-Restoration Vireo Territory/Acreage Potential (credits)

- Total post-restoration vireo mainstem habitat (104.08) divided by the average reference territory size (3.25)
    - 104.08/3.24 = 32.23
    - Post-Restoration Mainstem Territory Potential = 32 territories
- Deduct the current (2021) number of territories in the mainstem (7 territories, e.g. baseline) from the post-restoration mainstem territory potential (32 territories)
    - **Post-Restoration Additional (credits) Mainstem Territories**

= 32-7 baseline territories = 25 territories

- **Post-Restoration Additional (credits) Mainstem Acreage**

= 25*3.25 acres = 81 acres

These credits will be combined into the final bundled credits for the Bank. No more than 81 credits can be sold for "mainstem vireo habitat restoration" out of the 104 acres of vireo eligible credits. When that maximum of 81 is reached, any remaining bundled credits with eligible "mainstem vireo habitat restoration" habitat may still be sold but will exclude the vireo credit. In addition, Covered Species LBV Credits will be released based on LBV pair occupancy of the LBV habitat over the baseline 7 pairs, i.e. no LBV credits will be available until at least 8 territories (1 more than baseline) are documented post-restoration. Credits will equal # of pairs > 7 *3.24 acres up to a max of 81 acres.

***Reminder*:** the Bank will be funding long-term cowbird trapping as it is required, in addition to the reestablishment of high quality habitat, for population growth and breeding success.

4.6.1.4.4 MODELED VERNAL POOL CREDITS

The area that makes up the created (established) vernal pool credits includes the maximum inundation perimeter of the pool and the contributing watershed which is critical for proper ecological function (Figure 4-20). The maximum inundation perimeter is defined as the limit of pool inundation before overflowing. The geometry of each created pool is based on a naturally existing reference vernal pool within the project site. The contributing watershed dictates the volume of runoff that enters each created pool, and the watersheds were delineated from topography and hydrologic analyses in ArcMap. The vernal pools themselves make up just 4% of the total credit area (0.23 acres) versus the watersheds that make up 96% (3.45 acres) (Figure 4-21. Vernal pool credit locations).

The existing pools (Figure 4-21) will be enhanced and rehabilitated by removing non-native species, adding topographic complexity (cobble and select benching), and potentially seeding/planting with vernal pool plant species. Rehabilitated pools will provide higher quality habitat for fairy shrimp and other invertebrates as well as amphibians and vernal pool plant species. The buffer surrounding the pools will also be managed free of non-native species including non-native grasses that can be detrimental to the function of vernal pools.

The established and enhanced vernal pool credits will be combined into the final bundled credits for the Bank.

USFWS Covered Habitat Credits (Vernal Pools)

	Acres
Establishment (pool and associated watershed)[1]	0.23
Habitat Only (road ruts, non-jurisdictional)	0.33
Total	**0.56**

[1] A total of 0.23 acre of vernal pools will be created along with 3.15 acres of associated watershed. The watershed will feed surface and sub-surface water into the vernal pools and are essential for the pools to properly function. For every 0.01 acres vernal pool establishment credit includes 0.14 acres of associated watershed. These 3.15 acres have been removed from the Upland Only credit category.

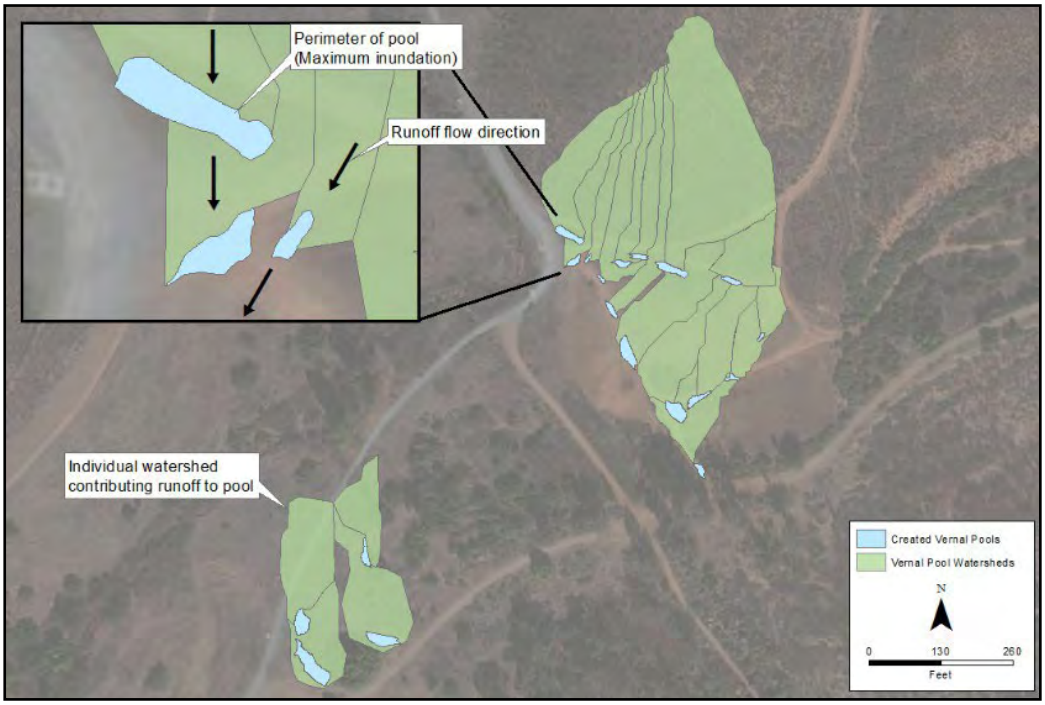


Figure 4-20. Maximum inundation perimeters and associated watersheds.

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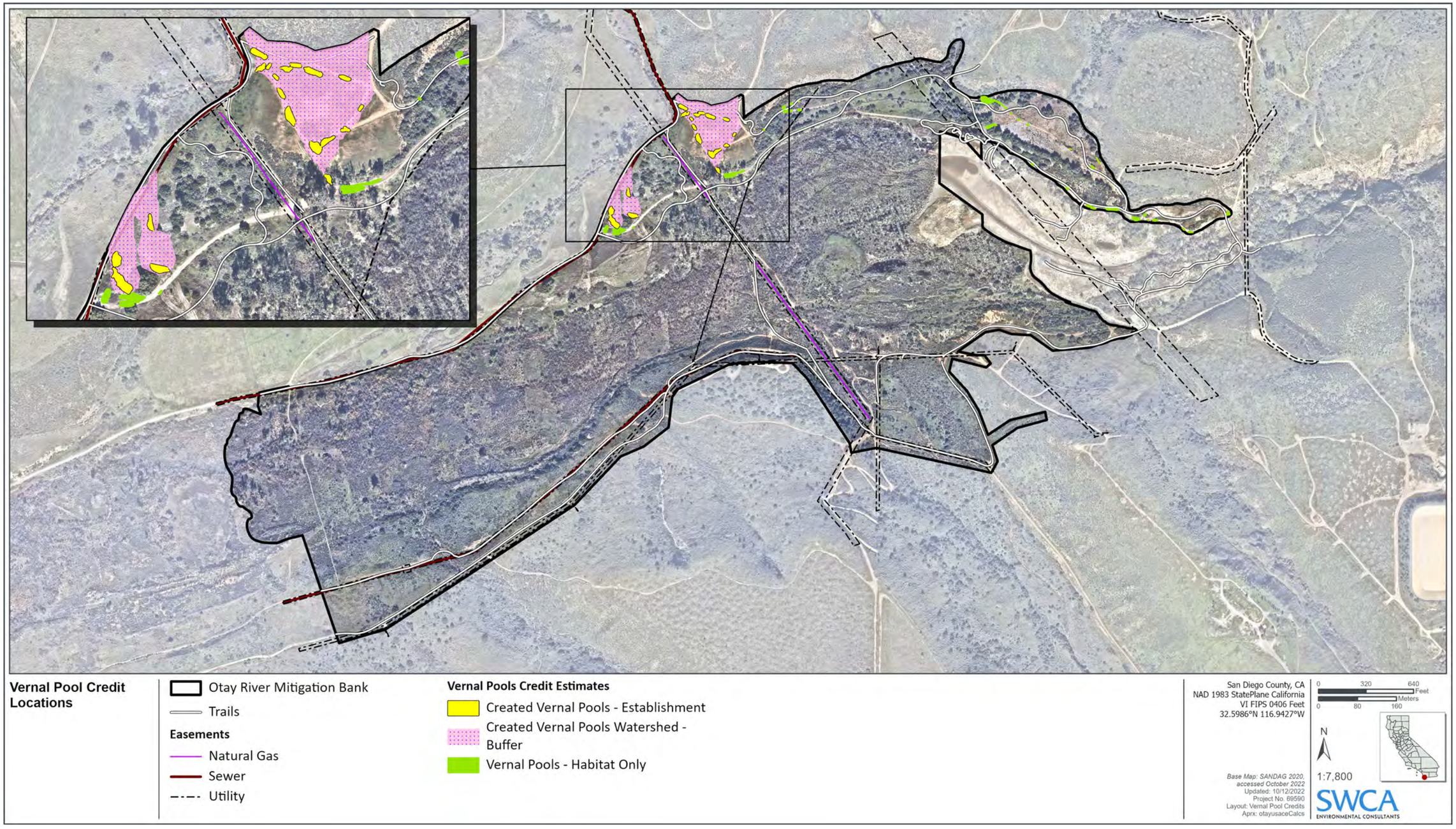


Figure 4-21. Vernal pool credit locations.

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4.6.1.4.5 POTENTIAL UPLAND CREDITS

Although the restoration of upland habitats directly improves the condition of the immediately adjacent aquatic resources, the decision was made not to request WOUS buffer credits due to the complex nature of such request. At this time the unique upland only credits remain in the ledger as upland only buffer credits. The upland credit could be used for MSCP/CEQA/CESA credits on an as-needed, project-by-project basis with an approval process initiated and approved by the resource agencies. All potential upland credits would account for lift over and above the preserved acreage and baseline POM commitments. Table 4-11 shows the acreage of sensitive upland habitats within the Otay River Bank, Mainstem Phase. Existing degraded habitats will be enhanced through removal of non-native plant species, and non-native dominated habitats will be re-planted with native plantings, resulting in CEQA and CESA mitigation opportunities. Future work in these uplands may target select species such as Otay tarplant, burrowing owl (*Athene cunicularia*), and others but any proposed work and associated credit would be coordinated and approved by the resource agencies. No advance credits will be requested for upland only areas until additional proposed restoration activities are approved (i.e., burrowing owl burrow creation).

Table 4-11. Acreage of Sensitive Upland Habitats Within the Otay Riverbank, Mainstem Phase

Habitat	Modified Holland Code	Habitat Name	Tier	Acreage
Uplands	32510	Diegan Coastal Sage Scrub	Tier II	78.01
		Diegan Coastal Sage Scrub (Disturbed)	Tier II	21.31
	32530	Diegan Coastal Sage Scrub (Baccharis dominated)	Tier II	8.66
	32800	Flat-topped Buckwheat	Tier II	1.42
	42110	Valley Needlegrass Grassland	Tier I	0.04
	42130	Saltgrass Grassland	Tier I	0.34
	42200	Non-Native Grassland	Tier III	6.18
	42210	Non-Native Grassland (Broadleaf dominated)	Tier III	18.65

The potential for use of upland habitats as mitigation for impacts under the CEQA will be determined on a project-by-project basis, based on the acreage of impacts and the types of upland habitat restored within the Bank Property. This does not include the established vernal pool watersheds, which have been excluded from the general upland credit category. CEQA and CESA mitigation opportunities (excluding preservation) will result both from existing habitats that will be improved through moderate to intensive removal of invasive species, native species planting as well as unique opportunities for target species and habitat such as California gnatcatcher, cactus wren, Otay tarplant, maritime succulent scrub, etc. As part of the City of Chula Vista General Plan, any projects subject to City approval must demonstrate conformance with the City's MSCP Subarea Plan and the City's Habitat Loss and Incidental Take Ordinance (https://chulavista.municipal.codes/CVMC/17.35), which implements the City's MSCP Subarea Plan. Upland mitigation opportunities will be for impacts associated with CEQA/CESA on Tier I, II, and III habitats in compliance with the Chula Vista Subarea Plan, which encourages all mitigation to be conducted with the Preserve.

Step 5: Calculate Overlapping/Bundled Credit

The Otay River Mitigation Bank will offer different types of bundled credits, each including a suite of ecological functions and services associated with aquatic and non-aquatic resources, as well as benefits specifically aimed to support LBV species and vernal pool habitat. Each of these bundled credits are geographically distinct, no credits are overlapping, and all services within a credit are bundled together

and never separated. The Bank does not propose any credit stacking or unbundling of functions and services for any given credit location. A detailed description of the credit development process is included in Appendix N.

The illustration below (Figure 4-22) demonstrations credit bundling, with each credit type joined and a single point (black dashed line) representing a unique bundled credit type. In this case the black dashed line represents credit type **USACE Wetlands: Rest Type: Rehabilitation Ecozone: Wetlands (Mainstem Floodplain) | CDFW Streambed Riparian: Rest Type: Rehabilitation Ecozone: Mainstem Floodplain | LBV - Mainstem Vireo Habitat Restoration | VP – No.**

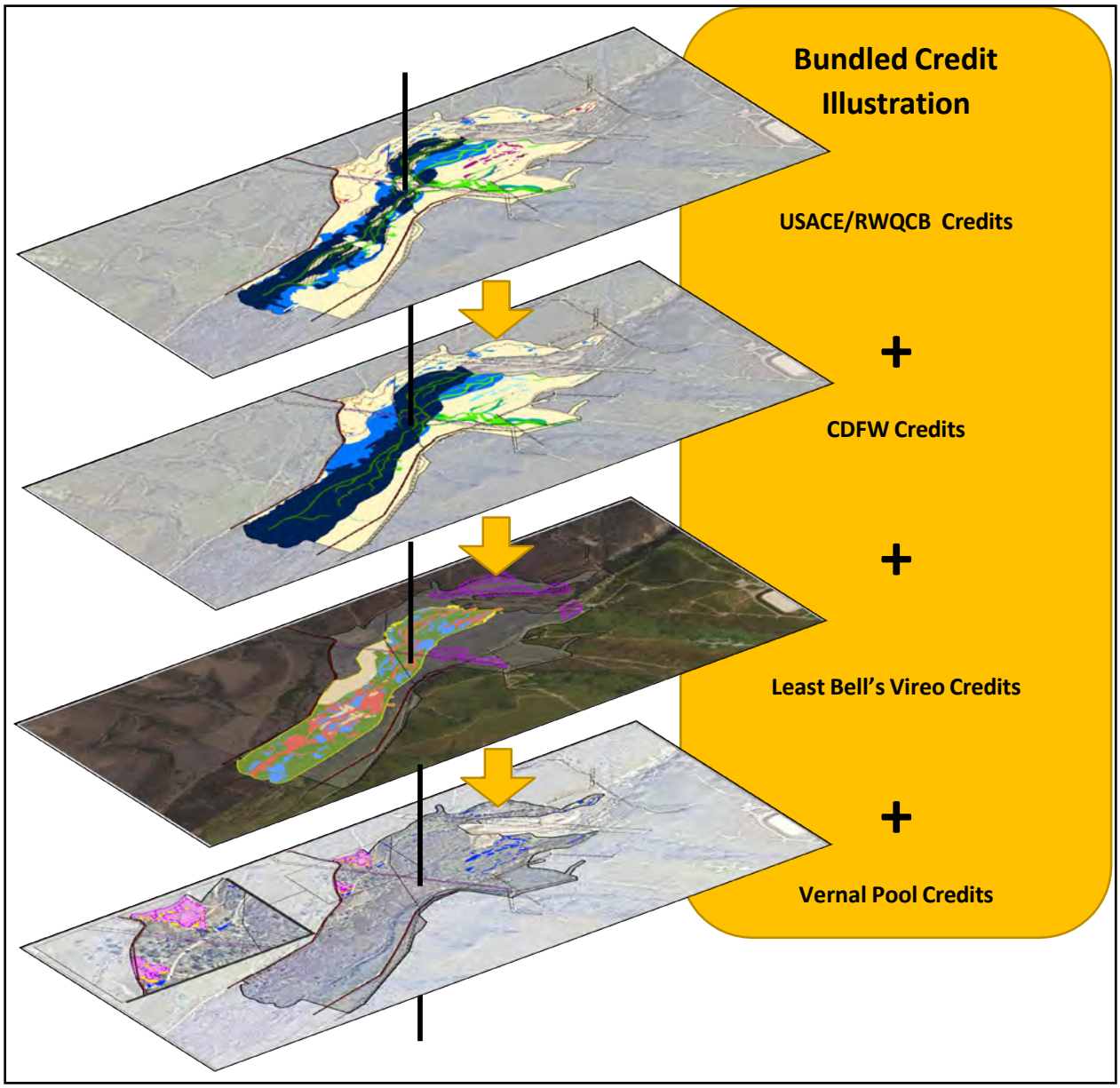


Figure 4-22. Illustration of stacked credit calculation.

A detailed description of the credit development process is included in Appendix N. A credit ledger has been prepared detailing the stacked credits (Exhibit F-3 of BEI). Any modeled bundles with less than a

total of 0.1 acres have been removed from the ledger and the figure as these small acreages result in a variety of complexities with monitoring and tracking that reduces certainty. The removed bundles total less than 0.6 acres.

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CHAPTER 5. IMPLEMENTATION PLAN

5.1 SCHEDULE

Restoration activities associated with the Bank will be implemented according to the schedule in Table 5-1.

Table 5-1. Implementation Schedule

Implementation Tasks	Schedule
Contract growing agreement with native plant nursery	Nine months prior to planting
Clearing and grubbing and invasive species removal	Winter/Spring prior to implementation year, following breeding season completion
Rough Grading	Winter/Spring prior to implementation year, following breeding season completion
Final grading and site work	Spring/Summer/Fall of implementation year
Install fencing and signage	Immediately following final grading
Install temporary irrigation system (as needed)	Promptly following site preparation
Plant container stock	Following irrigation system installation and weed abatement (where needed) beginning early fall

5.2 GRADING SITE PREPARATION

The Bank will comply with all pre-construction avoidance and minimization measures identified in the associated permits. The site is currently occupied by LBV, coastal California gnatcatcher, and San Diego fairy shrimp, along with several other sensitive species; therefore, specific avoidance and minimization measures for these species will be incorporated in grading and site preparation activities. Measures for activities that could impact federally listed species will be detailed in the Biological Opinion for the project. Avoidance measures may include avoiding or limiting grading and vegetation removal during the nesting/breeding season, having biological monitors onsite during all grading and vegetation removal activities, conducting biological awareness training for all construction personnel, conducting pre-construction surveys for listed species, limiting grading activities in areas where species are known to occur and the habitat is of high quality. These measures are consistent with the Biological Opinion that was issued for the restoration project immediately upstream of the Bank (called the "Pre-Bank").

In addition, during construction activities species that are disturbed or impacted may be able use nearby areas for refuge, and in particular the newly restored portion of the Otay River immediately upstream. Once restoration activities have ceased and the habitat has had time to re-establish the species would have higher quality habitat to return to and it will likely allow sensitive species numbers to increase in the long term.

Initial site preparation activities will include the following.

- Defining and staking the limits of the work area, including temporary access roads, staging areas, and stockpile areas.
- Installing staking or fencing around Environmentally Sensitive Areas.
- Adding temporary signage notifying the public of activities.

The site preparation effort necessary for native planting will include the removal of all invasive nonnative tree, shrub, and herbaceous species followed by grading of the channel and floodplain areas to remove spoil piles, berms, and pits. Areas that contain tamarisk will require additional measures beyond removal of existing trees because this species will have created a copious seed bank in the soil that will result in sprouts that will need to be repeatedly treated for adequate management.

5.3 CONTRACTOR EDUCATION

Before beginning any installation activities, the Installation/Maintenance Contractor will meet at the site with the Restoration Contractor to review all installation, scheduling, and resource protection measures specified in this Development Plan. The Restoration Contractor will review all aspects of this Development Plan, including site protection, inspections, landscape installation procedures, and guarantees. It will be made clear at that time that the Restoration Contractor will have final say over review and acceptance of field installation.

Prior to initiating any installation activities (including construction equipment placement or other non-ground-breaking activities), the Restoration Contractor will develop and implement environmental training for the contractor and all subcontractor personnel, explaining the sensitive resources within the work area and adjacent areas. The environmental training will include information on the following.

- Project regulatory and permit requirements.
- Environmental compliance procedures and protocols.
- Water quality requirements and proper construction BMPs.
- Environmentally Sensitive Areas and no-access areas.
- Sensitive species and nesting birds.
- Consequences of noncompliance.
- Emergency response protocols.

The Installation/Maintenance Contractor will notify the Restoration Contractor when new crew personnel will be onsite, and an additional environmental training will be scheduled before they are allowed to work.

5.4 ACCESS AND STAGING

Prior to commencement of installation activities, the area limits of the Bank will be surveyed and marked in the field. These limits will be checked and confirmed by the Restoration Contractor and Bank Sponsor before the contractor begins the installation phase. All access points, storage, and staging areas will be located in a manner that has the least impact on vehicular and pedestrian traffic as well as natural resources.

To protect against contaminant leakages during access and staging, the contractor will be responsible for taking measures to prevent chemicals, fuels, oils, and other hazardous materials from entering public water, air, and/or soils. Disposal of any materials, waste, effluent trash, garbage, oil, grease, and chemicals will be done in accordance with state and federal regulations.

These protection measures will be detailed in the SWPPP.

5.5 GRADING

5.5.1 Otay River Mainstem, Floodplain, and Tributaries

This Development Plan presents the current conceptual plan (see Figure 4-3), which combined with the digital terrain model, hydrology model, and hydraulic model currently under development will be used to generate 60% grading plans suitable for construction—with the understanding that the ideal construction approach will be design, bid, build with Contractor invitation to bid. This construction/installation strategy allows for maximum flexibility in the final restoration contours and provides opportunities for the Restoration Contractors to direct the installation contractor throughout the Plan's implementation, embracing the existing natural conditions and modifying the design at a fine-scale resolution that cannot be depicted in plans and specs. These fine-scale modifications may include, for example, such features as channel bars, tertiary channels, swales, cobble pools, and small islands in the floodplain.

As part of the conceptual design, ICF utilized currently available and newly flown (2015) topographic data to create a digital terrain model of the Plan area. This was supplemented with on the ground survey and additional aerial survey for the Pre-Bank area. The data was useful for the development of conceptual design cross-sections, plan views, and initial cost estimates based on the amount of material that will need to be moved/excavated. The ICF design team created a proposed channel alignment and three representative "valley-wide" cross-sections to convey the conceptual design intent (see Figure 4-4). Channel layout considers the anticipated geomorphology of the mitigation area and the potential staging and construction phasing to allow an efficient earthwork operation to achieve the conceptual plan grading.

Cut-and-fill quantities required to achieve the conceptual design grading to 60% were developed. All attempts are made to balance the cut-and-fill onsite. Based on a preliminary site visit, it is evident that spoils areas are needed and are identified on the concept plan (see Figure 4-3). The final 60% plans will identify upland rehabilitation areas within the plan boundaries for excess spoils placement. Depending on the desired vegetation establishment, topsoil may need to be imported to assist in achieving required health and vigor. At this time no soil import is anticipated.

Following initial design of the restoration project, the grading limits have been further restricted to avoid high quality riparian habitat known to support the federally and state-listed LBV and other nesting birds. The project will avoid most significant stands of riparian habitat in the project site. Prior to installation the grading plans will also be updated to reflect this avoidance area. Within these avoidance areas, project activities will be limited to enhancement (non-native treatment), which will be conducted through the use of hand tools to drill and poison nonnative trees that will be left in place. This is planned to occur outside of the breading season.

Grading activities will focus on removing berms, spoil piles, and pits left behind by the sand extraction operation and achieving the appropriate contouring such that a natural hydrological regime may be restored. Site grading plans for the mitigation areas shall be incorporated into the final grading plans.

5.5.2 Vernal Pools

Grading will occur during the dry season with a bulldozer small enough to access and maneuver within the vernal pool establishment limits. The grading plan is considered a rough guideline of final micrograde. The final grade will be accomplished according to directions given by the Restoration Contractor in the field during grading. Vernal pools will be slightly (1 to 2 inches) over-graded and backfilled with topsoil to promote plant propagation. Some vernal pools could be manipulated by hand (using shovels). Care will be taken to avoid harming the underlying clay pan layer.

A pre-grading field visit will be conducted by the Restoration Contractor to delineate areas of grading using pin flagging. No spray paint will be used. A complete set of preconstruction photographs will also be taken at this time. The grading operator will attend the pre-grading field visit to become familiar with the site and potential issues. Areas to be manipulated with grading equipment or hand tools will be graded before the saturation of soils. Ideally, all material removed to create the vernal pools will be balanced elsewhere onsite to avoid offsite export of usable soil.

The Restoration Contractor will be onsite to direct grading activities. The Restoration Contractor or a land surveyor will check the pool depths using survey equipment (laser level or laser transit). Minor modifications to the final grading plan may be required in the field to properly prepare the site for planting, as determined by the Restoration Contractor. Vernal pool site grading is a delicate operation that attempts to manipulate topography at a micro-topographic scale; therefore, establishment of the final grade may require hand tools only.

Site drainage will be maintained by the Grading Contractor during all phases of vernal pool establishment. Erosion control measures such as silt fences and sandbags will be applied by the Grading Contractor, as deemed necessary. Final grades and proper hydrological function will be verified and approved by the Restoration Contractor before seeding or planting is allowed.

5.6 VERNAL POOL HYDROLOGIC TESTING

The Restoration Contractor will test the hydrology of the vernal pools prior to transplanting or seeding vernal pool species into the constructed pools. This is not required for pools that are being enhanced and already display vernal pool hydrology. Hydrologic testing will be conducted when pools fill naturally from precipitation following initial grading. Water levels will be determined within 24 hours of a storm producing 0.5 inch or more of precipitation, and then every 2 days thereafter for a period of 2 weeks. If water levels drop by 5 to 10 centimeters (2 to 4 inches) per day, the pool might have a breach of the underlying clay pan or be draining through inappropriate surface contours. Leaks or unintended draining will be repaired through additional contouring and potentially applying clay to the vernal pool floor as determined by the Restoration Contractor. Pools will be seeded and planted with vernal pool species after it has been determined that the hydrology of the vernal pools is functional.

5.7 SOILS ANALYSIS

Soil testing has been conducted at several key locations to understand soil classification. These include proposed vernal pool establishment locations and the Otay River floodplain (see section 4.4 4.4.2 and Appendix M). Due to historic sand mining operations, finer sand and silts are expected to be limited within the Otay River floodplain. As such, import of smaller grain materials may be warranted in select locations. This decision will be made during grading by the Restoration Contractor because the overall current composition of soil onsite is highly disturbed. Soil testing and amendments for organic material and nutrients is not proposed because the long-term success of species should be based on existing conditions.

5.7.1 Soil Salinity Monitoring

In the spring of 2022, SWCA field surveyors obtained soil samples at 16 discrete locations throughout the Otay River Valley (Figure 5-1) to monitor soil salinity concentrations. Soil salinity is indicated by soil electrical conductivity—a measure of the concentration of water-soluble salts. High concentrations of salts, such as sodium chloride and sodium sulfate, may interfere with the absorption of water by plants, hindering their development. Sampling locations include sites within the Enhancement Area, Pre-Bank

Restoration, and Mitigation Bank (Table 5-2). Sampling sites were selected for verification of soil salinity in areas where willow scrub/riparian forest communities are dominant (presence of mature trees) or are reestablishing after habitat restoration efforts, and within habitats dominated by non-native tamarisk or eucalyptus. Samples were also obtained at locations east and west of the Salt Creek confluence with the Otay River to verify if there is a substantial salinity input via Salt Creek into the Otay River At each location, soils were obtained using a hand auger at two distinct depths—0 to 6 inches and 6 to 18 inches—to measure the different salt concentrations due to leaching or infiltration. Soil samples were stored in plastic bags, labeled, and sent to a private lab for salinity analysis.

Table 5-2. Soil Salinity Sampling

Sample Name	Site Number	Location	Site Description	Analysis Type
WE1	13	Enhancement Area	Dominant native willow	Salinity, electroconductivity
WE2	12	Enhancement Area	Dominant native willow	Salinity, electroconductivity
WE3	14	Enhancement Area	Dominant native willow	Salinity, electroconductivity
PB4	4	Pre-Bank Restoration	Willow reestablishment	Salinity, electroconductivity
PB5	5	Pre-Bank Restoration	Willow reestablishment	Salinity, electroconductivity
PB6	6	Pre-Bank Restoration	Willow reestablishment	Salinity, electroconductivity
W1	8	Mitigation Bank	Mature willow present	Salinity, electroconductivity
W2	10	Mitigation Bank	Mature willow present	Salinity, electroconductivity
W3	15	Mitigation Bank	Mature willow present	Salinity, electroconductivity
E1	11	Mitigation Bank	Eucalyptus grove	Salinity, electroconductivity
WS1	7	Mitigation Bank	Dense tamarisk invasion, west of Salt Creek confluence	Salinity, electroconductivity
WS2	18	Mitigation Bank	Dense tamarisk invasion, west of Salt Creek confluence	Salinity, electroconductivity
WS3	19	Mitigation Bank	Dense tamarisk invasion, west of Salt Creek confluence	Salinity, electroconductivity
ES1	9	Mitigation Bank	Dense tamarisk invasion, east of Salt Creek confluence	Salinity, electroconductivity
ES2	16	Mitigation Bank	Dense tamarisk invasion, east of Salt Creek confluence	Salinity, electroconductivity
ES3	17	Mitigation Bank	Dense tamarisk invasion, east of Salt Creek confluence	Salinity, electroconductivity

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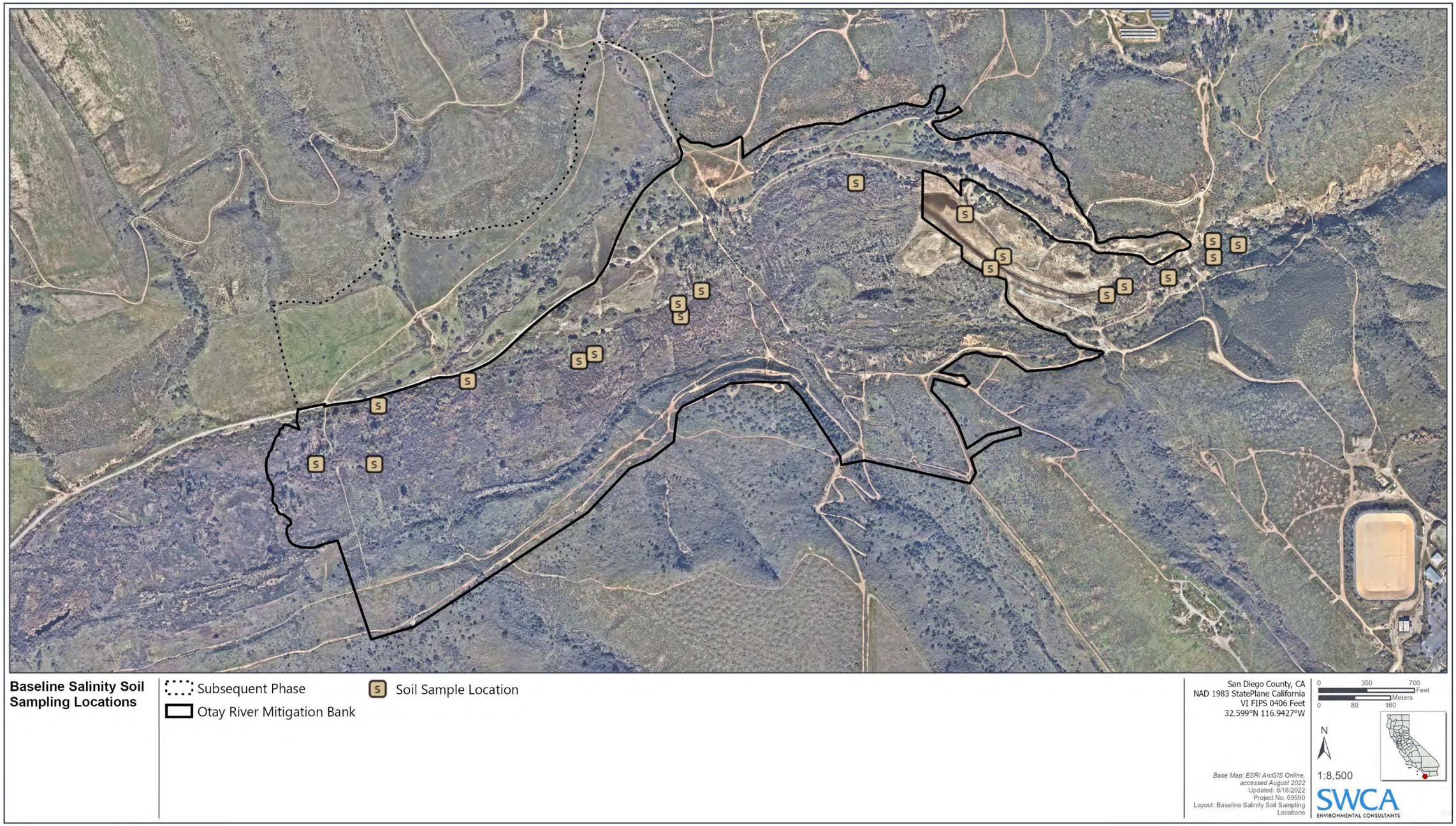


Figure 5-1. Baseline salinity soil sampling locations.

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Laboratorial analyses were performed to quantify total salts in each of the samples via saturated paste extract method, establishing a baseline measurement for each of the sampling locations. Salinity tolerance thresholds for common riparian native species (Table 5-3) can be compared to present soil salinity to identify if current conditions impose an obstacle to the establishment of willow, mulefat, cottonwood and western sycamore after the grading and tamarisk removal. Pre-grading salinity values within areas of the Mitigation Bank will also serve as baseline for monitoring salinity change throughout the life of the restoration project in response to removal and control of tamarisk and restored fluvial processes that can promote leaching, lowering soil salinity.

Table 5-3. Soil PH and Salinity Tolerance for Common Riparian Woody Plant Species

Common Name	Species Name	Status	pH Tolerance	Salinity Tolerance
Black willow	*Salix gooddingii*	Native	5.4 to 9	12.1 mmhos/cm (moderately saline)
Arroyo willow	*Salix lasiolepis*	Native	5 to 9.1	21.2 mmhos/cm (strongly saline)
Red willow	*Salix laevigata*	Native	5 to 8.4	8.8 mmhos/cm (moderately saline)
Mulefat	*Baccharis salicifolia*	Native	5 to 8.6	11.6 mmhos/cm (moderately saline)
Fremont cottonwood	*Populus fremontii*	Native	5 to 8.8	15.4 mmhos/cm (moderately saline)
Western sycamore	*Platanus racemosa*	Native	5 to 8.3	7.8 mmhos/cm (slightly saline)
Eucalyptus	*Eucalyptus camaldulensis*	Non-native	5.4 to 9.2	8.7 mmhos/cm (moderately saline)
Tamarisk (Salt cedar)	*Tamarix ramosissima*	Non-native	5.3 to 9.2	12.6 mmhos/cm (moderately saline)

Source: SSURGO Soil Data on Calflora (2019).

Laboratorial analysis of soil samples has indicated that overall soil salinity levels are not obviously restrictive to plant development (Table 5-4). Samples obtained in willow dominated locations within Enhancement Area (WE-1, -2 and -3) and Pre-Bank (PB-5 and -6) had negligible salinity values. One exception within the Pre-Bank is PB-4 – a transitional habitat dominated by recruiting willows, but outside the Otay River flow. Additionally, reduced salinity concentrations were also detected in small patches of native willow surrounded by nonnative tamarisk throughout the Mitigation Bank (W-1, -2, and -3). The highest salinity values were measured in a eucalyptus dominated habitat (E-1), and in locations dominated by dense tamarisk stands. High salinity values in soil samples obtained in tamarisk dominated locations east of Salt Creek confluence with Otay River maxed at 8.0 dS/m (average = 5.20 dS/m). The maximum soil salinity concentration for soil samples obtained in tamarisk dominated locations west of the Salt Creek confluence were lower at 6.6 dS/m (average = 4.02 dS/m), which could be partially explained by nutrient dilution promoted by Salt Creek's constant freshwater input.

Table 5-4. Salinity and pH per Soil Sample

	Sample Name (Site Number)	Sample Depth (in)	Salinity (dS/m) *	pH	Sodium Adsorption Rate (SAR)
Willow Enhancement Area	WE-1 (#13)	0-6	1.0	7.1	6.35
		6-18	1.1	7.2	6.76
	WE-2 (#12)	0-6	1.0	7.8	5.64

	Sample Name (Site Number)	Sample Depth (in)	Salinity (dS/m) *	pH	Sodium Adsorption Rate (SAR)
		6-18	0.8	7.2	5.59
	WE-3 (#14)	0-6	0.9	7.3	5.80
		6-18	1.3	7.3	6.83
Willow Pre-Bank	PB-4 (#4)	0-6	3.9	6.5	6.70
		6-18	3.4	7.3	9.36
	PB-5 (#5)	0-6	0.9	7.7	7.86
		6-18	0.8	7.5	7.81
	PB-6 (#6)	0-6	0.5	7.7	3.04
		6-18	0.4	7.8	3.59
Willow Mitigation Bank E	W-1 (#8)	0-6	2.6	7.8	10.99
		6-18	2.6	8.2	11.00
	W-2 (#10)	0-6	3.5	7.6	14.39
		6-18	4.0	7.4	14.29
	W-3 (#15)	0-6	2.3	7.5	8.23
		6-18	2.3	7.6	13.72
Eucalyptus Mitigation Bank	E-1 (#11)	0-6	5.7	7.5	16.53
		6-18	4.1	7.4	19.02
Tamarisk West of Salt Creek	WS-1 (#7)	0-6	2.9	7.7	11.99
		6-18	2.5	7.9	12.27
	WS-2 (#18)	0-6	5.7	7.6	15.68
		6-18	3.1	8.1	18.02
	WS-3 (#19)	0-6	6.6	7.9	22.83
		6-18	3.3	8.1	19.34
Tamarisk East of Salt Creek	ES-1 (#9)	0-6	3.5	8.1	16.16
		6-18	3.2	8.1	16.88
	ES-2 (#16)	0-6	8.0	7.6	20.33
		6-18	6.5	7.7	21.43
	ES-3 (#17)	0-6	5.7	7.7	16.92
		6-18	4.2	7.8	18.21

*1.0 mmhos/cm = 1.0 dS/m = 1.0 mS/cm = 1000 EC (µS/cm)

Values for pH for the 16 sampling locations ranging from 7.1 to 8.2 are within the threshold of pH tolerance for all riparian woody plant species of interest. Sodium adsorption rate (SAR) is a standard diagnostic parameter for the sodicity hazard of a soil. SAR allows the assessment of the state of clay aggregates in a soil, which influences soil structure and permeability. The higher the SAR, the higher displacement of calcium and magnesium in the soil, causing the loss of soil structure, decreasing infiltration and permeability. SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced saturated hydraulic conductivity (Ksat) and aeration, and a general degradation of soil structure, resulting in poor water infiltration, the formation of soil crusts and the restriction of water and air movement through the soil (USDA 2017).

5.8 NONNATIVE PLANT SPECIES REMOVAL

Prior to grading and planting, all nonnative plant species will be removed. The Restoration Contractor will work closely with the Installation/Maintenance Contractor to determine the specific approach for each species and area. Note that no vegetation will leave the overall project area due to the threat of spreading shot hole bore beetle. All material being physically removed will be relocated to the northern staging areas where material will be dried, mulched, and solarized before being spread across the placement area. Excess soil from grading will then be placed on top of the masticated vegetation. The following are general recommendations that may be modified as appropriate.

5.8.1 Nonnative Trees/Tall Species

For trees with large woody trunks, the Restoration Contractor can elect to kill onsite and leave standing if the tree is not highly visible to the public or does not represent a safety hazard as these trees provide nesting opportunity and structure for many species. All tree removal will be planned to occur outside of the breeding bird season. If tree removal is necessary during the migratory bird nesting season (i.e., February 15 – August 31), a focused avian nesting survey will be performed by a qualified wildlife biologist 2 days prior to tree removal to comply with the MBTA as well as the Fish and Game Code. Results will be documented and forwarded to the permitting agencies. If nesting birds are detected, the nest location will be protected until fledging has occurred and the young are no longer dependent on the nest structure or parents for survival.

The following sections summarize the removal techniques for the larger invasive trees onsite. Methods may be modified by the installation contractor with approval from the Restoration Contractor.

Large Woody Trees: Trees with large woody trunks (excluding tamarisk and arundo) within the Bank—including pepper trees and eucalyptus—can be killed and left in place or removed via truck following preparation by ground crews. Some large trees were selected to be killed and left in place as they provide high habitat value. No large dead eucalyptus trees are to remain upright when in close proximity to trails or access roads. Palm trees, including date and fan palm may be drilled and left upright. If close to access roads or trails, the foliage may be topped.

Tamarisk trees: Tamarisk trees will be removed by one of the following methods.

- Prescribed burning followed by repeated herbicidal application to resprouts. This method will require permissions by several entities including the City of Chula Vista, Chula Vista Fire Department, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, CALFIRE, and the local air quality district.
- For dense stands, cut stump may be used whereby the trunks are cut and herbicide is immediately applied to the fresh cut. For sparse stands foliar spray may be more appropriate and efficient. For both methods, follow-up foliar spray will be required.
- Mechanical removal using heavy equipment followed by repeated herbicidal application to resprouts. Entire trees can be easily removed using a track hoe with a thumb bucket. Alternatively, the trees can be removed with a root-plow pulled by a bulldozer; this method has become standard in tamarisk control and is described as providing good to excellent control. This method is most effective when the soil is relatively dry and must be combined with a program of scheduled follow-up sprout treatments such as hand-pulling and/or herbicidal application. The trees can also be removed by using a skid steer or site preparation tractor equipped with a forestry mulching attachment such as a hydro-ax, which mows or chips living and dead tamarisk at a reported 1 acre per hour on level terrain (DiTomaso et al. 2013). All vegetation removal will

occur in the fall/winter after breeding bird season has ended which also corresponds to when the seeds are not present.

All methods will require a staging area to accommodate heavy equipment and associated authorized support vehicles and to accommodate debris bins and haul trucks. Herbicidal application to resprouts may be accomplished by allowing the plants to grow to an appropriate size to allow for herbicide to be suitably assimilated by the plant. This procedure must be repeated to fully ensure the adequate control of weeds from the Bank.

Arundo: All arundo will be physically marked by the biological monitor, mapped using GIS, and treated twice, once in fall before going dormant using Glycophosate and again in spring using Imazapyr. Any cut material will be removed from the site. Remaining canes will be treated with an herbicide to help control resprouts. Any arundo clumps that are intertwined within existing native vegetation will be cut to grade and carefully treated with an appropriate systemic herbicide by a Licensed Pest Control Advisor. The contractor will conduct follow-up treatments to check for resprouts on a monthly basis through grading and the 120-day plant establishment period and then bi-annually through the Interim Management Period. Resprouts will be treated with foliar spray.

5.8.2 Nonnative Shrubs

The Restoration Project site has scattered individuals of nonnative shrub and perennial species such as cator bean, tree tobacco, and perennial pepperweed. All can be treated with herbicide, and all require follow up treatment to prevent resprouting. Castor bean and tree tobacco can be cut, and stumps treated. Perennial pepperweed should not be cut before treatment as this species can reestablish from very small pieces of root.

5.8.3 Nonnative Herbs

Nonnative grasses and herbs should be sprayed with herbicide or trimmed before seed is set with follow-up spot treatment using herbicide. Where possible the contractor should take advantage of rain events or irrigation to encourage germination of the nonnative seed bank (i.e. grow and kill) and treat when able to distinguish between native and non-native plants.

5.9 PLANTING AND SEEDING PLAN

Container plant palettes and seed mixes were developed specifically for the Bank and its location within the watershed and landscape. Distinct plant palettes were developed for each restoration category of the Bank including the Otay River Mainstem (main channel bank), floodplain (riparian corridor, active low floodplain, high floodplain) and tributaries, seasonal wetland, vernal pools, and upland transition.

5.9.1 Otay River Mainstem, Floodplain, and Tributaries

Although it is anticipated that within each of these areas more distinct vegetation communities will develop, these broad plant palettes are appropriate, allowing plants to fill-in where conditions suit them best. Because many of the species are expected to occur in multiple areas, one master list has been developed for the Otay River Mainstem, floodplain, and tributaries (Table 5-5). The species selections are based on native plant species observed or known to occur within the plan area and adjacent upland habitat, and in the vicinity of the site. The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the site; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner

that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows). One seed mix (Table 5-6) will be applied to the floodplain and upland transitional habitat as many species are expected to occur in both habitat types. The species will self-sort based on local conditions.

Table 5-5. Container Plant Palette for Otay River Mainstem, Floodplain, and Salt Creek Tributary

Species[1,2,3]	Common Name	Container Size	Spacing on Center (feet) [4]	# per Acre
Riparian Corridor and Active Low Floodplain				
Anemopsis californica	yerba mansa	rose pot	3	75
Baccharis salicifolia	mule fat	1-gallon	6	75
Carex spissa	San Diego sedge	1-gallon	6	50
Eleocharis macrostachya	pale spike rush	1-gallon	3	75
Distichlis spicata	salt grass	rose pot	3	300
Iva hayesiana	San Diego marsh elder	1-gallon	4	60
Juncus acutus ssp. leopoldii	southwestern spiny rush	1-gallon	5	60
Juncus mexicanus	Mexican wire rush	1-gallon	3	75
Leymus triticoides	beardless wild ryegrass	1-gallon	3	75
Platanus racemosa	western sycamore	5-gallon	30	15
Populus fremontii	Fremont cottonwood	1-gallon	30	15
Rosa californica	California wild rose	1-gallon	6	75
Rubus ursinus	California blackberry	1-gallon	5	75
Salix exigua	sandbar willow	1-gal/cutting	8	100
Salix gooddingii	black willow	1-gal/cutting	15	50
Salix laevigata	red willow	1-gal/cutting	12	75
Salix lasiolepis	arroyo willow	1-gal/cutting	12	75
High Floodplain				
Artemisia californica	California sagebrush	1-gallon	6	60
Baccharis salicifolia	mule fat	1-gallon	10	40
Eriogonum fasciculatum	California buckwheat	1-gallon	6	60
Heliotrope curvassicum	salt heliotrope	1-gallon	10	50
Iva hayesiana	San Diego marsh elder	1-gallon	6	50
Juncus acutus ssp. leopoldii	southwestern spiny rush	1-gallon	10	45
Leymus condensatus	giant wild rye	1-gallon	6	45
Muhlenbergia rigens	deergrass	1-gallon	10	50
Sambucus mexicanus	Mexican elderberry	1-gallon	12	25
Main Channel Bank				
Anemopsis californica	yerba mansa	4-inch	2	170
Bolboschoenus robustus	prairie bulrush	1-gallon	2	170
Cyperus eragrostis	tall flatsedge	1-gallon	4	100
Eleocharis microstachys	pale spike sedge	4-inch	2	150

Species[1,2,3]	Common Name	Container Size	Spacing on Center (feet) [4]	# per Acre
Distichlis spicata	salt grass	square plug	3	300
Juncus mexicanus	Mexican juncus	1-gallon	3	150
Juncus xiphioides	iris leaf juncus	1-gallon	4	75
Leymus condensatus	giant wild rye	1-gallon	6	50
Pluchea odorata	salt marsh fleabane	1-gallon	3	150
Pluchea sericea	arrowweed	1-gallon	6	67
Schoenoplectus americanus	Olney's bulrush	1-gallon	3	100

[1] Any potential substitutions or changes to quantity must be approved by the Restoration Contractor.

[2] Plants should be propagated onsite or from material from the watershed or within 10 miles of the Bank. Plants that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources.

[3] Plants will be certified as free of exotic pests (e.g., Argentine ants) prior to delivery onsite.

[4] The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the site; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

Table 5-6. Seed Mix for Floodplain and Upland Transitional Habitat

Species[1,2,3]	Common Name	Pounds of Bulk Seed per Acre	Minimum Percentage Purity/ Germination	Pounds of Pure Live Seed (PLS) per Acre[4,5]
Acmispon glaber (formerly Lotus scoparius)	deerweed	4	95/80	3.0
Ambrosia psilostachya	western ragweed	2	45/45	0.50
Amsinckia menziesii	fiddleneck	0.5	35/65	0.15
Anterrhinum coulterianum	Coulter snapdragon		data unavailable	
Artemisia douglasiana	mugwort	2	15/40	0.10
Artemisia dracunculus	tarragon	2	10/50	0.10
Artemisia palmeri	San Diego sagewort	2	20/50	0.20
Asclepias californica	California milkweed		data unavailable	
Camissonia bistorta	California suncup	0.5	90/80	0.25
Croton californicus	California croton	1	90/40	0.40
Deinandra fasciculata	fasciculated tarweed	3	25-65	0.50
Encelia californica	California bush sunflower	2	30/45	0.50
Eriogonum fasciculatum	California buckwheat	4	55/20	0.50
Eriophyllum confertiflorum	golden yarrow	2	36/62	0.50
Heliotropium curassavicum	salt heliotrope	1	15/50	0.10
Isocoma menziesii	coastal goldenbush	3	18/40	0.25
Iva hayesiana	San Diego marsh elder	0.5	30/30	0.05
Lasthenia glabrata ssp. coulteri	Coulter's salt-marsh daisy		data unavailable	
Lessingia filaginifolia	common sandaster	0.5	8/30	0.05
Leymus condensatus	giant wildrye	1	70/76	0.50

Species[1,2,3]	Common Name	Pounds of Bulk Seed per Acre	Minimum Percentage Purity/ Germination	Pounds of Pure Live Seed (PLS) per Acre[4,5]
Leymus triticoides	creeping wild rye	2	90/80	1.50
Lupinus bicolor	pygmy-leaved lupine	2	98/85	1.50
Lupinus succulentus	arroyo lupine	3	98/85	2.50
Lupinus truncates	collared annual lupine	2	98/85	1.50
Muhlenbergia rigens	deergrass	0.5	70/45	0.15
Phacelia cicutaria	caterpillar phacelia	0.5	98-90	0.45
Plantago erecta	dwarf plantain		data unavailable	
Plantago patagonica	woolly plantain		data unavailable	
Pluchea odorata	marsh fleabane	0.5	30/40	0.20
Salvia columbariae	chia	1	93/79	0.75
Stipa pulchra	purple needlegrass	3	90/75	2.25

[1] Seed will be applied by hydroseeding with standard amendments (i.e., cellulose fiber mulch and organic soil stabilizer).

[2] Seeds will be collected within the watershed or within a 10-mile radius of the site to the extent feasible. Seeds that cannot be collected from the immediate vicinity will be provided from the closest available sources.

[3] Any potential substitutions or quantity adjustments must be approved by the Restoration Contractor.

[4] The pounds per acre of pure live seed (PLS) in this table have been rounded. The pounds per acre of seed will be adjusted to achieve the specified pounds per acre of PLS when actual percentage purity and germination rates are calculated.

[5] Quantities in this table are presented on a per-acre basis.

5.9.2 Seasonal Wetland

The species selections (Table 5-7) are based on native plant species observed or known to occur within the Bank and in the vicinity of the site. The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the seasonal wetland area; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows). Seed will be ordered in 1-lb bags per species and distributed by hand in the areas expected to become seasonal wetlands.

Table 5-7. Seed and Plant Palette for Seasonal Wetlands

Species	Common Name	Seed (s) or Container (C)	Container Size	Spacing on Center (feet)	# per Acre
Anemopsis californica	yerba mansa	C	4-inch	2	200
Carex spissa	San Diego sedge	C	1-gallon	6	75
Distichlis spicata	salt grass	C	square plug	2	350
Eleocharis macrostachya	pale spike rush	C	4-inch	2	75
Eleocharis montevidensis	sand spike sedge	C	4-inch	2	75
Juncus acutus ssp. leopoldii	southwestern spiny rush	C	1-gallon	6	75
Juncus mexicanus	Mexican juncus	C	4-inch	2	250

Species	Common Name	Seed (s) or Container (C)	Container Size	Spacing on Center (feet)	# per Acre
Leymus triticoides	beardless wild ryegrass	C	4-inch	2	250
Pluchea odorata	salt marsh fleabane	C/S	1-gallon	5	50
Sisyrinchium bellum	blue eyed grass	C/S	4-inch	4	150
Dichelostemma capitatum	blue dicks	C/S	4-inch	4	150
Malvella leprosa	alkali mallow	S	1-gallon	4	75
Muhlenbergia rigens	deergrass	C	1-gallon	6	150
Grindelia camporum	Great Valley gumweed	C	1-gallon	4	75
Artemisia douglasiana	mugwort/Douglas' sagewort	C/S	4-inch	3	100
Iva hayesiana	San Diego povertyweed	C	1-gallon	6	75
Phacelia cicutaria	caterpillar phacelia	C/S	1-gallon	6	50
Brodiaea jolonensis	chaparral brodiaea	C (bulb)	NA	NA	NA
Lasthenia gracilis	needle goldfields	S	NA	NA	NA
Heliotropium curassavicum	salt heliotrope	C	1-gallon	6	50
Sidalcea malviflora	checker bloom	S	NA	NA	NA
Zeltnera venusta	canchalagua	S	NA	NA	NA

5.9.3 Vernal Pools

The species selections are based on native plant species observed or known to occur in or around vernal pools within the Bank and the larger Otay region. Table 5-8 provides the species to be installed in the vernal pool basins and Table 5-9 and Table 5-10 provides the species to be seeded and planted in the immediate upland watershed surrounding each pool. The immediate watershed is standardized at 10 meters from the edge of each vernal pool.

Table 5-8. Seed and Plant Palette for Vernal Pools

Species[1,2,3]	Common Name	Method[4]	Quantity
Callitriche marginata	water-starwort	seed/soil inoculum	Exact quantities will depend on amount collected or produced from seed bulking. Total seed available will be distributed evenly based on pool size.
Crassula aquatica	pygmy crassula	seed/soil inoculum	
Deschampsia danthonioides	annual hairgrass	seed	
Eleocharis macrostachya	pale spikerush	seed/transplant	
Eryngium aristulatum var. parishii	San Diego button celery	seed/transplant	
Juncus bufonius var. bufonius	toad rush	seed	
Marsileaa vestita ssp. vestita	hairy clover fern	seed/soil inoculum	
Myosurus minimus	little mousetail	seed/soil inoculum	
Navarretia fossalis	spreading navarretia	seed	
Plantago elongata	prairie plantain	seed/soil inoculum	
Plagiobothrys acanthocarpus	adobe popcorn flower	seed	
Pogogyne nudiuscula	Otay Mesa mint	seed	

Species[1,2,3]	Common Name	Method[4]	Quantity
Psilocarphus brevissimus	wooly marbles	seed/soil inoculum	

[1] Seed will be applied by hand.

[2] Seed or soil inoculum will be collected from existing vernal pools in the Bank or in the Otay region.

[3] Any potential substitutions or quantity adjustments must be approved by the Restoration Contractor.

[4] Collected seed may be distributed directly or bulked in a greenhouse before being distributed.

Table 5-9. Seed Mix for Vernal Pool Upland Watershed

Species[1,2,3]	Common Name	Pounds of Pure Live Seed (PLS) per Acre[4,5]
Anterrhinum coulterianum	Coulter snapdragon	0.5
Castilleja exserta ssp. exserta	purple owl's clover	0.2
Cryptantha intermedia	common cryptantha	2.2
Deinandra fasciculata	fascicled tarplant	3.3
Dichelostemma capitatum spp. capitatum	blue dicks	0.5
Eschscholzia californica	California poppy	1.8
Lasthenia gracilis	common goldfields	0.2
Lepidium nitidum	shining peppergrass	1.0
Linanthus dianthiflorus	ground pink	0.6
Plantago erecta	dot-seed plantain	1.8
Plantago patagonica	woolly plantain	1.0
Sisyrinchium bellum	blue-eyed grass	0.9
Zeltnera venusta	canchalagua	0.3

[1] Seed will be applied by hydroseeding with standard amendments (i.e., cellulose fiber mulch and organic soil stabilizer).

[2] Seeds will be collected within the watershed or within a 10-mile radius of the site to the extent feasible. Seeds that cannot be collected from the immediate vicinity will be provided from the closest available sources.

[3] Any potential substitutions or quantity adjustments must be approved by the Restoration Contractor.

[4] The pounds per acre of pure live seed (PLS) in this table have been rounded. The pounds per acre of seed will be adjusted to achieve the specified pounds per acre of PLS when actual percentage purity and germination rates are calculated.

[5] Quantities in this table are presented on a per-acre basis.

Table 5-10. Plant Palette for Vernal Pool Upland Watershed

Species[1,2,3]	Common Name	Container Size	Spacing on Center[4] (feet)	# per Acre
Allium haematochiton	red-skin onion	bulb	3	10
Ambrosia chenopodfolia	San Diego bursage	1-gallon	5	10
Artemisia californica	California sagebrush	1-gallon	5	30
Bahiopsis laciniata	San Diego County viguiera	1-gallon	5	20
Bothriochloa barnidodis	plumed beardgrass	1-gallon	5	10
Dudleya edulis	lady's fingers	1-gallon	3	5
Eriogonum fasciculatum	flat-topped buckwheat	1-gallon	5	30
Euphorbia misera	cliff spurge	1-gallon	5	20

Species[1,2,3]	Common Name	Container Size	Spacing on Center[4] (feet)	# per Acre
Ferrocactus viridescens	San Diego barrel cactus	1-gallon	4	10
Isomeris arborea	Bladderpod	1-gallon	5	20
Malosma laurina	laurel sumac	1-gallon	8	10
Mammillaria dioica	fish-hook cactus	1-gallon	4	5
Mirabilis californica	wishbone bush	1-gallon	5	20
Opuntia littoralis	Coastal prickly pear	1-gallon	4	10
Cylindropuntia prolifera	Coast cholla	1-gallon	4	20
Rhus integrifolia	lemonadeberry	1-gallon	8	10
Simmondsia chinensis	jojoba	1-gallon	5	15

[1] Any potential substitutions or changes to quantity must be approved by the Restoration Contractor,.

[2] Plants should be propagated onsite or from material from the watershed or within 10 miles of the Bank. Plants that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources.

[3] Plants will be certified as free of exotic pests (e.g., Argentine ants) prior to delivery onsite.

[4] The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the site; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

5.9.4 Upland/Transitional Buffer

The species selections (Table 5-11) are based on native plant species observed or known to occur within the Bank and in the vicinity of the site. The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the upland transitional habitat; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

Table 5-11. Container Plant Palette for Upland Transitional Habitat

Species[1,2,3]	Common Name	Container Size	Spacing on Center[4] (feet)	# per Acre
Adenostoma fasciculatum var. fasciculatum	chamise	1-gallon	6	25
Agrotis exarata	spike bent grass	1-gallon	5	20
Artemisia californica	coastal sage scrub	1-gallon	5	50
Baccharis pilularis	coyote bush	1-gallon	6	40
Baccharis sarothroides	broom baccharis	1-gallon	6	15
Bahiopsis lacinata	San Diego County viguiera	1-gallon	5	50
Bothriochloa barbinodis	beard grass	1-gallon	5	20
Cylindropuntia prolifera	coast cholla	1-gallon	4	40
Dudleya edulis	lady fingers	1-gallon	3	5
Dudleya pulverulenta	*chalk dudleya*	1-gallon	3	5
Elymus triticoides	*beardless wild-rye*	1-gallon	5	20

Species[1,2,3]	Common Name	Container Size	Spacing on Center[4] (feet)	# per Acre
Eriogonum fasciculatum	*California buckwheat*	1-gallon	5	40
Ferocactus viridescens	*San Diego barrel cactus*	1-gallon	4	20
Heteromeles arbutifolia	*toyon*	1-gallon	8	15
Isocoma menziesii	*coast goldenbush*	1-gallon	5	50
Koeleria macrantha	*June grass*	1-gallon	5	
Lycium californicum	*boxthorn*	1-gallon	6	15
Malosma laurina	*laurel sumac*	1-gallon	8	15
Muhlenbergia rigens	*deer grass*	1-gallon	5	20
Opuntia littoralis	*coast prickly-pear*	1-gallon	4	20
Peritoma arborea	*bladderpod*	1-gallon	6	15
Rhus integrifolia	*lemonade berry*	1-gallon	8	15
Saliva apiana	*white sage*	1-gallon	6	25
Salvia mellifera	*black sage*	1-gallon	6	40
Sambucus mexicanus	*elderberry*	1-gallon	12	15
Stipa pulchra	*purple needlegrass*	1-gallon	10	50
Yucca whipplei	*our Lord's candle*	1-gallon	12	12

[1] Any potential substitutions or changes to quantity must be approved by the Restoration Contractor,.

[2] Plants should be propagated on site or from material from the watershed or within 10 miles of the Bank. Plants that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources.

[3] Plants will be certified as free of exotic pests (e.g., Argentine ants) prior to delivery on site.

[4] The spacing on center is given for calculation purposes only and as an indication of the appropriate spacing between similar species. Species will not be evenly distributed throughout the site; rather, the Restoration Contractor will lay out the species and will provide appropriate composition layouts within different ecological settings. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

5.10 CONTAINER PLANT SALVAGING SPECIFICATIONS

When possible, cuttings will be harvested from adjacent riparian habitat or from within the Bank. Unique plants such as cactus, succulents, and willows cuttings should be salvaged prior to contour grading; the Restoration Contractor will identify and mark all specimens to be salvaged prior to grading and will work with the contractor on appropriate collection methods. Willow cuttings will be potted and maintained with the other salvaged plants at a local nursery. All other plantings will be obtained from nursery sources. Plants will be provided from source material from Otay Mesa, San Diego, or alternative sources (closest commercially available sources) approved by the Restoration Contractor. If container plant material is not available from these areas, at minimum, stock will be obtained from within the watershed or within 10 miles of the Bank. Plants that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources, subject to the approval of the Restoration Contractor. Source locations should be as close to the Bank as possible. Plants must be certified by the supplier (nursery) to be free of exotic pests (e.g., Argentine ants) prior to delivery on site.

The Restoration Contractor will confirm that plants are delivered to the site in a healthy and vigorous condition before they are installed. Plants will not be installed that are root-bound, stunted, pest-infested, diseased, or unacceptable for other reasons. The Restoration Contractor and contractor will coordinate the layout for plant material in ecologically appropriate locations and natural groupings. The Restoration Contractor will direct all planting, and may place flags, directly place containers, or direct the contractor

on the placement of plants. In general, container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows).

No substitutions of specified plants will be allowed, and container sizes will not be changed unless approved in advance by the Restoration Contractor. If the installation contractor is unable to obtain the specified size or species at the time of planting, commencement of the 120-day plant establishment period will be delayed until all specified plants are installed or until a suitable substitution is determined by the Restoration Contractor. The specific planting areas and corresponding plant palettes will be included in the 60% plans currently being developed.

5.11 CONTAINER PLANT INSTALLATION STEPS

Prior to planting, the contractor will ensure the site is wet from rainfall or adequately watered so that the first few inches of soil are saturated. The contractor will install container plants using standard horticultural practice, as follows.

- Thoroughly water all plants in their containers before planting.
- Dig a hole twice as deep and three times as wide as the container. Break up soil clods and roughen the side of the hole to avoid a smooth-sided "bathtub" effect. Fill the planting hole with water and allow water to drain completely into the soil; repeat twice.
- Partially backfill the hole with native soil to allow planting at the proper depth. The backfill mix will contain only native soil with no rocks larger than 3/4-inch diameter. Moisten and gently tamp the backfill into place. Remove the plant from its container and place on top of the moistened backfill so that the plant collar is approximately 1 inch above finish grade. Backfill the remaining hole with native soil.
- For plantings 1 gallon or larger, create a planting basin berm roughly 2 feet in diameter around the plant and apply 1 to 2 inches of coarse, organic, weed-free mulch inside the berm.
- No mulching or berms will be used around container plantings within the primary channel.
- Thoroughly water and allow the basin to drain.

5.12 CONTAINER PLANT GUARANTEE

All plants determined by the Restoration Contractor to be dead or diseased will be replaced by the installation contractor before the end of the 120-day plant establishment period and as required by the maintenance program. Unless the Restoration Contractor approves changes, the replacement plants will be of the same size and species as originally planted.

5.13 SEED SPECIFICATIONS

Seed will be applied throughout the Bank as needed no sooner than 2 years after installation. This allows time for aggressive weed control and to see what native seed bank germinates. Seed will be from Otay Mesa, San Diego, or alternative sources (closest commercially available sources) approved by the Restoration Contractor. If seed is not available from these areas, at minimum, seed will be obtained from within the watershed or within 10 miles of the Bank. Seed that cannot be provided from the immediate vicinity will be provided from the closest commercially available sources, subject to the approval of the Restoration Contractor. Seed will be delivered to the site in sealed and labeled packaging, along with a California State Agricultural Code seed certification that includes the supplier's name, geographic location, and collection date, and the tested purity and germination percentage rates. The seeds will be

ordered and delivered in separate, original containers by species, and inspected by the Restoration Contractor. Seed will be labeled with the species, purity, germination, percentage live seed, and quantity of seed in pounds. The seed mix will be applied by hydroseeding with a hydroseed slurry containing seed, natural fiber mulch, and organic tackifier. Although hydroseed mulch with seed can be carried and moved by flowing water, the mulch will help more of the seed stay in place and germinate compared to hand seeding. The specific seeding areas and corresponding seed mixes will be included in the 60% Submittal, Restoration Plans currently being developed.

5.14 SEED APPLICATION STEPS

The contractor will install seed using standard hydroseed practice or hand dispersal. The Restoration Ecologist will advise. If hydroseed occurs the following practice will be followed.

- Seed application rates provided in Table 5-5 are to be followed. If the delivered seed differs from specified purity and germination rates, the total pounds-per-acre rates will be adjusted accordingly to achieve the specified pounds of pure live seed.
- Seed will be applied by hydroseed application. Application steps include the following.
  - Create a slurry of seed (at specified rates per acre), 2,000 pounds per acre of organic fiber mulch, and 150 pounds per acre of organic tackifier.
  - Evenly apply; spray hydroseed from at least two directions to help interlock mulch fibers.

5.15 VERNAL POOL PLANT TRANSLOCATION

A few species, including pale spikerush and San Diego button-celery, will be planted as plugs, collected from populations in existing vernal pools in the Otay Valley. Transplantation is most effective when vernal pool plants are collected from inundated donor vernal pools and then directly planted into inundated created vernal pools, preferably in the same day. Ten percent or less of the population of each species from a donor pool should be collected and transplanted to the created vernal pools. The ecology team will work with the regulatory agencies and local land mangers to identify locations for plant collection. No collection will occur without the appropriate permits and authorization.

5.16 VERNAL POOLS SEED BULKING AND APPLICATION

Vernal pool seed will be collected from existing vernal pools in the Otay Valley after receiving authorization from landowners and appropriate agencies. Previously restored pools from several restoration sites in the Otay Valley will be targeted for desired vernal pool species rather than natural pools to limit impacts to remaining natural pools. Collection will be performed by a firm with experience collecting seed (e.g. Native West Nursery, or S&S Seed) when seeds are ripe (timing depends on the species and weather conditions). To avoid harming the reproductive potential of the donor populations the following guidelines will be followed:

- Seed will be collected from populations with at least 20 individuals of each target species.
- No more than 5 percent of the seed production of any individual plant or discrete population of plants will be collected.
- Genetic variation found in the donor populations will be intentionally collected to preserve local genetics.

Seed will be collected by hand, stored in paper bags, and then transported to a native plant nursery for seed bulking. Seed bulking is the use of collected seeds to grow container plants in the nursery under

ideal conditions. The seed collected from the container plants will then either be distributed at the site or used to grow another generation of container plants in the nursery until seed quantities are considered sufficient for distribution at the site. Seed will be distributed by hand into the vernal pool basins and raked into the soil after application.

5.17 PLANTING AND SEEDING TIMING

There is an ideal window for planting native plants in Southern California, which occurs in winter generally between November and February. The contractor will need to coordinate installation efforts with any rain events to ensure that work is not being conducted on the site during periods of inundation.

Planting of vernal pools should occur when vernal pools are moist but not inundated. These conditions usually occur early in the rainy season between rain events.

5.18 IRRIGATION PLAN

The ultimate goal of the restoration is to create a functioning riparian system capable of maintaining and supporting itself in perpetuity. An automated temporary irrigation system will be required to enhance the survivorship of newly installed native plants and seed when they have been grown in nursery conditions, when they are planted under initially dry or drought conditions, or when planting does not occur within an ideal seasonal planting time frame. This irrigation system will be installed to supply supplemental water for newly installed plants and applied seed. Supplemental irrigation should never be used in the vernal pools but can be used in the surrounding upland watersheds. Supplemental irrigation in upland watersheds surrounding vernal pools will cease if unnatural (out of season) ponding occurs in the vernal pools. Irrigation will not be used and will not be needed in the main low flow channel.

The irrigation system will tap into a local piped water source, will be constructed of PVC pipe and the amount of watering will be determined based off rain events. The system will be designed for temporary use for at least 3 years and discontinued once plant establishment is met. Damage to the irrigation system will be addressed throughout these three years. Ideally, the irrigation system should be shut-off by the end of the third year of the Interim Management Period. Irrigation system components will be removed from the site entirely at the end of the Interim Management Period after approval is granted by the resource agencies. If irrigation is extended beyond three years, the Interim Management Period will be extended until the Bank has been off irrigation for two consecutive years. Regardless of long-term irrigation solutions, prior to planting and seeding, the soil onsite should be moist from watering by the contractor or rainfall. All attempts will be made to coordinate seeding with rain events.

5.19 EROSION CONTROL

Erosion control for the Bank will be specified within the SWPPP and on the erosion control plans as prepared by the installation contractor. Implementation of such erosion control measures will prevent sediment from leaving the Bank. Consultation with local jurisdictions regarding local erosion control requirements should precede mitigation implementation. These requirements may include specific erosion control BMPs. The SWPPP prepared for the pre-bank restoration site will be used as a template as many unique approaches were taken to achieve restoration success while also managing undesirable erosion issues.

5.20 FENCING AND SIGNAGE

As mentioned previously, the Bank currently supports numerous trails and dirt roads that are used by a variety of groups including the U.S. Border Patrol, SDG&E, City of San Diego, and OWD, as well as by hikers, cyclists, and equestrians. In addition, the Bank is within a portion of the City of Chula Vista Greenbelt Master Plan boundary and is entirely within the OVRP Concept Plan boundaries. These uses present both an opportunity to educate the public and also a risk to the Bank. As such, the project will use both temporary and permanent fencing and signage, including educational kiosks, to educate the public about the sensitivity of the habitat on the property, historical uses, allowable uses, and any other pertinent topics. In addition, signage will be used to provide public safety messaging including flooding during hydrology events at low water crossings, wildlife, and heat/fire risk. Fencing will include traditional split rail fencing but will also take advantage of natural material onsite including boulders and removed eucalyptus. The fencing will aid in excluding human activity that may result in plant and habitat trampling, the introduction of nonnative plant seed, harm to native animals by domestic pets, and harm to native plants by the grazing of horses.

The 60% construction drawings will include fencing specifications and exact locations for permanent placement. Temporary fencing will be installed at key entry points into the site in order to protect the work site from vandalism and accidental damage to restoration plantings and irrigation systems. Temporary fencing will also be used in newly discovered trespass areas until permanent fencing can be installed. In addition to the split-rail fence proposed along the trails to the north and south of the Bank, select permanent fencing/rocks/logs will be installed in sensitive areas to maintain the integrity of the area. Although specifications will be provided final fencing, determinations should be done by a biologist and take into consideration the sensitive resources on site (i.e., rare flora and fauna) and the extensive use of the roads and general area by Border Patrol agents as well as SDG&E and OWD. Signage will be installed throughout the site and is considered essential for the Bank due to the extensive use of the nearby area by equestrians, bicyclists, and Border Patrol agents. Signage will indicate the site is a sensitive native Bank and that unauthorized personnel should not enter. As the site is used often by Border Patrol, reflective material will also be installed along the fencing at strategic locations to aid in Border Patrol agents navigating the site at night. The final locations of reflective material will be made in coordination with the Border Patrol. With the implementation of these measures, impacts to habitat for species within the Bank is not expected to occur.

At least four interpretive signs (e.g., educational kiosks) will be placed throughout the Bank at key user locations such as major entry points or lookouts. The signs will be designed to promote a conservation ethic through the preservation of native habitats and the communities of plants and animals they support. Specifically, the information on a sign may focus on the historical aspects of rivers and wetlands in Southern California, the process of restoration, identification of native plants and wildlife that will use the restoration area, ecological benefits of wetlands and buffer habitat, current threats to natural areas, and ways to minimize human impacts on the remaining natural areas (planting native species, keeping dogs on a leash, not wasting water).

During the Interim Management Period for the Bank, the Maintenance Contractor would conduct minor repairs on all fencing, signs, and educational kiosks installed as part of the project improvements. This includes reposting loose signs and fence posts, removing graffiti, and conducting road repair to avoid new ruts or ponds from being artificially created. The Maintenance Contractor will replace up to two signs per year and one educational kiosk over a 5-year period. If excessive vandalism occurs, the Bank Sponsor would coordinate with the City of Chula Vista and the County of San Diego to support upkeep through the existing POM funded by the existing Community Facilities District. After the project has completed the maintenance and monitoring for the Interim Management Period and the regulatory agencies have signed off on the Bank, San Diego County would maintain OVRP trails and trail improvements per the

OVRP Joint Exercise of Powers Agreement. The City of Chula Vista would maintain the trails associated with the Greenbelt.

5.21 FINAL EARTHWORK AND LANDSCAPE CONSTRUCTION PLANS

Construction is expected to occur under two contracts: earthwork and landscape. A final set of earthwork construction documents, including site preparation plans, erosion control plans and details, grading plans and profiles, roads and trails plans and details, rock structure details and habitat structure details, engineer's estimate of probably cost, and specifications acceptable for bidding will be prepared in order to implement the conceptual guidelines for the Bank outlined in this document. The proposed final elevations of the grading limits of the Bank will be shown on construction grading plans. The grading plans will include sections for each wetland rehabilitation area and show the proposed finished grades in relation to both the spring and winter season average groundwater table elevation. Construction drawings will take into consideration the extensive use of the dirt roads and general area by Border Patrol agents, and plan for use of the area by the agents to avoid damage to the mitigation effort. Grading plans and associated sections will be submitted to Signatory Agencies for review and approval prior to initiating construction.

A set of landscape construction documents, including earthwork plans, invasive plant treatment and removal plans, revegetation plans, planting details, and specifications acceptable for regulatory compliance and informed decision-making in the field will be prepared in order to implement the conceptual guidelines for the Bank outlined in this document. The irrigation system will be designed and installed by the planting contractor.

Implementation of the restoration must be coordinated among the appropriate jurisdictions, the biologist/habitat restoration specialist, the landscape architect, the landscape contractor, and the plant material supplier(s). The contracting nursery and seed collectors should be given the maximum possible lead time (i.e., no less than 9 months prior to actual planting installation) to complete special collections and prepare plant material in order to assure availability at planting time and to minimize cost. Field coordination will be provided by the biological monitor/landscape architect during all phases of implementation.

Species to be planted in the Bank are listed in the plant palette tables above and will be included in the specifications. Plant materials will include container stock plantings and seed applications.

The nursery contracted to provide plant materials should be contacted immediately following approval of the draft BEI to provide them with sufficient time to grow material prior to installation. An experienced and licensed native plant nursery should be contracted to collect propagules and seed and to supply the necessary container-grown plant material. Local native plant nurseries include Tree of Life Nursery in San Juan Capistrano, Moosa Creek Nursery in Valley Center, Las Pilitas Nursery in Escondido, and RECON Native Plants, Inc., in Chula Vista. A seed supplier specializing in native species, such as S&S Seeds in Carpinteria, California, should supply the necessary native seed. All plants and seeds should be inspected prior to installation to verify species accuracy and to ensure the material is free of weeds, disease, and pests.

The plant survival rates can be increased and the need for supplemental watering can be decreased by installing plant container stock and seed during the appropriate time of year. Optimal survival rates in Southern California may be achieved when planting activities take place between November and February. Planting activities that take place during the fall and early spring have the advantage of cooler weather, increased natural soil moisture, and reduced evapotranspiration. Because this area may be prone

to seasonal flows, plant and seed installation will take place before the onset of the rainy season to ensure they have adequate time to establish before being subject to seasonal stream flows. Hydroseeding will be timed to take advantage of seasonal rainfall patterns and will be applied in early fall or mid spring.

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CHAPTER 6. INTERIM MANAGEMENT PERIOD

6.1 MAINTENANCE

The goal of the restoration is to create a natural, self-sustaining riverine system requiring minimal follow-up maintenance; however, it's expected that some level of maintenance will be required. The Interim Management Period will begin when restoration activities first begin at the Bank. The majority of maintenance will begin when construction and installation have been completed and will be concentrated on the first few seasons of growth to control weeds and assist and promote native plant and seed establishment. The Installation Contractor will be responsible for maintenance during the 120-day plant establishment period (PEP), and the Maintenance Contractor will be responsible for maintenance after the 120-day PEP is complete. As a guideline, the Installation Contractor is expected to perform maintenance approximately once a month during the first 4 months (i.e., 120-day PEP). The Maintenance Contractor is expected to perform maintenance approximately monthly during Year 1; every 2 months during Year 2; and quarterly during Years 3 and on. Maintenance may be needed more frequently to perform remedial measures (e.g., replanting, erosion control). The Maintenance Contractor will coordinate with the Restoration Contractor on a regular basis to determine priority maintenance activities during different periods of the plan. The primary maintenance obligations are reviewed below.

6.1.1 Maintenance Duration

The Interim Management Period will begin at the start of restoration activities and continue until all Performance Standards are met and the endowment has been fully funded for three years (approximately 8 years total). If Performance Standards are not being met, maintenance may be extended. Then the Bank will enter into the Long-term Maintenance Period, as outlined in the Long-term Management Plan (Exhibit D-5).

6.1.2 Responsible Parties

The Bank Sponsor is ultimately responsible for the maintenance activities during the Interim Management Period. The Bank Sponsor may hire individual contractors to complete the maintenance activities with the qualifications described in Section 1.3.

6.1.3 120-Day Plant Establishment Period

After installation work is completed, a 120-Day (4-month) PEP will begin. At the completion of installation planting, the Installation Contractor will request an inspection by the Restoration Contractor. The Restoration Contractor will prepare a "punch-list" of correction items for completion by the Installation Contractor. After punch-list items are corrected, the Restoration Contractor will recommend to the Bank Sponsor that the landscape installation phase is complete and that the 120-Day PEP has begun. During the PEP, the Installation Contractor will provide regular maintenance of the restoration area, including trash removal, supplemental irrigation, erosion control, and nonnative treatment.

The Installation Contractor will perform maintenance visits and activities in accordance with the goals presented in this Development Plan. The number of maintenance visits will vary depending on the amount of work necessary for the mitigation area to meet its Performance Standards on schedule. As a guideline, the Installation Contractor is expected to perform maintenance approximately once a month during the 120-day PEP. Treatment will include all species listed in Table 6-1 and any additional problematic species identified by the Restoration Contractor. Herbicide application will be in accordance with BMPs, manufacturers' recommendations, and agency regulations. At the end of the 120-day PEP, the Restoration

Contractor will flag all dead and diseased plant materials requiring replacement and prepare a final maintenance punch-list of correction items. After the Installation Contractor has satisfactorily completed the punch-list, the Restoration Contractor will recommend acceptance of the 120-day PEP to the Bank Sponsor.

6.1.4 Irrigation

The irrigation system used for the Bank will be temporary and will be used to ease the establishment of native seeds and container plantings. It is expected that supplemental irrigation will be used for only the first two to three years. The Restoration Contractor will determine the timing for the termination of irrigation, but it will be terminated at least 2 years before sign-off. Inspection and maintenance of the irrigation system will occur during qualitative monitoring visits and every maintenance visit until removed to ensure it is not leaking or attracting Argentine ants into restoration site. If irrigation is used in the last two years of the Interim Management Period, the management period will extend until irrigation has been off for 2 consecutive years.

6.1.5 Weed Control

Nonnative weed control will consist of controlling populations of invasive and nonnative weeds within the Bank by the following methods: (1) hand removal, (2) cutting or mowing, (3) chemical herbicide application, and (4) light exclusion. A list of nonnative species detected in the Bank can be found in Table 6-1.

Hand removal of weeds is the most effective method of control and will be used around individual container plantings. Other herbaceous weeds should be removed by hand before setting seed. Weed control activities will take place monthly for the first year, every 2 months during year 2, and quarterly thereafter.

Weed species should be controlled before they set seed and before they shade and out-compete native plantings. With prior consent of the Restoration Contractor, string trimmers may be used in certain instances. Chemical control will be used for control of perennial weed species. The Maintenance Contractor will coordinate with the Restoration Contractor to identify specific areas where chemical herbicides may be used with extreme care taken to avoid spillover treatment of special-status species. Any herbicide treatment must be applied by a licensed or certified Pest Control Applicator. Any herbicide application within close proximity to water will be approved for aquatic use by the U.S. Environmental Protection Agency as having been reviewed and considered compatible with the aquatic environment when used according to label directions. Light-exclusion measures may include organic mulch, which is useful around individual container plantings to reduce weed growth. Mulch should be 3 to 4 inches deep and cover a 24-inch diameter around container plants.

Table 6-1. Nonnative Species Detected in the Bank

Scientific Name	Common Name	Cal-IPC Rating
Amaranthus albus	white tumbleweed	not listed
Anagalis arvensis	scarlet pimpernel	not listed
Apium graveolens	common celery	not listed
Atriplex semibaccata	Australian saltbush	Moderate
Avena barbata	slender wild oat	Moderate
Brassica nigra	black mustard	Moderate

Scientific Name	Common Name	Cal-IPC Rating
Bromus madritensis	red brome	High
Bromus tectorum	cheat grass	High
Centaurea melitensis	tocalote	Moderate
Convulvulus arvensis	bindweed	not listed
Cortaderia jubata	pampas grass	High
Cynara cardunculus	artichoke thistle	Moderate
Dittrichia graveolens	stinkwort	Moderate
Erodium cicutarium	red-stem filaree	Limited
Eucalyptus sp.	eucalyptus	Limited
Foeniculum vulgare	sweet fennel	Moderate
Helminthotheca echioides	bristly ox-tongue	Limited
Hirschfeldia incana	short-pod mustard	Moderate
Hordeum sp.	barley	Moderate
Lactuca serriola	prickly lettuce	not listed
Lepidium latifolium	perennial pepperweed	High
Melilotus indicus	Indian sweetclover	not listed
Mesembryanthemum crystallinum	crystalline iceplant	Moderate
Nicotiana glauca	tree tobacco	Moderate
Polypogon monspeliensis	rabbitfoot beardgrass	Limited
Ricinus communis	castor-bean	Limited
Rumex crispus	curly dock	Limited
Salsola tragus	tumbleweed	Limited
Schinus molle	Peruvian peppertree	Limited
Schinus terebinthifolius	Brazilian peppertree	Moderate
Sonchus asper	common sow thistle	not listed
Tamarix ramosissima	salt-cedar	High
Washingtonia robusta	Mexican fan palm	Moderate

6.1.6 Supplemental Planting

If planted and seeded vegetation does not readily colonize the Bank, the Maintenance Contractor will provide supplemental planting and seeding for the first 2 years of maintenance. All dead container plant materials and cuttings above the allowable tolerance levels will be replaced with the same species and in the same size containers as originally specified. Vegetation will be monitored monthly for the first year, every 2 months during Year 2, and quarterly thereafter during the Interim Management Period.

6.1.7 Cowbird Trapping

Brown-headed cowbird (*Molothrus ater*; cowbird) trapping is a necessary maintenance activity to support the presence and population growth of LBV. Cowbird trapping will occur using the targeted mist-netting method (SDNHM 2022). This method consists of utilizing a 12-meter mist-net, under which a remote speaker is placed broadcasting male and female cowbird calls. Three stuffed decoy cowbirds are also

placed on short posts adjacent to the mist-net. As cowbirds are highly social, the broadcast calls and decoys provide auditory and visual cues to attract cowbirds in the area to the net where they can be captured. Any non-target birds captured can also be immediately released with this method. The mist-net trapping method will be used at least twice a month from April 1 through June 30th to prevent LBV nest parasitism by cowbirds.

6.1.8 Debris and Trash Removal

Leaf litter and dead wood of native trees and shrubs will not be removed from the Bank. The decomposition of dead wood and leaf litter is essential for the replenishment of soil nutrients and minerals, and dead wood and snags provide valuable habitat for invertebrates, reptiles, small mammals, and birds. Human-made trash and debris will be removed by hand monthly for the first year, every 2 months during Year 2, and quarterly thereafter during the Interim Management Period.

6.1.9 Fence Inspection and Repair

Fencing will be inspected by the Maintenance Contractor monthly for the first year, every 2 months during Year 2, and quarterly thereafter during the Interim Management Period.

6.2 EXTENDED INTERIM MONITORING PERIOD

The monitoring timeline for the Otay Mitigation Bank has been extended beyond the typical 5-year management period to allow the site additional time to experience hydrologic events and for wetlands to develop. Monitoring frequency has been modified to keep the overall effort the same. The new monitoring frequency is detailed in Table 6-2. As part of the extended monitoring timeline, qualitative monitoring will be used instead of quantitative in some years and quantitative monitoring events have hydrological triggers as well as time triggers. A detailed qualitative form has been developed that will be used to document hydrology, vegetation, wildlife, and general site conditions with enough data to make adaptive management decisions (Appendix P).

Table 6-2. Extended Monitoring Timeline

Monitoring Method	120_Day PEP	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Monitoring Triggers
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**	**Final Release (15%)**				
Vegetation (Applies to Applies to Active Floodplain, Mainstem Channels, Tributary Channel, Seasonal Wetland, Riparian Transitional, and Upland Ecozones)										
Container Plant Survival	Q	Q	Q							Qualitative monitoring in first 2 years to support adaptive management and supplemental planting/seeding
Quantitative Transects			**X**		**X**	Final Year				3 quantitative monitoring events, Year 2 and 4 and then Final Year
Qualitative	Monthly	Monthly	Monthly	Monthly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Monthly monitoring in Years 1-3 and then quarterly for remaining years. Monitoring will inform adaptive management decisions.
Wildlife Qualitative Observations	Q	Q	Q	Q	Q	Q	Q	Q	Q	Whenever onsite, document wildlife observed
Aquatic Resources (Applies to Active Floodplain, Mainstem Channels, Tributary Channel Ecozones, Seasonal Wetland Ecozones)										
CRAM		**X**		**X**		Final Year				3 monitoring events: Year 1, Year 3, and Final Year OR years with significant rain event or rain season where floodplain is engaged which is defined as overbanking, dam topping, a 5-10 year event in 24-hrs, or a 10-25 year event over multiple days*
Jurisdictional Delineation		Q	Q	Q	**X**	Final Year				2 monitoring events – Year 4 and Final Year
Geomorphology (excludes seasonal wetlands)		Q	**X**	Q	**X**	Final Year				3 quantitative monitoring events – Year 2, Year 4, and Final Year OR years with significant rain event or rain season where floodplain is engaged which is defined as overbanking, dam topping, a 5-10 year event in 24-hrs, or a 10-25 year event over multiple days*
Bioassessment (excludes seasonal wetlands)			**X**		**X**	Final Year				3 quantitative monitoring events – Year 2, Year 4, and Final Year OR years with significant rain event or rain season where floodplain is engaged which is defined as overbanking, dam topping, a 5-10 year event in 24-hrs, or a 10-25 year event over multiple days*
Vernal Pools (Applies to Vernal Pool Ecozone, Created)										
Floral Surveys		Q	**X**	Q	**X**	Final Year				3 quantitative monitoring events – Year 2, Year 4, and Final Year **OR** years with average or above average rainfall
CRAM		X		X		Final Year				3 monitoring events: Year 1, Year 3, and Final Year
Qualitative	Monthly	Monthly	Monthly	Monthly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Monthly monitoring in Years 1-3 and then quarterly for remaining years. Monitoring will inform adaptive management decisions.
Hydrology		**X**	Q	**X**	Q	Final Year				3 quantitative monitoring events - Year 1, Year 3, and Final Year **OR** years with average or above average rainfall
LBV (Applies to Covered Species, Vireo)										
Habitat Structure				**X**	**X**	Final Year				3 quantitative monitoring events in Year 3, Year 4, and Final Year
Protocol Surveys		**X**	**X**	**X**	**X**	Final Year				Annual protocol surveys in Year 1 – 4 for population and territory data, and one in the Final Year

*Flow events are defined using Western Regional Climate Center and the National Oceanic and Atmospheric Administration's Precipitation Frequency Data Server (Appendix Q).

6.3 PERFORMANCE STANDARDS

Performance Standards have been established for the Bank based on the qualitative and quantitative monitoring described in the following sections (6.4, 6.5, and 6.6) as well as the Corps South Pacific Division's 12505-SPD Regulatory Program Uniform Performance Standards for Compensatory Mitigation Requirements (USACE 2012). Tables 6-3 through 6-7 detail Performance Standards for each restoration category that have been designed specifically for the Bank as a means of monitoring the progress and performance of the physical, hydrological, and biological conditions of the Bank. The Performance Standards will be evaluated annually, using qualitative or quantitative data to ensure that each restoration category of the Bank is trending toward success. The success or failure of a Performance Standard will be used to drive adaptive management and maintenance of the Bank the following year. In addition, specific performance standards are tied to predicted ecozones and the release of the corresponding credits as shown in each table description. If the Bank at any time does not appear to be on a trajectory to meet target Performance Standards, the Restoration Contractor will recommend remedial actions (adaptive management).

Table 6-3. Otay River Mainstem and Floodplain Performance Standards (Applies to Active Floodplain, Mainstem Channels, Tributary Channel Ecozones)

Performance Standard	**Plant Establishment Period (120 days)**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**	**Final Credit Release (15%)**			
Vegetation									
Container plant survival[1]	100%	≥80	≥80	N/A	N/A	N/A	N/A	N/A	N/A
Percent **absolute** cover of native species	N/A	≥25%	≥40%	≥55%	≥75%	≥90%			
Percentage **absolute** cover of nonnative species	<10%	<10%	<10%	<5%	<5%	<5%			
Percentage **absolute** cover of invasive species[2]	<5%	<5%	<5%	<1%	<1%	<1%[3]			
Native floral species diversity (Simpson's Diversity Index)	N/A	N/A	≥0.5	N/A	≥Year 2	≥Year 4			
Native floral species richness	N/A	≥50 species	>Year 1	>Year 2	≥Year 3	≥Year 3			
Native floral species reproduction and recruitment	N/A	Presence of seedlings and saplings	Presence of seedlings and saplings	Presence of seedlings and saplings	At least 3% of total native cover is made up of naturally recruited species	At least 5% of total native cover is made up of naturally recruited species			
Wildlife									
Terrestrial faunal species presence and taxon richness[4]	N/A	Evidence of at least 3 primary taxa	Evidence of at least 3 primary taxa	Evidence of at least 3 primary taxa	Evidence of at least 4 primary taxa	Evidence of at least 4 primary taxa			
Aquatic Resources									
Wetland condition assessment (CRAM)	N/A	Baseline CRAM		>Year 1 Overall CRAM Score		Overall CRAM score in the 'Good' category (76 – 100)			
Jurisdictional Delineation[5]	N/A	N/A	N/A	N/A	JD shows the acreage of aquatic features is trending to match the amount and type of aquatic resource credits predicted.	JD shows the acreage of aquatic features equals the amount and type of aquatic resource credits predicted.[6]			
Hydrology (in areas expected to become wetland)	N/A	N/A	N/A	N/A	Groundwater data shows flooding, ponding, or inundation/saturation at ≤1 foot below surface for 14 consecutive days in at least 2 years since implementation[7]	Groundwater data shows flooding, ponding, inundation/saturation at <1 foot below surface for 14 consecutive days in at least 3 years since implementation.			
Benthic Macroinvertebrate California Stream Condition Index (BMI CSCI)	N/A	N/A	> 0.50 - Very Likely Altered Category		Between 0.63 and 0.79 - Likely Altered Category	Between 0.63 and 0.79 - Likely Altered Category			

1 Based on qualitative ocular estimates.
2 Invasive species are those listed as "High" or "Moderate" on the Cal-IPC inventory or those that are locally known to be problematic.
3 Any remaining invasive plant species will be treated in Final Year
4 Primary taxa include invertebrates, mammals, birds, reptiles, amphibians.
5 Delineation shall be done according to A Field Guide to the identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (ERDC/CRREL TR-08-12) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (ERDC/EL TR-08-28) or the most recent guidance.
6 The number and type of credits released shall be adjusted either up or down based on the results of the Final Year JD.
7 Groundwater will be collected continuously and will be evaluated during annual reporting for each year post-restoration for use in Year 4 and Final Year.

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**		**Final Credit Release (15%)**		
Physical Habitat Index of Physical Integrity (PHAB IPI)	N/A	N/A	Between 0.71 – 0.83 - Likely Altered Condition	N/A	Between 0.84 – 0.93 – Possibly Altered Condition		≥ 0.94 – Likely Intact Condition		
Geomorphology									
Maintenance and general stability of the active graded channel floodplain	N/A	No significant rills or gullies on floodplain and baseline floodplain elevation	Less than 0.25 foot decrease from as-built floodplain elevation	N/A	Less than 0.25 foot decrease from Year 2 in floodplain elevation		Less than 0.25 foot decrease from Year 4 in floodplain elevation		
Development of complex micro-topography on the channel bed, banks, and floodplain surfaces including scour and deposition pockets, riffles, point bars and splay deposits, etc.	N/A	Observation of at least 5 microtopographic features in the channel and/or on channel banks within each reach (upper, middle, and lower reaches of the main stem and at the tributary confluence). Floodplain surfaces will also be monitoring for microtopographic development in years with a significant rain event or rain season							
Average cross-sectional area and width-to- depth ratio (at any given cross section)	N/A	N/A	Less than a 15% change in average cross-section width-to-depth ratio from as-built	N/A	Less than a 15% change in average cross-section width-to-depth ratio from Year 2		Less than a 15% change in average cross-section width-to-depth ratio from Year 4		
Average channel bed elevation of longitudinal profile	N/A	N/A	Less than a 2-foot change in average channel bed elevation of longitudinal profile from as-built	N/A	Less than a 2-foot change in average channel bed elevation of longitudinal profile from Year 2		Less than a 2-foot change in average channel bed elevation of longitudinal profile from Year 4		

Table 6-4. Seasonal Wetland Performance Standards (Applies to Seasonal Wetland Ecozone)

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**		**Final Credit Release (15%)**		
Vegetation									
Container plant survival[8]	100%	>80	>80	N/A	N/A		N/A		
Percent absolute cover of native species	N/A	>15%	>30%	>45%	>Year 60%		≥80%		
Percentage absolute cover of nonnative species	<10%	<10%	<10%	<5%	<5%		<5%		
Percentage absolute cover of invasive species[9]	<5%	<5%	<5%	<1%	<1%		<1%[10]		
Native floral species diversity (Simpson's Diversity Index)	N/A		≥0.5	N/A	≥Year 2		≥Year 4		
Native floral species richness	N/A	≥20	>Year 1	>Year 2	>Year 3		>Year 3		
Native floral species reproduction and recruitment	N/A	Presence of seedlings and recruits	Presence of seedlings and recruits	Presence of seedlings and recruits	At least 3% of total native cover is made up of naturally recruited species		At least 5% of total native cover is made up of naturally recruited species		

8 Based on qualitative ocular estimates.
9 Invasive species are those listed as "High" or "Moderate" on the Cal-IPC inventory or those that are locally known to be problematic.
10 Any remaining invasive plant species will be treated in Final Year

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	Initial Release (15%)	Second Release (25%)	Third Release (15%)	Fourth Release (15%)	Fifth Release (15%)	Final Credit Release (15%)			
Aquatic Resources									
Wetland condition assessment (CRAM)	N/A	Baseline CRAM		>Year 1 Overall CRAM Score		Overall CRAM score in the 'Good' category (76 – 100)			
Jurisdictional Delineation[11]	N/A	N/A	N/A	N/A	JD shows the acreage of aquatic features is trending to match the amount and type of aquatic resource credits predicted.	JD shows the acreage of aquatic features equals the amount and type of aquatic resource credits predicted[12].			
Hydrology	N/A	N/A	N/A	N/A	Groundwater data shows flooding, ponding, or inundation/saturation at ≤1 foot below surface for 14 consecutive days in at least 2 years since implementation	Groundwater data shows flooding, ponding, inundation/saturation at <1 foot below surface for 14 consecutive days in at least 3 years since implementation			

Table 6-5. Vernal Pool Performance Standards (Applies to Vernal Pool Wetland Ecozone, Created)

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	Initial Release (15%)	Second Release (25%)	Third Release (15%)	Fourth Release (15%)	Fifth Release (15%)	Final Credit Release (15%)			
Upland Vegetation									
Container plant survival[13]	100%	≥80	≥80	N/A	N/A	N/A			
Percent absolute cover of native species	N/A	≥30%	≥40%	≥50%	≥60%	≥75%			
Percent absolute cover of nonnative species	<10%	<10%	<10%	<5%	<5%	<5%			
Percent absolute cover of invasive species[14]	<1%	<1%	<1%	<1%	<1%	<1%[15]			
Aquatic Resources									
Hydrology									
Total Number of Days Inundated	N/A – must pass hydrologic testing as described in section 5.7	Within range of control pools for each year[16]	N/A	Within range of control pools for each year	N/A	Within range of control pools for each year			
Maximum Number of Days Continuously Inundated									
Coefficient of Variation of Water Depth									

11 Delineation shall be done according to *A Field Guide to the identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28) or the most recent guidance.

12 The number and type of credits released shall be adjusted either up or down based on the results of the Final Year JD.

13 Based on qualitative ocular estimates.

14 Invasive species are those listed as "High" or "Moderate" on the Cal-IPC inventory or those that are locally known to be problematic.

15 Any remaining invasive plant species will be treated in Final Year.

16 Control pools are a subset of pools from the preserved pools near Otay Lakes County Park. They can be seen on Figure 3-26.

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**			**Final Credit Release (15%)**	
Mean Water Depth									
Number of Times Drained Completely During Wet Season									
Wetland condition assessment (CRAM)	N/A	Baseline CRAM		>Year 1 Overall CRAM Score				Overall CRAM score in the 'Good' category (76 – 100)	
Jurisdictional Delineation[17]	N/A	N/A	N/A	N/A	JD shows the acreage of aquatic features is trending to match the amount and type of aquatic resource credits predicted.		JD shows the acreage of aquatic features equals the amount and type of aquatic resource credits predicted[18].		
Vernal Pool Flora									
Percent absolute cover of native wetland species	<25%	N/A	<25%	N/A	<25%			<25%	
Percent absolute cover of native upland species	<30%	N/A	<30%	N/A	<30%			<30%	
Percent absolute cover of vernal pool endemic species	10% of control pools[13]	N/A	40% of control pools	N/A	75% of control pools			90% of control pools	
Percent absolute cover of nonnative species	<10%	<10%	<10%	<5%	<5%			<5%	
Percent absolute cover of invasive species[19]	<1%				<1%[14]				
Wildlife									
San Diego Fairy Shrimp (SDFS) (Secondary performance Standard)[20]	N/A				Presence of SDFS				

17 Delineation shall be done according to A Field Guide to the identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (ERDC/CRREL TR-08-12) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (ERDC/EL TR-08-28) or the most recent guidance.
18 The number and type of credits released shall be adjusted either up or down based on the results of the Final Year JD.
19 Invasive species are those listed as "High" or "Moderate" on the Cal-IPC inventory or those that are locally known to be problematic.
20 Secondary performance standards are not required to be met for credit release or success but rather provides additional information to guide management decisions.

Table 6-6. Upland Buffer Performance Standards (Applies to Upland Buffer [Covered Habitats] and Riparian Transitional Ecozones)

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Credit Release Schedule	**Initial Release (15%)**	**Second Release (25%)**	**Third Release (15%)**	**Fourth Release (15%)**	**Fifth Release (15%)**			**Final Credit Release (15%)**	
Percentage absolute cover of native species	N/A	≥30%	≥40%	≥50%	≥60%			≥75%	
Percentage absolute cover of nonnative species	<10%	<10%	<10%	<5%	<5%			<5%	
Percentage absolute cover of invasive species[21]	<5%	<5%	<5%	<1%	<1%			<1%[22]	

Table 6-7. Least Bell's Vireo Performance Standards (Applies to Covered Species, Vireo)

Performance Standard	Plant Establishment Period (120 days)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
LBV Habitat Structure	N/A	N/A	N/A	90% confidence intervals from Post-Restoration Structure and Baseline Reference Territory structure overlap at each height class					
LBV Territories	N/A	N/A	N/A	Same number of territories of same size or smaller than Baseline			More territories of same size or smaller than Baseline		
LBV Nesting Success (Secondary Performance Standard)[23]	N/A	N/A	N/A	Same or better nesting success than Baseline					

Note: Covered Species LBV Credits will be released based on LBV pair occupancy of the LBV habitat over baseline 7 pairs. Credits will equal # of pairs > 7 *3.24 acres up to a max of 81 acres.

21 Invasive species are those listed as "High" or "Moderate" on the Cal-IPC inventory or those that are locally known to be problematic.
22 Any remaining invasive plant species will be treated in Final Year
23 Secondary performance standards are not required to be met for credit release or success but rather provides additional information to guide management decisions.

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6.4 IMPLEMENTATION MONITORING

The Restoration Contractor will coordinate with the installation contractor and Bank Sponsor to monitor the project's implementation, as described in Chapter 5, Implementation Plan—including initial grading, contouring, and native planting and seeding—and the 120-day PEP, to ensure that installation is performed in accordance with this Development Plan. During this period, the Restoration Contractor will prepare a brief weekly memorandum that reviews implementation progress, which will be submitted to the Bank Sponsor.

The installation contractor will be responsible for the 120-day PEP after the grading, erosion control, and native plant installation are complete to ensure that the site meets defined success criteria and is established in a desirable manner prior to the start of Interim Management Period. The installation contractor will receive approval from the Restoration Contractor and Bank Sponsor, indicating a successful implementation and 120-day PEP before the start of the Interim Management Period. In addition, the installation process will require the Restoration Contractor to inspect and approve progress at the following times.

- During and after environmental protection fencing installation.
- During demarcation of the restoration area boundaries.
- During contouring/grading of the channel, floodplain, and vernal pools.
- At the end of grading and contouring.
- After completion of grubbing and soil decompaction before the start of planting.
- At the time of container plant delivery when container plant materials will be inspected by the Restoration Contractor to confirm the receipt of the correct species and that the plants are healthy, disease free, and of proper size prior to planting.
- During final container plant layout to ensure correct ecological positioning.
- When the contractor requests inspection to determine if installation is complete.
- At completion of the 120-day plant establishment period.

6.5 QUALITATIVE MONITORING

A Restoration Contractor with the qualifications outlined previously will direct the plan's qualitative monitoring program. The goal of this monitoring is to proactively assess site conditions to address issues before they become a problem. Qualitative monitoring will include design review of the contractor-designed irrigation system (if needed), performing pre-installation environmental education, and performing all required installation inspections described above. An important feature of the qualitative monitoring is effective coordination with the Installation/Maintenance Contractor to exchange information, provide feedback, and agree on priority maintenance items and potential remedial measures as needed. The Restoration Contractor will perform qualitative monitoring throughout the installation period and the Interim Management Period. Each qualitative visit will focus on soil conditions (e.g., moisture and fertility), container plant health and growth, seed germination rates, presence of native and nonnative plant species, any significant disease or pest problems, and any erosion problems. Information will be collected using the Qualitative Monitoring Form (Appendix P). This form will be an electronic form and collected via tablet or phone in the field.

During installation, the Restoration Contractor will inspect progress on a weekly basis and then at least once a month during the 120-day PEP. The Restoration Contractor will monitor the restoration areas monthly during the first 3 months and then quarterly for the duration of the Interim Management Period. During each qualitative site visit, the Restoration Contractor will conduct a site overview of the restoration areas to evaluate the following:

- Overall site conditions.
- General condition of plants, including plant health/vigor and mortality.
- Seed germination rates.
- Native plant recruitment.
- Presence and type of terrestrial fauna using the Bank.
- Potential issues, including hydrology, irrigation problems (too much or too little), invasive nonnative species of concern (e.g., tamarisk, pampas grass, and Brazilian pepper tree), vandalism, and other problems that need to be addressed by the Installation/Maintenance Contractor.

It is unrealistic to require a formal plant count, as plant installation will include large quantities of 1-gallon and small rose pot (liner) plantings. As such, the Restoration Contractor will be responsible for a visual estimate of plant survival and condition during qualitative visits. During each annual July/August site visit, the Restoration Contractor will assess the need for potential remedial planting during the winter. Recommendations will be included in the October monthly/quarterly memoranda. Recommendations may include container planting and broadcast seeding. Irrigation will not be used for supplemental planting or seeding that occurs once the irrigation has been turned off.

6.6 QUANTITATIVE MONITORING

A Restoration Contractor with the qualifications specified previously will supervise all quantitative monitoring. This will allow for adaptive management decisions to be made, as well as allow site progress to be tracked. Quantitative monitoring will consist of photo-documentation, vegetation transects and relevé plots, a condition-based rapid assessment for each wetland type, cross-sections for channel morphology and topography, benthic macroinvertebrate sampling, groundwater monitoring, jurisdictional aquatic resource mapping, and LBV surveys (Figure 6-1). Descriptions of the methods for each of these monitoring types is provided in the subsections below.

6.6.1 Photo-Documentation

Permanent stations for photo-documentation will be established during the installation phase using a GPS unit. At least 20 photo stations will be established within the Bank and four will be established in the Reference Area upstream of the Pre-Bank. Additional photo stations may be added post implementation to maximize capturing the changes onsite. These locations and directions will be mapped in the annual monitoring report. The photos will be used to document the installation process in addition to the vegetation establishment. Permanent stations will ensure

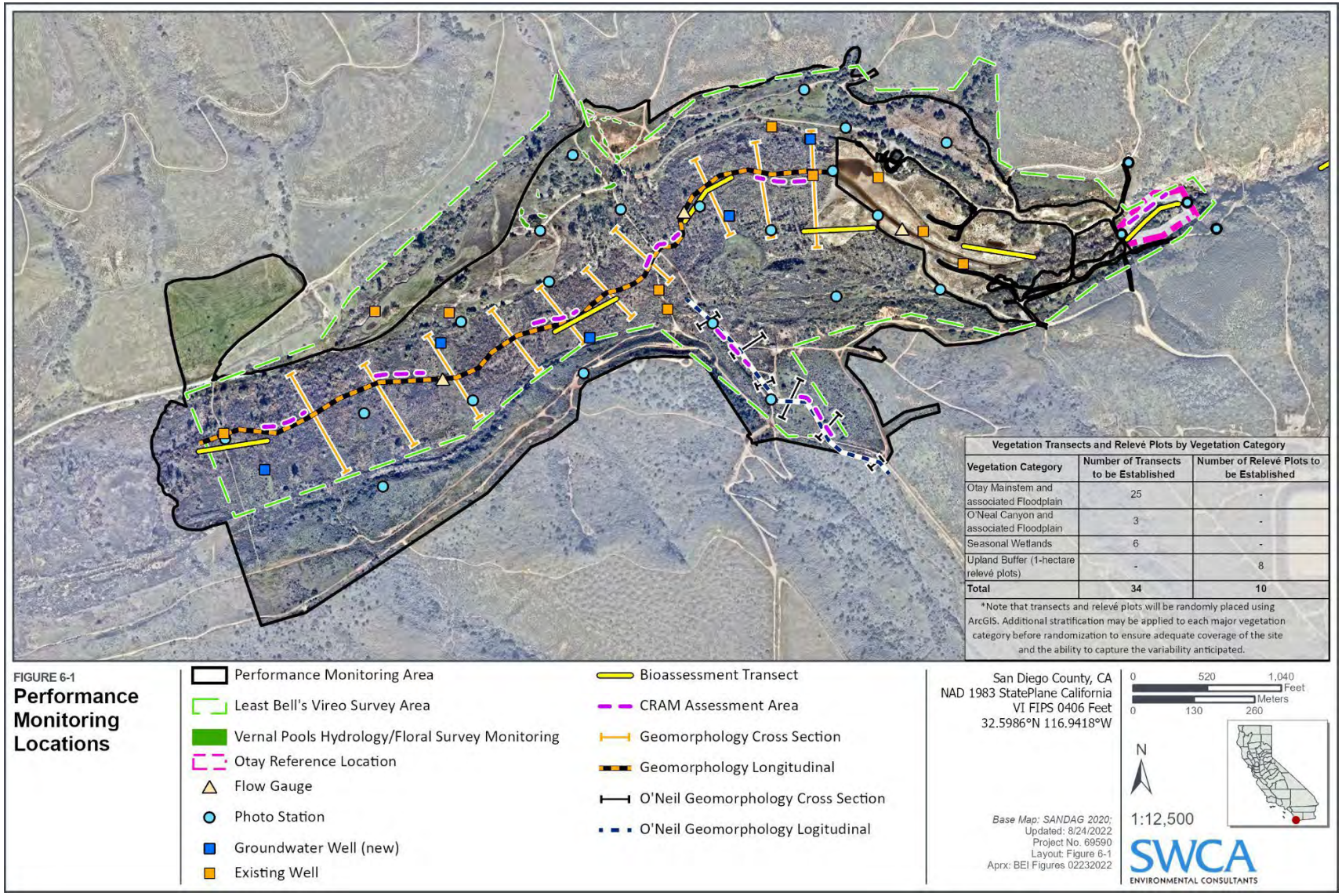


Figure 6-1. Performance monitoring locations.

photographs will be taken from the same location, at the same time of year, and in the same compass direction each year. Following the 120-day PEP, photos will be taken twice a year (June and December) at these 20 fixed locations and catalogued to be included in the annual reports.

Photographs will be taken at each transect where channel and floodplain morphology monitoring would occur . At a minimum these will include channel right taken from the left bank permanent monument; channel left taken from the right bank permanent monument; channel center to the left bank; channel center to the right bank; channel center facing upstream; and channel center facing downstream. Each vegetation transect will also have a photo station established at the end farthest from the channel. Photographs will be taken in portrait, showing the length of the vegetation transect.

Photographs from photo stations, channel cross-sections, and vegetation transects will visually display and document the progress of the site. Locations of proposed photo stations can be found on Figure 6-1.

6.6.2 Vegetation

6.6.2.1 Point-Intercept Transects

The Otay River Mainstem and associated floodplain, the Salt Creek Tributary, and seasonal wetland restoration categories will use point-intercept transects to monitor the vegetation community. The vegetation community will be quantitatively measured using semi-permanent 50-meter transects that will be established randomly throughout each restoration category. Transects will be run perpendicular to the primary channel, either the Otay River mainstem or Salt Creek Tributary, whichever applies. These transects will be used to determine native and nonnative cover across each of the restoration categories during the Interim Management Period. The use of permanent transects as a sampling design allows for the removal of spatial variability and increases the ability to detect annual changes in the site. This improves the ability to detect positive or negative trends in the restoration categories and allows the Restoration Contractor and bank sponsor to make prompt adaptive management decisions. Vegetation transects will also be placed in the upstream Reference Area to understand local weather conditions and its effect on vegetation in the Bank.

Table 6-8 indicates the number of vegetation transects to be randomly distributed in the designated stratification categories. The exact location of the transects will be determined during Year 1 quantitative monitoring but approximate locations are displayed on Figure 6-1. During Year 1, each transect will be marked with a 4-foot-tall metal rebar post. All posts will also be flagged with neon whiskers for visibility. The location of all transects will be marked using a GPS unit and displayed on a site map in the annual report. Data will be collected each year during late spring/early summer (May to July), and sampling times will be consistent from year to year to minimize seasonal variation in the data.

Table 6-8. Vegetation Transects and Relevé Plots by Category

Category	Number of Acres	Number of Transects to be Established	Number of Relevé Plots to be Established
Otay Mainstem and associated Floodplain	69	25	15
O'Neal Canyon and associated Floodplain	3	3	3
Seasonal Wetland	7	6	3
Upland Buffer	134	-	8
Reference Area	3	3	3

Category	Number of Acres	Number of Transects to be Established	Number of Relevé Plots to be Established
TOTAL		**37**	**32**

For each transect the "point-intercept method" will be used to record the species. The sampling method is based on a 50-meter-long point-intercept transect centered on a 50- by 5-meter belt transect plot. At each 50-centimeter interval along the transect (beginning at the 50-centimeter mark and ending at the 50-meter mark), a point is projected vertically into the vegetation. Each species intercepted by a point is recorded, providing a tally of hits for each species in the herb, shrub, and tree canopies. The measuring tape will be stretched taught to maintain a consistent sampling area. Absolute cover for each species according to vegetation layer can be calculated from these data (California Native Plant Society 1999). A total of 100 points along the transect is thus sampled. The vegetation cover is calculated as follows.

Absolute Cover = number of points intercepted for variable of interest (i.e., native cover)/ 100 x 100%

Relative Cover = number of points intercepted for variable of interest (i.e., native cover)/ total number of intercepts on transect x 100%

The cover of all nonnative and invasive plants, as defined by Cal-IPC's Invasive Plant Inventory of Priority Species (Cal-IPC 2022), will be calculated for each transect. In addition to cover, native species richness will be measured for each belt transect. For each belt transect (centered on the point intercept transect) all species present will be recorded, and a count of all native species will be presented. Only plants rooted within the belt will be counted. In addition, a complete list of additional species occurring within each restoration category will be recorded to measure total species richness.

6.6.2.2 Ocular Estimates (Relevé Method)

The relevé method relies on ocular estimates of cover and is considered a "semiquantitative" method. This method will be used in the upland buffer area and vernal pools each year of monitoring. This method will be used in the Otay River mainstem and floodplain, O'Neal Canyon tributary and floodplain, seasonal wetland, and Reference Area in Year 1 and 3. Eight 1-hectare relevé plots will be randomly established in the upland buffer (Table 6-8) and each vernal pool will be considered a plot (22 established pools). Additionally, in Years 1 and 3, 15 1-hectare relevé plots will be randomly established in the Otay River and floodplain, three in O'Neal Canyon and floodplain, three in the seasonal wetlands, and three in the Reference Area.

In each relevé plot (or pool), all species observed are recorded and assigned a cover class. Table 6-9 shows the cover classes to be used. The use of cover classes provide greater repeatability between observers. As ocular estimates of cover are somewhat subjective, it is important to have two biologists collecting data and calibrating cover estimates between them. The relevé method should be conducted at the same time as vegetation transects (May – June) for all aquatic resources and upland buffer. It should be conducted in the vernal pools after the pools have dried and vegetation growth is at its peak. This is generally late April or early May but can vary based on rainfall received in a given year.

Table 6-9. Cover Class Codes and Midpoints

Cover Class	Percent Cover Range	Midpoint Cover
1	0–1	0.5

Cover Class	Percent Cover Range	Midpoint Cover
2	1–5	2.5
3	6–15	10
4	16–25	20
5	26–50	37.5
6	51–75	62.5
7	>75	87.5

When calculating average native and nonnative cover, the midpoint of the cover class is used. For example, for a species in the 6 – 15 percent cover class, 10% cover would be used in statistical calculations. The relevé method will provide cover (both native and nonnative) and species diversity statistics for comparison to performance standards.

6.6.2.3 Simpson's Diversity Index

The Simpson's Diversity Index is used to quantify biodiversity, taking into account both the number of species (richness) and their population size (abundance). The index is most often used for ecological studies that measure species diversity and will be used in that manner for the Bank. It is calculated by

$$D_s = 1 - \sum \left(\frac{n}{N}\right)^2$$

D_s = Diversity Index
n = Number of individuals for each species
N = Total number of all individuals

6.6.3 Wetland Condition

A CRAM analysis will be used to provide an evaluation of the ambient conditions of the restoration categories within the Bank and the Reference Area upstream of the Pre-Bank. The Otay River mainstem, O'Neal Canyon, and the Reference Area will be assessed using the latest version of the CRAM for Wetlands Riverine Wetlands Field Book at the time of the Year 1 assessment. The seasonal wetlands will be assessed using the latest version of the CRAM Slope Wetlands Field Book, and the vernal pools will be assessed using the latest version of the CRAM for Individual or Vernal Pools Systems Field Book at the time of the Year 1 assessment. Representative AAs will be established in each category to measure the change in ecosystem functions and services over the course of the monitoring program. Table 6-10 details the number of AAs that will be established in each aquatic feature. The exact location of the AAs will be determined during Year 1 qualitative monitoring but approximate locations are displayed on Figure 6-1.

Table 6-10. Number of AAs by Aquatic Feature

Aquatic Feature	CRAM Module	Number of AAs
Otay Mainstem	Riverine	6
O'Neal Canyon	Riverine	2
Seasonal Wetland	Slope	3
Vernal Pools	Vernal Pool Systems	6
Vernal Pools	Individual Vernal Pools	3
Reference Area	Riverine	1
	TOTAL	**21**

The Landscape and Buffer attribute is not expected to change much, if any, over the life of the project as the scale of this attribute is outside the scope of the project to change. However, following grading, the Hydrology Attribute is expected to increase from baseline and both the Physical and Biotic Structure Attributes are expected to increase over time. Table 6-11 shows the anticipated direction of change of CRAM wetland condition scores for the riverine AAs. Table 6-12 shows the anticipated direction of change of scores for the seasonal wetland AAs, and Table 6-13 for the vernal pools. The tables show post installation (Year 3 and Year 5). It is anticipated that habitat maturity may take 10 to 20 years to achieve and, as such, is not tied to the project's success. Expected changes in CRAM metric scores are based upon BPJ, drawing on experience in other reaches of the Otay River and larger Otay Mesa.

Table 6-11. Projected Riverine CRAM Scores for the Otay Mainstem and O'Neal Canyon in Year 3 and Year 5 Post Installation

CRAM Attributes	CRAM Metric and Submetrics	Year 3	Year 5
Buffer and Landscape Connectivity	**Attribute Score**	+	+
	Stream Corridor Continuity	=	=
	Buffer Submetrics (below)	+	=
	% of AA with Buffer	=	=
	Average Buffer Width	=	=
	Buffer Condition	+	=
Hydrology	**Attribute Score**	+	=
	Water Source	=	=
	Channel Stability	+	=
	Hydrologic Connectivity	+	=
Physical Structure	**Attribute Score**	+	+
	Structural Patch Richness	+	+
	Topographic Complexity	+	=
Biotic Structure	**Attribute Score**	+	+
	PC: No. of plant layers	+	+
	PC: No. of codominants	+	=

CRAM Attributes	CRAM Metric and Submetrics	Year 3	Year 5
	PC: Percent Invasion	+	=
	Plant Community Submetric Score	+	+
	Horizontal Interspersion	+	=
	Vertical Biotic Structure	+	=
	Overall AA Score	**+**	**+**

Note: the indication of score movement (+/-/=) is in relation to the previous assessment period.

Table 6-12. Projected Seasonal Wetland CRAM Scores for Year 3 and Year 5 Post Installation and the Maximum Score

CRAM Attributes	CRAM Metric and Submetrics	Year 3	Year 5
Buffer and Landscape Connectivity	**Attribute Score**	+	+
	Aquatic Area Abundance	=	=
	Buffer Submetrics (below)	+	=
	% of AA with Buffer	=	=
	Average Buffer Width	=	=
	Buffer Condition	+	=
Hydrology	**Attribute Score**	+	=
	Water Source	=	=
	Hydroperiod	+	=
	Hydrologic Connectivity	+	=
Physical Structure	**Attribute Score**	+	+
	Structural Patch Richness	+	+
	Topographic Complexity	+	=
Biotic Structure	**Attribute Score**	+	+
	PC: No. of codominants	+	=
	PC: Percent Invasion	+	=
	Plant Community Submetric Score	+	+
	Horizontal Interspersion	+	=
	Plant Life Forms	+	+
	Overall AA Score	**+**	**+**

Note: the indication of score movement (+/-/=) is in relation to the previous assessment period.

Table 6-13. Projected Vernal Pool CRAM Scores for Year 3 and Year 5 Post Installation and the Maximum Score

CRAM Attributes	CRAM Metric and Submetrics	Year 3	Year 5
Buffer and Landscape Connectivity	**Attribute Score**	+	+
	Aquatic Area Abundance	=	=

CRAM Attributes	CRAM Metric and Submetrics	Year 3	Year 5
	Buffer Submetrics (below)	+	=
	% of AA with Buffer	=	=
	Average Buffer Width	=	=
	Buffer Condition	+	=
Hydrology	**Attribute Score**	**+**	**=**
	Water Source	=	=
	Hydroperiod	+	=
	Hydrologic Connectivity	+	=
Physical Structure	**Attribute Score**	**+**	**+**
	Structural Patch Richness	+	+
	Pool and Swale Density (for VP System)	+	=
	Topographic Complexity	+	=
Biotic Structure	**Attribute Score**	**+**	**+**
	Horizontal Interspersion and Zonation	+	+
	PC: No. of codominants	+	=
	PC: Percent Non-Native	+	=
	PC: Endemic Species Richness	+	+
	Plant Community Submetric Score	+	+
	Overall AA Score	**+**	**+**

Note: the indication of score movement (+/-/=) is in relation to the previous assessment period.

6.6.4 Channel and Floodplain Morphology

Permanent monitoring transects will be established throughout the site perpendicular to the primary channel at the Bank site following the methodology of Harrelson et al. (1994). These monitoring transects will be surveyed annually to document changes to the primary channel morphology as well as the overall floodplain. In the primary channel, a topographic cross-section will be collected at up to 10 permanent locations throughout the site, occurring approximately every 500 feet. Each transect will be surveyed using ground-based surveying equipment to capture and track channel morphology; elevations along the cross-section will be collected at intervals close enough to capture slope breaks and distinct morphological features within the floodplain, and along the channel sides and bottom.

In addition to the channel morphology transects, up to an additional five transects will be established throughout the floodplain to monitor overall topographic changes over time, including changes to the secondary channels and floodplain terraces. These five transects will correspond to five of the channel morphology transects. The exact location of the transects will be determined in Year 1 but approximate locations are displayed on Figure 6-1.

The location of each cross-section will be permanently marked in the field using metal t-posts (to easily find the general transect location) and with rebar driven vertically into the ground surface, capped with an appropriate cover (to establish known permanent elevations [permanent monuments or benchmarks] on each side of the transect). The permanent benchmarks for transect will be placed in a stable location above the active channel on the left and right banks (or terraces) of the channel. Transect endpoints (i.e., the permanent monuments) will be documented using a sub-meter GPS unit. At least six photographs will be taken at each transect. At a minimum these will include channel right taken from the left bank

permanent monument; channel left taken from the right bank permanent monument; channel center to the left bank; channel center to the right bank; channel center facing upstream; and channel center facing downstream.

In addition to the ten cross sections, a longitudinal profile will be surveyed throughout the length of the primary channel within the restoration site. The longitudinal profiles will extend the entire length of the Bank site (approximately 5,000 feet) and capture similar channel bed habitat units in the downstream and upstream locations (i.e., if the top of the reach starts at a riffle, the bottom of the reach will end at a riffle). The spacing between channel bed data points will vary depending on the length of the total longitudinal profile but will be at least 15 feet. A GPS line of the longitudinal profile will be recorded, and digital photographs will be taken in the upstream and downstream directions at various locations throughout the longitudinal profile.

Within the primary channel, bankfull width and depth measurements will be recorded to assess the hydraulic capacity of the primary channels. Specifically, a geomorphic bankfull or effective surface will be identified in the field. The geomorphic bankfull or effective surface is the surface that is inundated by the discharge that performs the most geomorphic work on a system—typically a flow that occurs every 1.5 to 2 years (Knighton 1998). This discharge, known as the "geomorphic bankfull discharge," is defined as that water discharged when stream water just begins to overflow into the active floodplain. The geomorphic bankfull or effective surface will be identified based on the methodology of Harrelson et al. (1994) and Hauer and Lamberti (1996) and, as part of the analysis, will include identification of debris lines, scour zones, and/or grade breaks on the streambank.

Substrate composition and embeddedness will also be determined at each of the ten transects. The objective of collecting channel bed substrate composition and embeddedness information is to observe a shift in bed material size-frequency distribution, which can be determined over time. The chosen size classes of interest include the D_{16}, the D_{25}, the D_{50}, the D_{75}, and the D_{84}. These size classes will be determined by calculating the percent finer and the cumulative percent finer for a given size class of bed material. Where active channel width is greater than 20 feet, pebble count methods based on the methodology of Bunte and Abt (2001) will be used to determine the substrate composition and embeddedness; where active channel width is less than 20 feet, a modified pebble count method based on the methodology of Wolman (1954) will be used.

6.6.5 Benthic Macroinvertebrate Monitoring

Benthic Macroinvertebrate (BMI) monitoring will include both BMI and Physical Habitat (PHAB) data collection using the methods described in the 2016 version of the Surface Water Ambient Monitoring Program's (SWAMP) *Standard Operating Procedures for the Collection of Field Data for Bioassessments of California Wadeable Streams: Benthic Macroinvertebrates, Algae, and Physical Habitat* (Ode et al. 2016). Algae will not be collected for this project per the permit requirements, which only mention the collection of BMI data.

BMI monitoring was conducted at three monitoring stations (i.e., sampling reaches) in spring of 2017 prior to project restoration activities at the Pre-Bank site (i.e., the baseline monitoring effort). A reference station (control sampling reach) was established upstream of the Pre-Bank and Bank sites (the "Upper" sampling reach; the second station was located within the Pre-Bank site (the "Middle" sampling reach), and third station was located downstream of the Pre-Bank and Bank sites (the "Lower" sampling reach). The reference station was defined as a station which shows minimally disturbed conditions, or the most natural conditions within the river.

BMI monitoring occurred at these locations in 2020 as well; the collected 2020 data at these three sampling reaches represents Year 1 monitoring data. An additional three sampling reaches were added in 2020: one within the Pre-Bank Site (the "PRE-BANK" sampling reach); one within the potential area for future restoration on Salt Creek (the "SALT_LOWER" sampling reach); and one downstream of the potential future restoration area (the "A_OTAY" sampling reach). The data collected at these three additional sampling reaches also represents Year 1 monitoring data, except for the Salt Creek sampling reach, which represents baseline (preconstruction) conditions for potential future restoration. Table 6-14 summarizes the six sampling reaches within the project area and they are also displayed on Figure 6-1.

Table 6-14. Bioassessment Sampling Reach Information

Station Code	Station Name	Type of Sampling Reach	First Year Sampled	2020 Monitoring Year	Date Sampled (in 2020)	Notes
910OTYLWR	Lower	Restoration reach	2017 (preconstruction)	Year 1	6/2/20	Downstream end of the Pre-Bank Restoration Site.
910OTYMDL	Middle	Restoration reach	2017 (preconstruction)	Year 1	6/3/20	Restored in 2018/2019; within Pre-Bank Restoration Site
910OTYUPR	Upper	Control reach	2017 (preconstruction)	Year 1	6/5/20	Upstream of the Pre-Bank Restoration Site
910OTYA	A_OTAY	Response reach	2020	Year 1	6/1/20	Downstream of the Pre-Bank Restoration Site
910OTYPBK	PRE-BANK	Restoration reach	2020	Year 1	6/3/20	Restored in 2018/2019; within Pre-Bank Restoration Site
910SLTLWR	SALT_LOWER	Potential future restoration reach	2020	(baseline)	6/4/20	Potential future restoration site

All future surveys will be performed during the appropriate index period for southern California streams (May – July). ICF will utilize a team of two biologists and a geomorphologist with training and expertise in PHAB and SWAMP protocols to conduct the BMI monitoring. All samples will be identified to Standard Taxonomic Effort (STE) Level II of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT). Chico ABL will be conducting the taxonomy and will be perform their internal QA/QC on the samples. Chico ABL will provide the list of taxa and metrics. The taxa list will be sent to the Moss Landing Marine Laboratory (Moss Landing) for calculation of the California Stream Condition Index (CSCI), which will also load the data into the California Environmental Data Exchange Network (CEDEN). A PHAB Index of Physical Integrity (IPI) will also be calculated by Moss Landing.

A summary of monitoring results and field procedures will be included in the annual monitoring report, along with a comparison of the CSCI and PHAB IPI scores between the 2017 (baseline) and 2020 (Year

1) conditions for Pre-Bank areas (and 2020 baseline results for the Bank mitigation areas). All future reporting efforts will compare the conditions at that time to those collected during the baseline conditions.

6.6.6 Groundwater Well Monitoring

Depth to groundwater will be monitored across the site using continuous data loggers that collect data at 5-minute intervals. The 4-inch developed wells were excavated across the floodplain with a sonic drill rig. Locations of seven existing groundwater wells and five new wells are displayed on Figure 6-1. Groundwater well data for the entire monitoring year will be analyzed to determine average, minimum, and maximum depth to groundwater and time of saturation. This will be included in each year's annual report. Additional details on groundwater monitoring and modeling can be found in the Hydrology and Hydraulics Report (Appendix J).

6.6.7 Jurisdictional Delineation

An updated jurisdictional delineation will be performed within the Bank in Year 3 and Year 5. The Bank will be evaluated for the presence of a definable channel and/or wetland vegetation, soils, and hydrology. The study area will be analyzed for potential wetlands using the methodology set forth in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) and the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a) or more current guidance. Lateral limits of non-wetland waters will be identified using field indicators (e.g., OHWM) (USACE 2008b). While in the field, potential jurisdictional features will be recorded onto a 100-foot-scale color aerial photograph using visible landmarks and mapped using a GPS unit with sub-meter accuracy. Vascular plants will be identified using The Jepson Manual: Vascular Plants of California (Baldwin et al. 2012) and The National Wetland Plant List (Lichvar et al. 2016) or current references.

6.6.8 Least Bell's Vireo Surveys

LBV populations and habitat will be monitored to detect changes in LBV territories, population size, and nest success.

6.6.8.1 LBV Population

LBV surveys will follow standard survey techniques recommended by the USFWS LBV survey guidelines (USFWS 2001) with eight protocol presence/absence surveys conducted at least 10 days apart. In addition, LBV Nest Monitoring will occur to document overall population dynamics including nest success and productivity throughout the breeding season. Vireo territories will be visited on a weekly to bi-weekly basis to monitor for evidence of breeding activities. Locations of adults, fledglings, and nests will be recorded and GPS point locations were collected during each visit to estimate territory use and size. Nests will be visited every 7 to 10 days, and the contents recorded. The presence or absence of Brown-headed Cowbird eggs will be noted, and if present, cowbird eggs will be removed. The presence of fledglings will be determined through direct observation of fledglings in the territory. Characteristics of nests, including height, host plant species, and host plant height, will be recorded after the young had fledged or the nest had failed. If a bird is actively foraging a GPS point will be collected at the limits of its foraging activity. If the bird was not actively foraging, only the initial location will be recorded. Observations of aggressive behavior between adjacent individuals will also be noted to enable patterns of territory size to be elucidated more clearly. These points will be plotted on a map to examine the area used by each individual bird (or pair of birds). The Reference Area upstream of the Pre-Bank will be included in the area surveyed for LBV. Estimated territories will be mapped each year that population surveys occur.

6.6.8.2 LBV Habitat Structure

The LBV habitat structure vegetation monitoring will be conducted in the floodplain of the Otay River in the Otay Mitigation Bank to document the development of LBV habitat. A total of 30 randomly placed cubes will be distributed across the area predicted to become LBV habitat following restoration (see Figure 6-1). The vegetation survey methodology will be consistent with the USGS Vegetation Handbook for LBVI at the San Luis Rey River Flood Control Project Area and the same as that used for baseline habitat structure surveys. Vegetation will be assessed using the "stacked-cube" method (Kus 1998), which consists of recording the percent cover of vegetation, by species, of 2-meters x 2-meters quadrats at 1-meter height intervals for the full height of stacked canopy. The average cover at each height interval will be compared to the baseline reference territory habitat structure at each height interval. The 90% confidence intervals must overlap for success to be achieved. LBV habitat structure will be monitored

starting in Year 3 to give the site time to develop, again in year 4, and in the Final Year of the Interim Management Period.

6.7 SAMPLING DESIGN AND STATISTICAL RIGOR

The monitoring program has been designed to maximize OLC's ability to characterize the site and detect change while minimizing costs. A statistical power analysis will be conducted to determine the appropriate number of vegetation transects needed to achieve 80% confidence with 10% precision around absolute native cover (Elzinga et al. 1998). Power, by definition, is the ability to find a statistically significant difference when the null hypothesis is in fact false; in other words, power is the ability to find a difference when a real difference exists (i.e., native cover is higher in Year 2 than Year 1). The power of a study is determined by three factors: the sample size, the alpha level, and the effect size. After Year 2, a power analysis using paired (permanent) data will be conducted to ensure 80% power is being achieved, alpha of 0.1, and a minimum detectable change of 10% native cover. Using permanent sampling units allows for higher power with fewer samples because variability in location is removed, as the sampling units are in the same place year after year. If 80% power is not being achieved, additional transects may be added.

Additionally, 90% confidence intervals will be calculated for each quantitative monitoring event around performance standards (i.e., native and nonnative cover) for each restoration category. These confidence intervals will be compared to vegetation success standards to determine if success is being achieved. For native cover, the entire confidence interval must be higher than the success standard for success to be achieved. For nonnative cover, the entire confidence interval must be less than the success standard for success to be achieved.

A sample size/power analysis will be conducted for the restoration categories that have multiple AAs to ensure adequate sampling for the CRAM analysis. The procedures described in the latest Technical Bulletin (CWMW 2019) will be used to determine adequate sample size.

6.8 REPORTING

Following each qualitative site visit, the Restoration Contractor will prepare a short memorandum.

These memoranda will focus on issues such as replacements of dead or diseased plants, weeding, irrigation scheduling, trash removal, and pest control. In addition, the Restoration Contractor will coordinate with the Installation/Maintenance Contractor for the following:

- Schedule upcoming maintenance based on the maintenance needs and priorities at each of the restoration areas.
- Walk the restoration areas to identify any problem issues, including erosion issues, irrigation damage, occurrence of invasive nonnative species, and potential human impacts such as dirt bike usage and vandalism.
- Provide support to field maintenance crew in the identification of common native and nonnative species.
- Determine an irrigation schedule (for a given period of the plan) based on seasonal and annual variation in rainfall, native plant water requirements, and site-specific conditions (e.g., soil condition and slope).

Annual monitoring reports will be submitted according to Section IX.B of the BEI to the Signatory Agencies by November 15th of each year during the Interim Management Period. The reporting period will cover July 16 – July 15. The annual reports will include all data forms, documentation, and a discussion of the Bank's progress toward meeting Performance Standards and any deficiencies in attaining and maintaining Performance Standards and any Remedial Action proposed, approved, or performed. If Remedial Action has been completed, the annual report shall also evaluate the effectiveness of that action. Annual reports will also include:

- The time period covered, i.e. the dates "from" and "to."
- A description of each management task conducted, the dollar amount expended, and time required.
- The total dollar amount expended for management tasks.
- A description of the management and maintenance activities proposed for the next reporting year.
- A description of the overall condition of the Bank, including photos documenting the status of the Bank Property and a map documenting the location of the photo points.

In addition to the Annual Report, an Adaptive Management Annual Memorandum will be prepared by September 15th of each year. This memorandum will include the initial results of quantitative vegetation monitoring as well as qualitative monitoring results. The timing of the Adaptive Management Memo will provide adequate time for an agency site visit as well as implementation of time sensitive adaptive management recommendations that may not be possible after the submittal of the full Annual Report in November.

CHAPTER 7. ADAPTIVE MANAGEMENT PLAN

Pursuant to 33 CFR 332.7(c) a compensatory mitigation project must include an adaptive management strategy to account for unforeseen problems in the implementation, short-term development, and overall success of the mitigation program. The Bank Sponsor will ensure that an experienced Restoration Contractor who is familiar with the mitigation design and goals is on site during implementation and maintenance and monitoring of the Bank. The most critical time for adaptive management will be during implementation, which will include initial clearing and grubbing activities through grading and planting activities. Correcting problems at this early stage should reduce potential problems during development. During implementation, the Restoration Contractor will be responsible for early detection of problems with the proposed site elevations and contours and will adapt the plan as needed with engineers and construction crews. The Restoration Contractor will be responsible for the specified native plants being installed in the proper location and densities and for adjusting those specifications as needed to accommodate site conditions or other issues such as a species being unavailable. The Restoration Contractor will train the planting crews on the proper methodology to plant each container type correct problems as needed.

Interim performance standards are crucial to ensuring mitigation performance follows a trajectory to attain final mitigation success. Although not anticipated, if these interim performance standards are not achieved during annual monitoring, the Restoration Contractor will work with the mitigation team and Signatory Agencies if these problems require substantial action. A substantial action needing Signatory Agency coordination could involve channel instability, large-scale infestation by invasive, nonnative plants and animals, a need to replant more than 20% of the site to improve species cover or diversity, supplemental soil amendments, or installation of new or replacement fencing and signage at new locations or with a new design. The Bank Sponsor will prepare a recommendation and gain Signatory Agency approval prior to implementation. Minor problems, such as trash, vandalism, isolated instances of plant mortality, or small-scale weed or pest infestations, will be rectified as they are discovered during routine site monitoring and maintenance and included in annual reporting.

If the Bank has not met the Performance Standards at the end of year 5, and they are considered appropriate and reasonable, maintenance and monitoring obligations will continue until Performance Standards are achieved or alternative contingency measures will be negotiated with Signatory Agencies.

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CHAPTER 8. TRADITIONAL ECOLOGICAL KNOWLEDGE

The term Traditional Ecological Knowledge (TEK) describes a holistic and expansive approach to land management and restoration, acknowledging the role of individuals within the local ecosystem and the long history of native peoples in the landscape. It is also an effective engagement tool for the inclusion of local tribal communities in creating resilient restoration designs while also restoring lost/stolen uses to the tribes themselves. The following narrative provides examples for three distinct phases of the project (1) design and implementation, (2) Interim Management Period, and (3) Long-Term Management.

8.1.1 TEK and Design – Implementation

As part of planning and implementation it is expected that the Bank will benefit from the employment of traditional ecological knowledge in seed collection, plant propagation, and weeding – components of utmost importance in promoting the establishment of native plant communities that support local wildlife. The Bank is an opportunity to protect Native American cultural values by adding culturally-significant species (Table 8-1) to the restoration design and traditional management practices to achieve ecological resilience. For example, willow have a multitude of uses for Native American people including medicinal and technology. Willow branches, in particular sandbar willow (*Salix exigua*) are straight and flexible providing excellent quality raw material for arrow shafts and basketry. Larger willow species have been used for their leaves and outer bark to make shelter cover and clothing. Willow is a flagship species of the proposed plant palette assemblage for the restoration of riparian habitats of the Otay Mitigation Bank. The palette also includes a variety of native rushes and sedges, which have historically been used by local Kumeyaay for food, basketry, watercraft building, and jewelry making. These riparian plant species can be propagated by segmentation of branches or root stock – planting methods strongly practiced by the Kumeyaay Nation. In the upland, sagebrush, white sage, buckwheat, laurel sumac, yucca and prickly pear are examples of plant species widely used by Kumeyaay people, whose husbandry knowledge includes sustainable harvest, processing, storage, and seed preparation. Spiny rush, California desert thorn (*Lycium californicum*) and burro brush (*Ambrosia monogyra*) are three examples of plant species traditionally used by the Kumeyaay people that have become threatened. Additionally, another culturally significant plant to the Kumeyaay, redberry (*Rhamnus crocea*), is a known host for Hermes copper butterfly (*Lycaena hermes*) – a San Diego and Baja California endemic butterfly, which is listed as threatened under the FESA. These plant species currently occur with the Otay Mitigation Bank. TEK will support the conservation of these species within the Bank. During installation, TEK informs soil preparation and plant installation in certain areas of the Project including plant placement as well as densities and total aerial cover. The adaptive processes culturally transmitted through generations of local members of the Kumeyaay Nation would be employed to support the Project goals in reestablishing native plant cover and conducting overall management and monitoring for the project. These traditional methods would be incorporated into the Project implementation to improve native plant cover and distribution, while conserving valuable aspects of local Kumeyaay culture.

Table 8-1. Culturally-significant Kumeyaay Plant Species in the Otay River Valley and Their Traditional Uses

Kumeyaay Name	Common Name	Scientific Name	Propagation Methods	Traditional Uses
Wetland/Riparian				
	Southern cattail, common cattail	*Typha dominguensis, T. latifolia*	Plant division, seed	Young shoots harvested for food. Leaves used for thatch in the construction of ‘ewaa (thatched home)
	Tule, bulrush	*Schoenoplectus californicus, S. americanus*	Plant division, seed	Young shoots harvested for food. Leaves used to produce boats for fishing, ropes, basketry and to cover the ‘ewaa (thatched home).
	Yerba mansa			Applied externally for sores and cuts, and internally for rheumatism, coughs, and kidney problems. Root carried in a pouch for luck.
	Saltgrass	*Distichlis spicata*	Plant division, seed	Plant boiled to make mouthwash to treat ached and sores.
	Heliotrope	*Heliotropium curassavicum*	Seed	Boiled roots to make a tea used to regulate menstruation.
Psilj	Spiny rush [1]	*Juncus acutus* ssp. *leopoldii*	Seed	Dried leaves used in basketry.
Ayau, a’yao	Arroyo willow, Black willow	*Salix lasiolepsis, S. goodingii*	Seed, cuttings	Flexible branches used to structure homes and baskets. Bark pounded into flexible sheets for clothing and lashing material. Leaves were brewed into a tea to reduce pain and fever.
	Mulefat	*Baccharis salicifolia*	Seed, cuttings	Used for thatching material and to make box traps for quail.
Upland				
Huutat, huusill	Lemonade berry	*Rhus integrifolia*	Seed	Berries eaten fresh or used to make tea
Pellytaay	White sage	*Salvia apiana*	Seed	Ground seed used to make pinole. Leaves used to remedy illness and as a disinfectant.
Telku	Barrel cactus [1]	*Ferocactus viridescens*	Plant segmentation	Flesh, flower buds, fruits and seeds used for food. Flesh used for emergency water. Spines used as fishhooks.
Kwa’ak	California wild rose	*Rosa californica*	Seed	Petals and rose hips used in food and tea.
Hamill	Flat Top Buckwheat	*Eriogonum fasciculatum*	Seed	Boiled flowers used as medicine to alleviate stomach problems.

Kumeyaay Name	Common Name	Scientific Name	Propagation Methods	Traditional Uses
Kepally	Blue elderberry	*Sambucus nigra*	Seed	Bark used to help heal open wounds and sores and used to produce a skirt worn by women. Branches are used in ceremonial blessings. Boiled berries are eaten. Blossoms used in tea that alleviates fever.
	California desert thorn [1]	*Lycium californicum*	Seed	Berries dried and either boiled or found into flour and mixed with water for food. Berries also eaten fresh.
Samaall kwsiyaay	Desert broom	*Baccharis sarothroides*	Seed	Branches used to build ‘ewaa (thatched homes). Infusion made when struggling with coughs or stomachache.
Ha’anya yul	Black sage	*Salvia melifera*	Seed	Ground seed mixed with water to produce food, but also eaten raw. Leave and stem boiled to create a bathing water to alleviate the flu, arthritis, and rheumatism.
Hosiil	Toyon	*Heteromeles arbutifolia*	Seed	Pounded leaves used to produce a pulp to wash sores. Fruit consumed as food.
Inyekhaay	Coffee berry	*Frangula californica*	Seed	Boiled bark used to treat poison oak rashes. Infused berries taken as a tonic.
Kwechash	California sage brush	*Artemisia californica*	Seed	Sacred plant used in puberty ceremonies for women. Ground leaves used to treat ant bites. Leaves are also dried out and smoked. Fumes used as means to battle upper respiratory tract infections.
	Red bush monkey flower	*Mimulus aurantiacus*	Seed	Primarily used as medicine; poultices made for burns and wounds to treatments for cold, coughs, stomach disorders and heart ailments.
‘Epshash	Bladderpod	*Peritoma arborea*	Seed	Fruit and flowers used for food.
Nahekwi	California brittlebush	*Encelia californica*	Seed	Blossoms, leaves, stems and gum used to produce medicine to treat toothaches and chest pains.
Etat’kwilly	Coastal cholla	*Cylindropuntia prolifera*	Plant segmentation	Seeds used to produce pinole. Fruits eaten raw, while branches are boiled.
Iy uka, wakaa	Burro brush	*Ambrosia monogyra*	Seed	Dried leaves used for tinder and fire drill. Remedy for foul-smelling feet.
Kushu	Jojoba	*Simmondsai chinensis*	Seed	Brewed ground seeds used when struggling with indigestion.
Ektii	Laurel sumac	*Malosma laurina*	Seed	Sacred plant featured in women’s puberty ceremony. Also used in a bathing ritual that occurs during childbirth. Ground seeds turned into a flour.
Kwaayull	Deergrass	*Mulenbergia rigens*	Seed, bunch division	Scraped flower stalk used in basketry.

Kumeyaay Name	Common Name	Scientific Name	Propagation Methods	Traditional Uses
	Redberry	*Rhamnus crocea* [2]		
Sa'maall	Yerba santa	*Eriodictyon crassifolium*	Seed	Boiled leaves used to make tea to alleviate a cold or cough.
Millykumaay	Chalk dudleya	*Dudleya pulverulenta*	Seed	Leaves are eaten or just chewed. A decotion of roots is made to treat asthma. Seeds used in ceremony.
	Lady fingers dudleya	*Dudleya edulis*	Seed	Leaves eaten raw.
Jakulh, aa'aa	Chapparal yucca	*Hesperoyucca whipplei*	Seed	Base, stalk, and lowers used for food.
'Ehpaa	Prickly pear	*Opuntia sp.*	Plant segmentation	Fruits, seeds and leave pads used as food.

[1] Sensitive plant species

[2] Hermes copper butterfly host plant

Sources:

The Nature Collective at https://thenaturecollective.org/plant-guide

The Kumeyaay Garden at https://www.sandiego.edu/kumeyaay-garden/

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8.1.2 TEK and Interim Management Period

During the Interim Management Period, Kumeyaay College students and tribal representatives would have opportunities to develop their learning in scientific ecological knowledge through an apprenticeship programs and use of the site for teaching. Restoration site maintenance activities would include non-native plant removal and control, native plant seed collection and preparation, native plant propagation via cuttings and seed, and plant installation to improve native plant cover. These activities would be guided by the results of a monitoring program, where students in association with experienced field staff and tribal members would perform vegetation data collection and vegetation data analysis. A scholarship program would be available to provide students with a means to publish and present their scientific work at ecological restoration conferences. As part of this program Kumeyaay students would have the opportunity to educate the local community about their work restoring the Otay River Valley and the differences between modern habitat restoration methods and local tribal traditional ecological knowledge. This local workshop would be hosted by the project in the final year of the Interim Management Period.

8.1.3 TEK and Long-Term Management

This is discussed further in the Long-Term Management Plan (Exhibit D-3 of BEI).

CHAPTER 9. FINANCIAL ASSURANCES

Pursuant to 33 CFR 332.3(n)(2) and Section VI of the BEI , the Bank Sponsor is to provide financial assurances in the form of a letter of credit or other approved mechanism providing contingency funding in the event that the Bank project is not successfully implemented. The Bank Sponsor would provide three separate financial assurances: a Construction Security, Performance Security, and Interim Management Security. Construction costs and maintenance and monitoring costs used to calculate the three financial assurances are included as Exhibits C-2, C-3, and D-1 of the BEI. The Construction Security will be provided prior to the first credit release, and the Performance Security and Interim Management Security will be provided concurrent with the transfer of the first credit.

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CHAPTER 10. COMPLETION OF INTERIM MANAGEMENT PERIOD

10.1 COMPLETION OF PERFORMANCE STANDARDS

Upon completion of the Interim Management Period and meeting all final performance standards, the Bank Sponsor will submit an annual report documenting completion of the Final Performance Standards. The Bank Sponsor will request sign-off from the Signatory Agencies and a site visit will be conducted, if deemed necessary. Upon sign-off, the Bank will continue to be maintained in accordance with the Long-Term Management Plan and until the third anniversary of the full funding of the Endowment Amount has occurred if not congruent with signoff of the site. The Bank will then officially enter into Long-term Management.

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Exhibit C-2a

Construction Security Analysis and Schedule

Exhibit C-2a: Construction Security Analysis and Schedule

Prior to the first Credit Release, the Bank Sponsor shall furnish to the USACE a Construction Security in the amount of a reasonable third-party estimate or contract to establish, restore, or enhance Waters of the U.S., Waters of the State, Covered Habitat and Covered Species on the Bank Property in accordance with the Development and Interim Management Plan. The Construction Security shall be in the form of irrevocable standby letter of credit. The Bank Sponsor shall ensure the Construction Security shall remain available in the full amount, until canceled, in accordance with Section VIII.E.1.a. of the BEI. If all construction and planting activities are completed in accordance with the Development and Interim Management Plan prior to the Bank Establishment Date, then a Construction Security is not required. The USACE will have the right to draw on the Construction Security in accordance with Section VIII.E.1.a of the BEI. If at any time during the life of the security the USACE draws upon the Construction Security, the Bank Sponsor will replenish the Construction Security as outlined in Section VIII.E.1.a. of the BEI. The letter of credit will be canceled upon completion of the activities covered by the letter of credit pursuant to the relevant requirements outlined in Section VIII.E.1.a. of the BEI. Attached (C-2b) is a third-party estimate of the construction costs associated with the Bank.

Exhibit C-2b

Construction 3rd Party Cost and Assurance: Preliminary Costs Budget Summary

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK
CITY OF CHULA VISTA

PROJECT:	Otay Mitigation Bank	ACRES:	86.8
CLIENT:	HomeFed Corporation	JOB#:	9999-2892

	COST PER ACRE	TOTAL
IMPROVEMENTS.....	$91,948	$7,981,059
CONSULTANTS.....	$0	$0
FEES/BONDS.....	$6,648	$577,040
T O T A L.	$98,596	$8,558,099

NOTE: This estimate is based on the preliminary 150 scale concept plans ICF as of 7/27/21.

** These quantities and costs are from the ICF Estimate.

This estimate assumes no phased grading at this time. It assumes the grading will go from Existing conditions to Ultimate design.

****This document is awaiting updated from the third-party consultation. A revised copy will be submitted upon receipt. Although the plan set has been updated since this original estimate, any differences with grading, invasive removal, soil quantity, and changes in response to OC comments will be offset by the channel crossing design changes. The updated design significantly reduced the number, footprint, and approach for channel crossings. Cost savings associated with the channel crossing design change are $1M+ and will more than cover any revisions to other aspects of the cost.****

Preliminary Draft

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San Diego, CA 92121
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Prepared by: Terry Allbritain
dln# 1086

Revised: September 16, 2021
Date: September 8, 2021



Mitigation Property View from 9,000 '

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

GRADING & SITE PREPARATION.	$2,839,772
SLOPE & EROSION CONTROL	$414,627
SANITARY SEWERS	$5,500
STORM DRAINAGE.	$1,725,000
WATER DISTRIBUTION	$85,100
ROADWAY IMPROVEMENTS	$714,380
UTILITIES	$0
AMENITIES & SPECIAL CONSTRUCTION.	$2,196,679
CONSULTANTS	$0
MAINTENANCE	$0
BONDS/FEES (Due Before Final Map Recordation)	$306,250
FEES (Due at Building Permit)	270,791
G R A N D T O T A L	$8,558,099
T O T A L COST PER ACRE	$ 98,596

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

GRADING & SITE PREPARATION

a)	Clear & Grub	86.8	AC@$	3,000	=	$260,400
**	Staging and Site Access	1.0	LS@$	10,000	=	$10,000
	Demolition/Removal					
**	Trees	168	EA@$	500	=	$84,000
**	Telephone Poles	21	EA@$	300	=	$6,300
	Relocation/Restoration					
	Mobilization	1	LS@$	125,000	=	$125,000
a)	Mass Excavation	142,274	CY@$	4.00	=	$569,096
**	Sorting and Stockpiling Material (ESM)	4,500	CY@$	90.00	=	$405,000
**	High Visibility Fence	600	LF@$	10.00	=	$6,000
a)	Vernal Pool Excavation (Allocation)	23	EA@$	5,000	=	$115,000
a)	Export		CY@$	6.00	=	$0
	Fine Grading	3,781,008	SF@$	0.20	=	$756,202
	Construction Water, Dust, Compaction	147,397	CY@$	0.20	=	$29,479
	SUBTOTAL					$2,366,477
	CONTINGENCY	20%				$473,295

TOTAL GRADING & SITE PREPARATION. $2,839,772

COST PER ACRE..... $ 32,716

a) The Grading concept as of July 2021, shows a Mass Grading design then a fine grading plan that would start after mass grading. This quantity is an Ultimate design assuming the grading operation is not phased, but completed from current existing conditions to the Ultimate grading with the created streambeds. The current Ultimate grading has an imbalance of cut and fill. The current plans show cut: 142,274 cy and fill: 92,330 cy. It was assumed for this estimate that the site will balance onsite by raising the mound designs. There will probably shrinkage on the cut quantity, but without a Soils Report it is impossible to know how much.

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

SLOPE & EROSION CONTROL

**	Fire Prevention and Dust Abatement	1	LS@$	60,000.00	=	$60,000
	Silt Fence	20,600	LF@$	3.25	=	$66,950
	SWPP Implementation	86.8	AC@$	2,880	=	$249,984
	SUBTOTAL					$376,934
	CONTINGENCY	10%				$37,693
	TOTAL SLOPE & EROSION CONTROL					**$414,627**
	COST PER ACRE					$4,777

SANITARY SEWERS

e)	Temporary Facilities	1	LS@$	5,000	=	$5,000
	SUBTOTAL					$5,000
	CONTINGENCY	10%				$500
	TOTAL SANITARY SEWERS.....					**$5,500**
	COST PER ACRE.....					$63

e) Porta-Potties for the site.

STORM DRAINAGE

**	Major Vented at-grade Crossing	5	EA@$	150,000	=	$750,000
**	Minor Vented at-grade Crossing	15	EA@$	50,000	=	$750,000
	Access Road		SF@$	4.50	=	$0
	SUBTOTAL					$1,500,000
	CONTINGENCY	15%				$225,000
	TOTAL STORM DRAINAGE.....					**$1,725,000**
	COST PER ACRE.....					$19,873

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

WATER DISTRIBUTION

f)	1 1/2" Irrigation Service	3	EA@$	8,000	=	$24,000
g)	Tie Into Existing & Bring to Site Allo.	1	LS@$	50,000	=	$50,000
	SUBTOTAL					$74,000
	CONTINGENCY	10%				$11,100
	TOTAL WATER DISTRIBUTION.....					**$85,100**
	COST PER ACRE.....					$980

f) It is not clear if we are connecting to a water main or if we can use ground water.
g) It is not clear where the water source will be for this site

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

ROADWAY IMPROVEMENTS

New Multi Use Trail	7,720	LF@$	28.00 =	$216,160
New Secondary Trail	5,497	LF@$	8.00 =	$43,976
Improve Existing Multi Use Trail	2,144	LF@$	28.00 =	$60,032
Improve Existing Secondary Trail	4,552	LF@$	8.00 =	$36,416
Improve Existing Utility Trail	3,196	LF@$	28.00 =	$89,488
New Utility Trail	2,201	LF@$	28.00 =	$61,628
Subgrade Preparation	25,310	LF@$	5.60 =	$141,736
SUBTOTAL				$649,436
CONTINGENCY	10%			$64,944

TOTAL ROADWAY IMPROVEMENT..... $714,380

COST PER ACRE..... $8,230

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

UTILITIES

UNDERGROUND POWER		
SUBTOTAL		$0
CONTINGENCY	10%	$0
TOTAL UTILITIES		**$0**
COST PER ACRE		$0

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

AMENITIES & SPECIAL CONSTRUCTION

**	Puncheons at Minor Drainage Crossing	500	SF@$	125.00	=	$62,500
**	Split Rail Fence	3,500	LF@$	25.00	=	$87,500
	Barrier Boulders (Trails)	39	EA@$	1,500	=	$58,500
**	Trail Signage	17	EA@$	500.00	=	$8,500
**	SDG&E Utility Gate (16' Wide)	3	EA@$	7,100	=	$21,300
**	Agricultural Gate and Post/Wire Fence	6	EA@$	900	=	$5,400
**	Nature Trail Construction Cleanup	1	LS@$	10,000	=	$10,000
**	Plant Salvage	1	LS@$	50,000	=	$50,000
**	Seeding	1	LS@$	20,000	=	$20,000
**	Cuttings	21,000	EA@$	5	=	$105,000
**	Rose pots	995	EA@$	7	=	$6,965
**	1-Gal Container Plants	70,000	EA@$	10	=	$700,000
**	5-Gal Container Plants	3,500	EA@$	40	=	$140,000
**	Irrigation Design	1	LS@$	10,000	=	$10,000
**	Irrigation System Installed	3,049,200	SF@$	0.23	=	$701,316
**	Soil Inoculum (Vernal Pools)	1	LS@$	10,000	=	$10,000
	SUBTOTAL					$1,996,981
	CONTINGENCY	10%				$199,698

TOTAL AMENITIES & SPECIAL CONSTRUCTION..... $2,196,679

COST PER ACRE..... $25,307

a) It is recommended that a landscape architect be consulted.
These costs are provided for budgeting purposes only.

MAINTENANCE

f)	Irrigation Maintenance (5 years)		SF@$	0.15 =	$0
	SUBTOTAL				$0
	CONTINGENCY	10%			$0
	TOTAL MAINTENANCE.....				**$0**
	COST PER ACRE.....				$0

f) The 5 year Maintenance and Monitoring will be contracted separately, and will not be part of the calculation

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

CONSULTANT FEES & SERVICES

	SUBTOTAL		$0
	CONTINGENCY	10%	$0
c)	**TOTAL CONSULTANT FEES & SERVICES.....**		**$0**
	COST PER ACRE.....		$0

c) Not included in Bond Estimate

PRELIMINARY COSTS BUDGET SUMMARY
OTAY MITIGATION BANK

CITY OF CHULA VISTA

BONDS/FEES (Paid before "B" Final Map Recordation)				
BONDS				
Performance 1.5%	$7,981,059	@	1.00% =	$79,811
Labor & Materials .5%	$7,981,059	@	0.50% =	$39,905
Warranty Bond .25%	$7,981,059	@	0.25% =	$19,953
PLAN CHECK & INSPECTION				
Grading & Landscaping Inspection 30%	851,932	LS@	4.00% =	$34,077
Street, Storm, Sewer PC & Inspection	$ 2,444,880	LS@	5.00% =	$122,244
Water Plan Check & Inspection	1	LS@$	4,255 =	$4,255
SUBTOTAL				$300,245
CONTINGENCY	5.00%			$6,005
TOTAL BONDS/FEES (At Final Map)				**$306,250**
COST PER ACRE				$3,528
FEES (Paid at Building Permit)				
Otay & SDCWA 1.5" Meter Cap. Fee	3	EA@$	88,494 =	$265,481
SUBTOTAL				$265,481
CONTINGENCY	5.00%			$5,310
TOTAL BONDS/FEES				**$270,791**
COST PER ACRE				$3,120

Exhibit C-3

Performance Security Analysis and Schedule

Exhibit C-3: Performance Security Analysis and Schedule

Concurrent with the Sale of the first Credit, Bank Sponsor shall furnish to the USACE a Performance Security in the amount of 20 percent of the Construction Security in the amount specified in Exhibit C-2. The Performance Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure the Performance Security shall remain available in the full amount, until canceled, in accordance with Section VIII.E.1.b of the BEI. The USACE will have the right to draw on the Performance Security in accordance with Section VIII.E.1.b of the BEI. If at any time during the life of the Bank the USACE draws upon the Performance Security, the Bank Sponsor will replenish the Performance Security as outlined Section VIII.E.1.b of the BEI. The Performance Security will be cancelled upon completion of the requirements of Section VIII.E.1.b of the BEI.

As shown in Exhibit C-2, the Construction Security = $8,558,099.

Therefore, the Performance Security = $1,711,619 (20 percent of the Construction Security).

****This third-party cost estimate is being updated from the third-party consultation. A revised copy will be submitted upon receipt. If the updated cost is greater than the original than the construction security estimate will be updated. Although the plan set has been updated since this original estimate, any differences with grading, invasive removal, soil quantity, and changes in response to OC comments will be offset by the channel crossing design changes. The updated design significantly reduced the number, footprint, and approach for channel crossing. Cost savings associated with the channel crossing design change are $1M+ and will more than cover any revisions to other aspects of the cost.****

Exhibit C-4

Interim Management Security Analysis and Schedule

Exhibit C-4: Interim Management Security Analysis and Schedule

Concurrent with the Sale of the first Credit, Bank Sponsor shall furnish to the USACE the Interim Management Security. The amount of the Interim Management Security shall be equal to the estimated cost to implement the Interim Management during 3 years of the Interim Management Period. The Interim Management Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure the Interim Management Security shall remain available in the full amount, until canceled, in accordance with Section VIII.E.1.c of the BEI.

The annual costs during the Interim Management Period are $730,263. Over 3 years this totals $2,190,788. The Bank Sponsor will provide an irrevocable standby letter of credit in the total sum of $2,190,788.

Interim Management Category	Task Description	Unit	Unit Cost	Total Cost	Assumptions/Frequency
Project Management and Coordination	General Project Management	Annually	$ 20,000	**$ 160,000**	Annually for 5 years + 3 (if needed*)
	Financial Tracking	Annually	$ 15,000	**$ 120,000**	
	Drone Use and Web Mapping Platform	Annually	$ 15,000	**$ 120,000**	
	Meetings, Coordination, Education and Outreach	Annually	$ 20,000	**$ 160,000**	
	Mitigation Bank Admin	Annually	$ 10,000	**$ 80,000**	
Incidental Costs	Car rentals, travel, project supplies, etc.	Annually	$ 20,000	**$ 160,000**	Annually for 5 years + 3 (if needed*)
Maintenance	Year 1	Annually	$ 640,000	**$ 640,000**	Site maintenance including weed control, debris and trash removal, , , irrigation repair, signage replacement, supplemental planting, etc (included activities are found in Section 6.1 of Development and Interim Management Plan)
	Year 2	Annually	$ 575,000	**$ 575,000**	
	Year 3	Annually	$ 535,000	**$ 535,000**	
	Year 4	Annually	$ 400,000	**$ 400,000**	
	Year 5	Annually	$ 350,000	**$ 350,000**	
	Year 6 (if needed*)	Annually	$ 125,000	**$ 125,000**	
	Year 7 (if needed*)	Annually	$ 100,000	**$ 100,000**	
	Year 8 (if needed*)	Annually	$ 75,000	**$ 75,000**	
Qualitative Monitoring & Reporting	Implementation	Once	$ 75,000	**$ 75,000**	During Implementation (included activities are found in Section 6.4 of Development and Interim Management Plan)
	Year 1	Annually	$ 85,000	**$ 85,000**	Monthly monitoring and reporting (included activities are found in Section 6.5 of Development and Interim Management Plan)
	Year 2	Annually	$ 85,000	**$ 85,000**	
	Year 3	Annually	$ 70,000	**$ 70,000**	Quarterly monitoring and reporting (included activities are found in Section 6.5 of Development and Interim Management Plan)
	Year 4	Annually	$ 70,000	**$ 70,000**	
	Year 5	Annually	$ 70,000	**$ 70,000**	
	Year 6 (if needed*)	Annually	$ 60,000	**$ 60,000**	
	Year 7 (if needed*)	Annually	$ 50,000	$ 50,000	
	Year 8 (if needed*)	Annually	$ 50,000	$ 50,000	
Quantitative Monitoring & Reporting	Vegetation	Annually	$ 30,000	**$ 180,000**	Year 2, Year 4, and Final Year
	CRAM	Annually	$ 20,000	**$ 150,000**	Year 1, Year 3, and Final Year
	Geomorphology	Annually	$ 40,000	**$ 195,000**	Year 2, Year 4, and Final Year
	Jurisdictional Delineation	Annually	$ 15,000	**$ 100,000**	Year 4 and Final Year

Interim Management Category	Task Description	Unit	Unit Cost	Total Cost	Assumptions/Frequency
	Macrobenthic Surveys	Annually	$ 33,333	**$ 100,000**	Years 2, Year 4, and Final Year
	Vernal Pool Floral Surveys	Annually	$ 15,000	**$ 45,000**	Year 2, Year 4, and Final Year
	Vernal Pool Hydrology Surveys	Annually	$ 20,000	**$ 75,000**	Year 1, Year 3, and Final Year
	LBV Protocol Surveys	Annually	$ 28,200	**$ 141,000**	Surveys for 5 years
	LBV Habitat Structure	Annually	$ 30,000	**$ 150,000**	Year 3, Year 4, and Final Year
	Annual Reporting	Annually	$ 45,000	**$ 360,000**	Annually for 5 years + 3 (if needed*)
Adaptive Management/ Contingency	10%	NA	NA	**$ 531,100**	
			Total Interim Management Cost	**$ 5,842,100**	
			Annual Average	$ 730,263	
			3-Year Total	$ 2,190,788	

*Additional monitoring years, beyond the traditional 5-years, may be needed if the Bank is not meeting project performance standards or has not experienced a significant hydrologic event as defined in the Development and Interim Management Plan.

ATTACHMENT 4: RESPONSE TO COMMENTS

Comment Letter A1: U.S. Fish and Wildlife Service & California Department of Fish and Wildlife, May 5, 2022

Comment#	Comment Text	Response
A1-1	The U.S. Fish and Wildlife Service (Service) and California Department of Fish and Wildlife (Department), collectively referred to as the Wildlife Agencies, have reviewed the draft Mitigated Negative Declaration (MND) for the proposed Otay Trails & Mitigation Bank Expansion (Project) received on April 6, 2022. The project details referenced here are based on information provided in those documents and through prior meetings and correspondence between the Wildlife Agencies, City of Chula Vista (City), and representatives of Home Fed Otay Land II, Limited Liability Corporation (project proponent).	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-2	The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Federal Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq*.), including habitat conservation plans (HCP) developed under section 10(a)(l)(B) of the Act. The Department is a Trustee Agency with jurisdiction over natural resources affected by the project [California Environmental Quality Act (CEQA) Guidelines §15386] and is a Responsible Agency under CEQA Guidelines Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA; Fish and Game Code §2050 et seq.) and Fish and Game Code Section 1600 et seq. The Department also administers the Natural Community Conservation Planning (NCCP) Program, a California regional habitat conservation planning program. The City participates in the NCCP and HCP programs by implementing the approved Chula Vista Multiple Species Conservation Program (MSCP) Subarea Plan (SAP).	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-3	The project area is located within the floodplain of the Otay River main channel, approximately 1.2 miles downstream of Savage Dam and the Lower Otay Reservoir. The 233-acre Project site encompasses two parcels owned by the City (eastern portion of the site) and three parcels owned by the project proponent (western portion of the site). All parcels are located	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.

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	within the Otay Ranch Preserve (Preserve) and designated as 100 percent Conservation Area per the City's SAP. The City and the County of San Diego are the Preserve Owner/Manager of the Otay Ranch Preserve and responsible for long-term management in accordance with the Otay Ranch Resource Management Plan.	
A1-4	The proposed Project includes an expansion of the 2016 Otay River Restoration Project mitigation bank (Original Mitigation Bank) to 220 acres (proposed Bank) and modification of the existing trail network within the project area consistent with the City of Chula Vista Greenbelt and Otay Valley Regional Park trail plans. Construction activities involve the removal of invasive plants and grading of the channel and floodplain areas to remove remnants of past mining activities (e.g., spoil piles, berms, and pits) and to re-establish the Otay River mainstem and create secondary flow channels and a floodplain terrace. Trail modification involves recontouring of existing trails/roads, construction of new trails, gravel placement, armoring stream crossings, strategic fencing and boulder placement, and installing signs and educational kiosks. In addition, almost 2 miles of trails would be closed and reclaimed, including redundant trails and shoulders of wider trails. Implementation of the Project would extend over approximately 24 weeks and occur between September and February, followed by a minimum 5-year maintenance, monitoring, and reporting phase.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-5	As you are aware, the proposed Bank is currently under review by an Inter-agency Review Team (IRT). The IRT for the proposed Bank includes the United Stated Army Corps of Engineers, the Service, the Department, the Environmental Protection Agency, and the Regional Water Quality Control Board. As part of the process, a draft Bank Enabling Instrument (BEI) containing a Development and Interim Management Plan was provided by the project proponent to the IRT for review in August 2021. The IRT is currently meeting with the Bank Sponsor regularly on development of the draft BEI to discuss the proposed restoration activities, service area, crediting, tracking, and other aspects of bank operations. These discussion are ongoing and may result in changes to the proposed Project and associated mitigation measures identified in the draft MND. We recommend that the City not finalize the MND until agreements have been reached on the BEI and	The Bank Sponsor will discuss this with the IRT and determine the most appropriate timeline for finalizing the MND. At this time, all comments from the IRT have been responded to and no significant changes to the proposed project or the analysis provided in the MND have occurred as a result.

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	associated banking documents, and the MND can be updated to be consistent with the banking documents.	
A1-6	The Wildlife Agencies offer the following comments and recommendations to assist the City in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources and to ensure the project is consistent with ongoing regional habitat conservation planning efforts. This list is not inclusive of all the issues we are working on with the IRT, but instead highlights some of the specific biological concerns that will need to be addressed:	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-7	1. No federally or state listed plant species are known to occur within the limits of grading; however, the federally threatened spreading navarretia (*Navarretia fossalis*) has been recorded in areas of the Project site proposed for low-impact enhancement.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-8	In addition, the Project site is considered to have a high potential to include Otay tarplant (*Deinandra conjugens*; ESA listed Threatened, CESA listed Endangered), and approximately 140.6 acres of designated critical habitat for Otay tarplant would be impacted (5.7 acres of which would be considered permanent impacts).	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-9	Listed wildlife species documented within the project site and subject to potential permanent and temporary impacts include: San Diego fairy shrimp (*Branchinecta sandiegonensis*; ESA listed Endangered), Quino checkerspot butterfly (*Euphydryas editha quino*; ESA listed Endangered), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; ESA listed Threatened, CESA listed Endangered), least Bell's vireo (*Vireo bellii pusillus*; ESA listed Endangered, CESA listed Endangered), and coastal California gnatcatcher (*Polioptila californica californica*; ESA listed Threatened, state Species of Special Concern).	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-10	a. MM BIO-9 of the draft MND requires special status plants, Quino checkerspot butterfly host plants, and succulents to be avoided where feasible and otherwise salvaged and relocated to the extent feasible in accordance with a Plant Salvage Plan. We recommend MM BIO-9 be revised to include a requirement for a qualified biological monitor to install and maintain fencing or stakes visible to operators of heavy equipment around populations of all state or federally listed plants and narrow endemic species to be avoided within the grading footprint. Biological monitoring would ensure	A biological monitor will be present throughout all stages of restoration activities. Work occurring in and around sensitive plants habitat and species will be overseen by a qualified biologist at all times and any fence monitoring and installation will be overseen by a qualified biologist.

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	that the avoidance fencing remains intact for the duration of grading activities, as well as any other restoration activities that could result in impacts to listed or narrow endemic plant species observed during pre-construction special-status plant surveys.	
A1-11	b. We appreciate the inclusion of dot-seed plantain (*Plantago erecta*) in the proposed vernal pool upland seed mix (MND Attachment 3, Development and Interim Management Plan). We also recommend adding Otay tarplant to the seeding plan where appropriate habitat is present.	Thank you for the comment. Otay tarplant will be added to the project seed mix and plant palette where appropriate.
A1-12	c. The Biological Resources Report notes the presence of southern interior cypress forest within the south-central portion of the Project site, adjacent to trails proposed for grading. Tecate cypress (*Hesperocyparis [Cupressus] forbesii*; California Rare Plant Rank 1B.1) has a very limited distribution and is found only in isolated groves in Orange County, San Diego County, and Baja California, Mexico. Several stands have burned in recent years, further limiting the distribution of this sensitive plant species. Tecate cypress is also the singular host plant for the rare Thorne's hairstreak butterfly (*Callophrys gryneus thornei*), which has been observed on site within the grove. Per the report, 332 Tecate cypress (30 percent of the trees within the Project site) will be subject to impacts from grading activities. We recommend the project is redesigned to avoid Tecate cypress to the maximum extent possible. In addition, please clarify if proposed changes in hydrology will impact the health of avoided Tecate cypress over the long-term.	The grading in and around O'Neil Canyon where the highest concentration of Tecate cypress is located was revisited to ensure the maximum amount of cypress are avoided. The final impact estimate is 342 including 41 mapped individuals and an estimated impact of 301 from the larger polygon (30.1% of that polygon, 1000 total trees). The grading in the area is necessary to restore function to O'Neil Canyon and the confluence with the mainstem while also ensuring the utilities and border patrol can safety access the site. These trees are almost singularly found along the SDGE gasoline route and appear to be planted as a result of that project. Tecate cypress does not naturally occur in the river floodplain and is in fact struggling to survive under current conditions. It is most often associated with Closed-cone Pine Forest and Chaparral between 1,000 to 8000 ft. Tecate cypress is a closed-cone conifer, with the seeds not released until stimulated by fire. However recent fires in southern California have been too intense or too frequent and resulted in the loss of mature Tecate cypress and inadequate time for seed production from the young cypress. This projects management of invasive non-native species will reduce the risk of intense fires and support the health of this population. To offset the direct impacts associated with grading, the project will monitor and quantify the final number of impacted trees and will replant Tecate cypress at a 1.5 ratio in the restoration site, in more appropriate (although still not ideal) locations. The planted material will be purchased from a local nursery whose stock is grown from the natural population on Otay Mountain. Within the mitigation bank, Tecate cypress container plants will be planted along the newly created secondary channels and on the interfluves where they will receive moderate access to water during average rainy seasons and can connect to groundwater as well. The restored conditions to O'Neil

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		Canyon may also improve conditions for the remaining Tecate cypress but at minimum will not degrade conditions. No change to the MND will be required.
A1-13	d. We recommend BIO MM-6 be revised, consistent with the SAP, to clarify that no vegetation removal shall occur within the gnatcatcher and vireo breeding bird season (February 15 – September 15).	Acknowledged. This mitigation measure states that vegetation removal will occur outside of the gnatcatcher and vireo breeding season when feasible.
A1-14	e. According to the provided least Bell's vireo survey results (Appendix G), brownheaded cowbird parasitism is widespread across the project site and is having a significant negative impact on vireo nest productivity. The MSCP SAP states that Management of Wetlands within the Preserve will include brown-headed cowbird control measures and specific measures to protect against detrimental edge effects (page 4-18). As such, the Wildlife Agencies request that a cowbird trapping and management plan be included as a condition of establishing least Bell's vireo bank credits.	The Bank will be funding long-term cowbird trapping in addition to the reestablishment of high-quality habitat, for population growth and breeding success. This is documented in both the Development Plan as well as the LTMP. No change to the MND will be required.
A1-15	f. It has come to our attention that light-footed Ridgway's rails (*Rallus obsoletus levipes*; ESA listed Endangered, CESA listed Endangered, state Fully Protected) have been moving further upstream into freshwater habitats (e.g., cattail marsh) than previously expected. We recommend conducting surveys of the project area for suitable habitat for this species. If suitable habitat is present, we recommend conducting surveys for this species prior to finalizing the restoration plans.	Light-footed Ridgeways (*Rallus obsoletus levipes*) (LFRR) rail will be included in the Section 7 consultation. In the meantime, the project has initiated protocol focused surveys and habitat assessment at the Otay Trails and Mitigation Bank. Ongoing focused surveys for the LFRR will be conducted in accordance with the recommendations provided by the USFWS by the Clapper Rail Study Team (2009) from February 15-June 15, 2022 (Zembal and Massey 1981; Zembal and Hoffman 2021). At this time, no observations have been documented within the project area, however there are known individuals a few miles upstream in Otay Lakes and an observation was made about 1/4 mile downstream of the project, closer to the 125. Marginally suitable nesting habitat occurs within the Project Area where cattail and juncus occur within/along Freshwater Marsh habitats, and suitable nesting habitat occurs just to the west and north of the Project Area. Within the overall temporary impact areas, there are approximately 3.29 acres of Coastal and Freshwater Marsh habitat potentially suitable for Light-footed Ridgway's rails. Although the Project Area and Pre-Mitigation Area both support small amounts of potential suitable LFRR habitat, seasonal hydrology changes and drought are major factors affecting currently suitable or occupied habitat. Post-restoration conditions are expected to produce more suitable habitat for LFRR. Appropriate avoidance measures during construction and post-restoration will be

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		incorporated into the project. No changes to the MND will be required.
A1-16	g. According to project documents, western spadefoot (*Spea hammondii*; ESA candidate species; state Species of Special Concern) tadpoles were observed on site in 49 vernal pools and road ruts during fairy shrimp surveys. Western spadefoots are burrowing anurans that breed in ephemeral pools but spend the majority of their lives underground in adjacent upland habitats. Despite known occurrences within the Project site, no mitigation measures were included to offset potentially significant impacts to this species from project activities. We recommend the following mitigation measures to avoid and minimize impacts to western spadefoot:	Acknowledged. Please refer to responses to comments below for a review of each recommended mitigation measure.
A1-17	i. Prior to the start of any ground disturbance, construction, or site preparation activities, a qualified biologist will conduct pre-construction surveys for western spadefoot within all portions of the Project site containing suitable breeding habitat. Surveys shall be conducted beginning the first week of January or following the first one-inch or greater rain event and will be repeated as necessary to monitor their development. An estimate of the total larval population for each pond and total density for all impacted ponds will be recorded.	Acknowledged. The recommended mitigation measures for western spadefoot will be incorporated into the CEQA Document, project permitting, and the Development Plan.
A1-18	ii. A relocation plan will be developed and approved by the Wildlife Agencies prior to ground disturbance. The relocation plan will include: iii. Suitable relocation sites a minimum 50-foot from the impact area (a 100- foot buffer is recommended when feasible), of similar or greater size to breeding habitat impacted, and as far away as possible from recreation activities. iv. Methods for relocation. v. Monitoring of relocation sites bimonthly for tadpoles between January 1 and June 1 for five years. Monitoring will include estimated tadpole density at each site and observations of adults as well as for egg masses. Survey data will be provided to the Wildlife Agencies in an annual report summarizing the monitoring results. vi. Success criteria, including documented natural reproduction of spadefoot toad in each of the relocation sites, as indicated by the presence of tadpoles in the relocation sites.	Acknowledged. The recommended mitigation measures for western spadefoot will be incorporated into the CEQA Document, project permitting, and the Development Plan.

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A1-19	2. The Project site is already part of the Otay Ranch Preserve and, therefore, managed for conservation. The draft BEI does not contain sufficient detail to determine the anticipated ecological “lift” (relative to the existing preserve condition) and justify that the proposed crediting is appropriate. In order to determine how much crediting is warranted, we request clarification of the vegetation communities that are anticipated to be created and which management tasks are new and are intended to provide lift above and beyond the anticipated baseline condition of management tasks to be implemented by the Preserve Owner/Manager per the Otay Ranch Resource Management Plan.	Acknowledged. This comment is being addressed with the IRT as part of the project's BEI review process. No preservation credits are included in the bank and all credits focus on the lift resulting from the project over and above the baseline preserve commitments. No change to the MND will be required.
A1-20	3. Extensive stands of tamarisk scrub are present within the main channel and proposed restoration area. The presence of tamarisk can indicate salty soils and low hydrologic flows, conditions that may be incompatible with willow scrub establishment. It is not clear that removal of tamarisk alone, without regular flushing flows from the river, will provide appropriate conditions for successful willow scrub restoration. We recommend soils are tested for their salt content.	Tamarisk scrub, a weedy monocultural plant community, had invaded many areas throughout the Pre-Bank Restoration Site, outcompeting native riparian scrub and riparian forest communities. Drawing down the water table, tamarisk imposed challenges for willow, cottonwood, and sycamore survival, replacing native plant communities throughout riparian habitats within the disturbed floodplain of the upper Otay River at the Pre-Bank Restoration Site. Approximately 15 acres of tamarisk were removed from the Pre-Bank Restoration Site floodplain, and post-restoration annual vegetation monitoring has shown native plant establishment has been successful (SWCA 2022). Willows and mulefat have recruited both via seed and lateral root shoots since the installation of plantings and eradication of tamarisk. Native plant cover has especially increased in the upper portion of the site, contributing to the support of LBVI territories and breeding pairs. One vireo pair was documented nesting and foraging in a young mulefat stand located on the northern edge of the restoration area (Ferree and Clark 2021) – an area previously dominated by tamarisk. The Otay River mainstem and floodplain downstream from the Pre-Bank remains in a highly degraded state due to the upstream impounding of the Otay River, years of sediment removal by mining activities, and the invasion of non-native plant species (tamarisk). The site has historically supported a perennial/intermittent braided stream and floodplain; however, the conditions that formed this system originally are now changed and the watershed reduced. The altered surface hydrology and groundwater conditions throughout the Otay Mitigation Bank still support some native riparian vegetation; therefore, appropriate

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		conditions exist to support native wetland and riparian species once grading activities and invasive tree eradication is conducted. Although crowded by tamarisk, willows are still strongly present within the floodplain, some sycamores are in the transitional habitats, a few cottonwoods are in the floodplain, and mulefat are dense in many areas throughout the Otay Mitigation Bank. Grading and contouring will improve conditions for water and sediment flow during rain events and improve elevations, which will allow for expansion of the riparian habitat. Groundwater is available near the surface, made evident by the presence of a series of seasonal ponds in the northern section of the site. Additionally, seven (7) groundwater monitoring wells have provided data demonstrating subsurface water availability throughout the Otay Mitigation Bank over the years. Groundwater wells were installed in September 2020 and water levels recorded at 5-minute intervals. By May 2021, the records show that depth to groundwater varied from 1.0 to 11.4 feet below the surface. This subsurface flow currently supports the presence of invasive tamarisk, but it will support native willow communities after site restoration (ICF 2022). Approximately 58 acres of tamarisk is planned to be removed and replaced with native plant species, adding to the existing acreage of native riparian habitats within the Otay Mitigation Bank boundaries. Water flow impoundment has reduced the leaching capacity of soil nutrients across the floodplain, increasing soil salinity. The concentration of salts near the soil surface may have been historically increased after tamarisk establishment but it does not seem to be a limiting factor according to recent soil analysis. Following agency feedback nineteen (19) locations were sampled throughout the Pre-Bank Restoration area and Otay Mitigation Bank, with soil salinity ranging from 0.4 to 9.5 dS/m. The highest salinity value was detected from a sample located within the Pre-Bank Restoration area – an area within the floodplain where, despite low vegetation cover, willows, mulefat and sycamore are moderately thriving. Other areas with higher salinity levels seem to be mostly concentrated around the confluence of the Otay River with Salt Creek. These higher salinity levels (5.7 – 8.0 dS/m) are within the salinity tolerance threshold of native woody vegetation including willows (8.8-21 dS/m), mulefat (11.6 dS/m), and cottonwood (15.6 dS/m). One sampling point had salinity slightly above

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		(8.0 dS/m) the tolerance for Western sycamore at depth of 0-6 inches, decreasing to 6.5 dS/m at 6-18 inches. Overall soil salinity testing results were highly variable. There was little to no distinct pattern in the data, which is similar to the trends found in the scientific literature. Soil sampling has indicated that although high in select locations, soil salinity is generally within tolerance threshold of most common riparian woody species. That coupled with the presence of native riparian patches throughout the valley, as well as the success observed at the pre-bank immediately upstream of the bank provides ongoing confidence in the plant palettes inclusion of willows. Knowing that soil chemistry is highly variable, the project cannot singularly monitor salinity and make management decisions. However, this information will be incorporated into the larger dataset for the project and used to inform adaptive management decisions if an area is underperforming. No change to the MND will be required.
A1-21	If soils are determined to be too salty to support willow scrub establishment as currently proposed, we recommend the project design is modified in coordination with the Wildlife Agencies to ensure proposed vegetation communities will be successful over the long term.	Please see the response to comment #20. In addition, please note that willow species are only one component of the plant pallette. No change to the MND will be required.
A1-22	4. MM BIO-8 states that the final trail alignments, access routes, and work areas described in the draft MND will be further refined prior to the onset of construction to avoid all permanent impacts to federally listed fairy shrimp. We recommend MM BIO-8 also specify that final trail alignments and access routes will avoid impacts to the quantity and quality of water flow to the vernal pools supporting listed fairy shrimp.	Those features supporting fairy shrimp (vernal pools and road ruts) will be avoided to the maximum extent possible and any potential impacts to federally listed fairy shrimp will be analyzed and mitigated through the Section 7 permitting process. The final trail alignment specifically avoids features within the existing trails and routes around them and have been designed in concert with the restoration. These avoided features are a result of poor drainage in the roads and vehicle compaction over time and are not supported by a larger watershed like natural vernal pools. As such, there should be no impact to road rut features as a result of road realignment. The project is committed to maintaining these features weed-free and allowing them to naturally persist. All features considered vernal pool-like are avoided by the project as well as their adjacent watersheds when present and discernable. Most exist as a result of past sand mining and earthwork activities and do not support an identifiable watershed, rather these vernal pool like features are supported by direct rainfall.

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		MM Bio-8 has been modified to state that "Final trail alignments and access routes will avoid impacts to the quantity and long-term quality of water flow to the vernal pools supporting listed fairy shrimp." Section 7 permitting will address any unavoidable impacts related to vernal pool-like features on the project site including direct (grading).
A1-23	While we appreciate the avoidance of impacts to fairy shrimp, shifting the areas of impact will likely result in new impacts to other sensitive resources not previously analyzed. We recommend that any refinement of the project design be done prior to circulation of the final documents and that the MND should document, analyze, and propose mitigation for the expected impacts based on the final project design.	The project is currently designed to maximize avoidance to Fairy Shrimp, among other species and related habitats, and all impacts have been evaluated within the proposed trail alignment. (Mitigation Measure BIO-8.) In addition, the project will be completing Section 7 consultation which will include the evaluation of sensitive fairy shrimp. No change to the MND will be required. The project, which includes the trails program, is a habitat restoration and enhancement project for about 210 acres of riparian and wetlands and sensitive upland habitation communities. The project will result in the overall significant net increase in habitat quantity and quality. The final trails alignments focus on the disturbed existing road to avoid and minimize impact on sensitive resources to the maximum extent applicable. A small amount of permanent impacts on natural habitats would occur due to trail improvements and the creation of trails, though this would not be expected to negatively impact the overall natural resources as the proposed project includes significant enhancement and trail reclamation. The trails program, which is an express element of the overall restoration and enhancement project, will (1) avoid, to the extent possible, sensitive habitat areas, (2) utilize existing trails and roads, (3) close and reclaim some redundant trails and roads, and (4) reclaim some old trails. (Draft MND pp. 5-8 and 18-19 (MM Bio-8); 2021 Biological Resources Report (BRR) pp. 1-6 to 1-9.) Also, the joint May 5, 2022, letter from the Service and Department (at page 2) acknowledges that “almost 2 miles of trails would be closed and reclaimed ….” This reclamation acreage is one form of offset or “mitigation” for trails impacts resulting from the project and will be incorporated into the final project design.

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		Further, the proposed project, with the trails program, is repeatedly identified to be a "Covered Project" under the City MSCP Subarea Plan (and also the Habitat Loss Incidental Take (HLIT) Ordinance), and therefore is consistent with the City MSCP and HLIT Ordinance. (Draft MND pp. 8 and 11-12; BRR pp. 1-51 to 1-52, 1-54, and 3-3 to 3-4.) Again, the project will result in the overall significant net increase in habitat quantity and quality. The BRR identifies that up to 3.15 acres of riparian and wetlands and upland habitat communities would be permanently impacted by trails construction. (BRR section 2.2.1, p. 2-2, and Table 6.) But about 210 acres of riparian and wetlands and upland habitat communities would be restored or enhanced from the project. (BRR section 2.2.1, p. 2-2, and Table 6, and section 7.2, pp. 7-2 to 7-3.) This is a ratio of nearly 67 habitat restoration/enhancement acres to 1 acre of potential impact resulting from the project.
A1-24	5. Due to proposed tree removal, Project activities have the potential to result in the spread of tree insect pests and disease into areas not currently exposed to these stressors. Therefore, the final MND should describe an infectious tree disease management plan and how it will be implemented.	The project plan specs detail that no material will be hauled off-site. All material will be mulched and solarized on site and buried under the soil spoils location. These details will be added to the Project Description.
A1-25	All trees identified for removal from the Project site should be inspected for contagious tree diseases including, but not limited to: thousand canker fungus (Geosmithia morbida), see http://www.thousandcankers.com/; Polyphagous Shot Hole Borer (Euwallacea spp.), see http://eskalenlab.ucr.edu/avocado.html; and goldspotted oak borer (Agrilus auroguttatus), see http://ipm.ucanr.edu/PMG/PESTNOTES/pn74163.html.	The project plan specs detail that no material will be hauled off-site. All material will be mulched and solarized on site and buried under the soil spoils location. These details will be added to the Project Description.
A1-26	To avoid the spread of infectious tree diseases, diseased trees should not be transported from the Project site without first being treated using best available management practices relevant for each tree disease observed.	The project plan specs detail that no material will be hauled off-site. All material will be mulched and solarized on site and buried under the soil spoils location. These details will be added to the Project Description.
A1-27	6. The project documents make several references to vehicles and current use by recreational ATV riders within the project area. The proposed trails discussion	No off-road vehicles will be allowed within the project site as well as the preserve. Unauthorized off-roading activity will continue to be actively monitored by

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	also mentions the inclusion of features (to be designed in conjunction with mountain bike groups) such as banked berm turns, boulders to wind through, and semi-buried logs to travel over with the purpose of providing additional interest and technical challenges for mountain bikers. Public off-highway recreational vehicle activity within Preserve Areas is incompatible with the goals of the MSCP Subregional Plan and is prohibited (SAP, Section 6.4.1).	various entities such as; bank sponsors, POM, OVRP, City Rangers, and OWD. No change to the MND will be required.
A1-28	The Wildlife Agencies further recommend that the City evaluate compatibility of proposed trail uses and design with the need to permanently protect Covered Species and their habitats within Preserve (SAP, Sections 6.0, 6.2.1, and 7.5.3).	Acknowledged. The project has been designed to maximize the various objectives of planning documents governing the area including the OVRP plan and the City of CV Greenbelt Master Plan. The project has prioritized the protection of species at all times. No change to the MND will be required.
A1-29	In addition, any anticipated impacts to sensitive biological resources associated with trail use should be quantified and incorporated into the final determination of appropriate bank credits.	Acknowledged. This has been included in the updated Development Plan and crediting procedures. This will also be included in the permitting process for the project. No change to the MND will be required.
A1-30	The following comments (7, 8, and 9) are specific to the Department: 7. The Department has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake or use material from a river, stream, or lake. For any such activities, the project applicant (or "entity") must provide written notification to the Department pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, the Department determines whether a Lake and Streambed Alteration Agreement (LSAA) with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSAA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. The Department as a Responsible Agency under CEQA may consider the City's MND for the project. To minimize additional requirements by the Department pursuant to section 1600 *et seq*. and/or under CEQA, the City's document should fully identify the potential impacts to any stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSAA. Whether an LSAA is required to satisfy requirements of section 1600 *et seq*. can only be determined at the time a formal Notification package is submitted to the	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.

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	Department. Given the design elements of the proposed Project, we strongly encourage the City to consider submittal of a streambed notification package to the Lake and Streambed Alteration Program.	
A1-31	8. CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.	Acknowledged. All special status species and natural communities detected within the project site will be recorded in the CNDDB database.
A1-32	9. The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A1-33	We appreciate the opportunity to comment on the draft MND and look forward to our continued collaboration in implementing the City's SAP. If you have questions or comments regarding this letter, please contact Heather Schmalbach of the Department at (858) 637-5511 or Heather.Schmalbach@wildlife.ca.gov or Christine Medak of the Service at (760) 431-9440 or Christine_Medak@fws.gov.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.

Comment Letter A2: County of San Diego Parks and Recreation, January 6, 2022

Comment#	Comment Text	Response
A2-1	Thank you for taking the time to speak with me the other day. We appreciate the opportunity to review the Project. As discussed, we've prepared the following comments for your consideration:	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A2-2	1. Please continue coordinating with the County of San Diego, Department of Parks and Recreation (DPR) on any project features on or adjacent to DPR-owned or managed lands.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A2-3	2. Several of the proposed trails will connect to existing or planned DPR-owned or DPR-managed trails, please coordinate on those trail connections to ensure a seamless user experience.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
A2-4	3. This area is included in the Otay Valley Regional Park (OVRP) Concept Plan which includes guidelines for trails and signage within the regional park, please coordinate with OVRP partners when designing signage that will go within the park boundaries to ensure continuity throughout the park.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project. The proposed project will comply with the OVRP Trail Guidelines standards for signage and educational kiosks. No change to the MND is required.
A2-5	4. For Mitigation Measure Bio-6: Nesting Bird Avoidance; Please include a qualified biologist within breeding season.	Mitigation Measure Bio-6 will be updated to state that a qualified biologist will be included within breeding season.

Comment Letter O1: San Diego Mountain Biking Association (SDMBA), December 27, 2021

Comment#	Comment Text	Response
O1-1	Thank you for the opportunity to provide comments on the Otay Trails and Mitigation Bank Expansion Proposal. The San Diego Mountain Biking Association (SDMBA) is a volunteer-driven, non-profit organization dedicated to maintaining and improving sustainable trail access for mountain biking in San Diego County. Formed in 1994, SDMBA is one of the largest regional trail advocacy organizations in the country with more than 1,600 members.	Acknowledged. This comment will be part of the record considered by the City in determining whether to approve the Project.
O1-2	SDMBA representatives have been involved in providing suggestions for additional singletrack alignments (secondary) in addition to the existing access roads, in	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the

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	order to provide a quality trail experience on both the south and north sides of the main drainage area. Only a very few of these suggestions appear to have made it into the draft trails plan (see figure 8).	CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. SWCA staff explained that select trails had to be modified or removed to avoid impacts to sensitive resources and that others were added to offset that loss. In addition, future coordination with the SDMBA will occur during trail installation to add biking features to the trails including placed boulders, minor contouring to add elevation changes and unique biking features within the final alignments.
O1-3	The blue lines (dashed and solid) in figure 8 show only a very few secondary trails which would be characterized as more singletrack trails as opposed to the majority of the other alignments in the area which are mostly wide utility access roads.	This is correct, secondary trails have been added to the project site where possible however there are numerous utilities onsite requiring vehicle access and the need to avoid redundant trails and sensitive resources. Additional secondary trails outside of the site may be considered in the future by Otay Valley Regional Park but are outside the purview of this project. All wide trails have been designed and will be built with the trail user as the focus while still allowing vehicles to access the site. SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit.
O1-4	The current secondary trails shown in the plan are not adequate to support the population that will be seeking trail access to this area. The new housing developments already underway in the area will bring tens of thousands of new neighbors who will be looking for trails and a nature experience outside their front doors. Trail users will enjoy the area by coming in from Lower Otay Lake, the Otay Lakes County Park, Camp Bashor and from the west, as well from the existing and planned surrounding communities.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to the planned trails for the project. SWCA staff explained that many of the comments provided by SDMBA pertained to areas outside of the project footprint and should be conveyed to the Otay Valley Regional Park for future consideration. All comments and additional questions were answered and agreed to during the site visit.
O1-5	Although SDMBA is primarily focused on trail advocacy, we are not ignorant of the facts around our County. We work with nearly every land manager in the County and have a deep appreciation for the biodiversity in San Diego County and the natural communities that exist within it. We believe that trails provide the mechanism that creates stewardship for these preserved areas. The ability to see and experience our preserved lands creates a connection between the community and nature. This connection results in stewardship of the trails, but also a	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. SWCA staff explained that many of the comments provided by SDMBA pertained to areas outside of the project footprint and should be conveyed to the Otay Valley Regional Park for future consideration. All comments and additional questions were answered and agreed to during the site visit.

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	sense of ownership of the lands we all intend to preserve and protect.	
O1-6	Although SDMBA is primarily focused on trail advocacy, we are not ignorant of the facts around our County. We work with nearly every land manager in the County and have a deep appreciation for the biodiversity in San Diego County and the natural communities that exist within it. We believe that trails provide the mechanism that creates stewardship for these preserved areas. The ability to see and experience our preserved lands creates a connection between the community and nature. This connection results in stewardship of the trails, but also a sense of ownership of the lands we all intend to preserve and protect.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. SWCA staff explained that many of the comments provided by SDMBA pertained to areas outside of the project footprint and should be conveyed to the Otay Valley Regional Park for future consideration. All comments and additional questions were answered and agreed to during the site visit.
O1-7	Although SDMBA is primarily focused on trail advocacy, we are not ignorant of the facts around our County. We work with nearly every land manager in the County and have a deep appreciation for the biodiversity in San Diego County and the natural communities that exist within it. We believe that trails provide the mechanism that creates stewardship for these preserved areas. The ability to see and experience our preserved lands creates a connection between the community and nature. This connection results in stewardship of the trails, but also a sense of ownership of the lands we all intend to preserve and protect.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit.
O1-8	SDMBA continues to stand ready to offer specific suggestions on the plan and also to help with implementation. Thank you for the work in ensuring that the Otay Valley Regional Park will be a gem of the South County providing not only quality recreation opportunities for residents and visitors but also providing quality habitat by restoring the Lower Otay River watershed.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. The project will plan future coordination with the SDMBA in advance of and during trail installation.

Comment Letter O2: Otay Valley River Park (OVRP), Mary 17, 2022

Comment#	Comment Text	Response
O2-1	The OVRP Trails Subcommittee does not support the current proposed concept trails plan for the Otay River Restoration Project. We believe the trails plan for the eastern end of Otay River Valley does not meet current	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails

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	or future community needs for better trail access and connectivity. The proposed plan also lacks diversity in the types of trails that would allow for a better outdoor and nature experience.	for the project. SWCA staff explained that many of the comments provided by SDMBA pertained to areas outside of the project footprint and should be conveyed to the Otay Valley Regional Park for future consideration. All comments and additional questions were answered and agreed to during the site visit.
O2-2	The OVRP Trails Subcommittee recommends the following: ● Include existing north to south trail connector in the western part of map (see below) that is colored yellow. By improving it and creating a trail for trails users only (no utility trucks) it will be not only a safer alternative but it will create loops for a better experience. Consider use an elevated wooden path similar to the one at the Tijuana River Valley Regional Park.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. SWCA staff explained that many of the comments provided by SDMBA pertained to areas outside of the project footprint and should be conveyed to the Otay Valley Regional Park for future consideration. All comments and additional questions were answered and agreed to during the site visit.
O2-3	● Proposed trail plan is missing the opportunity to create land marks and trail destinations for a better enjoyment of the park. We had discussions before about creating a lookout loop, a secondary trail at a higher elevation to overlook the valley, etc. None of that is included in the current proposed plan.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. The project will include 4 education kiosks as well as at least one overlook on the southwest side and on the northeast side. Some of these details are not yet final but are included in the narrative and goals for the trails.
O2-4	● North side secondary trail should be extended westbound for future trail connections of house developments.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. Many of the areas identified in this comment are outside of the project limits and not part of this trail evaluation process. However, those areas may still be considered by the OVRP and City of Chula Vista Greenbelt in the future.
O2-5	● Southside is lacking secondary trails. There are existing service roads and old trails that could be restored and used as secondary trails on some of those hills in the southside providing a great view of the Otay River Valley and a better and quality trail experience.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. Many of the areas identified in this comment are outside of the project limits and not part of this trail

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		evaluation process. However, those areas may still be considered by the OVRP and City of Chula Vista Greenbelt in the future. There are a higher concentration of sensitive resources on the south side of the project and topography is limited for trail consideration. As such, there is a higher concentration of secondary trails on the northern side of the project.
O2-6	● Southside overlook would had being located near the existing SDGE service road that could be extended by adding a secondary trail to create a loop.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit.
O2-7	● The southwestern area of the proposed trail map shows redundant primary trails (in red). These are old service roads 20+ feet wide. We propose eliminating one of those parallel roads and restoring it and creating a narrow secondary trail (less than 4 ft wide) at a higher location nearby. This will not only be a better trail experience but will allow for an increase in habitat.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. Both trails need to remain for utility access. The project will only be improving the southernmost trail and the other will remain a utility only trail. The project will work with the mountain biking community to determine if any additional features can be added within the proposed alignment to improve the mountain biking experience.
O2-8	● The Proposed trail map only offers trails in the river valley area and it does not include ANY option to utilize nearby hillsides. This is a missed opportunity to create a much better trail plan for all trail users.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. The areas mentioned in this comment are outside of the project limits and not part of this trail evaluation process. However, those areas may still be considered by the OVRP and City of Chula Vista Greenbelt in the future.
O2-9	Map below shows suggestions for improved trails and connectivity in Orange.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. Many of the areas identified in this comment are outside of the project limits and not part of this trail evaluation process. However, those areas may still be

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		considered by the OVRP and City of Chula Vista Greenbelt in the future.

Comment Letter I1: Jose Galaz, December 27, 2021

Comment#	Comment Text	Response
I1-1	While I appreciate the additional secondary trails being added on the north side there's not much going on at the south side, in fact, there was going to be a trail that would go to an overlook on the south side that is not even included on the proposed trail map. That was a big part of the field trip we did with the contractor doing the restoration project. That overlook was going to be build on existing service roads. I also don't see much of any secondary trail in the south side, maybe a 1/4 if a mile?	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. There are a higher concentration of sensitive resources on the south side of the project and topography is limited for trail consideration. As such, there is a higher concentration of secondary trails on the northern side of the project.
I1-2	The proposed trail plan doesn't include any trail in hillsides, that's a big missing opportunity. There's already a number of old roads that could be part of the trail system just like the Tijuana River Valley Regional Park has trail to the nearby Mesa just to give and example, plenty of other parks in the county have the too.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit. There are a higher concentration of sensitive resources on the south side of the project and topography is limited for trail consideration. As such, there is a higher concentration of secondary trails on the northern side of the project.
I1-3	I'm going to request a meeting with the trail subcommittee members to further analyze this proposed trail map and write a letter with our observations in the next couple of weeks. Thanks again for all your hard work, looking forward to continuing working on creating a park that our community deserves.	SWCA met with the San Diego Mountain Bike Association, OVRP, County of SD, City and County rangers for a field trip on May 25th, 2022 to discuss the CEQA comments pertaining to all of the planned trails for the project. All comments and additional questions were answered and agreed to during the site visit.