Appendix O

Conceptual Wetland Mitigation Plan

Cottonwood Sand Mine

Conceptual Wetland Mitigation Plan

PDS2018-MUP-18-023
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Prepared for:

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ACRONYMS AND ABBREVIATIONS

AA	Assessment Area
AMSL	above mean sea level
BOS	Biological Open Space
BTR	Biological Resources Technical Report
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CFG	California Fish and Game
County	County of San Diego
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
CY	Cubic Yards
GPS	global positioning system
ft	feet
HELIX	HELIX Environmental Planning, Inc.
m	meter
MSCP	Multiple Species Conservation Program
MUP	Major Use Permit
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
POC	Point of Connection
Project	Cottonwood Sand Mine Project
ROW	Right-of-Way
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SDNWR	San Diego National Wildlife Refuge
SHBs	shot-hole borers
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a Conceptual Wetland Mitigation Plan for proposed impacts to wetland habitat and jurisdictional waters resulting from the Cottonwood Sand Mine Project (project) located in the unincorporated community of Rancho San Diego in eastern San Diego County, California. Included in this document is an implementation, maintenance, and monitoring plan for the on-site re-establishment of approximately 1.30 acres of wetland waters and the rehabilitation of 7.36 acres of existing riparian habitat (collectively referred to as mitigation area), as well as the preservation of 13.85 acres of existing riparian habitat for a credit of 22.51 acres. The re-established wetland waters and rehabilitated riparian habitat are expected to approach the functions and services of early successional riparian habitat within five years. Following successful establishment and rehabilitation, these areas would be preserved within the project's biological open space (BOS) area.

Mitigation proposed in this report would offset project impacts to wetland habitat and water resources under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA; 33 USC 1344), Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the CWA, and California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600 et seq. of the California Fish and Game (CFG) Code, and to areas considered County of San Diego (County) Resource Protection Ordinance (RPO) wetlands. This report has been prepared in conformance with the County's Report Format and Content Requirements for Revegetation Plans (County 2007).

In addition to the wetland waters re-establishment and riparian rehabilitation addressed in this plan, areas temporarily impacted as part of the project's proposed mining activities will be revegetated pursuant to the Surface Mining and Reclamation Act (SMARA) and Sections 1810 and 6550-6556 of the County's Zoning Ordinance, as well as Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011), which requires the restoration of wetland buffer areas disturbed as part of mining activities. A total of 11.92 acres of native upland habitat, consisting of Diegan coastal sage scrub, and 108.87 acres of native wetland and riparian habitat will be revegetated as detailed in the project's Conceptual Revegetation Plan (HELIX Environmental Planning, Inc. [HELIX] 2025~~3~~a). Following completion of all revegetation activities, these areas will likewise be preserved within the project's BOS area. Revegetation areas are not discussed further in this report.

Nomenclature used in this report follows Holland (1986) and Oberbauer (2008) for vegetation; Jepson eFlora (2023) and Calflora (2023) for plants; Pelham (2022) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2023) for reptiles and amphibians; American Ornithological Society (2022) for birds; and Bradley et al. (2014) and Tremor et al. (2017) for mammals.

2.0 PROJECT DESCRIPTION

2.1 RESPONSIBLE PARTIES

New West Investment, Inc. (or its successor in interest) will be responsible for financing the installation and five-year maintenance and monitoring of the habitat re-establishment/rehabilitation proposed in this plan. Contact information is provided below:

Contact: Jim Conrad, Owner's Representative
New West Investment, Inc.
565 N. Magnolia
El Cajon, CA 92020
Phone: 619-441-1463

2.2 PROJECT LOCATION

The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 West and 1 East of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial Vicinity*). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor's Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.3 PROJECT SUMMARY

2.3.1 Project Description

The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. Currently, only the eastern course is operational; operation of the western course was suspended in 2017. The project proposes to convert the two golf courses into a sand mining operation that would be conducted in three phases over 10 years, with a fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Mining Phases/Vegetation Communities and Sensitive Resources*). The project's mining operations would extract, process, and transport sand using conventional earth-moving and processing equipment. Approximately 4.3 million cubic yards (CY; 6.40 million tons) of material are proposed to be extracted, with approximately 3.8 million CY (5.7 million tons) of sand and gravel for market use, with a 10 percent waste factor from the total amount extracted that includes wash fines and materials undesirable for processing (approximately 427,000 CY). These materials would be retained on-site and utilized for backfilling. In addition, approximately 2.5 million CY would be imported to the site to meet the backfill requirements. The imported material would consist of inert debris only. Inert debris would consist of excavated soil material from development projects, clean demolition materials, and possibly concrete, asphalt, and rock. The project would be conditioned to only accept materials suitable for the end use of the site.

Extraction operations would be limited to a maximum production of 380,000 CY (570,000 tons) of construction grade aggregate (sand) per calendar year. Material extracted and processed at the site would be suitable for construction uses and would be available to customers in San Diego County. Approximately 214.4 acres of the approximately 251.1~~0~~-acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement through the removal of invasive species. The existing Sweetwater River channel and the majority of native habitat that currently exists on the site would be retained.

The project would be mined in three incremental, and partially overlapping phases, with three to four sub-phases in each major phase. Reclamation would begin after the first sub-phase of mining is complete and would be conducted on a continuous basis following the completion of each mining sub-phase. Pre-mining activities proposed prior to the initiation of Phase 1 include the restriping of Willow Glen Drive from Steele Canyon Road to the northeastern property boundary to provide Class II buffered bike lanes on both sides of the roadway, improvements to the access point from Willow Glen Drive to the Phase 1 excavation area, and installation of screening landscaping and a pedestrian pathway. To facilitate the deceleration of right-turning vehicles into the project ingress driveway, a dedicated right-turn lane would be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. Additionally, a pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. Phase 1 would begin with the placement of the processing plant and the conveyor line from the plant to the western portion of the property, where excavation would begin. Processing facilities would be located near the center of the project area, adjacent to Willow Glen Drive and west of the existing golf course parking lot. The plant site would consist of the aggregate processing and washing facilities, three settling ponds, a loadout area, and support structures and buildings (e.g., scale, kiosk, and office trailer). A portable conveyor line would be installed to minimize the use of on-site roads to transport excavated materials from the excavation area to the processing plant.

Mining operations would commence in the western portion of the site as part of Phase 1 and proceed east as subsequent phases are initiated: Phase 1 would be located within the area currently occupied by the closed Lakes Course to the west of Steele Canyon Road; Phase 2 would be located in the center of the site, east of Steele Canyon Road, on the currently operating Ivanhoe Course; Phase 3 would be located to the east of Phase 2. Existing vegetation and infrastructure within the golf courses would be incrementally removed as mining operations proceed, with approximately 20 to 30 acres subject to mining at any one time. Each phase would include three to four sub-phases that are less than 30 acres each and would begin reclamation as soon as possible following the completion of extraction activities. Excavation in each sub-phase would be completed before moving the conveyor and excavation equipment to the next sub-phase, and reclamation would begin in the completed sub-phase. Upon approval of the project, the Ivanhoe Course would be closed. The existing golf clubhouse would be demolished near the end of Phase 2 mining. As each phase of mining is completed, final contours would be established via grading and backfilling, all final clean-up would be conducted and equipment removed, and the mined area would be reclaimed and revegetated. Following the completion of Phase 3 mining, the processing plant would be removed as part of a final Phase 4 consisting of final clean-up and equipment removal from the project site.

Prior to initiating work in a sub-phase, existing vegetation will be cleared, and topsoil will be salvaged. The existing banks of the low-flow Sweetwater River channel will remain undisturbed up to a minimum

height of 3.5 feet to accommodate existing transfer flow rates. To maintain living soil microorganisms, topsoil will be stored on-site in windrows not more than three feet tall, in an area cleared of existing vegetation. The maximum excavation depth is proposed to be 40 feet below the existing land surface, with the average depth of excavation outside the main Sweetwater River channel expected to be approximately 20 feet below the existing land surface. Excavation would not occur within the bottom of the existing low-flow river channel ~~in order~~ to retain existing hydrologic characteristics. Up to three temporary channel crossings would be utilized to transport heavy equipment across the low-flow river channel during mining operations. Channel crossings would only be used when there is no water flow in the channel. An operating procedure would be established to maintain communication with the Sweetwater Authority prior to, and during, water transfers to ensure channel crossings during water flows are avoided. As soon as excavation within a sub-phase is completed, the conveyor and excavation equipment would be moved to the next sub-phase, and reclamation of the completed sub-phase would begin.

The project proposes to restripe Willow Glen Drive between Steele Canyon Road and the project ingress driveway to provide Class II buffered bike lanes on both sides of the roadway per the County Roadway Standards and the General Plan Mobility Element roadway classification. To facilitate the deceleration of right-turning vehicles into the Project ingress driveway, a dedicated right-turn lane would also be constructed, which would serve as the primary access for mining operations, material sales, employees, and vendors. A new egress point would be established in the approximate center of the existing parking lot. The project also proposes to construct an acceleration lane between the ingress and egress driveways, which would serve as a refuge lane for trucks to complete their outbound maneuver. A pedestrian pathway would be provided along the northern project frontage/Willow Glen Drive east of Steele Canyon Road to provide pedestrian access within the project vicinity where there are no existing sidewalks. In addition, a new access point to the property from Willow Glen Drive west of Steele Canyon Road (Phase 1 area) would be necessary as the clearance height of the bridge that crosses the Sweetwater River on Steele Canyon Road would not allow most large trucks used by service vendors to pass beneath the bridge. Additional access points are proposed to be constructed at the intersection of Willow Glen Drive and Muirfield Drive. The new driveway would be restricted to servicing the mining operations.

The site would be progressively reclaimed following the completion of extraction activities within each subphase area in accordance with the mining and reclamation plan (EnviroMINE 2021). Reclamation would include: (1) removal of all artificial structures (with the exception of permanent erosion control features); (2) grading and backfilling to achieve final landforms; (3) incorporation of accumulated wash fines, imported material, and salvaged topsoil (as applicable); and (4) revegetation and monitoring. Final grading would begin after mining and backfilling have been completed within a given area, and as extractive operations proceed to the east. Reclamation would be an ongoing process that commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

Post-reclamation, the final landform of the overall mining area is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain bisecting the length of the site. The expanded floodplain is expected to range in width from approximately 400 to 700 feet~~average approximately 450 to 720 feet in width~~ and would be slightly higher in elevation than the existing low-flow river channel ~~lower in elevation than the existing ground level across the site~~. The existing low-flow river channel would be retained in place with banks up to a minimum height of 3.5 feet to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the

Sweetwater Authority. The low-flow river channel banks would slope down to the expanded floodplain, which will be at a similar elevation to the existing low-flow river channel or slightly higher. In some areas, benches may be constructed at the edges of the floodplain to accommodate varying vegetation types and/or multi-use trails. Slopes bordering the expanded floodplain would slope up to the plain surface at a 3:1 ratio or shallower, with an elevation difference of up to 25 feet between the top of slope and bottom of the ~~expanded floodplain~~low-flow river channel. Reclaimed and revegetated areas would be restored to an end-use of ~~native vegetation within a widened floodplain~~open space, ~~recreational~~ multi-use trails, and land suitable for uses allowed by the ~~Open Space~~General Plan land use designation and existing zoning classifications. Maintenance and monitoring of the restored and revegetated native habitat areas would continue until final performance standards are met in all revegetation areas. Following revegetation completion, nearly 5~~4~~5 percent of the project site (~~150.7~~149.0 acres) ~~will~~ would be preserved in BOS easement, which ~~will~~ would protect these lands in perpetuity, and ~~will~~ would restrict future uses to protect their biological value.

2.3.1 Current Environmental Setting and Site Conditions

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

The project site has been subjected to past human disturbances and habitat modification associated with the development of the golf course and intermittent mining. Prior to the 1940s, the site was used for commercial ranching and agriculture, most of which had ended by the 1950s. A 1953 aerial photograph of the site indicates that the floodplain of the Sweetwater River was primarily undeveloped, with the presence of a small, wooden house/structure adjacent to Willow Glen Drive to the west of Steele Canyon Road. Since the 1960s, the project site has operated as a public golf course with intermittent mining. Construction of the golf course initially began in 1962 and was completed in 1964. Mining activities within the site began in the early 1950s to the south of the Sweetwater River and continued through the 1970s, allowing for the creation of water hazards and expanded fairways associated with golf course construction and improvements. The site currently operates as a public golf course, though golf play and irrigation of landscaped turf in the western portion of the site was discontinued in 2017.

Vegetation within the project site reflects the site's disturbed and developed nature. Approximately 244.8 acres (88 percent) of the site is currently occupied by a public golf course, or is otherwise disturbed by past land uses, including 1.7 acres of non-native woodland, 2.6 acres of eucalyptus woodland, 7.5 acres of non-native vegetation, 3.0 acres of artificial pond, and 230.0 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping. Undeveloped areas are concentrated along the western and eastern edges of the site and consist primarily of native upland scrub and riparian forest communities. The dominant native habitat type present on ~~-~~site is southern cottonwood-willow riparian forest, which covers approximately 12.87 acres (five percent) of the site. The Sweetwater River and associated floodplain have been severely modified as a result of previous golf course development. The river has been channelized through the site and its width has been constricted to allow for the

development of golf course fairways. Additionally, the hydrological regime of the Sweetwater River has been heavily altered from the creation of several artificial impoundments upstream and downstream of the project site, such as the Loveland Reservoir and Sweetwater Reservoir, which are subject to water transfers and controlled releases by the Sweetwater Authority.

The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan (County 1997). Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries (Figure 4). Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is present in the hills south, east, and west of the site. The San Diego National Wildlife Refuge (SDNWR) abuts the western project boundary along the Sweetwater River.

2.3.2 Topography and Soils

Elevations on-site generally decrease from east to west across the site, with the lowest elevations (approximately 320 feet (ft) above mean sea level [AMSL]) occurring along the southwestern boundary, and the highest elevations (approximately 380 ft AMSL) along the northeastern boundary. The Sweetwater River runs through the length of the site, entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2022; Figure 6, *Soils*), with the majority classified as sandy loams. Soil types covering the most area on-site include Riverwash and those in the Tujunga series. The soil and geologic study conducted for the project by Geocon also found that the site was predominately comprised of alluvial channel and alluvial flood plain deposits (Geocon 2020).

2.3.3 Vegetation Communities

Fifteen vegetation communities/land use types occur on the project site (Table 1, *Existing Vegetation Communities/Land Use Types*; Figure 7, *Vegetation and Sensitive Resources/Impacts*). The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Tier I[3]			
Disturbed Wetland (11200)	10.25	0	10.25

Vegetation Community[1]	Acres[2]		
	Within MUP	Outside MUP	Total
Freshwater Marsh (52400)	0.22	0	0.22
Southern Cottonwood-willow Riparian Forest (61330)	9.43	2.42	11.85
Southern Cottonwood-willow Riparian Forest - disturbed (61330)	0.87	0.15	1.02
Southern Willow Scrub - disturbed (63320)	4.82	0	4.82
Tamarisk Scrub (63810)	1.20	0.03	1.23
Open Water (64140)[4]	1.68	0	1.68
Arundo-dominated Riparian (65100)	0.48	0.08	0.56
Tier II			
Diegan Coastal Sage Scrub (32500)	0.8	0.5	1.3
Diegan Coastal Sage Scrub – disturbed (32500)	0.5	<0.1	0.5
Tier IIIB			
Non-native Grassland (42200)	0	0.2	0.2
Tier IV			
Non-native Woodland (79000)	1.5	0.2	1.7
Eucalyptus Woodland (79100)	2.1	0.5	2.6
Non-native Vegetation (11000)	6.6	0.9	7.5
Disturbed Habitat (11300)	79.0	12.3	93.1
N/A			
Artificial Pond (64140)[4]	3.0	0	3.0
Developed Land (12000)	122.0	14.9	136.9
TOTAL	**244.45**	**32.18**	**276.63**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).

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

3 County Subarea Habitats and Tiers within the MSCP.

4 The numerical Holland/Oberbauer code refers to Fresh Water which describes year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers and is the most appropriate vegetation community that represents these areas.

Sensitive vegetation communities/habitat types mapped on the project site include disturbed wetland, freshwater marsh, southern cottonwood-willow riparian forest (including disturbed), disturbed southern willow scrub, tamarisk scrub, open water, arundo-dominated riparian, Diegan coastal sage scrub (including disturbed), and non-native grassland. Non-native woodland, eucalyptus woodland, non-native vegetation, disturbed habitat, artificial pond, and developed lands do not meet the definition of sensitive habitat under the County's Biology Guidelines (County 2010).

2.3.1 Flora

A total of 190 plant species were identified within the project site, of which 80 (42 percent) are native species, and 110 (58 percent) are non-native species (HELIX 2025~~3~~b).

2.3.2 Wildlife

A total of 129 animal species were observed or otherwise detected on the project site during recent biological surveys, including 14 invertebrate, one fish, four amphibian, six reptile, 85 bird, and 19 mammal species (HELIX 2025~~3~~b).

2.3.3 Special-Status Species

No federal- or state-listed plant species were observed within the project site during recent surveys (HELIX 2025~~3~~b); however, four species with other special status were observed: San Diego sagewort (*Artemisia palmeri*), San Diego County viguiera (*Bahiopsis laciniata*), Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). Additionally, although not found on-site, U.S. Fish and Wildlife Service (USFWS) critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site (Figure 8, *Critical Habitat*).

Two federal- and/or state-listed wildlife species were observed within the project site during recent surveys (HELIX 2025~~3~~b): coastal California gnatcatcher (*Polioptila californica californica*) and least Bell's vireo (*Vireo bellii pusillus*). An additional 21 other special-status animal species were observed or detected on or directly adjacent to the project site or observed flying over the project site: barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), Monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), small-footed myotis (*Myotis ciliolabrum*), Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), and Yuma myotis (*Myotis yumanensis*). Additionally, USFWS critical habitat for the coastal California gnatcatcher and least Bell's vireo occurs in the southwestern portion of the site, and critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*) is present immediately adjacent to the site (Figure 8).

2.3.4 Project Impacts and Required Mitigation

A summary of project impacts to biological resources and required mitigation is provided in the Biological Resources Technical Report (BTR; HELIX 2025~~3~~b). This Conceptual Wetland Mitigation Plan only addresses mitigation for impacts to County sensitive riparian habitat and RPO wetlands and USACE, RWQCB, and CDFW jurisdictional areas. These impacts and mitigation are summarized below. Additionally, and as required by the County's Report Format and Content Requirements for Revegetation Plans (County 2007), relevant sections of the BTR (i.e., mitigation requirements and habitat being impacted) will be included as an appendix to the Final Wetland Mitigation Plan.

The project would result in impacts to a total of 2.34 acres of riparian habitat or other sensitive natural communities (Table 2, *Project Impacts to Vegetation Communities/Habitat Types*; Figure 7), including 0.55 acre of disturbed wetland, 0.44 acre of southern cottonwood-willow riparian forest, 0.13 acre of southern willow scrub, 0.01 acre of tamarisk scrub, 0.01 acre of arundo-dominated riparian, and 1.2 acres of Diegan coastal sage scrub (including disturbed).

Table 2
PROJECT IMPACTS TO VEGETATION COMMUNITIES/HABITAT TYPES

Vegetation Community	On-Site Impacts (Acres)[1]	Off-Site Road Improvement Impacts (Acres)[1]	Total Impacts (Acres)[1]
Sensitive Vegetation Communities			
Tier I[2]			
Disturbed Wetland	0.55	0	0.55
Freshwater Marsh	0	0	0
Southern Cottonwood-willow Riparian Forest	0.44	0	0.44
Southern Willow Scrub	0.13	0	0.13
Tamarisk Scrub	0.01	0	0.01
Open Water	0	0	0
Arundo-dominated Riparian	0.01	0	0.01
Tier II			
Diegan Coastal Sage Scrub	1.1	0.1	1.2
Tier IIIB			
Non-native Grassland	0	0	0
Subtotal Sensitive Communities	*2.24*	*0.10*	*2.34*
Non-Sensitive Vegetation Communities			
Tier IV			
Non-native Woodland	1.7	0	1.7
Eucalyptus Woodland	2.1	<0.1	2.1
Non-native Vegetation	6.5	2.0	8.5
Disturbed Habitat	76.0	0.1	76.1
N/A			
Artificial Pond	2.7	0	2.7
Developed Land	120.7	2.6	123.3
Subtotal Non-Sensitive Communities	*209.7*	*4.7*	*214.4*
TOTAL	**211.94**	**4.8**	**216.74**

[1] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.
[2] County Subarea Habitats and Tiers within the MSCP.

In total, the project would impact 0.60 acre of wetland and 0.36 acre of non-wetland waters of the U.S./State (Figure 9, *Waters of the U.S./Impacts*; Figure 10, *Waters of the State/Impacts*), 18.20 acres of riparian and streambed habitat under CDFW jurisdiction (Figure 11, *CDFW Jurisdictional Areas/Impacts*), and 1.14 acres of County RPO wetland (Figure 12, *County RPO Wetlands/Impacts*).

A summary of project impacts to jurisdictional wetlands and waterways is provided in Table 3, *Impacts to Jurisdictional Wetlands and Waterways*.

Table 3
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERWAYS (acre[s])[1]

Jurisdictional Resource	USACE	RWQCB	CDFW	County RPO
Wetland Waters of the U.S./State; CDFW Riparian Habitat; County RPO Wetlands				
Disturbed Wetland	0.51	0.51	0.56	0.56
Freshwater Marsh	<0.01	<0.01	<0.01	<0.01
Southern Cottonwood-Willow Riparian Forest (including disturbed)	0.09	0.09	0.44	0.44
Southern Willow Scrub (disturbed)	0	0	0.13	0.13
Arundo-Dominated Riparian	0	0	0.01	0.01
Subtotal	*0.60*	*0.60*	*1.14*	*1.14*
Non-wetland Waters of the U.S./State; CDFW Streambed				
Streambed	0.36	0.36	17.06	0
TOTAL	**0.96**	**0.96**	**18.20**	**1.14**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

Mitigation for impacts to wetlands and waterways shall occur as specified in the BTR for the project (HELIX 2025~~3~~b), or as otherwise stipulated in the future CWA Section 404 and 401 permit conditions and CDFW Streambed Alteration, which will be obtained for the project prior to impacts to jurisdictional waters and wetlands.

The proposed project is exempt from County RPO requirements pursuant to Section 86.605(d) of the RPO (County 2011). However, the project must implement the following mitigation measures contained in Section 86.605(d) of the RPO as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas ~~in order~~ to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and
- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Currently, wetland buffer areas within the project site consist of patches of existing riparian habitat and extensive areas of golf course development bordering the Sweetwater River. To meet the requirements of the RPO, wetland buffer areas disturbed by mining will be restored via a combination of re-establishment of wetland waters as addressed in this plan and native habitat revegetation addressed in the Conceptual Revegetation Plan (HELIX 2025~~3~~a; Figure 13, *Conceptual Compensatory Mitigation and Reclamation Revegetation Areas*).

The proposed project would involve the widening of the Sweetwater River floodplain by lowering existing upland elevations to a final height that is similar to, or slightly above, that of the existing ~~Sweetwater River~~ low-flow Sweetwater River channel. The expanded floodplain will be revegetated with riparian habitat resulting in a net gain of functional wetlands and riparian habitat. ~~Cut s~~Slopes constructed along the margins of the expanded floodplain will be revegetated with native upland

habitat (i.e., Diegan coastal sage scrub) improving upon the current site conditions and resulting in a biologically superior condition.

Existing RPO wetlands within the project site shall be preserved in place, and their existing environmental values shall be enhanced through the rehabilitation of existing riparian habitat, as detailed in this plan. All riparian re-establishment and rehabilitation addressed in this plan, combined with the native habitat revegetation addressed in the Conceptual Revegetation Plan (HELIX 2025~~3~~a), shall be preserved within a BOS easement and managed in perpetuity in accordance with the Conceptual Resource Management Plan (HELIX 2025~~3~~c).

Mitigation measures presented in the BTR (HELIX 2025~~3~~b) for impacts to sensitive wetland and riparian habitat and jurisdictional waters and wetlands are summarized below.

BIO-9 Mitigation for impacts to 0.44 acre of southern cottonwood-willow riparian forest, 0.13 acre of disturbed southern willow scrub, 0.01 acre of tamarisk scrub, 0.01 acre of arundo-dominated riparian, and 0.55 acre of disturbed wetland shall occur at a 3:1 ratio with at least 1:1 creation (establishment/re-establishment) for a total mitigation requirement of 3.42 acres. Mitigation shall occur through on-site preservation of 13.85 acres of wetland and riparian habitat, on-site rehabilitation of 7.36 acres of riparian habitat, and on-site re-establishment and revegetation of 107.63 acres of riparian habitat for a total of 128.84 acres of wetland riparian habitat to be preserved within the biological open space easement**.**

BIO-18 Impacts to 0.60 acre of U.S. Army Corps of Engineers (USACE) wetland waters of the U.S. shall be mitigated a minimum 3:1 ratio and 0.36 acre of USACE non-wetland waters of the U.S. shall be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 2.16 acres waters of the U.S.; and/or off-site purchase of waters of the U.S. credits at an approved mitigation bank, or other location deemed acceptable by the USACE. Any mitigation completed through purchase of mitigation credits shall be provided prior to the issuance of a grading permit, and prior to use of the premises in reliance of this permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to waters of the U.S. Impacts to waters of the U.S. would require issuance of a Section 404 CWA permit from the USACE prior to impacts.

BIO-19 Impacts to 1.14 acres of California Department of Fish and Wildlife (CDFW) jurisdictional riparian habitat (0.44 acre of southern cottonwood-willow riparian forest, 0.13 acre of southern willow scrub, 0.002 acre of freshwater marsh, 0.01 acre of arundo-dominated riparian, and 0.56 acre of disturbed wetland) shall be mitigated at a 3:1 ratio, totaling 3.42 acres of riparian habitat mitigation. Impacts to 17.06 acres of CDFW streambed shall be mitigated at a minimum 1:1 ratio through one or a combination of the following: on- and/or off-site establishment, re-establishment, rehabilitation, and/or enhancement of 17.06 acres of riparian and/or stream habitat; and/or off-site purchase of riparian and/or stream credits at an approved mitigation bank, or other location deemed acceptable by the CDFW. Combined mitigation for CDFW riparian habitat and streambed totals 20.48 acres. Any mitigation completed through purchase of mitigation credits shall be provided prior to issuance of a grading permit, and prior to use of the premises in reliance of this permit. Any applicant-initiated mitigation must be implemented prior to or concurrent with impacts to CDFW habitat. Impacts to CDFW jurisdictional habitat would require issuance of a CFG Code Section 1602 Streambed Authorization Agreement from the CDFW prior to impacts.

Table 4, *Impacts and Required Mitigation Summary*, provides a summary of project impacts to riparian habitat and jurisdictional waters and wetlands, as well as all required mitigation associated with these impacts. The applicable conditions of the Resolution of Approval will be attached to the Final Wetland Mitigation Plan submitted after discretionary approval and prior to issuance of any permit, and prior to occupancy or use of the premises in reliance of this permit.

Table 4
IMPACTS AND REQUIRED MITIGATION SUMMARY

Jurisdictional Resource	Impacts (acres)[1]	Ratio	Required Mitigation (acres)[1]		
			Establishment	Establishment, Re-establishment, Rehabilitation, and/or Enhancement	Total
USACE/RWQCB Jurisdiction					
Wetland Waters of the U.S./State					
Disturbed Wetland	0.51	3:1	0.51	1.02	1.53
Freshwater Marsh	<0.01		--	--	0
Southern Cottonwood-Willow Riparian Forest	0.09		0.09	0.18	0.27
Subtotal	*0.60*	--	*0.60*	*1.20*	*1.80*
Non-Wetland Waters of the U.S./State					
Streambed	0.36	1:1	0.36	--	0.36
USACE/RWQCB TOTAL	**0.96**	**--**	**0.96**	**1.20**	**2.16**
CDFW Riparian Habitat and Streambed					
Riparian Habitat					
Disturbed Wetland	0.56	3:1	--	1.68	1.68
Freshwater Marsh	<0.01		--	--	0
Southern Cottonwood-Willow Riparian Forest	0.44		--	1.32	1.32
Southern Willow Scrub (disturbed)	0.13		--	0.39	0.39
Arundo-Dominated Riparian	0.01		--	0.03	0.03
Subtotal	*1.14*	--	--	*3.42*	*3.42*
Streambed	17.06	1:1	--	17.06	17.06
CDFW TOTAL	**18.02**	**--**	**-**	**20.48**	**20.48**
County RPO Wetlands					
Disturbed Wetland	0.56	3:1	0.56	1.12	**1.68**
Freshwater Marsh	<0.01		--	--	**0**
Southern Cottonwood-Willow Riparian Forest	0.44		0.44	0.88	**1.32**
Southern Willow Scrub (disturbed)	0.13		0.13	0.26	**0.39**
Arundo-Dominated Riparian	0.01		0.01	0.02	**0.03**
COUNTY RPO WETLANDS TOTAL	**1.14**	**--**	**1.14**	**2.28**	**3.42**

[1] Rounded to the nearest 0.01 acre; totals reflect rounding.

3.0 GOALS OF COMPENSATORY MITIGATION

The goal of this Conceptual Wetland Mitigation Plan is to replace and improve functions and services associated with the disturbance and loss of wetland habitat as a result of the proposed project.

3.1 RESPONSIBILITIES

3.1.1 Project Proponent

New West Investment, Inc. (or its successor in interest, in the event a sale of the property takes place) will be responsible for financing the installation, maintenance, and monitoring of the proposed on-site wetland mitigation effort. Ultimately, the on-site wetland mitigation area, together with all BOS designated on-site, may be transferred in fee title (subject to County approval) to a public or private entity specializing in the long-term management of open space. If such a transfer were to occur prior to County or Resource Agency (i.e., USACE, RWQCB, and CDFW) sign-off of the on-site wetland mitigation effort, this entity would become responsible for the maintenance program described herein.

3.1.2 County of San Diego

As part of the monitoring program, the Restoration Specialist will prepare and submit annual reports to the County, CDFW, USACE, and RWQCB. The County and Resource Agencies will review these reports for completeness and will determine the success of the mitigation effort as it pertains to their specific requirements.

3.1.3 Compensatory Mitigation Project Designer

The Final Wetland Mitigation Plans (i.e., re-establishment and rehabilitation construction drawings) will consist of construction drawings, including irrigation and planting plans, prepared by a California registered landscape architect. These plans will meet the requirements set forth in the County's Report Format and Content Requirements for Revegetation Plans Section 2.11 (County 2007). The Landscape Architect will inspect the irrigation system prior to seeding and planting, as needed, to help ensure proper installation and complete coverage of the wetland mitigation area while minimizing runoff into the adjacent habitat.

3.1.4 Grading Contractor

The Grading Contractor will be responsible for salvaging topsoil from each mining subphase prior to impacts, in coordination with the Restoration Specialist. Wetland mitigation will be accomplished as part of Phase 1 of the project. Following the completion of all mining activities in Phase 1, the Grading Contractor will establish final grades and install salvaged topsoil per the Final Mitigation and Revegetation Plans (grading plans). As part of the project, approximately 2.5 million CY of soil material will be imported to the site to backfill areas excavated as part of mining operations and complete final grades. Imported soils are anticipated to be used in construction of the upland slopes and backfilling of the excavation pit in Phases 2 and 3. Imported soils are not anticipated to be used in the creation of the wetland mitigation area as mining activities in this area would involve removal of existing soils down to the final grade and will not include mining below the final grade surface. The contractor will have at

least five years of experience in successful mine reclamation grading. Final grading, use of imported soil material, and topsoil application will be coordinated with the Restoration Specialist.

3.1.5 Installation Contractor

The Installation Contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the installation of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the wetland mitigation effort, or they may be the same entity. The Project Proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. Installation may include, but is not limited to, ordering plantings and seed, removing non-native plants and trash, mulching dead trees, installing irrigation lines, container plants and seed, and all maintenance of the mitigation area during the 120-day plant establishment period.

3.1.6 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of the on-site wetland mitigation effort will be the responsibility of a qualified Restoration Specialist with at least five years of experience with successful native wetland habitat restoration in Southern California. The Restoration Specialist will oversee the efforts of the Installation and Maintenance Contractor(s) for the duration of the mitigation effort. Specific tasks of the Restoration Specialist include educating all participants, with regard to wetland waters re-establishment and riparian rehabilitation goals and requirements, as well as directly overseeing final grading, topsoil application, weeding, planting, and seeding, as well as maintenance activities for the duration of the five-year maintenance period. The Restoration Specialist will explain to the contractor how to avoid impacts to existing sensitive habitat and sensitive species. When necessary to keep the mitigation effort on track to meet~~ing~~ final success criteria, the Restoration Specialist will provide the project proponent and contractor with a written monitoring memorandum, including a list of items in need of attention. The Restoration Specialist also will conduct annual assessments of the mitigation effort and prepare and submit an annual report to the County and Resource Agencies each year during the five-year maintenance and monitoring period.

3.1.7 Maintenance Contractor

The Maintenance Contractor will have at least five years of experience in successful native wetland habitat restoration in Southern California and be under the direction of the Restoration Specialist, who will assist the contractor with the maintenance of the target vegetation type. Different contractors may be used for the installation and maintenance phases of the mitigation effort, or they may be the same entity. The project proponent may change contractors at its discretion, as long as the contractor has the required level of experience, as stated above. The contractor will service the entire mitigation area as required, meet the Restoration Specialist at the site when requested, and perform all checklist items in a timely manner as directed by the project proponent. This contractor will be knowledgeable regarding the maintenance of native habitat and the difference between native and non-native plants. Maintenance would include but not be limited to removal of non-native vegetation and trash, irrigation adjustments and repairs, and potentially re-seeding and/or re-planting. All maintenance activities would be seasonally appropriate and approved by the Restoration Specialist.

3.1.8 Nursery (Seed/Plant Procurement)

Plants and seed may be purchased from a nursery or supplier specializing in native plants or contract grown. Plant and seed material should be locally propagated and collected from central San Diego County, within 25 miles of the site. Plant/seed orders should be placed by the Installation Contractor at least six months prior to installation.

3.2 TYPES AND AREAS OF HABITAT TO BE ESTABLISHED

To meet the mitigation requirements, wetland water re-establishment, riparian rehabilitation, and riparian preservation are proposed. A total of 1.30 acres of wetland waters will be re-established within the downstream portion of the expanded Sweetwater River floodplain as part of the on-site wetland mitigation effort (Table 5, *Compensatory Mitigation Target Habitats*; Figure 13, *Conceptual Compensatory Mitigation and Reclamation Revegetation*). A total of 7.36 acres of existing riparian habitat in the downstream portion of the Sweetwater River will be rehabilitated through non-native species removal, weed control, and installation of native seed and container plants. In addition to wetland waters re-establishment and riparian rehabilitation, 13.85 acres of existing wetland and riparian habitat will be preserved within the project's BOS.

Table 5
COMPENSATORY MITIGATION TARGET HABITATS

Habitat	Provided Mitigation (acres)[1]			
	Establishment	Rehabilitation	Preservation	Total
Freshwater Marsh	-	-	0.22	0.22
Open Water	-	-	1.68	1.68
Riparian Scrub	-	7.36	-	7.36
Riparian Forest	1.30	-	-	1.30
Southern Willow Scrub	-	-	0.25	0.25
Southern Cottonwood-Riparian Forest	-	-	11.70	11.70
TOTAL	**1.30**	**7.36**	**13.85**	**22.51**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

3.3 FUNCTIONS AND VALUES

The goal of the proposed mitigation effort is to re-establish wetland waters and rehabilitate native riparian habitat with the same or greater functions and values (e.g., habitat for wildlife) as the impacted jurisdictional waters and riparian habitat and preserve additional existing native wetland and riparian habitats. Wetland waters re-establishment and riparian rehabilitation will (1) increase the value of the existing riparian corridor for native flora and fauna; (2) improve areas mapped as USFWS critical habitat for San Diego ambrosia, least Bell's vireo, and coastal California gnatcatcher; (3) provide additional cover for wildlife movement; and (4) provide foraging and nesting habitat for riparian species known from the area, many of which are sensitive, such as least Bell's vireo, yellow warbler, and yellow-breasted chat (HELIX 20253b). The wetland waters re-establishment and riparian rehabilitation, in addition to the preservation of existing native wetland and riparian habitats is expected to provide functions and services typical of naturally occurring intermittent stream channels such as stream-energy dissipation to reduce erosion and improve water quality, groundwater recharge, sediment transport, water purification, and foraging, breeding, live-in, and dispersal habitat for wildlife. At the end of five years of

maintenance and monitoring, the established wetland waters and rehabilitated riparian habitat is expected to replace the habitat functions and values disturbed and/or lost from project implementation, and to continue on the trajectory toward developing functions and values of adjacent native streambed and riparian habitat without further active management.

3.4 TIME LAPSE

Compensatory mitigation for impacts to riparian habitat, other sensitive vegetation communities, and jurisdictional waters and wetlands will occur prior to or concurrent with initiation of project grading for Phase 1 (Table 6, *Compensatory Mitigation and Reclamation Revegetation Phasing*). Preservation of existing native riparian habitat and riparian habitat rehabilitation will occur prior to or concurrent with initiation of project grading for Subphase 1A. Initiation of wetland waters re-establishment would occur prior to or during the fall of the year in which project reclamation is completed, and revegetation is initiated for Subphase 1B. Sign off of the on-site wetland mitigation effort is expected by the end of the five-year maintenance and monitoring period.

Table 6
COMPENSATORY MITIGATION AND RECLAMATION REVEGETATION PHASING (acre[s])[1]

Habitat	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	M[2]	R[2]	M[2]	R[2]	M[2]	R[2]	M[2]	R[2]	M[2]	R[2]
Conceptual Reclamation Revegetation										
Native Habitat Revegetation										
Riparian Forest	0	7.41	0	3.63	0	3.05	0	0	0	14.09
Riparian Scrub	0	28.68	0	28.11	0	28.05	0	0	0	84.84
Streambed (Emergent Wetland)	0	4.02	0	3.55	0	2.37	0	0	0	9.94
Coastal Sage Scrub	0	2.94	0	3.27	0	5.71	0	0	0	11.92
Subtotal	*0*	*43.05*	*0*	*38.56*	*0*	*39.18*	*0*	*0*	*0*	*120.79*
Other Reclamation										
Erosion Control Mix	0	39.68	0	12.30	0	36.73	0	9.19	0	97.90
Revegetation Total	***0***	***82.73***	***0***	***50.86***	***0***	***75.91***	***0***	***9.19***	***0***	***218.69***
Conceptual Compensatory Mitigation										
Wetland Waters Re-Establishment										
Riparian Forest	1.30	0	0	0	0	0	0	0	1.30	0
Rehabilitation										
Riparian Scrub	7.36	0	0	0	0	0	0	0	7.36	0
Preservation										
Open Water	1.68	0	0	0	0	0	0	0	1.68	0
Freshwater Marsh	0.22	0	0	0	0	0	0	0	0.22	0
Southern Cottonwood-Willow Riparian Forest	11.70	0	0	0	0	0	0	0	11.70	0
Southern Willow Scrub	0.25	0	0	0	0	0	0	0	0.25	0
Coastal Sage Scrub	0.55	0	0	0	0	0	0	0	0.55	0
Non-native grassland	0.15	0	0	0	0	0	0	0	0.15	0
Mitigation Total	**23.21**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15.53**	**0**
TOTAL	**23.21**	**82.73**	**0**	**50.68**	**0**	**75.91**	**0**	**9.19**	**23.21**	**218.69**

[1] Areas are presented in acre(s) rounded to the nearest 0.01.

[2] M = Compensatory Mitigation; R = Reclamation Native Habitat Revegetation

3.5 COST

A draft cost of $765,000 ($85,000 for biological monitoring and reporting and $680,000 for installation and maintenance) has been estimated to implement this mitigation effort (including an adjustment for inflation). This cost includes installation, maintenance during a 120-day PEP and five-year maintenance period, and all associated monitoring and reporting. This cost assumes that all grading, topsoil salvage or application, fencing, and erosion control will be implemented as part of the overall project; these costs are excluded from this estimate.

4.0 DESCRIPTION OF PROPOSED COMPENSATORY MITIGATION SITE

4.1 SITE SELECTION

All compensatory wetland mitigation, along with revegetation of native upland and wetland habitat as detailed in the Conceptual Revegetation Plan (HELIX 2025~~3~~a), will occur on-site along the Sweetwater River and adjacent areas (Figure 13). The downstream portion of the Sweetwater River has been targeted for compensatory mitigation based on its proximity to existing native riparian habitat, both on-site and off-site. On-site native riparian habitat in the southwestern portion of the project site will be rehabilitated and preserved as part of the mitigation effort. Off-site native riparian habitat is located immediately downstream of the mitigation area within the SDNWR.

Wetland waters re-establishment will occur in the southwestern portion of the site, to the north of the existing Sweetwater River channel, in an area that will be lowered in elevation to expand the existing floodplain width (Figure 14, *Conceptual Compensatory Mitigation Areas*). The mapped soils in this area consist of Riverwash and Tujunga sand, which are frequently found in alluvial floodplains within and near wetlands. Additionally, the soil and geologic study conducted by Geocon found alluvial channel deposits within the wetland waters re-establishment area at and below the final grade depth, which is estimated to be between 320 and 330 AMSL (Geocon 2020).

These upstream portions of the Sweetwater River contribute to the wetland hydrology of the downstream areas, as well as providing a seed source of native riparian species. Site hydrology for the established wetland is expected to be provided by intermittent flows along the existing Sweetwater River and groundwater. As evidenced by the presence of healthy riparian forest habitat upstream and downstream of the site, the sandy soils and periodic flooding limit soil salinity levels. The selected wetland waters re-establishment area also will be easily accessible for maintenance and monitoring activities but will not be accessible to vehicular traffic or regular pedestrian traffic.

On-site preservation of native wetland and riparian habitat will consist of three areas: a small patch of riparian forest in the extreme northeastern portion of the site where the Sweetwater River enters the property; existing riparian habitat in the southwestern portion of the site along the Sweetwater River; and a patch of riparian forest located directly east of Steele Canyon Road, to the south of the Sweetwater River, along the site's southern border. The preserved wetland and riparian habitat east of Steele Canyon Road occurs in an area that was excavated as part of previous sand mining activities. This area was mined to a depth that created conditions suitable to support riparian habitat. These areas have

been selected for preservation based on the presence of native wetland and riparian habitats and low non-native cover.

4.2 LOCATION AND SIZE OF COMPENSATORY MITIGATION SITE

Compensatory mitigation for wetland impacts will be provided in three separate locations on-site (Figure 14):

1) Preservation 13.85 acres of riparian habitat in three areas: (1) northeastern portion of the site along the Sweetwater River between north 32.7539 and 32.7537 latitude and -116.9051 and -116.9054 west longitude, (2) in the eastern portion of the site to the south of the Sweetwater River between approximately 33.7439 and 33.7426 north latitude and between -116.9123 and -116.9160 west longitude, and (3) in the southwestern portion of the site along the Sweetwater River between 32.7400 and 32.740797 north latitude and -116.9214 and -116.928754 west longitude; and

2) Re-establishment of 1.30 acres of wetland waters and rehabilitation of 7.36 acres of riparian habitat in the southwestern portion of the site along the Sweetwater River between 32.7400 and 32.740797 north latitude and -116.9214 and -116.928754 west longitude.

It is noted that the targeted acreages exceed the anticipated mitigation requirements and allow for contingency acreage as well as helping to ensure success by enhancing the entire lower reach of the existing riparian corridor. Final mitigation requirements will be determined in consultation with the USACE, RWQCB, and CDFW during the wetland permitting process.

Mitigation for impacts to 0.60 acre of wetland and 0.36 acre of non-wetland waters of the U.S./State will occur through the on-site wetland waters re-establishment of 1.30 acres of wetland waters of the U.S./State and 7.36 acres of rehabilitation of wetland waters of the U.S./State. Thus, there will be no net loss of wetland waters of the U.S./State as summarized in Table 7, *USACE/RWQCB Jurisdictional Resource Mitigation*. An additional 13.85 acres of wetland and non-wetland waters of the U.S./State would also be preserved (Table 7).

Table 7
USACE/RWQCB JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

USACE/RWQCB Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment[4]	Rehabilitation	Preservation	Total
Freshwater Marsh	2.16	-	-	0.22	0.22
Open Water		-	-	1.68	1.68
Riparian Scrub		-	7.36	-	7.36
Riparian Forest		1.30	-	-	1.30
Southern Willow Scrub		-	-	0.25	0.25
Southern Cottonwood-Willow Riparian Forest		-	-	11.70	11.70
USACE/RWQCB TOTAL	**2.16**	**1.30**	**7.36**	**13.85**	**22.51**

1 Areas are presented in acre(s) rounded to the nearest 0.01.
2 Mitigation obligation reported here is consistent with that identified in the project's BTR (HELIX 20253b) and CEQA documentation.
3 All compensatory mitigation will occur on-site.
4 Re-establishment and rehabilitation will consist of wetland waters of the U.S./State.

Mitigation for impacts to 1.14 acres of CDFW riparian habitat and 17.06 acres of unvegetated CDFW streambed will occur through on-site re-establishment of 1.30 acres of riparian habitat, rehabilitation of 7.36 acres of CDFW-jurisdictional riparian habitat, and preservation of 13.85 acres of CDFW-jurisdictional riparian habitat as summarized in Table 8, *CDFW Jurisdictional Resource Mitigation*. Mitigation for unavoidable impacts to CDFW jurisdictional resources will be biologically equivalent or superior to resources being impacted by the project.

Table 8
CDFW JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment	Rehabilitation	Preservation	Total
CDFW Riparian Habitat and Streambed					
Freshwater Marsh	20.48	-	-	0.22	0.22
Open Water		-	-	1.68	1.68
Riparian Scrub		-	7.36	-	7.36
Riparian Forest		1.30	-	-	1.30
Southern Willow Scrub		-	-	0.25	0.25
Southern Cottonwood-Willow Riparian Forest		-	-	11.70	11.70
CDFW TOTAL	**20.48**	**1.30**	**7.36**	**13.85**	**22.51**

1 Areas are presented in acre(s) rounded to the nearest 0.01.
2 Mitigation obligation reported here is consistent with that identified in the project's BTR (HELIX 2025~~3~~b) and CEQA documentation.
3 All compensatory mitigation will occur on-site.

Mitigation for impacts to 1.14 acres of County RPO wetlands will occur through on-site re-establishment of 1.30 acres of riparian habitat, rehabilitation of 7.36 acres of riparian habitat, and preservation of 13.85 acres of existing riparian habitat as summarized in Table 9, *County RPO Wetlands Jurisdictional Resource Mitigation*. Mitigation for unavoidable impacts to County RPO wetlands will be biologically equivalent or superior to resources being impacted by the project.

Table 9
COUNTY RPO WETLANDS JURISDICTIONAL RESOURCE MITIGATION (acre[s])[1]

Jurisdictional Resource	Mitigation Obligation[2]	Provided Mitigation[3]			
		Establishment	Rehabilitation	Preservation	Total
County RPO Wetlands					
Freshwater Marsh	3.42	-	-	0.22	0.22
Open Water		-	-	1.68	1.68
Riparian Scrub		-	7.36	-	7.36
Riparian Forest		1.30	-	-	1.30
Southern Willow Scrub		-	-	0.25	0.25
Southern Cottonwood-Willow Riparian Forest		-	-	11.70	11.70
County RPO TOTAL	**3.42**	**1.30**	**7.36**	**13.85**	**22.51**

1 Areas are presented in acre(s) rounded to the nearest 0.01.
2 Mitigation obligation is reported here consistent with that identified in the project's BTR (HELIX 2025~~3~~b) and CEQA documentation.
3 All compensatory mitigation will occur on-site.

4.3 FUNCTIONS AND VALUES

The area proposed for wetland waters re-establishment is currently characterized by ruderal vegetation and disturbed habitat associated with previous golf course operation, and a mixture of native and non-native planted landscape trees (Figure 7). The existing functions and values of this area are limited as a result of previous development into a golf course; the area is currently dominated by Bermuda grass (*Cynodon dactylon*) or bare ground. Planted trees within the golf course currently provide potential breeding habitat for bird species such as the sensitive western bluebird, which was observed throughout the project site (HELIX 2025~~3~~b).

The portions of the existing riparian habitat that will be rehabilitated currently contain nearly 100 percent cover by tamarisk (*Tamarix* spp.) and giant reed (*Arundo donax*). These patches have limited wildlife use due to the predominance of dense/tall tamarisk trees and other invasive species. Due to the proximity of a healthier riparian habitat dominated by native trees and shrubs, some bird species, including least Bell's vireo, which was detected within this area during biological surveys conducted between 2019 and 2022 (HELIX 2025~~3~~b), small rodents and mammals, and lizards and amphibians may use the patches of disturbed riparian habitat for foraging, breeding, and live-in habitat. The disturbed riparian areas also contribute to flood conveyance, groundwater recharge, and sediment control in the river.

The existing riparian habitat proposed for preservation provides moderate- to high-quality riparian habitat for local wildlife found within the area. Existing riparian habitat provides foraging, breeding, and live-in habitat for several reptile and amphibian, bird, and small rodent and mammal species observed or detected during project surveys (HELIX 2025~~3~~b), including the least Bell's vireo, which was confirmed to successfully breed within the existing patch of native riparian habitat located east of Steele Canyon Road. These areas also contribute to flood conveyance, groundwater recharge, and sediment control in the river.

4.4 JURISDICTIONAL DELINEATION

HELIX biologists conducted a formal jurisdictional delineation of the project site on September 18 and October 5, 2018. The results of this delineation are summarized in the project Biological Technical Report (HELIX 2025~~3~~b), and are shown on Figures 8, 9, 10, and 11 of this compensatory wetland mitigation plan.

4.5 PRESENT AND PROPOSED USES

The current general land uses on the project site include a public golf course in addition to expanded fairways associated with golf course improvements. Construction of the golf course began in the 1960s and continued into the 1970s as the golf course expanded and improved. The site currently contains one operational and one abandoned public golf course (golf play and maintenance of landscaped turf in the western portion of the site were discontinued in 2017). The proposed project would convert the two golf courses into a sand mining operation that would be conducted in three phases over 10 years, with a final fourth phase for cleanup, equipment removal, and final reclamation.

Following mining and reclamation activities, the project site would be characterized by an expanded Sweetwater River floodplain and associated riparian corridor. In addition to implementing the wetland

waters re-establishment, riparian rehabilitation, and preservation discussed in this plan, the project would also include the revegetation of riparian habitat within the expanded Sweetwater River floodplain and the revegetation of upland habitat on the cut slopes constructed around the outer margins of the widened floodplain. Revegetation activities would occur as part of the project's reclamation and are addressed in the Conceptual Revegetation Plan (HELIX 2025~~3~~a). The combined wetland mitigation area and native revegetation areas would be preserved within the project's BOS (Figure 15, *Proposed Biological Open Space*). The BOS would be managed over the long term by a habitat manager according to a Resource Management Plan (HELIX 2025~~3~~c). Hiking trails are proposed to be established around the perimeter of the BOS area following site reclamation; no hiking trails are proposed within the mitigation area or expanded Sweetwater River floodplain.

There are two easements that bisect the BOS that would remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's BOS in a generally north to south direction across the Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the BOS; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the BOS. The second easement consists of a San Diego Gas & Electric (SDG&E) easement, which occurs within the eastern portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site, where reclamation and revegetation activities are proposed to occur (Figure 13). The SDG&E easement bisects the project's BOS area but is located outside of the mitigation area. The easement consists of overhead utility lines that run in a north to south direction across the Sweetwater River. Two transmission towers and other associated infrastructure have been excluded from the mitigation site and BOS; therefore, the presence of the SDG&E easement is not expected to affect the mitigation site and BOS.

4.6 REFERENCE SITE

Native habitat within the southwestern portion of the site was used as a reference site for the on-site wetland waters re-establishment and riparian rehabilitation areas. The mitigation goals and success criteria presented in this plan have been based on visual estimates of native cover noted in the reference site during biological surveys conducted for the biological technical report (HELIX 2025~~3~~b).

5.0 IMPLEMENTATION PLAN

This section provides the details for the execution of the on-site wetland mitigation plan.

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The proposed wetland waters re-establishment effort is anticipated to be successful based on the following: (1) the area selected for re-establishment is immediately adjacent to healthy existing wetland waters and riparian habitat; (2) the presence of appropriate soils within the proposed wetland re-establishment area based on the project's geologic study (Geocon 2020) and proposed post-reclamation final landforms and elevation; (3) flows through the nearby Sweetwater River channel, and associated groundwater levels, are expected to provide sufficient hydrology to support riparian vegetation within the wetland waters re-establishment area; (4) the use of plantings and seed of native species known to

occur on-site; (5) the use of temporary irrigation to aid plant establishment; and (6) a financial commitment to ensure the long-term management of the mitigation lands.

Wetland rehabilitation is expected to be successful because these areas consist of weed-infested pockets of riparian habitat within a larger area that is dominated by healthy southern cottonwood-willow riparian forest and southern willow scrub habitat. In addition, hydrology inputs into this area are not expected to change following reclamation, native plantings and seed would be installed, and temporary irrigation would be used to help establish native cover.

Riparian habitat preservation is anticipated to be successful because these areas already contain healthy riparian habitat with low cover by non-native and invasive vegetation. These areas will be preserved in their current state within the BOS, with no maintenance or monitoring proposed under this plan. The preserve areas will be managed in accordance with the project's Conceptual Resource Management Plan (HELIX 2025~~3~~c).

5.2 FINANCIAL ASSURANCES

A revegetation agreement shall be signed and notarized by the property owner following approval of this restoration plan and be accompanied by the required security as agreed upon by the County.

5.3 SCHEDULE

Mitigation should be initiated at the same time or prior to the initiation of project site grading/impacts to jurisdictional resources as detailed above in Table 6. Rehabilitation of existing riparian habitat will occur prior to or concurrent with initiation of project grading for Phase 1A. Initiation of the wetland waters re-establishment should occur during the fall of the year in which project reclamation is completed for Phase 1B. Irrigation, plantings, and seed can be installed in the wetland waters re-establishment area following reclamation and final grading of this area. Monitoring of the mitigation effort will begin during the initial weeding of the riparian rehabilitation area and will continue through five years after the wetland waters re-establishment has been installed. Maintenance of the mitigation area will begin following completion of installation and will continue through establishment sign-off.

Grading of the wetland waters re-establishment area and initial weed control within the riparian rehabilitation area will follow the bird breeding season timing restrictions outlined in more detail below.

5.4 SITE PREPARATION

5.4.1 Protective Fencing

As part of the project design, temporary fencing will be installed around the perimeter of the project site where fencing is currently not present or in need of repair. In addition, during mining, temporary environmental fencing shall be installed around active work areas to protect sensitive biological resources, such as the Sweetwater River and native vegetation communities. All construction-related fencing would be removed ~~that~~ as the works areas are~~is~~ being actively restored or revegetated. No temporary fencing is proposed to be installed around the wetland waters re-establishment or riparian rehabilitation areas since these would be located within the expanded Sweetwater River floodplain and are expected to periodically flood.

5.4.2 Grading

Grading the wetland waters re-establishment area shall be completed as part of site reclamation immediately following completion of mining operations within Phase 1B. Reclamation would include grading of all final slopes and topographic features and incorporation of salvaged topsoil. The wetland waters re-establishment area will be graded in accordance with the Final Revegetation Plans, which will lower elevations of the existing upland areas to a height similar to or slightly above the existing low-flow river channel. Graded areas within the expanded Sweetwater River floodplain shall be left in a rough grade state with micro topographic relief that mimics natural topography. Planting and irrigation should not be installed until the Restoration Specialist has approved the grading. Grading of the riparian rehabilitation area would not be required as the existing native habitat, and current site elevations would be conserved in their current state.

Grading and final reclamation of the wetland waters re-establishment area will occur outside of the general bird nesting season (February 1 to August 31), coastal California gnatcatcher nesting season (March 1 to August 15), and least Bell's vireo nesting season (March 15 to September 15) to avoid impacts to nesting birds. If grading and reclamation activities must occur during the bird breeding season, the relevant mitigation measures contained in the project's BTR (HELIX 20253b), such as preconstruction surveys, shall be implemented.

5.4.3 Removal of Non-native Vegetation

The wetland waters re-establishment will have been recently graded and is not expected to require any initial weed control. Within the riparian rehabilitation area, non-native vegetation will be removed prior to the installation of native plants and seed. Initial vegetation removal will either occur outside of the general bird nesting season (February 1 to August 31) and least Bell's vireo breeding season (March 15 to September 15) to avoid impacts to nesting birds, or a nesting bird survey will need to be conducted by a qualified biologist pursuant to the relevant mitigation measures contained in the BTR (HELIX 20253b). Non-native vegetation will be removed by hand or through the use of wetland-approved herbicide. The Restoration Specialist will provide guidance to the Maintenance Contractor on how weeding should be accomplished.

5.4.4 Soil Amendments

No soil amendments are recommended for the wetland waters re-establishment area due to the proximity of healthy native riparian habitat and soils mapping, indicating that soils in this area consist of Riverwash and Tujunga sand (Figure 6; NRCS 2022), both appropriate for riparian habitat. Soil amendments are likewise not expected for the riparian rehabilitation area because this area will not be graded, and native riparian vegetation is growing in adjacent, similar soils.

5.4.5 Erosion Control

Erosion control measures will be installed upstream of the wetland waters re-establishment area wherever deemed necessary to prevent sediment movement into this area from nearby mining. This erosion control may include, but is not limited to, organic matting, fiber rolls (straw wattles), and silt fencing. Given the relatively flat topography of the wetland waters re-establishment area, no additional erosion control is anticipated within this area.

5.5 PLANTING PLAN

5.5.1 Plant Palettes/Seed Mixes

Concurrent with the start of project mining activities, native seed, container plants, and cuttings (if feasible) will be installed in the riparian rehabilitation area (Table 10, *Riparian Scrub/Forest Rehabilitation Plant Palette*) after one cycle of grow and kill weed control has been conducted. Plantings will be irrigated with well water. After subphase 1B mining is completed and site preparation and irrigation installation have been completed, native plantings and seed will be installed within the wetland waters re-establishment area (Table 11, *Wetland Waters and Riparian Habitat Re-Establishment [Riparian Scrub] Plant Palette*).

The species selected for planting and seeding within the wetland waters re-establishment and riparian rehabilitation areas have been observed within the on-site riparian habitat or are known to occur within the surrounding area. A varied plant palette was purposefully selected for this habitat so that plants could establish based on micro-environmental variations in soil moisture. All plants and seed should be obtained from southern San Diego County, whenever possible. Container stock orders or production from seed may be needed up to 12 months prior to the anticipated installation date. Species substitutions, quantity changes, or use of commercial seed may be allowed, if necessary, at the discretion of the Restoration Specialist. The Restoration Specialist must approve all seed and container stock orders, including source locations, prior to ordering. The Restoration Specialist must inspect all plant material prior to installation; root bound material, any material with Argentine ants or other pests, and any other plants deemed damaged will not be accepted. Fast-growing annual species that are quick to germinate will be included in the seed mix to provide initial cover and help protect against soil erosion. Slower-growing perennials will provide long-term cover and further protection against erosion.

Table 10
RIPARIAN SCRUB/FOREST REHABILITATION PLANT PALETTE (7.36 acres)

CONTAINER STOCK[1]					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Baccharis salicifolia	mule fat	6	10	230	1,693
Distichlis spicata	saltgrass	10	3	50	368
Platanus racemosa	western sycamore	15	2	25	184
Populus fremontii ssp. *fremontii*	western cottonwood	15	2	25	184
Quercus agrifolia	California live oak	15	3	50	368
Rosa californica	California wild rose	5	3	50	368
Salix exigua	sand bar willow	8	4	90	662
Salix gooddingii	black willow	12	5	120	883
Salix laevigata	red willow	12	5	120	883
Salix lasiolepis	arroyo willow	12	5	120	883
Sambucus nigra	blue elderberry	10	3	85	626
			TOTAL	**965**	**7,102**

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**% Purity / Germination**	**Pounds per Acre**	**Pounds Required**
Ambrosia psilostachya	western ragweed	45/45	4	29
Anemopsis californica	yerba mansa	55/80	1	7
Artemisia douglasiana	Douglas' sagewort	15/40	3	22

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**% Purity / Germination**	**Pounds per Acre**	**Pounds Required**
Artemisia palmeri	Palmer's sagebrush	20/50	2	15
Baccharis salicifolia	mule fat	10/20	3	22
Bolboschoenus maritimus	bulrush	90/60	1	7
Cyperus eragrostis	tall flatsedge	80/75	1	7
Distichlis spicata	saltgrass	90/75	1	7
Eleocharis macrostachya	pale spike-rush	95/60	1	7
Isocoma menziesii	goldenbush	18/40	1	7
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	0.5	4
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	4
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	4
Pluchea odorata	salt marsh fleabane	30/40	2	15
		TOTAL	**21.5**	**158**

[1] Substitutions require approval of the Restoration Specialist.

Table 11
WETLAND WATERS RE-ESTABLISHMENT (RIPARIAN FOREST) PLANT PALETTE (1.30 acres)

CONTAINER STOCK[1]					
Scientific Name	**Common Name**	**Spacing on Center (ft.)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Artemisia dracunculus	tarragon	5	5	100	130
Baccharis salicifolia	mule fat	6	10	230	299
Distichlis spicata	saltgrass	10	3	150	195
Iva hayesiana	San Diego marsh elder	5	5	120	156
Platanus racemosa	western sycamore	15	3	50	65
Populus fremontii ssp. *fremontii*	western cottonwood	15	3	50	65
–*Quercus agrifolia*	California wild oak	15	3	50	65
Rosa californica	California wild rose	5	3	50	65
Salix exigua	sand bar willow	8	5	120	156
Salix gooddingii	black willow	12	5	150	195
Salix laevigata	red willow	12	5	200	260
Salix lasiolepis	arroyo willow	12	5	200	260
Sambucus nigra	blue elderberry	10	3	50	65
			TOTAL	**1,520**	**1,976**

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**	**Pounds Required**
Ambrosia psilostachya	western ragweed	45/45	4	5
Anemopsis californica	yerba mansa	55/80	1	1
Artemisia douglasiana	Douglas' sagewort	15/40	3	4
Artemisia palmeri	Palmer's sagebrush	20/50	2	3
Baccharis salicifolia	mule fat	10/20	3	4
Baccharis sarothroides	broom baccharis	7/42	1	1
Bolboschoenus maritimus	alkali bulrush	90/60	1	1
Croton californicus	California croton	90/40	1	1
Eleocharis macrostachya	pale spike-rush	95/60	1	1
Isocoma menziesii	goldenbush	18/40	1	1
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	95/80	1	1

SEED MIXTURE[1]				
Scientific Name	**Common Name**	**%Purity/ Germination**	**Pounds per Acre**	**Pounds Required**
Juncus effusus var. *pacificus*	Pacific rush	95/60	0.5	1
Oenothera elata ssp. *hookeri*	evening primrose	98/84	0.5	1
Pluchea odorata	salt marsh fleabane	30/40	2	3
		TOTAL	**22.0**	**29.0***

[1] Substitutions require approval of the Restoration Specialist.

* No less than 20 lbs. per acre of seed shall be installed.

5.5.2 Container Plantings

Container stock should be one-gallon size, rooted appropriately (i.e., neither root bound nor insufficiently developed), and should be installed in holes that are the same size as the planting container and backfilled afterward. Holes will be dug with mechanical augers where possible and by hand elsewhere. Plants should be installed in a way that mimics natural plant distribution; therefore, container plantings will be installed in groupings proportional to their density per acre. The Restoration Specialist must inspect all plantings for signs of disease on the day of delivery. They must be able to specifically identify Kuroshio shot-hole borer, gold-spotted oak borer, and thousand canker fungus. Any diseased plants will be rejected and returned to the seller.

5.5.3 Cuttings

Any riparian tree or shrub cuttings would be in addition to the container plantings and seed specified in Tables 9 and 10. If feasible, cuttings should be collected from within the existing riparian corridor or the same watershed by personnel experienced in cutting collection and installation. Any species listed for planting can also be readily grown from cuttings installed directly into the ground, with the exception of blue elderberry (*Sambucus nigra*) and western sycamore (*Platanus racemosa*).

Prior to taking cuttings, it is essential that all equipment being used, typically consisting of a bucket of water and wood cutters, is sterilized so no pathogen cross-contamination occurs. All collected material must be inspected by a Restoration Specialist or nursery staff trained to detect Kuroshio shot-hole borer, gold spotted oak borer, and thousand canker fungus. Any infested material that is collected must be immediately mulched to pieces small than one inch in size. To maintain genetic diversity within the restored areas, no more than 10 cuttings should be taken from any one plant. Ideally, cuttings should be stored in water for approximately one week to encourage root development following planting.

In general, willow (*Salix* spp.) and cottonwood (*Populus fremontii*) pole cuttings should be at least three feet long and 0.75 to 1.25 inches in diameter, with the end that will be inserted into the ground (snipped closest to the tree trunk) cut at a 45-degree angle to facilitate soil penetration and maximize surface area for root growth. Mule fat (*Baccharis salicifolia*) cuttings can be slightly smaller. Any foliage or side branches should be stripped from each cutting to minimize water translocation and allow the cutting to put its energy into root growth.

Prior to installation the Restoration Specialist must inspect all cuttings for signs of disease. They must be able to specifically identify Kuroshio shot-hole borer, gold-spotted oak borer, and thousand canker fungus. Any diseased plants will be returned to the nursery where they will be destroyed (mulched to pieces smaller than 1 inch in size.

Cuttings should be installed a few feet into the ground such that the base of the cutting is at the water table. If the cutting is not in the water table or getting surface water (e.g., from supplemental irrigation), it will quickly dry out and die. Typically, a pole cutting is installed two to three feet deep. Cuttings should be installed in groupings according to the spacing recommendations made in Tables 9 and 10. Smaller species such as mule fat can be interspersed between larger over-story plants such as willows and cottonwoods.

5.5.4 Seed

Within the wetland waters re-establishment and rehabilitation areas, seed will be dispersed by hand and/or with the use of a rotary seed applicator and raked into the soil as needed.

5.6 IRRIGATION PLAN

Temporary, above-ground irrigation lines will be installed in the wetland waters re-establishment and riparian rehabilitation areas, and both areas will be temporarily irrigated well water, if accessible, otherwise, other irrigation connections will need to be established. The project landscape architect, together with the Installation Contractor, will inspect the irrigation system as well as coverage prior to plant/seed installation.

Irrigation plans included with the restoration construction documents will show the Point of Connection (POC), available pressure, controller location, valves, piping, and head locations. If the POC is beyond the limits of the wetland waters re-establishment and riparian rehabilitation areas, the off-site irrigation service line to the POC will be identified. Irrigation plans will provide the required backflow protection at the POC, and identify the power source for the irrigation controller, if applicable.

6.0 MAINTENANCE PLAN

6.1 MAINTENANCE ACTIVITIES

A five-year maintenance program is proposed to ensure the successful establishment and persistence of riparian habitat within the wetland establishment and enhancement areas. The maintenance program will involve the removal of non-native species and trash, irrigation maintenance, and any remedial measures deemed necessary for the success of the wetland mitigation program (e.g., re-seeding and re-planting). Maintenance activities will be directed by the Restoration Specialist and implemented by the Maintenance Contractor.

The maintenance guidelines specified herein are tailored for native plant establishment. Maintenance personnel will be informed of the goals of the mitigation effort and the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise maintenance. It is the Installation/Maintenance Contractor's responsibility to keep seeded and planted areas free of debris, and to monitor irrigation function and scheduling, plant material condition and health, and removal of non-native species. The Installation/Maintenance Contractor will also be responsible for replacing any dead or terminally stressed plants, at the direction of the Restoration Specialist. Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the Restoration Specialist. The cost of such repairs

will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of irrigation systems, as determined by the Restoration Specialist.

6.1.1 Irrigation

The goal is to obtain germination and growth with the least amount of irrigation. Too much irrigation results in abnormal habitat and encourages invasion by non-native plants, leaches nutrients from the soil, and can increase erosion; therefore, water will be applied infrequently and only as needed to prevent plant mortality.

The irrigation system will be maintained until the Restoration Specialist determines that supplemental water is no longer required. At that time, irrigation will be permanently disconnected (e.g., the mainline will be cut), but not removed. Above-ground portions of irrigation will be removed when directed by the Restoration Specialist or following wetland mitigation sign-off by the County and Resource Agencies.

6.1.2 Non-native Plant Control

Particular emphasis will be placed on the proactive removal of non-native vegetation. As non-native plants become evident, they should be removed by hand or controlled with the proper herbicides (if approved by the Restoration Specialist). The Restoration Specialist will oversee non-native plant control by the Maintenance Contractor; however, maintenance personnel must be knowledgeable in distinguishing non-native species from desirable native vegetation. If maintenance personnel mistakenly remove native species, the Maintenance Contractor will be responsible for rectifying the damage, at the direction of the Restoration Specialist.

Non-native plant species considered to be moderately or highly invasive by the California Invasive Plant Council (Cal-IPC 2020) shall be totally eradicated within the wetland waters re-establishment and riparian rehabilitation areas for all five years of maintenance. Examples of invasive plants observed ~~on~~ on-site include, but are not limited to, tamarisk, giant reed, and Mexican fan palm (*Washingtonia robusta*). Additional species may be added to this list, at the discretion of the Restoration Specialist. Non-native grasses listed as moderately or highly invasive will be controlled on-site, but due to their abundance in the local area, total eradication is not considered feasible.

6.1.3 Pruning

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist. For example, if it is necessary to remove an obstruction from or for the repair of the irrigation system.

6.1.4 Trash

Any trash observed within the wetland waters re-establishment or enhancement areas should be removed for the duration of maintenance work in the respective area. All collected trash will be properly disposed of at a licensed landfill.

6.1.5 Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to restoration success. If deemed necessary, a licensed pest control adviser will make specific pest control recommendations. All applicable federal and state laws and regulations will

be closely followed. The Restoration Specialist will be consulted on any pest control matters and will specifically monitor the mitigation site for evidence of invasive Kuroshio shot-hole borer, gold-spotted oak borer, and thousand canker fungus. If identified, diseased trees will be mulched into pieces smaller than 1 inch in size in-situ or the Restoration Specialist will evaluate any other potential methods for control of to determine if they are appropriate at- the wetland mitigation site.

6.1.6 Fertilization

Fertilizer will not be applied in the maintenance phase, except in extraordinary circumstances and only at the written direction of the Restoration Specialist.

6.1.7 Special-Status Species Issues

Maintenance activities will not include the use of heavy equipment or vehicles and as such are not anticipated to have adverse effects on special-status species. Nonetheless, all maintenance activities will be carried out under the direction of the Restoration Specialist, as necessary, to avoid impacts to ~~special~~ special-status species.

6.1.8 Remedial Installation

Areas with low seed germination and establishment of native cuttings/plantings will be re-seeded and/or re-planted, at the direction of the Restoration Specialist.

6.2 SCHEDULE

6.2.1 Maintenance Schedule

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons. The schedule outlined herein (Table 12 *Maintenance Schedule*) serves only as a guideline, and more frequent maintenance may be required to prevent re-seeding by non-native vegetation and/or to meet interim cover limits for non-native vegetation. The Installation/Maintenance Contractor will complete maintenance requests from the Restoration Specialist within 14 days of any written request.

At a minimum, the Installation Contractor will conduct monthly maintenance until the Restoration Specialist recommends sign-off of the 120-day plant establishment period in writing. Following the completion of the plant establishment period, the Maintenance Contractor will be responsible for all maintenance activities during the five-year maintenance period. For the first three years, maintenance is expected to be required every month between January through June (to cover the peak establishment period of spring germinating species) and two additional times during the remainder of the year. Maintenance visits may be reduced to four per year in Years 4 and 5 if approved by the Restoration Specialist and County, and shall be timed to best control invasive species, based on weather patterns and monitoring results. The Installation/Maintenance Contractor(s) will complete maintenance requests from the Restoration Specialist within 14 days of any written request or monitoring report.

Table 12
MAINTENANCE SCHEDULE[1]

Phase	Schedule
Installation Contractor	
120-day Plant Establishment Period	Monthly
Maintenance Contractor	
Year 1 through Year 3 January to June July to December	Total 8 Visits/Year Every Month (6 Visits) Two Visits Total
Years 4 and 5	Total 4 Visits/Year (3 in Spring and 1 in Summer)

[1] This schedule is only a guideline; maintenance will be performed as necessary and as directed by the Restoration Specialist.

6.2.2 Irrigation Schedule

Following the start of the maintenance period, irrigation shall be applied daily (unless directed otherwise by the Restoration Specialist) to stimulate seed germination and ensure the survival of installed plantings. Once container plantings, cuttings, and seed are established, irrigation should become less frequent and deeper (usually accomplished with several consecutive irrigation events in a 24-hour period followed by several days with no irrigation). Native plants that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful long-term. Irrigation will be minimized to limit runoff and will be turned off during and following natural rainfall events. In the absence of rain events, irrigation will occur at a minimum of three times per week for the first two years to ensure plant establishment. By Year 3, irrigation shall be reduced and occur mainly during the natural rainy season (October through April), as needed, to mimic an average rainy season. If the Restoration Specialist determines that there is sufficient native cover and plants are well-established, irrigation may be deactivated prior to the end of Year 3. To demonstrate that vegetation is self-sustaining, the irrigation system must be turned off for at least two years prior to the end of the five-year maintenance/monitoring period.

7.0 MONITORING PLAN

7.1 PERFORMANCE STANDARDS

Success criteria provide specific standards to evaluate the progress of the mitigation effort. Attainment of these standards indicates that the mitigation is progressing toward the habitat functions and services specified by this plan.

7.1.1 120-Day Plant Establishment Period

For both the wetland waters re-establishment and riparian rehabilitation areas, success at the end of the 120-day establishment period will be met if non-native cover is less than 10 percent at the time of the inspection, there is 90 percent survivorship of container stock (planting is proposed to occur at a higher than typical initial density to allow for some plant mortality; therefore, survivorship is not set at 100 percent), the irrigation system provides adequate cover, and there are no erosion-related issues. If any re-planting is conducted, container stock shall be in the ground for at least 30 days prior to the end

of the establishment period. If these criteria are not met at the end of 120-days, the establishment period will be extended in one-month increments until success criteria have been met. The Restoration Specialist must sign off on the establishment period in writing. The minimum five-year maintenance and monitoring period will begin immediately following this 120-day establishment period.

7.1.2 Vegetation Criteria for Wetland Waters Re-Establishment and Riparian Rehabilitation Areas

Success of the mitigation effort will be determined by evaluating planting survivorship, vegetative cover, and native plant recruitment within the wetland waters re-establishment and riparian rehabilitation areas relative to specified targets, based on visual observations. The following parameters will determine the final success of the wetland waters re-establishment area: (1) native cover of at least 70 percent; (2) non-native cover (excluding target invasive plants) of no more than 10 percent; (3) no cover by target invasive plants (Cal-IPC Moderate and High species; not including annual grasses [i.e., *Bromus* ssp.]); and (4) native species richness (number of plant species in a given area) of least 10 species (Table 13, *Success Criteria Milestones for the Wetland Mitigation Area*). These criteria are based on observations of intact native habitat located on-site. Interim success criteria, demonstrating that the mitigation effort is on track to meet the final criteria, are also provided for Years 1 through 4. Native cover success criteria are not specified for Years 1 and 2; however, the visual estimates should indicate that the wetland waters re-establishment area is progressing towards final goals.

Table 13
SUCCESS CRITERIA MILESTONES FOR THE WETLAND MITIGATION AREAS

Criteria	Target				
	Year 1	Year 2	Year 3	Year 4	Year 5
Wetland Waters Re-Establishment Area					
Minimum Planting Survivorship (percent)	90	80	--	--	--
Minimum Native Cover (percent)	--	--	50	60	70
Minimum Native Species Richness (number of species)	6	6	8	9	10
Maximum Non-native Cover (percent)	20	20	15	10	10
Maximum Target Invasive Cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO
Riparian Rehabilitation Area					
Minimum Planting Survivorship (percent)	90	80	--	--	--
Minimum Native Cover (percent)	--	--	50	60	70
Maximum Non-native Cover (percent)	20	20	15	10	10
Maximum Target Invasive Cover[1] (percent)	0	0	0	0	0
Irrigation	YES	YES	YES	NO	NO

[1] Seedlings of invasive species are expected to volunteer each year; however, no target invasive species should be allowed to persist, or drop seed within the mitigation area; excludes invasive annual grasses, which are counted as non-native cover.

Success of the riparian rehabilitation area will be based on the reduction of non-native vegetation to allow the natural expansion of native vegetation. To this end, the same container stock survivorship, native cover, non-native cover, and target invasive cover limits that apply to the wetland waters re-establishment area (Table 13) will apply to the riparian rehabilitation area. There are no requirements for minimum native species richness as the riparian rehabilitation is located within an existing patch of healthy native habitat and natural recruitment of native species is expected to occur following removal of non-native vegetation and installation of native plant and seed material.

7.1.2.1 Survivorship

Container plant survival within the wetland waters re-establishment and riparian rehabilitation areas should be 90 percent of the initial plantings in Year 1 and 80 percent in Year 2. If this target is not met, dead plants should be replaced unless their function has been replaced by natural recruitment.

7.1.2.2 Native Cover

Cover by native vegetation within the wetland waters re-establishment and riparian rehabilitation areas should increase over time and ultimately approach that of the adjacent native habitat. By the end of the five years, native cover in wetland waters re-establishment and riparian habitat and riparian rehabilitation areas should be at least 70 percent, with at least 50 percent cover by native trees and shrubs. If native cover during Years 1 and 2 does not appear to be on track toward attaining at least 50 percent cover by Year 3, additional measures, such as supplemental plant and seed installation, irrigation adjustments, or increased weed control, may be implemented, per the direction of the Restoration Specialist.

7.1.2.3 Native Species Richness

Species richness is the number of native species present in a given area. During the annual monitoring, species richness within the wetland waters re-establishment area will be determined by visual assessment in Years 1 and 2, and within the belt and point intercept transects in Years 3 through 5. Annual success criteria for species richness for native species vary by year with at least 10 native species present at the end of Year 5 (Table 13). If the species richness goal for a given year is not met, corrective measures (e.g., reseeding, planting, etc.) will be taken to ensure the eventual achievement of the five-year goal.

7.1.2.4 Non-Native Cover

Non-native cover is typically a problem with habitat restoration, particularly at the outset of a mitigation effort. However, as the restoration takes hold and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the maintenance schedule for the site, non-native cover (including invasive annual grasses) within the wetland waters re-establishment and riparian rehabilitation areas should not exceed 20 percent in Years 1 and 2, 15 percent in Year 3, and 10 percent in Years 4 and Year 5. If non-native cover limits are exceeded, the Restoration Specialist may recommend additional weed control (either frequency or thoroughness).

7.1.2.5 Target Invasive Cover

Target invasive non-native plants should be completely eradicated from the wetland waters re-establishment and riparian rehabilitation areas each year. New seedlings of invasive plants are expected since these species occur in surrounding open space; however, no target invasive species shall be allowed to persist, or drop seed, within the wetland waters re-establishment and riparian rehabilitation areas. Annual grasses listed as highly or moderately invasive do not need to be eradicated, rather they are included as part of the overall non-native cover limit. If target invasive cover limits are exceeded, the Restoration Specialist may recommend additional weed control (either frequency or thoroughness)~~.~~.

7.1.3 Irrigation

To provide evidence that vegetation is self-sufficient, irrigation of the wetland waters re-establishment and riparian rehabilitation areas must be shut-off at least two years prior to the end of the maintenance/ monitoring period.

7.2 TARGET FUNCTIONS AND VALUES

The proposed wetland mitigation is anticipated to provide at least 1.00 acre of re-established wetland waters and 6.13 acres of rehabilitated riparian habitat and have a net functional lift in habitat values over the existing condition by providing higher quality foraging, breeding, and live-in habitat for many wildlife species as well as greater vegetative cover and microhabitat features. The expanded Sweetwater River floodplain and associated riparian corridor would conceal and facilitate wildlife movement within and through the project site. Removal of non-native vegetation and the re-establishment of wetland waters is expected to provide and improve functions and services typical of naturally occurring intermittent stream channels such as stream-energy dissipation to reduce erosion and improve water quality, groundwater recharge, sediment transport, and water purification.

7.3 TARGET HYDROLOGICAL REGIME

The wetland waters re-establishment and riparian rehabilitation areas will receive flows from the Sweetwater River, though these flows are hydrologically controlled by the Sweetwater Authority, which manages water releases and transfers between Loveland Reservoir (upstream of the site) and Sweetwater Reservoir (downstream of the site). The main hydrological input for the wetland waters re-establishment and riparian rehabilitation areas will be from the upstream portion of the Sweetwater River. Due to their location along the Sweetwater River, and based on the presence of existing riparian habitat both upstream and downstream of the project site, existing natural rainfall combined with occasional dam releases are expected to provide sufficient hydrology to support riparian scrub vegetation within the wetland waters re-establishment and riparian rehabilitation areas. The proposed project will lower the elevations of existing upland areas to a height similar to or slightly above the current low-flow river channel. Intermittent flows that overtop the low-flow river channel will be able to distribute to the surrounding expanded floodplain area without obstruction.

7.4 TARGET ACREAGES

A total of 1.30 acres of wetland waters will be re-established as part of the on-site wetland mitigation effort (Table 4). The wetland waters re-establishment area will include a minimum of 1.00 acre of wetland waters of the U.S./State re-establishment, resulting in a minimum 1:1 establishment/re-establishment ratio (0.96 acres) for impacts to waters of the U.S./State. Proposed waters of the U.S./State re-establishment areas shall meet USACE wetland criteria.

In addition to wetland waters re-establishment, 7.36 acres of existing riparian habitat will be rehabilitated through non-native species removal, weed control, and installation of native seed and container plants.

7.5 MONITORING METHODS

Monitoring will be carried out by the Restoration Specialist, beginning with site preparation and habitat installation, and continuing through sign-off, approximately five years after the start of the mitigation effort. Monitoring of the mitigation will include (1) documenting pre-restoration site conditions; (2) installation monitoring; (3) maintenance monitoring; and (4) annual technical monitoring. The methods for the annual technical monitoring are provided further below. During each visit, the Restoration Specialist will inspect the site to ensure that the mitigation effort is progressing as planned and identify any problems that may affect the effort.

7.6 MONITORING SCHEDULE

7.6.1 Pre-Restoration Site Assessment

The Restoration Specialist will visit the site prior to the start of mining activities, and again prior to the start of mitigation efforts, to document existing site conditions by taking photographs, listing plants and animals present, and noting any special conditions within the proposed wetland waters re-establishment and riparian rehabilitation areas.

To document the progress of the mitigation effort, the Restoration Specialist will identify at least four photographic documentation locations for the wetland waters re-establishment and riparian habitat area and four locations within the riparian rehabilitation area. Photo stations will be mapped with a sub-meter accuracy global positing system (GPS) and plotted on a map. Photos will be used for future comparison with post-installation and annual assessment photos.

7.6.2 Installation Monitoring

The Restoration Specialist will be on-site daily, or as needed, during installation to ensure that activities are being conducted per this plan. The Restoration Specialist will monitor all phases of the installation process, including site preparation; installation of irrigation, plantings, and seed; and the 120-day Plant Establishment Period. The Restoration Specialist must inspect and authorize each phase of work before the next phase may begin. The monitoring schedule is outlined in Table 14, *Maintenance Monitoring Schedule*; additional monitoring may be needed if there are problems with the Installation Contractor's performance or unexpected difficulties with site preparation. Following installation completion, the Restoration Specialist will take photos from the established photo locations to document site conditions at the start of the mitigation effort.

Table 14
MAINTENANCE MONITORING SCHEDULE[1]

Phase	Schedule
Installation Monitoring	
Site preparation and installation	Daily, or as needed
120-day Plant Establishment Period	Monthly
Maintenance Monitoring	
Year 1 through Year 3 January to June July to December	8 visits per year Monthly 2 visits
Years 4 and 5	4 visits per year
Annual Technical Monitoring	
Once per year	August/September

[1] This schedule is the minimum monitoring frequency; additional monitoring may be required if there are problems with Installation or Maintenance Contractor performance, unexpected difficulties with site preparation, or issues with habitat establishment.

7.6.3 Maintenance Monitoring

Maintenance monitoring will consist of general site inspections focusing on visual observations of native plant establishment and growth and other site conditions (e.g., presence of non-native plants, erosion, etc.), and will document all wildlife observed during each site visit for inclusion in the annual report. Following installation within the wetland waters re-establishment and riparian rehabilitation areas, the Restoration Specialist will direct maintenance activities conducted by the Maintenance Contractor for the five-year maintenance and monitoring period (Table 14), beginning immediately following the 120-day Plant Establishment Period. In Years 1 through 3, maintenance visits will be conducted monthly from January through June (to cover the peak establishment and growth period) and twice during the remainder of the year, for a total of eight visits per year. During Years 4 and 5, monitoring will be conducted approximately quarterly. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, irrigation, sediment control, etc., will be provided as necessary to the Installation/Maintenance Contractor(s) and the project proponent.

7.6.4 Annual Technical Monitoring

The Restoration Specialist will conduct annual technical monitoring in August/September of each year during the five-year maintenance and monitoring period. The assessments are scheduled to coincide with the peak of the growing season for riparian vegetation. The exact timing of the visits will depend on site and weather conditions.

Technical monitoring of the wetland waters re-establishment and riparian rehabilitation areas will include both qualitative (visual) and quantitative (based on data collection) sampling, depending on the year. In Years 1, 2, and 4, only qualitative monitoring will be conducted, consisting of the following: (1) photo documentation; (2) visual estimates of container planting survivorship, cover by native and non-native plants, target invasive species cover, and the average height of tree and shrub species; (3) a complete list of plant and animal species observed; (4) general observations of plant health; and (5) observations of site hydrology. Starting in Year 3, quantitative sampling consisting of transect sampling

will be conducted within both the wetland waters re-establishment area and riparian rehabilitation area. The success of the wetland mitigation effort will be evaluated by comparing the habitat development with success criteria.

The proposed project includes impacts to waters of the U.S. and State; therefore, implementation of the functional-based assessment using the California Rapid Assessment Method (CRAM) may be required by the USACE and/or RWQCB. If CRAM is not required by the USACE or RWQCB, then CRAM analyses will not be conducted.

Each assessment will include a discussion on whether the establishment/rehabilitation areas are on the trajectory towards meeting final success criteria. Monitoring methods are described in detail below.

7.6.4.1 Photo Documentation

Photos will be taken as part of all five annual monitoring events and will be included in the respective year's annual report. Photos will be taken at the same photo locations that are established prior to the start of the mitigation effort. To visually demonstrate the progress of the mitigation effort, photos taken immediately after restoration installation will be included in each report for comparison with the respective year's annual assessment photos. The photo locations will be permanently marked in the field and then mapped on an aerial photograph in the baseline monitoring report (as-built report following the 120-day establishment period) in all subsequent annual reports.

7.6.4.2 General Wildlife

During each of the five annual assessments, all wildlife incidentally observed or detected will be documented. No focused wildlife surveys will be conducted.

7.6.4.3 Transect Sampling

Starting in Year 3, one 50-meter (m) transects will be used to collect quantitative data within the wetland waters re-establishment area, and two 50-m transects will be used to collect quantitative data within the riparian rehabilitation areas. These transects will be randomly located during the first quantitative sampling event, marked in the field with PVC pipes, and mapped onto Figure 13 using a GPS. Plant cover data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Native, non-native, and invasive plant cover data will be collected by recording all of the plant species intercepted at each 0.5-m interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 m), shrub (0.6 to 2 m), and tree (greater than 2 m) layers. Species richness (the number of native species present in a given area) data will be collected by noting all species occurring along a 5-m belt transect centered on each line transect.

7.6.4.4 CRAM

The proposed project includes impacts to waters of the U.S.; therefore, implementation of the CRAM assessment for the waters of the U.S. mitigation areas may be required by the USACE or RWQCB. If CRAM is not required by the USACE or RWQCB, then CRAM analyses will not be conducted.

The purpose of CRAM is to provide a rapid, standardized, and scientifically defensible assessment of the status of a wetland and to help evaluate impacts to aquatic resources. If CRAM is required by the USACE

and/or RWQCB, the specific requirements will be determined in consultation with these agencies during the CWA Section 404 and 401 permitting processes. The requirements typically specify that a CRAM analysis be conducted prior to project impacts in at least one Assessment Area (AA) where waters of the U.S./State impacts will occur. If CRAM is required, then a baseline CRAM analysis will be conducted in the existing habitat in the southwestern portion of the site along the Sweetwater River, adjacent to the proposed wetland waters re-establishment area (baseline). The target CRAM score for the wetland waters re-establishment area will be determined based on the results of the impact and baseline CRAM scores. A final CRAM will be conducted in Year 5 of the mitigation effort to determine if the final target score has been met.

If CRAM is required by the USACE or RWQCB, two CRAM practitioners will conduct a CRAM assessment according to the User's Manual: *California Rapid Assessment Method for Wetlands v. 6.1* (California Wetlands Monitoring Workgroup [CWMW] 2013a), *Riverine Wetlands Field Book v. 6.1* (CWMW 2013b), and other training materials located on the CRAM web site (www.cramwetlands.org). As part of this assessment, attributes and metrics will be assessed in the following categories: landscape and buffer context, hydrology, physical structure, and biotic structure. Based on scores for each attribute category, CRAM will yield an overall score for an AA. Monitoring Reports.

7.6.5 As-Built Report

The Restoration specialist shall submit a brief as-built letter report to the resource agencies within 30 days of completion of restoration activities and the 120-day establishment period. The report will describe mitigation site preparation, installation methods, activities conducted during the 120-day establishment period, and the as built status of the site. To document the implementation of the wetland mitigation plan and baseline site conditions, the letter will include an as-built graphic on an aerial photo base as well as photos taken from the designated photo stations before and after restoration installation. The as-built letter will serve as the "time zero" report, noting when the five-year maintenance and monitoring period began.

7.6.6 Annual Reports

An annual report including qualitative and quantitative analysis will be prepared each year during the five-year monitoring period and submitted to the County and Resource Agencies. Monitoring and maintenance field data shall be included as an addendum to each report.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County and Resource Agencies within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

If CRAM is required by the USACE or RWQCB, CRAM scores will be included as attachments to the annual monitoring reports. Analysis of the CRAM data will be based on comparing the score calculated for each AA with the baseline CRAM scores.

8.0 COMPLETION OF COMPENSATORY MITIGATION

The County and Resource Agencies will be notified of the completion of the mitigation program through the submittal of a final (Year 5) monitoring report. After receipt of the final monitoring report, the County and Resource Agencies may inspect the wetland waters and riparian rehabilitation areas to determine the success of the mitigation effort. If the mitigation meets all success standards at the end of the five-year monitoring period or sooner, then the mitigation will be considered a success; if not, the maintenance and monitoring program will be extended until the standards are met. Specific remedial measures (approved by the County and/or Resource Agencies) will be used during any extension. Monitoring extensions will be only for areas that fail to meet final success criteria and that are needed to meet minimum mitigation acreage requirements. This process will continue until all Year 5 standards are attained or until the County and Resource Agencies determine that other mitigation measures are appropriate. Should the mitigation effort meet all goals prior to the end of the five-year monitoring period, the County and Resource Agencies, at their discretion, may terminate the monitoring effort. If requested, a site visit may be conducted with the County and/or Resource Agencies following Year 3 and/or Year 5 to verify site conditions.

9.0 CONTINGENCY MEASURES

9.1 INITIATING CONTINGENCY MEASURES

If the County or Resource Agencies determine upon receipt of any of the annual monitoring reports that the mitigation effort is not meeting success standards, they shall notify the project proponent in writing that the mitigation effort may require additional measures for successful implementation. The project proponent shall then have 30 days to respond to the notification. During this period, the project proponent may discuss alternatives with the County and/or Resource Agencies.

9.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY COMPENSATORY MITIGATION

A sufficient area for contingency mitigation is present at the project site. If the success criteria are not being met, the County and/or Resource Agencies will work together with the project proponent to reach an alternative mutually acceptable solution.

9.3 FUNDING

The project proponent, New West Investment, Inc., shall be responsible for all costs associated with any remedial measures.

9.4 NATURAL DISASTER

Should the mitigation area fail during the five-year maintenance and monitoring period due to a natural disaster such as a fire, earthquake, or flood, the project proponent will confer with the regulatory agencies to determine a mutually agreeable course of action.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

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202~~3~~5b. Biological Resources Technical Report for the Cottonwood Sand Mine Project. ~~March~~May.

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Appendix P

Conceptual Resource Management Plan

Cottonwood Sand Mine

Conceptual Resource Management Plan

PDS2018-MUP-18-023
PDS2018-RP-18-00
PDS2018-ER-18-19-007

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~~March 2023~~May 2025 | 02975.00002.002

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ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
BOS	Biological Open Space
CAGN	Coastal California gnatcatcher
Cal-IPC	California Invasive Plant Council
CalFire	California Department of Forestry and Fire Protection
CDFW	California Department of Fish and Wildlife
CNPS	California Native Plant Society
County	County of San Diego
CRPR	California Rare Plant Rank
HELIX	HELIX Environmental Planning, Inc.
HSA	Hydrologic Subarea
LBVI	least Bell's vireo
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
NRCS	Natural Resources Conservation Service
PAMA	Pre-Approved Mitigation Area
PDS	Planning and Development Services
Preserve	Cottonwood Sand Mine Biological Open Space
Project	Cottonwood Sand Mine Project
RMP	Resource Management Plan
ROW	Right-of-Way
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas & Electric
SDMMP	San Diego Management and Monitoring Program
SDNWR	San Diego National Wildlife Refuge
SMARA	Surface Mining and Reclamation Act
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This Conceptual Resource Management Plan (RMP) has been prepared for the proposed ~~150.7~~149.0-acre Cottonwood Sand Mine Biological Open Space Preserve (preserve) in accordance with mitigation and revegetation requirements identified in the project's Biological Resources Technical Report (HELIX Environmental Planning, Inc. [HELIX] 2025~~3~~a). This RMP provides direction for the permanent preservation and management of the preserve in accordance with County of San Diego (County) regulations.

1.1 PURPOSE OF BIOLOGICAL RESOURCE MANAGEMENT PLAN

The purpose of this RMP is to provide guidance in which to ensure the preservation of native habitats and long-term management of the preserve. This RMP:

1. Guides management of vegetation communities and habitats, plant and animal species, and programs described herein to protect and, where appropriate, enhance biological resources;

2. Serves as a descriptive inventory of vegetation communities and plant and animal species that occur within the preserve;

3. Establishes the baseline conditions from which adaptive management will be determined and success will be measured; and

4. Provides an overview of the operation, maintenance, administrative, and personnel requirements to implement management goals, and serves as a budget planning aid.

The details of this conceptual plan may be modified when the Final RMP is prepared and submitted to the County, U.S. Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW) for final approval. The County, USFWS, and CDFW will review the Final RMP to ensure that it meets the specified Purpose and Objectives.

1.1.1 Project Summary

The approximately 280-acre Cottonwood Sand Mine Project (project) site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). The project site is currently occupied by the Cottonwood Golf Club, which consists of two 18-hole golf courses, one east of Steele Canyon Road and the other located to the west. The project proposes to convert the two golf courses into a sand mining operation that would mine the site incrementally in three phases over 10 years, with a final fourth phase for cleanup, equipment removal, and final reclamation (Figure 5, *Site Plan and Mine Phasing*). The project's mining operations would extract, process, and transport sand using conventional earth-moving and processing equipment. Approximately 4.3 million cubic yards (CY; 6.40 million tons) of material are proposed to be extracted, with approximately 3.8 million CY (5.7 million tons) of sand and gravel for market use, with a 10 percent waste factor from the total amount extracted that includes wash fines and materials undesirable for processing (approximately 427,000 CY). These materials would be retained on-site and utilized for backfilling. In addition, approximately 2.5 million CY would be imported to the site to meet the backfill requirements. The imported material would consist of inert debris only. Inert debris would consist of excavated soil material from development projects, clean demolition materials, and possibly concrete,

asphalt, and rock. The project would be conditioned to only accept materials suitable for the end use of the site. Approximately 214.4 acres of the 251.1~~0~~-acre Major Use Permit (MUP) boundary are proposed for extractive use under a phased extraction program. Surface areas not disturbed by mining would either be left in their current condition or be subject to enhancement through the removal of invasive species. The existing Sweetwater River channel, and the majority of native habitat that currently exists on the site, would be retained.

Upon completion of the extraction activities, the site would be progressively reclaimed in accordance with the mining and reclamation plan. Reclamation of the site would include: (1) removal of all artificial structures (with the exception of permanent erosion control features); (2) grading and backfilling and grading to achieve final landforms; (3) incorporation of accumulated wash fines, imported material, and salvaged topsoil (as applicable); (4) revegetation and monitoring. Final grading would begin after mining and backfilling have been completed within a given area, and as extractive operations proceed to the east. Reclamation would be an ongoing process that commences where mining operations have ceased within a given sub-phase area and continues until all mining-related disturbance is reclaimed.

Post-reclamation, the final landform is proposed to be a relatively flat plain that gently slopes downward from east to west, with an expanded floodplain area bisecting the length of the site. The expanded floodplain is expected to range in width from approximately 400 to 700 feet~~average approximately 450 to 720 feet in width~~ and would be slightly higher in elevation than the existing low-flow river channel ~~lower in elevation than the existing ground level across the site~~. The existing low-flow river channel would be retained in place with banks up to a minimum height of 3.5 feet to accommodate annual water transfers from Loveland Reservoir to Sweetwater Reservoir that are controlled by the Sweetwater Authority. The low-flow river channel banks would slope down to the expanded floodplain, which will be at a similar elevation to the existing low-flow river channel or slightly higher. In some areas, benches may be constructed ~~at the edges of the floodplain~~ on the face of the channel banks to accommodate varying vegetation types and/or multi-use trails. Slopes bordering the expanded floodplain would slope up to the plain surface at a 3:1 ratio or shallower, with an elevation difference of up to 25 feet between the top of the slope and bottom of the low-flow river channel~~expanded floodplain~~. Reclaimed and revegetated areas would be restored to an end-use of ~~native vegetation within a widened floodplain~~open space, ~~recreational~~ multi-use trails, and land suitable for uses allowed by the ~~Open Space~~General Plan land use designation and existing zoning classifications.

The project's total on-site disturbance area is approximately 211.94 acres, in addition to 4.80 acres of off-site impacts. Areas that would not be disturbed as part of the proposed project, but are not preserved within biological open space, are identified as impact neutral (21.69 acres); these areas primarily consist of land previously disturbed by golf course development and prior resource extraction activities.

The project would impact a total of 2.34 acres of riparian habitat or other sensitive natural communities, including 0.55 acre of disturbed wetland, 0.44 acre of southern cottonwood-willow riparian forest (including disturbed), 0.13 acre of southern willow scrub, 0.01 acre of tamarisk scrub, 0.01 acre of arundo-dominated riparian, and 1.2 acres of Diegan coastal sage scrub (including disturbed).

The project would result in impacts to four special--status plant species: San Diego sagewort (*Artemisia palmeri*), San Diego County viguiera (*Bahiopsis laciniata*), Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*), and southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*). San Diego sagewort is a CRPR 4.2 and County List D species. Two San Diego sagewort individuals observed at the western project

boundary at the edge of southern riparian forest habitat would be impacted by the proposed project. San Diego viguiera is a CRPR 4.3 and County List D species. Five San Diego County viguiera shrubs would be impacted by the proposed project along the site's northeastern boundary, including three shrubs located within the project site and two shrubs located outside of the project site within the road widening impact area. Southwestern spiny rush is a CRPR 4.2 species and County List D species. Three individuals occurring within the southwestern portion of the project along the Sweetwater River would be impacted by the removal of an existing bridge crossing. Impacts to San Diego sagewort, San Diego viguiera, and southwestern spiny rush are considered significant, and habitat-based mitigation will be incorporated to reduce the impact to less than significant. Palmer's goldenbush is a CRPR 1B.1 species, County List B, MSCP covered, and MSCP narrow endemic species. Approximately 234 individuals would be impacted by the proposed project. Impacts to Palmer's goldenbush are considered significant. As a County List B plant species, species-based mitigation at a minimum 1:1 mitigation ratio is required pursuant to County Requirements (2010a) and will be incorporated to reduce the impact to less than significant.

Though not found on-site, USFWS critical habitat for the federally endangered San Diego ambrosia (*Ambrosia pumila*) is present in the southwestern portion of the site. The project would result in impacts to 0.77 acre of San Diego ambrosia critical habitat consisting of 0.002 acre of freshwater marsh, 0.26 acre of southern cottonwood-willow riparian forest, 0.01 acre of tamarisk scrub, 0.46 acre of disturbed habitat, and 0.04 acre of developed lands associated with golf course development. These impacts would be less than significant since the species was not found to occur within the project site; therefore, no direct impacts to San Diego ambrosia would occur.

Project implementation would result in direct impacts to suitable breeding or foraging habitat for 23 special-status animal species observed or detected on or adjacent to the site, including barn owl (*Tyto alba*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coastal California gnatcatcher (CAGN; *Polioptila californica californica*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), green heron (*Butorides virescens*), Lawrence's goldfinch (*Spinus lawrencei*), least Bell's vireo (LBVI; *Vireo bellii pusillus*), monarch butterfly (*Danaus plexippus*), oak titmouse (*Baeolophus inornatus*), peregrine falcon (*Falco peregrinus*), red-shouldered hawk (*Buteo lineatus*), small-footed myotis (*Myotis ciliolabrum*), Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), turkey vulture (*Cathartes aura*), vermilion flycatcher (*Pyrocephalus rubinus*), western bluebird (*Sialia mexicana*), western mastiff bat (*Eumops perotis*), western red bat (*Lasiurus blossevillii*), white-tailed kite (*Elanus leucurus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), and Yuma myotis (*Myotis yumanensis*).

Additionally, USFWS critical habitat for the CAGN and LBVI occur in the southwestern portion of the site. The project would directly impact a small portion of critical habitat for CAGN consisting of 0.002 acre of tamarisk scrub and 0.08 acre of disturbed habitat associated with the golf course development. These impacts would be less than significant since the area does not support suitable coastal sage scrub habitat required by the species. The project would result in impacts to 1.2 acres of disturbed Diegan coastal sage scrub which provides potential foraging habitat for the species. Impacts to potential gnatcatcher foraging habitat would be significant but would be reduced to a less than significant level through the on-site preservation of 11.9 acres of Diegan coastal sage scrub within the biological open space (BOS) easement. The project would result in impacts to 1.22 acres of LBVI critical habitat consisting of 0.23 acre of southern cottonwood-willow riparian forest, 0.002 acre of freshwater marsh, 0.81 acre of disturbed habitat, and 0.18 acre of developed land associated with golf course development. Impacts to disturbed habitat and developed land would be less than significant since

these areas do not contain suitable riparian habitat required by the species. The project would impact 0.58 acres of suitable LBVI habitat where vireos were observed during biological surveys. Impacts to suitable LBVI habitat would be significant but reduced to a less than significant level through the on-site restoration, revegetation, rehabilitation, and preservation of wetland and riparian habitat as part of site reclamation and the project's proposed mitigation and revegetation efforts. A total of 128.84 acres of wetland and riparian habitat would be preserved within the project's BOS easement.

Nearly 5~~4~~5 percent of the property (~~150.7~~149.0 acres) will be preserved in a BOS easement, which will protect these lands in perpetuity and will restrict future uses to preserve their biological value. The ~~150.7~~149.0-acre BOS preserve will include approximately 0.7 acre of existing native upland habitat and 13.85 acres of existing riparian habitat placed into preservation, ~~1.30 acres of wetland waters (riparian forest) re-establishment,~~ 7.36 acres of riparian rehabilitation, 107.63 acres of wetland/riparian habitat revegetation (which includes 1.30 acres of wetland water re-establishment), and 11.30 acres of upland revegetation (i.e., Diegan coastal sage scrub). Lastly, the preserve will contain approximately ~~1.74 acres of grouted rip-rap that will be installed along the graded slopes and downstream of Steele Canyon Road and~~ 8.15 acres of existing habitat in the southwestern corner. A small portion of the area to be revegetated following extraction activities, approximately 3.16 acres, occurs within an existing San Diego Gas & Electric (SDG&E) easement ~~which~~ that will remain over the project site following reclamation. As such, this area will not be placed within the BOS.

Riparian habitat re-establishment, riparian rehabilitation, and riparian preservation are being accomplished to fulfill mitigation requirements resulting from impacts to jurisdictional waters and wetlands. The final mitigation requirements and mitigation areas will be determined in consultation with the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW during the wetland permitting process. Native upland and riparian habitat revegetation will be completed in accordance with the Surface Mining and Reclamation Act (SMARA), Sections 1810 and 6550-6556 of the County Zoning Ordinance, and Section 86.605(d) of the County's Resource Protection Ordinance (RPO) requirements (County 2011). The final native habitat revegetation area will be determined in consultation with the County Planning Development Services (PDS) staff.

Preservation of ~~150.7~~149.0 acres in on-site biological open space described in this RMP will permanently protect high-quality habitat suitable for numerous special-status species, including CAGN and LBVI, as well as providing for the preservation of land determined to be of importance to regional habitat planning efforts under the County's Multiple Species Conservation Program (MSCP) Subarea Plan (County 1997).

1.1.2 Conditions and/or Mitigation Measures that Require an RMP

This RMP satisfies County requirements for public review of the project pursuant to the California Environmental Quality Act and conditions that will be part of the Resolution of Approval. Project conditions requiring an RMP include mitigation for impacts to sensitive vegetation communities, including disturbed wetland, southern cottonwood-willow riparian forest (including disturbed), southern willow scrub (including disturbed), and Diegan coastal sage scrub (including disturbed); impacts to jurisdictional waters and wetlands; and impacts to breeding, roosting, and/or foraging habitat for several special--status animal species. Additionally, portions of the project site disturbed by mining areas will be reclaimed and revegetated with native upland and riparian habitat pursuant to SMARA and County requirements.

All compensatory wetland mitigation will occur on-site in the southwestern portion of the site within and adjacent to the Sweetwater River. Mitigation for impacts to upland sensitive habitats (DCSS [including disturbed]) will be met through on-site preservation of 0.55 acre of existing Diegan coastal sage scrub and 11.30 acres of on-site revegetation of Diegan coastal sage scrub completed as part of site reclamation that will be placed within the preserve.

Areas temporarily disturbed by mining activities are required to be reclaimed in accordance with the Reclamation Standards as identified in the Public Resources Code, Article 9, Section 3705, and Sections 1810 and 6550-6556 of the County Zoning Ordinance. Extraction activities will temporarily disturb a total of 214.03 acres which are required to be revegetated.

Additionally, Section 86.605(d) of the County RPO (County 2011) requires that sand, gravel, or mineral extraction projects implement the following mitigation measures as conditions of the project's Major Use Permit:

- Any wetland buffer area shall be restored to protect environmental values of adjacent wetlands;
- In a floodplain, any net gain in functional wetlands and riparian habitat shall result in or adjacent to the area of extraction;
- Native vegetation shall be used on steep slope lands to revegetate and landscape cut and fill areas ~~in order~~ to substantially restore the original habitat value, and slopes shall be graded to produce contours and soils which reflect a natural landform, which is consistent with the surrounding area; and
- Mature riparian woodland may not be destroyed or reduced in size due to sand, gravel, or mineral extraction.

Compensatory mitigation and native habitat revegetation efforts meet the requirements of the RPO as current wetland buffer areas (consisting of active and abandoned golf course development bordering the Sweetwater River and existing riparian habitat) disturbed by mining activities will be restored through mining reclamation, native habitat revegetation, re-establishment of riparian habitat, and rehabilitation of existing riparian habitat. The native revegetation area and wetland mitigation area are being preserved within the biological open space easement and will be managed in perpetuity in accordance with this plan.

1.2 IMPLEMENTATION

1.2.1 Resource Manager Qualifications and Responsible Parties

1.2.1.1 Resource Manager Qualifications

Proposed Resource Manager: The project applicant will contract with a qualified entity to serve as Resource Manager.

The County PDS and project applicant will jointly approve the selection of a Resource Manager, who must be an established conservancy group (such as the San Diego Habitat Conservancy) or land

manager, County Department of Parks and Recreation, County Department of Public Works, a federal or state wildlife agency, or a federal land manager.

Additionally, the Resource Manager must possess the following qualifications:

- Ability to carry out habitat monitoring or mitigation activities;
- Fiscal stability, including preparation of an operational budget (using an appropriate analysis technique) for the management of this RMP;
- Have at least one staff member with a biology, ecology, or wildlife management degree, or have a Memorandum of Understanding (MOU) with a qualified person with such a degree; and
- Experience with habitat management in southern California.

1.2.1.2 Other Responsible Parties

Proposed Land Owner: Resource Manager/Conservancy (to be determined)

Proposed Easement Holder: County of San Diego

Restoration Entity: HELIX Environmental Planning, Inc. (or other restoration entity as may be proposed by Applicant and approved by County)

Management responsibilities for riparian habitat re-establishment, riparian rehabilitation, and upland and riparian revegetation areas implemented as part of the proposed project shall remain with the restoration entity until the mitigation and revegetation have been completed. Since the project site will be progressively reclaimed and revegetated following the completion of mining activities within individual sub-phases, mitigation and revegetation will similarly be implemented in individual sub-phases. As each sub-phase is completed and accepted by the County and applicable regulatory agencies, management responsibilities for that sub-phase will be transferred to the long-term resource manager.

The required habitat mitigation component for the project would be accomplished entirely through on-site riparian habitat re-establishment, riparian rehabilitation, and habitat preservation. Completion of the compensatory mitigation will be defined in the project's wetland mitigation plan. Completion of the various upland and riparian revegetation areas will be defined by the project's revegetation plan; it is noted that the areas addressed in the upland/riparian revegetation plan are not part of the required habitat mitigation for the project. Therefore, these areas are subject only to success criteria and potential bonding as it relates to the fulfillment of SMARA requirements. For mitigation and revegetation areas that require County/Agency approval (i.e., wetland revegetation areas), upon County/Agency acceptance of the mitigation and/or revegetated areas, management responsibility for the mitigation and revegetation areas will be transferred to the Resource Manager.

1.2.2 Financial Responsibility/Mechanism

The project applicant is responsible for funding mitigation and revegetation requirements, including direct funds to support the RMP start-up tasks.

The proposed long-term funding mechanism for the management of the preserve is anticipated to be through the establishment of an endowment.

1.2.3 Cost Estimate/Budget

A cost estimate will be prepared for the ~~150.7~~149.0-acre preserve once a Resource Manager has been identified.

1.2.4 Reporting Requirements

An RMP annual report will be submitted to the County, USFWS, and CDFW, along with the submittal fee to cover County staff review time. The report will summarize the previous year's management and monitoring, as well as a work plan for the upcoming year. The report will provide a summary of methods employed, identify new management issues, and address the success or failure of previous management approaches based on the monitoring. It shall include a summary of the overall condition of vegetation communities and sensitive species in the preserve, assess any changes from the baseline or from the previous year's conditions, and address any monitoring and management limitations. The report shall list the expenses from the year, the proposed budget for the upcoming year, and the status of the endowment. Adaptive management (changes) resulting from previous monitoring results, and methods for measuring the success of such adaptive management, will be discussed.

The results of updated vegetation mapping and special-status plant and animal surveys will be included in the annual reports. For new special-status species observations or significant changes to previously reported species, the annual report shall include copies of completed California Natural Diversity Database forms with evidence that they have been submitted to the State. The report shall also include copies of invasive plant species forms submitted to the State or County.

A fee for staff's review time will be collected by PDS upon submittal of the annual report. The RMP may also be subject to an ongoing deposit account for staff to address management challenges as they arise. Deposit accounts, if applicable, must be replenished to a defined level, as necessary.

1.2.5 Open Space Maintenance Agreement

The County requires an Agreement with the project applicant and Resource Manager when an RMP is required. The Agreement will be executed following County acceptance of this RMP. The Agreement will obligate the applicant to implement the RMP and provide a source of funding to pay the cost to implement the RMP in perpetuity. The Agreement shall also provide a mechanism for the funds to be transferred to the County in the event of failure of the Resource Manager to meet the goals outlined in this RMP. The Agreement shall also provide that all RMP funding has been provided or that the funding mechanism has been established prior to the issuance of a grading permit, and prior to use of the premises in reliance of the permit.

1.2.6 Limitations and Constraints

The factors that could potentially limit the successful implementation of the RMP were considered in the selection of tasks, their frequency, and estimated cost. Limitations commonly include weed cover, unauthorized access, and edge effects from adjacent development. The preserve is located within the existing developed golf course that is dominated by non-native vegetation, such as turf grass, and has

been in operation since the 1960s. As such, baseline weed cover within the project site is high. As part of mining activities and site reclamation, non-native ground cover would be removed throughout the site in areas proposed for extraction and reclamation. The post-reclamation condition of the site includes a widened river floodplain revegetated with native wetland/riparian and the bordering slopes revegetated coastal sage scrub habitat which will be placed within BOS. Level pads will be graded to the north and south of the widened floodplain and would be hydroseeded with an erosion control mix to aid in soil stabilization and erosion control. Non-native and invasive species within the native habitat revegetation areas, re-established wetland waters, and rehabilitated riparian habitat would be removed in accordance with the methods detailed with the project's revegetation and wetland mitigation plans. These areas would be maintained and monitored for a minimum five-year period and would be required to meet performance standards, including low weed cover and the absence of invasive species, prior to agency sign-off and transfer of long-term maintenance responsibilities to the preserve manager. As such, weed cover is ultimately anticipated to be low within the preserve. Furthermore, implementation of a 100-foot limited building zone easement around the preserve will help to reduce potential edge effects by buffering the preserve from adjacent existing and potential future development and associated human uses (Figure 7, *Biological Open Space and Conceptual Fencing and Signage Locations and Easements to Others*).

The preserve would have limited access issues due to its topography, location adjacent to major roadways, and perimeter trail, which would provide multiple points of access. Unauthorized access to the preserve would be controlled through the installation of permanent fencing around BOS and the placement of signs precluding access except on established hiking trails.

Fire is a natural part of southern California ecosystems, including within preserve and adjacent open spaces, including the San Diego National Wildlife Refuge (SDNWR). Non-natural fire return intervals (increased fire frequency over historic levels) could affect the long-term viability of habitats through type conversion (e.g., Diegan coastal sage scrub to non-native grassland).

2.0 PROPERTY DESCRIPTION

This section includes data from the project's BTR, dated March 2025~~3~~ (HELIX 2025~~3~~a).

2.1 PROPERTY LOCATION

The approximately 280-acre project site is located in the unincorporated community of Rancho San Diego in eastern San Diego County, California (Figure 1, *Regional Location*). It is depicted within unsectioned lands of Township 16 South, Ranges 1 West and 1 East of the Jamul Mountains and El Cajon, California U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (Figure 2, *USGS Topograph*y). The site lies north of State Route (SR) 94 and east of SR 54 within the Cottonwood Golf Club. More specifically, the site occurs southeast of Willow Glen Drive, north of Jamul Drive, east of Jamacha Road, and west of Hillsdale Road at 3121 Willow Glen Drive, El Cajon, California (Figure 3, *Aerial Vicinity*). Steele Canyon Road bisects the project site from north to south, near the center of the site. The project site occurs within the following 24 Assessor Parcel Numbers: 506-021-19-00, 506 020-52, 518-012-13, 518-012-14, 518-030-05 through 518-030-08, 518-030-10, 518-030-12, 518 030-13, 518-030-15, 518-030-21, 518-030-22-00, 519-010-15, 519-010-17, 519-010-20, 519-010-21, 519-010-33, 519-010-34, 519-010-37, 519-011-03, 506-021-31, and 506-021-30.

The site is located on unincorporated lands within the South County and Metro-Lakeside-Jamul segments of the County's Multiple Species Conservation Program (MSCP) Subarea Plan (Figure 4, *MSCP Designations*). Within the MSCP, portions of the site along the northeastern, southern, and southeastern boundaries occur within areas identified as Pre-Approved Mitigation Area (PAMA), and Minor Amendment lands occur in the southwestern portion of the site along the Sweetwater River (Figure 4).

2.2 GEOGRAPHICAL SETTING

The project site is generally located within the Sweetwater River Valley ecoregion of southeast San Diego County. It occurs within the boundaries of the Rancho San Diego Specific Plan Area of the Valle de Oro Community Planning Area. Generalized climate in the region is regarded as dry, sub humid mesothermal, with warm dry summers and cold moist winters. Mean annual precipitation is between 14 and 18 inches, and the mean annual temperature is between 60- and 62-degrees Fahrenheit. The frost-free season is 260 to 300 days.

The project site occurs within both the northeastern portion of the South County Segment and the southwestern portion of the Metro-Lakeside-Jamul Segment of the adopted County MSCP Subarea Plan. Three small areas of PAMA, totaling 16.40 acres (six percent), occur along the northeastern, southeastern, and southern project boundaries. Additionally, approximately 37.79 acres (14 percent) of the site at the southwestern boundary represent a Minor Amendment Area.

The dominant habitat/land use type present on-site is disturbed habitat and developed land. Approximately 244.8 acres (88 percent) of the site is currently occupied by a public golf course, or is otherwise disturbed by past land uses, including 1.7 acres of non-native woodland, 2.6 acres of eucalyptus woodland, 7.5 acres of non-native vegetation, 3.0 acres of artificial pond, and 230.0 acres of disturbed habitat and developed lands containing a combination of active and inactive golf course areas, in addition to a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping. Undeveloped areas are concentrated along the western and eastern edges of the site and consist primarily of native upland scrub and riparian forest communities. The dominant native habitat type present on site is southern cottonwood-willow riparian forest, which covers approximately 12.87 acres (five percent) of the site.

2.3 LAND USE

The project site has been subjected to past human disturbances and habitat modification associated with the development of the golf course and intermittent mining. Prior to the 1940s, the site was used for commercial ranching and agriculture, most of which had ended by the 1950s. A 1953 aerial photograph of the site indicates that the floodplain of the Sweetwater River was primarily undeveloped, with the presence of a small, wooden house/structure adjacent to Willow Glen Drive to the west of Steele Canyon Road. Since the 1960s, the project site has operated as a public golf course with intermittent mining. Construction of the golf course initially began in 1962 and was completed in 1964. Mining activities within the site began in the early 1950s to the south of the Sweetwater River and continued through the 1970s, allowing for the creation of water hazards and expanded fairways associated with golf course construction and improvements. The site currently operates as a public golf course, though golf play and irrigation of landscaped turf in the western portion of the site was discontinued in 2017.

Land uses in the surrounding area include residential and rural residential developments to the north and south, extractive operations to the east, and an adjacent golf course to the southeast. Open space is present in the hills south, east, and west of the site. The SDNWR abuts the western project boundary along the Sweetwater River.

2.4 GEOLOGY, SOILS, CLIMATE, AND HYDROLOGY

The site gently slopes from east to west with elevations ranging from approximately 320 feet above mean sea level (AMSL) to 380 ft AMSL. Elevation generally decreases from east to west across the site, with the lowest elevations occurring along the southwestern boundary, and the highest elevations along the northeastern boundary. The Sweetwater River runs through the length of the site, entering at the northeastern project boundary and continuing in a mostly east-west direction to the southern boundary, where it exits the site and continues southwest towards Sweetwater Reservoir. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

Six soil series, which comprise nine soil types, have been mapped on-site (Natural Resources Conservation Service [NRCS] 2022; Figure 6, *Soils*), with the majority classified as sandy loams. Those soil types covering the most area on-site include Riverwash and those in the Tujunga series.

Generalized climate in the region is regarded as dry, sub-humid mesothermal, with warm dry summers and cold moist winters. The frost-free season is 260 to 300 days. Temperatures in El Cajon are generally highest in August (average high temperature of 86 ˚F) and lowest in December (average low temperature of 46 ˚F). Average annual precipitation in El Cajon is approximately 10.31 inches, with the highest average rainfall totals occurring in January, February, and March (2.40 inches, 2.51 inches, and 2.41 inches, respectively). The driest months are June, July, and August, with approximately 0.08 inch of rainfall in June, 0.04 inch in of rainfall in July, and 0.03 inch of rainfall in August (Weather.com 2020)

The site is in the Jamacha Hydrologic Subarea (HSA; HSA No. 4909.21), which lies in the Middle Sweetwater Hydrologic Area and Sweetwater Hydrologic Unit, one of 11 major drainage areas identified in the San Diego RWQCB Water Quality Control Plan for the San Diego Basin for Region 9 (RWQCB 2016). The site is located within the Sweetwater River Valley and in the floodplain of the Sweetwater River, which flows in a northeast-to-southwest direction through the central portion of the site. The project site's direct receiving water body is the Sweetwater River, and its downstream receiving water body is the Sweetwater Reservoir. The Sweetwater Reservoir is located approximately 2.8 miles downstream and southwest of the project site. The Sweetwater River extends from its headwaters in the Cuyamaca Mountains (east of the site) to the Pacific Ocean, approximately 15 miles downstream of the site.

2.5 TRAILS

A publicly accessible multi-use trail is proposed to be constructed within the project site. A five-foot-wide trail easement would be established around the perimeter of the biological open space area following site reclamation (Figure 7). As currently proposed, the trail easement would cross the biological open space in one location at the extreme northeastern portion of the site, and would be fenced on either side, consisting of three-strand smooth wire, wooden split rail fencing, or similar fencing allowing for wildlife passage. Signs prohibiting access would be posted along the fencing. Additionally, off-leash pets would not be allowed on trails or public areas, and signs would be posted

along trails notifying pet owners of this regulation. Maintenance of the trail is not proposed to be conducted as part of the RMP. No other trails are proposed in the preserve.

2.6 EASEMENTS OR RIGHTS

There are two easements that bisect the biological open space that will remain following mining activities and site reclamation. One of the easements consists of the Steele Canyon Road bridge right-of-way (ROW) that occurs within the central portion of the site (Figure 7). The Steele Canyon Road bridge ROW comprises the Steele Canyon Road bridge and associated footings that bisect the project's biological open space in a generally north-to-south direction across the Sweetwater River. The Steele Canyon Road bridge ROW has been excluded from the biological open space; therefore, the presence of the bridge ROW is not expected to affect the long-term viability and management of the biological open space. This ROW will be identified in the biological open space easement recorded over the biological open space.

The second easement consists of an SDG&E easement that occurs within the eastern portion of the site, east of Steele Canyon Road, and crosses over the northeastern portion of the project site where reclamation and revegetation activities are proposed to occur (Figure 7). The SDG&E easement bisects the project's biological open space area. The easement consists of overhead utility lines that run in a north to south direction across the Sweetwater River. Three transmission towers poles and other associated infrastructure have been excluded from the biological open space; therefore, the presence of the SDG&E easement is not expected to affect the long-term viability and management of the biological open space. Reclamation and native habitat revegetation is proposed to occur within the SDG&E easement, where temporary impacts would occur as a result of mining activities. Existing elevations would be lowered by 15 to 20 feet, but the three transmission towers would remain at their current elevation, leaving a raised "island" within the expanded Sweetwater River floodplain. An access ramp would be constructed on the western side of the island to connect to a 28-foot-wide access road within the existing SDG&E right-of-way easement that runs from the towers to the top of the constructed southern slope at the southern boundary of the expanded floodplain. The ramp, access road, and slopes surrounding the towers would be compacted and lined, as needed, for access and to prevent erosion. Maintenance of this access road/ramp would ensure that SDG&E maintenance crews are able to access the towers during project operations. Fencing and signage would be installed along the ramp and access road to prevent unauthorized access and impacts to the native habitat revegetation area and biological open space located adjacent to the access road. This easement will be identified in the biological open space easement recorded over the biological open space.

Any other easements crossing the preserve will be vacated or quitclaimed. The Steele Canyon Road bridge ROW and SDG&E easement to remain are not counted in the overall acreage of biological open space which totals 142.8 acres on-site.

2.7 FIRE HISTORY

The rate of fires in San Diego County coastal shrublands generally increased over the last half of the 20th century. Over 600 fires have occurred in the foothills and mountains of San Diego County between 1910 and 1999, and several major fires in excess of 50,000 acres have occurred in recent years. According to a review of the County's fire burn data and California Department of Forestry and Fire Protection (CalFire) burn data, the preserve has not been documented as being affected by fire (SanGIS 2020, CalFire 2020).

3.0 BIOLOGICAL RESOURCES DESCRIPTION

3.1 VEGETATION COMMUNITIES

A total of 15 vegetation communities/land use types occur within the preserve (Figure 8, *Vegetation and Sensitive Biological Resources in the Biological Open Space*; Table 1, *Existing Vegetation Communities/Land Use Types in The Preserve*).

The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) and as added to by Oberbauer (2008) as presented in the County's Biology Guidelines (County 2010a).

Table 1
EXISTING VEGETATION COMMUNITIES/LAND USE TYPES IN THE PRESERVE

Vegetation Community[1]	Acreage[2]	
	Before Restoration	After Restoration/ Revegetation[3]
Wetlands		
Disturbed Wetland (11200)	~~9.80~~9.78	0
Streambed (Emergent Wetland) (52440)	0	9.58
Freshwater Marsh (52400)	0.22	0.22
Southern Cottonwood-Willow Riparian Forest[4] (61330)	12.59	26.48
Southern Willow Scrub[4] (63320)	4.82	90.88
Tamarisk Scrub (63810)	1.16	0
Open Water (64140)	1.68	1.68
Arundo-Dominated Riparian (65100)	0.48	0
Wetlands Subtotal	*30.73~~5~~*	*128.84*
Sensitive Uplands		
Diegan Coastal Sage Scrub[4] (32500)	0.55	11.85
Non-native Grassland (42200)	0.15	0.15
Sensitive Uplands Subtotal	*0.70*	*12.0*
Non-Sensitive Uplands		
Eucalyptus Woodland (79100)	0.02	0.02
Non-Native Vegetation (11000)	1.06	0.46
Disturbed Habitat (11300)	~~47.75~~47.26	7.67
Developed Land (12000)	~~70.32~~69.08	0~~1.75~~[5]
Artificial Pond (64140)	0.14	0
Non-Sensitive Uplands Subtotal	*~~119.29~~117.56*	*~~9.9~~8.15*
TOTAL	**~~150.74~~148.99**	**~~150.74~~148.99**

1 Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008). Data is from the project's biological technical report (HELIX 202~~5~~3a).

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

3 Acreage after restoration refers to the conceptual acreage that is anticipated following completion of the project's Conceptual Wetland Mitigation Plan (HELIX 202~~5~~3b) and Conceptual Revegetation Plans (HELIX 202~~5~~3c), which are currently being prepared, thus, acreages provided in Table 3 are estimates and may change.

4 Including disturbed.

~~5 Consists of grouted rip rap.~~

Disturbed Wetland

Disturbed wetland is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* ssp.), cocklebur (*Xanthium strumarium*), umbrella sedge (*Cyperus involucratus*), and wild celery (*Apium graveolens*).

Disturbed wetland on-site is located along the Sweetwater River and is dominated by Bermuda grass (*Cynodon dactylon*) or bare ground. The river channel has been altered from current and past disturbances associated with previous mining activities and golf course development. It has been planted with turf grass and is regularly mowed as part of golf course maintenance activities. Approximately 9.~~80~~ 78 acres of disturbed wetland are mapped within the preserve. Disturbed wetland would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas currently mapped as disturbed wetland will be restored and/or revegetated with native vegetation.

Streambed/Emergent Wetland

Emergent wetland is dominated by low-growing, perennial wetland species such as spikerush (*Eleocharis* spp.), rushes (*Juncus* spp.), and sedges (*Carex* spp.). This community occurs in channels, seeps and springs, floodplains, margins of lakes and rivers, and various basins such as pools and ponds, palustrine lakes, montane meadows, and dune swales. It is often associated with previously disturbed areas where wetlands are emerging but have not yet established.

Emergent wetland is not currently present within the project site. Following completion of reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, a total of 9.58 acres of emergent wetland would be seeded along the Sweetwater River. Existing habitat along the Sweetwater River is comprised of disturbed wetland but would be removed and restored and/revegetated with native vegetation. Sweetwater River is subjected to periodic heavy flows as a result of water releases and transfers between Loveland Reservoir and Sweetwater Reservoir, as controlled by the Sweetwater Authority. As such, vegetation along the Sweetwater River is anticipated to be dynamic and transition between sections of the unvegetated streambed and vegetated streambed.

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots, 5 to 13 feet tall, forming incomplete to completely closed canopies. This vegetation type occurs along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, freshwater, or brackish marshes. These areas are semi- or permanently flooded yet lack a significant current (Holland 1986). Dominant species include cattails (*Typha* sp.) and bulrushes (*Schoenoplectus* sp.), along with umbrella sedges (*Cyperus* sp.), rushes, and spike-sedge.

Freshwater marsh within the project site is dominated by cattails and California bulrush (*Schoenoplectus californicus*). A small patch occurs in the southwestern portion of the site at the downstream end of the Sweetwater River, just east (upstream) of a bridge crossing. Freshwater marsh also occurs in the south-

central portion of the site, just east of Steele Canyon Road, in an area that was previously disturbed by sand mining activities. A total of 0.22 acre of freshwater marsh occurs within the preserve and will be preserved in place.

Southern Cottonwood-Willow Riparian Forest (including disturbed)

Southern cottonwood-willow riparian forest consists of tall, open, broad-leaved, winter deciduous riparian species and is dominated by cottonwood species (e.g., *Populus* spp.), with willow species (*Salix* spp.) composing the main understory. This vegetation community is dense, structurally diverse, and similar to southern arroyo willow riparian forest, although it contains a greater number of cottonwoods and western sycamores (*Platanus racemosa*). Disturbed southern cottonwood-willow riparian forest contains a higher percentage of exotic species such as tamarisk, shamel ash (*Fraxinus uhdei*), eucalyptus (*Eucalyptus* spp.), peppertree (*Schinus* spp.), and Mexican fan palm (*Washingtonia robusta*).

Typical species occurring within southern cottonwood willow riparian forest on-site include western cottonwood (*Populus fremontii*), western sycamore, arroyo willow (*Salix lasiolepis*), and black willow (*Salix gooddingii*). Non-native species within disturbed portions of southern cottonwood-willow riparian forest include eucalyptus, tamarisk, and Mexican fan palm. Approximately 12.59 acres of southern cottonwood-willow riparian forest, which includes 0.87 acre disturbed, occur at the northeastern and southwestern portions of the preserve along the Sweetwater River, and to the east of Steele Canyon Road, along the site's southern boundary in an area previously disturbed by sand mining activities. The acreage of this habitat is expected to increase to 26.48 acres following the completion of reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans.

Southern Willow Scrub (including disturbed)

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

This habitat occurs along the downstream portion of the Sweetwater River in the southwestern portion of the site. Dominant species include arroyo willow, black willow, and sandbar willow (*Salix exigua*). Disturbed southern willow scrub includes the same species along with intermixed giant reed and tamarisk trees. A total of 4.82 acres of disturbed southern willow scrub occur within the preserve; this is expected to increase to 90.88 acres following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans.

Tamarisk Scrub

Tamarisk scrub typically comprises shrubs and/or small trees of exotic tamarisk species but may also contain willows, salt bushes (*Atriplex* spp.), and salt grass (*Distichlis spicata*). This habitat occurs along

intermittent streams in areas where high evaporation rates increase the salinity level of the soil. Tamarisk is a phreatophyte, a plant that can obtain water from an underground water table. Because of its deep root system and high transpiration rates, tamarisk can substantially lower the water table to below the root zone of native species, thereby competitively excluding them. As a prolific seeder, it may rapidly displace native species within a stream channel.

Tamarisk scrub on-site is dominated by tamarisk with occasional cattails and willows. It is found along the downstream portion of the Sweetwater River in the southwestern portion of the site. A total of 1.16 acre of tamarisk scrub is mapped within the preserve. Tamarisk scrub would be eliminated from the preserve following completion of the project's compensatory mitigation in accordance wetland mitigation plan, as areas currently mapped as tamarisk scrub would be rehabilitated through the removal of non-native vegetation and the installation of native plant and seed material.

Open Water

Open water consists of year-round bodies of fresh water in the form of lakes, streams, ponds, or rivers. It also includes portions of water bodies that are usually covered by water and less than 10 percent vegetative cover. Open water on-site is located to the east of Steele Canyon Road along the project's southern boundary in an area that was previously disturbed by mining activities. The area was excavated during sand extraction creating lower-lying areas that intersect the water table. These open water features are surrounded by native riparian habitat. A total of 1.68 acres of open water/freshwater pond occur within the preserve; this will remain the same as open water areas will be preserved in place.

Arundo-Dominated Riparian

Arundo-dominated riparian consists of densely vegetated riparian thickets dominated almost exclusively by giant reed, typically occurring along disturbed water courses. On-site, this habitat occurs as a near monoculture of giant reed within a portion of the Sweetwater River, an associated tributary off Ivanhoe Ranch Road, and at the fringe of a constructed pond west of Steele Canyon Road. A total of 0.14 acre of arundo-dominated riparian is mapped within the preserve. Arundo-dominated riparian would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas currently mapped as arundo-dominated riparian would be rehabilitated through the removal of non-native vegetation and installation of native plant and seed material.

Diegan Coastal Sage Scrub (including Disturbed)

Coastal sage scrub is one of the two major shrub types that occur in southern California, occupying xeric sites characterized by shallow soils (the other is chaparral). Diegan coastal sage scrub may be dominated by a variety of species depending upon soil type, slope, and aspect. Typical species found within Diegan coastal sage scrub include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasiculatum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Disturbed Diegan coastal sage scrub contains many of the same shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native, annual species.

Small patches of this habitat occur at the southeastern and southwestern project boundaries. These patches are connected to larger swaths of coastal sage scrub that occur off-site within existing

preserved lands and open space. Dominant species include California sage brush, California buckwheat, Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*), and broom baccharis (*Baccharis sarothroides*). Disturbed coastal sage scrub on-site occurs as narrow bands of habitat to the south of Willow Glen Drive at the northeastern boundary, and to the west of Steele Canyon Road along the southern boundary. These areas consist of scattered shrubs of California sagebrush and California buckwheat growing among planted non-native trees and woody debris deposited on the slopes. A total of 0.55 acre of Diegan coastal sage scrub is mapped within the preserve; this is expected to increase to 11.85 acres following completion of the project's reclamation revegetation and in accordance with the project's revegetation plan.

Non-Native Grassland

Non-native grassland is a mixture of annual grasses and broad-leaved, herbaceous species. Annual species comprise from 50 percent to more than 90 percent of the vegetative cover, and most annuals are non-native species. Non-native grasses typically comprise at least 30 percent of the vegetative cover, although this percentage can be much higher in some years and lower in others, depending on land use and climatic conditions. Usually, the grasses are less than three feet in height and form a continuous or open cover. Emergent shrubs and trees may be present but do not comprise more than 15 percent of the total cover (County 2010a). Most of the non-native grasses originated from the Mediterranean region, an area with a long history of agriculture and a climate similar to California.

Non-native grassland occurs in the southwestern portion of the project site. Dominate species include ripgut grass (*Bromus diandrus*), short-pod mustard (*Hirschfeldia incana*), and Bermuda grass. A total of 0.15 acre of non-native grassland occurs within the preserve and will be preserved in place.

Eucalyptus Woodland

Eucalyptus woodland is dominated by eucalyptus (*Eucalyptus* spp.), an introduced genus that produces a large amount of leaf and bark litter. The chemical and physical characteristics of this litter, combined with the shading effects of the trees, limit the ability of other species to grow in the understory, thereby decreasing floristic diversity. If sufficient moisture is available, eucalyptus becomes naturalized and can reproduce and expand its cover.

Scattered stands of eucalyptus woodland occur throughout the project site, mostly at the northeastern, southeastern, and southern boundaries. Scattered eucalyptus trees also occur throughout the golf course amongst the trees lining the fairways. A total of 0.02 acre of eucalyptus woodland occurs within the southwestern portion of the preserve and will be preserved in place.

Non-Native Vegetation

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* spp.], peppertree [*Schinus* spp.), many of which are also used in landscaping. On-site, this habitat consists of Peruvian pepper trees and oleander (*Nerium oleander*) lining Willow Glen Drive along the preserve's northern boundary and tamarisk and other non-natives that have emerged within drained artificial ponds. A total of 1.06 acres of non-native vegetation occurs within the preserve. Most of the non-native vegetation would be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's

revegetation and wetland mitigation plans. However, a small portion of non-native vegetation associated with a dry artificial pond, totaling 0.46 acre, would remain within the preserve.

Disturbed Habitat

Disturbed habitat includes areas in which the vegetative cover comprises less than 10 percent of the surface area (disregarding natural rock outcrops) and where there is evidence of soil surface disturbance. Disturbed habitat supports a predominance of non-native and/or weedy species that are indicators of such surface disturbance (County 2010a).

Disturbed habitat on-site predominantly occurs to the west of Steele Canyon Road within the closed portion of the golf course. This area is no longer being irrigated or manicured, though it is subject to periodic mowing. Disturbed habitat consists of dirt roads and non-native, weedy vegetation such as Bermuda grass, foxtail chess (*Bromus madritensis*), filaree (*Erodium* spp.), shortpod mustard, and Russian thistle (*Salsola tragus*). Additionally, native and non-native planted trees, including cottonwoods, eucalyptus, shamel ash, and northern catalpa (*Catalpa speciosa*), are present along the borders of the abandoned fairways. A total of 47.26~~47.75~~ acres of disturbed habitat occurs within the preserve. Most of the disturbed habitat will be eliminated from the preserve following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas previously disturbed by golf course development will be reclaimed, graded, and revegetated with native vegetation. However, a portion of disturbed habitat within the southwestern portion of the project site totaling 7.67 acres would remain within the preserve.

Artificial Pond

Artificial ponds on-site consist of open water habitat excavated in uplands. A total of six constructed ponds are present on-site, which serve as water hazards and aesthetic features for the golf course. Four ponds are present in the eastern portion of the site and two occur to the west of Steele Canyon. The water level in these constructed ponds is maintained artificially by pumping groundwater into them. Approximately 0.14 acre of artificial pond occurs within the preserved but would be eliminated from the preserve following completion of the project's reclamation revegetation in accordance with the project's revegetation plan, as artificial ponds currently present within preserve would be filled and graded as part of mining and reclamation activities and then revegetated with native vegetation.

Developed Land

Developed land includes areas that have been constructed upon or otherwise covered with a permanent, unnatural surface and may include, for example, structures, pavement, irrigated landscaping, or hardscape to the extent that no natural land is evident. These areas no longer support native or naturalized vegetation (County 2010a).

Developed land within the project site consists of the active portion of Cottonwood Golf Club, to the east of Steele Canyon Road. These areas include a clubhouse, parking lot, maintenance facilities and other buildings, golf cart paths, and other areas of hardscape or maintained landscaping. Approximately 69.08~~70.32~~ acres of developed land are mapped within the preserve; the majority of these areas will be eliminated following completion of the project's reclamation revegetation and compensatory mitigation in accordance with the project's revegetation and wetland mitigation plans, as areas of current golf

course development will be reclaimed, graded, and revegetated with native vegetation. ~~A total of 1.75 acres of developed land would remain within the preserve, comprised of grouted rip-rap that will be installed along the graded slopes and downstream of Steele Canyon Road.~~

3.2 PLANT SPECIES

3.2.1 Plant Species Present and Correlation with Habitat On-site

HELIX identified a total of 190 plant species on the project site, of which 80 (42 percent) are native species and 110 (58 percent) are non-native species (Appendix A, *Plant Species Observed*). Habitats within which these species were observed are listed in Appendix A.

3.2.2 Rare, Threatened, or Endangered Plant Species Present or Likely to Occur

Four special-~~-~~status plant species were observed within the overall project boundary, and of these, three species occur within the preserve, as listed below in alphabetical order by common name. Each is also described below and shown on Figure 8. The California Rare Plant Rank (CRPR) for each species is pursuant to the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2022). Status codes are defined in Appendix E, *Explanation of Status Codes for Plant and Animal Species*.

San Diego Sagewort (*Artemisia palmeri*)
Sensitivity Status: --/--; CRPR 4.2; County List D
Distribution: Coastal regions of Orange and San Diego Counties at elevations below 1,970 feet.
Habitat(s): Moist drainages and stream courses on sandy and mesic soils.
Presence on Site: Five individuals were observed at the western preserve boundary at the edge of southern riparian forest along the Sweetwater River.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Palmer's Goldenbush (*Ericameria palmeri* var. *palmeri*)
Sensitivity Status: --/--; CRPR 1B.1; County List B; MSCP Covered, MSCP Narrow Endemic
Distribution: Coastal San Diego County and Baja California, Mexico at elevations below 1,970 feet.
Habitat(s): Mesic areas within chaparral and coastal sage scrub communities.
Presence on Site: This species was observed along the southeastern project boundary, within the south-central portion of the site east of Steele Canyon Road, and in the southwestern portion of the project site. One individual was observed within the southwestern portion of the preserve within disturbed habitat just north of the Sweetwater River. This individual would be impacted by project activities. However, as part of project's mitigation requirements, Palmer's goldenbush will be planted within the expanded Sweetwater River floodplain with a minimum of 234 individuals to be established.
MSCP Management Requirements: *There are no area-specific management directives for this species. However, impacts to this species are to be fully mitigated through avoidance, minimization, and compensation.* Project impacts to 234 individuals would be mitigation through species-based mitigation at a minimum 1:1 mitigation ratio pursuant to County Requirements (2010a). Mitigation would occur through planting of the species within the expanded Sweetwater River floodplain in accordance with the Conceptual Revegetation Plan (HELIX 2025~~3~~c).

Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)
Sensitivity Status: --/--; CRPR 4.2; County List D
Distribution: Coastal regions of southern California at elevations below 1,000 feet. San Luis Obispo County south to San Diego County, and further east into Riverside and Imperial Counties.
Habitat(s): Moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps.
Presence on Site: Seventeen individuals observed at southwestern portion of the preserve in wetland habitat at the downstream portion of the Sweetwater River. Three would be impacted by project activities as part of the removal of an existing bridge crossing.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

3.2.3 Rare, Threatened, or Endangered Plant Species Not Observed but with Potential to Occur

A list of special-status plant species with potential to occur within the preserve is provided in Appendix B, *Special-Status Plant Species Observed or with Potential to Occur*. Three special-status plant species not observed on-site have a high potential to occur. These include singlewhorl burrobrush (*Ambrosia monogyra*), San Diego ambrosia (*Ambrosia pumila*), and Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*).

3.2.4 Non-native and/or Invasive Plant Species

Native habitats within the preserve are dominated by native plant species; however, numerous non-native plants have been observed on-site. In particular, non-native grasses are prevalent in the disturbed and developed portions of the site, as these areas primarily consist of active and abandoned golf course greens and fairways vegetated with Bermuda grass. Numerous non-native plant species have been observed on-site that are rated as moderately or highly invasive by the California Invasive Plant Council's (Cal-IPC's) inventory (2022). A total of 28 species with ratings of high or moderate have been observed in the preserve (Table 2, *Invasive Plants Observed within The Cottonwood Sand Mine Preserve*). Additionally, while no San Diego Management and Monitoring Program (SDMMP) management level 1 or 2 species have been observed in the preserve (San Diego Association of Governments [SANDAG] 2012), two plant species with an SDMMP management level that are not ranked by Cal-IPC are included in Table 2 below.

Table 2
INVASIVE PLANTS OBSERVED WITHIN THE COTTONWOOD SAND MINE PRESERVE

Scientific Name	Common Name	Vegetation Community[2]	Cal-IPC Rating	SDMMP Rating
Arundo donax	giant reed	ADR, NNV	high	3
Asparagus asparagoides	African asparagus fern	DH	moderate	-
Asphodelus fistulosus	onionweed	DH, DEC	moderate	-
Atriplex semibaccata	Australian saltbush	DH, DEV	moderate	-
Avena barbata	slender oat	DH, DCSS, NNG	moderate	-
Brassica nigra	black mustard	DCSS, DH	moderate	-
Bromus diandrus	ripgut brome	NNG	moderate	-
Bromus madritensis	red brome	NNG	high	-
Carduus pycnocephalus	Italian thistle	DH, DEV	moderate	-

Scientific Name	Common Name	Vegetation Community[2]	Cal-IPC Rating	SDMMP Rating
Carpobrotus edulis	iceplant	DH, NNV	high	-
Centaurea melitensis	tocalote	DH, DEV	moderate	-
Conium maculatum	poison-hemlock	DW	moderate	-
Cortaderia sp.*	pampas grass	DEV	high	3
Cynara cardunculus	cardoon	DH	moderate	3
Cynodon dactylon	Bermuda grass	NNG	moderate	-
Dittrichia graveolens	stinkwort	DH, DEC	moderate	-
*Festuca myuros**	rattail sixweeks grass	DH	moderate	-
Ficus carica	common fig	DEV	moderate	-
Foeniculum vulgare	fennel	DH, NNW	high	4
Glebionis coronaria	crown daisy	DCSS, DEV, DH	-	5
Hordeum murinum	Mediterranean barley	DEV	moderate	-
Hirschfeldia incana	short-pod mustard	DH	moderate	-
Mesembryanthemum crystallinum	crystalline iceplant	DH, DEV	moderate	-
Nicotiana glauca	tree tobacco	DH, SCWRF	moderate	-
*Oncosiphon pilulifer**	stinknet	DH	high	-
Oxalis pes-caprae	Bermuda buttercup	DH	moderate	-
Schinus terebinthifolius	Brazilian pepper tree	DH, DEV	moderate	-
Silybum marianum	milk thistle	DH	-	4
Tamarix ramosissima	tamarisk	DCSS, DH, SCWRF, TS	high	-
Washingtonia robusta	Mexican fan palm	DH, DEV	moderate	-

[1] In this context, invasive refers to species given a rating of Moderate or High by Cal-IPC.

[2] SCWRF = Southern Cottonwood-Willow Riparian Forest (including disturbed); SWS = Southern Willow Scrub (including disturbed); DW = Disturbed Wetland; DCSS = Diegan coastal sage scrub (including disturbed); ADR = Arundo-Dominated Riparian; NNG = Non-Native Grassland; NNV = Non-Native Vegetation; TS = Tamarisk Scrub; DH = Disturbed Habitat; DEV = Developed.

3.3 WILDLIFE SPECIES

3.3.1 Wildlife Species Present and Correlation with Habitat On-site

A total of 129 animal species were observed or otherwise detected on the project site during the biological surveys, including 14 invertebrate, one fish, four amphibian, six reptile, 85 bird, and 19 mammal species (Appendix C, *Animal Species Observed or Detected*).

3.3.2 Rare, Threatened, or Endangered Wildlife Species Present

Twenty-three special-status animal species have been observed or detected on or directly adjacent to the project site or flying over the project site, during biological surveys conducted for the project. Six of these species are covered under the County's MSCP Subarea Plan (County 1997).

Each species is listed below in alphabetical order by common name, described, and shown on Figure 8. Status codes are defined in Appendix E.

Barn Owl (*Tyto alba*)
Status: --/--; County Group 2
Distribution: Common, year-round resident of California.
Habitat: Open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats. Also found in urban and suburban areas. Nest in sheltered areas of cliffs or artificial structures, on ledges, in crevices, culverts, nest boxes, and in cavities in trees. Roosts in dense vegetation, cliffs, and buildings and other artificial structures.
Presence on Site: A single individual was observed foraging in the eastern portion of the site during an evening toad survey.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Belding's Orange-throated Whiptail (*Aspidoscelis hyperythra beldingi*)
Status: --/WL; MSCP Covered; County Group 2
Distribution: Southern Orange County and southern San Bernardino County, south through Baja California below 3,500 feet.
Habitat: Coastal sage scrub, chaparral, edges of riparian woodlands, and washes. Also found in weedy, disturbed areas adjacent to these habitats. Important habitat requirements include open, sunny areas, shaded areas, and abundant insect prey base, particularly termites (*Reticulitermes* sp.).
Presence on Site: At least three individuals were observed on several occasions in the northeastern portion of the site between Willow Glen Drive and Sweetwater River, and at least two individuals were observed adjacent to the stand of riparian habitat east of Steele Canyon Road.
MSCP Management Requirements: *Area-specific management directives must address edge effects.* [1] This RMP addresses edge effects to Belding's orange-throated whiptail through the implementation of management tasks as detailed in Section 4.2, below.

Coastal California Gnatcatcher (*Polioptila californica californica*)
Status: FT/SSC; MSCP Covered, County Group 1
Distribution: Year-round resident of California occurring from Ventura County south to San Diego County, and east within the western portions of San Bernardino and Riverside Counties.
Habitat: Coastal sage scrub, coastal bluff scrub, and coastal sage-chaparral scrub
Presence on Site: A female gnatcatcher was observed foraging with and feeding one fledgling within coastal sage scrub at the project's southwestern boundary on June 11, 2019. Additional observations of the species include a single juvenile calling within the stand of riparian habitat along the Sweetwater River in the southwestern portion of the site on July 1, 2019, and another female/juvenile type foraging in the same general area on July 17, 2019. In 2022, two single males were detected off-site southeast of the southeastern project boundary, and one adult male was observed off-site southwest of the southwestern project boundary foraging with and feeding a single juvenile. Though the species was observed within the project site, suitable habitat present is limited to small patches of coastal sage scrub in the extreme southwestern and southeastern portions of the site that connect to larger blocks of coastal sage scrub that continue off-site. The species may utilize these areas for foraging but would most likely breed off-site in more extensive, higher-quality habitat.
MSCP Management Requirements: *Area-specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No clearing of occupied habitat may*

[1] Text in italics is taken from the MSCP Conditions of Coverage.

occur between March 1 and August 15. This RMP addresses edge effects to CAGN through implementation of management tasks as detailed in Section 4.2, below. Fire protection is addressed through the implementation of habitat and fire management task, as detailed in Section 4.2, below.

Cooper's Hawk (*Accipiter cooperii*)
Status: --/WL; MSCP Covered; County Group 1
Distribution: In California, the species breeds from Siskiyou County south to San Diego County and east towards Owens Valley at elevations below 9,000 feet.
Habitat: Oak groves, mature riparian woodlands, and eucalyptus stands or other mature forests. Increasingly found in suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.
Presence on Site: A single individual was documented within five different locations within the eastern and western portions of the site. Observations included individuals flying over the site and individuals perched in trees within the closed and developed golf courses and riparian habitat along the Sweetwater River.
MSCP Management Requirements: *Area specific management directives must include 300-foot impact avoidance areas around active nests, and minimization of disturbance in oak woodlands and oak riparian forests.* Nest locations were not observed during biological surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2.

Great Blue Heron (*Ardea herodias*)
Status: --/--; County Group 2
Distribution: Year-round resident of California occurring throughout most of the State.
Habitat: Found in a wide variety of habitats foraging in various wetland habitats, water bodies, and occasionally uplands. Nests as single pairs and in small colonies with nests located on the ground, in trees and bushes, and on artificial structures that are usually adjacent to water and secluded from human disturbance.
Presence on Site: Individuals observed foraging in four separate locations within the project site. A pair was observed in the southeastern portion of the site at an artificial pond, one individual was detected within the patch of riparian habitat just east of Steele Canyon Road, and two other individuals were detected at the edge of artificial ponds to the west of Steele Canyon Road.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Green Heron (*Butorides virescens*)
Status: --/--; County Group 2
Distribution: In California, the species is a year-round resident found generally west of the Sierra Nevada and within the southern deserts.
Habitat: Found in a wide variety of wetland habitats such as swamps, marshes, riparian habitat along creeks and streams, lake edges, and artificial ditches, canals, and ponds preferring thick vegetation and avoiding open areas.
Presence on Site: Detected in four separate locations within the project site. A pair was observed at an artificial pond at the eastern boundary, an individual was observed perched within riparian habitat just east of Steele Canyon Road, and two other individuals were detected at the edge of an artificial pond to the west of Steele Canyon Road.

MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Lawrence's Goldfinch (*Spinus lawrencei*)
Status: BCC/--
Distribution: Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County and east to the western edge of the southern Mojave and Colorado Deserts.
Habitat: Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet.
Presence on Site: A small flock, consisting of approximately eight birds, was observed foraging within the eastern portion of the project along the southern boundary. The species is highly nomadic, flocking to areas where food sources are abundant, and most likely utilizes the site for foraging opportunities.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Least Bell's Vireo (*Vireo bellii pusillus*)
Status: FE/SE; MSCP Covered and NE; County Group 1
Distribution: In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties.
Habitat: Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. The species can be tolerant of the presence of non-native species such as tamarisk.
Presence on Site: A total of two vireo pairs, and six additional male vireos were detected during the 2019 protocol surveys. One LBVI pair and three male vireos were detected within the project site. The LBVI pair was observed foraging with and feeding three fledglings on May 30, 2019, in the stand of riparian habitat directly east of Steele Canyon Road. Additionally, one LBVI pair and three male vireos were detected outside of the project site. The pair was observed to the west within the SDNWR, two of the males were detected within the Steele Canyon Golf Course, and one male was observed to the west within the SDNWR. Critical habitat for the species occurs both on-site and off-site along the Sweetwater River. Vireos were heard singing at many of these same locations during the 2022 biological surveys.
MSCP Management Requirements: *New developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds shall monitor and control cowbirds. Area-specific management directives must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and March 15 (i.e., outside of the nesting period).* This RMP addresses edge effects to LBVI through the implementation of management tasks as detailed in Section 4.2, below. The preserve includes upland buffers of coastal sage scrub surrounding the riparian areas. Brown-headed cowbirds were observed on-site during 2019 surveys; therefore, specific cowbird control measures are included in this RMP. If brown-headed cowbirds become an issue in the future, they will be addressed through adaptive management as detailed in Section 4.3.

Monarch Butterfly (*Danaus plexippus*)
Status: FC/--; County Group 2
Distribution: Winter roost sites extend along the coast from northern Mendocino south to Baja California, Mexico.
Habitat: Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Larval host plants consist of milkweeds (*Asclepias* sp.).
Presence on Site: A single individual was observed flying within non-native woodland in the southeastern portion of the project site in August 2018. An additional individual was observed just outside of the project boundary, to the south of the patch of riparian habitat east of Steele Canyon Road, in July 2019.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Oak Titmouse (*Baeolophus inornatus*)
Status: BCC/--
Distribution: Year-round resident found from southern Oregon south through California to northwestern Baja California, Mexico.
Habitat: Prefers dry oak and oak-pine woodlands but may use scrub oaks and other scrub habitat near woodlands. Also found in juniper woodlands and open pine forests.
Presence on Site: Individuals were detected foraging within trees at two separate locations east and west of Steele Canyon Road.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Peregrine Falcon (*Falco peregrinus*)
Status: BCC/FP; MSCP Covered and NE, County Group 1
Distribution: In California, the species is a very uncommon breeding resident and migrant throughout the State.
Habitat: Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands but is generally absent from desert areas. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on artificial structures.
Presence on Site: A pair was observed flying overhead on May 5, 2019. The pair flew north and perched on a transmission tower located on the hillside north of the project site. An individual was later observed perched on a tree in the western portion of the site before flying further west and off-site. The pair is presumed to have been foraging individuals moving through the area. No suitable nesting habitat for the species is present within or immediately adjacent to the project site, and no nesting individuals were observed during project surveys.
MSCP Management Requirements: *This species has very low population numbers in the county, being primarily a rare fall and winter visitor. All three nest sites occur outside of the MHPA: one on Coronado Bridge, one on a crane in Port Authority jurisdiction, and one on Pt. Loma federal lands. Participating jurisdictions guidance and ordinances and state and federal wetland regulations will provide additional habitat protection resulting in no net loss of wetlands.* Nest locations were not determined during 2019 surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2, below.

Red-shouldered Hawk (*Buteo lineatus*)
Status: --/--; County Group 1
Distribution: In California, occurs throughout the State in areas west of Sierra Nevada.
Habitat: Mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas. Nests in trees, both native and non-native, often located near a water source.
Presence on Site: Multiple individuals observed at four locations across the project site. Observations included single individuals and at least one pair perched in trees or flying overhead within both the eastern and western portions of the site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Small-footed Myotis (*Myotis ciliolabrum*)
Listing: --/--; County Group 2
Distribution: Found throughout California occurring in desert, chaparral, riparian areas, and forests.
Habitat: Presence of riparian areas and waters appears to be important in distribution. Strongly associated with chaparral and montane habitats in San Diego County. Roosts solitarily or in small numbers in rocky crevices, caves, mines, snags, buildings, and bridges.
Presence on site: Detected by AnaBat detectors within the eastern portion of the project site. The species likely utilizes the site for foraging and has potential to roost within trees and buildings present within the project site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Townsend's Big-eared Bat (*Corynorhinus townsendii pallescens*)
Listing: --/SSC; County Group 2
Distribution: In San Diego County, presumed absent from coastal areas being found more commonly in historic mining districts and boulder-strewn regions (i.e., Escondido, Lakeside, Dulzura, Jacumba, etc.).
Habitat: Found in a variety of habitats including desert scrubs as well as pine and pinyon-juniper forests with presence of caves or cave-like structures (such as buildings).
Presence on site: This species was detected by AnaBat detectors within the eastern and western portions of the project site. The species likely utilizes the site for foraging opportunities but is unlikely to roost within the project site as preferred roosting sites are not present. Although buildings within the project suite could provide potential roosting habitat, this species is highly susceptible to disturbance and will abandon its roost if disturbed.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Turkey Vulture (*Cathartes aura*)
Status: --/--; County Group 1
Distribution: Observed throughout San Diego County with the exception of extreme coastal San Diego where development is heaviest.
Habitat: Foraging habitat includes most open habitats with breeding occurring in crevices among boulders. Roosts communally, preferring stands of large trees or hilly areas, usually away from human disturbance.
Presence on Site: Single individual observed soaring overhead in the southwestern portion of the site. No potentially suitable breeding habitat is present on-site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Vermilion Flycatcher (*Pyrocephalus rubinus*)
Status: --/ SSC; County Group 1
Distribution: Scarce breeding records occur in southern California with a few individuals wintering regularly along the California coast from Ventura County south to San Diego County.
Habitat: Arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodland, usually near water. Wintering individuals can be found in open and semi-open areas with hedges, scattered trees and bushes, and often near water.
Presence on Site: Multiple individuals and pairs were observed within and throughout the project site during project surveys. At least two breeding pairs were confirmed to occupy the site during 2019 and a pair was observed with an active nest in 2022. Observations included adult males and females, immature males and females, and numerous fledglings.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Western Bluebird (*Sialia mexicana*)
Status: --/--; MSCP Covered; County Group 2
Distribution: Common year-round resident throughout California but absent from the higher mountains and eastern deserts.
Habitat: Breeds in open woodlands, riparian habitats, grasslands, and farmlands. Nests and roosts in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Winters in a wider variety of habitats.
Presence on Site: Multiple individuals were detected in thirteen different locations throughout the project site within riparian habitat and the developed golf course. Observations included single individuals and small flocks of up to five individuals perched on trees, flying over the site, or foraging within the project site. Suitable breeding habitat is present on-site.
MSCP Management Requirements: *Persistence of this species in San Diego County depends largely on conservation of existing large populations on public lands east of the MSCP Plan area.* Nest locations were not determined during 2019 surveys; however, any nest locations observed during pre-construction surveys and grading monitoring will be shared with the Resource Manager, and future detection and avoidance will be addressed through general wildlife surveys and sensitive species monitoring, as described in management tasks as detailed in Section 4.2, below.

Western Mastiff Bat (*Eumops perotis*)
Listing: --/SSC; County Group 2
Distribution: In California, the species occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert.
Habitat: Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.
Presence on site: Detected within the western portion of the project site by AnaBat detectors. The species likely utilizes the site for foraging opportunities but is unlikely to roost within the project site as preferred roosting sites are not present.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Western Red Bat (*Lasiurus blossevillii*)
Listing: --/SSC; County Group 2
Distribution: In California, the species is locally common occurring from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts.
Habitat: Mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in non-native vegetation such as tamarisk, eucalyptus, and orchards. Primarily roosts in trees preferring heavily shaded areas which are open underneath.
Presence on site: Detected by AnaBat detectors within the western portion of the project site. This tree roosting species has the potential to roost within riparian habitat and planted trees within the project site. The species would also be expected to utilize the site for foraging opportunities.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

White-tailed Kite (*Elanus leucurus*)
Status: --/Fully Protected (FP); County Group 1
Distribution: In California, year-long resident of coasts and valleys west of the Sierra Nevada foothills and southeast deserts, though the species has been documented breeding in arid regions east of the Sierra Nevada and within Imperial County.
Habitat: Inhabits low elevation grasslands, wetlands, oak woodlands, and open woodlands, and is associated with agricultural areas. Breeds in riparian areas adjacent to open spaces.
Status on site: A single individual was observed on numerous occasions during the 2022 biological surveys foraging off-site within the SDNWR.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Yellow-breasted Chat (*Icteria virens*)
Status: --/SSC; County Group 1
Distribution: In California, occurs as a migrant and summer resident breeding from the coastal regions in northern California, east of the Cascades, and throughout the central and southern portions of the State.
Habitat: Breeds in early successional riparian habitats with well-developed shrub layer and an open canopy nesting on the borders of streams, creeks, rivers, and marshes.
Presence on Site: Two individuals were heard singing in the southwestern portion of the site within the patch of riparian habitat along the Sweetwater River. Additional individuals were detected further west of the site within the SDNWR.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Yellow Warbler (*Setophaga petechia*)
Status: BCC/SSC; County Group 2
Distribution: Common to locally abundant species breeding throughout California at elevations below 8,500 feet, excluding most of the Mojave Desert, and all of the Colorado Desert.
Habitat: Breeds in riparian areas dominated by willows and cottonwoods, near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests at higher elevation areas.
Presence on Site: Multiple individuals were observed within 18 locations throughout the project site. Observations included individuals perched in trees and along fences in the northeastern portion of the site, as well as foraging in these areas.

MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

Yuma Myotis (*Myotis yumanensis*)
Listing: --/--; County Group 2
Distribution: Widespread in California but uncommon in the Mojave and Colorado Deserts, except in the mountain ranges bordering the Colorado River Valley.
Habitat: Found in a variety of habitats including juniper and riparian woodlands, riparian forests, and desert regions where bodies of water (i.e., rivers, streams, ponds, lakes, etc.) are present. Closely associated with water which it uses for foraging and sources of drinking water. Roosts in caves, attics, buildings, mines, underneath bridges, and other similar structures.
Presence on site: Detected by AnaBat detectors and during the nighttime emergence survey within the eastern and western portions of the project site. The species likely utilizes the site for foraging and has the potential to roost within trees and buildings present within the project site. Bridges suitable for roosting were not observed on site.
MSCP Management Requirements: This species is not covered under the MSCP; therefore, area specific management directives have not been established for this species.

3.3.3 Rare, Threatened, or Endangered Wildlife Species with Potential to Occur

Special-status animal species with potential to occur on-site (and those present on-site) are included in Appendix D, *Special-Status Animal Species Observed or with Potential to Occur*. The species are grouped into invertebrates and vertebrates (fish, amphibians, reptiles, birds, and mammals) and alphabetized by scientific name. Refer to Appendix E for an explanation of status codes. Eight special-status animal species that were not observed but are considered to have a high potential to occur on-site: western spadefoot (*Spea hammondii*), two-striped garter snake (*Thamnophis hammondii*), sharp-shinned hawk (*Accipiter striatus*), Canada goose (*Branta canadensis*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), loggerhead shrike (*Lanius ludovicianus*), and Mexican long-tongued bat (*Choeronycteris mexicana*).

The preserve currently supports LBVI and additional suitable habitat will be created within the preserve through the mitigation and revegetation efforts. A total of two vireo pairs, and six additional male vireos, were detected during protocol surveys conducted for the project in 2019 (HELIX 2025~~3~~a). One LBVI pair and three male vireos were detected within the project site, and one LBVI pair and three male vireos were detected outside of the project site; the LBVI detected within the project were confirmed to have successfully bred based on the observation of fledglings being cared for by the adults. There is potential for this species to establish new territories within the preserve following reclamation activities and implementation of the mitigation and revegetation effort, which will include the establishment and increase of riparian habitat within the preserve.

3.3.4 Non-native Wildlife and Nuisance Species

Non-native wildlife and/or nuisance wildlife species detected on the project site were the American bullfrog (*Rana catesbiana*), red-eared slider (*Trachemys scripta elegans*), brown-headed cowbird (*Molothrus ater*), European starling (*Sturnus vulgaris*), and scaly-breasted munia (*Lonchura punctulata*).

Many of these species are associated with the existing golf course operations and do not pose a significant management risk for the preserve. However, the following three species do have potential to adversely affect native wildlife in the preserve: American bullfrog, red-eared slider, and brown-headed cowbird. These species are further discussed below.

Although native to the eastern U.S., American bullfrogs are now widespread throughout much of California, where they occupy both natural and artificial aquatic habitats. They were introduced into the western U.S. as a food source and for biological control of insects, and accidental introductions may have occurred from fish stocking, frog farming, and release by pet owners (CDFW 2018a). The American bullfrog is the largest frog in California, and it may prey on or compete with food and habitat with native amphibians (Zeiner et al. 1988). This species could prey on native insects and amphibians occurring within aquatic areas in the preserve. Its occurrence is expected to be restricted to areas with permeant water sources within the preserve, such as existing native habitat to the east of Steele Canyon Road, where pond areas are currently present. Though the project would result in an expanded floodplain and riparian corridor, Sweetwater River is an intermittent stream with flow levels largely dictated by the Sweetwater Authority through controlled releases and water transfers from Loveland Reservoir (upstream of the site) to Sweetwater Reservoir (downstream of the site). Although the on-site expanded floodplain would not be expected to contain large areas of sufficient hydrology to support American bullfrogs, general monitoring for this species would be conducted by the Resource Manager. See Section 4.2.7 of this document for additional information on management tasks related to this species.

The red-eared slider is a freshwater turtle native to the central and eastern U.S. but has been introduced into many areas of California as well as other parts of the U.S. The primary pathway of invasion is through introduction by the pet trade, whereby turtles kept as pets are released by owners or escape from captivity. Red-eared sliders compete with native turtles for food, egg-laying sites, and basking sites, as well as being disease vectors by having potential to transmit parasites to native animal species, and the bacteria *Salmonella* to humans (CDFW 2022a). Although the native western pond turtle (*Actinemys marmorata*) has not been documented on or near the project site (see Appendix D), the red-eared slider could require management should the western pond turtle be documented on or adjacent to the site in the future. See Section 4.2.7 of this document for additional information on management tasks related to this species.

The brown-headed cowbird is a brood parasite, laying its eggs in the nests of other birds. This species is native to the Great Plains, but expanded its range westward, arriving in San Diego in noticeable numbers around 1915 (Unitt 2004). Brood parasitism by this species lowers the reproductive success of many passerine birds, particularly warblers, vireos, flycatchers, phoebes, sparrows, and finches (Zeiner et al. 1990). In California, the listing as endangered of the riparian songbirds LBVI and southwestern willow flycatcher is in part due to nest parasitism by brown-headed cowbirds (CDFW 2018b). Trapping efforts to control brown-headed cowbirds and nest monitoring of affected species are two ways in which cowbird parasitism have been evaluated and addressed. This species was detected in riparian habitat on and adjacent to the site. It is also known to occur in riparian habitat associated with the Sweetwater River, directly northeast and southeast of the site. Although the project does not propose any recreational uses within or adjacent to the preserve that are anticipated to attract or subsidize brown-headed cowbird populations, general monitoring for this species would be conducted by the Resource Manager. See Section 4.2.7 of this document for additional information on management tasks related to this species.

3.4 OVERALL BIOLOGICAL AND CONSERVATION VALUE

The majority of the preserve is mapped as developed on Attachment J (Habitat Evaluation Map) of the Biological Mitigation Ordinance (County 2010b), though small portions along the preserve's southern boundary are also mapped as low, moderate, high, and very high habitat value. The preserve supports lands identified as PAMA under the County's MSCP Subarea Plan (County 1997) in three small portions of the site at the northeastern, southeastern, and southern boundaries. The preserve consists of 142.8 acres of land stretching approximately two miles along the Sweetwater River, forming a valuable piece of biological open space ranging in width from over 150 feet in the western corner to approximately 900 feet in the center of the site. Average width of the preserve is approximately 600 feet. The preserve connects to conserved lands along the Sweetwater River both upstream and downstream of the project site. The SDNWR also directly abuts the western (downstream) end of the preserve along the Sweetwater River. This nearly continuous two-mile east-west length is interrupted only by one bridged roadway crossing over the river (Steele Canyon Road) and the SDG&E easement; both the bridged road crossing and the SDG&E easement are outside of the biological open space and do not create significant impediments to wildlife movement. In addition to restoring, revegetating, and conserving large areas of native and naturalized habitat on-site and maintaining connectivity across the site, the preserve also provides connectivity to off-site conserved lands along the Sweetwater River, as well as to other lands to the northeast and southeast that are identified as PAMA in the County's MSCP Subarea Plan (Figure 9, *Cottonwood Sand Mine Preserve Configuration*), thereby providing a linkage between larger blocks of MSCP conserved lands and PAMA lands.

The preserve also protects live-in and foraging habitat for numerous special-~~-~~status species that have been documented on or near the site, such as Belding's orange-throated whiptail, CAGN, Cooper's hawk, LBVI, yellow-breasted chat, and yellow warbler. Proposed preservation of Diegan coastal sage scrub and riparian habitat within the biological open space would conserve gnatcatcher habitat and dispersal routes from across the site from the northeastern hills, situated north of Willow Glen Drive, to the SDNWR situated south and southwest of the site. Thus, the preserve provides not only for live-in habitat for gnatcatcher, but also facilitates dispersal of this species. Additionally, the preservation and revegetation of riparian habitat within the biological open space area would conserve and increase vireo foraging and breeding habitat.

3.5 COMPENSATORY MITIGATION AND RECLAMATION REVEGETATION

A Conceptual Wetland Mitigation Plan (HELIX 2025~~3~~b) and Conceptual Revegetation Plan (HELIX 2025~~3~~c) are being prepared for the proposed riparian habitat re-establishment and riparian rehabilitation, and native habitat revegetation areas, respectively. The preserve would include approximately 0.70 acre of proposed upland preservation, 13.85 acres of proposed riparian preservation, ~~1.30 acres of proposed wetland waters re-establishment,~~ 7.36 acres of proposed riparian habitat rehabilitation, 107.63 acres wetland/riparian revegetation, and 11.30 acres of upland revegetation (consisting of Diegan coastal sage scrub) conducted as part of the project. Final compensatory mitigation acreages will be determined during project processing and approvals. Conceptual wetland waters re-establishment and riparian rehabilitation areas depicted herein will be determined in consultation with County PDS staff and wetland permitting agencies (Figure 10, *Biological Open Space and Conceptual Compensatory Mitigation and Reclamation Revegetation Areas*).

4.0 BIOLOGICAL RESOURCES MANAGEMENT

4.1 MANAGEMENT GOALS

The purpose of this RMP is to detail the methods to preserve and maintain the long-term viability and the functions and values of native habitats within the preserve, along with the listed and sensitive species they support. This RMP establishes the following goals with regard to biological resources:

- To preserve and manage habitat within the preserve in perpetuity for the benefit of sensitive species, MSCP covered species, and existing natural communities;
- To ensure the continued existence of sensitive plant and animal species in the preserve and/or to facilitate their expansion within the preserve;
- To reduce, control, and where feasible, eradicate non-native, invasive flora known to be detrimental to native species and/or the local ecosystem.

4.2 BIOLOGICAL MANAGEMENT TASKS

Biological monitoring will be conducted in the preserve to gather information necessary to assist the Resource Manager in making land management decisions and meeting the goals of this RMP. Biological management tasks include a baseline biological inventory, biological mapping updates, botanical inventories, sensitive species monitoring, LBVI surveys, exotic plant control, nuisance animal control, fire/flood management, and restoration. These tasks are further described below.

The preserve will be visually inspected for changes during annual maintenance and monitoring visits, and observations will be documented. Any substantial changes will be monitored more closely to determine the necessity of additional measures. Ongoing maintenance and administration, as further discussed below, is the responsibility of the Resource Manager, and will be conducted to ensure no loss of resource quality within the preserve.

4.2.1 Baseline Biological Inventory

The quantity and quality of vegetation communities within the preserve will be documented during the first year of active management. This inventory will incorporate data from the project's biological technical report (HELIX 2025~~3~~a) with the findings of an initial baseline inventory field survey. To optimize the probability of detecting sensitive species reported or expected to occur within the preserve, this survey should be conducted between March and May, when the majority of sensitive plant and animal species are most detectable. These data will allow the Resource Manager to measure habitat changes caused by natural and human effects and to evaluate management efforts during subsequent years.

Upon implementation of this RMP, the Resource Manager will be provided digital files containing the existing vegetation and sensitive resources data, which will be updated following the baseline inventory field survey in the first year of active management. The intent of this update is to document current conditions in the open space areas (including graphic and tabular depictions of habitat acreages),

document species observed (either directly or indirectly by sign such as scat, tracks, etc.) within each identified habitat type, and document the locations of sensitive plant and animal species.

4.2.2 Update Vegetation Mapping

Vegetation mapping will be updated every five years following the implementation of this RMP. A site visit will be conducted using updated aerial imagery to determine the vegetation communities present at the time of the survey. The biological resources maps of the preserve will be updated accordingly.

4.2.3 Botanical Inventory

An inventory of plant species observed in the preserve will be compiled every five years during the vegetation mapping update. The inventory will include a visual assessment of each population of sensitive plant species observed in the preserve ~~in order~~ to help track overall population trends, and specific attention will be given to any factors that may be negatively affecting those species (i.e., vandalism, mortality, etc.). Any new plant species observed incidentally during maintenance events or other site visits would be listed in that year's annual report, with particular focus on new occurrences of rare plants and of invasive species. Any SDMMP management level 1 or 2 species (SANDAG 2012) will be reported to SDMMP. Locations of sensitive plant species will be added to the biological resources maps of the preserve.

4.2.4 Special-Status Species Monitoring

It is the responsibility of the Resource Manager to monitor and evaluate the status of special-status species within the preserve and to implement protective measures if any individual species becomes threatened. Both preservation and monitoring of sensitive plant and animal populations within the preserve are necessary ~~in order~~ to achieve the overall long-term conservation of these species. Sensitive species monitoring will help the Resource Manager identify long- and short-term threats and recommend any necessary protective measures.

Special-status plant and animal monitoring will occur during annual management activities. In each assessment, the Resource Manager will observe and document sensitive species locations and conditions, and the locations of any observed/detected sensitive species will be documented and added to the biological resources maps. Monitoring/reporting efforts will include sensitive species previously documented within the preserve. In addition, any new plant or animal species observed incidentally during maintenance events or other site visits would be listed in that year's annual report.

Focused surveys are planned every five years for LBVI, as detailed below. Surveys and monitoring for other special-status wildlife species with regional monitoring objectives, such as the CAGN, will occur concurrently with annual assessments and focused surveys for vireo.

4.2.5 Least Bell's Vireo Surveys

Focused surveys for LBVI, consisting of three site visits spaced at least 10 days apart, will be conducted within appropriate habitat in the preserve every five years during the survey period (April 10 to July 31). Any vireos and other sensitive species observed incidentally during maintenance events or other site visits would also be documented.

4.2.6 Exotic Plant Control

The Resource Manager will coordinate with landowners adjacent to the preserve to provide information regarding exotic plant species and to increase the efficiency of exotic plant control programs. The information would provide recommendations for restricting the use of exotic plant species with a Cal-IPC rating of moderate to high in landscaping efforts.

Invasive non-native plants shall be monitored for and treated twice a year in January/February and April/May, when non-native plant species are most prevalent. Treatment of non-native species shall occur concurrently with the site visits performed by the Resource Manager if feasible. The Resource Manager is responsible for the removal of perennial species rated as high by the Cal-IPC within the same year that they are discovered. Invasive plant removal efforts will be spatially targeted to prioritize the areas of the property with the highest biological value or potential value, and species-targeted to prioritize the exotic species posing the greatest threat across the property, based on monitoring results. The budget for invasive plant control will be sufficient to perform ongoing work on an annual basis ~~in order~~ to continually improve the property.

If the use of herbicide is deemed necessary, the application should be minimal, and may only occur in compliance with all federal and state laws. All herbicide use will be monitored by a biologist, be applied by backpack sprayers or stump painting directly on target weeds, and will involve short-duration, biodegradable chemicals.

Non-native plant species treatment and removal activities such as the use of gas-powered chainsaws and weed whippers that may disturb raptors and migratory birds should avoid the general bird breeding season (February 1 through September 15). If these activities must occur during the breeding season, they should be limited to areas where the Resource Manager has confirmed the absence of active bird nests. Appropriate buffer distances shall be provided for active nests, including a 300-foot avoidance area for Cooper's hawk nests.

4.2.7 Nuisance Animal Species Monitoring and Control

A moderate tolerance for pest species will be permitted, but if the Resource Manager determines that pest eradication measures (e.g., pesticide application) are required, the County will be contacted to determine the need and appropriate methods, including potentially hiring a licensed pest control advisor. Exotic species control/eradication programs should be implemented at the appropriate time of year depending on the pest species and field conditions and should be coordinated with efforts on adjacent properties.

The Resource Manager will regularly monitor the preserve for presence of exotic animal species, including non-native aquatic species. This includes monitoring for species previously documented on site that have potential to adversely affect native wildlife (such as American bullfrog, red-eared slider, and brown-headed cowbird) as well as other invasive species tracked by CDFW, including invasive aquatic invertebrates such as the channeled apple snail (*Pomacea canaliculata*; [CDFW 2022b]) and invasive terrestrial invertebrates such as polyphagous and Kuroshio shot hole borers (*Euwallacea* spp.[CDFW 2022c and University of California 2022]). Another source of information for invasive aquatic species is the Stop Aquatic Hitchhikers website (https://stopaquatichitchhikers.org/).

The Resource Manager will monitor the preserve for the presence of exotic species during regular monitoring visits in addition to noting observations of brown-headed cowbird during focused LBVI surveys. Control/eradication programs will be implemented if determined necessary. In addition, the Resource Manager will coordinate with land managers of preserves upstream and downstream of the site regarding presence of exotic species documented in the preserve to increase the effectiveness of control programs/management activities. The USFWS manages the San Diego National Wildlife Refuge downstream of the site, and CDFW manages the McGinty Mountain Ecological Reserve upstream of the site.

4.2.8 Fire and Flood Management

Fire is an important element in the ecology of southern California but can also present potential hazards to habitat within the preserve. If a fire should occur in the preserve, vegetation within the preserve will be allowed to recover naturally; however, the seeding and/or planting of container stock may be required at the discretion of the Resource Manager. Special attention to weed establishment following fire will be assessed by the Resource Manager. The Resource Manager will also coordinate with the applicable fire agencies, as necessary.

The preserve is situated between Loveland Reservoir (upstream) and Sweetwater Reservoir (downstream). The Sweetwater Authority conducts controlled dam releases and water transfers between Loveland Reservoir and Sweetwater Reservoir, with water transfers occurring through the preserve. Additionally, the reach of the Sweetwater River within the preserve may flood during heavy rains. Such flooding from controlled dam releases or heavy rain could damage habitat within the preserve through scour, erosion, sedimentation, and spread of weeds. The Resource Manager will monitor habitat areas disturbed by flooding and implement remedial efforts as needed. Flood-damaged areas should be allowed to recover naturally; however, remedial measures, including erosion control, seeding, and/or planting of container stock, may be required if natural recovery is inadequate, or if unstable conditions (e.g., slope undercutting) are created. The Resource Manager will remove any exotic species introduced during flooding events. All of the aforementioned activities will be in compliance with applicable flood regulations and all other applicable County, state, and federal requirements.

4.3 ADAPTIVE MANAGEMENT

Adaptive management is intended to ensure that, through the monitoring and reporting process, the results of management are evaluated, and management is adjusted appropriately to meet the RMP goals and the County and Wildlife Agencies' commitment to the conservation goals of the County's MSCP Subarea Plan (County 1997). The Resource Manager is responsible for interpreting the results of site monitoring to determine the ongoing success of the RMP. If it is necessary to modify the plan between regularly scheduled updates, plan changes shall be submitted to the County for approval as required.

The term adaptive management was adopted for resource management by Holling (1978), who described adaptive management as an interactive process that not only reduces but also benefits from uncertainty. Adaptive management includes steps that may be involved in a long-term adaptive implementation program, including opportunistic learning, management, monitoring, and directing the results of analysis and assessment back into the program through decision makers. It is important that the RMP incorporate the flexibility to change implementation strategies after the initial start-up. The RMP is intended to be flexible enough to develop adaptive management strategies that will facilitate

and improve the decision-making process for operating the conservation program of the RMP, as well as provide for informative decision-making. The RMP is also intended to be flexible enough to incorporate management and monitoring methods that may change over time that would be appropriate for the biological open space.

Monitoring and adaptive management of the preserve will be a cooperative effort between the Resource Manager, County, Wildlife Agencies, and regional entities such as the SDMMP. Adaptive management is built into preserve management through the use of phased monitoring and evaluation to modify management actions based on monitoring results.

According to the SDMMP Management Strategic Plan, important regional threats/stressors on species and vegetation communities include: (1) fire (altered fire regime); (2) invasive species (exotic and native) and predation and herbivory by native species; (3) urban edge effects on preserves; (4) habitat fragmentation (roads, urban development); and (5) human use of preserves (both authorized and unauthorized). Other threats/stressors region-wide include nitrogen deposition, altered hydrology, potential exposure of species to rodenticides and insecticides, disease, and climate change.

This RMP addresses the threat of fire in further detail below. The Resource Manager will assess the need for post-fire recovery efforts, which may include invasive plant and animal control, habitat enhancement and restoration, and species monitoring. Fire recovery will be allowed to occur naturally unless monitoring shows that weeding, seeding, and/or planting are required.

The threat of invasive plants is addressed in the above sections. Based on surveys to date, there are no SDMMP Management Level 1 or 2 plants within the preserve and only two Level 3, two Level 4, and one level 5, respectively: giant reed, cardoon (*Cynara cardunculus*), fennel (*Foeniculum vulgare*), garland daisy (*Glebionis coronaria*), and milk thistle (*Silybum marianum*). Except for garland daisy and milk thistle, giant reed and fennel are also given a Cal-IPC rating of high, and cardoon is given a Cal-IPC rating of moderate. None of these species were noted as being particularly prevalent during surveys to date. However, a baseline plant inventory (which will include both native and non-native species) will be conducted in the first year of management, and invasive plants will be noted during regular monitoring visits. Weed control will be conducted as described in the previous sections. Weed control efforts will be specifically targeted to the areas of greatest threat as identified by monitoring. Using adaptive management, species that are targeted will be based on Cal-IPC and SDMMP lists, as well as species that emerge as threats in the future based on monitoring within the preserve and regionally.

The threat of invasive/nuisance animal species is addressed in previous sections. Based on surveys to date, two species known to occur in the project vicinity have potential to adversely affect native wildlife in the preserve: American bullfrog and brown-headed cowbird. The Resource Manager will monitor the preserve for the presence of these species during monitoring visits and focused surveys, and if determined necessary, will implement control/eradication programs.

Although much of the preserve consists of contiguous lands unbroken by roads or other development, a single roadway (Steele Canyon Road) crosses through the preserve and fragments the habitat. As discussed below, the Resource Manager will monitor the fencing and signage along these roadways as part of RMP implementation, in addition to monitoring for edge effects.

Because the preserve is located adjacent to existing residential development and roads, as well as the proposed trail easement, it could be subject to urban edge effects such as noise, lighting, dumping of trash, intrusion by dogs and cats, invasion by exotic plant species, altered hydrology/ contaminated

runoff, and human trespass. As discussed in further detail below, the preserve will be fenced, and permanent signage posted to discourage trespass; the Resource Manager would maintain the fencing and signage, in addition to surveying the site for illegal occupancy and trespass and removing trash. The project's landscape plan will not include any invasive plant species, and any permanent lighting sources that would be installed within the project site would shield project lighting and direct it away from the preserve. Despite these efforts, edge effects could still adversely affect the preserve. As such, the Resource Manager will monitor the preserve for edge effects and will incorporate other management strategies as needed.

This RMP does not include specific tasks for potential threats such as nitrogen deposition and climate change; however, the monitoring proposed by the RMP will provide the information needed to recognize changes occurring within the preserve, make hypotheses regarding their causes, and propose adjustments in management approach, along with additional targeted monitoring as needed.

Adaptive management relies on monitoring efforts such as those outlined above to detect changes in species, habitats, and/or threats. Linking the monitoring program with adaptive management actions will inform the Resource Manager of the status of target species, natural communities, and essential ecological processes, as well as the effectiveness of management actions in a manner that provides data to allow informed management actions and decisions. When change is detected, the Resource Manager assesses the information and responds by initiating, modifying, or even ending a particular management strategy, if necessary. An important component of implementing the management measures described above will include evaluating data from monitoring activities to determine whether trends in threats are part of a natural cycle of fluctuation or are anthropogenic. If there is a substantial decline in native species compared to the baseline (e.g., a greater presence of invasive, non-native plants species) or other apparent threats to habitat conditions are observed, remedial measures will be evaluated with the County and Wildlife Agencies and implemented on an as-needed basis. Remedial measures will be presented to the USFWS, CDFW, and County in the work plan portion of the annual report and/or in the five-year updates to the RMP. Adaptive management measures shall be limited to funds available for adaptive management through the proposed management and monitoring tasks.

4.4 OPERATIONS, MAINTENANCE, AND ADMINISTRATION TASKS

Ongoing maintenance and administration, which is the responsibility of the Resource Manager, will be conducted to ensure no loss of resource quality within the preserve. The general operations, maintenance, and administrative tasks to be conducted by the Resource Manager will include those discussed below.

4.4.1 Annual Monitoring Reports

An annual report will be submitted to the County, USFWS, and CDFW that will summarize the overall condition of vegetation communities and sensitive species in the preserve, propose management tasks for the following year, and discuss results of management activities proposed in the previous report. Submitted annually by the end of January, this report will compare the most recent data with those collected in previous years, evaluate sensitive species status, and outline appropriate remedial measures. Funds for County review will also be included with the submittal of the annual report.

The results of the updated vegetation mapping, botanical inventory, and LBVI surveys (all every fifth year) should be included in the appropriate annual letter reports. These results will also be incorporated into a resource database, which will be established during Year 1 of management and updated annually.

The report shall include a summary of expenses during the past year and projected expenses for the next year, as well as the status of funding for the maintenance assessment district.

The report (or attached digital files) will also include photos taken each year from representative photo points within the open space, for qualitative comparison of habitat health.

4.4.2 Management Plan Review

The Resource Manager will review this RMP every five years to determine the need for revisions or updates. If conditions change within the preserve, it may be necessary to revise the tasks outlined in this plan to ensure the continued success of the stated goals.

4.4.3 Access Control, Fencing, and Signage

To help prevent human-induced degradation of the preserve due to illegal occupancy, trespassing, removal of resources, or dumping of trash or debris, the Resource Manager will restrict access to the preserve. The project applicant will install fencing along access roads and trails abutting the preserve (Figure 7). Fencing will be installed where it abuts existing or proposed development, in addition to either side of the proposed trail easement along the northern and southern borders of the preserve, as well as in locations where human intrusion would not be precluded by physical factors such as steep topography or dense vegetation (see Figure 7). Fencing will be maintained by the Resource Manager as needed during quarterly visits. Permanent signage will be posted every 200 feet along the perimeter of the preserve (Figure 7). Signs will be maintained by the Resource Manager as needed during quarterly visits. Signs should be corrosion-resistant (e.g., steel), measure at minimum six-by-nine-inches in size, be posted on a metal post at least three feet above ground level, and provide notice in both English and Spanish that the area is an ecological preserve with trespassing prohibited.

The signs will state the following:

> Sensitive Environmental Resources
> Disturbance Beyond this Point is Restricted by Easement
> Contact Information:
> County of San Diego Department of Planning & Development Services
> Ref. PDS2018-MUP-18-023, PDS2018-RP-18-001, PDS2018-ER-18-19-007
>
> Recursos Ambientalmente Sensibles
> Prohibida Su Entrada

Pedestrians and leashed dogs will be allowed on the proposed trail easement occurring along the perimeter of the preserve. SDG&E will continue to have access to their easement via the access road that connects the transmission tower “island” to the top of the southern slope of the biological open space to the east of the Steele Canyon Road.

4.4.4 Illegal Occupancy

Illegal occupancy has not been an issue on the site. However, the Resource Manager will survey the preserve for evidence of illegal occupancy/trespass concurrently with other site management activities and file a report with the Sheriff and the County PDS, if necessary.

4.4.5 Removal of Resources

Removal of any plants, animals, rocks, minerals, or other natural resources from the preserve is prohibited. The Resource Manager will maintain a log of illegal collecting and will report individuals caught removing natural resources from the preserve to the USFWS, CDFW, County, and/or Sheriff's Office as needed. The Resource Manager may allow and supervise seed collection and plant cuttings as part of revegetation efforts within the preserve and/or in nearby areas. Any such collected plant materials should be limited to that necessary to ensure successful revegetation while not adversely affecting local plant populations.

4.4.6 Trash Removal and Vandalism Repair

The Resource Manager will conduct general trash removal within the preserve during regular quarterly management site visits. Additionally, damage caused by vandalism will be repaired. Trash removal and vandalism repair will occur as needed during regular quarterly site visits.

4.4.7 Hazardous Materials Monitoring

The release of hazardous materials such as fuels, oil, vegetation clippings, trash, and landscaping related chemicals (e.g., pesticides and herbicides) has potential to affect the preserve negatively. Although no specific survey will be conducted, if such hazardous materials are observed within the preserve during regular quarterly site visits, remedial measures to remove the material will occur.

4.4.8 Coordinate with Utility Providers and Easement Holders

The Resource Manager will coordinate with utility providers and easement holders regarding any maintenance work that the utility/easement holder may need to complete on or in the immediate vicinity of the biological open space ~~in order~~ to avoid significant impacts to sensitive biological resources. This will ensure that potential future maintenance activities are done in compliance with regulatory requirements and in conformance with this RMP. The Resource Manager will contact SDG&E at least annually to ensure they have the appropriate contact information for the Resource Manager, are aware of the BOS boundaries and associated biological resource constraints, and to request notification of any upcoming work adjacent to the BOS.

4.5 PUBLIC USE ELEMENT

The preserve will have a fenced trail along the perimeter of the biological open space, but will not have other recreational facilities. The SDG&E easement discussed above will remain in place (Figure 7).

The preserve is intended to serve as a habitat preserve and, as such, is not compatible with many activities. Activities that will be specifically prohibited include:

- Use of herbicides or pesticides (except to remove non-native species as necessary and as determined by the Resource Manager), fertilizers (except as approved by the restoration specialist within the restoration areas), or other agricultural chemicals;
- Weed abatement activities for fuel management or other incompatible fire protection activities;
- Use of Off-Highway Vehicles and any other motorized vehicles except in the execution of management duties;
- Recreational activities including, but not limited to, hiking in locations outside of the trail easement, horseback riding, biking, hunting, or fishing;
- Commercial or industrial uses;
- Construction, reconstruction, or placement of any building or other improvement, billboard, or sign, except for open space signs along the edge of the preserve;
- Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids, or any other material;
- Planting, introduction, or dispersal of non-native or exotic plant or animal species;
- Altering the general topography of the preserve, including but not limited to the building of roads and flood control work;
- Removing, destroying, or cutting of trees, shrubs or other vegetation, except as deemed necessary by the Resource Manager for sensitive species management; or as required by federal, state or local law or by governmental order for (1) emergency fire breaks; (2) maintenance of existing roads; (3) prevention or treatment of disease; or (4) required mitigation programs; and
- Manipulating, impounding, or altering any natural watercourse, body of water or water circulation on the open space, and activities or uses detrimental to water quality, including but not limited to, degradation or pollution of any surface or sub-surface waters; except as directed by the County-approved mitigation and/or revegetation plans.

4.6 FIRE MANAGEMENT ELEMENT

No fire management activities (clearing, thinning, mowing, discing, blading, etc.) are allowed within the preserve. All such measures to reduce wildfire risk are to occur entirely outside of the preserve.

If a wildfire occurs in the preserve, vegetation will be allowed to recover naturally; however, the seeding and/or planting of container stock may be required at the discretion of the Resource Manager. The Resource Manager will pay special attention to weed establishment and the potential for type conversion of native riparian habitat to non-native grassland or disturbed wetlands following fire, particularly in relation to their potential effect on special-status species such as LBVI. Post-fire recovery

efforts could include, but are not limited to, invasive plant and animal control, habitat enhancement and restoration, and species monitoring. The Resource Manager will coordinate with the applicable fire agencies, as necessary.

4.7 MANAGEMENT CONSTRAINTS

This RMP follows County requirements. Although it anticipates measures for most foreseeable contingencies, several external constraints remain. For example, illegal trespassing could negatively impact sensitive plant and animal species, and environmental factors, such as prolonged drought, increased incidence of fire, and erosion, could have detrimental effects on habitat composition and populations of sensitive plant and animal species within the preserve. The project consists of extraction activities/mining and reclamation and does not include any proposed development. A 100-foot-wide limited building zone easement will be established around the preserve and will act as a buffer to protect the preserve from clearing for fire management, as well as providing additional buffering from potential edge effects such as noise and dumping of trash and debris. The limited building zone will be less than 100-feet wide where it abuts Willow Glen Drive along the northern boundary, Steele Canyon Road where it bisects the site, and existing residential development or the project boundary along the southern boundary. Regardless of whether future development is proposed in areas outside the preserve, portions of the preserve extend to the property boundary, and these areas have greater susceptibility to edge effects from adjacent land uses.

5.0 RESOURCE MANAGEMENT PLAN SUMMARY AND BUDGET

5.1 OPERATIONS AND BUDGET SUMMARY

Table 3, *Management Tasks*, provides a summary of all management tasks described above and the frequency of each task. The budget for these tasks will be provided in a Property Analysis Record as an appendix to the final RMP after a Resource Manager is identified.

5.2 EXISTING STAFF AND ADDITIONAL PERSONNEL NEEDS SUMMARY

Staff and personnel requirements will be provided in the final RMP after a Resource Manager is identified.

Table 3
MANAGEMENT TASKS

RMP Report Section	Task	Frequency
Biological Resources Tasks		
4.2.1	Baseline Inventory	One time
4.2.2	Update Biological Mapping	Every 5 years
4.2.3	Botanical Inventory	Every 5 years
4.2.4	General Special-Status Species Monitoring	Annually

RMP Report Section	Task	Frequency
4.2.5	Least Bell's Vireo Surveys	Every 5 years
4.2.6	Exotic Plant Control	As needed; at least twice annually
4.2.7	Nuisance Animal Control	As needed
4.2.8	Fire and Flood Management	As needed
Adaptive Management Tasks		
4.3	To be developed and implemented as needed by the Resource Manager	As needed
Operations, Maintenance, and Administrative Tasks		
4.4.1	Monitoring Reports	Annually
4.4.2	Management Plan Review	Every 5 years
4.4.3	Access Control, Fencing, and Signage	Quarterly
4.4.4	Illegal Occupancy	Quarterly
4.4.5	Removal of Resources Monitoring	Quarterly
4.4.6	Trash Removal and Vandalism Repair	Quarterly
4.4.7	Hazardous Materials Monitoring	Quarterly
4.4.8	Coordinate with Utility Providers and Easement Holders	Annually and as needed

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