

Appendix D
Biological Resources Technical Report



Olivenhain Trunk Sewer
Improvements Project
Draft Biological Technical Report

Prepared for:
Infrastructure Engineering Corporation
14271 Danielson Street
Poway, CA 92064
(858) 413-2400

Prepared by:
Rocks Biological Consulting
5101 September Street
San Diego, CA 92110
(619) 843-6560

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TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 Project Location 1

1.2 Project Description 1

1.3 Regulatory Framework 12

2 METHODS 17

2.1 Vegetation Mapping 19

2.2 General Biological Surveys 20

2.3 Focused species surveys 20

2.4 Jurisdictional Assessment 22

3 RESULTS 22

3.1 Physical Setting 22

3.2 Vegetation Communities and Land Uses 31

3.3 Jurisdictional Waters and Wetlands 36

3.4 Flora 36

3.5 Wildlife 37

3.6 Special Status Biological Resources 37

3.7 NCCP Preservation Areas 63

3.8 Wildlife Corridors 63

4 IMPACT ANALYSIS 64

4.1 Construction Impacts 65

4.3 Cumulative Impacts 73

5 MITIGATION 73

5.1 Construction Impact Mitigation 73

Tables

Table 1. Maintenance Access Path Levels of Improvement 5

Table 2. Tentative Pathway Revegetation Palette by Habitat 8

Table 3. Biological Surveys Conducted within the BSA January 2012 to July 2013 18

Table 4. Vegetation Communities and Land Uses Observed within the BSA 31

Table 5. Jurisdictional Wetland Vegetation Communities within the BSA 37

Table 6. California Rare Plant Rank (CRPR) Definitions 38

Table 7. Special Status Plant Species - Potential For Occurrence 39

Table 8. Special Status Wildlife Species - Potential For Occurrence 46

Table 9. Potential Direct Project Impacts on Jurisdictional Wetlands 66

Table 10. Potential project impacts on upland vegetation communities and land uses 68

Table 11. Non-listed special status species within the BSA 70

Figures

FIGURE 1. Project Location 2

FIGURE 2. Overview Map 3

FIGURE 3. BIOLOGICAL RESOURCES MAP LEGEND 23

FIGURE 3A. Biological Resources Map 24

FIGURE 3B. Biological Resources Map 25

FIGURE 3C. Biological Resources Map 26

FIGURE 3D. Biological Resources Map 27

FIGURE 4. Jurisdictional Wetland Assessment Map 28

FIGURE 5. California Natural Diversity Database Map 29

FIGURE 6. Critical Habitat Map 30

Appendices

Appendix A – List of Vascular Plant Species Observed within the Project Study Area

Appendix B – List of Wildlife Species Observed within the Project Study Area

Appendix C – CAGN 45-day report

Appendix D – LBVI and SWFL 45-day report

Appendix E – LFCR Survey Report 2013



1 INTRODUCTION

The City of Encinitas (City) proposes rehabilitation of 50 manholes and removal of a siphon and three manholes and to provide City maintenance crews with long-term access for ongoing, long-term maintenance along an approximately four-mile-long segment of the Olivenhain Trunk Sewer (OTS) within Escondido Creek (Creek) and San Elijo Lagoon (Lagoon). In addition, approximately 2,800 linear feet of the upper OTS would be realigned into City streets and out of the Creek and Lagoon (Project). The primary objectives of the Project are to provide necessary short and long-term maintenance access to keep the OTS in good working condition to help avoid sewer overflows or spills in highly sensitive environmental areas.

This Biological Technical Report (BTR) describes the existing biological resources located along and adjacent to the proposed Project; details the methods used to assess existing conditions and potential impacts to sensitive habitats and species; and presents potential avoidance, minimization, and mitigation measures to reduce potential impacts.

1.1 PROJECT LOCATION

The proposed Project site is located in north San Diego County, California. The segment of the OTS line included in the Project is primarily within the City of Encinitas with a smaller area in unincorporated San Diego County (Figure 1). The Project would involve a portion of the OTS located between the I-5/Manchester Avenue interchange and the intersection of Lone Jack Road and Santa Fe Vista Court. The existing OTS and connecting (tributary) sewer lines are within City utility easements and public rights-of-way. The width of the City's existing OTS easement is approximately seven feet.

From Mira Costa College (located at the intersection of Mira Costa College Road and Manchester Avenue) upstream, the Project alignment is within or immediately adjacent to the Escondido Creek/San Elijo Lagoon corridor; as such it is largely within wetland and riparian habitat, much of which is managed for conservation by the San Elijo Lagoon Conservancy and County of San Diego. The remainder of the alignment, from approximately Mira Costa College downstream to the Olivenhain Sewer Pump Station at the I-5 overcrossing, is within the paved Manchester Avenue roadway. This downstream portion of the Project alignment lies within the Coastal Appeal Zone.

1.2 PROJECT DESCRIPTION

The OTS conveys wastewater from the City, the community of Olivenhain, and portions of the City of Cardiff and unincorporated San Diego County almost four miles along Escondido Creek and San Elijo Lagoon to the Olivenhain Pump Station at the Manchester Avenue/I-5 interchange. The OTS was originally constructed in 1972; a number of its manholes are now deteriorating, experiencing significant inflow and infiltration (I&I) that increases flows in the line, and require rehabilitation. Maintenance access along the Escondido Creek and San Elijo Lagoon is currently inadequate to fully support reliable service of the line. In particular, the City is not able to access all of the manholes along the lower OTS with the large Vac-Con truck needed to clean this large-



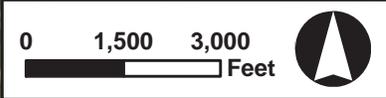
Legend

- Project Alignment
- City Boundaries



City of Encinitas • Olivenhain Trunk Sewer Improvements Project

Figure 1
Project Location



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

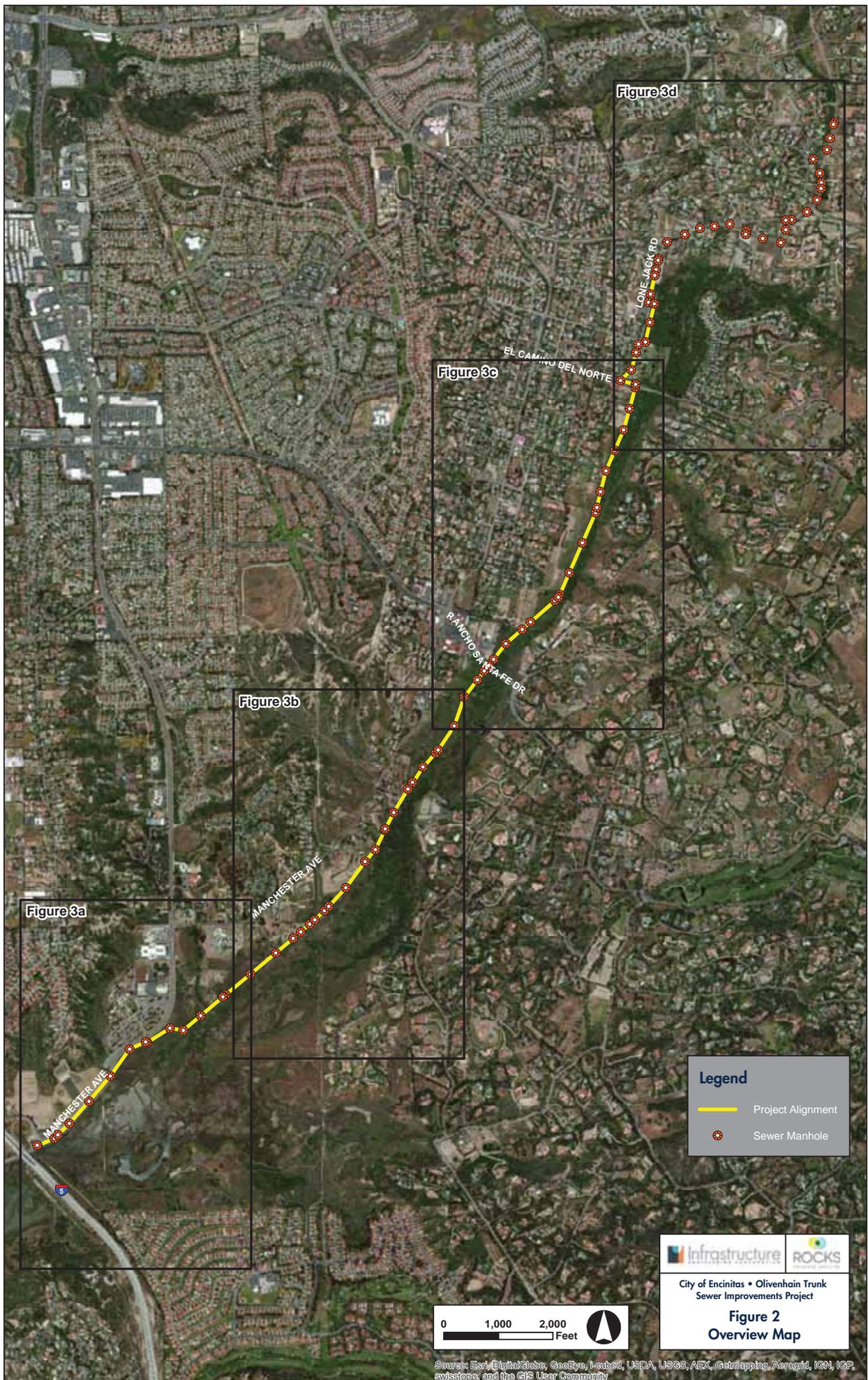


Figure 3d

Figure 3c

Figure 3b

Figure 3a

Legend

- Project Alignment
- + Sewer Manhole

City of Encinitas • Olivenhain Trunk Sewer Improvements Project

Figure 2
Overview Map

0 1,000 2,000 Feet

Source: Esri, DigitalGlobe, GeoEye, Igeba, Imagery, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

diameter sewer line. Without proper cleaning, sediment and debris is accumulating in the line, with the potential to create blockages that can lead to failure and/or overflows and sewer spills. This is a very serious concern because a failure of the OTS could interrupt sanitary sewer service to a large number of residences and businesses, and spills or overflows would adversely affect water quality in some of San Diego County's most valuable and sensitive natural habitat.

The proposed Project seeks to address existing maintenance issues with the OTS, improving the overall reliability of the City's wastewater system and better protecting water quality and sensitive habitat in Escondido Creek and San Elijo Lagoon.

Specific Project objectives are as follows:

- Rehabilitate 50 existing sewer manholes along the OTS; reducing I&I into the OTS, and decreasing the volume of water that needs to be treated downstream at the San Elijo Joint Powers Treatment Plant
- Relocate the approximately 2,800-foot-long upper reach of the OTS out of the Escondido Creek floodplain to an alignment within Lone Jack Road, and increasing its capacity to meet currently projected system needs
- Provide environmentally appropriate access for maintenance vehicles along the remainder of the OTS
- Remove an existing siphon and associated manhole that are no longer needed thereby decreasing the level of maintenance required
- Minimize adverse effects on sensitive habitat and contribute to the long-term health of the Creek and Lagoon systems

To provide for adequate maintenance, City wastewater operations staff must be able to access all of the manholes along the Project reach of the OTS at least 1–2 times each year and as needed.

1.2.1 PROJECT COMPONENTS

Detailed descriptions of each of the proposed Project components evaluated in this BTR are provided below.

1.2.1.1 Manhole Rehabilitation

Based on evaluation of the condition of the 50 remaining manholes along the Project reach of the OTS, manhole rehabilitation is expected to primarily involve installation of lining or relining the manholes. Lining products would be installed entirely within the existing structure of the individual manholes; there would be no loss of habitat associated with this portion of the Project.

1.2.1.2 Sewer Realignment and Upsizing

Approximately 2,800-foot-long segment of the OTS would be relocated out of the Escondido Creek floodplain to an alignment within Lone Jack Road, and capacity of this segment would be increased. The existing line would be cleared and abandoned in place to avoid habitat impacts.

Approximately 2,225 linear feet of new polyvinyl chloride (PVC) sewer main and 10 new PVC-lined manholes would be installed within Lone Jack Road. The new sewer main would be upsized

from its current eight-inch diameter to a diameter of 15 inches and would be installed at depths of 12 – 22 feet below grade to conform to the remainder of the system.

1.2.1.3 Maintenance Access

Reliable access to the OTS would be achieved through a combination of access spurs from existing roadways and creation of an access path along the right-of-way. Access routes would be 16 feet wide, the minimum needed for safe and reliable passage for the large equipment needed to clean and maintain the OTS (i.e., Vac-Con trucks). Where access spurs dead-end at manholes, a limited turnaround area is provided to allow equipment to exit the manhole area. The proposed footprints of the turnarounds have been reduced to the minimum needed for safe maneuvering.

Access routes would be improved (engineered) where necessary to enable access by the City's large Vac-Con truck or similar future equipment. The level of improvement would be the minimum needed to enable reliable passage in an often wet or saturated environment while preventing the development or ruts that could damage surface drainage patterns in the Creek and Lagoon.

Six "levels" of improvement are envisioned, ranging from Level 0 (no improvement needed for drivability) to Level 5 (culvert or other engineered crossing over flowing or standing water). All levels of treatment were designed to avoid the use of conventional hardscape, which is considered inappropriate in this sensitive environment, as well as materials such as gravel or decomposed granite, which are easily remobilized on a flooded surface. Instead, design emphasized the use of pervious and plantable treatments.

Improvement levels 1 through 5 (Table 1) represent increasing levels of subgrade preparation and stabilization, with increasing use of overexcavation, base material placement, and use of reinforcement/stabilizing measures such as geogrid or Strataweb. All of the reinforcement and stabilization measures proposed for use in the new access path are plantable and would be vegetated with appropriate, low-growing native species once installation is complete. The new access would consist of revegetated native habitat along a permeable surface allowing water to infiltrate naturally and maintaining a level of habitat connectivity.

Table 1. Maintenance Access Path Levels of Improvement

Improve-ment Level	Existing Substrate	Environment/Habitat Setting	Treatment
0	Existing surface is drivable by heavy trucks year-round	Existing pavement; existing well-traveled dirt or gravel roadways	No treatment needed
1	Ground is relatively dry most of the time but may flood occasionally. Deep saturation is unusual or rare.	Uplands, upper-level floodplain terraces; some areas intergraded scrub and marshland	Armortec or turf reinforcement mats with revegetation No overexcavation

Improve-ment Level	Existing Substrate	Environment/Habitat Setting	Treatment
2	Ground is often wet, but will support pedestrian travel.	Lower-level terraces; some upper marsh plain areas	Strataweb (or similar product) 6-inches deep Overexcavation + base refill of up to 12-inches Single layer geogrid Subgrade preparation
3	Ground is wet most of the time; pedestrians walking across this ground typically have muddy shoes.	Marshlands	Strataweb, 6-inches deep Overexcavation + base refill of up to 24-inches Single layer geogrid Subgrade preparation
4	Ground is always wet, and pedestrians may sink in up to 4 inches. Shallow standing water is often present.	Marshlands	Strataweb 6-inches deep Overexcavation + base refill of up to 36-inches Double layer geogrid Subgrade preparation
5	Standing or flowing water is present for long durations.	Channel and swale crossings in marshlands and along Creek; drainage ditches	Engineered crossing with Strataweb 6-inches deep over base fill, multiple layers of geogrid OR Small box culvert or elliptical pipe cross

1.2.2 CONSTRUCTION

Project construction would proceed in four phases:

- Access construction
- Manhole rehabilitation
- Siphon and manhole removal, including installation of a new PVC manhole at the former siphon site
- Upstream (“Lone Jack segment”) realignment and upsizing

Construction planning has emphasized reducing the work footprint in order to minimize impacts on sensitive habitat. For this reason, access would be constructed first, and during the construction process all activity would be confined to the footprint of the finished access route. This means that equipment and workers would operate in an essentially linear path, which is less efficient from the construction standpoint, but was identified as necessary to avoid unnecessary impacts on habitat. Staging for materials and equipment would also occur within the new access footprint, outside the Creek and Lagoon corridor, or a combination of the two. No staging would be permitted in sensitive habitat outside the access footprint.

Once access construction is complete, the manhole rehabilitation contractor would use the new access to bring equipment and materials directly to each of the manholes planned for rehabilitation, avoiding the need for overland travel in sensitive habitat. Manhole rehabilitation activities and staging would then be restricted to the new access, with no incursions into adjacent habitat permitted.

1.2.2.1 Access Construction

Sections of the access route identified as "Level 0" would require no improvement. For sections requiring Level 1 through Level 4 improvements, the overall process would be similar for all levels, with the key differences relating to the extent of grading and substrate preparation needed. Level 5 sections would also undergo a similar process, unless culvert installation is required; this is discussed further below.

For Level 1 – 4 sections and Level 5 sections with no culvert, the new access route would be constructed in sections averaging about 100 feet long, representing the length that can be completed in a single work day. For each section, the following steps would be required.

- Clear and grub existing vegetation from area of work – Clearing and grubbing would be accomplished using a skidsteer and hand tools. Plant materials would be removed for appropriate disposal. In areas where invasive non-native vegetation is present, precautions will be taken to avoid spreading seeds or other potential propagules. Native topsoil would be sidecast and stockpiled for use in revegetation, except in areas where it contains non-native seed bank that should be eradicated. In these areas, topsoil would be offhauled for appropriate disposal or reuse outside sensitive habitat. Key equipment for this clearing and grubbing would include skidsteer, loader, dump truck, and hand tools.
- Grade or excavate access "roadbed" – For Level 1 sections, which require no subgrade preparation, this step would entail simply grading to smooth the access surface and prepare it for stabilization using Armortec or turf reinforcement mats. For Levels 2 through 5, limited excavation would be required, in order to accommodate the placement of aggregate base, compacted soil backfill, and other components of the improvement needed to support travel by the City's maintenance equipment. The depth of excavation would depend on the level of improvement, and would be kept to the minimum needed, based on geotechnical information collected to support final design. Excavated materials would be stockpiled adjacent to the trench for onsite reuse; excess materials would be removed from the site for appropriate disposal. Key equipment for this step would include excavator, dump truck, and loader.
- Install improvements – In this step, the needed roadway improvements (summarized above in Table 2-3) would be placed and secured. Key equipment for this step would include crew trucks, skidsteer, loader, and hand tools.
- Revegetate – The final step in the access construction process would be revegetation of the finished access surface. Since saline/alkaline soils deter weed growth, and local soils also contain seed bank and other propagules that would support vegetation regrowth,

revegetation would use stockpiled native soils except where they are known to contain invasive non-native seed bank. In these areas, clean import topsoil with appropriate grain size, grading, and clay content would be imported from a local source. The planting palette would rely on native species appropriate to the local habitat for each segment of the access. It would also emphasize tough, low-growing species that establish quickly and would require no trimming to remain driveable once they are fully established. A tentative palette by habitat setting is shown in Table 2 below. Key equipment for this step would include crew trucks, skidsteer, loader, and hand tools.

Table 2. Tentative Pathway Revegetation Palette by Habitat

Location/Elevation	Planting Palette	
	Scientific Name	Common Name
Low Elevation/Wetlands	<i>Frankenia salina</i>	alkali heath
	<i>Anemopsis californica</i>	yerba mansa
	<i>Distichlis spicata</i>	saltgrass
	<i>Jaumea carnosa</i>	salty Susan
	<i>Cressa truxillensis</i>	spreading alkaliweed
	<i>Atriplex prostrata</i>	spearscale
	<i>Artemisia douglasiana</i>	mugwort
High Elevation/Uplands	<i>Acmispon glaber</i>	deerweed
	<i>Artemisia californica</i> *	California sagebrush
	<i>Distichlis spicata</i>	saltgrass
	<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i> *	California buckwheat
	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i> *	golden yarrow
	<i>Isocoma menziesii</i> var. <i>menziesii</i> *	coast goldenbush

*Species for Level 5 Improvement areas only. Note: Species may be adjusted under the supervision of a qualified revegetation biologist based on field conditions at the time of planting. All species will be native to Project site and immediately surrounding areas.

If the need for culverts is identified in final design, Level 5 sections with culvert placement would entail the following process:

- Cofferdam installation – Before any work in areas of standing or flowing water, the work area would be isolated by installing a cofferdam, and would then be dewatered, discharging to the channel downstream of the cofferdam. In flowing water, flow would be bypassed around the work area and discharged downstream of the cofferdam. Dewatering would be carried out under the supervision of a qualified biologist, who would be responsible for relocating fish and amphibians should any become stranded in the cofferdammed area.

- Clear and grub existing vegetation from area of work – If culvert installation requires vegetation removal, clearing and grubbing would be accomplished similar to the description above, except that work within channel and bank areas may be more areally confined and thus may need to emphasize the use of hand tools. As described, above, plant materials would be removed for appropriate disposal, and if invasive non-native vegetation is present, precautions will be taken to avoid spreading seeds or other potential propagules. Native topsoil would be sidecast and stockpiled for use in revegetation, unless it contains non-native seed bank that should be eradicated, in which case it will be removed for appropriate disposal or reuse outside sensitive habitat. Key equipment for this clearing and grubbing would include hand tools, motorized wheelbarrow plus skidsteer, loader, and dump truck.
- Grade and install culvert – Once vegetation has been removed, the surface would be prepared and the new culvert would be placed; depending on site conditions, overexcavation to create a suitable base may be required. Excavated materials would be stockpiled adjacent to the trench for onsite reuse, and once the culvert is in place, the excavation would be backfilled and the access surface established. Surface treatments in areas of standing and flowing water would be designed for frequent inundation, and may include revegetation as described above.

1.2.2.2 Manhole Rehabilitation Construction

In areas outside sensitive habitat, manhole rehabilitation is expected to use primarily epoxy lining or polyurethane lining (spray-on lining). Where I&I problems are greatest, and for all manholes in sensitive areas, rehabilitation would be accomplished using a cured-in-place product such as Poly-Triplex or an equivalent. Products of this type offer the dual benefit of sealing the manhole walls to control I&I while also providing a level of structural reinforcement. Based on preliminary design, the City anticipates that 21 manholes would receive spray-on linings, 28 would be rehabilitated using a cured-in-place produce, and one manhole would be replaced in association with removal of the existing siphon; as identified above, the retired manholes at the siphon location are planned for abandonment-in-place and would be sealed and removed for appropriate disposal and would remain in their existing locations.

The installation process would be very similar for spray-on and cured-in-place rehabilitation, entailing the following general steps:

- Surface preparation, including chemical grouting to control active infiltration and enable successful curing and mortar repairs to degraded concrete surfaces
- Installation of the liner product
- Replacement of existing corroded frames and covers with new composite, locking, gasketed frames and covers

As identified above, to decrease the overall construction footprint and reduce the potential for impacts on sensitive habitat, all work for manhole rehabilitation would be confined to the new access route; equipment and materials would be staged either within the limits of the new access

route, or in nearby areas outside of sensitive habitat. As with the access construction phase, no staging would occur on private property without authorization from willing participant landowners.

1.2.2.3 Siphon and Manhole Abandonment/Removal Construction

The first step in removing the siphon and associated manholes would be to install a bypass so wastewater continues to flow unimpeded. The bypass is expected to consist of approximately 600 linear feet of 12-inch diameter high-density polyethylene (HDPE) pipe placed at ground level. Flow would be conveyed through the bypass using a skid-mounted diesel-powered pump. A second pump would also be staged onsite to as a backup. The pumps and the bypass pipeline would be located within the access footprint.

Once the bypass is in place, the siphon would be disconnected and removed. The manholes would then be excavated and removed; the excavation is expected to about 10 feet by 10 feet and 10 feet deep for each manhole and 20 feet long by five feet wide and 10 feet deep for the siphon. Excavated material would be stockpiled within the access footprint.

One new replacement HDPE manhole would be installed on the excavated site of one of the existing manholes. To construct the new manhole, a cast-in-place manhole base would first be poured. Following placement of the manhole base manhole, manhole rings would be installed in approximately three foot high vertical sections to create the manhole itself. Backfill would be placed and compacted around each section. The manhole would be sealed using a combination of T-Lock and spray-on lining. For the T-Lock seal, the manhole rings will be delivered to the site with an integrally cast factory-installed polyvinyl (PVC) lining. After the rings are placed, the contractor would weld PVC strips onto each joint between the manhole sections to create a monolithic liner. A plural component spray-on epoxy or polyurethane liner would then be applied to the cast-in-place manhole base to protect the manhole bench and channel.

A section of solid PVC sewer pipe would be installed within the OTS line where the second manhole was removed. The area disturbed by removal of the second existing manhole would then be backfilled, stabilized, and revegetated with appropriate native species (see Table 2 above).

1.2.2.4 Sewer Realignment and Upsizing Construction

Realigning the portion of the OTS immediately upstream of El Camino del Norte would entail abandoning approximately 2,400 linear feet of the existing sewer main (and the 10 associated manholes) in place, and installation of approximately 2,225 linear feet of new polyvinyl chloride (PVC) sewer main and 10 new PVC-lined manholes within Lone Jack Road, approximately one block to the west. The new sewer main would be upsized from its current eight-inch diameter to a diameter of 15 inches and would be installed at depths of 12 – 22 feet below grade to conform to the remainder of the system.

Installation of the new sewer main is expected to be accomplished via conventional open cut (“cut and cover”) construction. In this method, pavement is removed from the roadway, and heavy equipment such as an excavator is used to open a trench to accommodate the new sewer main. Because of the large diameter of the OTS sewer main, the Lone Jack Road trench is expected to be approximately four feet wide and between 12 and 22 feet deep. The new sewer pipe is placed

on a bed of appropriate stone aggregate material, then the trench is backfilled with compacted soil, and roadway paving is restored. In most cases, temporary paving is applied as each segment of trench is closed. When installation of all segments is complete, the entire alignment is repaved, and affected roadway striping, if any, is restored.

To reduce traffic disruption and other disturbance, trenching and pipeline installation typically proceeds in sections about 100 feet long, with each section backfilled or plated at the end of the day. Excavated materials that cannot be reused onsite – such as pavement debris and large rock fragments – are offhauled for recycling or appropriate disposal. The remainder of the spoils are reused onsite as trench backfill.

All but three of the manholes along the segment of the OTS proposed for realignment are located outside sensitive habitat. These manholes would be abandoned-in-place: a 2-foot-thick concrete plug would be installed on either side of the manhole; the frame, grate, and upper 2 feet of cone and grade rings would be removed; any remaining void space filled with compacted sand or cement slurry; and the surface would be restored to match the existing grade. The remaining 3 feet and approximately 720 linear feet of sewer main are located in sensitive habitat. This portion of the sewer main would be capped at both ends (outside sensitive habitat) and abandoned-in-place, with no further action taken to remove or modify the existing facilities; the above-grade portion of manholes is planned to remain in place to reduce the work footprint and limit disturbance in sensitive habitat.

1.2.3 ONGOING OPERATIONS AND MAINTENANCE

Constructing the new access route would enable the City to reinstate a full program of inspections, cleaning, and maintenance along the Project reach of the OTS, consistent with the City's standard operations and maintenance practices for the sanitary sewer system. This would entail the following activities:

- **Visual inspection of manhole condition** – Visual inspections are performed twice yearly. A crew of one to two staff accesses each manhole and examines it for overall condition, structural integrity, and I&I, and to verify that flow rates are appropriate. This activity typically takes about 15 minutes per manhole. Equipment use is minimal, limited to removal and replacement of the manhole cover
- **Closed circuit television (CCTV) video inspection** – Standard City practice is to conduct a CCTV of all sewer lines once a year following cleaning. Each manhole is accessed in sequence after cleaning, and a robotic sewer camera is placed in the sewer line. The camera is cable connected to a CCTV support truck or van from which it can be controlled, and where the video is viewed. This requires a crew of two to three staff and typically takes about two to three hours
- **Sewer line cleaning** – The City's standard practice is to clean the entirety of its sanitary sewer system twice a year to remove sediment and debris as well as fatty, oily, and greasy substances ("Fats Foils and Greases" or FOG). If allowed to accumulate over time, these materials reduce the ability of the sewer system to convey flows; regular removal is critical

to maintain the conveyance capacity of the lines and help to prevent sewer system spills and overflows.

- As a sewer line is cleaned, sediment and debris is washed downstream. Thus, each phase of cleaning begins in the upstream tributary lines and works downstream toward the larger lines, and each manhole is accessed sequentially for cleaning. Adequate removal of accumulated sediment, debris, and FOG from a larger-diameter line such as the OTS requires the use of the City's Vac-Con truck, which is specifically designed for this heavy duty work. The Vac-Con is operated by a crew of two to three persons and is typically set up and operating at each manhole for approximately two hours.

1.3 REGULATORY FRAMEWORK

Several regulations have been established by federal, state, and local agencies to protect and conserve biological resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the Project. The final determination of whether permits are required is made by the regulating agencies.

1.3.1 FEDERAL REGULATIONS

1.3.1.1 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973, as amended, provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed animal species. ESA regulates the "taking" of any endangered fish or wildlife species, per Section 9 of the Act. As development is proposed, the responsible agency or individual landowner is required to consult with the U.S. Fish and Wildlife Service (USFWS) to assess potential impacts to listed species (including plants) or its critical habitat, pursuant to Sections 7 and 10 of the act. USFWS is required to make a determination as to the extent of impact to a particular species a project would have. If it is determined that potential impacts to a species would likely occur, measures to avoid or reduce such impacts must be identified. USFWS may issue an incidental take statement, following consultation and the issuance of a Biological Opinion. This allows for take of the species that is incidental to another authorized activity, provided that the action will not adversely affect the existence of the species. Section 10 of the federal ESA provides for issuance of incidental take permits to non-federal parties with the development of a habitat conservation plan (HCP); Section 7 of the act provides for permitting of federal projects.

1.3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA; 16 U.S. Code [U.S.C.] 703 *et seq.*) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive and is listed at 50 CFR 10.13. The MBTA is enforced by USFWS and prohibits "by any means or in any manner, to pursue, hunt, take, capture, [or] kill" any migratory bird, or attempt such actions, except as permitted by regulation.

1.3.1.3 Rivers and Harbors Act of 1899

The Rivers and Harbors Act of 1899 prohibits discharge of any material into navigable waters, or tributaries thereof, of the United States without a permit. The act also makes it a misdemeanor to excavate, fill, or alter the course, condition, or capacity of any port, harbor, or channel; or to dam navigable streams without a permit.

Many activities originally covered by the Rivers and Harbors Act are now regulated under the Clean Water Act of 1972, discussed below. However, the 1899 Act retains relevance and created the structure under which the U.S. Army Corps of Engineers oversees Clean Water Act 404 permitting.

1.3.1.4 Fish and Wildlife Coordination Act

In its original 1934 form, the Fish and Wildlife Coordination Act authorized the Secretaries of Agriculture and Commerce to assist federal and state agencies in efforts related to the protection, rearing, and stocking of game and fur-bearing mammals; and the study of the effects of pollutants, such as domestic sewage and industrial waste, on wildlife. The Act in its original form also required consultation with the Bureau of Fisheries, a precursor to USFWS, prior to the construction of new dams, and further required the Bureau of Fisheries to use impounded waters for fisheries culture and migratory bird habitat.

Several substantive amendments since the Act's original passage have expanded it to its present status as the cornerstone of the present USFWS and NMFS jurisdiction over the fish and wildlife impacts of projects that involve federal jurisdictional waters. In particular, amendments in 1946 require consultation with USFWS for any federal project that would divert, impound, or otherwise control or modify natural waters, with the explicit goal of avoiding loss and damage to wildlife resources. Additional amendments in 1958 gave the law its present name and added language recognizing the vital importance of the nation's wildlife resources, along with the requirement that wildlife conservation needs receive equal consideration in review and authorization of water resources development projects. The 1958 amendments also expanded the range of situations in which diversion or modification of natural water bodies requires consultation with USFWS.

At present, the Fish and Wildlife Coordination Act requires federal agencies that undertake, permit, or fund activities that would control or modify federal waters to consult with USFWS and/or NMFS and the state agency with similar jurisdiction; and to incorporate the agencies' recommendations for the protection, development, and improvement of wildlife resources into the project where feasible. For the purposes of the Act, *control* and *modification* are now understood to include construction of dams, levees, impoundments, and diversion structures; relocation of streamcourses; placement of dredged and fill materials in federal jurisdictional waters; and discharge of pollutants, including municipal, industrial, and mining wastes into federal jurisdictional waters. This effectively gives USFWS and NMFS oversight responsibility over all projects requiring authorization from the Corps under Section 404 of the federal Clean Water Act and projects requiring authorization from the State Water Resources Board (through the Regional Water Quality Control Boards) under Section 402 of the Clean Water Act.

1.3.1.5 Clean Water Act

Pursuant to Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (USACE) is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 CFR 328.3. USACE, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 permits.

A water quality certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The Regional Water Quality Control Board (RWQCB), a division of the State Water Resources Control Board, provides oversight of the 401 permit process in California. The RWQCB is required to provide "certification that there is reasonable assurance that an activity that may result in the discharge to waters of the United States will not violate water quality standards." Water Quality Certification must be based on the finding that proposed discharge will comply with applicable water quality standards.

The NPDES is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA. Substantial impacts to wetlands may require an Individual Permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits.

1.3.2 STATE REGULATIONS

1.3.2.1 California Endangered Species Act and Natural Community Conservation Planning Act

The California Endangered Species Act (CESA) of 1984, in combination with the California Native Plant Protection Act of 1977, regulates the listing and take of plant and animal species designated as endangered, threatened, or rare within the state. California also lists species of special concern based on limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. The California Department of Fish and Wildlife (CDFW; previously California Department of Fish and Game, CDFG) is the responsible for assessing development projects for their potential to impact listed species and their habitats. State-listed special status species are addressed through the issuance of a 2081 permit (Memorandum of Understanding).

In 1991, the California NCCP Act was approved and the NCCP Coastal Sage Scrub program was initiated in Southern California. California law (Section 2800 *et seq.* of the California Fish and Game Code [CFG]) established the NCCP program "to provide for regional protection and perpetuation of natural wildlife diversity while allowing compatible land use and appropriate development and growth." The NCCP Act encourages preparation of subarea plans such as the City's Draft Subarea Plan that address habitat conservation and management on an ecosystem basis rather than one species or habitat at a time.

1.3.2.2 California Coastal Act

The California Coastal Act of 1976 (California Public Resources Code 30000 *et seq.*) is administered by the California Coastal Commission (CCC). Among other requirements, the Act

prohibits impacts on coastal zone wetlands except in eight specific situations. This section also requires that a proposed project be the least environmentally damaging feasible alternative, and that feasible and appropriate mitigation measures be imposed.

The California Coastal Act identifies the following goals for Coastal Zone lands:

- 1) Protection, maintenance and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.
- 2) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.
- 3) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.
- 4) Assure priority for coastal-dependent and coastal-related development over other development on the coast.
- 5) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Under the Act, wetlands are defined as “lands within the coastal zone which may be covered periodically or permanently with shallow water” (California Public Resources Code Division 20, Section 30121).

Local jurisdiction (City and County) permit review is the principal regulatory tool under the Coastal Act. Each local jurisdiction is charged with developing and implementing a Local Coastal Program that lays out the types of projects it will approve within the Coastal Zone, consistent with general guidance in the Coastal Act. The Coastal Act also contains important provisions emphasizing the role of public participation in coastal planning and the right to public participation in review and decision-making relative to project applications within the Coastal Zone.

1.3.2.3 California Fish and Game Code Sections 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code (CFG), CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Lake or Streambed Alteration Agreement Application must be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” CDFW has jurisdiction over riparian habitats associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources. CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and applicant is the Lake or Streambed Alteration Agreement.

1.3.2.5 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) provides for statewide coordination of water quality regulations. The state Water Resources Control Board was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis.

The RWQCB is the primary agency responsible for protecting water quality in California. As discussed above, the RWQCB regulates discharges to surface waters under the federal CWA. In addition, the RWQCB is responsible for administering the California Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the state, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a *Report of Waste Discharge* if Section 404 is not required for the activity. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

1.3.3 REGIONAL AND LOCAL PLANS

Two regional planning documents cover the Project area; the North County Multiple Species Conservation Program (MSCP; County of San Diego 2009) and the North County Multiple Habitat Conservation Program (MHCP; AMEC et al. 2003). The portions of the Project area owned by the County of San Diego are within the draft North County MSCP. The portions within the City of Encinitas are within the MHCP. The North County MSCP would expand the County MSCP into the northwestern unincorporated areas of San Diego County. The MHCP would similarly expand the conservation to incorporated cities within the northern portion of the County. The programmatic document for the MHCP has been finalized; however, the City of Encinitas does not have an implementing agreement under the program so is not yet a participant or have 'take authority' under the program.

North County Multiple Species Conservation Program

The MSCP is a comprehensive habitat conservation planning program within San Diego County. The southern portion of the County has an adopted MSCP and several local jurisdictions have implementing agreements with the USFWS and CDFW.

The North County MSCP would expand the MSCP into the northwestern unincorporated areas of San Diego County. The portions of the Lagoon owned by the County of San Diego are within the North County MSCP.

North County Multiple Habitat Conservation Program

The MHCP is a comprehensive conservation planning process that addresses the needs of multiple plant and animal species in the incorporated portions of North Western San Diego County. In addition to the City of Encinitas, jurisdictions within the program area include the cities of Carlsbad, Oceanside, Vista, San Marcos, Escondido and Solana Beach. The goal of the MHCP is to conserve approximately 19,000 acres of habitat, of which roughly 8,800 acres (46

percent) are already in public ownership and contribute toward the habitat preserve system for the protection of more than 80 rare, threatened or endangered species. Coordinated through SANDAG, the MHCP is one of three subregional habitat conservation planning programs in the region that, together, will contribute to a coordinated preserve system for the San Diego region and Southern California. Existing vegetation communities and sensitive species in the City of Encinitas represent approximately 675 acres of the proposed North County MHCP preserve area, primarily associated with the San Elijo Lagoon.

The City of Encinitas Draft Subarea Plan

The Draft Subarea Plan is a comprehensive, Citywide program that would, if adopted, implement the guidelines of the MHCP within the City. The Draft Subarea Plan was developed in cooperation with federal and State wildlife agencies in order to preserve the diversity of habitat and protect sensitive biological resources within the City while allowing for additional development. The Draft Subarea Plan would accomplish the preservation and protection goals through the implementation of development constraints within defined preserve areas. Early planning resulted in the identification of natural areas that would be completely preserved (hardline) and areas that would be developed and retain a portion of the open space lands (softline). Permits issued pursuant to this plan would not include USACE 404 or CDFG 1601 permits for impacts to wetlands. However, this plan would largely fulfill the requirements for endangered species consultation. This plan would provide a basis for Section 7 consultation and issuance of a Biological Opinion by the USFWS for USACE permits within the plan area.

However, the timeframe for adoption of the Draft Subarea Plan is unknown at this time. North County Cities are currently in the process of discussing options for preserving and managing their open space in order to determine the most appropriate way to implement the MHCP and subarea plans.

2 METHODS

Surveys and assessments to inventory and evaluate biological resources were conducted within the designated Biological Survey Area (BSA) from January 2012 to July 2013. The BSA is defined as the City's existing OTS easement plus an additional 150-foot buffer on either side of the alignment for an approximately 300 foot wide, four-mile long corridor. The BSA encompasses approximately 263.46 acres.

Prior to conducting field surveys, existing information regarding biological resources present or potentially present within the BSA was obtained through a review of pertinent literature and databases, including, but not limited to:

- CDFW California Natural Diversity Database (CNDDDB; CDFW accessed 2014)
- *Biological Resources Existing Conditions Report, San Elijo Lagoon Restoration Project* (AECOM 2011)
- *Biological Technical Report, San Elijo Lagoon Restoration Project* (AECOM 2014)

- *Vegetation Management Plan, San Elijo Lagoon Ecological Reserve* (County of San Diego Parks and Recreation Department, San Elijo Conservancy, and the City Of Solana Beach 2009)
- *The Escondido Creek Watershed Restoration Action Strategy* (The San Elijo Lagoon Conservancy 2005)
- *Draft Encinitas Subarea Plan* (Ogden Environmental and Energy Services Co., Inc. and Conservation Biology Institute 2001)
- *North County Multiple Habitat Conservation Program* (MHCP; San Diego Association of Governments 2003)
- *Chapter 13: Biological Resources, Encinitas General Plan Update Current Conditions Report* (City of Encinitas accessed 2014)
- California Native Plant Society (CNPS) Electronic Inventory (accessed 2012-14)
- San Diego Natural History Museum Plant Atlas Data and Mapping (accessed 2012-14)

The CNDDDB (CDFW 2014) query was conducted for a radius of 1, 3, and 5 miles around the OTS alignment. The CNPS Electronic Inventory (CNPS 2014) search was conducted for the nine quadrangles surrounding the OTS alignment. Results were refined by considering the habitat affinities of each species and the results of field habitat assessments and vegetation mapping. The potential for special status species to occur within the BSA are presented in Section 3.

Biological surveys were conducted within the BSA from January 2012 to July 2013. Rocks Biological Consulting (RBC) conducted vegetation mapping in January and February 2012 with additional mapping of potential alternative access points and work areas occurring in November 2012 and January 2013. General wildlife surveys, special status plant surveys, and focused surveys for federal and state listed as threatened and/or endangered wildlife species were conducted February to July 2013. A list of the survey personnel and dates for each survey is provided in Table 3.

Table 3. Biological Surveys Conducted within the BSA January 2012 to July 2013

Survey	Date	Time	Personnel
Vegetation mapping/General Biology	1/26/12	1030-1630	JR
Vegetation mapping/General Biology	2/1/12	1030-1630	JR, MR
Vegetation mapping/General Biology	2/3/12	0915-1615	JR
Vegetation mapping/General Biology	11/16/12	1130-1515	JR
Vegetation mapping/General Biology	1/10/13	1100-1600	JR
BSS 1	2/27/13	0630 - 1000	JR, BL, KA
BSS 2	3/22/13	0655 - 1125	JR, BL, KA
BSS 3	3/29/13	0640 - 1100	JR, BL, KA
BSS 4	4/5/13	0635 - 1105	JR, BL, KA
LFCR 1A	4/9/13	0630-1145	JK
LFCR 1B	4/10/13	1630-1940	JK
BSS 5	4/11/13	0635 - 1100	JR, BL, KA, SR
LFCR 2A	4/16/13	1640-1950	JK

Survey	Date	Time	Personnel
LFCR 2B	4/17/13	1630-1940	JK
LBVI 1	4/19/13	0645-1115	JR, BL, DB, KA
LBVI 1	4/20/13	0705-1110	JR, BL, KA
LFCR 3A	4/21/13	0550-0910	JK
LFCR 3B	4/21/13	1635-1945	JK
LFCR 4A	4/26/13	0555-0900	JK
Survey	Date	Time	Personnel
LFCR 4B	4/26/13	1640-1935	JK
LBVI 2	4/29/13	0635-1100	JR, DB, KA, BL
LFCR 5A	4/29/13	0615-0920	JK
LFCR 5B	4/29/13	1645-1950	JK
LBVI 2	4/30/13	0640-1100	JR, KA, SR, MA
Survey	Date	Time	Personnel
LBVI 3	5/9/13	0630-1100	JR, CN, BL, KA
LFCR 6A	5/9/13	1650-2000	JK
LBVI 3	5/10/13	0640-1100	JR, KA, DB, BL
LFCR 6B	5/10/13	1650-2010	JK
CAGN 1	5/15/13	0645 - 1200	JR
CAGN 1	5/16/13	0640 - 1110	JR, BL
LBVI 4; SWFL 1	5/20/13	0555-1125	JR, DB, KA, BL
LBVI 4; SWFL 1	5/21/13	0545-0940	BL, KA, MA, SR
CAGN 2	5/22/13	0715 - 1125	JR
CAGN 2	5/23/13	0750 - 1140	JR
CAGN 3	5/29/13	0605 - 1035	JR, BL
LBVI 5	5/30/13	0615-1025	JR, AB, BL, KA
LBVI 5	5/31/13	0615-1000	AB, DB, KA
LBVI 6; SWFL 2	6/10/13	0630-1100	JR, DB, BL, KA
LBVI 6; SWFL 2	6/11/13	0600-0930	BL, KA, MA
LBVI 7; SWFL 3	6/20/13	0700-1020	JR, KA, BL
LBVI 7; SWFL 3	6/21/13	0715-1100	JR, KA, DB, BL
LBVI 8; SWFL 4	7/8/13	0715-1020	JR, KA, BL
LBVI 8; SWFL 4	7/9/13	0650-1100	JR, KA, MA, BL
SWFL 5	7/15/13	0630-0935	BL, KA, MA
SWFL 5	7/16/13	0640-1035	JR, BL, KA, SR

Surveyors: JR = Jim Rocks, MR=Melanie Rocks, BL = Brian Lohstroh, KA = Kris Alberts, DB = Darin Busby, MA= Monica Alfaro, AB= Andrew Borcher, JK= John Konecny, CN= Chris Nordby, SR= Seth Reimers,

2.1 VEGETATION MAPPING

Vegetation mapping was conducted in the field to provide a baseline of the biological resources that occur or have the potential to occur within the BSA. Habitats were classified based on the dominant and characteristic plant species in accordance with vegetation community classifications generally following Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), as modified by Oberbauer in *Draft Vegetation Communities of San Diego County* (Oberbauer et al. 2008). Vegetation mapping was conducted by walking throughout the BSA and mapping vegetation communities on a series of aerial

photographs at a 1:2400 scale (1 inch = 200 feet). The extent of each habitat type (delineated as a habitat polygon on the compiled vegetation maps) was calculated by Infrastructure Engineering Corporation (IEC) using a geographic information system (GIS).

2.2 GENERAL BIOLOGICAL SURVEYS

Biological surveys for plants and animals were conducted during the vegetation mapping effort and during focused special status wildlife surveys. Plant species encountered during the field survey were identified and recorded in field notebooks. Plant species that could not be identified were brought into the laboratory for identification using the dichotomous keys in the *Jepson Manual* (Baldwin et al. 2012) and following the taxonomic treatment of the *Checklist of the Vascular Plants of San Diego County, 5th edition* (Rebman and Simpson 2014). A compiled list of the vascular plant species observed in the BSA is presented in Appendix A.

Wildlife species were detected during the field survey by sight, calls, tracks, scat, or other signs, and were recorded in field notebooks. Binoculars (8X42 magnification) were used to aid in the identification of wildlife. In addition to species observed during the surveys, expected wildlife use of the BSA was determined by known habitat preferences of local species and knowledge of their biogeographic distribution in the region. Scientific and common names of animals follow American Ornithologists' Union (AOU 2014) for birds, Wilson and Reeder (2005) for mammals, and Crothers (2014) for reptiles and amphibians. A list of wildlife species observed in the study area is presented in Appendix B.

The location of observed biological resources designated as special status by the USFWS, CDFW, and/or CNPS, were recorded in field notebooks, aerial maps, and/or through the use of Global Positioning System (GPS) handheld units. The BSA was also surveyed for habitat with the potential to support special status plant and animal species.

2.3 FOCUSED SPECIES SURVEYS

The results of the general surveys, a review of existing biological information and survey results for the area, and presence of species-specific suitable habitat were used to determine the need for focused surveys in 2013. Focused surveys for Belding's savannah sparrow (*Passerculus sandwichensis beldingi*; BSSP), coastal California gnatcatcher (*Poliioptila californica californica*; CAGN), and light-footed clapper rail (*Rallus longirostris levipes*; LFCR), were conducted in suitable habitat areas within the 300-foot wide BSA. Focused surveys for least Bell's vireo (*Vireo bellii pusillus*; LBVI) and southwestern willow flycatcher (*Empidonax trailli extimus*; SWFL) were conducted in all suitable habitat areas within the BSA plus an additional approximately 350-foot buffer on each side. The total buffer from the OTS alignment for these two species was 500 feet on each side, for a total width of approximately 1000 feet.

2.3.1 SPECIAL STATUS WILDLIFE SPECIES SURVEYS

2.3.1.1 Belding's Savannah Sparrow

Due to the presence of suitable coastal salt marsh habitat dominated by pacific pickleweed (*Sarcocornia pacifica*) within and immediately adjacent to the BSA, presence/absence surveys for the state-listed endangered BSSP (CDFW 2014) were conducted. Five focused surveys for BSSP were conducted weekly from February 27 through April 11. Surveys were conducted between 0600 and 1000 during favorable weather conditions. Audiotape playback was not used for this survey. The results of the surveys are discussed in Section 3.

2.3.1.2 Coastal California Gnatcatcher

Due to the presence of suitable habitat for the threatened CAGN within the BSA, focused presence/absence surveys for CAGN were conducted. Three protocol surveys were conducted weekly from May 15 to 29, 2013 in suitable CAGN habitat within the BSA. These habitats included Diegan coastal sage scrub, goldenbush scrub, and adjacent disturbed habitat for a total focused survey area of approximately 10 acres. The details of the CAGN surveys are presented in Appendix C: *45-Day Report for Coastal California Gnatcatcher Survey at the Olivenhain Trunk Sewer Project in Encinitas, CA* (Rocks Biological Consulting 2013).

2.3.1.3 Least Bell's Vireo

Due to the presence of suitable riparian habitat throughout large areas within the BSA, focused surveys for LBVI were conducted. The LBVI survey area was 1,000 feet wide and included suitable riparian habitats, for a total survey area of approximately 70 acres. Protocol surveys followed current USFWS survey protocol for the species (USFWS 2001) and were conducted every 10 days from April 19 to July 9, 2013. The details of the LBVI surveys are presented in Appendix D: *Presence/Absence Survey Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys at the Olivenhain Trunk Sewer Project in the City of Encinitas, San Diego County, CA* (Rocks Biological Consulting 2013).

2.3.1.4 Light-Footed Clapper Rail

Due to the presence of suitable habitat primarily in the southwestern end of the BSA, focused surveys for LFCR were conducted. The surveys were conducted in accordance with the recommendations provided to the USFWS by the Clapper Rail Study Team (2009). Each survey event consisted of two surveys on either the same or consecutive days. Surveys were conducted at either dawn or dusk. The details of the LFCR surveys are presented in Appendix E: *Results of a Focused Survey for the Light-footed Clapper Rail at the Olivenhain Trunk Sewer Improvements Project Site, San Diego County, California* (Konecny Biological Services 2013).

2.3.1.5 Southwestern Willow Flycatcher

Due to the presence of suitable habitat in several areas within the BSA, focused surveys for SWFL were conducted. The SWFL survey area was 1,000 feet wide and included all suitable riparian habitats, for a total survey area of approximately 70 acres. Five protocol SWFL surveys were conducted: one survey during the first period (May 15-May 31); two surveys during the second period (June 1-June 24); and two surveys during the third period (June 25-July 17). The details of

the SWFL surveys are presented in Appendix D: *Presence/Absence Survey Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys at the Olivenhain Trunk Sewer Project in the City of Encinitas, San Diego County, CA* (Rocks Biological Consulting 2013).

2.3.2 SPECIAL STATUS PLANT SURVEYS

Special status plant surveys were performed during vegetation mapping and focused surveys within the BSA. Plant species observed within the survey areas were recorded in field notebooks and the location of special status plants was mapped with a hand-held GPS unit or recorded on an aerial photo.

AECOM conducted focused special status plant surveys for the San Elijo Restoration Project in 2010 and these results were assessed and are presented on Figures 3a-3d. Special status plant species that are detectable year-round were recorded during general biological surveys and vegetation mapping (Table 3). Additional plant surveys were conducted during favorable times (spring and summer) for observing special status plant species. Locations of special status plant species were recorded during the 102-person survey days on the alignment from late February to mid July. Since recent surveys were conducted in a portion of the BSA and special status plants were mapped during special status wildlife species in the spring and summer, no additional special status plant surveys were deemed necessary.

2.4 JURISDICTIONAL ASSESSMENT

The San Elijo Lagoon and Escondido Creek are sensitive habitats and jurisdictional under state and federal regulations. It was agreed upon in early project planning meetings (April 2012) that the jurisdictional wetland limits of each agency would be based on the results of vegetation mapping. Therefore, areas mapped as a wetland vegetation community are considered jurisdictional for purposes of USACE and CDFW permitting. It was agreed that no formal jurisdictional wetland delineation was necessary for OTS.

3 RESULTS

This section describes the results of the biological surveys conducted in 2012 and 2013 within the BSA.

3.1 PHYSICAL SETTING

The BSA (263.46 acres) is located primarily on flat to gently sloping ground within San Elijo Lagoon and along Escondido Creek. The elevation within the BSA ranges from approximately 6 feet above mean sea level (AMSL) near San Elijo Lagoon to approximately 50 feet AMSL at the northern end along Escondido Creek. At the south end, the BSA consists of a diverse assemblage of vegetation including several marsh and riparian vegetation communities and upland habitats such as Diegan coastal sage scrub and non-native grassland. The north end of the BSA consists primarily of residential and commercial development and associated ornamental plantings. Other development features present include large roads such as Manchester Avenue and Lone Jack Road and smaller residential streets and dirt roads.

Special Status Plant Species

- San Diego Marsh Elder (*Iva hayesiana*; CRPR 4.2)
- Torrey Pine (*Pinus torreyana*; CRPR 1B.2)
- California Desert Thorn (*Lycium californicum*; CRPR 4.2)
- Coast Barrel Cactus (*Ferocactus viridescens*; CRPR 2.1)
- Coast Wallflower (*Erysimum ammophilum*; CRPR 1B.2)
- Coulter's Salt-Marsh Daisy (*Lasthenia glabrata* ssp. *coulteri*; CRPR 1B.1)
- Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*; CRPR 1B.1)
- Del Mar Mesa Sand Aster (*Corethrogyne filaginifolia* var. *linifolia*; CRPR 1B.1)
- Lewis' Evening-Primrose (*Camissonia lewisii*; CRPR 3)
- Mesa Spike-Moss (*Selaginella cinerascens*; CRPR 4.1)
- Nuttall's Scrub Oak (*Quercus dumosa*; CRPR 1B.1)
- Orcutt's Goldenbush (*Hazardia orcutti*; CRPR 1B.1)
- Palmer's Grappling-Hook (*Harpagonella palmeri*; CRPR 4.2)
- Palmer's Sagewort (*Artemisia palmeri*; CRPR 4.2)
- San Diego Marsh-Elder (*Iva hayesiana*; CRPR 2.2)
- San Diego Sea-Dahlia (*Coreopsis maritima*; CRPR 2.2)
- Shaw's Agave (*Agave shawii* var. *shawii*; CRPR 2.1)
- Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*; CRPR 4.2)
- Spineshrub (*Adolphia californica*; CRPR 2.1)
- Summer-Holly (*Comarostaphylis diversifolia* ssp. *diversifolia*; CRPR 1B.2)
- Torrey Pine (*Pinus torreyana*; CRPR 1B.2)
- Wart-Stem-Lilac (*Ceanothus verrucosus*; CRPR 2.2)
- Western Dichondra (*Dichondra occidentalis*; CRPR 4.2)

Special Status Wildlife Species

IEC/Rocks 2013 Protocol Surveys

- ◡ Light-Footed Clapper Rail (*Rallus longirostris levipes*; FE, SE)
- ◡ Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*; SE)
- ◡ Least Bell's Vireo (*Vireo bellii pusillusi*; FE, SE)
- ◡ Cooper's Hawk (*Accipiter cooperi*)
- ◡ Great Egret Nesting Colony (*Ardea alba*)
- ◡ Orange Throated Whiptail (*Aspidoscelis hyperythra beldingi*)
- ◡ Summer Tanager (*Piranga rubra*)

Legend

- ◡ White-Tailed Kite (*Elanus leucurus*)
- ◡ Yellow Warbler (*Setophaga petechia*)
- ◡ Yellow-Breasted Chat (*Icteria virens*)
- ◡ Great Blue Heron Nesting Colony (*Ardea herodias*)
- ◡ Coastal California Gnatcatcher (*Polioptila californica californica*)
- ◡ Willow Flycatcher (*Empidonax traillii*) (Southwestern Willow Flycatcher not documented)

Other Data

- ▲ Wandering Skipper (AECOM 2011) (*Panoquina errans*)
- ▲ Light-Footed Clapper Rail (Patton 2009) (*Rallus longirostris levipes*; FE, SE)
- ▲ Belding's Savannah Sparrow (Patton 2009) (*Passerculus sandwichensis beldingi*; SE)
- ▲ Coastal California Gnatcatcher (Patton 2009) (*Polioptila californica californica*)

Vegetation Mapping (IEC/Rocks 2012-2013)

Wetland Vegetation Communities

AM	Alkali Marsh	FWM/AM	Freshwater Marsh/ Alkali Marsh
CBM	Coastal Brackish Marsh	MFS/FWM	Mulefat Scrub/ Freshwater Marsh
CSM-H	Coastal Salt Marsh - High	OW	Open Water
CSM-H/GB	Coastal Salt Marsh - High/Goldenbush Scrub	SRS	Southern Riparian Scrub
CSM-M	Coastal Salt Marsh - Mid	SWRF	Southern Willow Riparian Forest
AM-D	Disturbed Alkali Marsh	SWS	Southern Willow Scrub
FWM	Freshwater Marsh	SWS/FWM	Southern Willow Scrub/ Freshwater Marsh

Upland Vegetation Communities

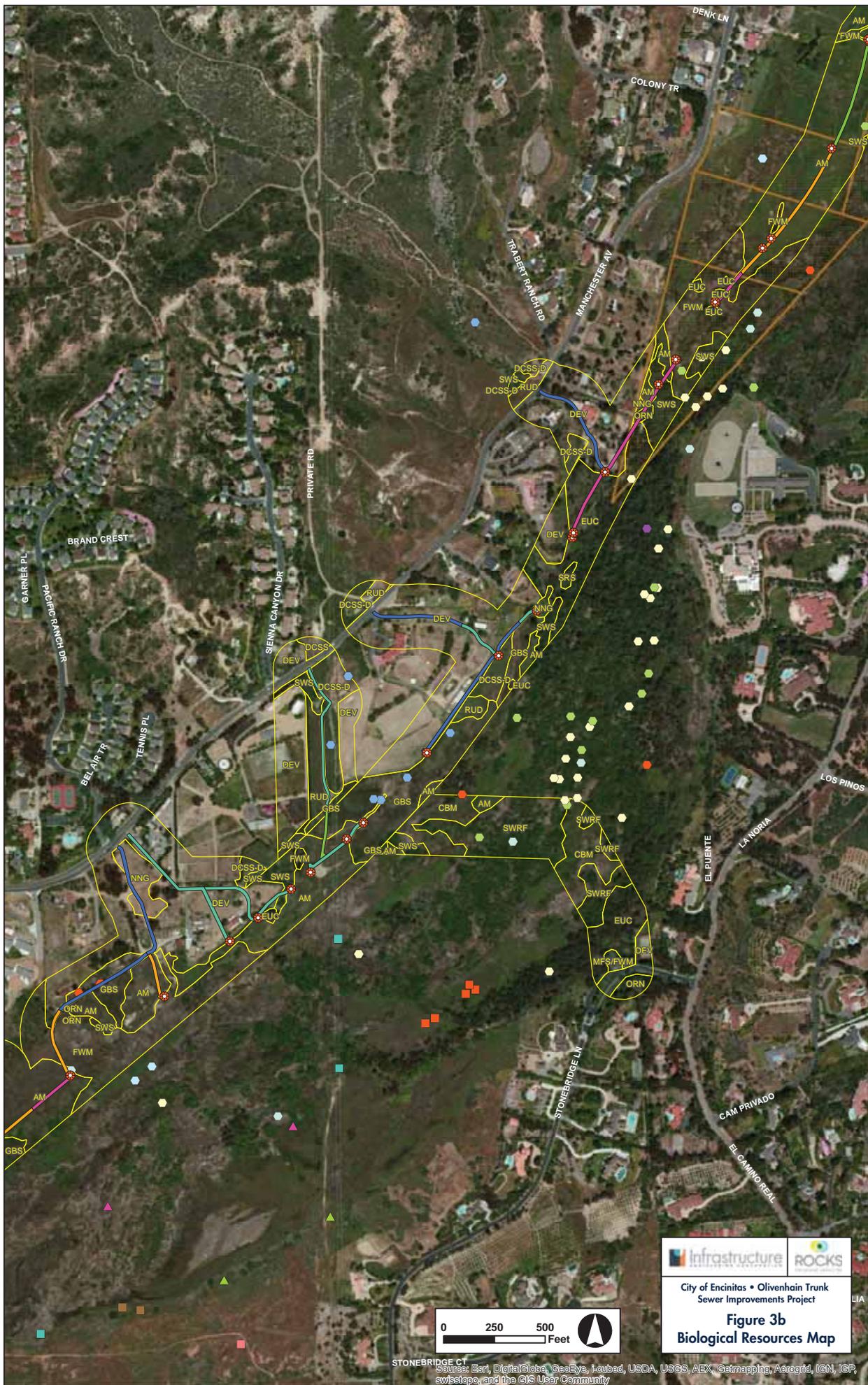
AG	Agriculture	EUC	Eucalyptus Trees
DEV	Developed	GBS	Goldenbush Scrub
DEV/ORN	Developed/Ornamental	NNG	Non-Native Grassland
DCSS	Diegan Coastal Sage Scrub	ORN	Ornamental
DCSS-D	Diegan Coastal Sage Scrub - Disturbed	RUD	Ruderal

Encinitas Sewer Infrastructure

- ⊗ Sewer Manhole

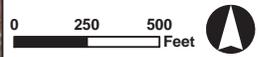
Surface Improvement Level (New and Existing Easements)

 0	 3
 1	 4
 2	 5





 City of Encinitas • Olivenhain Trunk
 Sewer Improvements Project
Figure 3b
Biological Resources Map



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

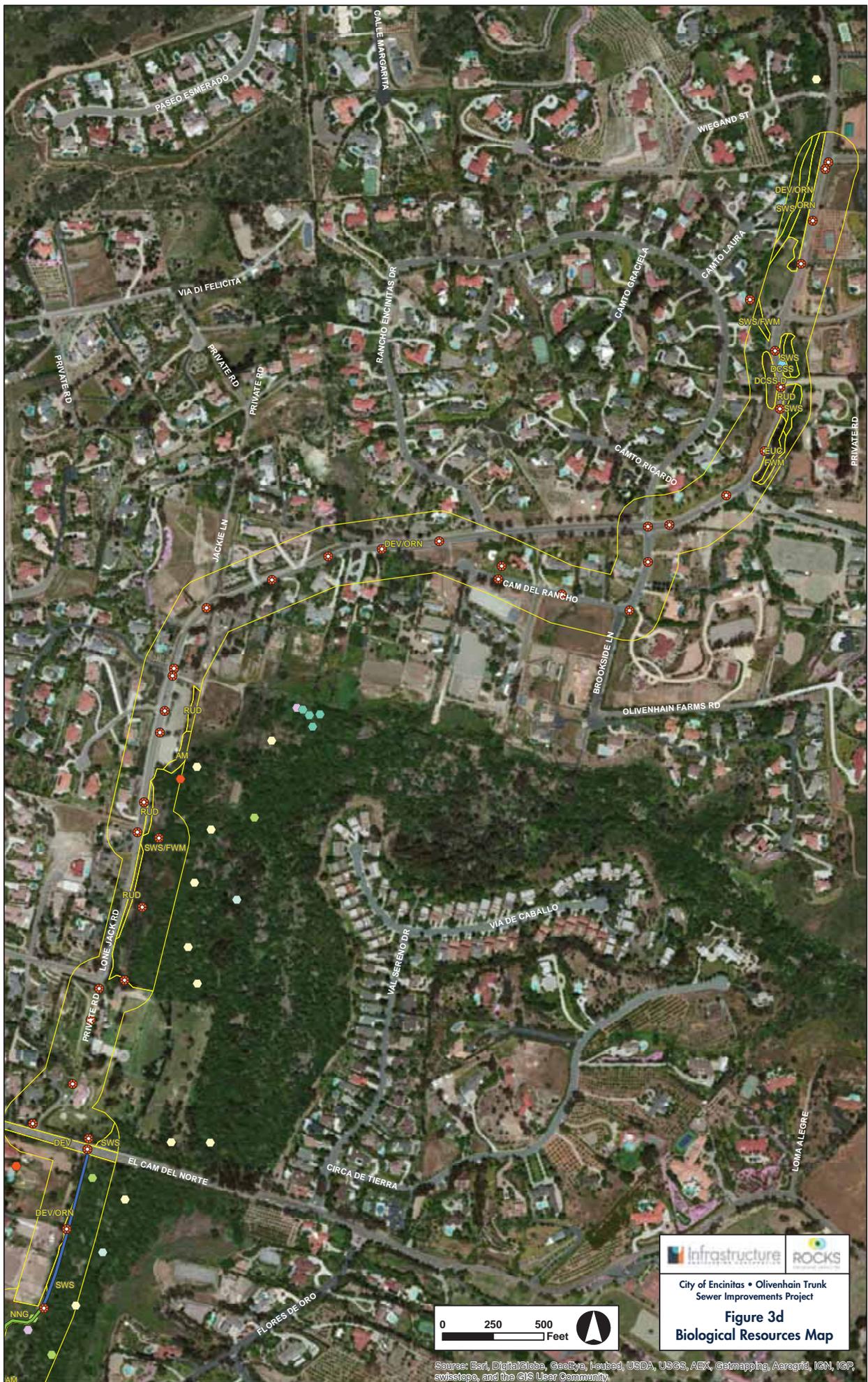




 City of Encinitas • Olivenhain Trunk
 Sewer Improvements Project
Figure 3c
Biological Resources Map

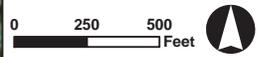
0 250 500
 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

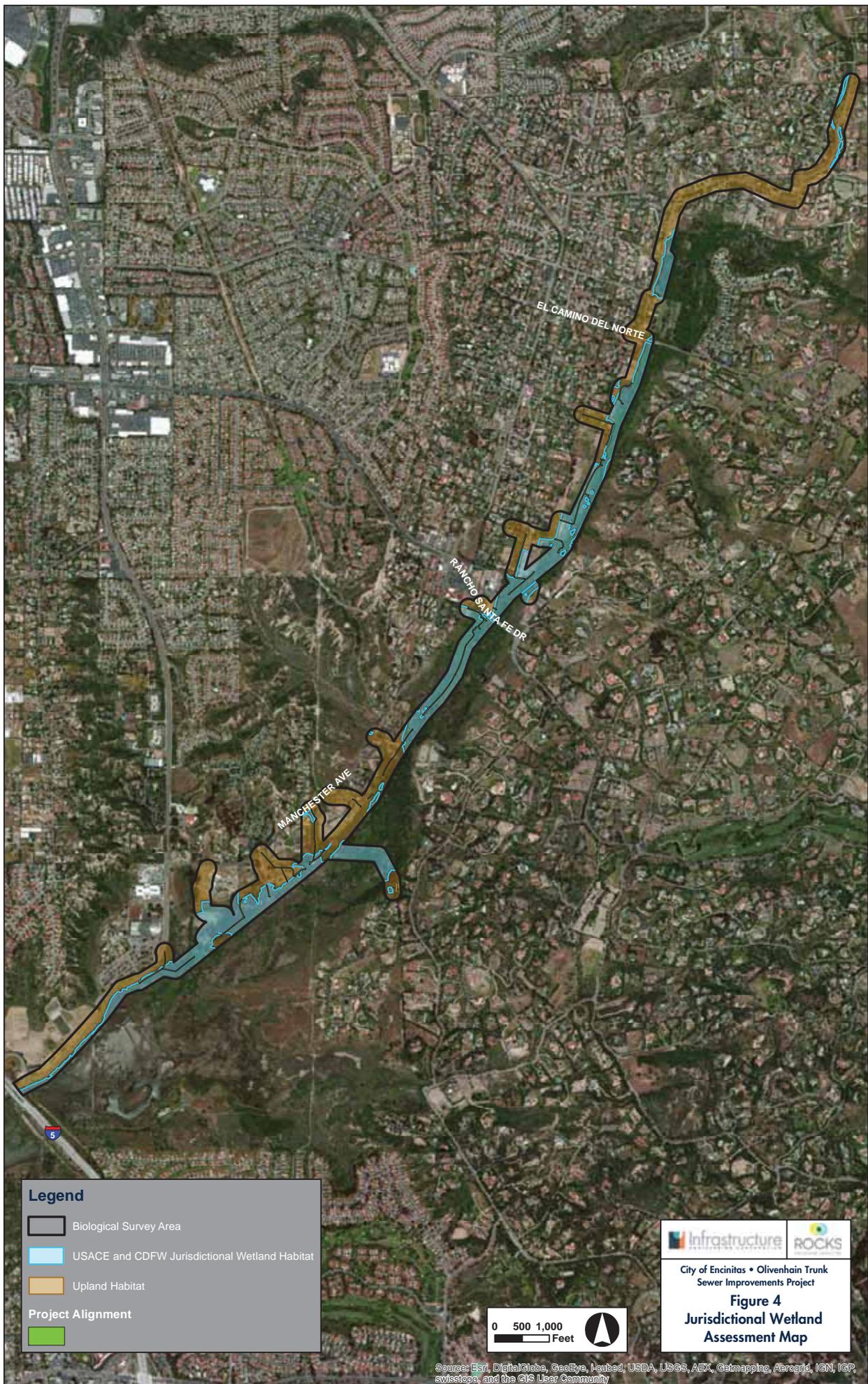




 City of Encinitas • Olivenhain Trunk
 Sewer Improvements Project
Figure 3d
Biological Resources Map



Source: Esri, DigitalGlobe, GeoEye, Igeod, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Legend

Project Alignment

1 Mile Buffer

3 Mile Buffer

5 Mile Buffer

Animals

- Belding's savannah sparrow
- Bell's sage sparrow
- California black rail
- California least tern
- Dulzura pocket mouse
- Mexican long-tongued bat
- Pacific pocket mouse
- San Diego desert woodrat
- Yuma myotis
- coast horned lizard
- coastal California gnatcatcher
- coastal cactus wren
- coastal whiptail
- light-footed clapper rail

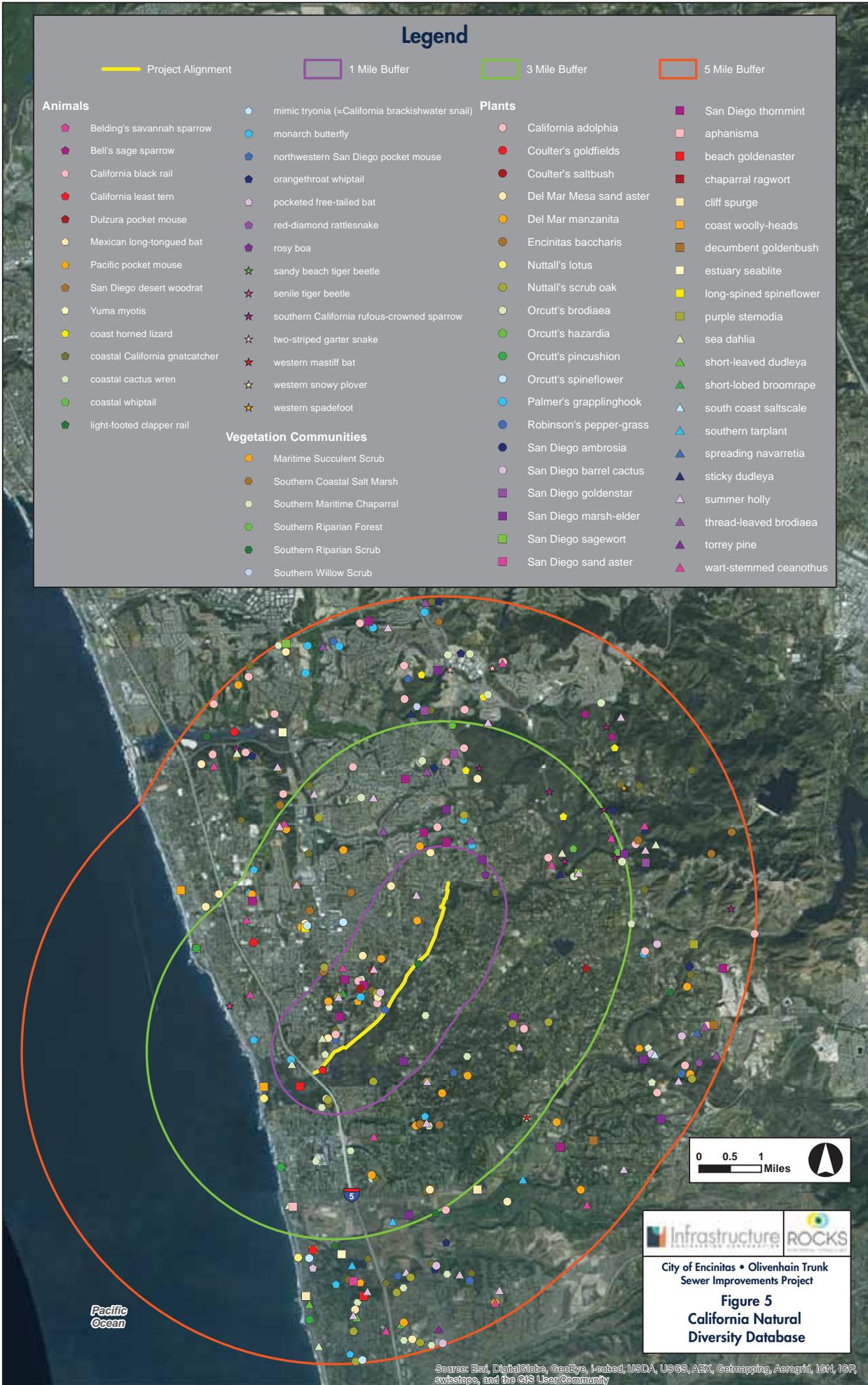
- mimic tryonia (=California brackishwater snail)
- monarch butterfly
- northwestern San Diego pocket mouse
- orangethroat whiptail
- pocketed free-tailed bat
- red-diamond rattlesnake
- rosy boa
- sandy beach tiger beetle
- senile tiger beetle
- southern California rufous-crowned sparrow
- two-striped garter snake
- western mastiff bat
- western snowy plover
- western spadefoot

Vegetation Communities

- Maritime Succulent Scrub
- Southern Coastal Salt Marsh
- Southern Maritime Chaparral
- Southern Riparian Forest
- Southern Riparian Scrub
- Southern Willow Scrub

Plants

- California adolphia
- Coulter's goldfields
- Coulter's saltbush
- Del Mar Mesa sand aster
- Del Mar manzanita
- Encinitas baccharis
- Nuttall's lotus
- Nuttall's scrub oak
- Orcutt's brodiaea
- Orcutt's hazardia
- Orcutt's pincushion
- Orcutt's spineflower
- Palmer's grapplinghook
- Robinson's pepper-grass
- San Diego ambrosia
- San Diego barrel cactus
- San Diego goldenstar
- San Diego marsh-elder
- San Diego sagewort
- San Diego sand aster
- San Diego thormmint
- aphanisma
- beach goldenaster
- chaparral ragwort
- cliff spurge
- coast woolly-heads
- decumbent goldenbush
- estuary seablite
- long-spined spineflower
- purple stemodia
- sea dahlia
- short-leaved dudleya
- short-lobed broomrape
- south coast saltscale
- southern tarplant
- spreading navarretia
- sticky dudleya
- summer holly
- thread-leaved brodiaea
- torrey pine
- wart-stemmed ceanothus



City of Encinitas • Olivenhain Trunk Sewer Improvements Project

Figure 5

California Natural Diversity Database

Source: Esri, DigitalGlobe, GeoEye, Iacubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Source: Esri, DigitalGlobe, GeoEye, iSat, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

3.2 VEGETATION COMMUNITIES AND LAND USES

A total of 24 vegetation communities and other land uses were identified within the BSA. Table 4 lists the vegetation communities and land uses observed, separated by wetland and upland vegetation types. The spatial distribution of each vegetation community and land use is presented on the Biological Resources Maps (Figures 3a-3d). The BSA contains 16 vegetation communities that contain predominately native species, one of which is comprised solely of open water. The BSA also includes eight vegetation communities that contain predominately non-native species or unvegetated areas, the largest consisting of developed lands.

Table 4. Vegetation Communities and Land Uses Observed within the BSA

Wetland Communities within BSA		Upland Communities within BSA	
Vegetation Community	Area Within BSA (Acres)	Vegetation Community	Area Within BSA (Acres)
Alkali Marsh (AM)	37.90	Agriculture (A)	3.92
Disturbed Alkali Marsh (AM-D)	2.92	Developed (DEV)	64.78
Coastal Brackish Marsh (CBM)	10.49	Developed/Ornamental (DEV/ORN)	48.90
Coastal Salt Marsh – Mid (CSM-M)	0.96	Diegan Coastal Sage Scrub (DCSS)	3.39
Coastal Salt Marsh – High (CSM-H)	4.24	Diegan Coastal Sage Scrub - Disturbed (DCSS-D)	4.38
Coastal Salt Marsh - High/Goldenbush Scrub (CSM-H/GBS)	2.93	Goldenbush Scrub (GBS)	7.87
Freshwater Marsh (FWM)	5.59	Eucalyptus Woodland (EUC)	8.76
Freshwater Marsh/Alkali Marsh (FWM/AM)	4.73	Non-Native Grassland (NNG)	4.49
Open Water (OW)	0.37	Ornamental (ORN)	2.06
Mulefat Scrub/Freshwater Marsh (MFS/FWM)	0.17	Ruderal (RUD)	3.87
Southern Riparian Scrub (SRS)	3.41	Total	152.42
Southern Willow Scrub (SWS)	27.70		
Southern Willow Scrub/Freshwater Marsh (SWS/FWM)	4.91		
Southern Willow Riparian Forest (SWRF)	4.65		
Total	111.04		

3.2.1 WETLAND VEGETATION COMMUNITIES

Alkali Marsh

Alkali marsh typically consists of dense, low-growing vegetation in low-lying areas with a high water table. Evaporation of ponded water often results in salts remaining on the surface of alkali marsh communities that result in conditions suitable for plants adapted to saline conditions. The growing and flowering season within alkali marsh occurs from late spring to early fall.

The alkali marsh within the BSA (37.90 acres) supports several species typical of the habitat, including alkali heath (*Frankenia salina*), Mexican rush (*Juncus arcticus* var. *mexicanus*), salt grass (*Distichlis spicata*), sparscale (*Atriplex prostrata*), yerba mansa (*Anemopsis californica*), cocklebur (*Xanthium strumarium*), salty Susan (*Jaumea carnosa*) and the special status species (CRPR 4.2) southwestern spiny rush (*Juncus acutus* ssp. *leopoldi*). The BSA also contains disturbed alkali marsh (2.92 acres) that consists of the aforementioned species and a large component of non-native annual grasses such as ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), and slender wild oat (*Avena barbata*).

Coastal Brackish Marsh

Coastal brackish marsh is dominated by perennial, emergent, herbaceous monocots that grow up to seven feet tall. Coastal brackish marsh is comprised of dense vegetation that occurs in wetland areas that are permanently influenced by brackish tidal water. Coastal brackish marsh is similar to freshwater marsh but is distinguished by having a tidal (i.e., brackish) influence.

Coastal brackish marsh (10.49 acres) occurs in patches from the west end of the BSA near Interstate 5 to the point where the tidal influence is diminished and wetlands receive a greater volume of freshwater from Escondido Creek. Uniform stands of cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.) are the dominant species in coastal brackish marsh. Upstream, the wetlands receive a greater volume of freshwater and the vegetation is characterized as freshwater marsh, however the dominant species remain largely unchanged.

Coastal Salt Marsh - Mid

Coastal salt marsh is a highly productive association of herbaceous and suffrutescent, salt-tolerant hydrophytes that form a moderate to dense cover and can reach a height of up to 3 feet. Most species grow and flower in summer and are dormant in winter (Holland 1986). This association is usually segregated horizontally from high and low coastal salt marsh based on extent and duration of tidal inundation.

Within the BSA, coastal salt marsh-mid (0.96 acre) was mapped based on the presence of pacific pickleweed, salty Susan, and saltwort (*Batis maritima*). These areas receive greater inundation by brackish water and are saltier and less diverse than coastal salt marsh-high.

Coastal Salt Marsh – High

Coastal salt marsh-high (4.24 acres) is similar to coastal salt marsh-mid but is segregated horizontally based on the shorter duration of tidal inundation. Coastal salt marsh-high receives less inundation by brackish water and is drier than coastal salt marsh-mid. This community

contains a more diverse mixture of species, including alkali-heath, salt grass, alkali-weed (*Cressa truxillensis*), pacific pickleweed, salty Susan, and southwestern spiny rush.

Coastal Salt Marsh – High/Goldenbush Scrub

This mixed vegetation community (2.93 acres) is a unique assemblage of species, with goldenbush growing over the typical coastal salt marsh species pacific pickleweed and salt grass. This habitat occurs near where the OTS alignment crosses from Manchester Avenue into the native habitats of San Elijo Lagoon.

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent, herbaceous monocots to seven feet tall. This vegetation community is similar to coastal brackish marsh, but freshwater marsh occurs in wetlands that are permanently flooded by standing fresh water, with tidal influence absent (Holland 1986).

Within the BSA, freshwater marsh (5.59 acres) is dominated by cattails and bulrushes beyond the reach of tidal influence. This vegetation type was found along Escondido Creek within and adjacent to riparian scrub and forest habitats.

Freshwater Marsh/Alkali Marsh

In one discrete area of the BSA (4.73 acres), freshwater marsh and alkali marsh vegetation communities commingle. The boundaries of these two vegetation communities in this area are in flux, with the extent of each community shifting seasonally in response to rainfall. Seasonal rainfall and urban runoff determine the amount of freshwater coming from upstream and in wetter years these areas will contain more slow-moving and standing water and the freshwater marsh habitat will increase in size. Conversely, alkali marsh areas expand during years with lower rainfall and runoff.

Mulefat Scrub/Freshwater Marsh

A small patch of mulefat scrub/freshwater marsh (0.17 acres) occurs where a trunk sewer lateral/tributary meets Stonebridge Lane. This habitat consists of a dense collection of mulefat (*Baccharis salicifolia*), cattails, and bulrushes.

Open Water

Open water includes reservoirs, lakes, ponds, and relatively large sloughs, channels, and rivers or streambeds that typically contain water throughout the year. Within the BSA, open water (0.37 acre) is mapped in two areas: the western boundary within San Elijo Lagoon immediately east of Interstate 5 and an open drainage slough that connects a horse pond with Escondido Creek.

Southern Willow Scrub

Southern willow scrub is a vegetation community dominated almost exclusively by one or more willow species such as arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), and/or red willow (*Salix laevigata*). Southern willow scrub grows on seasonally or intermittently flooded sites.

Within the BSA, southern willow scrub (27.70 acres) is dominated by arroyo willow with a much smaller component of black willow and mulefat. Scattered eucalyptus trees are also present. Arroyo willow is the most abundant willow species within the BSA.

Southern Willow Scrub/Freshwater Marsh

This vegetation type is a dense association of southern willow scrub and freshwater marsh (4.91 acres). This community consists of an overstory of tall, dense arroyo willows and an understory of cattails and bulrushes.

Southern Riparian Scrub

Southern riparian scrub varies from a dense, broad-leaved, winter-deciduous association dominated by several species of willow to an herbaceous scrub dominated by mulefat. Within the BSA, southern riparian scrub (3.41 acres) consists of dense arroyo willow and mulefat with little or no understory vegetation.

Southern Willow Riparian Forest

Southern willow riparian forest can be an open or closed canopy forest that is generally greater than 20 feet tall and occupies relatively broad drainages and floodplains with perennially wet streams. This habitat is dominated by tall, mature individuals of winter deciduous trees, including black willow, red willow and western cottonwood (*Populus fremontii* var. *fremontii*) often with a dense understory of shrubby red and arroyo willows, mulefat, and mugwort (*Artemisia douglasiana*).

Within the BSA, southern willow riparian forest (4.65 acres) is present in the area where the tributary sewer from Stonebridge Lane connects to OTS. Tall, dense willows are dominant in this area with scattered eucalyptus encroaching from the adjacent eucalyptus woodland. It is distinguished here from southern riparian scrub because of the overwhelming dominance of tall, mature willows, with few other tree species.

3.2.2 UPLAND VEGETATION COMMUNITIES

Agriculture

Land designated as agriculture is typically comprised of annual and perennial crops grown in rows with open space between the rows. Row crops often occur in floodplains or upland areas with high soil quality and are often artificially irrigated. Species composition frequently changes by season and year.

Active agriculture (3.92 acres) is present at the west end of the BSA, north of Manchester Avenue. This area is typically used for strawberry production.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub is comprised of low growing, aromatic, drought deciduous, soft-woody shrubs to about four feet high, many of which are facultatively drought-deciduous. The Diegan subtype of coastal sage scrub consists of California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), and black and white sage (*Salvia mellifera* and *S. apiana*). This collection of species is typically found on dry, south-facing slopes or clay-rich soils that are slow to release stored water.

Within the BSA, Diegan coastal sage scrub (3.39 acres) occurs in small, linear strips along Manchester Avenue and in larger patches upstream, some of which support the federally-listed

threatened coastal California gnatcatcher. Areas where Diegan coastal sage scrub has been disturbed by previous clearing or ground disturbance was mapped as disturbed Diegan coastal sage scrub (4.38 acres). This community contains the same dominant shrubs as Diegan coastal sage scrub, but includes disturbed areas with a higher percentage of weedy species such as ripgut brome, short-pod mustard (*Hirschfeldia incana*), and fennel.

Eucalyptus Woodland

Eucalyptus woodland is typically characterized by dense stands of gum trees (*Eucalyptus* spp.) that are native to Australia. Eucalyptus trees were originally planted in groves throughout many regions of coastal California as a source of lumber, as windbreaks, and as a horticultural novelty. Eucalyptus trees have increased their cover through natural regeneration, particularly in moist areas sheltered from strong coastal winds.

Within the BSA, Eucalyptus trees (8.76 acres) occur both in dense groves and as isolated trees within the riparian forest along Escondido Creek. Individual trees (or small clusters) also occur along Manchester Avenue and other developed areas. Eucalyptus trees provide some wildlife habitat value within the BSA as they support nesting colonies of great blue heron (*Ardea herodias*) and great egret (*Ardea alba*). However, eucalyptus trees often degrade wetland communities by crowding out and excluding native riparian species.

Goldenbush Scrub

Goldenbush scrub (7.87 acres) is a subtype of coastal sage scrub that is dominated by goldenbush (*Isocoma menziesii* var. *menziesii*). This subtype typically occurs after disturbance or vegetation clearing. Goldenbush scrub occurs in the western portion of the BSA on dry, clay soils. The federally-listed threatened coastal California gnatcatcher was documented nesting in goldenbush scrub within the BSA.

Non-Native Grassland

Non-native grassland consists of a dense to sparse cover of annual grasses, often with native and non-native annual forbs (Holland 1986). This habitat generally occurs on fine-textured loam or clay soils that are moist to waterlogged during the winter rainy season, and very dry during the summer and fall. This habitat is a disturbance-related community most often found in old fields or openings within native scrub habitats. This association has replaced native grassland and coastal sage scrub at many localities throughout southern California.

The non-native grassland (4.49 acres) within the BSA is comprised primarily of ripgut brome, red brome, slender wild oat, Bermuda grass (*Cynodon dactylon*), and soft chess (*Bromus hordeaceus*). Some broad-leaved forbs such as tecolote (*Centaurea melitensis*), short-pod mustard, and filaree (*Erodium cicutarium*) were also present.

Ornamental

Ornamental vegetation typically consists of non-native landscape and/or garden species that are planted in association with buildings, roads, and developments or have escaped cultivation and occur within native habitats. San Diego County supports a wide variety of ornamental trees and shrubs, as well as herbs that decorate urban areas.

Approximately five patches of ornamental vegetation (2.00 acres) are present within the BSA. Species present include mousehole tree (*Myoporum laetum*), golden wattle (*Acacia longifolia*), Brazilian pepper tree (*Schinus terebinthifolius*), eucalyptus, Canary Island date palm (*Phoenix canariensis*), and hottentot fig (*Carpobrotus edulis*).

Ruderal

Ruderal habitat typically develops on sites with heavily compacted soils following high intensity disturbance such as grading. This disturbance community is dominated by broad-leaf herbaceous species with a less than 50 percent cover of non-native grasses.

Within the BSA, ruderal habitat (3.87 acres) is present in thin strips parallel to the shoulder of Manchester Avenue and Lone Jack Road and some disturbed patches adjacent to horse ranches near the BSA. Ruderal areas consist of short-pod mustard, fennel (*Foeniculum vulgare*), wild radish (*Raphanus sativus*), horseweed (*Conyza* spp.), tecolote, and poison hemlock (*Conium maculatum*).

3.2.3 OTHER LAND USES

Developed and Developed/Ornamental

Developed areas within the BSA (64.78 acres) support no native vegetation and are comprised of human-made structures such as buildings and roads. The level of soil disturbance is so high that only ruderal plant species can persist. Within the BSA, developed areas include Manchester Avenue, Lone Jack Road, commercial and residential buildings, and paved surfaces.

A similar land use mapped as developed/ornamental vegetation (48.90 acres) also occurs within the BSA. This classification includes primarily the non-native landscape and garden plantings adjacent to houses, roads, and other development. Developed/ornamental associated with residential development is the most prevalent land use at the north end of the BSA (Figure 3d).

3.3 JURISDICTIONAL WATERS AND WETLANDS

The BSA consists of a diverse assemblage of wetland vegetation communities totaling approximately 111.04 acres. These vegetation communities are considered jurisdictional wetlands under state and federal regulations. Total acreages of each jurisdictional community within the BSA are shown in Table 5. A simplified map showing jurisdictional wetland vegetation communities is presented on Figure 4.

3.4 FLORA

The BSA supports a high diversity of vegetation types and moderate plant species diversity. Approximately 174 plant species (56 percent native, 44 percent non-native) were observed within the BSA. A comprehensive list of plant species that were observed during biological surveys within the BSA is included in Appendix A.

Table 5. Jurisdictional Wetland Vegetation Communities within the BSA

Vegetation Community	Area Within BSA (Acres)
Alkali Marsh (AM)	37.90
Disturbed Alkali Marsh (AM-D)	2.92
Coastal Brackish Marsh (CBM)	10.49
Coastal Salt Marsh – Mid (CSM-M)	0.96
Coastal Salt Marsh – High (CSM-H)	4.24
Coastal Salt Marsh - High/Goldenbush Scrub (CSM-H/GBS)	2.93
Freshwater Marsh (FWM)	5.59
Freshwater Marsh/Alkali Marsh (FWM/AM)	4.73
Mulefat Scrub/Freshwater Marsh (MFS/FWM)	0.17
Open Water (OW)	0.37
Southern Riparian Scrub (SRS)	3.41
Vegetation Community	Area Within BSA (Acres)
Southern Willow Scrub (SWS)	27.70
Southern Willow Scrub/Freshwater Marsh (SWS/FWM)	4.91
Southern Willow Riparian Forest (SWRF)	4.65
Total	111.04

3.5 WILDLIFE

The BSA supports a high diversity of wildlife due to the variety of wetland and upland habitats associated with San Elijo Lagoon and Escondido Creek. A total of 117 species of birds, seven species of mammals, and five species of reptiles and amphibians were observed or presumed present based on track and/or scat. Because nighttime surveys were not conducted, nocturnal animals are likely under represented in this assessment. Conversely, focused surveys were for special status bird species were required, resulting in the observation of a high number of bird species relative to other animals.

3.6 SPECIAL STATUS BIOLOGICAL RESOURCES

Special status biological resources are those defined as follows: 1) Species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened/ endangered population sizes; 2) Species and habitat types recognized by local and regional resource agencies as sensitive; 3) Habitat areas or vegetation communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; 4) Wildlife corridors and habitat linkages; and/or 5) Biological resources that may or may not be considered sensitive, but are regulated under local, state, and/or federal laws.

For the purposes of this report, species are considered to have special status if they meet one or more of the following criteria:

- Listed under the federal or state Endangered Species Act (CDFW 2014; USFWS 2014).
- USFWS Birds of Conservation Concern (USFWS 2014)
- CDFW Special Animals List (CDFW 2011)
- CDFW Species of Special Concern (CDFW 2014).
- CDFW Fully Protected Species (CDFW 2014).
- Covered as a state protected furbearing mammal (California Code of Regulations [14 CCR Section 460]).
- Listed as having a California Rare Plant Rank (CRPR; formerly CNPS List, CNPS 2014).

3.6.1 SPECIAL STATUS PLANT SPECIES

Special-status plant species include those that are: 1) listed or proposed for listing by federal or state agencies as threatened or endangered; 2) California Rare Plant Ranks (CRPR) List 1 through 4 (CNPS 2014); or 3) considered rare, endangered, or threatened by the CDFW (CDFW 2014) or other local conservation organizations or specialists.

CNPS is a statewide resource conservation organization that has developed an inventory of California's sensitive plant species. The CRPR system is recognized by the CDFW and essentially serves as an early warning list of potential candidate species for threatened or endangered status. The CRPR system is categorized as outlined in Table 6, below.

Table 6. California Rare Plant Rank (CRPR) Definitions.

California Rare Plant Rank (CRPR)	1A	presumed extirpated in California and rare or extinct elsewhere
	1B	rare, threatened, or endangered in California and elsewhere
	2A	presumed extirpated in California but more common elsewhere
	2B	rare, threatened, or endangered in California but more common elsewhere
	3	plants for which more information needed
	4	plants of limited distribution
CRPR Threat Ranks	0.1	Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
	0.2	Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
	0.3	Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Prior to conducting field surveys, the potential for the BSA to support special status plant species was assessed based on the vegetation mapping, analysis of the CNDDDB and CNPS data, review of the existing conditions data in the *Biological Resources Technical Report for the San Elijo Lagoon Restoration Project* (AECOM 2014), and knowledge of the habitat affinities and biogeography of special status plants in southern California.

A total of three special status plant species were observed within or immediately adjacent to the BSA during the 2013 surveys. An additional 27 special status plant species have a low or moderate potential to occur within the BSA. No species was deemed to have a high potential to occur within the BSA. Though the larger Lagoon area supports several rare plant species, much of the BSA and Project area is at the edge of the Lagoon in the urban interface or is within riparian habitat associated with Escondido Creek. As such, potential for rare plant species was lower within the BSA than it is for other portions of the Lagoon.

The 49 special status plant species that were evaluated for their potential to occur within the BSA are discussed in Table 7. The locations of observed special status plant species are shown on Figures 3a-3d.

Table 7. Special Status Plant Species - Potential For Occurrence

Species Name	Status	Habitat Description	Potential to Occur within BSA
San Diego thornmint (<i>Acanthomintha ilicifolia</i>)	FT SE CRPR 1B.1	Annual herb. Blooms Apr-Jun. Clay soils associated with vernal pools in chaparral, coastal sage scrub, and grassland. Elev 30-3,150 ft.	Low. Known from nearby Manchester Conservation Area and Critical Habitat occurs within 0.25 miles of the alignment. However, suitable soils not present within the BSA and not observed during surveys.
Nuttall's acmispon (<i>Acmispon prostratus</i>)	CRPR 1B.1	Annual herb. Blooms Mar-Jun. Coastal dunes and coastal sage scrub. Elev 0-35 ft.	None. Suitable habitat not present within the BSA, species restricted to immediate coast.
spineshrub (<i>Adolphia californica</i>)	CRPR 2B.1	Deciduous shrub. Blooms Dec-May. Clay soils in chaparral, coastal sage scrub, and grassland. Elev 145-2,430 ft.	Low. This conspicuous shrub would have been observed if present in the BSA.
San Diego ambrosia (<i>Ambrosia pumila</i>)	FE CRPR 1B.1	Rhizomatous herb. Blooms Apr-Oct. Often in disturbed areas with sandy loam or clay soils, or sometimes in alkaline areas, within chaparral, coastal sage scrub, grassland, and vernal pools. Elev 65-1,365 ft.	Low. Suitable habitat limited within the BSA and this species has no known occurrences within San Elijo Lagoon or along Escondido Creek.

Species Name	Status	Habitat Description	Potential to Occur within BSA
aphanisma (<i>Aphanisma blitoides</i>)	CRPR 1B.2	Annual herb. Blooms Mar-Jun. Coastal bluff scrub, coastal dunes, and coastal sage scrub. Elev 3-1,000 ft.	None. Suitable habitat not present within the BSA. Nearest known location is 2 miles south along San Dieguito Creek.
Del Mar manzanita (<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>)	FE CRPR 1B.1	Evergreen shrub. Blooms Dec-Jun. Sandy soils in maritime chaparral. Elev 0-1,200 ft.	None. Suitable habitat not present within the BSA. This conspicuous shrub would have been observed if present. This species has been documented west of I-5 in the uplands south of the Lagoon.
Palmer's (San Diego) sagewort (<i>Artemisia palmeri</i>)	CRPR 4.2	Deciduous shrub. Blooms May-Sep. Sandy, mesic areas in chaparral, coastal sage scrub, and riparian habitats. Elev 45-3,005 ft.	Moderate. Suitable habitat is present within the BSA and this species was documented west of I-5 in San Elijo Lagoon (AECOM 2010). Not observed within the BSA during surveys.
Coulter's saltbush (<i>Atriplex coulteri</i>)	CRPR 1B.2	Perennial herb. Blooms Mar-Oct. Alkaline or clay soils in coastal dunes, coastal bluff scrub, coastal sage scrub, and grassland. Elev 10-1,510 ft.	None. Suitable habitat not present within BSA.
south coast saltscale (<i>Atriplex pacifica</i>)	CRPR 1B.2	Annual herb. Blooms Mar-Oct. Playas, coastal dunes, coastal bluff scrub, and coastal sage scrub. Elev 0-460 ft.	Low. Very limited suitable habitat present within the BSA.
Encinitas baccharis (<i>Baccharis vanessae</i>)	FT SE CRPR 1B.1	Deciduous shrub. Blooms Aug-Nov. Maritime chaparral and cismontane woodland. Elev 195-2,365 ft.	Low. Known historically from vicinity of BSA but this shrub would have been observed if present.
San Diego sunflower (<i>Bahiopsis laciniata</i>)	CRPR 4.2	Perennial shrub. Blooms Feb-Aug. Dry slopes in coastal sage scrub and chaparral. Elev 195-2,460 ft.	Low. This conspicuous shrub would have been observed if present.
San Diego goldenstar (<i>Bloomeria clevelandii</i>)	CRPR 1B.1	Bulbiferous herb. Blooms Apr-May. Clay soils in vernal pools associated with chaparral, coastal sage scrub, and grassland. Elev 160-1,525 ft.	Low. Very limited suitable habitat present within the BSA.

Species Name	Status	Habitat Description	Potential to Occur within BSA
thread-leaved brodiaea (<i>Brodiaea filifolia</i>)	FT SE CRPR 1B.1	Bulbiferous herb. Blooms Mar-Jun. Clay soils in vernal pools associated with playas, chaparral, coastal sage scrub, cismontane woodland, and grassland. Elev 80-3,675 ft.	Low. No suitable deep clay soils present within the BSA.
Orcutt's brodiaea (<i>Brodiaea orcuttii</i>)	CRPR 1B.1	Bulbiferous herb. Blooms Apr-Jul. Typically mesic, clay soils (sometimes serpentinite) in vernal pools associated with chaparral, cismontane woodland, closed-cone coniferous forest, meadows, seeps, and grassland. Elev 30-1,692 ft.	Low. Very limited suitable habitat present within the BSA.
wart-stemmed ceanothus (<i>Ceanothus verrucosus</i>)	CRPR 2B.2	Evergreen shrub. Blooms Dec-May. Chaparral. Elev 3-1,250 ft.	None. This conspicuous shrub would have been observed if present.
southern tarplant (<i>Centromadia parryi</i> ssp. <i>australis</i>)	CRPR 1B.1	Annual herb. Blooms May-Nov. Vernal pools, along the margins of marshes, and in vernal mesic areas within grassland. Elev 0-1,395 ft.	Low. Known from San Dieguito Valley to the south, but very limited suitable habitat present within BSA.
Orcutt's pincushion (<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>)	CRPR 1B.1	Annual herb. Blooms Jan-Aug. Sandy soils in coastal dunes and coastal bluff scrub. Elev 0-330 ft.	None. Suitable habitat not present within BSA. Species restricted to immediate coast.
salt marsh bird's-beak (<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>)	FE SE CRPR 1B.2	Hemiparasitic annual herb. Blooms Mar-Oct. Coastal dunes and coastal salt marsh. Elev 0-100 ft.	None. Species restricted to immediate coast and not known from San Elijo Lagoon.
Orcutt's spineflower (<i>Chorizanthe orcuttiana</i>)	FE SE CRPR 1B.1	Annual herb. Blooms Mar-May. Sandy openings in chaparral, coastal sage scrub, and closed-cone coniferous forest. Elev 10-410 ft.	None. No suitable habitat present within BSA.

Species Name	Status	Habitat Description	Potential to Occur within BSA
long-spined spineflower (<i>Chorizanthe polygonoides</i> var. <i>longispina</i>)	CRPR 1B.2	Annual herb. Blooms Apr-Jul. Clay soils, vernal pools in chaparral, coastal sage scrub, meadows, seeps, and grassland. Elev 95-5,020 ft.	Low. This species was not observed within the limited suitable habitat present within the BSA.
summer-holly (<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>)	CRPR 1B.2	Evergreen shrub. Blooms Apr-Jun. Chaparral and cismontane woodland. Elev 95-2,595 ft.	None. This conspicuous shrub would have been observed if present.
San Diego sand aster (<i>Corethrogyne filaginifolia</i> var. <i>incana</i>)	CRPR 1B.1	Perennial herb. Blooms Jun-Sep. Coastal bluff scrub, chaparral, and coastal sage scrub. Elev 10-380 ft.	None. Species restricted to immediate coast. The BSA is outside the known range of this species.
Del Mar Mesa sand aster (<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>)	CRPR 1B.1	Perennial herb. Blooms May-Sep. Coastal bluff scrub, maritime chaparral, and coastal sage scrub. Elev 45-495 ft.	Low. This perennial species was not observed within the limited suitable habitat present within the BSA.
western dichondra (<i>Dichondra occidentalis</i>)**	CRPR 4.2	Perennial rhizomatous herb. Blooms Jan-Jul. Chaparral, cismontane woodland, coastal scrub, and grassland. Elev 150-1650 ft.	Low. This perennial species was not observed within the limited suitable habitat present within the BSA.
Orcutt's bird's-beak (<i>Dicranostegia orcuttiana</i>)	CRPR 2B.1	Hemiparasitic annual herb. Blooms Apr-Jun. Coastal sage scrub. Elev 30-1,150 ft.	None. The BSA is outside known range of species.
short-leaved dudleya (<i>Dudleya brevifolia</i>)	SE CRPR 1B.1	Perennial herb. Blooms Apr-May. Sandstone, openings in maritime chaparral, and coastal sage scrub. Elev 95-820 ft.	None. Suitable habitat is not present within the BSA.
sticky dudleya (<i>Dudleya viscida</i>)	CRPR 1B.2	Perennial herb. Blooms May-Jun. Rocky areas in coastal bluff scrub, chaparral, coastal scrub, and cismontane woodland. Elev 30-1,805 ft.	None. Suitable habitat is not present within the BSA.
coast wallflower (<i>Erysimum ammophilum</i>)	CRPR 1B.2	Perennial herb. Chaparral, coastal dunes, and coastal scrub. Elevation 0–250 ft.	Low. Suitable habitat is limited within the BSA. This species known from San Elijo Lagoon west of I-5 (AECOM 2010).

Species Name	Status	Habitat Description	Potential to Occur within BSA
cliff spurge (<i>Euphorbia misera</i>)	CRPR 2B.2	Shrub. Blooms Dec-Aug. Rocky areas in coastal bluff scrub, coastal sage scrub, and Mojavean desert scrub. Elev 30-1,640 ft.	None. This species restricted to immediate coast.
San Diego barrel cactus (<i>Ferocactus viridescens</i>)	CRPR 2B.1	Stem succulent. Blooms May-Jun. Chaparral, coastal sage scrub, grassland, and vernal pools. Elev 10-1,480 ft.	Low. Suitable habitat is limited within the BSA and this species would have been observed if present.
Palmer's grapplinghook (<i>Harpagonella palmeri</i>)	CRPR 4.2	Annual herb. Blooms Mar-May. Clay soils in chaparral, coastal sage scrub, grassland, and disturbed areas. Elev 65-3,135 ft.	Moderate. Suitable habitat is present within the BSA but this species was not observed during surveys. This species is known to occur in non-native grassland to the east of the BSA.
Orcutt's hazardia (<i>Hazardia orcuttii</i>)	ST CRPR 1B.1	Shrub. Blooms Aug-Oct. Often on clay soils within maritime chaparral and coastal sage scrub. Elev. 250-300 ft.	Low. Only known natural occurrence in the U.S. is at nearby Manchester Conservation Area. Suitable sandstone soils are not present in the BSA.
beach goldenaster (<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i>)	CRPR 1B.1	Perennial herb. Blooms Mar-Dec. Coastal dunes, chaparral, and coastal sage scrub. Elev 0-4,020 ft.	None. Suitable habitat very limited within the BSA and this species would have been observed if present.
graceful tarplant (<i>Holocarpha virgata</i> ssp. <i>elongata</i>)**	CRPR 4.2	Annual herb. Blooms May-Nov. Chaparral, cismontane woodland, coastal sage scrub, and grassland. Elev 195-3,610 ft.	Low. Suitable habitat limited within the BSA and this species would have been observed if present.
decumbent goldenbush (<i>Isocoma menziesii</i> var. <i>decumbens</i>)	CRPR 1B.2	Shrub. Blooms Apr-Nov. Sandy, often disturbed, areas in chaparral and coastal sage scrub. Elev 30-445 ft.	Low. Suitable habitat limited within the BSA and this species would have been observed if present.
San Diego marsh-elder (<i>Iva hayesiana</i>)	CRPR 2B.2	Perennial herb. Blooms Apr-Oct. Drainages, marshes, and playas. Elev 30-1,640 ft.	Present. Observed in low numbers in three areas along Escondido Creek.
southwestern spiny rush (<i>Juncus acutus</i> ssp. <i>leopoldii</i>)	CRPR 4.2	Perennial, rhizomatous herb. Blooms Mar-Jun. along drainages, alkali marsh, and seeps. Elev 10-2,955 ft.	Present. Observed as the dominant species in some alkali marsh areas and as scattered individuals upstream along Escondido Creek.

Species Name	Status	Habitat Description	Potential to Occur within BSA
Coulter's goldfields (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>)	CRPR 1B.1	Annual herb. Blooms Feb-Jun. Coastal salt marsh, playas, vernal pools. Elev 3-4,005 ft.	Moderate. Some areas of suitable habitat present; however, this species was not observed during surveys.
Robinson's pepper-grass (<i>Lepidium virginicum</i> var. <i>robinsonii</i>)	CRPR 4.3	Annual herb. Blooms Jan-Jul. Chaparral and coastal sage scrub. Elev 3-2,905 ft.	Low. Suitable habitat limited within the BSA.
sea dahlia (<i>Leptosyne maritima</i>)	CRPR 2B.2	Perennial herb. Blooms Mar-May. Coastal bluff scrub and coastal sage scrub. Elev 15-495 ft.	Low. Suitable habitat is very limited within the BSA.
California box-thorn (<i>Lycium californicum</i>)**	CRPR 4.2	Shrub. Blooms Dec-Aug. Coastal bluff scrub and coastal sage scrub. Elev 15-500 ft.	Low. Some areas of suitable habitat present; however, this species was not observed during surveys. Known from upland habitats San Elijo Lagoon south of the BSA (AECOM 2010).
coast woolly-heads (<i>Nemacaulis denudata</i> var. <i>denudata</i>)	CRPR 1B.2	Annual herb. Blooms Apr-Sep. Coastal dunes. Elev 0-330 ft.	None. Suitable habitat not present within the BSA. Species restricted to immediate coast.
spreading navarretia (<i>Navarretia fossalis</i>)	FT CRPR 1B.1	Annual herb. Blooms Apr-Jun. Shallow freshwater associated with marshes, playas, vernal pools, and chenopod scrub. Elev 95-2,150 ft.	None. Vernal pools present but outside known range of species.
short-lobed broomrape (<i>Orobanche parishii</i> ssp. <i>brachyloba</i>)	CRPR 4.2	Parasitic, perennial herb. Blooms Apr-Oct. Sandy soils associated with coastal bluff scrub, coastal dunes, and coastal sage scrub. Elev 10-1,000 ft.	Moderate. This species is parasitic on goldenbush (<i>Isocoma menziesii</i>) which is prevalent within the BSA; however, this species was not observed during surveys.
Torrey pine (<i>Pinus torreyana</i> ssp. <i>torreyana</i>)	CRPR 1B.2	Evergreen tree. Sandstone areas in chaparral and closed-cone coniferous forest. Elev 245-525 ft.	Present. One large tree is present along the edge of the BSA near Manchester Avenue.
Nuttall's scrub oak (<i>Quercus dumosa</i>)	CRPR 1B.1	Evergreen shrub. Blooms Feb-Apr. Sandy or clay loam soils associated with chaparral, coastal sage scrub, and closed-cone coniferous forest. Elev 45-1,315 ft.	None. This conspicuous shrub would have been observed if present.

Species Name	Status	Habitat Description	Potential to Occur within BSA
chaparral ragwort (<i>Senecio aphanactis</i>)	CRPR 2B.2	Annual herb. Blooms Jan-Apr. Chaparral, coastal sage scrub, and cismontane woodland. Elev 45-2,625 ft.	Low. Very limited suitable habitat present within the BSA.
purple stemodia (<i>Stemodia durantifolia</i>)	CRPR 2B.1	Perennial herb. Blooms Jan-Dec. Rocky, seasonally dry drainages in San Diego County. Elev 90-985 ft.	None. Suitable habitat not present within the BSA.
estuary seablite (<i>Suaeda esteroa</i>)	CRPR 1B.2	Perennial herb. Blooms May-Oct. Coastal salt marsh. Elev 0-20 ft.	Low. Suitable habitat is very limited within the BSA.

Special Status Plant Species Observed within the BSA

San Diego Marsh-Elder (Iva hayesiana)

San Diego marsh-elder is a CRPR 2B.2 species (moderately threatened in California but more common elsewhere). It is a perennial herb in the Asteraceae family that typically blooms from April to October. This species is found along ephemeral drainages, alkali marshes, and playas. San Diego marsh-elder is known from San Diego County and from Baja California, Mexico, at elevations between 30 and 1,640 feet amsl. This species is threatened by waterway channelization, coastal development, nonnative plant species, and vehicle activity (CNPS 2014).

San Diego marsh-elder was observed growing in three locations within the BSA; next to the Rancho Santa Fe bridge, south of El Camino Del Norte, and near the north end of the BSA along Lone Jack Road. A total of approximately 10 individuals of San Diego marsh-elder were observed within the BSA.

Southwestern Spiny Rush (Juncus acutus ssp. leopoldii)

Southwestern spiny rush is a CRPR 4.2 species (limited distribution and moderately threatened in California). It is a rhizomatous herb in the Juncaceae family that blooms from May to June. This species typically is found along ephemeral drainages, alkaline marshes and seeps, mesic areas of coastal dunes, and coastal salt marsh. Southwestern spiny rush is known from southern California in Imperial, Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, and Ventura counties; from Nevada, Arizona, and Georgia; and from Baja California, Mexico, as well as into South America. It is found at elevations between 10 and 2,955 feet amsl. This species is threatened by development and flood control activities (CNPS 2014).

Southwestern spiny rush was observed as the dominant species within in some alkali marsh and coastal salt marsh-high areas primarily in the southern portion of the BSA. This species also occurs in small clusters and as scattered individuals upstream along Escondido Creek. Several hundred individuals of southwestern spiny rush are present within the BSA.

Torrey Pine (*Pinus torreyana*)

Torrey pine is a CRPR 1B.2 species (moderately threatened in California and elsewhere) species.. This evergreen tree in the Pinaceae family is typically found on sandstone in chaparral and closed-cone coniferous forest. Torrey pine is known from San Diego and Santa Barbara counties at elevations between 245 and 525 feet amsl. This species is threatened by development and an infestation of five-spined engraver bark beetles at Torrey Pines State Reserve damaged trees, but biological control has contained the infestation (CNPS 2014).

A large Torrey pine was observed immediately adjacent to the BSA between Manchester Avenue and Encinitas Country Day school (Figure 3a). This individual was likely planted ornamentally.

No federally or state-listed plant species were observed during the 2013 surveys and none are expected.

3.6.2 SPECIAL STATUS WILDLIFE SPECIES

Prior to conducting field surveys, the potential for the BSA to support special status wildlife species was assessed based on the vegetation mapping, analysis of the CNDDDB, review of USFWS data, review of field data collected in preparation for the *Biological Resources Technical Report for the San Elijo Lagoon Restoration Project* (AECOM 2014), and knowledge of the habitat affinities and biogeography of special status wildlife in southern California.

Fifteen special status wildlife species were observed within or immediately adjacent to the BSA during 2013 surveys, including four state and/or federally listed threatened or endangered species; Belding’s savannah sparrow, coastal California gnatcatcher, least Bell’s vireo, and light-footed clapper rail. In addition, 11 other special status wildlife species were documented within the BSA including CDFW Species of Special Concern yellow warbler (*Dendroica petechia*), yellow breasted chat, (*Icteria virens*), northern harrier (*Circus cyaneus*), Clark’s marsh wren (*Cistothorus palustris clarkae*), summer tanager (*Piranga rubra*), and orange-throated whiptail (*Aspidoscelis hyperythra beldingi*); CDFW Fully Protected Species peregrine falcon (*Falco peregrinus*) and white-tailed kite (*Elanus leucurus*); the CDFW Watch List species Cooper’s hawk (*Accipiter cooperi*); and nesting colonies of the CDFW Special Animals great egret (*Ardea alba*) and great blue heron (*Ardea herodias*). An additional 35 special status wildlife species have some potential to occur within the BSA. The 50 special status wildlife species that were evaluated for their potential to occur within the BSA are listed in Table 8.

Table 8. Special Status Wildlife Species - Potential For Occurrence

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
Invertebrates				
sandy beach tiger beetle (<i>Cicindela hirticollis gravida</i>)	CDFW: Special Animals List	Coastal dune habitat with moist sand.	No	None. Suitable coastal dune habitat is not present within or adjacent to the BSA.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
western beach tiger beetle <i>(Cicindela latesignata latesignata)</i>	CDFW: Special Animals List	Coastal salt marshes and mud flats.	Yes	Moderate. Suitable coastal salt marsh habitat is present within or adjacent to the BSA.
senile tiger beetle <i>(Cicindela senilis frosti)</i>	CDFW: Special Animals List	Coastal salt marshes, tidal mud flats, and interior alkali mudflats	Yes	Moderate. Suitable coastal salt marsh habitat is present within or adjacent to the BSA.
monarch butterfly <i>(Danaus plexippus)</i>	CDFW: Special Animals List	Coastal sage scrub, non-native grassland, or disturbed habitat with larval host plants (<i>Asclepias</i> spp.)	Yes	Moderate. May occur as a result of larval host plants present in association with residential landscape.
wandering (=saltmarsh) skipper <i>(Panoquina errans)</i>	CDFW: Special Animals List	Restricted to estuarine and tideland habitats where adults are often associated with salt grass (<i>Distichlis spicata</i>).	Yes	High. Suitable habitat is present within the BSA. Thirteen individuals were observed west of the BSA in San Elijo Lagoon during surveys in July 2010 (AECOM 2014).
mimic tryonia (=California brackishwater snail) <i>(Tryonia imitator)</i>	CDFW: Special Animals List	Brackish and freshwater systems near the coast.	Yes	Moderate. Suitable habitat is present within the BSA.
Reptiles and Amphibians				
southwestern pond turtle <i>(Actinemys marmorata pallid)</i>	CDFW: Species of Special Concern	Associated with permanent water or nearly permanent water from sea level to 6,000 feet. Prefers habitats with basking sites such as floating mats of vegetation, partially submerged logs, rocks, or open mud banks.	Yes	Low. Some small areas of suitable habitat occur within the BSA. Closest documented location is at Lake Hodges approximately eight miles east (CDFW 2011).

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
silvery legless lizard (<i>Anniella pulchra pulchra</i>)	CDFW: Species of Special Concern	Loose soil in a number of vegetation communities including coastal dunes; chaparral; pine-oak woodland; and streamside growth of sycamores, cottonwoods, or oaks. Often associated with intermittent and permanent streams.	Yes	High. Suitable habitat is present and this species has been documented within San Elijo Lagoon (AECOM 2014).
orange-throated whiptail (<i>Aspidoscelis hyperythra beldingi</i>)	CDFW: Species of Special Concern	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub.	Yes	Present. This species was observed within the BSA during the 2013 field surveys.
coastal whiptail (<i>Aspidoscelis tigris stejnegeri</i>)	CDFW: Special Animals List	Variety of rocky, sandy, dry habitats including sage scrub, chaparral, woodlands on friable loose soil.	Yes	Moderate. Suitable habitat is present within the BSA.
rosy boa (<i>Charina trivirgata</i>)	CDFW: Special Animals List	A variety of habitats including coastal sage scrub, chaparral, grasslands, and agricultural fields. Rosy boas prefer areas with moderate to dense vegetation and rocky cover. They have been found under rocks, in boulder piles and along rock outcrops and vertical canyon walls (CDFW 1990).	Yes	Low. Limited suitable habitat is present within the BSA.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
red-diamond rattlesnake (<i>Crotalus ruber</i>)	CDFW: Species of Special Concern	Chaparral, coastal sage scrub, along creek banks, and in rock outcrops or piles of debris. Often associated with dense vegetation in rocky areas.	Yes	Moderate. Suitable habitat is present within the BSA.
San Diego coast horned lizard (<i>Phrynosoma blainvillii</i>)	CDFW: Species of Special Concern	A variety of habitats including sage scrub, chaparral, and coniferous and broadleaf woodlands. Found on sandy or friable soils with open scrub. Requires open areas, bushes, and fine loose soil.	Yes	High. Suitable habitat is present within the coastal sage scrub and adjacent disturbed habitats within the BSA.
Coronado skink (<i>Plestiodon skitonianus interparietalis</i>)	CDFW: Species of Special Concern	Most commonly found underneath bark and surface objects, especially rocks, where it lives in extensive burrows, occasional seen in open areas (Nafis 2013).	Yes	High. Suitable habitat is present within the BSA. Individuals were detected prior to 2002 south of the San Elijo Lagoon (AECOM 2014).
coast patch-nosed snake (<i>Salvadora hexalepis virgultea</i>)	CDFW: Species of Special Concern	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains at elevations from below sea level to around 7,000 ft (Nafis 2013).	Yes	Moderate. Suitable habitat present within the BSA. The closest documented location is at Del Dios Open Space Reserve approximately 9 miles to the northeast (AECOM 2014).

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
western spadefoot toad (<i>Spea hammondi</i>)	CDFW: Species of Special Concern	Temporary ponds, vernal pools, and backwaters of slow-flowing creeks. Also adjacent upland habitats such as grasslands and coastal sage scrub for burrowing.	Yes	Moderate. Suitable backwater ponds or slow moving water is present along Escondido Creek.
two-striped gartersnake (<i>Thamnophis hammondi</i>)	CDFW: Species of Special Concern	Aquatic habitats, preferably rocky streams with protected pools, cattle ponds, marshes, vernal pools, and other shallow bodies of water lacking large aquatic predators.	Yes	High. Suitable habitat occurs within the BSA and this species is likely present.
Birds				
Cooper's hawk (<i>Accipiter cooperi</i>)	CDFW: Watch List (nesting)	Usually in oak woodlands, but occasionally in willow or eucalyptus woodlands.	Yes	Present. This species was documented throughout the BSA during the 2013 field surveys and nesting is presumed.
sharp-shinned hawk (<i>Accipiter striatus</i>)	CDFW: Watch List	Widespread, but uncommon winter visitor to San Diego County. This species uses a variety of vegetation communities and land covers, typically with dense cover.	No	High. Suitable migratory and wintering habitat for the species occurs within the BSA. Evidence of this species breeding within San Diego County is minimal and it is unlikely that this species nests within the BSA .
tricolored blackbird (<i>Agelaius tricolor</i>)	USFWS: BCC CDFW: Species of Special Concern (nesting)	Freshwater marshes with cattails and other emergent vegetation.	No	Low. This species was not observed in suitable habitat within the BSA. No nesting colonies are known within the BSA (Unitt 2004).

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)	CDFW: Watch List	Grassy or rocky slopes with open scrub at elevations from sea level to 2,000 feet. Occurs mainly in coastal sage scrub.	Yes	Low. This species was not observed during 2013 field surveys, but small areas of low-quality habitat are present within the BSA.
grasshopper sparrow (<i>Ammodramus savannarum perpallidus</i>)	CDFW: Species of Special Concern (nesting)	Occurs in dry, well-drained native and non-native grasslands, especially those with a variety of grasses and tall forbs for foraging and nesting and scattered shrubs for singing perches.	Yes	Low. Breeding habitat limited within the BSA and last detected in the vicinity of San Elijo Lagoon in 1996 (AECOM 2014).
Bell's sage sparrow (<i>Amphispiza belli belli</i>)	USFWS: BCC CDFW: Watch List	Occurs mainly in coastal sage scrub and chaparral habitats.	No	Low. This species has been eliminated from most coastal areas and breeding has not been confirmed within the BSA (Unitt 2004).
great egret (<i>Ardea alba</i>)	CDFW: Special Animals List	Nests high in trees on a platform of sticks. Often in eucalyptus in San Diego County, but use Torrey pines and coast live oaks (Unitt 2004).	Yes	Present. A nesting colony of great egrets is present just east of the BSA in a tall eucalyptus tree south of Rancho Santa Fe Road.
great blue heron (<i>Ardea herodias</i>)	CDFW: Special Animals List	Builds stick nests in trees, often adding to them annually. Typically forage within 5 miles of their colonies (Unitt 2004).	Yes	Present. A nesting colony of great blue herons is present just east of the BSA in a tall eucalyptus tree south of Rancho Santa Fe Road near the great egret nesting colony.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
burrowing owl (<i>Athene cunicularia</i>)	USFWS: BCC CDFW: Species of Special Concern (nesting)	Found mainly in grassland and open scrub from the coast to foothills. Strongly associated with California ground squirrel (<i>Otospermophilus beecheyi</i>) and other fossorial mammal burrows.	No	Low. Suitable habitat not present within the BSA.
coastal cactus wren (<i>Campylorhynchus brunneicapillus</i>)	USFWS: BCCCDFW: Species of Special Concern	Coastal sage scrub with extensive stands of tall prickly pear (<i>Opuntia</i> sp.) or cholla cacti (<i>Cylindropuntia prolifera</i>).	No	Low. This species was not observed during 2013 field surveys and only limited low-quality habitat is present. Breeding has not been confirmed within the vicinity of the BSA (Unitt 2004).
western snowy plover (<i>Charadrius nivosus nivosus</i>)	USFWS: Threatened CDFW: Species of Special Concern	Nests on beaches, dunes, and salt flats in San Diego County. Outside the breeding season, this species is more widespread but not common along the coast.	No	Low. Suitable habitat is not present within the BSA, but USFWS Potentially Suitable Habitat is present immediately east of the BSA near the west end (Figure 6).
northern harrier (<i>Circus cyaneus</i>)	CDFW: Species of Special Concern (nesting)	Breeds predominantly in wetland habitats, but will also use upland habitats. Uses grasslands and agricultural fields during migration and in winter.	Yes	Present. Observed during field surveys. Suitable nesting and foraging habitat occurs throughout the BSA.
olive-sided flycatcher (<i>Contopus cooperi</i>)	USFWS: BCC CDFW: Watch List (nesting)	An uncommon summer resident of coniferous woodlands in San Diego County.	No	Present. Observed during field surveys in 2013, likely during migration. Habitat within BSA not suitable for nesting.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
white-tailed kite (<i>Elanus leucurus</i>)	CDFW: Fully Protected (nesting and wintering)	Wide spread over the coastal slope of San Diego County preferring riparian woodlands, oak groves, or sycamore groves, adjacent to grasslands.	Yes	Present. A pair of white-tailed kites was seen consistently within the BSA and probable nest site was observed. Suitable nesting and foraging habitat occurs throughout the BSA.
southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	USFWS: Endangered CDFW: Endangered (nesting)	Inhabits riparian forest and woodland with structural diversity, often with open water. Restricted to a few colonies throughout southern California.	Yes	Moderate (nesting). Willow flycatchers (<i>Empidonax traillii</i>) were observed during 2013 protocol surveys on May 20 and 21. These willow flycatchers were not seen on subsequent surveys and nesting was not observed. The observed willow flycatchers are believed to be little willow flycatcher (<i>Empidonax traillii brewsteri</i>) a more common northwestern subspecies of willow flycatcher that migrates through San Diego County, typically in mid May (Unitt 2004). In addition, southwestern willow flycatcher nesting has not been confirmed along Escondido Creek (Unitt 2004).
peregrine falcon (<i>Falco peregrinus</i>)	USFWS: BCC CDFW: Fully Protected (nesting)	Open areas from tundra, moorlands, steppe, and seacoasts to mountains and open forested regions, especially where there are suitable nesting cliffs.	No	Present (low nesting probability). This species was observed hunting over open water immediately east of the BSA in February 2013. This species is likely a migrant or wintering bird (Unitt 2004). Suitable nesting habitat is not present within the BSA.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
yellow-breasted chat (<i>Icteria virens</i>)	CDFW: Species of Special Concern (nesting)	Riparian woodland, with a dense undergrowth.	Yes	Present. Numerous singing males were documented within the BSA along Escondido Creek often in close proximity to yellow warblers.
least bittern (<i>Ixobrychus exilis</i>)	CDFW: Species of Special Concern (nesting)	Freshwater or brackish marshes with tall emergent vegetation.	Yes	Moderate. Least bitterns are historically known to nest in the vicinity of San Elijo Lagoon, but were last documented nesting in 1982 (AECOM 2014).
loggerhead shrike (<i>Lanius ludovicianus</i>)	USFWS: BCC CDFW: Species of Special Concern (nesting)	Resident bird in San Diego County within grassland, chaparral, desert, and desert edge scrub, particularly near dense vegetation used for nesting.	Yes	Moderate. Species is known to winter in the region (Unitt 2004) and suitable habitat is present. The species was last detected in the area of San Elijo Lagoon in 2002.
black rail (<i>Laterallus jameicensis</i>)	USFWS: BCC CDFW: Threatened	Found in southern California coastal marshes.	No	Low. Historically detected west of the BSA, west of I-5, but this species is now thought to be extirpated from San Diego County (Unitt 2004).
osprey (<i>Pandion haliaetus</i>)	CDFW: Watch List (nesting)	Primarily along rivers, lakes, reservoirs, and seacoasts, occurring widely in migration, often crossing land between bodies of water. Nests in dead snags, live trees, cliffs, utility poles, wooden platforms, channel buoys, chimneys, windmills, etc. Usually near or above	Yes	Present. This species was observed foraging over the open water areas of San Elijo Lagoon west and south of the BSA. Suitable nesting habitat is present in the BSA.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
Belding's savannah sparrow (<i>Passerculus sandwichensis beldingi</i>)	CDFW: Endangered	Year round resident of pickleweed dominated coastal salt marsh in southern California.	Yes	High. This species was documented nesting immediately adjacent to the BSA during 2013 focused surveys. Consistent breeding population well documented in San Elijo Lagoon.
summer tanager (<i>Piranga rubra</i>)	CDFW: Species of Special Concern (nesting)	Inhabits the Mojave Desert and riparian woodlands that contain dense cotton wood canopy, Winters in the coastal lowlands.	No	Present. This species was observed during 2013 field surveys. Breeding assumed based on late summer observation, but not confirmed. Known to winter within the BSA (Unitt 2004).
coastal California gnatcatcher (<i>Polioptila californica californica</i>)	USFWS: Threatened CDFW: Species of Special Concern	Diegan coastal sage scrub dominated by California sagebrush (<i>Artemisia californica</i>) and flat-topped buckwheat (<i>Eriogonum fasciculatum</i>) below 2,500 feet elevation in Riverside County and below 1,000 feet elevation along the coastal slope.	Yes	Present. Six pairs of coastal California gnatcatchers were documented within or immediately adjacent to the BSA during 2013 protocol surveys.
light-footed clapper rail (<i>Rallus longirostris levipes</i>)	USFWS:Endangered CDFW:Endangered, Fully Protected	Found in southern California in coastal salt marshes, especially those dominated by cordgrass. The Tijuana River estuary is an especially important site.	Yes	Present. This species was documented within the BSA during protocol surveys in 2013.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
yellow warbler (<i>Setophaga petechia</i>)	USFWS: BCC CDFW: Species of Special Concern (nesting)	A fairly common summer breeding resident found along mature riparian woodlands consisting of cottonwood, willow, alder, and ash trees. Restricted to this increasingly patchy habitat.	Yes	Present. Numerous pairs of yellow warbler were documented within the BSA along Escondido Creek.
california least tern (<i>Sternula antillarum browni</i>)	USFWS: Endangered CDFW: Endangered, Fully Protected (nesting)	A ground nesting bird that requires undisturbed stretches of beach and coastline. Adults are highly philopatric to natal colonies, and forage in bays and estuaries near their colonies.	No	Low. Suitable nesting habitat is not present within the BSA but is present in other areas of San Elijo Lagoon where the species nested historically (AECOM 2014).
least Bell's vireo (<i>Vireo bellii pusillus</i>)	USFWS: Endangered CDFW: Endangered (nesting)	Riparian woodland with understory of dense young willows or mulefat and willow canopy. Nests often placed along internal or external edges of riparian thickets.	Yes	Present. This species was documented nesting in dense willow trees just east of the BSA during 2013 protocol surveys.
yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	CDFW: Species of Special Concern (nesting)	Freshwater marshes with cattails and other emergent vegetation. Nests in deeply flooded freshwater marshes.	No	Low. This species was not observed during 2013 field surveys. Only one known nesting colony in San Diego County (at Tule Lake; Unitt 2004). This species may be a migrant or winter visitor to the BSA.
Mammals				
Dulzura California pocket mouse (<i>Chaetodipus californicus femoralis</i>)	CDFW: Species of Special Concern	Slopes covered with chaparral and live oaks.	No	Low. Suitable habitat is limited within the BSA. The species has a very limited distribution and is not expected within the BSA.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>)	CDFW: Species of Special Concern	Inhabits coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities.	Yes	Moderate. Limited suitable coastal sage scrub and grassland habitat for this species is present within the BSA. Historically recorded west of the BSA in San Elijo Lagoon.
mexican long-tongued bat (<i>Choeronycteris mexicana</i>)	CDFW: Species of Special Concern	In San Diego County, this bat species occurs primarily in urban areas. In Arizona and Mexico, the species is found in deep canyons and in the mountains, foraging in riparian, desert scrub, and pinyon- juniper habitats, in particular on Yucca sp.	Yes	Moderate. Suitable breeding and foraging habitat for this species is present within the BSA.
California (western) mastiff bat (<i>Eumops perotis californicus</i>)	CDFW: Species of Special Concern	Chaparral, live oaks, and arid, rocky regions. Requires downward-opening crevices.	Yes	High. Suitable breeding and foraging habitat is present within the BSA.
mountain lion (<i>Felis concolor</i>)	CDFW: Legally protected species	This wide-ranging species inhabits rugged mountains, forests, deserts, and swamps.	Yes	Moderate. Suitable breeding and foraging habitat for this species occurs within the riparian and upland portions of the BSA and its preferred prey, southern mule deer, is abundant within the BSA and adjacent habitat.
western red bat (<i>Lasiurus blossevillii</i>)	CDFW: Species of Special Concern	Feeds over grasslands, shrublands, open woodlands, forests, and croplands. Roosts primarily in trees and at times, shrubs, often in edge habitats along streams, fields, or urban areas.	Yes	High. Suitable habitat is present within the BSA and this species has been documented west of the BSA in San Elijo Lagoon.

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
San Diego black-tailed jackrabbit (<i>Lepus californicus</i>)	CDFW: Species of Special Concern	Typical habitats include early stages of chaparral, open coastal sage scrub, and grasslands near the edges of brush.	Yes	Moderate. Small areas of low-quality habitat are present within the BSA.
Yuma myotis (<i>Myotis yumanensis</i>)	CDFW: Special Animals List	Feeds over ponds, streams, and lakes; closely associated with water.	Yes	High. Suitable foraging habitat is present within and adjacent to the BSA.
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)	CDFW: Species of Special Concern	Common to abundant in Joshua tree, piñon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats.	Yes	Moderate. Small areas of suitable breeding and foraging habitat occurs within coastal sage scrub and chaparral habitat within the BSA.
pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	CDFW: Species of Special Concern	Rugged cliffs, rocky outcrops, and slopes in desert shrub and pine oak forests.	Yes	Low. Nearest CNDDDB record is from 1988 within urban habitat a mile north of the BSA (CDFW 2014).
southern mule deer (<i>Odocoileus hemionus fulginata</i>)	CDFW: Harvest species	Coniferous forests, desert scrub, chaparral, and grassland with shrubs.	Yes	Present. This species was seen consistently within the BSA in small herds.
southern grasshopper mouse (<i>Onychomys torridus ramona</i>)	CDFW: Species of Special Concern	Low open and semi-open scrub habitats, including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs.	Yes	Low. Last observed in the vicinity of San Elijo Lagoon south of the BSA in 1979 (AECOM 2014).

Species	Status	Habitat Description	Potential to Breed within BSA	Potential to Occur within BSA
pacific pocket mouse <i>(Perognathus longimembris pacificus)</i>	USFWS: Endangered CDFW: Species of Special Concern	Inhabits shrublands with firm, fine-grain, sandy substrates in the immediate vicinity of the ocean. These communities include coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.	Yes	Moderate. Potentially suitable breeding and foraging habit is present near the BSA (USFWS; Figure X). The nearest CNDDDB record is from 2002 approximately 0.5 mile northeast of the BSA (AECOM 2014).
American badger <i>(Taxidea taxus)</i>	CDFW: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	No	Low. Suitable habitat for this species is not present within the BSA.

3.6.2.1 Federal and State Listed Wildlife Species

Coastal California Gnatcatcher

The coastal California gnatcatcher (CAGN) is federally listed as threatened and is considered a California Species of Special Concern. CAGN is a year-round resident of southern California and is found in the six southernmost California counties located within the coastal plain (San Bernardino, Ventura, Los Angeles, Orange, San Diego, and Riverside).

The primary cause of this species' decline is conversion of coastal sage scrub vegetation to urban and agricultural uses. USFWS has estimated that coastal sage scrub habitat has been reduced by 70 to 90 percent of its historical extent (USFWS 1991). CAGN generally inhabits Diegan coastal sage scrub and Riversidian coastal sage scrub dominated by California sagebrush and flat-topped buckwheat, generally below 1,500 feet in elevation along the coastal slope. When nesting, this species typically avoids slopes greater than 25% with dense, tall vegetation. CAGN pairs will attempt several nests each year (average of four), each placed in a different location inside their breeding territory, but most nest attempts are unsuccessful due to depredation by a variety of species (Grishaver et al. 1998; Atwood and Bontrager 2001). Clutch size ranges from one to five eggs, with three or four eggs most common. CAGN will remain paired through the nonbreeding season and will often expand their home range when not breeding.

This species is particularly vulnerable to habitat destruction and fragmentation because of their low dispersal rate, reliance on a specific habitat type, and low breeding success. CAGN has been described as “an obligate resident of coastal sage scrub” (Atwood and Bontrager 2001), a vegetation community that is vulnerable to urban pressures. The destruction of coastal sage scrub by wildfire also has a detrimental effect on local CAGN populations.

Due to the presence of suitable habitat and USFWS-designated critical habitat (Figure 6) within the BSA, focused surveys were conducted on approximately 19 acres of suitable habitat within the BSA. Suitable habitat included Diegan coastal sage scrub, goldenbush scrub, and coastal brackish marsh/goldenbush scrub. During the 2013 surveys, six pairs of CAGN were observed in three discrete areas of the BSA (Figures 3a and 3b). Three of the pairs were seen with either one or two fledglings. Incidental sightings of CAGN were observed and mapped during other biological resource surveys within the BSA in 2012 and 2013.

Least Bell's Vireo

The least Bell's vireo (LBVI) is federally and state-listed as endangered. Historically, this species was a common summer visitor to riparian habitat throughout much of California. The species is now found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside Counties. LBVI is a migratory species and typically arrives in southern California in late March or early April and leaves for its wintering ground in September.

LBVI is restricted to riparian woodland and is most frequent in areas that include an understory of dense young willows or mulefat with a canopy of tall willows. LBVI build their nests in dense brush, typically willows, three to four feet above the ground (Salata 1984), so they require young successional riparian habitat or older habitat with a dense understory. Because of this, riparian plant succession is an important factor in maintaining LBVI habitat. Nests are also often placed along edges of riparian thickets (Unitt 2004) approximately three feet above the ground.

LBVI's decline has been attributed primarily to habitat loss, degradation, and fragmentation combined with brood/nest parasitism by the brown-headed cowbird (*Molothrus ater*). Significant effort has been focused on preserving, enhancing, and creating suitable nesting habitat for the species, and extensive cowbird control programs have helped LBVI populations rebound along several of its breeding drainages in southern California (USFWS 2006).

In 2013, protocol surveys for LBVI were conducted during the breeding season within approximately 36 acres of suitable riparian scrub habitat within the BSA. One LBVI pair was observed outside the BSA to the east near the north end of the alignment (Figure 3d). There is dense riparian scrub in this area where Escondido Creek turns sharply from the east to south.

Light-Footed Clapper Rail

The light-footed clapper rail (LFCR) is federally and state-listed as endangered. Historically, this species occurred along the coast of southern California from Carpinteria Marsh in Santa Barbara County south to San Quintín, Baja California, Mexico (Grinnell and Miller 1944). LFCR is a permanent resident of coastal salt marsh that is crossed by tidal sloughs, usually in areas that support cordgrass (*Spartina foliosa*) and pickleweed (*Sarcocornia* spp.) (Grinnell and Miller 1944).

LFCR have also been observed to nest in freshwater marsh characterized by cattails (*Typha* sp.) and bulrush (*Scirpus* sp.) at Buena Vista, Agua Hedionda, Batiquitos, San Elijo, and San Dieguito Lagoons in San Diego County (Zemba et al 2010); and in spiny rush (*Juncus acutus* ssp. *leopoldi*) at Naval Air Station (NAS) Point Mugu.

LFCR forage primarily on crustaceans, but will also feed on mollusks, small fish, aquatic insects, grasshoppers, small vertebrates, and in some cases, seeds (Eddleman and Conway 1998). LFCR populations have declined in the United States due to destruction and degradation of coastal salt marsh habitat. The statewide LFCR population in 2012 was reported to be 520 pairs in 20 marshes (Zemba and Hoffman 2012), and represents the highest count since the statewide census began in 1980. The 2012 total was 18 % higher than the 2011 count, and 17% higher than the prior all time high count in 2007. Fifty-one percent of these pairs were found in two coastal salt marsh complexes at Upper Newport Bay and the Tijuana Marsh National Wildlife Refuge (NWR). Seven other marshes at NAS Point Mugu, Batiquitos Lagoon, San Dieguito Lagoon and River, San Elijo Lagoon, Seal Beach NWR, and Kendall-Frost Marsh in Mission Bay, had 73 pairs, collectively representing an additional 40% of the state total (Konecny 2013).

LFCR habitat was identified within the BSA from San Elijo Lagoon at I-5, upstream to Rancho Santa Fe Road (Konecny 2013). Appropriate southern coastal salt marsh and brackish marsh habitat is present within the BSA south of Mira Costa College. Pockets of freshwater marsh habitat are present north of Mira Costa College to Rancho Santa Fe Road, with a particularly lush area at the Ford Wildlife Preserve. No habitat was identified in the BSA north of Rancho Santa Fe Road to El Camino De Norte, or in the spurs perpendicular to the main alignment.

Two pair of LFCR and one solitary advertising male were detected in the survey area in 2013 (Figures 3a and 3b). One pair was detected passively dueting approximately 230-feet (71-meters) downstream of the levee on the north side of San Elijo Lagoon on the morning of April 9th. This pair was found on four additional surveys and a second pair responded to a call prompt approximately 850-feet (262-meters) downstream of the first pair. Both pairs were heard simultaneously on subsequent surveys.

The solitary male LFCR was heard kekking in the Ford Wildlife Preserve. Single males tend to be highly nomadic and it is likely that this individual ranged widely in this area. In April and May 2014, protocol surveys for LFCR where the single male was kekking were conducted as part of the OTS Emergency Manhole Repair project. The surveys were negative and it is likely that this individual male has moved to higher quality habitat downstream.

Belding's Savannah Sparrow

Belding's savannah sparrow (BSSP) is state listed as endangered and is one of a few species of birds that reside year-round in the coastal salt marshes of southern California. This subspecies of savannah sparrow is a salt marsh endemic, ranging historically from Goleta in Santa Barbara County, California on the north, south to el Rosario, Baja California, Mexico (Grinnell and Miller 1944, and Van Rossen 1947). Over 75% of the coastal wetland habitats within this range have been lost or highly degraded (Wiley and Zemba 1989) and the remainder suffer from the effects of increasing human populations. The greatly reduced habitat base, increasing human impacts in

the remnants, and small population sizes led to the listing of this songbird by the State of California in 1974.

BSSP typically inhabit areas that support dense pickleweed, particularly *Sarcocornia pacifica*, within which most nests are found. Breeding territories can be very small and they nest semi-colonially or locally concentrated within a larger block of habitat, all of which may appear generally suitable. Populations can be difficult to count accurately since they are secretive and forage throughout a marsh, often well away from nesting sites (Bradley 1973, Massey 1979). Only half the nesting population may be manifesting territorial behavior near nests at any given time (Massey 1979).

Three BSSP territories were documented within the BSA along the eastern boundary and at least six additional territories were documented within 250 feet of the BSA (Figure XX). The presence of BSSP in this area of San Elijo Lagoon has been well documented over the years by Zembal and Hoffman during statewide censuses in 1986, 2002, 2006, and 2010.

Southwestern Willow Flycatcher

SWFL is state and federally listed as endangered. This subspecies of the willow flycatcher is one of southern California's rarest birds, restricted to riparian forest and woodland (Unitt 2004). The breeding range of the southwestern willow flycatcher includes southern California, Arizona, New Mexico, southwestern Colorado, and extreme southern portions of Nevada and Utah.

Subspecies of willow flycatcher are very similar in appearance and can be differentiated using specialized equipment (for example, an electronic colorimeter) to identify subtle differences in color and morphology (Unitt 1987). The southwestern willow flycatcher generally is paler than other willow flycatcher subspecies (Sogge, et. al 2010). Additionally, breeding locale can be used to help differentiate subspecies. In San Diego County, SWFL is confirmed only when evidence of breeding is observed (Unitt 2004).

Despite the subtle level of differences, the taxonomic status of *E. t. extimus* has been critically reviewed and confirmed multiple times based on morphological, genetic, and song data (Hubbard, 1987; Unitt, 1987; Paxton, 2000; Sedgwick, 2001).

One willow flycatcher (WIFL) individual was observed within the BSA on May 20, 2013 and a presumably different willow flycatcher was observed directly adjacent the survey area on May 21 (Figure 3c and 3d). These individuals were not observed again during subsequent surveys and it is assumed that these birds were migrating through the survey area. Little willow flycatcher (*Empidonax traillii brewsteri*), a more common northwestern subspecies of WIFL, migrates through San Diego County, typically in mid-May (Unitt 2004). Given that the observed WIFL individuals did not remain within the survey area and because the vocalizations resembled those of the northwestern subspecies, it is likely that the birds observed within the survey area were little willow flycatchers and not SWFL. In San Diego County, SWFL is confirmed only when evidence of breeding is observed (Unitt 2004).

3.6.3 CRITICAL HABITAT

The Endangered Species Act defines critical habitat as a specific geographic area, or areas, that contain features essential for the survival and recovery of endangered and threatened species. Critical habitat is designated by USFWS for endangered and threatened species and may include sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Critical habitat may also include areas that are not currently occupied by the species, but that will be needed for its recovery. Special management of critical habitat, including measures for water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types is required to ensure the long-term survival and recovery of the identified species.

Approximately 156.48 acres of USFWS designated critical habitat for CAGN is present within the BSA (Figure 6). Critical habitat for this species is also present immediately adjacent both sides of the BSA.

Critical habitat for the federally and state listed endangered plant San Diego thornmint (*Acanthomintha illicifolia*) and federally listed threatened (and CDFW SSC) western snowy plover (*Charadrius nivosus nivosus*) is not present within the BSA, but has been designated approximately 1,000 feet west and 75 feet east of the BSA, respectively. Critical habitat for LBVI, LFCR, and SWFL is not present within or near adjacent the BSA.

3.7 NCCP PRESERVATION AREAS

Two regional planning documents cover the Project area; the draft North County Multiple Species Conservation Program (MSCP; County of San Diego 2009) and the North County North County Multiple Habitat Conservation Program (MHCP; AMEC et al. 2003). The portions of the Project area owned by the County of San Diego are within the draft North County MSCP. The portions within the City of Encinitas are within the MHCP. The North County MSCP would expand the County MSCP into the northwestern unincorporated areas of San Diego County. The MHCP would similarly expand the conservation to incorporated cities within the northern portion of the County. The programmatic document for the MHCP has been finalized; however, the City of Encinitas does not have an implementing agreement under the program so is not yet a participant or have 'take authority' under the program.

Implementation of the two NCCPs covering the Project area is not complete; however, information about the plans and Project conformance with each is included herein for reference.

3.8 WILDLIFE CORRIDORS

A wildlife corridor can be defined as a link of wildlife habitat, usually consisting of native vegetation that joins two or more larger areas of similar wildlife habitat. Corridors are critical for the maintenance of ecological processes including allowing for the movement of animals and the continuation of viable populations. Corridors enable migration, colonization and interbreeding of plants and animals. Corridors can consist of large, linear stretches of connected habitat (such as riparian vegetation) or as a sequence of stepping-stones across the landscape (discontinuous

areas of habitat such as wetlands and ornamental vegetation), or corridors can be larger habitat areas with known or likely importance to local fauna.

Regional corridors are defined as those linking two or more large patches of habitat, and local corridors are defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by urban development. A viable wildlife migration corridor consists of more than an unobstructed path between habitat areas. Appropriate vegetation communities must be present to provide food and cover for both transient species and resident populations of less mobile animals. There must also be a sufficient lack of stressors and threats within and adjacent to the corridor for species to use it successfully.

San Elijo Lagoon is a large preserve encompassing a variety of habitats, but is not a corridor that links preserves/habitat areas. The portion of the BSA within Escondido Creek, however, serves as part of the larger regional corridor linking San Elijo Lagoon to large expanses of preserved open space to the north at Elfin Forest and around Lake Hodges. This is an important connection between Lagoon habitats and inland preserves, allowing for wildlife movement and genetic exchange.

4 IMPACT ANALYSIS

This section describes the proposed Project's potential to impact sensitive biological resources during construction as well as during operation and maintenance of the proposed OTS Project. Project construction and operations would occur in compliance with all state and federal laws, regulations, and permit conditions.

Direct impacts were quantified by overlaying the Project footprint on the biological resources maps (Figures 3a-3d). Direct impacts include actions that result in removal or disturbance of sensitive habitat; incidental take of special status species; and degradation of habitats due to construction-related activities.

Indirect impacts include short-term impacts that may occur during construction, such as sediment or other discharges that could impact water quality; noise impacts; lighting impacts; increase in human activity during construction; and project operations.

Cumulative impacts refer to incremental individual environmental effects of two or more projects when considered together. Such impacts taken individually may be minor, but are collectively significant in light of regional impacts.

The following thresholds of significance have been used to determine whether Project implementation would result in a significant direct, indirect, and/or cumulative impact. These thresholds are based on Appendix G of the state CEQA Guidelines (CCR Title 14, Division 6, Chapter 3, Sections 15000–15387). A significant biological resources impact would occur if the Project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- Have a substantial adverse effect on federal protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any state-protected jurisdictional areas not subject to regulation under Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance;
- Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or state habitat conservation plan; or
- Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

4.1 CONSTRUCTION IMPACTS

Potential impacts that could result from construction-related activities are described in this section.

4.1.1 VEGETATION COMMUNITIES AND LAND USES

The Project has been designed to avoid sensitive vegetation communities to the maximum extent practicable. Where avoidance is not possible, impacts would be considered significant.

4.1.1.1 Wetland Vegetation Communities / Jurisdictional Waters and Wetlands

Based on discussions with the USACE and CDFW, jurisdictional limits are based on Project vegetation mapping. Areas within the BSA that are mapped as wetland vegetation communities are considered state and federal jurisdictional wetlands. Wetland vegetation communities, wetland buffer areas, and non-wetland waters of the U.S. are considered sensitive.

Eight jurisdictional wetland communities would be directly impacted from construction of the Project. No jurisdictional non-wetland 'waters of the US' would be impacted. Impacts are outlined in Table 9, below. In total, anticipated Project impacts on sensitive wetland vegetation communities would be approximately 3.47 acres. Impacts on jurisdictional wetlands are considered significant.

Table 9. Potential Direct Project Impacts on Jurisdictional Wetlands.

Habitat Description (Map Code)	Impact Area (Acre)
Alkali Marsh (AM)	2.10
Disturbed Alkali Marsh (AM-D)	0.17
Coastal Brackish Marsh (CBM)	0.19
Freshwater Marsh/Alkali Marsh (FWM/AM)	0.06
Coastal Salt Marsh – High (CSM-H)	0.03
Coastal Salt Marsh - High/Goldenbush Scrub (CSM-H/GBS)	0.21
Mulefat Scrub/Southern Willow Scrub (MFS/SWS)	0.09
Southern Willow Scrub (SWS)	0.63
Total	3.47

Note: The following jurisdictional wetland communities and waters occur within the BSA; however, no Project impacts are proposed within these areas: 1) coastal salt marsh-mid (CSM-M); 2) freshwater marsh; 3) mulefat scrub/freshwater marsh (MFS/FWM); 4) open water (OW); 5) southern willow scrub/freshwater marsh (SWS/FWM); 6) southern willow riparian forest (SWRF).

The Project would entail extensive demolition, earthwork, and facilities construction activities with the potential to generate dust and noise that could result in indirect impacts on wetland vegetation communities. Ground disturbance during construction also has the potential to result in accelerated erosion. However, the Project will incorporate measures to address and reduce these types of impacts, as follows:

- Project contractors will be required to implement standard dust control measures, and with these in place, and given the temporary nature of dust-generating activities, construction dust is not expected to result in significant impacts on biological resources.
- Contractors will also be required to implement reasonable and feasible noise control measures. Depending on construction timing, preconstruction surveys for protected species, including nesting birds, will be required.
- The Project will require a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the City of Encinitas’ Jurisdictional Urban Runoff Management Program (JURMP; 2008), which will include measures to control erosion during and following construction. With the SWPPP in place, significant impacts associated with accelerated erosion of disturbed ground are not expected.

Construction activities in native habitats have the potential to result in spread of invasive species. Once introduced, these species often compete with natives for resources and result in a reduction in growth, future dispersal, and recruitment of native species. This results in a long-term degradation of the vegetation community. Due to this, potential indirect Project impacts due to invasive species introduction are considered significant. Measures to avoid invasives dispersal have been incorporated into the Project (e.g., cleaning equipment prior to work and between

sites, etc.). Such measures shall also be included Project mitigation in order to ensure implementation.

Compliance with State and Federal Wetland Regulations

Under federal and state wetland regulations, impacts are allowed only when a project has minimized and avoided impacts to the maximum extent practicable. When avoidance is not possible, mitigation is required.

Early in the process, the City began discussions with staff of the San Elijo Lagoon Conservancy, the resource agencies (ACOE, CDFW, USWFS, RWQCB, and Coastal Commission), and the County of San Diego (collectively known as the Regulatory Working Group) to develop an approach that minimizes impacts on Lagoon and Creek resources.

The City's design team began the process by conducting an inventory of the resources in and adjacent the Project alignment. This included:

- Developing new detailed mapping showing the vegetation communities within the BSA and evaluating the suitability of habitat to support special status plant and wildlife species; and
- Conducting a literature review and a search of regulatory databases for information on locations where special status plants and wildlife have been documented in the past.

The City was also fortunate to obtain extensive data on Lagoon and Creek resources developed by the San Elijo Lagoon Conservancy in support of the planned project to restore tidal exchange in the Lagoon (San Elijo Lagoon Restoration Project; see www.sanelijo.org/restoration%20 for more information).

Through dialogue with the Regulatory Working Group, several conservation priorities were identified. One of the primary priorities was to minimize impacts on marsh and riparian habitats, and to avoid use of paved roadways to the maximum extent practicable.

Using existing biological information and detailed vegetation mapping of the OTS alignment, the engineering team worked with Project biologists to plan the Project while avoiding sensitive wetland habitats and other high priority biological resources to the maximum extent practicable. This included use of access spurs in some areas, relocation of a portion of the line, and avoiding paving (and other impermeable surfaces) within sensitive habitats wherever possible. When feasible, access points were sited in existing disturbed areas (e.g., adjacent roadways, etc.). As such, the Project complies with wetland regulations that require avoidance and minimization of impacts on wetlands and jurisdictional waters to the maximum extent practicable.

For unavoidable impacts, permits from state and federal agencies would be required and appropriate mitigation would be needed to offset any losses. The City has been in early consultation with the resources agencies regarding permitting, and appropriate mitigation will be planned for unavoidable impacts in consultation with the agencies (see Section 5).

4.1.1.2 Upland Vegetation Communities and Land Uses

Nine upland vegetation communities/land uses would be directly impacted from construction of the Project. Impacts on sensitive upland vegetation communities would be considered significant. These include 0.20 acre of Diegan coastal sage scrub; 0.30 acre of goldenbush scrub (a Diegan coastal sage scrub habitat subtype); and 0.50 acre of non-native grassland. In total, anticipated Project impacts on sensitive upland vegetation communities would be 1.00 acre (Table 10).

As described in Section 4.1.1.1, the project would entail extensive demolition, earthwork, and facilities construction activities with the potential to generate dust and noise that could result in indirect impacts on upland vegetation communities. Ground disturbance during construction also has the potential to result in accelerated erosion. However, the Project will incorporate dust and noise control measures, and be implemented in conformance with a project-specific SWPPP to address and reduce these types of impacts.

Table 10. Potential project impacts on upland vegetation communities and land uses.

Vegetation Community/Land Use (Map Code)	Impact (Acres)
Agriculture (A)	0.00
Developed (DEV)	2.46
Developed/Ornamental (DEV/ORN)	0.06
<i>Diegan Coastal Sage Scrub (DCSS)</i>	<i>0.11</i>
<i>Disturbed Diegan Coastal Sage Scrub (DCSS-D)</i>	<i>0.09</i>
Eucalyptus Trees (EUC)	0.24
<i>Goldenbush Scrub (GBS; DCSS subtype)</i>	<i>0.30</i>
<i>Non-Native Grassland (NNG)</i>	<i>0.50</i>
Ornamental (ORN)	0.07
Ruderal (RUD)	0.24
Total	3.96

Note: *Italics* denote vegetation communities considered rare or sensitive by resource agencies.

Construction activities in native upland habitats have the potential to result in spread of invasive species. Once introduced, these species often compete with native plant species for resources and result in a reduction in growth, future dispersal, and recruitment of native species. This can result in a long-term degradation of the vegetation community. Due to this, potential indirect Project impacts due to invasive species introduction are considered significant. Measures to avoid invasives dispersal have been incorporated into the Project (e.g., cleaning equipment prior to work and between sites, etc.). Such measures shall also be included Project mitigation in order to ensure implementation.

4.1.2 SPECIAL-STATUS WILDLIFE

Fifteen special status species were documented within or immediately adjacent the BSA. Project construction in or near occupied habitat of these species could result in significant biological impacts.

Belding's Savannah Sparrow

BSSP is a state listed endangered species. During 2013 focused species surveys, three BSSP territories were documented along the boundary of the BSA at San Elijo Lagoon and at least six additional territories were documented within 250 feet of the BSA (Figure 3a). BSSP occurs only at the southwesterly end of the Project area. The presence of BSSP in this area of San Elijo Lagoon has been well documented over the years by Zembal and Hoffman during statewide censuses in 1986, 2002, 2006, and 2010.

In this portion of the alignment, most of the OTS is within Manchester Avenue and outside BSSP habitat. However, a small area of coastal salt marsh and coastal salt marsh/goldenbush scrub (0.23 acre) habitat is present where the OTS transitions from the Lagoon to Manchester Avenue and may be temporarily affected by the proposed project. Additionally, Project construction noise may have the potential to adversely impact the species.

These impacts are potentially significant and consultation with the CDFW is required.

Coastal California Gnatcatcher

CAGN is federally listed as threatened and is considered a California Species of Special Concern. During 2013 USFWS protocol surveys, six pairs of CAGN were observed in three separate areas of the BSA. Three of the pairs were seen with either one or two fledglings. Incidental sightings of CAGN were observed and mapped during other biological resource surveys within the BSA in 2012 and 2013. These observations were within the larger patches of the Diegan coastal sage scrub within the BSA; only the small, isolated patches of suitable habitat near Manchester Drive were not occupied. As such, nearly all Diegan coastal sage scrub habitat within the Project impact area (0.20 acres) is considered CAGN occupied habitat. Impacts on Diegan coastal sage scrub are considered potentially significant impacts on CAGN. Additionally, Project construction noise has the potential to adversely impact the species.

Such impacts are potentially significant and consultation with the USFWS is required.

Least Bell's Vireo

LBVI is federally and state-listed as endangered. During 2013 USFWS protocol surveys, one pair of LBVI was observed outside the BSA to the east near the north end of the alignment (Figure 3d). There is dense riparian scrub in this area where Escondido Creek turns sharply from the east to south.

Based on its occurrence outside the BSA over 500-feet from the Project, LBVI would not be directly impacted by the project. However, impacts on the species habitat, riparian scrub and forest, would be significant and would require mitigation as outlined above and in Section 5. Additionally, Project construction noise has a minor potential to adversely impact the species.

Such impacts are potentially significant and consultation with the USFWS and CDFW is required.

Light-Footed Clapper Rail

LFCR is a federally listed endangered species. Two pairs of light-footed clapper rails and one single advertising male were detected within the BSA during 2013 USFWS protocol surveys. Two LFCR pairs were observed in San Elijo Lagoon coastal marsh habitat at the western end of the Project area, south of Manchester Avenue. A solitary male was observed upstream within freshwater marsh adjacent to alkali marsh habitat approximately 1,000 feet south of Rancho Santa Fe Road. The Project impact area would occur within approximately 150-feet of the Lagoon occurrences, and approximately 270-feet of the solitary male occurrence. In addition, there are also 2009 reports of LFCR occurrences approximately 250 feet and approximately 600 feet, respectively, of the Project impact area near where OTS meets Manchester Avenue.

The proposed Project impact area would not be in the immediate area where LFCR pairs were observed. LFCR has very high nest site fidelity; therefore areas with previously documented nests were taken into account during Project planning. The westerly LFCR occurrences were in the lagoon whereas the Project alignment in this area will be within Manchester Avenue. However, all suitable habitat in this area is considered potentially occupied, and impacts on habitat are considered potentially significant impacts on the species. Additionally, Project construction noise has the potential to adversely impact the species. Such impacts are potentially significant and consultation with the USFWS and CDFW is required.

In April and May 2014, protocol surveys for LFCR where the solitary male was documented were conducted as part of the OTS Emergency Manhole Repair project. The surveys were negative and it is likely the male has moved to higher quality habitat downstream. Therefore impacts in this area of the alignment were not considered direct impacts on LFCR habitat.

Southwestern Willow Flycatcher

SWFL is state and federally listed as endangered. This subspecies of the willow flycatcher was not confirmed within the 500-foot buffer area along the OTS alignment. In San Diego County, SWFL is confirmed only when evidence of breeding is observed (Unitt 2004).

Therefore, the suitable SWFL habitat was determined to be unoccupied during 2013 USFWS protocol surveys. As such, no impacts on the species would occur with Project implementation.

Other Special Status Wildlife Species

In addition to the four state and/or federally listed threatened or endangered species documented within the BSA, 11 other special status wildlife species and three special status plant species were observed within or immediately adjacent to the BSA during 2013 surveys and others have a moderate or high potential to occur (Table 8). Table 11 shows the non-listed special status species (in alphabetical order) within the BSA.

Table 11. Non-listed special status species within the BSA.

Wildlife Species	Status
Cooper's hawk (<i>Accipiter cooperi</i>)	CDFW Watch List (nesting)
great egret (<i>Ardea alba</i>)	CDFW Special Animal (nesting colony)

Wildlife Species	Status
great blue heron (<i>Ardea herodias</i>)	CDFW Special Animal (nesting colony)
Wildlife Species	Status
orange-throated whiptail (<i>Aspidoscelis hyperythra beldingi</i>)	CDFW Species of Special Concern
northern harrier (<i>Circus cyaneus</i>)	CDFW Species of Special Concern (nesting)
Clark's marsh wren (<i>Cistothorus palustris clarkae</i>)	CDFW Species of Special Concern
yellow warbler (<i>Dendroica petechia</i>)	CDFW Species of Special Concern (nesting)
white-tailed kite (<i>Elanus leucurus</i>)	CDFW Fully Protected Species (nesting)
peregrine falcon (<i>Falco peregrinus</i>)	CDFW Fully Protected Species (nesting)
yellow breasted chat (<i>Icteria virens</i>)	CDFW Species of Special Concern (nesting)
summer tanager (<i>Piranga rubra</i>)	CDFW Species of Special Concern (nesting)

No direct impacts on these species are anticipated with the implementation of the Project. The Project would have a very limited construction footprint that occurs within a substantial expanse of protected habitat offering abundant breeding and foraging opportunities. Direct impacts on bird species will be avoided through avoiding trimming or clearing suitable habitat for these species during the nesting bird season (see Section 5). Suitable habitat for these species is abundant within the BSA and adjacent areas in San Elijo Lagoon and impacts on them would not be considered significant.

Two special-status bats – California mastiff bat and western red bat – are also likely to be present and may also breed in the BSA. However, no roosting sites such as large trees or street overpasses would be impacted for the proposed Project, so no impacts on special status bats are anticipated.

4.1.3 SPECIAL-STATUS PLANTS

Southwestern spiny rush and San Diego marsh elder were observed within BSA.

Southwestern Spiny Rush (*Juncus acutus ssp. leopoldii*)

Southwestern spiny rush is a CRPR 4.2 species (limited distribution and moderately threatened in California). Southwestern spiny rush was observed as the dominant species within in some alkali marsh and coastal salt marsh-high areas, primarily in the southern portion of the BSA. This species also occurs in small clusters and as scattered individuals upstream along Escondido Creek. Several hundred individuals of southwestern spiny rush are present within the BSA.

Approximately 10 individuals would be impacted with implementation of the proposed Project. Impacts on southwestern spiny rush would be adverse, but less than significant based on the low number impacted and its status as a CRPR 4.2 species. Additionally, the species will be included in the Project revegetation so will be replaced.

San Diego Marsh-Elder (*Iva hayesiana*)

San Diego marsh-elder is a CRPR 2B.2 species (moderately threatened in California but more common elsewhere). San Diego marsh-elder was observed in three locations within the BSA; next to the Rancho Santa Fe bridge, south of El Camino Del Norte, and near the north end of the BSA along Lone Jack Road.

Approximately eight individuals would be impacted with implementation of the proposed Project. Impacts on the San Diego marsh-elder would be adverse, but less than significant based on the low number impacted and its status as a CRPR 2B.2 species. Additionally, the species will be included in the Project revegetation palette so will be replaced.

4.1.4 NESTING BIRDS

The proposed Project areas have a potential to support nests that would be protected under the Migratory Bird Treaty Act and/or the California Fish and Game Code (§3503) under which it is unlawful to “take, possess, or needlessly destroy” avian nests or eggs. Thus potential impacts could occur if vegetation clearing is undertaken during the breeding season.

4.1.5 WILDLIFE CORRIDORS

As described in Section 3, San Elijo Lagoon does not serve as a constrained wildlife corridor but as a larger area of conserved habitat. Escondido Creek, however, links San Elijo Lagoon with other open space habitat in the Elfin Forest and Lake Hodges to the northeast and serves as an important regional wildlife corridor.

The Project could result in temporary, minor short-term impacts to wildlife movement in a small portion of the Creek during construction. However, construction would be relatively brief and would occur in only a small portion of the corridor. Construction would occur during daytime hours only due to residential noise restrictions, thus allowing unfettered corridor usage by wildlife during the more active evening and overnight hours. Also, with construction restricted to daylight hours, no night lighting or night noise impacts would occur.

No long-term impacts are anticipated. Most of the access path would be planted with low-growing native species, creating a continuously vegetated viewshed corridor. No obstacles would be placed in the corridor, and the Project would not preclude wildlife movement. Therefore, no significant or substantially adverse short or long-term impacts to wildlife movement/connectivity are anticipated with Project implementation.

4.1.6 LOCAL BIOLOGICAL REGULATIONS / NCCP

The City of Encinitas General Plan includes several goals related to biological protection. Project conformance with these goals is detailed in the Project Environmental Impact Report (EIR). Many of the plan goals relate to impact avoidance and minimization. The City has performed early due diligence and worked to minimize Project impacts on biological resources to the maximum extent practicable, so the Project conforms to General Plan avoidance and minimization goals. The goals also include avoidance of drainage alterations or channelization, and the Project avoids such impacts.

Regional NCCP plans and subarea plans that will apply to the area are still in the planning stage; however a discussion of the documents is included here for informational purposes. The portions of the Lagoon owned by the County of San Diego are within the North County MSCP. Portions of the BSA are within conservation areas referred to as the Preserve Area and Pre-Approved Mitigation Area under the draft North County MSCP.

NCCP regulations allow for utility maintenance within NCCP planning areas and NCCP preserves. Impacts in these areas must be avoided and minimized; where impacts are unavoidable, mitigation is required. Extensive planning and early consultation was undertaken by the City in order to minimize Project impacts on sensitive biological resources. Mitigation will be coordinated and implemented in consultation with state and federal resource agencies. As such, the project is consistent with the goals and objectives of both the MHCP and draft North County MSCP. Therefore, no significant or substantially adverse impact related to NCCP implementation would result with Project implementation.

4.3 CUMULATIVE IMPACTS

The Project would result in impacts on wetlands and upland habitats. These impacts are adverse, however, they would be fully mitigated through creation of similar habitats in close proximity to the Project area. The San Elijo Lagoon Conservancy proposes a major restoration of the lagoon within the next several years. However, this project will result in an overall improvement of the lagoon and would not result in a significant cumulative impact in combination with the proposed Project.

Because the Project is maintenance of an existing sewer line, it would not result in growth-inducing effects. A small portion of the line will be moved into Lone Jack Road and increased in capacity to accommodate existing use; however, the size and capacity of the bulk of the line would be maintained. The Project would only allow for proper maintenance of the line to avoid sewer spills and maintain existing service. As such, the Project would not promote additional development or contribute to future habitat losses. The Project would not result in significant adverse cumulative impacts.

5 MITIGATION

The proposed Project has been designed to avoid sensitive habitat and species to the maximum extent practicable while still achieving Project objectives. Where avoidance of sensitive habitat or special status species is not possible, or where sensitive habitat areas exist adjacent to proposed Project work areas, mitigation will be required.

5.1 CONSTRUCTION IMPACT MITIGATION

5.1.1 VEGETATION COMMUNITIES MITIGATION

Project impacts to sensitive habitats must be mitigated. Though the City is not yet a local NCCP participant, local participating jurisdictions' mitigation requirements and previous agency mitigation requirements have been used as a guideline to identify potential Project mitigation obligations.

5.1.1.1 Wetland Vegetation Communities / Jurisdictional Waters and Wetlands

Project impacts on wetland communities are significant and will be permitted and mitigated in consultation with the state and federal agencies. Specific mitigation ratios will be determined with permits and depend on agency evaluation of current resource functions and values.

Wetland creation would be required at a minimum 1:1 ratio (3.47 acres) to meet 'no net loss' requirements under federal regulations. The remainder of the mitigation could likely be provided in the form of preservation, restoration and enhancement of existing wetlands.

Specific methods and locations for project wetlands mitigation will be determined with regulating agencies as well as local stakeholders. Opportunities for wetland creation and enhancement exist within the Lagoon area. The San Elijo Lagoon Conservancy is in the process of permitting a large Lagoon restoration project, so teaming in that effort to provide additional wetlands creation and enhancement could create a synergistic benefit for Lagoon improvement. Additionally, much of the Lagoon and Creek is preserved but requires maintenance such as invasive plant removal. This work would allow for Project mitigation while also achieving land management goals of existing preserves.

Additionally, one of the City of Encinitas' goals outlined in its General Plan (Goal 10.4) is to "develop a program to acquire or preserve the entire undeveloped riparian corridor within the City that drains into the San Elijo Lagoon and Batiquitos Lagoon." There are several parcels in the Project area that are not yet preserved, so acquisition and conservation of these parcels could achieve both Project mitigation requirements as well as City General Plan conservation goals.

5.1.1.2 Upland Vegetation Communities

Several upland vegetation communities would be directly impacted from construction of the Project and would require mitigation. These include 0.20 acre of Diegan coastal sage scrub; 0.30 acre of goldenbush scrub (a Diegan coastal sage scrub habitat subtype); and 0.50 acre of non-native grassland. In total, anticipated Project impacts on sensitive upland vegetation communities would be 1.00 acre.

The Project will require permitting under ESA and CESA due to the presence of special-status species within these areas (see Section 5.1.2). As such, mitigation for upland vegetation communities will be established in consultation with the USFWS and CDFW. It is anticipated that at least 0.95 acres of Diegan coastal sage scrub will be preserved through land acquisition and conservation or through payment into a local mitigation bank. In addition, disturbed Diegan coastal sage scrub and/or non-native grassland could be restored or enhanced to improve habitat quality. With these commitments in place, the Project will provide adequate mitigation for all impacted upland habitats.

5.1.2 SPECIAL-STATUS WILDLIFE MITIGATION

Potential impacts on the coastal California gnatcatcher, light-footed clapper rail, and Belding's savannah sparrow could occur with implementation of the proposed Project.

Coastal California Gnatcatcher

Approximately 0.30 acres of CAGN occupied habitat would be impacted through Project implementation. Impacts on this habitat are considered potentially significant species impacts. Additionally, Project construction noise has the potential to adversely impact the species. Such impacts are considered significant and consultation with the USFWS is required.

Species specific mitigation will be determined in consultation with USFWS and will likely include habitat mitigation as outlined in Section 5.1, as well as construction timing restrictions to avoid noise impacts on CAGN.

Light-Footed Clapper Rail

Approximately 0.08 acres of LFCR occupied habitat would be impacted through Project implementation. Impacts on this habitat are considered potentially significant species impacts. Additionally, Project construction noise has the potential to adversely impact the species. Such impacts are considered significant and consultation with the USFWS and CDFW is required.

Species specific mitigation will be determined in consultation with USFWS and CDFW and will likely include habitat mitigation as outlined in Section 5.1, as well as construction timing restrictions to avoid noise impacts on the species.

Belding's Savannah Sparrow

Though most of the occupied BSSP habitat in the Project area occurs near Manchester Avenue where OTS is within the roadway, a small area of occupied and adjacent suitable habitat (approximately 0.23 acre) would be impacted by the Project. Additionally, Project construction noise has the potential to adversely impact the species.

These impacts are potentially significant and consultation with the CDFW is required. Species specific mitigation will be determined in consultation with CDFW and will likely include habitat mitigation as outlined in Section 5.1, as well as construction timing restrictions to avoid noise impacts on BSSP.

Least Bell's Vireo

Approximately 0.72 acres of LBVI occupied habitat would be impacted through Project implementation. Impacts on this habitat are considered potentially significant species impacts. Additionally, Project construction noise has the potential to adversely impact the species. Such impacts are considered significant and consultation with the USFWS is required.

Species specific mitigation will be determined in consultation with USFWS and will likely include habitat mitigation as outlined in Section 5.1, as well as construction timing restrictions to avoid noise impacts on LBVI.

5.1.3 NESTING BIRD MITIGATION

To avoid direct impacts to raptors and/or native/migratory birds, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, a qualified biologist shall conduct a pre-

construction survey to determine the presence or absence of nesting birds in the proposed area of disturbance. The pre-construction (precon) survey shall be conducted within three calendar days prior to the start of construction activities (including removal of vegetation). If nesting birds are observed, a letter report or mitigation plan in conformance with applicable State and Federal Law (i.e. appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the CDFW and/or USFWS as applicable for review and approval and implemented to the satisfaction of those agencies. The City's biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction. If nesting birds are not detected during the precon survey, no further mitigation is required.



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Appendix A

List of Vascular Plant Species
Observed within the Biological Study Area

Family	Scientific Name	Common Name	Status
Adoxaceae	<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue Elderberry	
Agavaceae	<i>Hesperoyucca whipplei</i>	Chaparral Candle	
Agavaceae	<i>Yucca schidigera</i>	Mohave Yucca	
Aizoaceae	* <i>Carpobrotus chilensis</i>	Sea-fig	
Aizoaceae	* <i>Carpobrotus edulis</i>	Hottentot-Fig	
Aizoaceae	* <i>Malephora crocea</i> var. <i>crocea</i>	Crocea Iceplant	
Aizoaceae	* <i>Mesembryanthemum crystallinum</i>	Crystalline Iceplant	
Aizoaceae	* <i>Mesembryanthemum nodiflorum</i>	Slender-Leaf Iceplant	
Aizoaceae	* <i>Tetragonia tetragonioides</i>	New Zealand-Spinach	
Alliaceae	<i>Allium praecox</i>	Early Onion	
Amaranthaceae	<i>Amaranthus albus</i>	White Tumbleweed	
Anacardiaceae	<i>Malosma laurina</i>	Laurel Sumac	
Anacardiaceae	<i>Rhus integrifolia</i>	Lemonadeberry	
Anacardiaceae	* <i>Schinus molle</i>	Peruvian Pepper Tree	
Anacardiaceae	* <i>Schinus terebinthifolius</i>	Brazilian Pepper Tree	
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Western Poison-Oak	
Apiaceae	* <i>Apium graveolens</i>	Common Celery	
Apiaceae	* <i>Conium maculatum</i>	Common Poison Hemlock	
Apiaceae	<i>Daucus pusillus</i>	Rattlesnake Weed	
Apiaceae	* <i>Foeniculum vulgare</i>	Sweet Fennel	
Arecaceae	* <i>Phoenix canariensis</i>	Canary Island Date Palm	
Arecaceae	* <i>Washingtonia robusta</i>	Mexican Fan Palm	
Asparagaceae	* <i>Asparagus asparagoides</i>	Florist's-Smilax	
Asteraceae	<i>Ambrosia psilostachya</i>	Western Ragweed	
Asteraceae	<i>Artemisia californica</i>	Coastal Sagebrush	
Asteraceae	<i>Artemisia douglasiana</i>	Douglas Mugwort	
Asteraceae	<i>Artemisia dracunculus</i>	Tarragon	
Asteraceae	<i>Baccharis pilularis</i>	Coyote Brush	
Asteraceae	<i>Baccharis salicifolia</i>	Mule-Fat, Seep-Willow	
Asteraceae	<i>Baccharis sarothroides</i>	Broom Baccharis	
Asteraceae	<i>Baccharis vanessae</i>	Encinitas Baccharis	
Asteraceae	<i>Bidens pilosa</i>	Common Beggar's Tick	
Asteraceae	* <i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>	Italian Thistle	
Asteraceae	* <i>Centaurea melitensis</i>	Tocalote	
Asteraceae	<i>Corethrogyne filaginifolia</i> var. <i>filaginifolia</i>	Sand-Aster	
Asteraceae	* <i>Cotula australis</i>	Australian Brass-Buttons	
Asteraceae	<i>Deinandra fasciculata</i>	Fascicled Tarweed	
Asteraceae	<i>Encelia californica</i>	California Encelia	
Asteraceae	<i>Erigeron canadensis</i>	Horseweed	
Asteraceae	<i>Eriophyllum confertiflorum</i> var. <i>confertiflorum</i>	Long-Stem Golden-Yarrow	
Asteraceae	<i>Euthamia occidentalis</i>	Western Goldenrod	
Asteraceae	* <i>Glebionis coronaria</i>	Garland/Crown Daisy	
Asteraceae	<i>Hazardia squarrosa</i> var. <i>grindelioides</i>	Southern Sawtooth Goldenbush	
Asteraceae	* <i>Hedypnois cretica</i>	Crete Hedypnois	

Asteraceae	<i>*Helminthotheca echioides</i>	Bristly Ox-Tongue	
Asteraceae	<i>Heterotheca grandiflora</i>	Telegraph Weed	
Asteraceae	<i>*Hypochaeris glabra</i>	Smooth Cat's Ear	
Asteraceae	<i>Isocoma menziesii</i> var. <i>menziesii</i>	Spreading Goldenbush	
Asteraceae	<i>Iva hayesiana</i>	San Diego Marsh-Elder	CRPR 2B.2
Asteraceae	<i>Jaumea carnosa</i>	Salty Susan	
Asteraceae	<i>*Lactuca serriola</i>	Prickly Lettuce	
Asteraceae	<i>Lasthenia gracilis</i>	Common Goldfields	
Asteraceae	<i>*Logfia gallica</i>	Narrow-Leaf Cottonrose	
Asteraceae	<i>Pluchea odorata</i> var. <i>odorata</i>	Salt Marsh Fleabane	
Asteraceae	<i>Pseudognaphalium biolettii</i>	Bicolor Cudweed	
Asteraceae	<i>*Silybum marianum</i>	Milk Thistle	
Asteraceae	<i>*Sonchus asper</i> ssp. <i>asper</i>	Prickly Sow-Thistle	
Asteraceae	<i>*Sonchus oleraceus</i>	Common Sow-Thistle	
Asteraceae	<i>Stephanomeria diegensis</i>	San Diego Wreath-Plant	
Asteraceae	<i>Stylocline gnaphaloides</i>	Everlasting Nest-Straw	
Asteraceae	<i>Uropappus lindleyi</i>	Silver Puffs	
Asteraceae	<i>Xanthium strumarium</i>	Cocklebur	
Bataceae	<i>Batis maritima</i>	Saltwort	
Boraginaceae	<i>Amsinckia menziesii</i>	Rigid Fiddleneck	
Boraginaceae	<i>Cryptantha intermedia</i> var. <i>intermedia</i>	Nievitans Cryptantha	
Boraginaceae	<i>*Echium candicans</i>	Pride of Madeira	
Boraginaceae	<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Salt Heliotrope	
Boraginaceae	<i>Pectocarya linearis</i> ssp. <i>ferocula</i>	Slender Pectocarya	
Brassicaceae	<i>*Brassica nigra</i>	Black Mustard	
Brassicaceae	<i>*Hirschfeldia incana</i>	Short-Pod Mustard	
Brassicaceae	<i>*Lepidium latifolium</i>	Broad-Leaf Peppergrass	
Brassicaceae	<i>*Raphanus sativus</i>	Wild Radish	
Brassicaceae	<i>Rorippa nasturtium-aquaticum</i>	Water-cress	
Cactaceae	<i>Cylindropuntia prolifera</i>	Coast Cholla	
Cactaceae	<i>Opuntia littoralis</i>	Coast Prickly-Pear	
Caryophyllaceae	<i>*Polycarpon tetraphyllum</i> ssp. <i>tetraphyllum</i>	Four-Leaf Allseed	
Caryophyllaceae	<i>*Silene gallica</i>	Common Catchfly	
Caryophyllaceae	<i>*Spergularia bocconi</i>	Boccone's Sand-Spurry	
Chenopodiaceae	<i>Atriplex prostrata</i>	Spearscale	
Chenopodiaceae	<i>Atriplex semibaccata</i>	Australian Saltbush	
Chenopodiaceae	<i>*Chenopodium album</i>	Lamb's Quarters	
Chenopodiaceae	<i>*Chenopodium murale</i>	Nettle-Leaf Goosefoot	
Chenopodiaceae	<i>*Salsola tragus</i>	Prickly Russian-Thistle, Tumbleweed	
Chenopodiaceae	<i>Sarcocornia pacifica</i>	Pacific Pickleweed	
Cleomaceae	<i>Peritoma arborea</i> var. <i>arborea</i>	Coast Bladderpod	
Convolvulaceae	<i>Cressa truxillensis</i>	Alkali Weed	
Convolvulaceae	<i>Cuscuta californica</i> var. <i>californica</i>	Chaparral Dodder	
Convolvulaceae	<i>Cuscuta salina</i> var. <i>major</i>	Saltmarsh Dodder	

Crassulaceae	<i>Dudleya pulverulenta</i>	Chalk Dudleya	
Cyperaceae	<i>Bolboschoenus maritimus</i> ssp. <i>paludosus</i>	Prairie Bulrush	
Cyperaceae	<i>Cyperus eragrostis</i>	Tall Flatsedge	
Cyperaceae	<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	Viscid Bulrush	
Cyperaceae	<i>Schoenoplectus americanus</i>	Olney's Bulrush	
Cyperaceae	<i>Schoenoplectus californicus</i>	California Bulrush	
Euphorbiaceae	* <i>Chamaesyce maculata</i>	Spotted Spurge	
Euphorbiaceae	<i>Croton setigerus</i>	Doveweed	
Euphorbiaceae	* <i>Ricinus communis</i>	Castor Bean	
Fabaceae	* <i>Acacia cyclops</i>	Cyclops Acacia	
Fabaceae	* <i>Acacia longifolia</i>	Sydney Golden Wattle	
Fabaceae	<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish-Clover	
Fabaceae	<i>Acmispon glaber</i> var. <i>glaber</i>	Coastal Deerweed	
Fabaceae	<i>Acmispon strigosus</i>	Strigose Lotus	
Fabaceae	<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Ocean Locoweed	
Fabaceae	<i>Lupinus bicolor</i>	Miniature Lupine	
Fabaceae	* <i>Medicago polymorpha</i>	California Burclover	
Fabaceae	* <i>Melilotus albus</i>	White Sweetclover	
Frankeniaceae	<i>Frankenia salina</i>	Alkali-Heath	
Geraniaceae	* <i>Erodium botrys</i>	Long-Beak Filaree	
Geraniaceae	* <i>Erodium cicutarium</i>	Red-Stem Filaree	
Geraniaceae	* <i>Erodium moschatum</i>	White-Stem Filaree	
Juncaceae	<i>Juncus acutus</i> ssp. <i>leopoldii</i>	Southwestern Spiny Rush	CRPR 4.2
Juncaceae	<i>Juncus arcticus</i> var. <i>mexicanus</i>	Mexican rush	
Lamiaceae	* <i>Marrubium vulgare</i>	Horehound	
Lamiaceae	<i>Salvia apiana</i>	White Sage	
Lamiaceae	<i>Salvia columbariae</i>	Chia	
Lamiaceae	<i>Salvia mellifera</i>	Black Sage	
Lamiaceae	<i>Stachys ajugoides</i>	Ajuga Hedge-Nettle	
Malvaceae	* <i>Malva parviflora</i>	Cheeseweed	
Malvaceae	<i>Malvella leprosa</i>	Alkali Mallow	
Myrsinaceae	* <i>Anagallis arvensis</i>	Scarlet Pimpernel, Poor Man's Weatherglass	
Myrtaceae	* <i>Callistemon viminalis</i>	Weeping Bottlebrush	
Myrtaceae	* <i>Chamelaucium uncinatum</i>	Geraldton Wax	
Myrtaceae	* <i>Eucalyptus camaldulensis</i>	River Red Gum	
Myrtaceae	* <i>Eucalyptus globulus</i>	Blue Gum	
Nyctaginaceae	<i>Mirabilis laevis</i> var. <i>crassifolia</i>	Wishbone Bush	
Oleaceae	* <i>Olea europaea</i>	Olive	
Onagraceae	<i>Camissoniopsis bistorta</i>	California Sun Cup	
Onagraceae	<i>Oenothera elata</i> ssp. <i>hirsutissima</i>	Hairy Evening-Primrose	
Oxalidaceae	* <i>Oxalis pes-caprae</i>	Sourgrass	
Phrymaceae	<i>Mimulus aurantiacus</i> var. <i>puniceus</i>	Monkey-flower Bush	
Pinaceae	<i>Pinus torreyana</i> var. <i>torreyana</i>	Torrey Pine	CRPR 1B.2
Plantaginaceae	<i>Plantago erecta</i>	Dot-Seed Plantain	

Plantaginaceae	<i>*Plantago major</i>	English Plantago	
Plantaginaceae	<i>*Veronica anagallis-aquatica</i>	Water Speedwell	
Platanaceae	<i>Platanus racemosa</i>	Sycamore	
Plumbaginaceae	<i>*Limonium perezii</i>	Perez's Marsh-Rosemary	
Poaceae	<i>*Arundo donax</i>	Arundo	
Poaceae	<i>*Avena barbata</i>	Slender Wild Oat	
Poaceae	<i>*Avena fatua</i>	Wild Oat	
Poaceae	<i>*Bromus diandrus</i>	Ripgut Grass	
Poaceae	<i>*Bromus hordeaceus</i>	Soft Chess	
Poaceae	<i>*Bromus rubens</i>	Foxtail Chess, Red Brome	
Poaceae	<i>*Cortaderia selloana</i>	Selloa Pampas Grass	
Poaceae	<i>*Cynodon dactylon</i>	Bermuda Grass	
Poaceae	<i>Distichlis spicata</i>	Saltgrass	
Poaceae	<i>*Ehrharta erecta</i>	Panic Veldt Grass	
Poaceae	<i>*Hordeum murinum ssp. leporinum</i>	Hare Barley	
Poaceae	<i>*Lolium multiflorum</i>	Italian Ryegrass	
Poaceae	<i>*Pennisetum setaceum</i>	African Fountain Grass	
Poaceae	<i>*Polypogon monspeliensis</i>	Annual Beard Grass	
Poaceae	<i>*Vulpia myuros</i>	Rat-tail Fescue	
Polemoniaceae	<i>Navarretia hamata ssp. hamata</i>	Hooked Skunkweed	
Polygonaceae	<i>Eriogonum fasciculatum var. fasciculatum</i>	Coast California Buckwheat	
Polygonaceae	<i>*Rumex crispus</i>	Curly Dock	
Polygonaceae	<i>Rumex salicifolius</i>	Willow Dock	
Primulaceae	<i>Samolus parviflorus</i>	Water-Pimpernel	
Rosaceae	<i>Rosa californica</i>	California Rose	
Rubiaceae	<i>Galium aparine</i>	Common Bedstraw, Goose Grass	
Salicaceae	<i>Populus fremontii ssp. fremontii</i>	Western Cottonwood	
Salicaceae	<i>Salix gooddingii</i>	Goodding's Black Willow	
Salicaceae	<i>Salix laevigata</i>	Red Willow	
Salicaceae	<i>Salix lasiolepis</i>	Arroyo Willow	
Saururaceae	<i>Anemopsis californica</i>	Yerba Mansa	
Scrophulariaceae	<i>*Myoporum laetum</i>	Ngaio, Mousehole Tree	
Solanaceae	<i>Datura wrightii</i>	Western Jimson Weed	
Solanaceae	<i>Lycium californicum</i>	California Desert Thorn	
Solanaceae	<i>*Nicotiana glauca</i>	Tree Tobacco	
Tamaricaceae	<i>*Tamarix ramosissima</i>	Saltcedar	
Themidaceae	<i>Dichelostemma capitatum ssp. capitatum</i>	Blue Dicks, School Bells	
Tropaeolaceae	<i>*Tropaeolum majus</i>	Garden Nasturtium	
Typhaceae	<i>Typha domingensis</i>	Southern Cattail	
Typhaceae	<i>Typha latifolia</i>	Broad-Leaf Cattail	
Urticaceae	<i>Urtica dioica ssp. holosericea</i>	Stinging Nettle	
Vitaceae	<i>Vitis girdiana</i>	Southern California Wild Grape	

Appendix B

List of Wildlife Species Observed within the Project Study Area

Common Name	Scientific Name	Status
REPTILES AND AMPHIBIANS		
Bullfrog	<i>Rana catesbeiana</i>	
Orange-throated whiptail	<i>Aspidooscelis hyperythya beldingi</i>	CDFW: SSC
Pacific treefrog	<i>Pseudacris regilla</i>	
Side-blotched lizard	<i>Uta stansburiana</i>	
Western fence lizard	<i>Sceloporus occidentalis</i>	
BIRDS		
Allen's hummingbird	<i>Selasphorus sasin</i>	
American avocet	<i>Recurvirostra americana</i>	
American crow	<i>Corvus brachyrhynchos</i>	
American coot	<i>Fulica americana</i>	
American goldfinch	<i>Spinus tristis</i>	
American kestrel	<i>Falco sparverius</i>	
American white pelican	<i>Pelecanus erythrorhynchos</i>	
American wigeon	<i>Anas americana</i>	
American robin	<i>Turdus migratorius</i>	
Anna's hummingbird	<i>Calypte anna</i>	
ash-throated flycatcher	<i>Myiarchus cinerascens</i>	
barn owl	<i>Tyto alba</i>	
barn swallow	<i>Hirundo rustica</i>	
Belding's savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	
Bewick's wren	<i>Thryomanes bewickii</i>	
black phoebe	<i>Sayornis nigricans</i>	
black-crowned night heron	<i>Nycticorax nycticorax</i>	
black-headed grosbeak	<i>Pheucticus melanocephalus</i>	
black-necked stilt	<i>Himantopus mexicanus</i>	
black-throated gray warbler	<i>Setophaga nigrescens</i>	
blue-gray gnatcatcher	<i>Polioptila caerulea</i>	
blue grosbeak	<i>Passerina caerulea</i>	
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	
brown thrasher	<i>Toxostoma rufum</i>	
brown-headed cowbird*	<i>Molothrus ater</i>	
Bullock's oriole	<i>Icterus bullockii</i>	
bushtit	<i>Psaltiriparus minimus</i>	
California gnatcatcher	<i>Polioptila californica c.</i>	USFWS: T
California quail	<i>Callipepla californica</i>	
Caspian tern	<i>Hydroprogne caspia</i>	
California thrasher	<i>Toxostoma redivivum</i>	
California towhee	<i>Melospiza crissalis</i>	
Cassin's kingbird	<i>Tyrannus vociferans</i>	
Cassin's vireo	<i>Vireo cassinii</i>	
cedar waxwing	<i>Bombycilla cedrorum</i>	
cinnamon teal	<i>Anas cyanoptera</i>	
cliff swallow	<i>Petrochelidon pyrrhonota</i>	
double-crested cormorant	<i>Phalacrocorax auritus</i>	
common raven	<i>Corvus corax</i>	

common yellowthroat	<i>Geothlypis trichas</i>	
Cooper's hawk	<i>Accipiter cooperii</i>	CDFW: Watch List (nesting)
downy woodpecker	<i>Picoides pubescens</i>	
Eurasian collared dove*	<i>Streptopelia decaocto</i>	
European starling*	<i>Sturnus vulgaris</i>	
gadwall	<i>Anas strepera</i>	
great blue heron	<i>Ardea herodias</i>	
great egret	<i>Ardea alba</i>	
greater yellowlegs	<i>Tringa melanoleuca</i>	
great-tailed grackle	<i>Quiscalus mexicanus</i>	
green heron	<i>Butorides virescens</i>	
green-winged teal	<i>Anas crecca</i>	
hermit warbler	<i>Dendroica occidentalis</i>	
hooded oriole	<i>Icterus cucullatus</i>	
house finch	<i>Carpodacus mexicanus</i>	
house wren	<i>Troglodytes aedon</i>	
Hutton's vireo	<i>Vireo huttoni</i>	
Killdeer	<i>Charadrius vociferus</i>	
Lazuli bunting	<i>Passerina amoena</i>	
least sandpiper	<i>Calidris minutilla</i>	
long-billed dowitcher	<i>Limnodromus scolopaceus</i>	
least Bell's vireo	<i>Vireo bellii pusillus</i>	USFWS: Endangered CDFW: Endangered (nesting)
lesser goldfinch	<i>Spinus psaltria</i>	
mallard	<i>Anas platyrhynchos</i>	
marsh wren	<i>Cistothorus palustris clarkae</i>	CDFW: SSC
merlin	<i>Falco columbarius</i>	
mountain chickadee	<i>Poecile gambeli</i>	
mourning dove	<i>Zenaida macroura</i>	
Nashville warbler	<i>Vermivora ruficapilla</i>	
northern harrier	<i>Circus cyaneus</i>	CDFW: SSC
northern flicker	<i>Colaptes auratus</i>	
northern mockingbird	<i>Mimus polyglottos</i>	
northern pintail	<i>Anas acuta</i>	
northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	
northern shoveler	<i>Anas clypeata</i>	
nutmeg mannikin*	<i>Lonchura punctulata</i>	
Nuttall's woodpecker	<i>Picoides nuttallii</i>	
olive-sided flycatcher (migrant)	<i>Contopus cooperi</i>	USFWS: BCC CDFW: Watch List (nesting)
orange-crowned warbler	<i>Oreothlypis celata</i>	
osprey	<i>Pandion haliaetus</i>	
Pacific-slope flycatcher	<i>Empidonax difficilis</i>	
peregrine falcon	<i>Falco peregrinus</i>	CDFW: Fully Protected (nesting and wintering)

pied-billed grebe	<i>Podilymbus podiceps</i>	
phainopepla	<i>Phainopepla nitens</i>	
plumbeous vireo	<i>Vireo plumbeous</i>	
red-shouldered hawk	<i>Buteo lineatus</i>	
red-tailed hawk	<i>Buteo jamaicensis</i>	
red-winged blackbird	<i>Agelaius phoeniceus</i>	
rock pigeon*	<i>Columba livia</i>	
Say's phoebe	<i>Sayornis saya</i>	
snowy egret	<i>Egretta thula</i>	
song sparrow	<i>Melospiza melodia</i>	
spotted towhee	<i>Pipilo maculatus</i>	
sharp-shinned hawk	<i>Accipiter striatus</i>	
summer tanager	<i>Piranga rubra</i>	
Swainson's thrush	<i>Catharus ustulatus</i>	
snowy egret	<i>Egretta thula</i>	
Townsend's warbler	<i>Setophaga townsendi</i>	
Virginia rail	<i>Rallus limicola</i>	
violet-green swallow	<i>Tachycineta thalassina</i>	
warbling vireo	<i>Vireo gilvus</i>	
western gull	<i>Larus occidentalis</i>	
western bluebird	<i>Sialia mexicana</i>	
western kingbird	<i>Tyrannus verticalis</i>	
western sandpiper	<i>Calidris mauri</i>	
western scrub-jay	<i>Aphelocoma californica</i>	
western tanager	<i>Piranga ludoviciana</i>	
western wood pewee	<i>Contopus sordidulus</i>	
white-crowned sparrow	<i>Zonotrichia leucophrys</i>	
white-faced ibis	<i>Plegadis chihi</i>	
white-throated swift	<i>Aeronautes saxatalis</i>	
white-tailed kite	<i>Elanus leucurus</i>	CDFW: Fully Protected (nesting and wintering)
willow flycatcher	<i>Empidonax traillii</i>	
Wilson's warbler	<i>Cardellina pusilla</i>	
wrentit	<i>Chamaea fasciata</i>	
yellow warbler	<i>Setophaga petechia</i>	CDFW: SSC
yellow-breasted chat	<i>Icteria virens</i>	CDFW: SSC
yellow-rumped warbler	<i>Setophaga coronata</i>	
MAMMALS		
Audubon's Cottontail	<i>Sylvilagus audubonii</i>	
Bobcat (scat)	<i>Felis rufus</i>	
Botta's Pocket Gopher	<i>Thomomys bottae</i>	
California Ground Squirrel	<i>Spermophilus beecheyi</i>	
Coyote (scat)	<i>Canis latrans</i>	
Southern Mule Deer	<i>Odocoileus hemionus fuliginata</i>	
Raccoon	<i>Procyon lotor</i>	

Appendix C

45-Day Report for Coastal California Gnatcatcher Survey at the Olivenhain Trunk
Sewer Project in Encinitas, CA

ROCKS BIOLOGICAL CONSULTING

October 24, 2013

U.S. Fish and Wildlife Service
Attn: Susie Tharratt
Carlsbad Fish and Wildlife Office
2177 Salk Ave. Ste. 250
Carlsbad, CA 92008

Subject: 45-Day Report for Coastal California Gnatcatcher Survey at the Olivenhain Trunk Sewer Project in Encinitas, CA

Dear Ms. Tharratt:

This letter presents the 45-Day Report for the Coastal California Gnatcatcher (*Poliioptila californica californica*; CAGN) protocol surveys conducted for the Olivenhain Trunk Sewer project in the City of Encinitas, CA. (Figure 1). The Coastal California Gnatcatcher was observed at three areas along the sewer alignment.

The surveys described in this report were performed on behalf of Infrastructure Engineering Corporation (IEC), which was awarded a design contract by the Encinitas City Council for sewer improvements along the Olivenhain Trunk Sewer. These improvements will include either rehabilitation or complete replacement of all of the manholes (54) along the City of Encinitas' Olivenhain Trunk Sewer line that was constructed nearly 40 years ago. Additionally, in order to maintain the facility and keep the line in good working condition, access to the line must be improved and the upstream portion of the trunk sewer must be upsized from the existing 8-inch sewer line to a new 12-inch sewer line. The alignment shown on the attached figures shows the preferred alternative, but please note that other potential alternatives, such as access routes were surveyed, but are not shown as they have been eliminated.

The approximately 4.5-mile long alignment runs within and along Escondido Creek and is located within the Encinitas and Rancho Santa Fe 7.5' USGS Quadrangles (Figure 2). Prior to conducting the surveys, the vegetation within a 300 foot buffer along the alignment was mapped with a focus on identifying suitable habitat for CAGN. The buffer zone supports high quality Diegan coastal sage scrub, Coast Goldenbush (*Isocoma menziesii* var. *menziesii*) Scrub, and adjacent non-native grassland, and disturbed habitat that is suitable for CAGN. Dominant species within Diegan coastal sage scrub habitat included, California Sagebrush (*Artemisia californica*), Coast Goldenbush, Coyote Brush (*Baccharis pilularis*), and Flat-topped Buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*). Non-suitable habitats within the project area included freshwater marsh, open water, and oak woodlands.

Survey methodology followed the U.S. Fish and Wildlife Service presence/absence protocol (1997) including three surveys at least one week apart. During each survey, approximately 10 acres of suitable habitat was surveyed for a rate of approximately 2 acres/hour. Taped vocalizations were used to elicit a response and were ceased upon hearing or seeing CAGN. Please see Table 1 for survey dates, times, and conditions. A list of the 45 bird species observed during the survey is included as Appendix A.

Table 1. Survey Conditions During California Gnatcatcher Surveys at OTS Project, 2013

Dates	5/15/13	5/16/13	5/22/13	5/23/13	5/29/13
Survey Time	0645 – 1200	0640 - 1110	0715 - 1125	0750 – 1140	0605 – 1035
Temp (°F) Start-End	63 – 72	64 – 70	60 – 71	62 - 72	64 - 72
Sky Cover (%)	100 – 5 (w/haze)	100 - 30	100 – 50	95 – 20 (w/haze)	100 – 0
Wind Speed (MPH)	1-2; 2-6	0-3; 1-8	1-4; 1-6	1-6; 3-8	0-2; 1-6
Personnel	J. Rocks (TE-063230-4)	J. Rocks (TE-063230-4); B. Lohstroh (TE-063608-5)	J. Rocks (TE-063230-4)	J. Rocks (TE-063230-4)	J. Rocks (TE-063230-4); B. Lohstroh (TE-063608-5)

Six pairs of CAGN were found within or adjacent to the buffer zone during the surveys (Figures 2 and 3). Three of the pairs were observed foraging with one or two fledglings. Based on these findings, it appears that even the seemingly lower quality scrub habitat such as monotypic Goldenbush Scrub and adjacent disturbed areas are productive habitats for CAGN within the survey area. This may be due in part to the close proximity to the Pacific Ocean and its moderating effect on the local climate that may result in more productive habitats because they are not subjected to extreme temperature fluctuations.

Please don't hesitate to call me at (619) 843-6640 if you have any questions.

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

Sincerely,



Jim Rocks
Permit Number TE-063230-4

10/24/2013
Date



Brian Lohstroh
Permit Number TE-063608-5

10/24/2013
Date

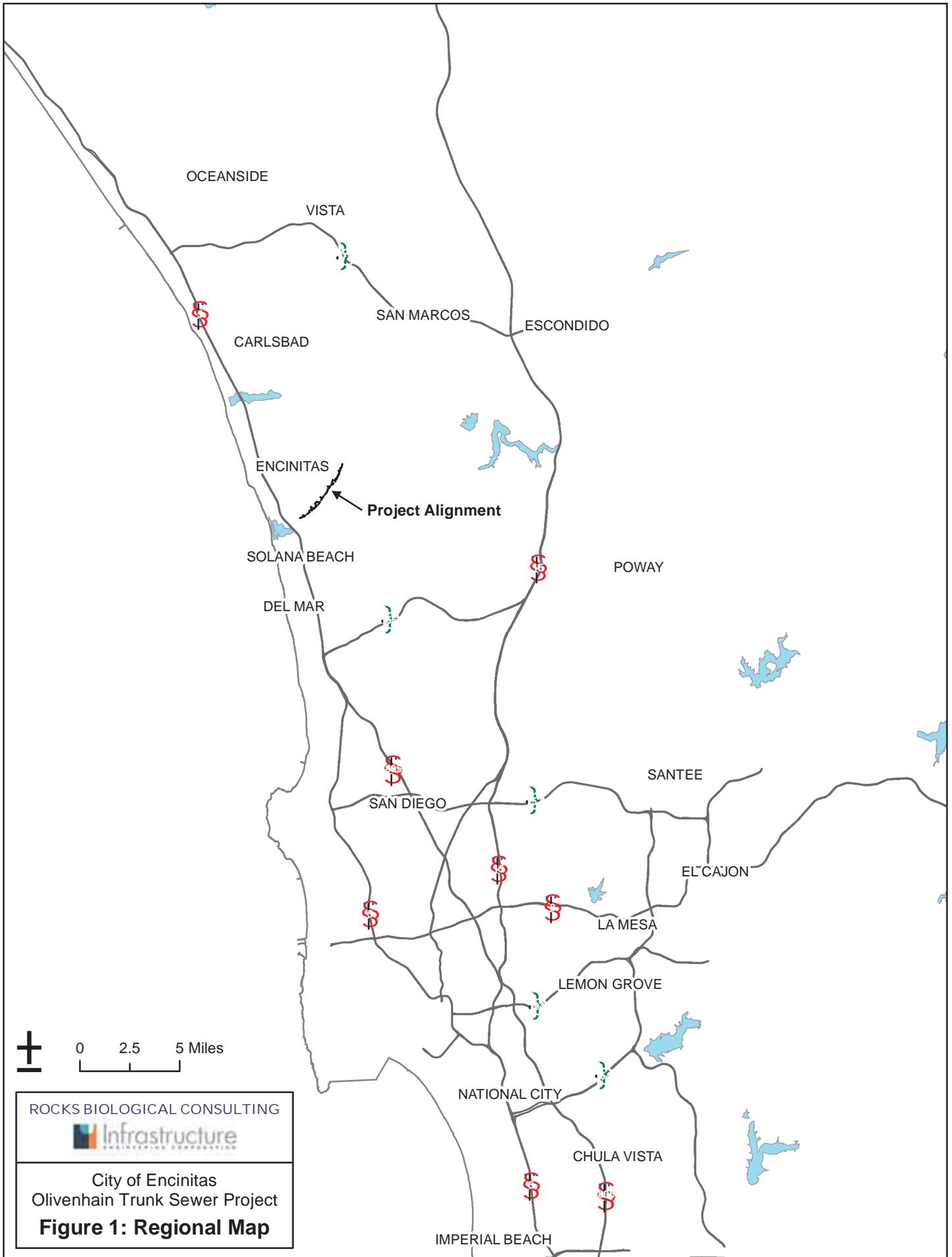
CC: Ms. Anna Buising, IEC

Enclosures: Appendix A – Bird Species Observed During 2013 Coastal California Gnatcatcher Protocol Surveys at the Olivenhain Trunk Sewer Project, 2013
Figure 1 - Regional Location Map
Figure 2 - USGS Quadrangle Map
Figures 3 - CAGN Observed Locations

Appendix A. Bird Species Observed During 2013 Coastal California Gnatcatcher Protocol Surveys at OTS, 2013

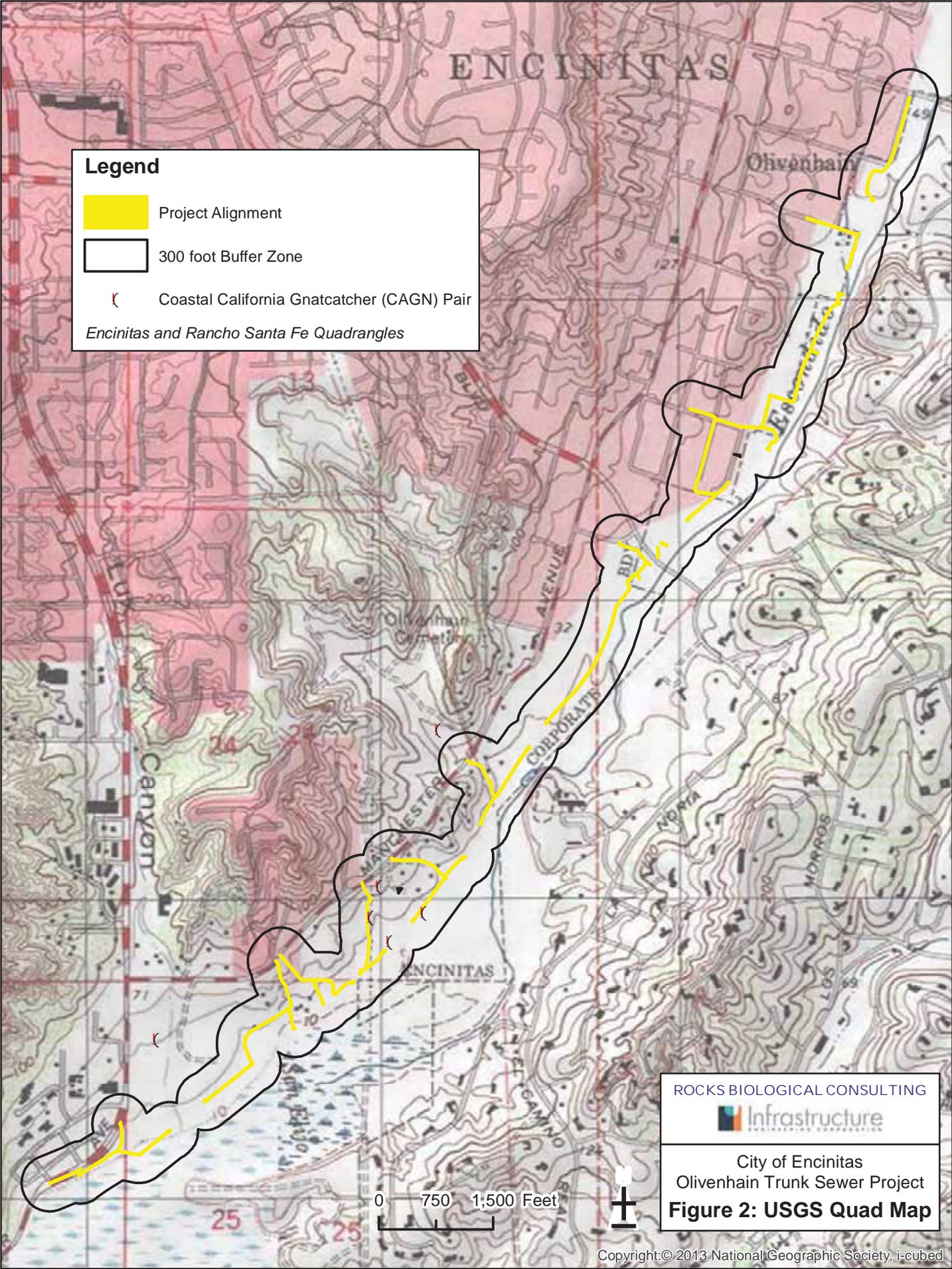
Code	Common Name	<i>Scientific Name</i>
ALHU	Allen's hummingbird	<i>Selasphorus sasin</i>
AMCR	American crow	<i>Corvus brachyrhynchos</i>
AMGO	American goldfinch	<i>Spinus tristis</i>
AMKE	American kestrel	<i>Falco sparverius</i>
ANHU	Anna's hummingbird	<i>Calypte anna</i>
BARS	barn swallow	<i>Hirundo rustica</i>
BEWR	Bewick's wren	<i>Thryomanes bewickii</i>
BLPH	black phoebe	<i>Sayornis nigricans</i>
BHGR	black-headed grosbeak	<i>Pheucticus melanocephalus</i>
BHCO	brown-headed cowbird*	<i>Molothrus ater</i>
BUSH	bushtit	<i>Psaltriparus minimus</i>
CAGN	coastal California gnatcatcher (FT)	<i>Poliophtila californica californica</i>
CAQU	California quail	<i>Callipepla californica</i>
CATH	California thrasher	<i>Toxostoma redivivum</i>
CALT	California towhee	<i>Melospiza crissalis</i>
CAKI	Cassin's kingbird	<i>Tyrannus vociferans</i>
CLSW	cliff swallow	<i>Petrochelidon pyrrhonota</i>
CORA	common raven	<i>Corvus corax</i>
COYE	common yellowthroat	<i>Geothlypis trichas</i>
COHA	Cooper's hawk (WL)	<i>Accipiter cooperii</i>
EUCD	Eurasian collared-dove	<i>Streptopelia decaocto</i>
GBHE	great blue heron	<i>Ardea herodias</i>
GREG	great egret	<i>Ardea alba</i>
HOFI	house finch	<i>Carpodacus mexicanus</i>
HOWR	house wren	<i>Troglodytes aedon</i>
HUVI	Hutton's vireo	<i>Vireo huttoni</i>
LEGO	lesser goldfinch	<i>Spinus psaltria</i>
MALL	mallard	<i>Anas platyrhynchos</i>
MAWR	marsh wren	<i>Cistothorus palustris</i>
MODO	mourning dove	<i>Zenaida macroura</i>
NOMO	northern mockingbird	<i>Mimus polyglottos</i>
NRWS	northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
NUWO	Nuttall's woodpecker	<i>Picoides nuttallii</i>
OCWA	orange-crowned warbler	<i>Oreothlypis celata</i>
RTHA	red-tailed hawk	<i>Buteo jamaicensis</i>
RWBL	red-winged blackbird	<i>Agelaius phoeniceus</i>
SOSP	song sparrow	<i>Melospiza melodia</i>
SPTO	spotted towhee	<i>Pipilo maculatus</i>
WAVI	warbling vireo	<i>Vireo gilvus</i>
WESJ	western scrub-jay	<i>Aphelocoma californica</i>
WTKI	white-tailed kite	<i>Elanus leucurus</i>
WTSW	white-throated swift	<i>Aeronautes saxatalis</i>
WREN	wrenit	<i>Chamaea fasciata</i>
YEWA	yellow warbler (SSC)	<i>Setophaga petechia</i>
YBCH	yellow-breasted chat	<i>Icteria virens</i>

FT: Federally listed threatened species
 WL: California Department of Fish and Wildlife Watch List
 SSC: California Department of Fish and Wildlife Species of Special Concern
 *Introduced Species



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 City of Encinitas
 Olivenhain Trunk Sewer Project
Figure 1: Regional Map



Legend

- Project Alignment
- 300 foot Buffer Zone
- Coastal California Gnatcatcher (CAGN) Pair

Encinitas and Rancho Santa Fe Quadrangles

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 Infrastructure
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City of Encinitas
 Olivenhain Trunk Sewer Project
Figure 2: USGS Quad Map

Legend

-  Coastal California Gnatcatcher (CAGN) Pair
-  Project Alignment
-  300 foot Buffer Zone



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 Infrastructure
CONSULTING CORPORATION

City of Encinitas
Olivenhain Trunk Sewer Project
Figure 3: CAGN Survey Map

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Appendix D

Presence/Absence Survey Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys at the Olivenhain Trunk Sewer Project in the City of Encinitas, San Diego County, CA

ROCKS BIOLOGICAL CONSULTING

February 6, 2014

U.S. Fish and Wildlife Service
Attn: Ms. Stacey Love
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: Presence/Absence Survey Report for Least Bell's Vireo and Southwestern Willow Flycatcher Surveys at the Olivenhain Trunk Sewer Project in the City of Encinitas, San Diego County, CA

Ms. Love:

This letter presents the results of the presence/absence surveys for the endangered Least Bell's Vireo (*Vireo bellii pusillus*; LBVI) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*; SWFL) conducted for the Olivenhain Trunk Sewer project located within San Elijo Lagoon and along Escondido Creek in the City of Encinitas, CA (Figure 1). The surveys were conducted as part of the regulatory environmental process for sewer improvements along the Olivenhain Trunk Sewer. These improvements will include either rehabilitation or complete replacement of all of the 54 manholes along the City of Encinitas' Olivenhain Trunk Sewer line (project) that was constructed nearly 40 years ago. Additionally, to maintain the facility and keep the sewer line in good working condition, access to the line will be improved and the upstream portion of the trunk sewer will be upsized from the existing 8-inch sewer line to a new 12-inch sewer line.

Neither LBVI nor SWFL were observed nesting within the survey alignment and surrounding 500-foot (152 meters) buffer area (project survey area). A breeding pair of LBVI was observed approximately 78 meters upstream (east) of the project survey area (Figures 2 and 3).

Methods

Survey methodology for LBVI followed the U.S. Fish and Wildlife Service presence/absence protocol (2001) that consists of eight surveys at least 10 days apart between April 10 and July 31. The LBVI surveyors are qualified biologists familiar with the songs, calls, scolds, and plumage characteristics of LBVI. Surveys were conducted with the aid of binoculars between dawn and 1100 during suitable weather conditions. Per the survey guidelines, all suitable habitat was examined or surveyed, and surveyors did not survey more than 3 linear kilometers or 50 hectares of suitable LBVI habitat during a single survey.

Survey methodology for SWFL followed the revised survey protocol (Sogge et al. 2010) that divides the survey into three periods with a total of five surveys over the three survey periods. Due to the survey area's close proximity to the coast, suitable weather conditions often persisted beyond the recommended survey end time of 1030. On a few such occasions, surveys were extended. Per the protocol only permitted individuals conducted SWFL surveys (Table 1). Sightings of the Brown-headed Cowbird (*Molothrus ater*; BHCO), a common brood parasite in southern California, were also noted. All avian species observed and/or heard during surveys

were recorded. A vegetation map was created prior to commencing surveys to determine habitat suitability for LBVI and SWFL.

Results and Discussion

Due to the large area of potentially suitable habitat for LBVI (approximately 70 acres), two survey days were required to thoroughly survey all areas, resulting in a total of sixteen (16) survey days. Please see Table 1 for the survey dates and conditions for both LBVI and SWFL surveys. No LBVI were observed within the project survey area. A breeding pair of LBVI was documented approximately 78 meters (255 feet) east of the project survey area (Figures 2 and 3). Surveyors tracked the male's distinctive call and the presence of LBVI was then confirmed to be outside the project survey area by visual observation. Surveyor Kris Alberts (permitted to monitor LBVI nests) observed the pair in an early nest building stage on April 30, with that nest attempt abandoned sometime prior to the May 10 survey. The second known nesting attempt was documented on May 10, with four eggs observed on May 21, and three eggs with one new hatchling present on May 31. On June 11, nest failure was documented; presumably from predation by a Western Scrub Jay (*Aphelocoma californica*) that was consistently seen and heard within close proximity to the LBVI nest. No further re-nesting attempts were observed, and this LBVI pair was not observed during subsequent surveys.

A total of five (5) SWFL surveys were conducted: one survey during the first period (May 15-May 31); two surveys during the second period (June 1-June 24); and two surveys during the third period (June 25-July 17). No SWFL breeding pairs or territorial males were observed during the surveys. Per the protocol, the completed Willow Flycatcher Survey and Detection Forms are included as Attachment A.

One Willow Flycatcher (*Empidonax traillii*; WIFL) individual was observed within and directly adjacent the survey area on May 20 and 21, respectively (Figures 2 and 3). These individuals were not observed again during subsequent surveys and it is assumed that these birds were migrating through the survey area. Little Willow Flycatcher (*Empidonax traillii brewsteri*), a more common northwestern subspecies of WIFL, migrates through San Diego County, typically in mid May (Unitt 2004). Given that the observed WIFL individuals did not remain within the survey area and because the vocalizations resembled those of the northwestern subspecies, it is likely that the birds observed within the survey area were Little Willow Flycatchers and not SWFL. In San Diego County, SWFL is confirmed only when evidence of breeding is detected (Unitt 2004).

Throughout the alignment, BHCO were numerous and observed and/or heard during each of the 16 surveys. During several surveys, a 'herd' of at least 10 BHCOs was observed and heard calling from dead standing trees along the alignment. No BHCO traps were observed.

A list of the avian species observed within or immediately adjacent to suitable habitat for LBVI and SWFL is presented in Table 2. A total of 95 bird species were observed during the 2013 surveys (Table 2) including the federally-listed endangered Light-footed Clapper Rail (*Rallus longirostris levipes*); state endangered Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*); California Department of Fish and Wildlife (CDFW) Fully Protected Species Peregrine Falcon (*Falco peregrinus*) and White-tailed Kite (*Elanus leucurus*); CDFW Species of Special Concern (SSC) Yellow Warbler (*Dendroica petechia*), Yellow-breasted Chat (*Icteria virens*), Northern Harrier (*Circus cyaneus*), and Clark's Marsh Wren (*Cistothorus palustris clarkae*); and the CDFW Watch List species Cooper's Hawk (*Accipiter cooperi*). Notably, a rare vagrant Brown

Thrasher (*Toxostoma rufum*) was also observed on two separate survey visits just south of the Camino Del Rio Norte Bridge.

Potentially suitable habitat for LBVI and SWFL included Riparian Forest, Riparian Woodland, and Riparian Scrub and adjacent habitat such as Mulefat (*Baccharis salicifolia*) Scrub, Ruderal openings, Eucalyptus (*Eucalyptus* spp.) trees, and around Open Water. Patches of Stinging Nettle (*Urtica dioica* ssp. *holosericea*) and Wild Radish (*Raphanus sativus*) were also surveyed as LBVI is often found in transitional habitats along riparian areas. Within the survey area, the dominant tree species were Willows (*Salix gooddingii* and *S. lasiolepis*) with individuals of Fremont's Cottonwood (*Populus fremontii*), Western Sycamore (*Platanus racemosa*), and patches of Eucalyptus. Other habitats along the creek such as Alkali Marsh and Coastal Brackish Marsh were traversed during the surveys, although these areas were considered much less suitable for LBVI and SWFL.

Please don't hesitate to call me at (619) 843-6640 if you have any questions.

Sincerely,



References

Sogge, M.K., Ahlers, D., and Sferra, S.J. 2010. A natural history summary and survey protocol for the southwestern willow flycatcher. U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

Unitt, P. 2004. San Diego County Bird Atlas. No. 39 Proceedings of the San Diego Society of Natural History. 645pp.

U.S. Fish and Wildlife Service. 2001. Least Bell's Vireo Survey Guidelines.

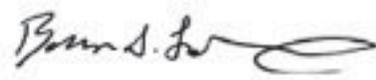
I certify that the information in this survey report and attached exhibits fully and accurately represent my work.

Sincerely,



Jim Rocks

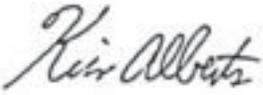
2/6/2014
Date



Brian Lohstroh

2/6/2014
Date

SWFL Permit Number TE-063608-5



Kris Alberts
SWFL Permit Number TE-039640-3

2/6/2014
Date



Darin Busby

2/6/2014
Date



Seth Reimers

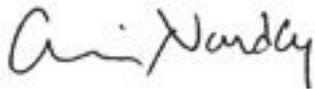
Date

2/6/2014



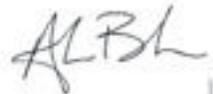
Monica Alfaro
SWFL Permit Number TE-05124-2

2/6/2014
Date



Chris Nordby

2/6/2014
Date



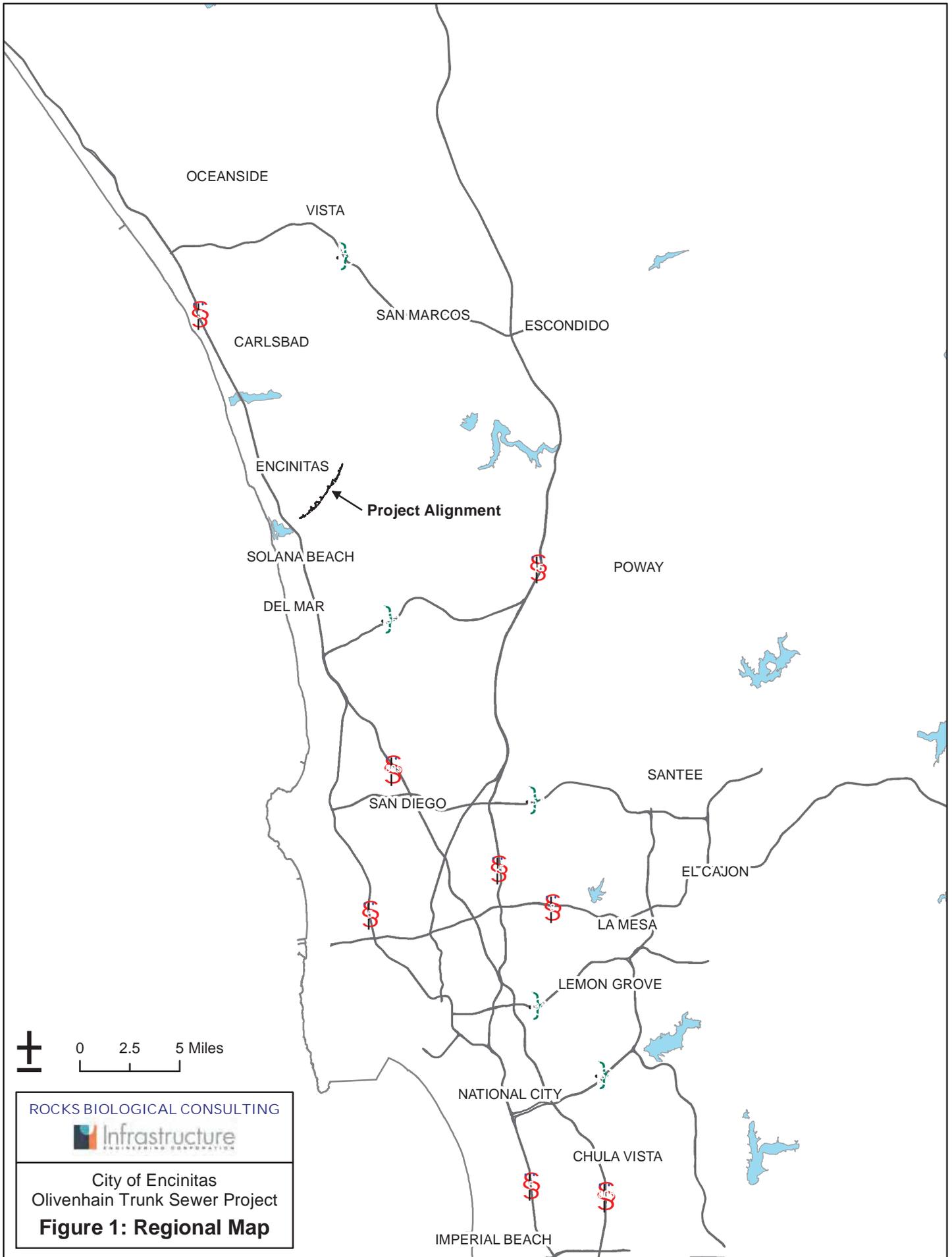
Andrew Borchert

2/6/2014
Date

CC: Ms. Anna Buising, IEC

Enclosures: Table 1. Survey Dates and Conditions
Table 2. Avian Species Observed

Figure 1. Regional Location Map
Figure 2. USGS Quad Map
Figure 3. Aerial Photograph



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City of Encinitas
Olivenhain Trunk Sewer Project
Figure 1: Regional Map

Legend

(Least Bell's Vireo (*Vireo belli pusillus*; LBVI) Pair

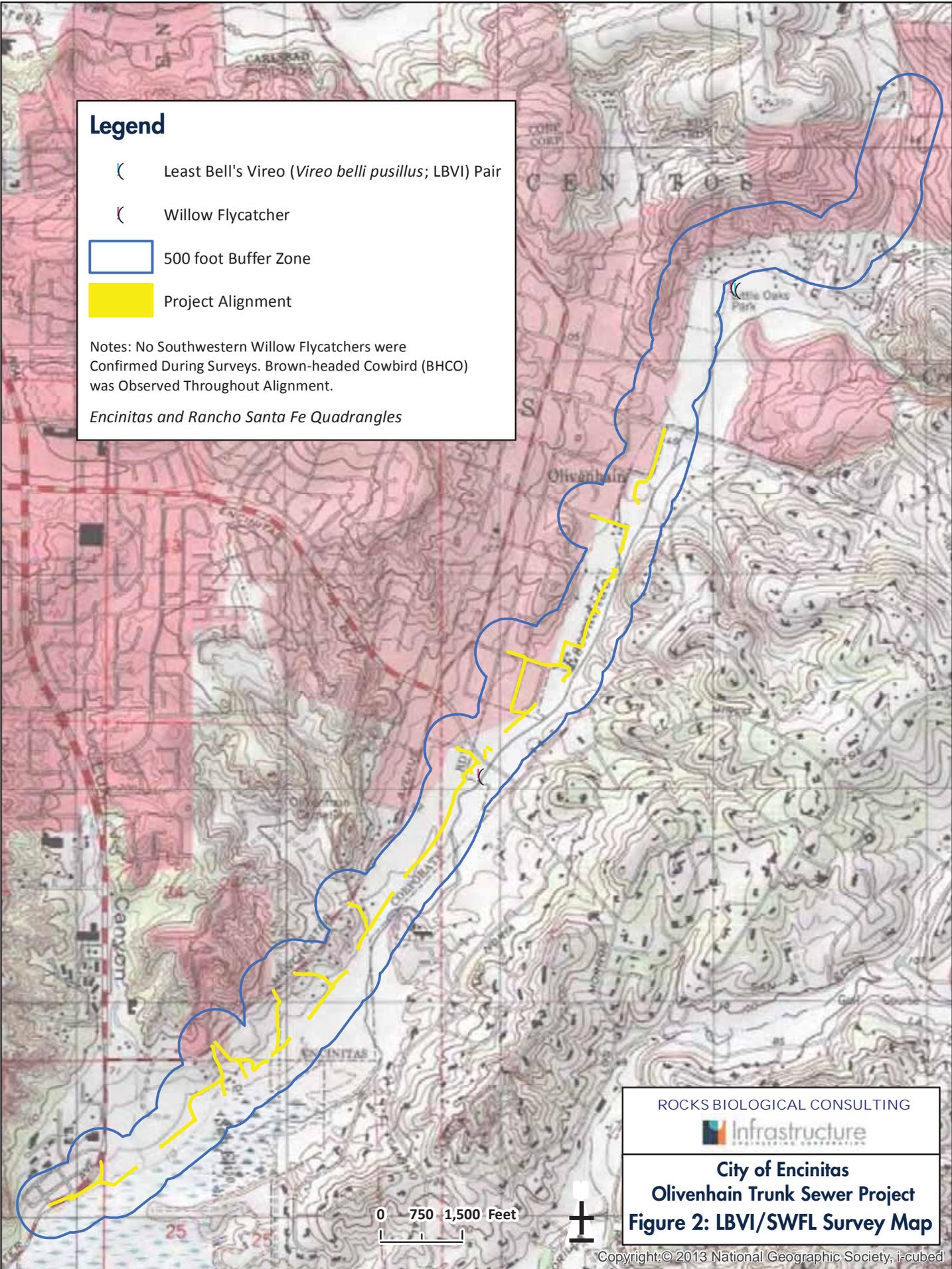
(Willow Flycatcher

500 foot Buffer Zone

Project Alignment

Notes: No Southwestern Willow Flycatchers were Confirmed During Surveys. Brown-headed Cowbird (BHCO) was Observed Throughout Alignment.

Encinitas and Rancho Santa Fe Quadrangles



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City of Encinitas
Olivenhain Trunk Sewer Project
Figure 2: LBVI/SWFL Survey Map

0 750 1,500 Feet



Legend

(Least Bell's Vireo (*Vireo belli pusillus*; LBVI) Pair

(Willow Flycatcher

500 foot Buffer Zone

Project Alignment

Notes: No Southwestern Willow Flycatchers were Confirmed During Surveys. Brown-headed Cowbird (BHCO) was Observed Throughout Alignment.

El Camino Del Norte

Manchester Ave

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City of Encinitas
Olivenhain Trunk Sewer Project
Figure 3: LBVI/SWFL Survey Map

0 750 1,500 Feet



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Table 1. Survey Dates and Conditions

Survey Number	Date	Time on site	Temp (°F)	Sky Cover (%)	Wind Speed (MPH)	Personnel
LBVI 1	19-Apr-13	0645-1115	48-75	0	0-1; 0-1	JR, BL, DB, KA
LBVI 1	20-Apr-13	0705-1110	59-74	0	0-1; 1-2	JR, BL, KA
LBVI 2	29-Apr-13	0635-1100	61-71	100-60	1-3; 1-5	JR, DB, KA, BL
LBVI 2	30-Apr-13	0640-1100	60-68	100-50	1-3; 1-7	JR, KA, SR, MA
LBVI 3	9-May-13	0630-1100	62-68	50-25	0-2; 1-6	JR, CN, BL, KA
LBVI 3	10-May-13	0640-1100	60-67	100-0	0-1; 1-4	JR, KA, DB, BL
LBVI 4; SWFL 1	20-May-13	0555-1125	60-68	100-10	0; 1-4	JR, DB, KA, BL
LBVI 4; SWFL 1	21-May-13	0545-0940	63-71	100-60	0-2; 0-3	BL, KA, MA, SR
LBVI 5	30-May-13	0615-1025	68-73	100-0	1-2; 1-6	JR, AB, BL, KA
LBVI 5	31-May-13	0615-1000	64-70	100-0	0-1; 1-3	AB, DB, KA
LBVI 6; SWFL 2	10-Jun-13	0630-1100	63-70	70-0	0-2; 1-4	JR, DB, BL, KA
LBVI 6; SWFL 2	11-Jun-13	0600-0930	64-69	0-0	0-1; 0-5	BL, KA, MA
LBVI 7; SWFL 3	20-Jun-13	0700-1020	62-70	100-0	0-1; 1-2	JR, KA, BL
LBVI 7; SWFL 3	21-Jun-13	0715-1100	64-73	100-0	0-2; 1-6	JR, KA, DB, BL
LBVI 8; SWFL 4	08-Jul-13	0715-1020	66-72	100-0	1-2; 1-4	JR, KA, BL
LBVI 8; SWFL 4	09-Jul-13	0650-1100	66-72	100-40	0-1; 1-5	JR, KA, MA, BL
SWFL 5	15-Jul-13	0630-0935	64-73	0-0	0-1; 0-2	BL, KA, MA
SWFL 5	16-Jul-13	0640-1035	66-72	100-5	1-4; 1-5	JR, BL, KA, SR

Note: JR = Jim Rocks (LBVI), BL = Brian Lohstroh (LBVI and SWFL), DB = Darin Busby (LBVI), KA = Kris Alberts (LBVI and SWFL), SR= Seth Reimers (LBVI), MA= Monica Alfaro (LBVI and SWFL), CN= Chris Nordby (LBVI), AB= Andrew Borchert (LBVI)

Table 2. Avian Species Observed

Code	Common Name	Scientific Name
ALHU	Allen's hummingbird	<i>Selasphorus sasin</i>
AMAV	American avocet	<i>Recurvirostra americana</i>
AMCR	American crow	<i>Corvus brachyrhynchos</i>
AMGO	American goldfinch	<i>Spinus tristis</i>
AMKE	American kestrel	<i>Falco sparverius</i>
AMRO	American robin	<i>Turdus migratorius</i>
ANHU	Anna's hummingbird	<i>Calypte anna</i>
ATFL	ash-throated flycatcher	<i>Myiarchus cinerascens</i>
BANO	barn owl	<i>Tyto alba</i>
BASW	barn swallow	<i>Hirundo rustica</i>
BEWR	Bewick's wren	<i>Thryomanes bewickii</i>
BLPH	black phoebe	<i>Sayornis nigricans</i>
BCNH	black-crowned night heron	<i>Nycticorax nycticorax</i>
BHGR	black-headed grosbeak	<i>Pheucticus melanocephalus</i>
BNST	black-necked stilt	<i>Himantopus mexicanus</i>
BTYW	black-throated gray warbler	<i>Setophaga nigrescens</i>
BGGN	blue-gray gnatcatcher	<i>Polioptila caerulea</i>
BLGR	blue grosbeak	<i>Passerina caerulea</i>
BRBL	Brewer's blackbird	<i>Euphagus cyanocephalus</i>
BRTH	brown thrasher	<i>Toxostoma rufum</i>
BHCO	brown-headed cowbird*	<i>Molothrus ater</i>
BUOR	Bullock's oriole	<i>Icterus bullockii</i>
BUSH	bushtit	<i>Psaltriparus minimus</i>
CAGN	California gnatcatcher (FT; non-	<i>Polioptila californica c.</i>
CAQU	California quail	<i>Callipepla californica</i>
CATH	California thrasher	<i>Toxostoma redivivum</i>
CALT	California towhee	<i>Melospiza crissalis</i>
CAKI	Cassin's kingbird	<i>Tyrannus vociferans</i>
CAVI	Cassin's vireo	<i>Vireo cassinii</i>
CEDW	cedar waxwing	<i>Bombycilla cedrorum</i>
CLSW	cliff swallow	<i>Petrochelidon pyrrhonota</i>
CORA	common raven	<i>Corvus corax</i>

COYE	common yellowthroat	<i>Geothlypis trichas</i>
COHA	Cooper's hawk (WL)	<i>Accipiter cooperii</i>
DOWO	downy woodpecker	<i>Picoides pubescens</i>
ECDO	Eurasian collared dove*	<i>Streptopelia decaocto</i>
EUST	European starling*	<i>Sturnus vulgaris</i>
GBHE	great blue heron	<i>Ardea herodias</i>
GREG	great egret	<i>Ardea alba</i>
GTGR	great-tailed grackle	<i>Quiscalus mexicanus</i>
GRHE	green heron	<i>Butorides virescens</i>
HEWA	hermit warbler	<i>Dendroica occidentalis</i>
HOOR	hooded oriole	<i>Icterus cucullatus</i>
HOFI	house finch	<i>Carpodacus mexicanus</i>
HOWR	house wren	<i>Troglodytes aedon</i>
HUVI	Hutton's vireo	<i>Vireo huttoni</i>
KILL	Killdeer	<i>Charadrius vociferus</i>
LAZB	Lazuli bunting	<i>Passerina amoena</i>
LBVI	least Bell's vireo (FE, SE)	<i>Vireo bellii pusillus</i>
LEGO	lesser goldfinch	<i>Spinus psaltria</i>
MALL	mallard	<i>Anas platyrhynchos</i>
MAWR	marsh wren (SSC)	<i>Cistothorus palustris clarkae</i>
MOCH	mountain chickadee	<i>Poecile gambeli</i>
MODO	mourning dove	<i>Zenaida macroura</i>
NAWA	Nashville warbler	<i>Vermivora ruficapilla</i>
NOHA	northern harrier (SSC)	<i>Circus cyaneus</i>
NOFL	northern flicker	<i>Colaptes auratus</i>
NOMO	northern mockingbird	<i>Mimus polyglottos</i>
NRWS	northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
NUMA	nutmeg mannikin*	<i>Lonchura punctulata</i>
NUW	Nuttall's woodpecker	<i>Picoides nuttallii</i>
OSFL	olive-sided flycatcher (migrant)	<i>Contopus cooperi</i>
OCWA	orange-crowned warbler	<i>Oreothlypis celata</i>
PSFL	Pacific-slope flycatcher	<i>Empidonax difficilis</i>
PEFA	peregrine falcon (FPS)	<i>Falco peregrinus</i>
PHAI	phainopepla	<i>Phainopepla nitens</i>
PLVI	plumbeous vireo	<i>Vireo plumbeus</i>
RSHA	red-shouldered hawk	<i>Buteo lineatus</i>

RTHA	red-tailed hawk	<i>Buteo jamaicensis</i>
RWBL	red-winged blackbird	<i>Agelaius phoeniceus</i>
ROPI	rock pigeon*	<i>Columba livia</i>
SAPH	Say's phoebe	<i>Sayornis saya</i>
SNEG	snowy egret	<i>Egretta thula</i>
SOSP	song sparrow	<i>Melospiza melodia</i>
SPTO	spotted towhee	<i>Pipilo maculatus</i>
SUTA	summer tanager	<i>Piranga rubra</i>
SWTH	Swainson's thrush	<i>Catharus ustulatus</i>
TOWA	Townsend's warbler	<i>Setophaga townsendi</i>
VIRA	Virginia rail	<i>Rallus limicola</i>
WAVI	warbling vireo	<i>Vireo gilvus</i>
WEBL	western bluebird	<i>Sialia mexicana</i>
WEKI	western kingbird	<i>Tyrannus verticalis</i>
WESJ	western scrub-jay	<i>Aphelocoma californica</i>
WETA	western tanager	<i>Piranga ludoviciana</i>
WWPE	western wood pewee	<i>Contopus sordidulus</i>
WCSP	white-crowned sparrow	<i>Zonotrichia leucophrys</i>
WFIB	white-faced ibis	<i>Plegadis chihi</i>
WTSW	white-throated swift	<i>Aeronautes saxatalis</i>
WTKI	white-tailed kite (FPS)	<i>Elanus leucurus</i>
WIFL	willow flycatcher	<i>Empidonax traillii</i>
WIWA	Wilson's warbler	<i>Cardellina pusilla</i>
WREN	wrentit	<i>Chamaea fasciata</i>
YEWA	yellow warbler (SSC)	<i>Setophaga petechia</i>
YBCH	yellow-breasted chat (SSC)	<i>Icteria virens</i>
YRWA	yellow-rumped warbler	<i>Setophaga coronata</i>
<p>FE: Listed as Endangered by USFWS FT: Listed as Threatened by USFWS SE: Listed as Endangered by CDFW WL: CDFW Watch List SSC: CDFW Species of Special Concern *Introduced Species</p>		

Attachment A

Willow Flycatcher Survey and Detection Forms

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Olivenhain Trunk Sewer Project-Section 1 State: CA County: San Diego

USGS Quad Name: Encinitas and Rancho Santa Fe Elevation: 3 m (meters)

Creek, River, or Lake Name: Escondido Creek/San Elijo Lagoon

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: Lat 33.014631 Long -117.258895 Degrees Datum: WGS84 (See instructions)
 Stop: Lat 33.034200 Long -117.236258 Degrees Zone: _____

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	Lat	Long
Survey # 1 Observer(s): K. Alberts, B. Lohstroh Non-permit holders: J. Rocks, D. Busby	Date: 5/20/13 Start: 5:55 Stop: 11:25 Total hrs: 11 hr	1			N	Individual just downstream of the S. Rancho Santa Fe Road Bridge and N. of the GBHE rookery, in the blackberry patch area. Responded to taped vocalization, call similar to NW subspecies.	1		33.033771	-117.236515
Survey # 2 Observer(s): K. Alberts, B. Lohstroh Non-permit holders: J. Rocks, D. Busby	Date: 6/10/13 Start: 6:30 Stop: 11:00 Total hrs: 9 hr	0								
Survey # 3 Observer(s): K. Alberts, B. Lohstroh Non-permit holders: J. Rocks	Date: 6/20/13 Start: 7:00 Stop: 10:20 Total hrs: 6 hrs 40 min	0								
Survey # 4 Observer(s): K. Alberts, B. Lohstroh, M. Alfaro Non-permit holders: J. Rocks	Date: 7/9/13 Start: 6:50 Stop: 11:00 Total hrs: 8 hrs 20 min	0								
Survey # 5 Observer(s): K. Alberts, B. Lohstroh Non-permit holders: J. Rocks, S. Reimers	Date: 7/16/13 Start: 7:25 Stop: 10:50 Total hrs: 6hr 50min	0								
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes _____ No x _____ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
Total survey hrs:	41h 50m	0	0	0	0					

Reporting Individual: Kris Alberts Date Report Completed: 2/1/14
 US Fish & Wildlife Service Permit #: TE-039640-3 State Wildlife Agency Permit #: SCP #801141

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Kris Alberts Phone # (619) 972-8714
 Affiliation Blackhawk Environmental E-mail kris@blackhawkenv.com
 Site Name Olivenhain Trunk Sewer Project- Section 1 Date report Completed 2/1/2014
 Was this site surveyed in a previous year? Yes ___ No ___ Unknown X
 Did you verify that this site name is consistent with that used in previous yrs? Yes ___ No X Not Applicable ___
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes ___ No ___ If no, summarize below.
 Management Authority for Survey Area: Federal ___ Municipal/County X State X Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) San Elijo Lagoon Ecological Reserve/Escondido Creek

Length of area surveyed: 3.2 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix Gooddingii and Salix lasiolepis

Average height of canopy (Do not include a range): 10 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

Due to the cool air temperatures and overcast skies associated with the coastal location of the survey area, it was determined that weather conditions after 10:30 am were adequate for surveys to continue outside of the recommended period of 10:30am. Avian activity such as vocalization continued through the end of each survey. It should be noted that the WIFL sighting on 5/21/13 was made after 10:30am.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	Lat	Long	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)
1	5/20/13	33.033771	-117.236515	N	N	Individual just downstream of the S Rancho Santa Fe Rd Bridge and N. of the GBHE rookery in the blackberry patch area. Responded to taped vocalization, call similar to NW subspecies.

Attach additional sheets if necessary

Willow Flycatcher (WIFL) Survey and Detection Form (revised April, 2010)

Site Name: Olivenhain Trunk Sewer Project Section 2 State: CA County: San Diego

USGS Quad Name: Encinitas and Racho Santa Fe Elevation: 8.2-17.7 (meters)

Creek, River, or Lake Name: Escondido Creek/San Elijo Lagoon

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: Lat 33.034607 Long (-) 117.236211 Degrees Datum: WGS84 (See instructions)
 Stop: Lat _____ Long _____ Degrees Zone: _____

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

****Fill in additional site information on back of this page****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey Time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator.	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	Lat	Long
Survey # 1 Observer(s): M. Alfaro, B. Lohstroh, K. Alberts Non-permit holders: S. Reimers and Jared Taylor	Date: 5/21/13 Start: 5:45 End: 9:40 Total hrs: 7hr 50 min	1	0	0	N	Individual WIFL fitzbeewing outside of survey area at/near LBVI nest location by equestrian park. Likely same individual from previous day, moving north along creek habitat. See seg 1 form.	1		33.033792	(-)117.236496
Survey # 2 Observer(s): M. Alfaro, B. Lohstroh, K. Alberts	Date: 6/11/13 Start: 6:19 Stop: 9:30 Total hrs: 6 hrs 20 min	0								
Survey # 3 Observer(s): B. Lohstroh, K. Alberts Non-permit holders: Jim Rocks, D. Busby	Date: 6/21/13 Start: 7:15 Stop: 11:00 Total hrs: 7 hrs 30 min	0								
Survey # 4 Observer(s): B. Lohstroh, K. Alberts Non-permit holders: Jim Rocks	Date: 7/8/13 Start: 7:15 Stop: 10:20 Total hrs: 6 hrs 10 min	0								
Survey # 5 Observer(s): M. Alfaro, B. Lohstroh K. Alberts	Date: July 15, 2003 Start: 7:15 Stop: 9:30 Total hrs: 4hrs 15 min	0								
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals.		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any WIFLs color-banded? Yes _____ No <input checked="" type="checkbox"/>				
Total survey hrs: 32hr5min		0				If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual: Kris Alberts Date Report Completed: 2/1/14
 US Fish & Wildlife Service Permit #: TE-039640-3 State Wildlife Agency Permit #: SCP #801141

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Kris Alberts Phone # (619) 972-8714
 Affiliation Blackhawk Environmental E-mail kris@blackhawkenv.com
 Site Name Olivenhain Trunk Sewer Project Section 2 Date report Completed _____
 Was this site surveyed in a previous year? Yes _____ No _____ Unknown X _____
 Did you verify that this site name is consistent with that used in previous yrs? Yes _____ No X Not Applicable _____
 If name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes _____ No _____ If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes _____ No _____ If no, summarize below.
 Management Authority for Survey Area: Federal _____ Municipal/County X State X Tribal _____ Private _____
 Name of Management Entity or Owner (e.g., Tonto National Forest) San Elijo Lagoon Ecological Reserve/Escondido Creek

Length of area surveyed: 2.7 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- _____ Native broadleaf plants (entirely or almost entirely, > 90% native)
X Mixed native and exotic plants (mostly native, 50 - 90% native)
 _____ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
 _____ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.

Salix Gooddingii, S. lasiolepis and Eucalyptus sp.

Average height of canopy (Do not include a range): 13 (meters)

- Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections;
 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests;
 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features).
Attach additional sheets if necessary.

Due to the cool air temperatures and overcast skies associated with the coastal location of the survey area, it was determined that weather conditions after 10:30 am were adequate for surveys to continue outside of the recommended period of 10:30am. Avian activity such as vocalization continued through the end of each survey. It should be noted that the WIFL sighting on 5/21/13 in Section 1 was made after 10:30am.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	Lat	Long	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)
1	5/21/13	33.033792	-117.236496	N	N	Individual fitzbrewing outside of survey area at/near LBVI nest location by equestrian park. Likely same individual from previous day, moving north along creek habitat.

Attach additional sheets if necessary

Appendix E

Results of a Focused Survey for the Light-footed Clapper Rail at the Olivenhain Trunk Sewer Improvements Project Site, San Diego County, California, 2013

Konecny Biological Services

Biological Consulting, Research, Conservation

July 22, 2013

Rocks Biological Consulting
5101 September Street
San Diego, California, 92110

Attn: Ms. Melanie Rocks

Re: Results of a Focused Survey for the Light-footed Clapper Rail at the Olivenhain Trunk Sewer Improvements Project Site, San Diego County, California, 2013.

Dear Ms. Rocks:

This letter report presents the results of a focused survey for the light-footed clapper rail (*Rallus longirostris levipes*), over a three and one-half mile (5.6 kilometer) reach of Escondido Creek in the Olivenhain Trunk Sewer (OTS) Improvements Project in the City of Encinitas, north-coastal San Diego County, California. The light-footed clapper rail is listed as an endangered species by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG).

Surveys for the light-footed clapper rail were conducted by wildlife biologist Mr. John Konecny. The surveys were conducted in accordance with the recommendations provided to the USFWS by the Clapper Rail Study Team (2009). This activity is authorized by Richard Zembal's USFWS section 10(a) permit number TE439830. Mr. Konecny is authorized to work independently under Mr. Zembal's permit.

INTRODUCTION

The light-footed clapper rail is a slender, tawny-breasted bird with grayish edges on brown centered back feathers, olive wing coverts, vertical white bars on the flanks, a white stripe over the eye, and a partially orange bill. Light-footed clapper rail occurred historically along the coast of southern California from Carpinteria Marsh in Santa Barbara County south to San Quintín, Baja California, Mexico (Grinnell and Miller 1944, USFWS 1994).

The light-footed clapper rail is a permanent resident of coastal salt marsh traversed by tidal sloughs, usually characterized by cordgrass (*Spartina foliosa*) and pickleweed (*Salicornia* spp.) (Grinnell and Miller 1944, USFWS 1994). Light-footed clapper rails have also nested in freshwater marsh characterized by cattails (*Typha* sp.) and bulrush (*Scirpus* sp.) at Buena Vista, Agua Hedionda, Batiquitos, San Elijo, and San Dieguito Lagoons in San Diego County (Zembal *et al* 2010); and in spiny rush (*Juncus acutus*) at Naval Air Station (NAS) Point Mugu. There is very limited evidence for inter-marsh movement by light-footed clapper rails.

Light-footed clapper rails forage primarily on crustaceans when present. They will also feed on mollusks, small fish, aquatic insects, grasshoppers, small vertebrates, and in some cases, seeds (Eddleman and Conway 1998). Clapper rails forage within emergent vegetation or along the ecotone between mudflats and marsh (Zembal and Fancher 1988). Light-footed clapper rails forage for crabs in the central drains of

tidal creeks at low tide. Surface gleaning and shallow probing compose approximately 90% of foraging time. They very irregularly probe deep into the substrate (Zembal and Fancher 1988).

Populations of LFCR's have undergone decline in the United States due to the rail's limited distribution and destruction and degradation of coastal salt marsh habitat. The statewide light-footed clapper rail population in 2012 was reported to be 520 pairs in 20 marshes (Zembal and Hoffman 2012), and represents the highest count since the statewide census began in 1980. The 2012 total is 18 % higher than the 2011 count, and 17% higher than the prior all time high count in 2007. Fifty-one percent of these pairs were found in two coastal salt marsh complexes at Upper Newport Bay and the Tijuana Marsh National Wildlife Refuge (NWR). Seven other marshes at NAS Point Mugu, Batiquitos Lagoon, San Dieguito Lagoon and River, San Elijo Lagoon, Seal Beach NWR, and Kendall-Frost Marsh in Mission Bay, had 73pairs, representing an additional 40% of the state total. There were 45 pairs of LFCR present at San Dieguito Lagoon and River in 2012 (Zembal and Hoffman 2012). The remaining 11 marshes had between one and nine pairs for the remaining 9%.

Zembal and Massey (1986) have shown that paired light-footed clapper rails can be detected "clapping" throughout the year, but have a bimodal peak in vocalizing during mid-February to mid-April and again in September to October. The initial peak in vocalizing corresponds to the onset of breeding season. In contrast to "clapping", single male and female "kekking" is highly seasonal, almost exclusively occurring between February and June.

PROJECT LOCATION

The OTS Improvement Project is located in Escondido Creek, south of the City of Encinitas and north of the City of Solana Beach. The downstream terminus is Interstate-5 and the project area continues upstream to El Camino De Norte in unincorporated San Diego County (Figure 1). Specifically, the OTS Improvement Project site is located within Township 13 South and Range 4 West of the Encinitas and Rancho Santa Fe 7.5-minute quadrangle maps.

PROJECT SITE DESCRIPTION

Escondido Creek runs perennially in the area of the OTS Project area between Interstate-5 and El Camino de Norte. The habitat in this reach of Escondido Creek is primarily southern willow riparian woodland characterized by arroyo willow (*Salix lasiolepis*), black willow (*S. gooddingii*), sandbar willow (*S. hindiana*) and mule fat (*Baccharis salicifolia*), with scattered cottonwood (*Populus fremontii*), sycamore (*Plantanus racemosa*), tamarisk (*Tamarix* sp.), and patches of giant reed (*Arundo donax*), and alkali marsh. It is especially lush in the eastern end of the survey area. Patches of cattail and bulrush dominated coastal freshwater marsh are scattered in a mosaic throughout, becoming more prominent in the mid-downstream portion of the survey area where Manchester Road turns toward the north. Escondido Creek continues downstream into the upper end of San Elijo Lagoon where coastal freshwater marsh transitions into southern coastal saltmarsh and coastal brackish marsh, characterized by alkali-heath (*Frankenia salina*), woody glasswort (*Salicornia virginica*), and chord grass (*Spartina foliosa*). Elevation of the OTS Improvement Project site is approximately six feet to 50 feet (two to 15 meters) above mean sea level.

METHODS

Six focused light-footed clapper rail survey events were conducted over appropriate portions of the entire three and one-half mile reach of the OTS Project between April 9th and May 10th, 2013. A habitat assessment of the area between Rancho Santa Fe Road and El Camino De Norte was conducted after the survey on April 9, 2013, to determine suitability of clapper rail habitat in the upper reach of the project site.

The surveys were conducted in accordance with the recommendations provided to the USFWS by the Clapper Rail Study Team (2009). Each survey event consisted of two surveys on either the same or consecutive days. Surveys were conducted at either dawn or dusk. Each dawn and dusk survey lasted approximately three hours. Dawn surveys were conducted from pre-dawn to no later than three-hours after sunrise. Dusk surveys were initiated three hour before sunset and continued until dark. A summary of the environmental conditions on the twelve survey dates is provided in Table 1 below.

Table 1. Summary of Weather Conditions During Six Light-footed Clapper Rail Surveys for the Olivenhain Trunk Sewer Improvements Project, City of Encinitas, 2013.

Survey #	Date	Surveyor (Species)*	Time	Weather Conditions
1A	04/09/2013	JK (LFCR)	0630-1145	100% overcast, 46-65°F, wind 3-5 mph
1B	04/10/2013	JK (LFCR)	1630-1940	100% overcast, 68-58°F, wind 1-3 mph
2A	04/16/2013	JK, (LFCR)	1640-1950	50% overcast, 61-55°F, wind 7-10 mph
2B	04/17/2013	JK (LFCR)	1630-1940	0% overcast, 70-62°F, wind 7-10 mph
3A	04/21/2013	JK (LFCR)	0550-0910	100% overcast, 52-58°F, wind 1-3 mph
3B	04/21/2013	JK (LFCR)	1635-1945	100% overcast, 67-69°F, wind 3-5 mph
4A	04/26/2013	JK (LFCR)	0555-0900	100% overcast, 55-59°F, wind 3-7 mph
4B	04/26/2013	JK (LFCR)	1640-1935	100% overcast, 68-60°F, wind 1-3 mph
5A	04/29/2013	JK (LFCR)	0615-0920	100% overcast, 60-65°F, wind 3-5 mph
5B	04/29/2013	JK (LFCR)	1645-1950	60% overcast, 58-64°F, wind 3-7 mph
6A	05/09/2013	JK (LFCR)	1650-2000	30% overcast, 66-61°F, wind 7-10 mph
6B	05/10/2013	JK (LFCR)	1650-2010	45% overcast, 69-63°F, wind 5-7 mph

* JK-John Konecny; LFCR-Light-footed Clapper Rail

The surveys were conducted by walking along or next to the alignment, and stopping at stations approximately 300-feet (100-meters) of the survey area and listening for vocalizing light-footed clapper rails. If rails were not detected passively, a digital call-prompt of the light-footed clapper rail “dueting” was played with an iPod and amplified speakers at 30-second intervals. A response was listened for before proceeding to the next survey station. An area 150-feet (46-meters) on each side of the alignment (300-feet (91-meters)) was surveyed.

RESULTS

Light-footed clapper rail habitat was identified in Escondido Creek from the downstream terminus at Interstate-5, upstream to Ranch Santa Fe Road. Appropriate southern coastal salt marsh and brackish marsh habitat is present below Mira Costa College. Pockets of southern freshwater marsh habitat are present above Mira Costa College to Rancho Santa Fe Road, with a particularly lush area at the Ford mitigation site. No habitat was identified in the reach above Rancho Santa Fe Road to El Camino De Norte. No habitat was identified in the spurs perpendicular to the main alignment.

Two pairs of light-footed clapper rails and one single advertising male were detected in the survey area in 2013. These locations are shown in Figure 2. One pair of rails was detected passively dueting just downstream of the levee on the morning of April 9th. This pair was found on four additional surveys; April 16th, April 26th, April 29th, and May 9th. A second pair responded to a call prompt downstream of the first pair on April 16th, April 26nd, and passively on May 9th. Both pairs were heard simultaneously on April 16th, and April 26th, and May 9th.

A single male light-footed clapper rail was detected kekking in the Ford mitigation area. This individual was detected on five of the six surveys. Single males tend to be highly nomadic and it is likely that this individual utilized most of this area (red circle on Figure 2).

DISCUSSION

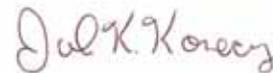
Described as “formerly common in all coastal marshes” by Grinnell and Miller (1944), the light-footed clapper rail has never been a common bird species at San Luis Rey River in recent history until the last few years. Since the light-footed clapper rail range-wide survey was initiated in 1980, only one or two pairs of light-footed clapper rails were present at San Elijo Lagoon through 2002. The population gradually increased to 15 pairs in 2006. Fifteen pairs were present in 2010 and 2011 as well. The population more than doubled in 2012 to 31 pairs. Of these 31 pairs, 23 were detected in the east basin, with four pairs in the northeast corner (Zembal and Hoffman 2012). This increase is likely due to ongoing maintenance of tidal prism at the Lagoon mouth, and by augmenting the natural breeding population with captively bred individuals, as was done in 2004, 2006, 2007, and 2009.

Light-footed clapper rails will likely continue to inhabit the coastal saltmarsh and freshwater marsh at San Elijo Lagoon and in the Olivenhain Trunk Sewer Improvement alignment project site and the numbers may continue to increase depending on the reproductive success of the two pairs that were identified in the project area in 2012.

CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represent my work. The results of focused surveys for listed species are typically considered valid for one year by the USFWS and CDFG. If you have any questions or require additional information, please call me at (760) 489-5276.

Sincerely,



John K. Konecny
Wildlife Biologist
TE837308-5

REFERENCES CITED

- Clapper Rail Study Team. 2009. Survey Guidelines to Determine Presence/Absence of the Light-footed Clapper Rail in Southern California; Recommendations of the Clapper Rail Study Team (John Konecny, Richard Zembal, Susan Hoffman). Draft Recommendations Provided to the Fish and Wildlife Service. 2pp.
- Eddleman, W.R., and C.J. Conway. 1998. Clapper Rail (*Rallus longirostris*). In *The Birds of North America*, No.340 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA. 32 pp.
- Grinnell, J., and A.H. Miller. 1944. *The Distribution of the Birds of California*. Cooper Ornithological Club. Berkeley, California.

U.S. Fish and Wildlife Service. 1994. Light-footed Clapper Rail. Unpublished two-page pamphlet, prepared by R. Zembal.

Zembal, R. and S. Hoffman. 2012. Status and Distribution of the Light-footed Clapper Rail in California, 2010. Report to California Department of Fish and Game, for the Clapper Rail Recovery Fund.

Zembal, R. and J. M. Fancher. 1988. Foraging Behavior and Foods of the Light-footed Clapper Rails. *Condor*, 90:959-962.

Zembal, R. and B. W. Massey. 1986. Seasonality of Vocalizations by Light-footed Clapper Rails. *J. Field Ornithol.*, 58(1):41-48.



Figure 1. Location of the Olivenhain Trunk Sewer Improvement Project Site (shown in red) and Light-footed Clapper Rail Survey Area, San Diego County, California, 2013.

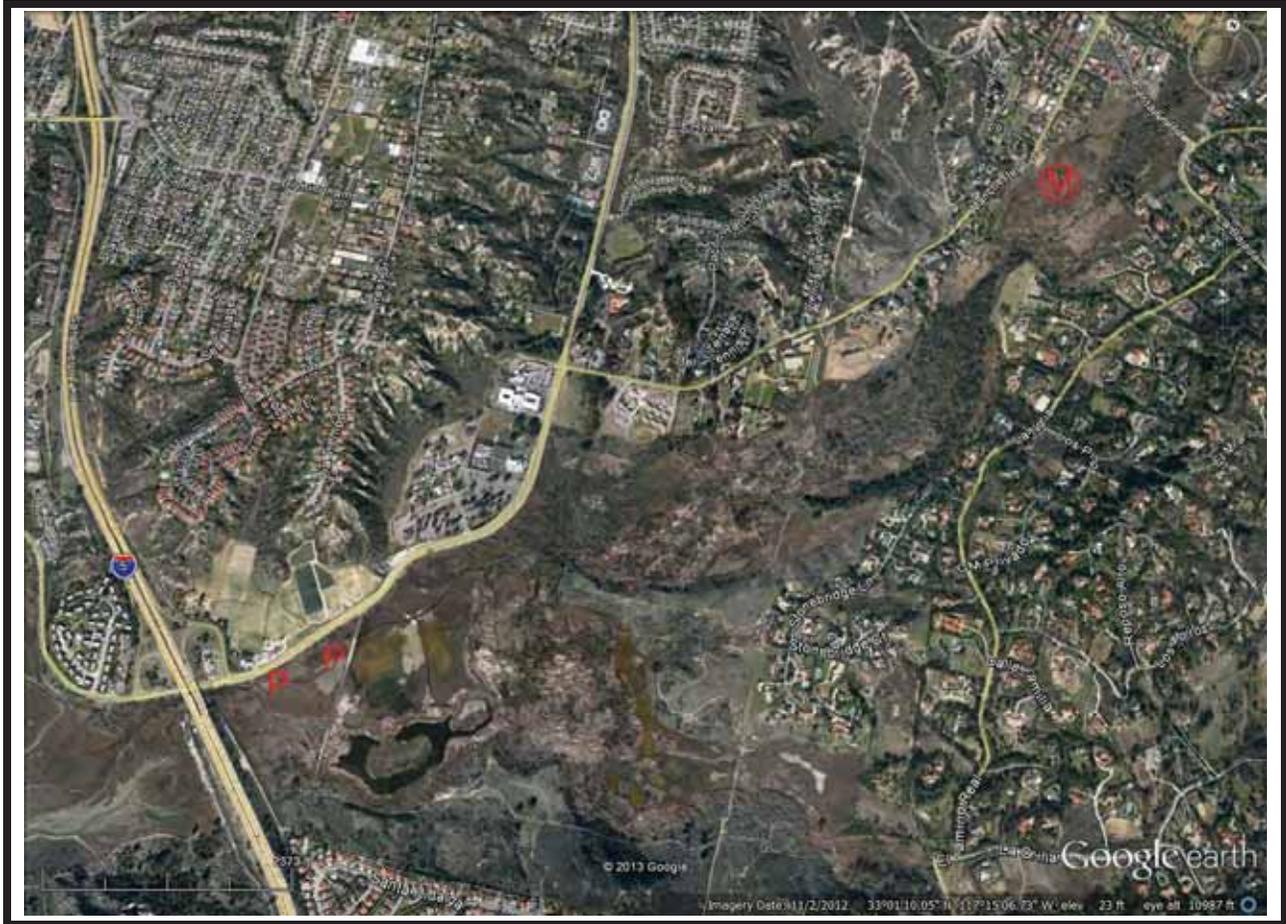


Figure 2. Location of One Single Male and Two Pairs of Light-footed Clapper Rail Detections at the Olivenhain Trunk Sewer Improvement Project Site, San Diego County, 2013. (red P=pair, red M=single male).

