Final Habitat Conservation Plan
Laguna County Sanitation District
Facilities Construction, Operation, and Maintenance
Western Santa Maria Valley, Santa Barbara County, California

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# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** ................................................................. ES

1.0 **INTRODUCTION** .......................................................................................................... 1-A

1.1 Biological Goals and Objectives .................................................................................. 1-A

1.2 Permit Duration .............................................................................................................. 1-B

1.3 Regulatory Requirements ............................................................................................ 1-B

1.4 Plan Area ....................................................................................................................... 1-B

1.5 Species to be Covered by Permit .................................................................................. 1-C

1.5.1 California Tiger Salamander (CTS) Species Description and Status .................. 1-C

1.5.2 California Red-legged Frog Species Description and Status ......................... 1-D

1.5.3 Habitat Requirements of the California Tiger Salamander (CTS) .............. 1-E

1.5.4 Habitat Requirements of the California Red-legged Frog (CRLF) .......... 1-F

1.5.5 Status of the California Tiger Salamander in the Plan Area ....................... 1-G

1.5.6 Status of the California Red-legged Frog (CRLF) in the Plan Area .......... 1-H

2.0 **ENVIRONMENTAL SETTING/BIOLOGICAL RESOURCES** ........................................ 2-A

2.1 Environmental Setting .................................................................................................. 2-A

2.1.1 Land Use .................................................................................................................. 2-A

2.1.2 Climate ...................................................................................................................... 2-A

2.1.3 Topography/Geology .............................................................................................. 2-A

2.1.4 Hydrology/Streams, Rivers, Drainages ............................................................... 2-A

2.1.5 Vegetation ................................................................................................................. 2-B

2.1.6 Wildlife ....................................................................................................................... 2-C

3.0 **PROJECT DESCRIPTION/ACTIVITIES COVERED BY PERMIT** .................................. 3-A

3.1 Background ................................................................................................................... 3-A

3.2 Project Description ......................................................................................................... 3-A

3.3 Activities Covered by Permit ....................................................................................... 3-D

3.3.2 Activities with Minimal Potential for Take of, and Impacts to, Covered Species 3-E

3.3.3 Activities with Low Potential for Take of, and Impacts to, Covered Species .... 3-F

3.3.4 Activities with Moderate to High Potential for Take of, and Impacts to, Covered Species ................................................... 3-G

4.0 **POTENTIAL BIOLOGICAL IMPACTS/TAKE ASSESSMENT** ..................................... 4-A

4.1 Direct and Indirect Impacts ............................................................................................ 4-A

4.1.1 Anticipated Take: Wildlife Species ........................................................................ 4-E

4.1.2 Anticipated Impacts: Plant Species ....................................................................... 4-E

4.2 Cumulative Impacts ......................................................................................................... 4-E

4.3 Effects on Critical Habitat ............................................................................................. 4-F

4.3.1 La Graciosa Thistle ................................................................................................. 4-F

4.3.2 California Tiger Salamander (CTS) ................................................................. 4-G

4.3.3 California Red-legged Frog (CRLF) ................................................................. 4-I

4.4 Beneficial Impacts .......................................................................................................... 4-I

4.5 Adaptive Management Strategy .................................................................................... 4-I

4.6 Measures to Minimize Impacts ..................................................................................... 4-K

4.7 Measures to Mitigate Unavoidable Impacts ................................................................ 4-M

4.7.1 Mitigation .................................................................................................................. 4-M

4.7.2 Conservation Easement ......................................................................................... 4-O
LIST OF TABLES

Table 1: Summary of Potential Impacts from Proposed Project Activities ..............................................4-C

LIST OF FIGURES

Figure 1: Vicinity Map .............................................................................................................................end of document
Figure 2: Plan Area .................................................................................................................................end of document
Figure 3: Existing and Proposed Facilities and Occurrences of Covered Species ........................................end of document
LIST OF APPENDICES

Appendix A: Habitat Conservation Plan Maps and Figures
Appendix B: Construction, Operations, and Maintenance Activities to be Covered Under the Incidental Take Permit
Appendix C: CTS and CRLF Habitat Evaluation of APN 113-240-002
Appendix D: Conservation Easement Area Management Plan
Appendix E: Potential Effects of Pasture Irrigation on Small Mammal Populations and CTS
List of Acronyms and Abbreviations Used in this Document

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEA</td>
<td>Conservation Easement Area</td>
</tr>
<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CTS</td>
<td>California Tiger Salamander</td>
</tr>
<tr>
<td>CRLF</td>
<td>California Red-legged Frog</td>
</tr>
<tr>
<td>CESA</td>
<td>California Endangered Species Act</td>
</tr>
<tr>
<td>FESA</td>
<td>Federal Endangered Species Act</td>
</tr>
<tr>
<td>HCP</td>
<td>Habitat Conservation Plan</td>
</tr>
<tr>
<td>ITP</td>
<td>Incidental Take Permit</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

The Laguna County Sanitation District (District) plans to apply for a permit pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884) as amended, from the U.S. Fish and Wildlife Service (USFWS) for incidental take of the federally endangered California tiger salamander (*Ambystoma californiense*) (CTS) and federally threatened California red-legged frog (*Rana draytonii*) (CRLF). The District is requesting the Section 10(a)(1)(B) incidental take permit be issued for a period of 30 years. Information provided herein is also intended to address compliance with the California Endangered Species Act, and provides the basis for request for an Incidental Take Permit (ITP) from the California Department of Fish and Wildlife (CDFW) for the state threatened CTS.

The Plan Area is located northwest of Orcutt and southwest of the city of Santa Maria in Santa Barbara County, California (Figures 1 & 2). The incidental take would occur as a result of the District’s proposed construction of new facilities, as well as ongoing operation and maintenance activities (Project). The operation and maintenance activities would occur on District property and within established rights-of-way. New facilities would be constructed both onsite and offsite. The construction, operation, and maintenance activities that are the subject of this Incidental Take Permit involve the following:

- Phased expansion of existing treatment facilities (referred herein as Phases 1 and 2);
- Removal of an existing soil stockpile and expansion of an existing storage reservoir;
- Burial of an above-ground segment of a supply pipeline to the existing storage reservoir;
- Construction of a tertiary-treated water pipeline to the Rancho Maria Golf Course and environs;
- Construction of a tertiary-treated water pipeline to Waller Park and environs;
- Replacement of the Foster Road segment of the trunk sewer line;
- Operation and maintenance activities, such as repair/replacement of the existing piping and pump facilities, repair and maintenance of roads, vegetation maintenance, and erosion control.

This Habitat Conservation Plan (HCP) describes the Project and identifies the responsibilities of the USFWS, the District, and their successors and assigns. It describes measures that will be implemented by the District to minimize and mitigate the impacts of the proposed Project on CTS and CRLF (Covered Species) and their habitats including:

1. Pre-construction surveys and environmental training for contractor personnel;
2. Monitoring for compliance with minimization and avoidance measures during construction;
3. Protection of aquatic habitat during implementation of construction projects and operation and maintenance activities;
4. Protection of upland habitat during implementation of construction projects and operation and maintenance activities by implementing minimization and avoidance measures;
5. Protection of aquatic and upland habitat through acquisition, establishment, and management of a conservation easement that supports aquatic and upland habitat for Covered Species.

Avoidance and minimization measures will be implemented for all construction, operations, maintenance, and repair activities with potential to impact Covered Species or their habitat. Projects that result in permanent loss of CTS or CRLF upland habitat will be offset by placing commensurate acreage into a Conservation Easement to be maintained and managed in perpetuity for the benefit of Covered Species.

This HCP also describes measures to ensure that the elements of the plan are properly implemented. Funding sources for implementation, actions to be taken for changed circumstances and unforeseen events, alternatives to the proposed project, and other measures required by the USFWS are also discussed.
1.0 INTRODUCTION

This HCP is for construction, operation, and maintenance of existing and proposed facilities on and off District property. The HCP has been developed pursuant to the requirements of Section 10(a)(1)(B) of the Federal Endangered Species Act (FESA). It intends to provide the basis for issuance of a Section 10(a)(1)(B) permit to the District for incidental take of CTS and CRLF. Under Section 2081 of the California Fish and Game Code, the CDFW can issue Incidental Take Permits for state-listed threatened and endangered species. Because this HCP is intended to provide a means of addressing compliance with the Federal and California Endangered Species Acts (FESA/CESA), it will also provide the basis for an Incidental Take Permit (ITP) by the CDFW for CTS. The District requests the permit to be effective for 30 years commencing on the date of permit approval.

1.1 Biological Goals and Objectives

This HCP provides an assessment of the existing habitat in the Plan Area (including proposed facilities to be built on and off District property), evaluates the effects of the proposed development and operation and maintenance activities (Covered Activities) on CTS and CRLF and presents a mitigation plan to offset habitat loss and/or incidental take of these species that could result from the Covered Activities. The biological goals of this HCP are:

**Biological Goal 1: To minimize impacts of Covered Activities on Covered Species.**

*Biological Objective 1:* Develop a conservation strategy that includes Take-minimization and Avoidance Measures.

*Management Action:* Develop minimization and avoidance measures and pre-construction survey methodology to minimize project-related effects on the Covered Species. Periodically review the measures and survey approach, and revise as needed.

**Biological Goal 2: To permanently protect aquatic and upland habitat for Covered Species.**

*Biological Objective 2:* Establish a Conservation Easement that provides 132.83 acres of contiguous high quality aquatic breeding and upland refuge habitat for CTS and CRLF.

*Management Action:* Establish the Conservation Easement on District-owned property including and adjacent to the Reservoir Pool (designated on USFWS CTS Range Maps as “GUAD-3”), a documented breeding resource for CTS and CRLF.

**Biological Goal 3: To manage habitat in the Plan Area, including the Conservation Easement Area in perpetuity.**

*Biological Objective 3:* Provide a program that will manage habitat for the benefit of Covered Species for the duration of the permit.

*Management Action:* Develop and implement a Habitat Management Plan for the Conservation Easement, integrating an Adaptive Management strategy that entails periodic review (through field surveys) of the effectiveness of management actions, with a mechanism for adjusting such actions as needed. Quantitative evaluation of the will include measurements of small mammal burrow density, vegetation height and density in
upland habitat, and annual assessment of breeding success of Covered Species through aquatic surveys.

1.2 Permit Duration
The District is requesting a thirty (30)-year term for the FESA Section 10(a)(1)(B) permit and State Fish and Game Code Section 2081 permit. The 30-year permit term will allow the District to construct new facilities on and off District property to meet increasing demand for wastewater treatment. The HCP also addresses long-term operation and maintenance of existing and new facilities. The construction, operation, and maintenance of facilities would be accommodated while providing for protection and contributing to the recovery of the Covered Species. The construction of new facilities will occur in phases, as summarized in Table 1.

1.3 Regulatory Requirements
Section 9 of the FESA prohibits the taking of any federally listed endangered or threatened species. Section 3(19) of the FESA defines “take” to mean “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” USFWS regulations (50 CFR 17.3) define “harm” to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harassment is defined by the USFWS as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. The FESA provides for civil and criminal penalties for the unlawful taking of listed species. Exemptions to the prohibitions against take may be obtained through coordination with the USFWS in two ways: through interagency consultation for projects with Federal involvement pursuant to Section 7 or through the issuance of an incidental take permit under Section 10(a)(1)(B) of the FESA.

The CESA (California Fish and Game Code, Chapter 1.5, Sections 2050 et seq.) prohibits take of state listed threatened and endangered species. Under Section 2081 of the California Fish and Game Code, CDFW can issue Incidental Take Permits.

In the Plan Area, the Covered Species include CTS, which has both federal and state listed status. The CRLF is federally listed, but not state listed. As such, the HCP is designed to result in the issuance of a Section 10(a)(1)(B) incidental take permit from USFWS for both Covered Species and a Section 2081 Incidental Take Permit from CDFW for the CTS. The two Incidental Take Permits from USFWS and CDFW will collectively be referred to as the “Permit.”

1.4 Plan Area
The Plan Area is defined herein as: (1) District property where planned improvements are to occur, inclusive of proposed offsite recycled water pipelines south and east of the plant; (2) existing, onsite facilities (e.g. storage tanks and ponds, pumps, pipelines) and offsite sewer and recycled water pipelines, access roads that are periodically subject to maintenance, and maintenance and repair of facilities on District-owned property or District-held easements; and (3) the Conservation Easement (Figure 2).
The District’s wastewater treatment plant (Plant) is located at the western terminus of Dutard Road, approximately 0.8 mile west of the intersection with Black Road on APN 113-240-005 and -013 (Figures 1 and 2). The proposed new facilities described in Section 3, as well as the operation and maintenance of existing District facilities, including pipelines and access roads that are the subject of this Permit, are located on and off District-owned property (Figure 2). The Plan Area is located within the Guadalupe U.S. Geological Survey (USGS) topographic quadrangle (7.5” series), in Township 9N and Range 35W. Some of the new facilities, including two proposed recycled water pipelines, will be built off District property, as shown on Figures 2 & 3. The pipelines will be buried below ground. Above-ground facilities associated with the recycled water pipelines (e.g. lift stations, reservoirs) will be constructed off District property.

### 1.5 Species to be Covered by Permit

#### 1.5.1 California Tiger Salamander (CTS) Species Description and Status

The federally endangered and state threatened CTS and the federally threatened CRLF are the two species for which coverage under this permit is requested. These two species will be listed on the 10(a)(1)(B) permit and for which "no surprises" assurances will be given. The District will also request an ITP for the state-threatened CTS, pursuant to Section 2081 of the California Fish and Game Code.

The Santa Barbara County distinct population segment (DPS) of CTS was emergency listed on January 19, 2000 (USFWS 2000a) and listed as endangered on September 21, 2000 (USFWS 2000b). The CTS was listed as threatened throughout its range by the State of California in 2010 (California Code of Regulations, 2010).

Designated critical habitat in Santa Barbara County was first proposed for CTS in January 2004 (USFWS 2004a). The final rule for designated critical habitat for six disparate areas was published in November 2004 (USFWS 2004b). The Plan Area is within the Santa Barbara County Unit 1 (Western Santa Maria/Orcutt) of CTS critical habitat.

The CTS is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches, with males generally averaging about 8 inches and females averaging 6.8 inches. For both sexes, the average snout–vent length is approximately 3.6 inches. The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides and a yellow belly. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), more developed tail fins, and larger overall size (Stebbins 1962; Loredo and Van Vuren 1996).

This species is known from breeding ponds in northern Santa Barbara County. The range extends from the Santa Rita Valley northward to the Santa Maria Valley. There are six recognized metapopulations in Santa Barbara County.

Although CTS spend most of their lives in upland habitats, their reproduction is dependent on aquatic habitats. Migrations to and from breeding ponds occur during the rainy season (November to May), with the greatest activity from December to February (Storer 1925; Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding migrations are strongly associated with rainfall events (Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding may occur in one major
bout or during a prolonged period of several months, depending on annual rainfall patterns (Loredo and Van Vuren 1996; Trenham et al. 2000). While individuals may survive for more than 10 years, fewer than 50 percent breed more than once (Trenham et al. 2000). Combined with low survivorship of metamorphosed individuals [in some populations, less than 5 percent of marked juveniles survived to become breeding adults (Trenham et al. 2000)], reproductive output in most years is not sufficient to maintain populations.

The primary cause of the decline of the Santa Barbara County population of CTS is the loss, degradation, and fragmentation of habitat from human activities. Several other factors, including competition from introduced species, disturbance due to oil production, and overgrazing may have negative effects on CTS and their aquatic and upland habitats. Non-native or introduced predators of CTS include bullfrogs (*Rana catesbeiana*), mosquitofish (*Gambusia affinis*), Louisiana red swamp crayfish (*Procambarus clarki*), catfish (*Ictalurus* spp.), bluegill (*Leopomis macrochirus*), largemouth bass (*Micropterus salmoides*), fathead minnow (*Pimephales promelas*) and other introduced fish (Shaffer et al. 1993, Graf 1993; Gamradt and Kats 1996, Anderson 1968, Morey and Guinn 1992). A breeding population of non-native tiger salamander (*A. mavorium*) is also known from a stock pond just east of the intersection of State Route 246 and Cebada Canyon Road in the Santa Rita Valley (SES 2009). Hybrid and non-native tiger salamanders have established breeding populations at four locations in Santa Barbara County, based on recent genetic analysis (Hunt 2012). These include ponds on the Lompoc Federal Penitentiary property, a stock pond near the intersection of State Route 246 and Cebada Canyon Road, and irrigation ponds on the La Purisima Golf Course. Thus, hybridization threatens the Purisima Hills and Santa Rita Valley metapopulations of CTS as they are within dispersal range of these non-native tiger salamander breeding populations. CTS in the Plan Area are not currently threatened by hybridization.

1.5.2 California Red-legged Frog Species Description and Status

The CRLF was federally-listed as threatened on May 23, 1996 (USFWS 1996). The CRLF Recovery Plan was finalized on May 28, 2002.

Critical habitat for the CRLF was designated on March 13, 2001 (USFWS 2001). On November 6, 2002, the United States District Court for the District of Columbia set aside the designation for all areas except Units 5 and 31 and ordered USFWS to publish a new final rule with respect to the designation of critical habitat for the CRLF (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al*. Civil Action No. 01-1291 (RJL) U.S. District Court, District of Columbia). Critical habitat for the CRLF was re-proposed on April 13, 2004 (USFWS 2004c). USFWS revised the proposed critical habitat rule on November 3, 2005 (USFWS 2005). Designated critical habitat was finalized on April 13, 2006, along with a rule that exempts take liability from ongoing routine ranching activities (USFWS 2006). The Plan Area is not in or near any designated critical habitat units. The nearest critical habitat units in Santa Barbara County, as described in 73 FR 53492, include the San Antonio Terrace (from the vicinity of Casmalia south to Santa Lucia Canyon across the Purisima Hill), Arroyo Quemado to Refugio Creek, East of Tepusquet Road, East of Foxen Canyon Road, south of Lompoc along the Jalama Creek drainage, in the Las Cruces area along Gaviota Creek near the State Route 1 (SR 1) and U.S. Highway 101 (US 101) intersection, and along the upper Santa Ynez River drainage east of SR 154.
The CRLF is a relatively large frog ranging from 1 3/4 – 1 ¼ inches from the tip of the snout to the vent (Stebbins 1985). The historic range of the CRLF extended coastally from the vicinity of Point Reyes National Seashore, Marin County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico. CRLF have been found at elevations that range from sea level to about 5,000 feet. The species uses a variety of habitat types, which include various aquatic systems and surrounding upland habitats.

The diet of CRLF is highly variable. Tadpoles probably eat algae (Jennings et al. 1992). Hayes and Tennant (1985) found invertebrates to be the most common food item of adults. Vertebrates, such as Pacific chorus frogs (Pseudacris regilla) and California mice (Peromyscus californicus), represented over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Feeding activity probably occurs along the shoreline and on the surface of the water. Hayes and Tennant (1985) found juveniles to be active diurnally and nocturnally, whereas adults were largely nocturnal.

CRLF breed from November through March; earlier breeding has been recorded in southern localities (Storer 1925). Males appear at breeding sites from 2 to 4 weeks before females (Storer 1925). Female CRLF deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984). Egg masses contain about 2,000 to 5,000 moderate-sized, dark reddish brown eggs (Storer 1925; Jennings and Hayes 1985). Eggs hatch in 6 to 14 days (Storer 1925). Larvae undergo metamorphosis 3.5 to 7 months after hatching (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1990). Sexual maturity can be attained at 2 years of age by males and 3 years of age by females (Jennings and Hayes 1985); adults may live 8 to 10 years (Jennings et al. 1992) although the average life span is considered to be much lower.

Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the CRLF in the early to mid-1900s. Habitat loss and degradation continue to threaten CRLF populations where agriculture and urbanization occur within their range. Activities that contribute to erosion of stream banks and siltation of streams can smother and cause asphyxiation of CRLF eggs during the breeding season resulting in reduced numbers of CRLF larvae. Exotic predators like the bullfrog, catfish, bass (Micropterus spp.), mosquito fish, Louisiana red swamp crayfish, and signal crayfish (Pacifastacus leniusculus) were introduced in the 1800s to 1900s, and prey on at least one developmental stage of the CRLF. Raccoons (Procyon lotor) are known to depress CRLF populations in association with urban and rural developments.

1.5.3 Habitat Requirements of the California Tiger Salamander (CTS)

The CTS inhabits low elevation vernal pools and seasonal ponds and associated grassland, oak savanna, and coastal scrub plant communities of the Santa Maria, Los Alamos, and Santa Rita valleys in northwestern Santa Barbara County. CTS in the Purisima Hills occur at higher elevations. CTS prefer open grassland to areas of continuous woody or brushy vegetation. Historically, they bred primarily in natural vernal pools, but they have been able to breed successfully in human-made stock ponds created for ranching and agricultural purposes.

Terrestrial movements made by CTS can be grouped into three main categories: (1) breeding migration; (2) juvenile dispersal; and (3) inter-pond dispersal. Breeding migration is the movement of salamanders between a pond and the surrounding upland habitat. After
metamorphosis, juveniles disperse from their natal pond into the surrounding uplands, where they remain for several years before returning to breed. Trenham et al. (2001) reported that upon reaching sexual maturity, approximately 3 to 5 years after metamorphosis, most individuals return to their natal/birth pond to breed while 20 percent disperse to other ponds. Following breeding, adult CTS return to upland habitats, where they may live for one or more years before breeding again (Trenham et al. 2000).

CTS are known to travel long distances from breeding ponds into upland habitats. Maximum distances moved are generally difficult to establish for any species, but CTS have been recorded to disperse 1.37 miles (2.2 kilometers) from breeding ponds (Orloff 2011). CTS are known to travel between breeding ponds; one study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001). This same study projected that 0.70 miles (about 3,700 feet or 1.1 kilometers) would encompass 99 percent of interpond dispersal (Trenham et al. 2001). A trapping study conducted in Solano County during winter 2002–03 found that juveniles used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). The authors indicated that 95% of all adult CTS were trapped within 2,034 feet of the pond from which they were dispersing and that 95% of all subadults were trapped within 2,067 feet of their natal pond. In contrast, Orloff (2011) found that a majority of CTS captured were 2,640 feet or more from the nearest breeding pond. Orloff (2011) concluded that Search and Shaffer’s (2008) assumption of exponential decrease in CTS numbers with increased distance from breeding ponds may not be applicable in all situations.

1.5.4 Habitat Requirements of the California Red-legged Frog (CRLF)

CRLF breed in aquatic habitats. Larvae, juveniles and adults have been collected from streams, creeks, ponds, marshes, plunge pools and backwaters within streams, dune ponds, lagoons and estuaries. CRLF frequently breed in artificial impoundments, such as stock ponds, if conditions are appropriate. Although CRLF successfully breed in streams and riparian systems, high spring flows and cold temperatures in streams make these sites risky environments for eggs and tadpoles. The importance of riparian vegetation for this species is not well understood. When riparian vegetation is present, CRLF spend considerable time resting and feeding in it; the moisture and camouflage provided by the riparian plant community likely provide good foraging habitat and may facilitate dispersal in addition to providing pools and backwater aquatic areas for breeding.

Juvenile and adult CRLF may disperse long distances from breeding sites throughout the year. They can be encountered living within streams at distances exceeding two miles from the breeding site and have been found up to 400 feet from water in adjacent dense riparian vegetation (Bulger et. al 2003, USFWS 2010a). During periods of wet weather, starting with the first rains of fall, some individuals may make overland excursions through upland habitats. Most of these overland movements occur at night. Bulger et al. (2003) found marked CRLF in Santa Cruz County making overland movements of up to 2 miles over the course of a wet season. These individual frogs were observed to make long-distance movements that are straight-line, point to point migrations over variable upland terrain rather than using riparian corridors for movement between habitats. For the CRLF, suitable habitat is potentially all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture.
1.5.5 Status of the California Tiger Salamander in the Plan Area

CTS are distributed in six metapopulations in Santa Barbara County:

- southwestern Santa Maria Valley (West Orcutt), which includes the Plan Area;
- southeastern Santa Maria Valley (Bradley-Dominion);
- west Solomon Hills/north Los Alamos Valley;
- east Los Alamos Valley,
- Purisima Hills and
- Santa Rita Valley.

There are five known CTS breeding ponds in and near the Plan Area. These are:

1. GUAD-3, also known as the Reservoir Pool;
2. SAMA-3, also known as the Black Road Pool;
3. SAMA-2, also known as the Mahoney Pools, east of the Plan Area;
4. GUAD-2, south of the Plan Area; and
5. GUAD-1, south of the Plan Area (Figure 3).

Three known CTS breeding ponds lie in proximity to the proposed recycled water pipeline alignments: SAMA-4; SAMA-6; SAMA-7; SAMA-10; and SAMA-21 (Figure 3). Another two potential CTS breeding ponds are within 2,200 feet of the Foster Road segment of the trunk sewer line: SAMA-8 and SAMA-20.

The Plan Area is within the southwestern West Orcutt subpopulation of CTS. This subpopulation is part of the Southwestern Santa Maria Valley metapopulation, and encompasses the known CTS breeding sites extending from the Casmalia Hills on the south to the Santa Maria Airport on the north and from west of Black Road to eastward to SR 135 (Figure 3). There are 12 known CTS breeding sites and several potential breeding sites within this area. Four of these known ponds occur along the base of the Casmalia Hills, just off the southwestern edge of the Orcutt Dune Sheet. The other eight ponds occur on the Orcutt Dune Sheet (Figure 3).

Larval CTS have been found at three locations during field surveys on and adjacent to District property: 1) a seasonal pool, the majority of which lies on District-owned property (Reservoir Pool = GUAD-3); 2) a seasonal pool adjacent to Black Road (Black Road Pool = SAMA-3); and 3) a complex of seasonal pools on private property north of Dutard Road east of Black Road (Mahoney Pools = SAMA-2). These locations are among the westernmost documented occurrences of CTS in the Santa Maria Valley. There are also anecdotal accounts of adult CTS reported at three other locations within and adjacent to the District’s property (Hunt & Associates 2000).

The Reservoir Pool covers approximately 2-3 acres at capacity. It is bisected by PG&E’s transmission line corridor (a legal parcel) (Figure 3). During the spring seasons of 2005, 2006, and 2008, the Reservoir Pool was surveyed by USFWS and local biologists. CTS larvae were observed in each year (Drexhage 2005, 2006, 2008). Additionally, District operations and maintenance personnel have found adult CTS above-ground on foggy mornings in grassland several hundred feet north of Reservoir Pool (Hunt & Associates 2000). An adult male CTS was
captured during the course of upland drift fence surveys in February of 2014, near the western boundary of APN 113-240-014 (SES 2014).

CTS were found on the Mahoney property (APN 111-140-007, APN 111-130-006, and APN 111-020-006) northeast of the intersection of Black Road and Dutard Road during drift fence surveys conducted during the 2003-2004 rainy season (Hunt & Associates 2004).

The Rancho Maria Golf Course recycled water pipeline alignment runs south along Black Road. SAMA-3 lies adjacent to Black Road. CTS captured during upland drift fence surveys on APN 113-250-014 in 2004-05 were presumed to be migrating to irrigation ponds on the Rancho Maria Golf Course property for breeding (Semonsen 2005).

The Waller Park recycled water pipeline extension would be constructed primarily, though not exclusively within existing roadways, road shoulders, or other paved surfaces. The alignments lie within dispersal distance of four known CTS breeding ponds on the Santa Maria Airport property (SAMA-4; -6; -7; and -10).

The Foster Road segment of the trunk sewer line is proposed for repair. It is within 2,200 feet of two potential CTS breeding ponds: SAMA-8 on Santa Maria Airport property; and SAMA-20, which is a flood control detention basin near the Foxenwood residential development in association with the Union Valley Parkway Project. Two years of upland drift fence surveys were conducted at the latter, with no CTS captures (Olson, personal observations).

1.5.6 Status of the California Red-legged Frog (CRLF) in the Plan Area

Adult and subadult CRLF have been found at five specific locations on the District’s property. These are: 1) the westernmost man-made effluent storage ponds located adjacent to the channelized section of Orcutt (Solomon) Creek and adjacent access roads approximately 7,000 feet west of the treatment plant; 2) shoreline of the existing storage reservoir; 3) in the Reservoir Pool, and 4) in irrigated pastures north and west of the treatment plant (Hunt & Associates 2000, Storrer 2006a, 2006b, and Drexhage 2005); and 5) tributaries to Orcutt Creek north and west of the plant (SES 2006a, 2006b). This species was found in the Reservoir Pool in the springs of 2005, 2006, and 2008 during CTS surveys conducted by USFWS and local biologists (Drexhage 2005, 2006, 2008). CRLF were also found in the Reservoir Pool during sampling for CTS in spring of 2011 (Storrer 2011).

Adult and subadult CRLF were observed in and adjacent to the District’s effluent storage ponds and a nearby tributary to Orcutt/Solomon Creek during surveys and monitoring for flood control maintenance work in winter of 2005 and summer of 2006 (SES 2006a, 2006b). CRLF have been observed on pasture lands (APN 113-210-015) used for irrigation by the District (Drexhage 2005). There are also several accounts of CRLF reported within a one-mile radius of the Plant.

CRLF are known to inhabit several reaches of Orcutt-Solomon Creek and its tributaries. The species has also been recorded in the existing irrigation reservoirs on the Rancho Maria Golf Course property (SBCo 2010).

CRLF have been documented in drainage ditches north and east of the Santa Maria Airport in proximity to the Waller Park Recycled Water Pipeline alignment (Figure 3) (SES 2003).
CRLF were captured during CTS upland drift fence surveys in the vicinity of SAMA-20, approximately 1,500 feet southeast of the Foster Road segment of the trunk sewer line (Olson, personal observations).
2.0 ENVIRONMENTAL SETTING/BIOLOGICAL RESOURCES

2.1 Environmental Setting

2.1.1 Land Use

The District’s Wastewater Treatment Plant is located on APNs 113-240-005 and -013, at the western terminus of Dutard Road (Figure 2). District-owned property includes an adjacent parcel to the east (APN 113-240-011) and adjoining parcels to the northwest (APN 113-200-013 and APN 113-210-015) as well as a portion of APN 113-240-002 north of Orcutt Creek (Figure 3). Land uses in the surrounding area are agricultural row crops and the District’s irrigated cattle pasture.

2.1.2 Climate

The climate in Santa Maria is mild with warm year-round temperatures, dry summers, and cool Pacific breezes with an average of 15 inches of rain each year.

2.1.3 Topography/Geology

CTS ponds associated with the Santa Maria Valley (West Orcutt) subpopulation occur on the Orcutt Dune Sheet, an ancient windblown sand deposit that covers the southern one-half to two-thirds of the valley. Soils in the area are classified as Betteravia-Garey association, consisting of moderately well drained sands and well-drained loamy sands to sandy loams on terraces (Shipman, 1972). The site is underlain by terrace deposits and the Orcutt formation. Site specific soil ranges in consistency from silty to clayey sand, dense silty sand, firm clay, poorly graded sand, clay with sand and dense silty sand and gravel depending on depth.

2.1.4 Hydrology/Streams, Rivers, Drainages

Surface waters in the Plan Area include a tributary to Orcutt/Solomon Creek, north, west, and east of the plant, the Reservoir Pool (seasonal pool), and the District’s existing effluent storage reservoir to the north. A series of nine man-made storage ponds lie just north of Orcutt/Solomon Creek approximately one mile northwest of the plant. These are designated as potential CTS breeding pond GUAD-9 on the USFWS CTS range maps (USFWS 2010b). The remainder of the District’s property is in irrigated pasture, irrigated cropland, or ancillary facilities in support of plant operations (e.g. solar array). The District’s treatment plant lies in or above the Orcutt/Solomon Creek floodplain.

Orcutt/Solomon Creek

Orcutt/Solomon Creek is an intermittent drainage that originates near the top of the Solomon Grade several miles southeast of the Plan Area and flows in a northwesterly direction through the town of Orcutt and District property, eventually joining the Santa Maria Rivera. Orcutt/Solomon Creek has a well-defined riparian scrub zone and is known habitat for CRLF.

Man-made Storage Ponds (GUAD-9)

A series of nine man-made storage ponds lie parallel to Orcutt/Solomon Creek approximately one mile northwest of the plant. These ponds are used for temporary storage of treated effluent and as
such, water levels are highly variable over seasonal and annual cycles, depending on whether the reservoir is being used for storage during the wet months or discharge during the dry months. The ponds are used very little, if at all, during years with low rainfall and only intermittently during “wet” years when additional, temporary storage capacity is needed. The ponds are relatively shallow, unlined basins that support varying densities of bulrush, cattail, and other emergent aquatic plant species. These are designated as potential CTS breeding ponds GUAD-9 on the USFWS CTS range maps (USFWS 2010b).

**Storage Reservoir**

The 300 million-gallon reservoir located to the north of the plant is used for temporary storage of treated effluent. The intake is 5 to 6 feet from the bottom of the structure. Water volume fluctuates dramatically depending on whether the reservoir is being used for storage during the wet months or discharge during the dry months. Pumping water from the reservoir occurs daily when it’s not raining (though typically not on Sundays), for anywhere from short periods of a few hours to upwards of 20 hours in a day. Timing and volume of discharge are largely dependent on demand by beneficial users. These include farmers, ranchers, and oil and gas producers. The draw-down is greater when evapotranspiration demand is high. It is generally at its peak in March/April and lowest in Oct/Nov.

**Reservoir Pool (GUAD-3)**

The Reservoir Pool (GUAD-3) is located northwest of the plant. It lies primarily on APN 113-240-002, extends across APN 113-240-003 and slightly onto APN 113-240-013 (Figure 3). The District owns that portion of APN 113-240-002 containing the majority of the pool as well as APN 113-240-013. APN 113-240-003 is owned by PG&E; it supports an overhead high voltage transmission line. The pond covers approximately 2-3 acres at capacity. The dominant vegetation in the pool is spike rush (*Eleocharis macrostachya*), with curly dock (*Rumex crispus*) and cockle-bur (*Xanthium strumarium*) also present. Small clumps of California bulrush (*Scirpus californicus*) are scattered along the northeast shoreline of the pool. Scattered coyote brush (*Baccharis pilularis*) and a few willows (*Salix* sp.) border the southeastern side of the pool; otherwise the wetland vegetation gradually gives way to annual grasses and forbs (Hunt & Associates 2000).

**Black Road Pond (SAMA-3)**

The Black Road Pond (SAMA-3) is located southeast of the plant and is partially within the County road right-of-way and partially on private property (APN 113-240-006) (Figure 3). At capacity, the Black Road Pond covers approximately 0.2 acres with a maximum depth of 36 inches (Hunt & Associates 2000).

2.1.5 **Vegetation**

Vegetation within the Plan Area consists of cultivated agriculture, annual grassland (typically grazed pasture, mostly irrigated), willow riparian (associated with Orcutt/Solomon Creek), scattered emergent wetlands (as described above), and remnants of stabilized dune scrub. The area east of the plant into which facilities would be expanded is used for irrigated agriculture. There is no vegetation associated with the sludge drying beds to be replaced north of plant as these are periodically cleaned of accumulated sediment and the containment berms reconstructed.
Since the reservoir stockpile was created in 1993, it has become vegetated with non-native annual grasses, dominated by Italian ryegrass (*Lolium multiflorum*), ripgut grass (*Bromus diandrus*) and soft chess (*Bromus hordeaceus*) and coyote brush (*Baccharis pilularis*). To the north of the stockpile is the reservoir and further to the north and east are cultivated row crops. To the west of the stockpile are the District’s irrigated pastures that are vegetated with non-native grasses.

The offsite pipelines would be constructed primarily within public road rights-of-way. Vegetation along the road shoulders is comprised mainly of ruderal plant species (SBCo 2010). Repair work on the Foster Road segment of the trunk sewer line would be within a ROW that is mostly in and along an existing paved/dirt road near the North County administration building complex.

### 2.1.6 Wildlife

Common amphibians and reptiles that occur in the area include northern Pacific treefrog (*Pseudacris regilla*), western toad (*Anaxyrus boreas*), western fence lizard (*Sceloporus Occidentalis*), southern alligator lizard (*Elgaria multicarinata*), common kingsnake (*Lampropeltis getulus*) and gopher snake (*Pituophis catenifer*). Others with potential to occur in the project are black-bellied slender salamander (*Batrachoseps nigriventris*), and ensatina (*Ensatina eschscholtzii*).

Bird species that are known to occur at the project site include great blue heron (*Ardea herodias*), Wilson’s snipe (*Gallinago delicata*), killdeer (*Charadrius vociferus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), bushtit (*Psaltriparus minimus*), black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), common black-hooded jay (*Aphelocoma californica*), European starling (*Sturnus vulgaris*), Hutton’s vireo (*Vireo huttoni*), western meadowlark (*Sturnella neglecta*), California towhee (*Pipilo crissalis*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Carpodacus mexicanus*), and purple finch (*Carpodacus purpureus*).

Mammals that occur in the Plan Area include brush rabbit (*Sylvilagus bachmani*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheii*), striped skunk (*Mephitis mephitis*), Botta’s pocket gopher (*Thomomys bottae*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*) and coyote (*Canis latrans*).
3.0 PROJECT DESCRIPTION/ACTIVITIES COVERED BY PERMIT

3.1 Background
The District is a dependent special district of the County of Santa Barbara, formed in 1958 to provide municipal wastewater collection, treatment and disposal for the unincorporated Santa Maria area, the town of Orcutt, and a portion of southern part of the city of Santa Maria. Wastewater is treated at the District’s wastewater treatment plant located at the western terminus of Dutard Road west of the Santa Maria Airport (Figure 1). Tertiary and secondary treated effluent is disposed of through reclamation for uses such as irrigation and industrial process water. Storage facilities are used to hold treated effluent during low use periods (winter) for later supply during the high use periods (summer). The District’s current seasonal storage capacity consists of nine “farm ponds” (90 million gallons of storage capacity), one large reservoir (300 million gallon capacity). Short-term storage for delivery to offsite locations is facilitated by two above-ground tanks (1 million gallons of storage capacity each). Water is pumped on-demand from the holding tanks year-round. However, water stored during low-use periods (late winter to early spring) is pumped from the storage reservoir and ponds to pastures for disposal through spray irrigation. The storage reservoir and farm ponds are typically empty or nearly empty between September and November of each year.

3.2 Project Description
Activities covered by this HCP include construction of new facilities on land owned by the District, as well as construction of two pipelines to deliver treated effluent to offsite destinations for beneficial use. Pipelines would be constructed largely within existing District-owned easements or rights-of-way. Existing pipelines, including a brine discharge line and trunk sewer line are located within District rights-of-way. Operation, maintenance and repair of these pipelines and appurtenances would be covered under this HCP. The projects described herein are expected to occur over the 30-year duration of the permit. Timetables for implementation vary, depending on factors such as demand for services, completion of CEQA review, and appropriation of funding. Some of the projects described are ready to begin construction upon approval of this HCP and issuance of permits. A tentative schedule and estimated duration for these projects is shown in Table 1. This HCP also covers the operation, maintenance, repair and replacement of existing and planned treatment, collection, and distribution facilities. Operations and maintenance activities would be ongoing, at constant or regular intervals over the term of the permit. Repair of utilities would be undertaken on an as-needed basis.

Six main components to future development are addressed as follows.

Upgrades to Existing Facilities
New facilities are planned to extend on the east side of the current Plant perimeter (Figure 3). The upgrades would occur in two phases. New facilities would include process structures, tanks, filtration equipment, pumps, and piping. Existing earthen sludge drying beds north of the plant would be reconstructed to provide impermeable containment. The area into which these new improvements would occur presently consists of 8.2 acres of cultivated agriculture to the east and existing sludge drying beds occupying 3.43 acres to the north (Table 1). The impermeable sludge
drying beds would be constructed within the footprint of the existing unlined structures and are to be expanded under Phase 2 to increase capacity. This area is considered potential upland dispersal habitat for CRLF and CTS (CDFW 2013, USFWS 2013).

Flood protection consisting of a concrete wall and soil berm (“flood wall”) will be constructed on the perimeter of the plant to protect against overflow from Orcutt Creek. The wall will encompass all existing and planned facilities. It will consist of 1,203 lineal feet of concrete and 2,305 lineal feet of earthen berm. The flood wall is designed to provide a 3’ freeboard. The berm varies in height to maximum of 7’ and maximum width of 47’ (based on an inside slope of 2:1, a 5’ width and a 4:1 outside slope. The flood wall would constitute an impediment, if not a complete barrier to CTS dispersal. The majority of the interior of the wall is occupied by existing facilities. 11.63 acres consist of the existing sludge drying beds (to be replaced) and fallow agricultural land (to be developed) as described above. This area is currently considered potential CTS upland refuge habitat due to the proximity of known breeding ponds and presence of small mammal burrows.

Burial of Existing Above-ground Storage Reservoir Supply Pipeline

An existing 12-inch diameter PVC pipeline transports treated effluent to the reservoir north of the Plant for temporary storage. Segments of the pipeline lie above-ground. The District plans to bury the pipeline to avoid risk of damage and effects of UV deterioration. The above-ground segment is approximately 2,274 feet in length. It would be buried by excavating at 4-foot-deep trench, installing the pipeline, and backfilling. The north/south segment of the pipeline alignment traverses the soil stockpile that was created when the reservoir was constructed in 1991-1993. The east-west segment runs along the south berm of the existing storage reservoir (Figure 3). The area has since been colonized with annual grassland, ruderal, and native scrub plant species. The native scrub species include coyote brush, California sagebrush, and coast goldenbush. Portions of the stockpile contain small mammal burrows which could serve as refugia for CTS and CRLF breeding in the Reservoir Pool. Pipeline burial would result in temporary impacts to 0.78 acre of suitable upland habitat for CTS, assuming a construction corridor of 15 feet in width (Table 1).

Replacement of Trunk Sewer Line Adjacent to Foster Road

The District operates and maintains an existing 12-inch diameter vitrified clay pipe (VCP) sewer line. A 4,750-foot segment of the sewer line paralleling the south side of Foster Road between Blosser Road and Foxenwood Lane (Figure 2) has been subject to obstruction by penetration of tree roots, causing backup and surface expression of untreated sewage. The District plans to replace the existing line with 12-inch diameter PVC pipe. The sewer line would be replaced in 350-foot segments over time, depending on availability of funding. Shoring would be used to minimize the width of the trench. The project would result in 1.64 acres of temporary disturbance to CTS and CRLF upland refuge and dispersal habitat and has the potential for incidental take of both species.

Rancho Maria Golf Course Recycled Water Pipeline

The project entails construction of approximately 10,500 feet of buried 12-inch diameter PVC pipeline from the District’s treatment plant on Dutard Road to the Rancho Maria Golf Course on SR 1 (Figure 3). The pipeline alignment follows existing County and State road rights-of-way, extending south on Black Road for a distance of 4,200 feet, turning east along SR 1 for about 4,800 feet before turning into the entrance road to the Rancho Maria Golf Course. The private portion
travels another 1,500 feet before terminating at an existing storage reservoir. The project includes a new storage reservoir and connecting pipeline. The project is considered a beneficial use, as it replaces consumption of groundwater for landscaping and serves as a means of discharge for the District. A Mitigated Negative Declaration (SBCo 2010) has been prepared for the project. The project would result in approximately 3.62 acres of temporary disturbance for pipeline installation, the majority of which is within existing paved roadways or road shoulders. The new storage reservoir would cover approximately 0.27 acres, which is currently landscaped with grass as part of the playing surface. Both CTS and CRLF are known to occur in the vicinity. CTS are known to occur in Black Road Pond (SAMA-3) which lies adjacent to Black Road and has been recorded along SR 1 near the entrance to the golf course (Semonsen 2005) (Figure 3). CRLF have been recorded in the existing irrigation reservoirs at the Rancho Maria Golf Course (LFR 2005; PCR 2003) and in Black Road Pond (Hunt 2000). Both CTS and CRLF could be encountered during trench excavation, pipeline installation, and reservoir construction. Avoidance and minimization measures for this recycled water pipeline are included among the measures described in Sections 4.6 and 4.7.

The District would be responsible for construction and operation of the pipeline. Rancho Maria Golf Course would assume operation and maintenance of the reservoir.

Waller Park Recycled Water Pipeline

The District plans to construct a pipeline to deliver tertiary-treated water to Waller County Park to supply irrigation for lawns and landscaping. This project would also be considered a beneficial use, as it replaces consumption of groundwater for turf and landscaping and serves as a means of discharge for the District. The project is currently in the design phase. The pipeline alignment is illustrated in Figure 3. The project also entails construction of a 1 million-gallon capacity above-ground welded steel storage tank at Waller Park. Environmental review and permitting for the project are pending design and cost analyses. CRLF are known from ponds and drainage ditches in proximity to the pipeline alignments and could be encountered during excavation, particularly on rainy nights when frogs are most prone to dispersal. Avoidance and minimization measures for this recycled water pipeline are included among the measures described in Sections 4.6 and 4.7.

The District would be responsible for construction and operation of both the pipeline and storage tank.

Removal of Existing Soil Stockpile and Storage Reservoir Expansion

The District plans to expand the existing reservoir to meet anticipated demand for increased storage capacity. The main storage reservoir is an earth-lined structure located on a bluff about 1/2-mile north of the plant and about 40 feet higher in elevation than the plant site (Figure 3). The reservoir was constructed in 1991 in an initial phase to store approximately 100 million gallons. An expansion in 1993 deepened the reservoir and increased the storage volume to approximately 300 million gallons. Excavated soils for both phases of work were stored directly south of the reservoir (“reservoir stockpile”). Between 1991 and 1993, the District excavated about 1,000,000 cubic yards of soil to create the 300 million-gallon reservoir. Since the reservoir stockpile was initially formed, approximately 200,000 cubic yards have been removed for use as fill material offsite. The first phase of the project will involve the removal of the remainder of the soil stockpile. The material will be excavated and hauled away based on the demand for the clean native soil by third
parties. It is anticipated that all the soil will be removed over a 3-5 year period and will most likely be used within the Santa Maria Valley area or vicinity depending upon the need for fill material. Third parties purchasing the soil would provide heavy equipment, trucks, and personnel; however, soil removal would be done in compliance with the requirements of the District under this HCP.

Following the stockpile removal, the District is proposing to construct an engineered expansion of the reservoir that meets seismic stability and slope stability design criteria on the 157-acre District owned parcel (APN 113-240-013). The storage reservoir expansion is required to meet the demand for additional wastewater treatment, disposal, and storage capacity from build-out of the adopted Orcutt Community Plan (Santa Barbara County, 1995 amended 2001 and 2004). The existing reservoir occupies approximately 30 acres while the expansion area currently encompassed by the stockpile would occupy an adjacent area of approximately 26 acres. Soil excavated for the reservoir expansion would be placed within the 26-acres occupied by the existing reservoir stockpile. Excavation and removal (offsite transport) would occur in relation to the demand for fill material, as described for the existing stockpile. The internal reservoir sides would be constructed at a 3:1 slope consistent with the existing reservoir. The maximum water surface level would be set to provide a free board of 2 feet. A minimum 15-foot-wide road/berm would be located around the exterior of the pond to provide for access and maintenance consistent with the existing reservoir. Connection between the proposed and existing reservoirs would either be by removal of the separating berm or by pipes placed in the berm between the reservoirs. It is expected that the existing pumping systems which transport water from the treatment facility would be used for both the existing reservoir and reservoir expansion since they would interconnect. Similar to the existing reservoir, the reservoir expansion would be unlined, since the soil is considered “engineered clay” with negligible permeability.

3.3 Activities Covered by Permit

Anticipated incidental take associated with the proposed construction, operation and maintenance or repair of new facilities could potentially include mortality to, or injury of, terrestrial adult or juvenile CTS or CRLF associated with the removal of upland habitat. CTS and CRLF could be crushed while harboring in burrows. Vehicle traffic has some potential to result in mortality of Covered Species, however vehicle use associated with facility operations is generally limited to daytime hours. Finally, harassment from relocating encountered CTS and CRLF may significantly disrupt normal behavioral patterns, including breeding, feeding, or sheltering. Take resulting from the construction and operations authorized under this Permit/HCP will be incidental to the otherwise lawful and permitted activities conducted by the District. Activities that will be covered by this HCP are listed in Table 1 and described more fully in Appendix B. Appendix B describes a programmatic approach to mitigating the effects of the Covered Activities that is based on potential for impacts to, or take of the Covered Species and the duration of the effect (i.e. temporary impact or permanent impact). The following activities will be covered by the 10(a)(1)(B) permit associated with this HCP. These activities are described in greater detail in Appendix B.
3.3.1 Activities with No Potential for Take of, or Impacts to, Covered Species

1. Construction of additions to existing facilities where the work area will be completely contained within hardscape substrate. Examples include small scale additions to existing buildings that occur on paved or concrete areas.

2. Construction of new facilities/buildings where work will be limited to hardscape substrate. The locations of these facilities would be in the vicinity of existing buildings on asphalt or concrete.

3. Installation of new linear facilities where all work, including excavation, parking, staging, and laydown, is contained completely within a paved road (no work on the shoulders).

4. Maintenance and repair of new linear facilities where all work, including excavation parking staging, and laydown, is contained completely within a paved road (no work on the shoulders).

Compensatory mitigation will not be required for activities in this category because there is no potential for take of Covered Species and there will be no impacts to Covered Species’ aquatic or upland habitat, as described in “Construction, Maintenance, and Repair of Linear Facilities with Entire Disturbance Area Restricted to Paved Roads” and “Construction of New Facilities and Additions to New Facilities with Entire Disturbance Area Restricted to Existing Hardscape” in Appendix B.

3.3.2 Activities with Minimal Potential for Take of, and Impacts to, Covered Species

1. Ongoing maintenance and repair of access roads, pumps, and other equipment that can be accessed via existing roads. These activities and the potential for impacts to Covered Species due to implementation of the activities are described in “Operation, Repair and Maintenance Activities” in Appendix B. The District plans to reroute and abandon a segment of an existing service road that runs along the eastern perimeter of GUAD-3, as described in the Conservation Easement Area Management Plan (Appendix D).

2. Livestock grazing, including the movement of cattle from pasture to pasture, as well as the maintenance of watering facilities for the cattle. This activity does not include irrigation of the pastures. Livestock grazing activities and the potential for impacts to the Covered Species are described in “Operation, Maintenance, and Repair Activities” in Appendix B.

3. Construction of a recycled water pipeline to the Rancho Maria Golf Course. The pipeline will be constructed mostly in areas of prior disturbance, including in and along existing roads and in compacted road shoulders. As such, the potential for take of Covered Species and for impacts to the Covered Species is minimal. These activities are described in “Construction of New Pipelines and Burial of Existing Above-ground Pipeline” in Appendix B.

4. In-kind replacement or repair of existing pipelines that will occur primarily within areas of disturbance with few or no small mammal burrows. Such areas have minimal potential for the occurrence of Covered Species and upland habitat for Covered Species. These activities are generally described in “Construction of New Pipelines and Burial of Existing
Above-ground Pipeline” and “Operation Maintenance, and Repair Activities” in Appendix B.

3.3.3 Activities with Low Potential for Take of, and Impacts to, Covered Species

1. Ongoing maintenance and repair of pipelines, pumps, and associated equipment. These activities are similar to those included above for access roads and pumps, but repairs to pipelines have a higher potential of work occurring away from areas of existing disturbance and more potential for work in natural habitats where small mammal burrows might be present. These activities and the potential for impacts to Covered Species due to implementation of the activities are described in “Operation, Maintenance, and Repair Activities” in Appendix B.

2. Construction of a recycled water pipeline to Waller Park. These activities will be similar to those described for construction of a recycled water pipeline to the Rancho Maria Golf Course, but the route to Waller Park traverses more natural habitat with higher potential to contain small mammal burrows. As such, the pipeline to Waller Park has more potential for take of Covered Species and impacts to upland habitat for Covered Species. The activities associated with the construction of this pipeline are described in “Construction of New Pipelines and Burial of Existing Above-ground Pipeline: in Appendix B.

3. Replacement of the Foster Road trunk sewer line. The activities necessary to replace this line will occur along an existing Right-of-Way (ROW), most of which contains moderate to high levels of prior disturbance. Limited areas along the ROW have small mammal burrows, and as such, represent potential upland habitat for the Covered Species. The activities associated with the replacement of this trunk sewer line are described in “Operation, Maintenance, and Repair Activities” in Appendix B.

4. In-kind replacement or repair of pipelines that will require disturbance to natural habitat with small mammal burrows. Such areas have low potential for the occurrence of Covered Species and upland habitat for Covered Species. These activities are generally described in “Construction of New Pipelines and Burial of Existing Above-ground Pipeline” and “Operation, Maintenance and Repair Activities” in Appendix B.

5. Anticipated repair, replacement, and maintenance of offsite facilities such as pipelines and pumping equipment in disturbed areas. These activities would occur in and along existing roads and other areas of disturbance where there are no small mammal burrows. Such areas would have low potential for take of, or impacts to, Covered Species. With the exception of the Trunk Sewer Line Replacement Project listed in Table 1, the timing and scope of repair and replacement activities cannot be predicted, as repairs are addressed on an as-needed basis. These activities are generally described in “Operation, Repair and Maintenance Activities” in Appendix B.

6. Activities associated with irrigation of pastures. Pasture irrigation occurs on a rotational basis which is largely determined by the tenant that leases the property for grazing cattle. Irrigation among one or more of the District’s parcels can occur daily. Piping consists of portable sections of 4-inch diameter aluminum pipe that is assembled and laid above-ground. This is typically done by 2 laborers using a pickup truck.
The transport of irrigation pipe by workers represents only minimal potential for take, and impacts to, Covered Species, however the driving of vehicles across areas of natural vegetation could result in take of Covered Species if burrows are crushed. These activities are generally described in “Operation, Repair and Maintenance Activities” in Appendix B. Among the avoidance and minimization measures will be the use of existing roads to the extent possible and traveling within the same two-wheel tracks to the extent possible.

Potential effects of pasture irrigation on small mammal burrows and CTS are discussed in Appendix E.

7. Construction of Phase II upgrades to the plant in an area periodically used for cultivated agriculture. This area contains no or few small mammal burrows that could be used for harborage and therefore, has low potential for take of, or impacts to, Covered Species. Small mammal burrows could occur at agriculture field edges. These activities are generally described in “Construction of Phase II Upgrades to the Plant” in Appendix B.

3.3.4 Activities with Moderate to High Potential for Take of, and Impacts to, Covered Species

1. Anticipated repair, replacement, and maintenance of offsite facilities that will include work in areas that contain natural vegetation and/or substrates (not impervious surfaces and not in compacted road shoulders). These activities would take place where small mammal burrows are likely to occur due to lack of impervious surfaces. Such areas would have moderate to high potential for take of, or impacts to, Covered Species. These activities are generally described in “Operation, Repair and Maintenance Activities” in Appendix B.

2. Construction of Phase II upgrades where the current facility boundary would be extended eastward into the adjacent agricultural field (Figure 3). This area may contain small mammal burrows during periods when the field is fallow, and therefore, could result in take of, or impacts to, Covered Species. These activities are generally described in “Construction of Phase II Upgrades to the Plant” in Appendix B.

3. Replacement of the existing sludge drying beds at the north end of the plant (Figure 3). The existing structures are enclosed by earthen berms, which contain small mammal burrows that may serve as refuge habitat for Covered Species. The bottoms of the basins are periodically cleared of accumulated residue using a front-end loader or backhoe and the material is transported offsite for beneficial use. The new, impermeable drying beds would be constructed within the footprint of the existing structures.

4. Burial of above-ground pipeline to the existing storage reservoir. The work activities for this task will traverse a combination of disturbed and natural habitats. There is potential for small mammal burrows to occur and thus take of Covered Species. These activities are described in “Construction of New Pipelines and Burial of Existing Above-ground Pipeline” in Appendix B.

5. Removal of existing soil stockpile and construction of a new storage reservoir. The areas to be disturbed for this task will include natural habitats that contain small mammal burrows. As such, there is moderate to high potential for take of, and impacts to, the
Covered Species. These activities are described in “Removal of Existing Soil Stockpile and Construction of New Reservoir” in Appendix B.

6. Operation and maintenance of the existing storage reservoir, man-made storage ponds, and associated facilities. Operation of the storage reservoir consists of periodic pumping of accumulated tertiary-treated effluent for beneficial uses, as describe in Section 2.1.4. The expanded reservoir would use the same pumping equipment and discharge pipelines. CTS are known from the Reservoir Pool (GUAD-3) near the existing storage reservoir, and CRLF are known from the smaller storage ponds. As such, work activities associated with this task have the potential to result in take of, and impacts to, the Covered Species. These activities are generally described in “Operation, Repair and Maintenance Activities” in Appendix B.
4.0 POTENTIAL BIOLOGICAL IMPACTS/TAKE ASSESSMENT

4.1 Direct and Indirect Impacts

With the exception of those generally described in Section 3.3.1, activities covered by this HCP would result in both temporary and permanent impacts to CTS and CRLF upland refuge and/or dispersal habitat as summarized in Table 1. Those activities potentially resulting in impacts to habitat are described in Section 3.2. There is also potential for incidental take of Covered Species as a result of Covered Activities. The possibility of incidental take of CRLF and/or CTS specimens varies, depending on the location, duration, scope of individual Project components.

Plant expansion, stockpile removal, and construction of the new storage reservoir would result in permanent loss of habitat for Covered Species. Construction of the two recycled water pipelines, burial of the above-ground segment of the reservoir supply line, and replacement of the Foster Road segment of the trunk sewer line would result in temporary loss of upland habitat.

Incidental take of Covered Species could result from any of the Covered Activities. Incidental take could consist of crushing or physical removal from upland refuge habitat during soil excavation and associated construction such as equipment operation and vehicle traffic. Incidental take could also result if animals are exposed to predation or desiccation should they become entrapped in open excavations while dispersing through construction zones.

Quantification of potential impact to CTS and CRLF habitat from each Project component as described in Table 1 is based on best available information. Impacts requiring compensatory mitigation (see Section 4.7) would be offset through establishment of a Conservation Easement on 132.83 acres on APNs 113-240-013 and -015, both owned by the District. An evaluation of habitat value for Covered Species within the proposed Conservation Easement is provided in Appendix C. The assessment concluded that it supports high quality CTS and CRLF aquatic breeding and upland refuge habitat. A Management Plan for the Conservation Easement is included as Appendix D.

CTS and CRLF may be indirectly impacted as a result of vehicle and equipment used during construction and operations. There is the potential for sedimentation of known CTS and CRLF breeding pools, including the Reservoir Pool (GUAD-3) during construction. Sedimentation of the Black Road Pool (SAMA-3) in unlikely to occur because the recycled water line will be laid within the roadway or road shoulder, which is elevated approximately 10 feet above the pond. Erosion and sediment controls would be implemented, as required under the California Regional Water Quality Control Board’s requirement for a Storm Water Pollution Prevention Plan (SWPPP) as a part of obtaining coverage under the Construction General Storm Water Permit. Sediment controls such as silt fencing, straw bales, fiber rolls, or sand bags would be used in conjunction with other methods to prevent erosion and siltation of the breeding pools in proximity to construction. Erosion control measures shall be installed prior to the start of work and inspected and maintained until vegetation becomes established.

The nine man-made storage ponds require periodic maintenance, including removal of vegetation and pipe and valve repair. These ponds are known to support CRLF and are potential breeding sites for CTS. Implementation of minimization and avoidance measures, including seasonal timing of maintenance work, pre-project surveys, and worker awareness training would reduce the
potential for take of Covered Species, as described in Section 4.6. The ponds would also be managed to prevent breeding by non-native predatory species such as bullfrogs, crayfish, and fish if these species are detected during periodic survey and monitoring as described in the Management Plan (Appendix D).

Construction of the new irrigation reservoir associated with the Rancho Maria Golf Course Recycled Water Line Project may benefit Covered Species by providing aquatic breeding habitat. Both CRLF and CTS have been recorded on or adjacent to the property, as described in Section 3.2.
Table 1: Summary of Potential Impacts from Proposed Covered Activities

<table>
<thead>
<tr>
<th>Covered Activity</th>
<th>Current Status</th>
<th>Anticipated Timing</th>
<th>Duration</th>
<th>Type of Habitat Impact</th>
<th>Estimate of Area Affected (Acres)/Take of Covered Species Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 Plant Upgrade:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Sludge drying beds replacement.</td>
<td>a. MND completed, Limited to footprint of existing sludge drying beds.</td>
<td>a. Replacement would begin as soon as HCP is approved.</td>
<td>5 years</td>
<td>Permanent</td>
<td>11.63 acres</td>
</tr>
<tr>
<td>b. Replacement of original equipment, including new</td>
<td>b. Design work completed. CEQA review in progress.</td>
<td>b. Following sludge bed replacement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>filtration system, headworks, primary clarifiers,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and sludge thickening system.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Construction of flood wall to encompass all existing and future plant facilities.</td>
<td>c. Preliminary design completed.</td>
<td>c. Following sludge bed replacement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2 Plant Upgrade:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion of Phase I facilities.</td>
<td>Future capacity upgrade to accommodate planned development specified in the Orcutt Community Plan and other major developments. CEQA review would occur in the future.</td>
<td>Pending need from increased demand for wastewater treatment.</td>
<td>30 years</td>
<td>Permanent</td>
<td>Phase 2 upgrades will occur within 11.63 acres footprint of Phase 1.</td>
</tr>
<tr>
<td>Stockpile Removal and Reservoir Construction</td>
<td>Pending approval of HCP and need for fill material. EIR prepared and certified for Stockpile Removal. Addendum or Supplemental EIR for Reservoir Construction.</td>
<td>Stockpile removal dependent on market demand for fill material.</td>
<td>3-5 Years</td>
<td>Permanent</td>
<td>26.0 acres</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Total Permanent Impacts:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37.63 acres</td>
</tr>
<tr>
<td>Covered Activity</td>
<td>Current Status</td>
<td>Anticipated Timing</td>
<td>Duration</td>
<td>Type of Habitat Impact</td>
<td>Estimate of Area Affected (Acres)/Take of Covered Species Individuals</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>--------------</td>
<td>------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Replacement of Foster Road Segment of Trunk Sewer Line</td>
<td>A total of 4,750 lineal feet could be replaced, depending on condition of pipe. To be done in 350-foot segments, depending on funding allocations. Likely exempt from CEQA review.</td>
<td>Repair of Segment 1 would begin as soon as HCP is approved.</td>
<td>3 days per segment.</td>
<td>Temporary</td>
<td>1.64 acres</td>
</tr>
<tr>
<td>Burial of Above-ground Reservoir Supply Line</td>
<td>Ready to begin work. Likely exempt from CEQA review.</td>
<td>Would be done as soon as HCP is approved.</td>
<td>2 Weeks</td>
<td>Temporary</td>
<td>0.78 acres</td>
</tr>
<tr>
<td>Rancho Maria Recycled Water Pipeline</td>
<td>MND completed, pending permits.</td>
<td>Would begin upon securing necessary permits and funding.</td>
<td>4 Months</td>
<td>Temporary</td>
<td>3.62</td>
</tr>
<tr>
<td>Waller Park Recycled Water Pipeline</td>
<td>Design Phase CEQA review has not been completed.</td>
<td>Would be done upon completion of environmental (CEQA) review, permitting and funding.</td>
<td>6 Months</td>
<td>Temporary</td>
<td>8.33 acres</td>
</tr>
<tr>
<td>Operation, Maintenance, Replacement, and Repair of Existing and Future Utilities</td>
<td>Pending approval of HCP and construction of individual components. Most likely statutorily or categorically exempt from CEQA review.</td>
<td>As-needed.</td>
<td>30 Years</td>
<td>Temporary</td>
<td>Undetermined acreage of habitat. Take of individuals of Covered Species: Annual CTS – 2 lethal; 5 harassed CRLF – 3 lethal; 12 harassed (relocated). Permit Term CTS – 20 lethal; 40 harassment CRLF – 60 Lethal; 80 harassed (relocated).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Temporary Impacts: 14.37 acres</td>
</tr>
</tbody>
</table>

1 Potential Impacts from proposed covered activities as calculated from best and most recent information available on project description.
2 Combined Phases 1 & 2, includes sludge drying beds.
4.1.1 Anticipated Take: Wildlife Species

Incidental take of CTS and CRLF may result from construction of new facilities (including offsite pipelines) and operations, maintenance, and repair activities. Annual take estimates are difficult to predict with certainty because of the phased scheduling of project activities and varying potential for take (see Section 3.3). The District expects CTS and CRLF to be harassed and/or harmed due to temporary or permanent loss of approximately 52 acres of upland refuge habitat (assuming the Rancho Maria Gold Course irrigation reservoir is a beneficial impact), including not more than 37.63 acres permanently impacted during soil stockpile removal, reservoir construction, and plant expansion (Table 1). Some individuals could be injured or killed if they are not detected during pre-activity capture and relocation surveys. The number of individuals that would be harassed, harmed, injured, or killed is undetermined but would likely be proportional to habitat quantity and quality (e.g., rodent burrow density). In addition, populations of CTS and CRLF are likely to vary substantially from year-to-year. Because of this uncertainty and difficulty of estimating the actual number of CTS or CRLF that might be taken by proposed activities, the District will rely primarily on habitat acreage as a proxy to measure impacts to the Covered Species. In addition, both annual and cumulative (30-year term of permit) take limits for individuals will be set. In any one year, the annual take limits will be two (2) CTS dead or injured, five (5) CTS harassed, three (3) CRLF dead or injured, and twelve (12) CRLF harassed. During the life of the permit the cumulative take limits will be twenty (20) CTS or sixty (60) CRLF are found dead or injured, or forty (40) CTS or eighty (80) CRLF are captured and relocated (i.e. “harassed”). If either annual or cumulative take limits are exceeded, the District will immediately contact the Ventura Field Office to discuss the need for a permit amendment. Project activities that are likely to cause additional take will be suspended until the review is completed.

4.1.2 Anticipated Impacts: Plant Species

No federally listed plant species have been found in the Plan Area. No take of listed plant species is anticipated to occur as result of project activities.

4.2 Cumulative Impacts

Cumulative impacts would result from the incremental impact of Covered Activities described in the HCP when added to other past, present, and reasonably foreseeable future actions that would occur in or near the Plan Area. Two known potential projects that may occur near the Plan area are the Santa Maria Airport Project and the Santa Barbara County Sheriff’s proposed new North County Jail. The jail project is proposed in the southeast corner of the intersection of Betteravia and Black roads. There is a potential for cumulative effect of these projects. The jail project is proposed on existing disturbed farm land. In addition, the FEIR for the Santa Maria Energy Oil Drilling and Production Plan, Laguna County Sanitation District Phase 3 Recycled Water Pipeline (12EIR-0000-00003) has identified several planned and pending projects within the Plan Area that could potentially affect habitat for Covered Species. The greatest threat to CTS and CRLF habitat within the Plan Area is the conversion of grazing land to cultivated agriculture, which requires no land use permit from the local (County) regulatory agency. Covered Activities described in the HCP would permanently remove 37.63 acres of upland habitat suitable for the Covered Species; however, it also would permanently
protect and preserve 132.83 acres of upland habitat and a known breeding pond, preventing future loss of breeding and upland habitat within the conservation easement area. This would be a significant contribution to habitat stability for the Covered Species in the Plan Area.

4.3 Effects on Critical Habitat

4.3.1 La Graciosa Thistle

Plan Area includes part of a critical habitat unit for La Graciosa thistle (*Cirsium loncholepis* = *C. scariosum* var. *loncholepis*). Critical habitat for that species has been designated based on Primary Constituents Elements (PCEs) (USFWS 2009). The PCEs for La Graciosa thistle are:

*PCE #1.* Mesic areas, including:

a. Margins of dune swales, dune lakes, estuaries, and marshes that are dynamic in nature, such as portions of the Santa Maria Dune Complex.

b. Margins of dynamic riparian systems, such as Orcutt Creek.

c. Freshwater seeps and intermittent streams found in other habitats – grassland, coastal scrub, and other upland habitats.

*PCE #2.* Associated plant communities – coastal dune scrub, dune scrub, freshwater seep, coastal and valley freshwater marsh and fen, and riparian scrub.

*PCE #3.* Soils with a sandy component.

*PCE #4.* Features that allow connectivity and dispersal – natural riparian drainages and natural aeolian geomorphology.

The four PCEs described above occur in the Plan Area.

*PCE #1:* Mesic areas occur along the margins of Orcutt Creek. Other areas representative of PCE 1 may occur along the recycled water pipelines to the Rancho Maria Golf Course and Waller Park, as well as marshy areas associated with the Reservoir Pond. The plan Area includes part of a critical habitat unit for La Graciosa thistle (*Cirsium loncholepis* = *C. scariosum* var. *loncholepis*). Critical habitat for that species has been designated based on Primary Constituents Elements (PCEs) (USFWS 2009). The PCEs for La Graciosa thistle are:

*PCE #1.* Mesic areas, including:

a. Margins of dune swales, dune lakes, estuaries, and marshes that are dynamic in nature, such as portions of the Santa Maria Dune Complex.

b. Margins of dynamic riparian systems, such as Orcutt Creek.

c. Freshwater seeps and intermittent streams found in other habitats – grassland, coastal scrub, and other upland habitats.

*PCE #2.* Associated plant communities – coastal dune scrub, dune scrub, freshwater seep, coastal and valley freshwater marsh and fen, and riparian scrub.

*PCE #3.* Soils with a sandy component.

*PCE #4.* Features that allow connectivity and dispersal – natural riparian drainages and natural aeolian geomorphology.

The four PCEs described above occur in the Plan Area.

*PCE #1:* Mesic areas occur along the margins of Orcutt Creek. Other areas representative of PCE 1 may occur along the recycled water pipelines to the Rancho Maria Golf Course and Waller Park, as well as marshy areas associated with the Reservoir Pond. Overall, impacts to this PCE may occur in the Plan Area. Direct impacts to PCE 1 may include small areas of temporary disturbance associated with pipeline installation. Restoration would be implemented, if needed, to mitigate direct impacts to PCE #1. Indirect impacts, such as runoff, could potentially occur due to the project. Best Management Practices (BMPs) would be implemented to minimize the indirect impacts. It does occur in the Conservation Easement Area where it would receive protection from intensive disturbance. Overall, the project may adversely affect small areas of PCE #1 for La Graciosa thistle, primarily along the margins of Orcutt Creek and in marshy areas near the Reservoir Pool.

*PCE #2:* Coastal dune scrub occurs in the Plan Area, including in the planned facility expansion area east of the plant and possibly along the recycled water pipelines to the Rancho Maria Golf Course and Waller Park. The potential disturbance to PCE #2 along the new pipelines would be limited in extent and would be temporary. In addition, riparian scrub and freshwater marsh occur nearby along Orcutt Creek and the Reservoir Pool. As such, associated communities that comprise PCE #2 are present in and near the Plan Area, as well as in the Conservation Easement Area. The associated communities in the Conservation Easement Area would receive protection from intensive disturbance. Project implementation may impact small areas of PCE #2.
These small areas of disturbed associated plant communities would be restored, as necessary, to mitigate the impacts. The project may adversely affect PCE #2.

PCE #3: The soils throughout the plant site and vicinity are sandy in composition and could support La Graciosa thistle. However, this species has not been recorded on District property. The soils that comprise the stockpile were transported from the area of the reservoir when that impoundment was constructed. These soils will be permanently affected as the stockpile is removed and the new reservoir is constructed. Soils along short portions of the tertiary-treated water pipelines to the Rancho Maria Golf Course and Waller Park that occur in Critical Habitat Unit 2 vary in texture. Disturbances to these soils along the pipeline routes will be temporary. As such, the impacts due to construction of the pipelines, including the above-ground pipeline to the storage reservoir that will be buried, will be short-term and very limited. Overall, the project will adversely affect PCE #3 for La Graciosa thistle.

PCE #4: Much of Critical Habitat Unit 2 parallels Orcutt Creek, which crosses the eastern and southern margins of the Plan Area. That portion of the critical habitat unit includes facilities associated with the plant and plant expansion, but does not include the two proposed tertiary-treated water pipelines. The areas along Orcutt Creek provide a means for connectivity and dispersal of seed. In addition, the geomorphology of the Plan Area and Conservation Easement Area allows aeolian movement of seed dispersal. As such, PCE #4 is present in the Plan Area and Conservation Easement Area. Direct impacts to Orcutt Creek due to Covered Activities in the HCP are not expected, but indirect impacts, such as sedimentation due to runoff, are possible. Implementation of BMPs would minimize the potential for such impacts. The project is not likely to result in adverse effects on PCE #4 for La Graciosa thistle.

Overall, the project is likely to adversely affect, to various degrees, PCEs #1, #2, and #3 of critical habitat for La Graciosa thistle. Most adverse impacts to PCE’s in La Graciosa thistle Critical Habitat Unit 2 are expected to be small and temporary; however, permanent disturbance will occur due to reservoir construction and facilities expansion. Again, it should be noted that this species has not been recorded on District property.

4.3.2 California Tiger Salamander (CTS)

The Plan Area is within the West Orcutt critical habitat unit (USFWS 2004a). The Plan Area also contains or is adjacent to the three essential primary constituent elements (PCEs) that comprise critical habitat for CTS:

1. Standing bodies of freshwater that last for at least 12 weeks.
2. Barrier-free uplands adjacent to breeding ponds that contain small mammal burrows.
3. Upland areas between breeding locations and areas with small mammal burrows that allow for dispersal among such sites.

PCE #1: The Reservoir Pool is outside, but near (within 100 feet of), the development footprint of the reservoir expansion. The Reservoir Pool holds water for more than 12 weeks during most years, and is a known breeding pond, based on observations by Hunt (2000) and others (Olson, Storrer, personal observations). The pool will not be impacted directly. With the exception of a narrow parcel owned by PG&E that bisects the pool and small portion on APN 113-240-013 (Figure 3), it will be placed within the Conservation Easement Area and will be managed to the
benefit of Covered Species. There is potential for indirect impacts, such as runoff and sedimentation; however, implementation of BMPs will minimize the likelihood and magnitude of these impacts. The construction of the recycled water pipelines to the Rancho Maria Golf Course and Waller Park will not result in direct impacts to any standing bodies of freshwater, but could potentially have indirect impacts to known and potential CTS breeding ponds in the form of runoff and siltation. BMPs would be implemented to minimize the potential for such impacts to occur. With the implementation of the BMPs, none of the pools is expected to be negatively affected. Preservation of the majority of the Reservoir Pool as part of the Conservation Easement Area will beneficially affect PCE #1.

PCE #2: The Plan Area contains a combination of upland habitats that have varying densities of small mammal burrows. For example, surveys of the Reservoir Stockpile and other sites with natural habitat within the Plan Area have noted variable densities of small mammal (mostly gopher) burrows. There are relatively fewer California ground squirrels (primary creators of burrows used by CTS) in the portion of the Plan Area on District property. Most of the area proposed for facility build-out east of the existing plant is currently in cultivated agriculture or is disked on a regular basis as a fire abatement measure. As a result, there are few small mammal burrows in that area.

The numbers of small mammal burrows along the recycled water pipelines to the Rancho Maria Golf Course and Waller Park are unknown. However, portions of the pipeline routes follow existing linear facilities, such as roads, where fewer ground squirrel burrows would be expected. Overall, the project would result in the loss of a relatively small number of burrows (with unknown occupancy). Disturbance to nearby offsite burrows is not expected because BMPs and take-minimization measures would be implemented. Overall, the project is likely to adversely affect PCE #2. The proposed Conservation Easement Area contains relatively more ground squirrel burrows. Preservation of upland habitat in the Conservation Easement Area would allow small mammals and their burrows to remain, thus resulting in a beneficial impact to PCE #2.

PCE #3: The Plan Area is comprised mostly of uplands, some of which were artificially created by the placement of spoil material during construction of the existing effluent reservoir. As noted above, the limited number of small mammal burrows in the stockpile and other uplands east of the Reservoir Pool represent potential upland habitat for CTS However, in 2000 silt fencing was installed (to control sedimentation into the pond) at the recommendation of consulting biologist (Hunt 2000) along the east side of the access road that runs between the Reservoir Pool (west of the road) and the stockpile (east side of the road). There are also lengths of silt fence on the west side of the road. In 2013, some of the lengths of silt fence on both sides of the road were removed. The silt fence may be a barrier for dispersal between the pool and the adjacent uplands. Areas east of the plant where plant facility expansion is planned have been regularly cultivated for years. Although cultivated fields and fields planted in crops are not complete barriers to CTS movement, such areas can be impediments to travel between upland habitat and breeding ponds. As such, the Plan Area has incomplete “barrier-free” movement corridors. In addition, there are barrier-free upland areas along the pipeline route to Waller Park. Thus, the project is likely to adversely affect PCE #3. The establishment of a conservation easement area will preserve some upland habitat between small mammal burrows and the Reservoir Pool, a known CTS breeding pool, thus resulting in a beneficial impact to PCE #3.
Overall, the project is likely to adversely affect PCE #2 and #3 of critical habitat for California tiger salamander, but unlikely to affect PCE #1. Beneficial effects of permanent project for GUAD-3 and adjacent upland habitat would partially offset these impacts.

### 4.3.3 California Red-legged Frog (CRLF)

There are no designated critical habitat units in or near the Plan Area. As such, the project will not result in adverse effects to any designated critical habitat for the CRLF.

### 4.4 Beneficial Impacts

The project could realize beneficial impacts in addition to the preservation, management, and protection of aquatic breeding and upland refuge habitat for CTS and CRLF afforded by the Conservation Easement. The Rancho Maria Recycled Water Pipeline Project would require construction of a new reservoir to provide irrigation water supply and increase storage capacity. Existing irrigation reservoirs on the Rancho Maria Golf Course are known to support CRLF (LFR 2005, PCR 2003) and may be used by CTS for breeding.

The biological goals and objectives for this plan are described in Section 1.0 of this HCP.

Loss of habitat is the primary factors that led to the listing of both CTS and CRLF.

The preservation of 132.83 acres of aquatic and upland habitat associated with the Reservoir Pool and maintaining the land in its current use as irrigated livestock pasture will help to ensure the viability of local CTS and CRLF populations by preventing conversion to more intensive land uses, such as irrigated cropland. Potential effects of pasture irrigation on small mammal populations and CTS are discussed in Appendix E.

### 4.5 Adaptive Management Strategy

Adaptive management is a component of HCPs required by the Five-point Policy (USFWS and NMFS 2000). This process will allow the District’s management activities to be adjusted during the life of the Permit through periodic assessment. Adaptive management provides a means for ensuring that the biological goals and objectives of the HCP are being met. It employs feedback loops to incorporate results of surveys and monitoring into decision-making regarding future management techniques (explained below). Periodic assessment may also indicate the need to revise management strategies that could require amending the HCP. Measures that are not expected to increase the take level of Covered Species or to change the scope of the project would not require amending the HCP.

The process of adaptive management is integral to ensuring that the biological goals and objectives will be achieved. Specifically, Biological Goals 1 and 3 will be tracked and adjusted as necessary through the adaptive management process. Biological Goal 2 (establishment of the Conservation Easement) will not require adaptive management because it will be achieved in one step. The progress toward those two goals and objectives will be reviewed on an annual basis as part of the reporting associated with the annual survey. The conservation strategy and management of the Plan Area will be revised as necessary to ensure progress toward achievement of the goals and objectives.
Biological Goal 1 is to minimize impacts of Covered Activities on Covered Species. Measures to minimize project impacts to CTS and CRLF are described in Section 4.6. Modification or augmentation of these measures (such as newly developed methods to protect Covered Species) may be necessary to ensure maximum protection of the Covered Species. To that end, the District will monitor the efficacy of the mitigation measures and will quantify the actual extent of project impacts in annual reports. The review of mitigation measure effectiveness will be done by the District at least once per year during project the term of the HCP. Annual reports will be submitted to USFWS and CDFW, which will allow the agencies to review the District’s quantification of actual take and assessment of mitigation effectiveness. Subject to USFWS approval, the District may develop: (1) necessary adjustments to the mitigation measures included in the HCP; or (2) employ new measures that afford further protection of Covered Species. The USFWS would make their decision of approval/non-approval based on review of the information contained in the annual reports, supplemented as necessary with additional data requested from the District.

The adaptive management strategy for this HCP may also involve new or refined management techniques to respond to new information about distribution of the Covered Species in the Plan Area. Adjustments to measures in the District HCP, including new or refined techniques, will be documented in the annual monitoring report (see Section 5.4.1).

Biological Goal 3 is to manage habitat in the Plan Area, including the Conservation Easement, for the duration of the permit. A management plan prepared for the Conservation Easement describes annual surveys that include quantitative measurements to determine whether management goals and objectives are being met (Appendix D). An annual report will be submitted to USFWS and CDFW for review. Recommendations may be provided by the agencies, as appropriate. The need for changes in management strategy or techniques may be determined from these results. Such changes may include the methods used in the annual survey, as well as need for remedial actions that are identified during the survey. Through adaptive management, these changes will be developed by the District, included in the annual report (to be submitted within one month of the conclusion of the survey), and incorporated into the Conservation Easement Management Plan (Appendix D). The changes described in the annual report and management plan will be submitted to USFWS and CDFW for review and approval.

During the annual survey, other parts of the Plan Area outside of the Conservation Easement may also be reviewed, as necessary. Such assessment would occur if disturbance to Covered Species habitat had recently occurred or if the recovery of affected areas required follow-up. Examples include post-construction review of work areas, the progress of passively or actively restored areas, or review of habitat disturbed by accidents of other changed circumstances. A feedback loop similar to that described above for the Conservation Easement will be implemented. If the survey results indicate a need for modified or new management actions on the portions of the Plan area outside of the Conservation Easement, such actions will be developed and described in the annual report, or as an appendix to the report. As described above, the District will submit the annual report to USFWS and CDFW within one month of the completion of the annual survey. The report, including modified or new management actions will be reviewed and approved by USFWS.
4.6 Measures to Minimize Impacts

The following measures will be implemented to avoid or minimize project impacts to CTS and CRLF during construction, repair, replacement, or maintenance activities.

Approval of Biologists

1. At least 30 days prior to the onset of construction, the District shall submit the name(s) and credentials of biologists that would conduct activities specified in the following measures. No project activities shall begin until the District receives verbal/written approval from the USFWS and CDFW that the biologist(s) is qualified to conduct the work.

Pre-construction Environmental Training

2. Prior to each individual project identified in the HCP, all District and contract personnel shall receive a pre-construction environmental awareness training, which will describe the appearance of CTS and CRLF, the applicable provisions of the State and Federal ESAs, the importance of protecting the Covered Species and their habitat, and the mitigation measures required by this HCP. The environmental awareness program shall be prepared and presented by an agency-approved biologist. The presentation will be submitted to the USFWS and CDFW for review and approval. For personnel conducting covered operation and maintenance activities, this training shall be presented on an annual basis.

Take Avoidance and Minimization Measures

3. “Work areas”, including those used for access, staging, and materials storage shall be identified by the project manager/engineer and staked and flagged with material that is highly visible to equipment operators. The work area will be limited to the smallest area possible and will be subject to biological surveys as described in measure #4. As such, the work area will have been inspected for presence of Covered Species. Construction personnel and equipment will not be allowed beyond the area surveyed, as delineated in the field.

4. Within 7 days of any planned ground disturbance, a USFWS/CDFW-approved biologist shall conduct systematic searches for small mammal burrows in the work area. Burrows shall be mapped and flagged in the field with pin flags. All burrows for which the end cannot be observed will be examined internally with a fiber optic or infrared scope. Under the supervision of a USFWS/CDFW-approved biologist, each burrow will be carefully excavated to its full extent to determine the presence of CTS or CRLF. Once the work area has been cleared by a biologist as described in Mitigation Measure #4, a barrier constructed of hardware cloth, silt fence, or similar material will be installed on its perimeter to prevent entry of Covered Species. The barrier will be buried a minimum of three inches below ground surface and will be at least 18 inches in height. Following any significant rain event (i.e., greater than 0.5 inches), the silt fences will be inspected by a USFWS-approved CTS and CRLF biologist for Covered Species. Work areas will also be inspected each morning. The silt fence will remain in place until work has been completed.

5. If CTS or CRLF are encountered during the field clearance or daily inspections a USFWS/CDFW-approved biologist will capture the specimen(s) and relocate to a suitable nearby area (e.g., Reservoir Pool or other location mutually agreeable to the District and
USFWS) that will not be disturbed by future District activities. Relocation efforts will be conducted using the Declining Amphibian Populations Task Force Fieldwork Code of Practice. To avoid heat stress, individuals will be relocated immediately. Biological data will be collected on all relocated specimens (i.e., size, weight, etc.) will be provided to USFWS. As described in Section 4.1.1., in any one year, the annual take limits will be two (2) CTS dead or injured, five (5) CTS harassed, three (3) CRLF dead or injured, and twelve (12) CRLF harassed. During the life of the permit the cumulative take limits will be twenty (20) CTS or sixty (60) CRLF are found dead or injured, or forty (40) CTS or eighty (80) CRLF are captured and relocated (i.e. “harassed”). If either annual or cumulative take limits are exceeded, the District will immediately contact the Ventura Field Office to discuss the need for a permit amendment. Project activities that are likely to cause additional take will be suspended until the review is completed. Ground disturbance shall only occur on the area surveyed by the agency-approved biologist.

6. No work shall be conducted prior to sunrise or after sunset when CTS and CRLF are most active. With the exception of emergencies or unforeseen circumstances requiring immediate action, maintenance and repair activities will be scheduled outside the rainy season.

7. Trash will be removed from worksites on a daily basis and all outdoor trash containers in the Plan area will be covered at all times to avoid attracting predators.

8. The District shall designate a person to monitor onsite compliance with all required mitigation measures. The agency-approved biologist shall ensure that the monitor is trained in the identification of CTS and CRLF. The monitor and the USFWS-approved biologist will have the authority to temporarily halt activities if a listed species is observed in the work area. The monitor and/or USFWS-approved biologist may recommend and direct modification or augmentation of ineffective minimization measures. The monitor and the USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels of take of listed species anticipated by the USFWS and CDFW during their review of the proposed action. If work is stopped, the approved biologist or onsite biological monitor shall notify the District, USFWS, and CDFW immediately.

9. All fueling and maintenance of vehicles and other equipment shall occur at least 100 feet from any wetland (i.e. the known or potential breeding pools) or other water body. Prior to the onset of work, the District will prepare a plan to allow a prompt and effective response to any accidental spills. The plan will be submitted to the Service for review and approval. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

10. The District shall obtain an exemption or a National Pollutant Discharge Elimination System Storm Water Permit from the California Regional Water Quality Control Board (Santa Barbara County 2003). Erosion control measures (part of the project SWPPP) shall be implemented to prevent runoff into adjacent wetland areas. Silt fencing, straw bales or sand bags shall be used in conjunction with other methods to prevent erosion and siltation of the nearby known or potential breeding pools. Erosion control measures shall be
inspected daily, prior to the start of work and removed immediately upon completion of soil excavation (Santa Barbara County 2003).

4.7 Measures to Mitigate Unavoidable Impacts

4.7.1 Mitigation

A CTS and CRLF habitat assessment was prepared to determine the suitability of creating a conservation easement for Covered Species on APN 113-240-015 (Appendix C) located north of Orcutt Creek. The easement was subsequently reconfigured to include a portion of APN 113-240-013. These parcels are owned by the District and they encompass the majority of the Reservoir Pool and adjacent upland habitat historically and currently used for cattle grazing. Activities that will result in permanent impacts include:

- Planned expansion of existing treatment facilities; and
- Removal of an existing soil stockpile and the expansion of the existing storage reservoir.

The area of permanent impact resulting from these project components is 37.63 acres (Table 1). The area of temporary impact is 14.37 acres. The proposed conservation easement is 132.83 acres (Figure 2).

The USFWS has developed a methodology for determining estimated impacts to the Santa Barbara County DPS of the CTS and amount of compensatory mitigation needed so that project development can move forward where appropriate. The application of these methods depends on an evaluation of project-specific conditions. Considerations include the following criteria, as stated in the “Draft Conservation Strategy and Mitigation Guidance for the California Tiger Salamander, Santa Barbara County Distinct Population Segment” (USFWS, undated):

- “The value of the impacted habitat should be calculated using the methodology outlined in Searcy and Shaffer (2008), incorporating the amount of California tiger salamander aquatic breeding habit and upland habitat covering the site to be impacted.

- The value of the land proposed for mitigation habitat should be calculated using Searcy and Shaffer (2008). Typically, a mitigation ratio of 1:1 will be required for impacts to California tiger salamanders and their habitats. Habitat proposed for mitigation should have an equal calculated value of the reproductive value of the impacted habitat. Additionally, habitat proposed for mitigation should be placed into a permanent conservation status.

The method described in Searcy and Shaffer (2008) attaches a value to habitat that scales with the reproductive value of the individuals estimated to be occupying an area.

According to Searcy and Shaffer (2008) the reproductive value of a site is a function of:
a. Distance from each breeding pond within dispersal distance of the site, and
b. Land-use in the surrounding areas.

The density distribution of reproductive value decreases exponentially with increasing distance from a breeding site and decreases with increasing habitat loss in the surrounding uplands. For example, parcels close to a breeding pond or several ponds with intact upland habitat in the surrounding area will have a higher reproductive value than those with one pond where upland habitat has been converted to a use that is incompatible with California tiger salamanders.”

USFWS applied their model based on Searcy and Shaffer (2008) to evaluate reproductive value of both the area of impact (including both temporary and permanent impacts) and proposed conservation easement for the LCSD Project. USFWS concluded that the upland and aquatic habitat encompassed by the proposed conservation easement provides adequate compensatory mitigation (1:1 conservation to impact ratio) for all temporary and permanent Project-related impacts to Covered Species (Henry, 2017 personal communication). CDFW concurred with the methodology and results of the analysis.

The following qualitative values are inherent in the District’s proposal for compensatory mitigation:

- The Conservation Easement provides both aquatic breeding habitat and high quality upland refuge habitat for both Covered Species (see Appendix C).
- The value of the Conservation Easement for Covered Species would be improved by constructing a second breeding pond within its boundaries, as described in Appendix D.
- Additional management actions, including relocation of an existing service road further from GUAD-3 would reduce potential for both sedimentation of the breeding pond and incidental take of Covered Species from vehicle traffic.
- The Conservation Easement would be managed so as to preserve and enhance habitat value for CTS and CRLF, as described in the Conservation Easement Management Plan (Appendix D).
- The proposed Conservation Easement lies within CTS Critical Habitat Unit 1 (Western Santa Maria/Orcutt), where agricultural conversion threatens long-term viability of this metapopulation. The conservation easement would contribute toward assurance of long-term viability of the Western Santa Maria/Orcutt metapopulation where currently none exists. Thus, it is important from a regional conservation perspective.

Temporary impacts will occur mostly in areas subject to previous disturbance or in locations adjacent to heavily used areas, such as in road shoulders. These are marginal habitats that will be restored to pre-project conditions following pipeline burial. These impacts will be mitigated through Avoidance and Minimization Measures described above.

Temporary impacts will occur due to the following:

- Burial of above-ground pipeline to the existing storage reservoir;
- Construction of a recycled water pipeline to Rancho Maria Golf Course;
- Construction of a recycled water pipeline to Waller Park;
- Repair of the Foster Road segment of the trunk sewer line;
- Ongoing maintenance and repair of access roads, piping, pumps, and other equipment; and
- Operation and maintenance of the District’s storage reservoir and associated facilities.

The area of temporary impact is estimated 14.37 acres (Table 1). As noted previously, compensatory mitigation is provided through establishment of the proposed conservation easement.

### 4.7.2 Conservation Easement

As described above, the District is proposing to permanently protect 132.83 acres of upland refuge and aquatic breeding habitat in a Conservation Easement on property owned and managed by the District, pursuant to California Civil Code 815.3 and to provide compensatory mitigation for the impacts to CTS and CRLF. The Conservation Easement is located on APNs 113-240-013 and -15, north of Orcutt Creek (Figure 3). This easement will place the majority of the Reservoir Pool (GUAD-3) in permanent conservation status. An 80-foot wide section of land owned by PG&E (APN 113-240-003) that bisects the pool will not be included. Prior to any ground disturbance associated with the Project, the District will formally record the easement, as required for CTS and CRLF habitat.

The proposed Conservation Easement is comprised of annual grassland and vestiges of coastal dune scrub. Grassland and sparse scrub provides good habitat for small mammals and this vegetation presents minimal impediment for seasonal, overland dispersal and migration by CTS, particularly if managed with controlled livestock grazing. A qualitative assessment suggests that there are healthy populations of small mammals within the Conservation Easement, including Botta’s pocket gopher, kangaroo rat, and California ground squirrel (Appendix C). The seasonal pool (Reservoir Pool = GUAD 3) affords known breeding habitat for CTS and CRLF. The entire site is within the maximum dispersal distance for CTS (1.37 miles) of the Plan Area. The proposed Conservation Easement is also within the minimum buffer of 0.7 miles (3,696 feet) around breeding sites considered necessary to capture dispersal and upland habitat use by CTS (USFWS, Federal Register, December 14, 2005). Current use of the proposed Conservation Easement, consisting of irrigated livestock pasture will continue. A management plan has been prepared for the Conservation Easement, such that use of the property will be compatible with the protection of the CTS and CRLF and their habitat (Appendix D).

### 4.8 Monitoring and Reports

Following the completion of each project component listed in Table 1, the District will submit post-construction compliance reports to USFWS and CDFW (within 60 calendar days of completing each project component).

The reports shall include the following information:

1. Dates that construction occurred;
2. Incidental take occurrences, including cumulative take for all District activities, if any;
3. Pertinent information concerning the District’s compliance with the project’s mitigation measures;
4. An explanation of failure to comply with such measures, if any;
5. Known project effects on state- or federally-listed species, if any;
6. Other pertinent information, including a review of the effectiveness of the mitigation measures,
7. Any adaptive management measures implemented, including circumstances that triggered the need and rationale for and rationale behind specific actions and
8. Unforeseen/changed circumstances that occurred and how the issues were addressed.

The District will also provide monitoring reports on an annual basis. Annual assessment of the Conservation Easement will be done by a USFWS-approved biologist according to the protocols described in the management plan (Appendix D). The management plan describes the frequency of and methods to be used for surveys, required qualifications of biologists who will conduct the surveys, the reporting and review process, including feedback loops through adaptive management to revise the plan, as necessary. Operation, maintenance, and repair activities covered in this HCP will also be reported in the annual report. These Covered Activities will be described in annual reports with the following information:

1. Types and extent (frequency, area involved) of Covered Activities that occurred during the year;
2. Incidental take occurrences including the number of individuals of the Covered Species killed, injured, or harassed in the form of relocating (if any); and a quantification of habitat disturbance as a surrogate for take (if any);
3. Pertinent information concerning the District’s compliance with the project’s mitigation measures;
4. Any adaptive management measures implemented during the current year, including circumstances that triggered the need and rationale for and rationale behind specific actions,
5. An explanation of failure to comply with such measures, if any;
6. Known effects of the Covered Activities on state- or federally-listed species, if any;
7. Other pertinent information, including a review of the effectiveness of the mitigation measures implemented during the covered activities,
8. Unforeseen/changed circumstances that occurred and how the issues were addressed; and
9. Recommended changes to HCP mitigation measures to incorporate adaptive management measures that were implemented in the past year.
5.0 FUNDING

5.1 Costs Associated with Full Implementation of the HCP

The District will provide adequate funding for implementing the minimization and mitigation measures specified in this HCP, including:

1. Pre-construction surveys of the work areas for CTS and CRLF and their relocation (as necessary to suitable habitat at locations approved by the USFWS and CDFW);
2. Contractor training and construction monitoring;
3. Preparation of project completion and monitoring reports;
4. Improvements to infrastructure, if any are necessary, such as the installation of speed limit signs; and
5. Implementation of a management plan, including necessary maintenance, monitoring, and reporting for the Conservation Easement Area.

Pre-construction monitoring, training programs, and the construction monitoring activities are anticipated to cost $50,000/year. Preparation of end of construction reports, annual reports, and other reports over the permit life is expected to cost $24,000. Management plan activities associated with the conservation easement areas is expected to cost $3,000/year.

5.2 Funding Sources for Minimization and Mitigation Measures

Annual operating costs associated with the Conservation Easement Management Plan will be budgeted as a line item in the District’s annual operations budget associated with its grounds maintenance activities. The annual cost is expected to be between $3,000 and $77,000 per year depending upon the activities undertaken.

Potential revenues from sale of the soil stockpile and spoils from excavation for the reservoir expansion may provide an additional source of revenue. These additional revenues will be entirely dependent upon demand and costs associated with the excavation and hauling, could potentially vary between $400,000 and $2,000,000.

5.3 Funding Assurances

The District will provide for implementation of take-avoidance and mitigation measures as specified in this HCP. The District understands that a failure to provide adequate funding, and a consequent failure to implement the terms of this HCP in full, could result in temporary permit suspension or permit revocation.

The District will ensure that all funds required for the habitat monitoring during the permit term will be provided as part of its annual operating budget. The primary source of funding will be through rate payers.

An enterprise fund establishes a separate accounting and financial reporting mechanism for municipal services for which a fee is charged in exchange for goods or services. Under enterprise accounting, the revenues in expenditures of services are separated into separate funds with its own
financial statements, rather than commingled with the revenues and expenses of all other government activities. This is required by law for Laguna County Sanitation District, while a dependent special district, it is still a separate and distinct political entity. The County Board of Supervisors is the ex-officio Board of Directors. This board has the legal authority to generate revenues as needed to provide its services. In this case the operation of a preserve would become, albeit not typical, one of its services as it would be related to implementing its construction and maintenance activities. Revenues are generated through rates, which are adopted annually. In this case the rates are assessed on the tax roll, and therefore guaranteed. These revenues pay for the operation, maintenance and replacement of its facilities. This includes reserve accounts for operations. For example, this reserve account is intended to have sufficient funds to pay for electricity should there not be a shortfall in a given funding year due to price escalations. The cost to operate and maintain the preserve would become just one of the several facilities the District would fiscally manage. The annual rates would be intended to cover annual costs but fiscally, there is a reserve account to cover other costs that may arise. The annual rates may be adjusted by the board based on need such as keeping up with inflation, expanding reserve for a plant upgrade or planning for debt service on a loan. It is the intent to include annual operating cost in the annual revenue analysis when setting rates and to provide a minimum reserve. The reserve account is required pursuant to the attached enterprise fund policy with accounting per the State Governmental Accounting Standards Board’s Summary of Statement No. 34 (Basic Financial Statements—and Management's Discussion and Analysis—for State and Local Governments). Therefore, a reserve just for this purpose can be shown to exist with the minimum funds necessary to ensure the activities associated with the preserve are covered.
6.0 ALTERNATIVES TO THE PROPOSED PROJECT

Section 10(a)(2)(A)(iii) of the FESA requires that alternatives to the taking of listed species be considered and the reasons why such alternatives are not proposed be included in the HCP.

6.1 No-Action Alternative

Under the No-Action Alternative, the District would not move forward with expansion of existing facilities, remove the soil stockpile and construct a new reservoir, install recycled water pipelines to Rancho Maria Golf Course and Waller Park, or replace the trunk sewer line along Foster Road. This is not considered a viable alternative, because the District would be unable to meet the anticipated demand for greater wastewater treatment capacity from planned build-out of the Orcutt Community Plan and other adjacent development. In addition, disposal of treated wastewater would continue to be a challenge if offsite distribution pipelines are not constructed to deliver recycled water for beneficial use. Inability to repair, replace, and maintain existing facilities could result in significant health risks and environmental contamination if untreated sewage were released due to aging infrastructure. No take of Covered Species or their habitat would be anticipated, thus there would be no need for an HCP or an ITP request.

6.2 Construction of New Storage Reservoir at an Alternate Location

Under this alternative, a new storage reservoir would be constructed at a different location, eliminating the need to remove the existing soil stockpile. The new reservoir would be situated further from GUAD-3, reducing the likelihood of take of Covered Species and their habitat. Consolidation of storage facilities and associated pumping equipment and piping is more economical and is preferable from an operational perspective. Existing infrastructure (pumps, supply and discharge pipelines) could be used if the existing reservoir is expanded. Construction of a new reservoir elsewhere on District property would require new pipelines and ancillary equipment, which could also impact Covered Species. Other District properties of sufficient size (~30 acres) are more than 0.5 miles northwest of the preferred location on APN 113-210-015 or adjacent to and east of the plant in the area planned for expansion of existing facilities on APN 113-240-014 (Figure 3).

6.3 Reduced Project

A reduced project could entail eliminating any or a combination of project components. The District would be unable to upgrade or replace existing facilities or expand its capacity to satisfy the demand for wastewater treatment services as allowed under the Orcutt Community Plan without expanded storage, treatment, and disposal capacity. Elimination of the expanded reservoir would limit capacity for storage of treated effluent which, in turn, would restrict flexibility of discharge to beneficial sources. If the Plant is expanded to meet demand as anticipated in the Orcutt Community Plan, storage capacity could be exceeded. Increased throughput as predicted will necessitate alternative sources of disposal of treated effluent to those currently available. The two proposed recycled water pipelines are considered essential for this purpose. The current condition of wastewater treatment facilities at the plant is such that replacement, upgrade, and augmentation will be needed to meet anticipated future demand. These improvements will require expansion of the existing facility into the area east of the plant that is currently used for farming.
Elimination of individual project components would result in a corresponding reduction in potential for take of Covered Species. Removal of the soil stockpile and expansion of the existing storage reservoir has the greatest potential to affect Covered Species because of its proximity to known CTS breeding pond GUAD-3 and the fact that it would result in a permanent loss of upland habitat. Expansion of the existing plant facility eastward into the adjacent agricultural field would result in permanent loss of CTS and CRLF dispersal habitat. This area is considered marginal as upland refuge habitat because it is periodically placed in cultivation which prohibits or restricts use by small mammals. Elimination of those project components that would result in temporary impacts, including the recycled water pipelines to Rancho Maria Golf Course and Waller Park, burial of the reservoir supply line, and replacement of the Foster Road Truck Sewer Line segment, would alleviate the associated risk of incidental take of Covered Species. Similarly, if future operation, repair, and maintenance of existing utilities were not performed, there would be no corresponding potential for incidental take.
7.0 CHANGED AND UNFORSEEN CIRCUMSTANCES

Section 10 regulations [50 CFR 17.22 (b)(2)(iii)] require that a HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. Additionally, the Habitat Conservation Plan Assurances (No Surprises) [50 CFR 17.22 (b)(5) and (6): 63 FR 8859] defines changed and unforeseen circumstances and describes the obligations of the permittee and USFWS. The purpose of the No-surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the FESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee. Accordingly, as described below and except as otherwise required by law and/or provided under the terms of the HCP and except for unforeseen circumstances, no further mitigation or compensation will be required by USFWS to address impacts of Permitted Activities to covered species pursuant to FESA.

7.1 Changed Circumstances

Changed circumstances are defined as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and USFWS and for which contingency plans can be prepared (e.g., the new listing of species, a flood, or other natural catastrophic event in areas prone to such events). If additional conservation and compensation measures are deemed necessary to respond to changes in circumstances that were provided for in the HCP, the program participant would be expected to implement the measures specified in the HCP, but only those measures and no others, unless agreed to by the District. Floods, accidents, listing of new species, outbreak of disease, and invasion of non-native plant species are included as changed circumstances in this HCP, as described below.

7.1.1 Listing of Previously Unlisted Species

During the term of the Section 10 permit, if a new species is listed under the Act that is not covered by the HCP but that may be affected by activities covered by the HCP, the Section 10 permit will be re-evaluated by USFWS. The District will modify the HCP Covered Activities in coordination with the USFWS, as necessary, to ensure that the activities covered under the HCP are not likely to jeopardize, or result in the take of, the newly-listed species or cause adverse modification of any newly designated critical habitat. The permittee will continue to implement such modifications until such time as the permittee has applied for, and USFWS has approved, an amendment of the Section 10 permit, in accordance with applicable statutory and regulatory requirements, to cover the newly-listed species or until USFWS notifies the permittee in writing that the modifications to the HCP covered activities are no longer required.

7.1.2 Floods

Due to the proximity to Orcutt Creek, the Plan Area is subject to periodic flooding during high rainfall years. The period of flooding would vary with the amount of rainfall. Surface water could be present beyond the banks of Orcutt Creek from several days to multiple weeks. The additional area inundated would likely be two acres of less. The plants to be affected by the flooding have been affected during previous years, and as such, have recovered naturally. Due to this fact, along
with the relatively short duration and extent of flooding, active revegetation is not anticipated to be necessary. The vegetation will continue to recover naturally.

Flooding would result in some loss of individuals and burrows used by the Covered Species. Such reductions in numbers, burrows, and usable habitat would be temporary.

Overall, the effects of natural, periodic flooding on the habitat and Covered Species would not be significant. Actions would be taken to ensure public safety. CEA infrastructure would be repaired, as necessary, to allow the continuation of management activities. For example, access roads and fences would be inspected in the field and repaired, as needed. Active revegetation is not expected to be one of the actions taken following periodic natural flooding. The District will evaluate options for preventing flooding of habitat from occurring in the future. Such options may include the construction of berms at locations where floodwaters topped the creek banks. The evaluation will occur within one month of the flooding.

If flooding results in sedimentation of pond GUAD-3, the pond will be evaluated for potential loss of depth, an effect that could reduce its hydro-period. The response to the sedimentation will depend on the level of impact. If the evaluation indicates minor sedimentation that substantially has not reduced the pond’s depth, no dredging or mechanical work will be done. Instead, the amount of sedimentation will be reviewed in subsequent years to assess if and when removal of sediments might be necessary. If the evaluation indicates a need to remove sediments and deepen the pond that will be done during the dry season of the year when the potential for take of CTS and CRLF will be at its lowest.

The effects of flooding and any corrective actions needed would be addressed in the annual management plan report. This approach will follow the Adaptive Management strategy included in Section 4.5.

7.1.3 Accidents

The Plan Area is subject to accidents, such as, leaks or spills from sewage collection pipes, recycled water pipeline leaks and vehicle and equipment fluid spills. Accidents of this type are expected to be very rare and of limited extent.

Spill response will vary depending on the nature of the incident but could include vacuum trucks, removal of contaminated sediment with hand tools or equipment, and use of straw wattles and hay bales to contain the spill. The first response by the District will be to clean-up and remediate the effects of the accident, consistent with applicable laws and ordinances.

The spill response plan prepared for these areas will be followed. The plan will include responses to different types of spills. Responding to leaks and spills from sewage collection pipes would start with emergency repair and containment. Following that, clean-up would be implemented with a vacuum truck and excavation of contaminated soils. The pumped and excavated material will be properly stored and transported to a suitable disposal area. For a recycled water spill, following initial repair and containment, the response will include an assessment of the need to remove the affected soils. It is expected that in most cases, the spill will not result in substantial adverse effects to the habitat. If affected soil needs to be removed, excavation of the material will be accomplished by hand or with equipment. Similar to a spill from a sewage collection pipe, the removed material will be transported to a suitable disposal area. Following initial containment of a spill of
vehicle/equipment petro-chemical fluids, affected soil will be excavated and transported to a suitable landfill. Repairs will be made to the vehicle or piece of equipment from which the fluids spill to prevent a recurrence. The potential need for restoration of the affected area will be evaluated and described in the management plan annual report.

The District will also review the Conservation Easement Management Plan to evaluate the effects of the accident on planned activities for the CEA. USFWS and CDFW will be notified if warranted in light of the review. Clean-up and remediation techniques, as well as the maintenance approach for District vehicles and equipment will be reviewed as part of Adaptive Management to provide better direction in future management plans.

### 7.1.4 Introduction of Non-native Plant and Wildlife Species

Pond GUAD-3 could be affected by non-native plant species if one or more species becomes established to the point of interfering with the functionality of the pond or Covered Species’ ability to access the pond. Such species could include iceplant (*Carpobrotus* spp.), pampas grass (*Cortaderia jubata*), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*), and tocalote (*Centaurea melitensis*). Extensive establishment by one or more non-native plants could affect runoff into the pond, the ability of CTS to travel to and from the pond, and in the case of plants unpalatable to cattle, discourage grazing that may be needed to reduce vegetation density.

The pond and adjacent areas will be reviewed each year as part of the annual reconnaissance survey of the CEA to assess if such non-native plants are establishing. The potential need for implementation of control measures will also be assessed each year. The response of the District to apparent establishment by invasive plants would be a comprehensive survey to document the extent of the invasive species. If control efforts are necessary, alternative methods will be evaluated, including hand removal, mechanical removal, and the use of herbicides. Short-duration intensive grazing by livestock may also be considered, such as the use of sheep if the invasive species are broad-leaved plants. The option selected will be implemented and its effectiveness evaluated during follow-up surveys in subsequent years. The approach to non-native plant control will be revised or a change made to another method, as needed, to reach an adequate level of effectiveness. Through Adaptive Management, the management plan will be revised, as necessary, to incorporate an effective detection, control, and assessment methods.

The HCP Covered Species could potentially be affected by the introduction of non-native wildlife species such as non-native and hybrid tiger salamanders (*Ambystoma tigrinum*) and bullfrogs (*Rana catesbeiana*). These species are not currently known from the Plan Area but do occur in the region. There is potential for such species to spread through the Plan Area, which would adversely affect local populations of both Covered Species.

If an invasion of one or more species of non-native wildlife occurs, it would be identified during annual reconnaissance surveys of the CEA. The response of the District would begin with a comprehensive survey to document the extent of the invasive wildlife species. Control methods to be used would depend on the extent and location of the invasive species, as well as which species had established. If bullfrogs have invaded the GUAD-3 pond, measures would be taken to ensure the pond is dry after the CTS/CRLF breeding season to break the bullfrog breeding cycle. Other potential methods include extensive trapping and selective removal. Some methods may need to be implemented at night. It is likely that specialists in the control of these non-native species would...
be consulted, in addition to USFWS and CDFW. Several different control methods may be attempted and monitored. Results could be compared and included in annual reports and incorporated into Adaptive Management.

If the invasion of non-native species of plants or wildlife results in impacts that cannot be addressed via the Changed Circumstances budget, the District will prepare a report to USFWS for approval within one month. The report will describe the extent of the problem and a cost analysis for controlling the invasion of the non-native species. This report shall be submitted to CDFG and USFWS for approval. The District will seek additional outside funding and partnerships from sources and implement the program to control or eradicate the non-native species. The feasibility of such programs will depend on the success of additional fundraising.

### 7.1.5 Outbreak of Disease

There is potential for diseases to affect the Covered Species, including chytrid fungus and possibly Rana viruses. In the event that one of these, or another disease, is detected, the District or agency-approved biologist will consult with USFWS, CDFW, and other research biologists in the region with CTS and/or CRLF expertise to determine the best methods for evaluating, monitoring, and controlling the disease. A survey to document the extent of the outbreak will be conducted within one month of the consultation with agency personnel. A report of the extent of the spread of the disease will be prepared within three weeks of the completion of the survey. A plan to control and eradicate the disease will be prepared and incorporated into the Adaptive Management Program. The recommended plan of action will be approved by USFWS and CDFW. Funding would be assured for the implementation of the plan, consistent with funding assurances and Adaptive Management.

Similar to invasions of non-native wildlife species, if the spread of disease results in impacts that cannot be addressed via the Changed Circumstances budget, the District will prepare a report to USFWS and CDFW describing the extent of the problem, with a cost analysis for controlling and eradicating the disease. The report will be submitted to USFWS and CDFW for approval. The District will seek additional outside funding and partnerships from sources and implement the program to control the disease. The feasibility of such programs will depend on the success of additional fundraising.

### 7.1.6 Operation, Maintenance, and Repair Activities by PG&E

As noted in Section 4.7.2, the CEA is bisected by an 80-foot wide section of land owned by PG&E. There is potential for impacts to Covered Species in the Conservation Easement Area due to operation, maintenance, and repair activities by PG&E on this transmission line that is outside, but adjacent to the CEA. One transmission line tower is located in CTS known breeding pond GUAD-3. CRLF are also known to breed in the pond.

Routine operation and maintenance activities would likely be scheduled by PG&E for times of the year when the pond is dry, which would coincide with the lowest potential for impacts to the Covered Species. Potential impacts to Covered Species at that time of year include the loss of burrows and individual CTS and CRLF within the burrows in upland habitat near the pond due to crushing by vehicles and equipment. This impact could occur on PG&E property, as well as in the CEA if PG&E vehicles and equipment stray off the 80-foot-wide section of land. The potential for
such losses on the CEA would be reduced by informing PG&E of the establishment of the easement and emphasizing the importance of keeping PG&E equipment and vehicles within the 80-foot-wide section of land. If disturbance to upland habitat for the Covered Species is observed in the CEA due to PG&E activities, barriers or fencing will be installed. Areas of upland habitat in the CEA with disturbance due to PG&E activities will be evaluated for possible restoration. Following adaptive management for this HCP, a plan for the restoration would be included in the annual report and implemented as described in the plan.

Emergency repairs may need to be implemented during times of the year when water is present in the pond. During such times, potential impacts to Covered Species include the loss of individual animals in the burrows as described above, as well as loss of eggs, larvae, metamorphs, and adults in the pond. Such losses could occur due to crushing by vehicles, equipment, and individuals on foot. Similar to the potential impacts due to routine operation and maintenance activities, the potential impacts could occur on the PG&E land or in the adjacent parcels that comprise the CEA. The potential for such losses would be reduced by informing PG&E of the establishment of the easement and the importance of keeping PG&E equipment and vehicles within the 80-foot-wide section of land. If losses of individuals or disturbance to upland or pond habitat occur, mitigation options will be considering, such as adding area to the CEA, or adding to the area of created ponds. As discussed above, adaptive management for this HCP would be followed, including the preparation of a plan for the restoration or CEA/pond enhancement and the inclusion of such information in the annual report. The actions would be implemented as described in the plan.

7.2 Unforeseen Circumstances

The policy defines Unforeseen Circumstances as changes in circumstances that affect a species or geographic area covered by the HCP which could not reasonably be anticipated by plan developers and USFWS at the time of the plan’s negotiation and development, and that result in a substantial and adverse change in the status of the Covered Species. The purpose of the Assurances Rule is to provide assurances to non-federal landowners participating in habitat conservation planning under the FESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of Unforeseen Circumstances, without the consent of the permittee.

In case of an unforeseen event, the District will immediately notify the USFWS (Field Supervisor, Ventura Fish and Wildlife Service, 2493 Portola Road Suite B, Ventura, California 93003 or (805) 644-1766) with the proposed response action. In determining whether such an event constitutes an Unforeseen Circumstance, USFWS will consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; level of knowledge about the affected species and to the degree of specificity of the species’ conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species.

If USFWS determines that additional conservation and mitigation measures are necessary to respond to the Unforeseen Circumstances where the HCP is being properly implemented, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that already set-aside in the HCP’s operating conservation
program. Additional conservation and mitigation measures that will involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP will occur only with the consent of the permittee.
8.0 PERMIT AMENDMENT/RENEWAL PROCESS

8.1 Amendments to the Permit

During the specified permit period, amendment of the Section 10(a)(1)(B) permit for the District project would be required for any of the following changes:

1. Significant revision to the boundary of the Plan Area or development area;
2. The new listing under the FESA of a species not currently addressed in this HCP and which may be taken by project activities;
3. Modification of any project action or minimization or mitigation measures in the HCP, including funding, that may increase take levels, effects to CTS, or CRLF or the nature or scope of the mitigation program (modifications that result in decreases in take levels will not require an amendment to the permit); or
4. Any other modification of the project likely to result in significant adverse effects to CTS or CRLF not addressed in the original HCP and permit application.

8.2 Amendments to the HCP

This HCP, under certain circumstances, may be amended without amending its associated permit, provided that such amendments are of a minor or technical nature and that the effect on CTS and CRLF and levels of take resulting from the amendment are not significantly different from those described in the original HCP. Examples of minor amendments that would not require permit amendment include:

1. Minor revisions to monitoring or reporting protocols;
2. Minor revisions to the HCP Plan Area or boundaries; and,
3. Minor revisions in project design and construction procedures.

To amend the HCP without amending the permit, the District must submit to USFWS in writing a description of the proposed amendment, and explanation of why the amendment is necessary or desirable, and an explanation of why the effects of the proposed amendment are not believed to be significantly different from those described in the original HCP. If USFWS concurs, it will authorize the amendment in writing, which becomes effective upon the date of USFWS’s written authorization.

8.3 Permit Renewal

Upon expiration, the District’s Section 10(a)(1)(B) permit may be renewed, if necessary, without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting the CTS and CRLF at the project site are not significantly different than those described in the original HCP. At least three months prior to the expiration of this permit, the District will submit to USFWS, in writing:

1. A request to renew the permit;
2. Reference to the original permit number;
3. Certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, or inclusion of a list of changes;

4. A description of what take has occurred under the existing permit; and

5. A description of what portions of the project are still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

8.4 Permit Transfer

In the event of sale or transfer of ownership of the District property during the 30-year term of the permit, then a new permit application, permit fee, and an Assumption Agreement will be submitted to USFWS by the new owner. The new owner will commit to all requirements regarding take authorization and mitigation obligations of this HCP unless otherwise specified in the Assumption Agreement and agreed to in advance with USFWS.
9.0 REFERENCES CITED

9.1 Literature Cited

Anderson, P. R. 1968. The reproductive and developmental history of the California tiger salamander. M.S. Thesis, Department of Biology, Fresno State University, Fresno, California. 82pp.


California Department of Fish and Wildlife. 2014. Natural Diversity Database (CNDDB), Query for Santa Maria Quadrangle, Santa Barbara County.


County of Santa Barbara. 2010. Final Mitigated Negative Declaration – Recycled Water Distribution Main (Phase 2) (9NGD-00000-00021).


LFR Levine-Fricke. 2005. Rancho Maria Estates, Santa Maria, California, Sensitive Species and Habitat Survey.


PCR Services Corporation. 2003. California Red-legged Frog Phase II Focused Survey Results for the Rancho Maria Golf Club Residential Project, Santa Barbara County, California.

Santa Barbara County, Public Works Department. Laguna County Sanitation District Stockpile Removal Project EIR (03-EIR-01), April 2003.


USFWS. 2000b. Endangered and threatened wildlife and plants; final rule to list the Santa Barbara County distinct population of the California tiger salamander as endangered; final rule. Federal Register 65(184):57241-57264.

USFWS, 2001a (March 13). Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the California Red-Legged Frog (Rana aurora draytonii); Final Rule, Federal Register Vol. 66, No. 149.


USFWS. 2006. Endangered and threatened wildlife and plants; designation of critical habitat for the California red-legged frog, and special rule exemption associated with final listing for existing routine ranching activities; final rule. Federal Register 71(71):19244-19346.

USFWS. 2008. Endangered and threatened wildlife and plants; revised designation of critical habitat for Cirsium loncholepis (La Graciosa Thistle); proposed rule.

USFWS. 2009. Endangered and threatened plants and wildlife; designation of critical habitat for Cirsium loncholepis (La Graciosa thistle); proposed rule; reopening of comment period, notice of availability of draft economic analysis, and amended required determinations. Federal Register 74(45):10211-10217.


USFWS. 2010a. Endangered and threatened wildlife and plants; revised designation of critical habitat for the California red-legged frog (Rana aurora draytonii), final rule. Federal Register 75:12816-12959.


USFWS, undated. California tiger salamander Upland Habitat Use, U.S. Fish & Wildlife Ventura Field Office.


### 9.2 Personal Communications


### 9.3 In Litt. References

Sweet, Sam. 1998. Letter to the Service regarding concerns of recent developments and effects on California tiger salamanders. Dated August 27. Professor at University of California, Santa Barbara. Santa Barbara, California.

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APPENDIX A

HABITAT CONSERVATION PLAN MAPS AND FIGURES

FIGURE 1: Vicinity Map
FIGURE 2: Plan Area
FIGURE 3: Existing and Proposed Facilities and Occurrences of Covered Species
LEGEND:

- CRLF Point Locations
- Utilities
- Existing above ground pipeline
- Existing buried pipeline
- Proposed buried pipeline
- Waller Park Recycled Waterline Preferred Route
- Rancho Maria Recycled Water Pipeline
- Plant Expansion
- Proposed Irrigation Reservoir
- Reservoir
- Proposed Reservoir
- Proposed Conservation Easement Area
- Potential CTS Breeding Pool
- Known CTS Breeding Pool
- CNDDB CRLF Observation
- Parcel Boundaries

Existing and Proposed Facilities and Occurrences of Covered Species
Laguna County Sanitation District Wastewater Treatment Plant
Habitat Conservation Plan

Figure 3
February 07, 2017
APPENDIX B

CONSTRUCTION, OPERATIONS, AND MAINTENANCE ACTIVITIES
TO BE COVERED UNDER THE INCIDENTAL TAKE PERMIT
Covered Activities

Construction, operation, repair, and maintenance activities to be covered under this HCP are described below. Take-minimization measures to be implemented for the Covered Activities are included with measures described in Section 4.6.

Construction of New Facilities and Additions to New Facilities with Entire Disturbance Area Restricted to Existing Hardscape

Activities associated with construction projects and additions to facilities that take place on existing pavement, concrete, asphalt, and other hardscaped areas will be included as Covered Activities, but will not result in take of, or impacts to, Covered Spices.

Construction, Maintenance, and Repair of Linear Facilities with Entire Disturbance Area Restricted to Paved Roads

Activities associated with construction, maintenance, and repair of linear facilities that take place on existing paved roads (with disturbance to road shoulders) will be included as Covered Activities, but will not result in take of, or impacts to, Covered Spices.

Construction of Phase II Upgrades to the Plant

- Grading and excavation impacts to re-construct existing sludge drying beds. The basins of the sludge beds do not contain small mammal burrows, but burrows have been observed in the berms. There is potential for loss of individual CTS and CRLF using these burrows for harborage.
- Grading and excavation for construction of storage tanks, filtration equipment, pumps, and piping. Construction activities, including laydown, and parking, will occur within the designated construction footprint. A limited number of small mammal burrows may be removed. As such, there will be potential for loss of individual CTS and CRLF, as well as loss of suitable dispersal habitat for both species.

Construction of New Pipelines and Burial of Existing Above-ground Pipeline

- Temporary excavation impacts to ruderal and natural habitats. Work within or adjacent to existing roads will affect relatively few small mammal burrows. Work in unmodified habitats will have a higher potential for small mammal burrows. There will be potential for loss of individual CTS and CRLF if burrows are removed during excavation.
- Access, staging, parking, and laydown areas for pipeline work. Equipment operation, parking of vehicles, and storage of materials could result in collapsing of small mammal burrows and the loss of individual CTS and CRLF.

Removal of Existing Soil Stockpile and Construction of New Reservoir

- Driving of loading equipment and haul trucks for the stockpile that could collapse small mammal burrows and result in the loss of individual CTS and CRLF.
- Movement of soil from the stockpile and placement into smaller temporary stockpiles for loading could collapse small mammal burrows and potentially kill or injure individual CTS and CRLF.
- Temporary disturbance to dispersal/migration habitat for both species.
Excavation and hauling of soil to create the new reservoir. Although much of this area is currently covered by the soil stockpile (which would need to be removed prior to the excavation of the new reservoir), if there was a delay between soil removal and excavation of the new reservoir, small mammals could establish new burrows which could be used as refugia by CTS and CRLF. As such, burrows could be collapsed and individual CTS and CRLF could be killed or injured.

Placement of excavated soil from the new reservoir to a new stockpile location could result in collapsing and/or crushing of small mammal burrows. This could result in the loss of individual CTS and CRLF, as well as the loss of upland refugia.

Individual CTS and CRLF could be crushed above ground by vehicles and equipment particularly if work occurs during the rainy season.

Eggs and larvae of CRLF and CTS could be trapped in pumps if filters or screens are not placed over the intakes.

**Operation, Maintenance, and Repair Activities**

- Driving pick-up trucks on an unknown number of miles of existing dirt roads to move pipes and transport workers. This activity will not result in disturbance off existing roads, but could potentially result in loss of individual CTS or CRLF.

- Driving pick-up trucks for an unknown number of miles overland on an annual basis to conduct maintenance and repair of pipes. This activity will result in disturbance due to driving overland (off existing roads). The disturbance will be less than if grading occurred or if additional roads were to be constructed. Vegetation and soil would be compacted, but not consistently enough to cause a visible two-wheel track. Small mammal burrows (upland habitat for CTS and CRLF) could potentially be collapsed by vehicle tires. Similar to driving on existing roads, this work action could result in loss of individuals of CTS or CRLF.

- Excavation/trenching to install, replace or repair pipes, pumps, and other equipment. The amount of trenching/excavation necessary each year is unknown. Trenching/excavation could result in the loss of small mammal burrows or individuals of CTS or CRLF.

- Individual CTS and CRLF could be crushed above ground by vehicles and equipment particularly if work occurs during the rainy season.

- Driving vehicles to check pump facilities, including pump stations, piping, valves and other pipe appurtenances. The work will include installation, operation, maintenance, and repair of other facilities. The driving will be done on existing roads. This activity will not result in disturbance off existing roads, but could potentially result in loss of individual CTS or CRLF.

- Driving overland to facilities not located adjacent to the existing roads. The disturbance will be less than if grading occurred or if additional roads were to be constructed. Vegetation and soil would be compacted, but not consistently enough to cause a visible two-wheel. It is anticipated that the same routes will not need to be driven often enough to cause such two-wheel track areas. In addition, small mammal burrows (upland habitat for
CTS and CRLF) could potentially be collapsed by vehicle tires. Similar to driving on existing roads, this work action could result in loss of individuals of CTS or CRLF.

- Ground disturbance associated with the construction of pump stations and the installation, repair, and maintenance of valves and piping associated with reservoir pumping. The amount of disturbance each year is unknown.

- Grading and trenching activities have the potential to result in loss of small mammal burrows that could be used by CTS and CRLF, as well as in direct loss of individual CTS and CRLF.

- Temporary loss of dispersal/migration habitat for these two species.

- Individual CTS and CRLF could be crushed above ground by vehicles and equipment particularly if work occurs during the rainy season.

**Operation, Maintenance and Repair of the Reservoir and Man-made Ponds**

- Driving vehicles and equipment to the reservoir would be similar to the driving activity described above for the reservoir pump facilities.

- Erosion control activities could result in collapsing of burrows and/or crushing of individual CTS and CRLF above ground.

- Erosion control could also result in the temporary loss of dispersal/migration habitat.

- Periodic maintenance of pumps and piping could require some removal of vegetation for access.
APPENDIX C

CTS AND CRLF HABITAT EVALUATION ON APN 113-240-002
CALIFORNIA TIGER SALAMANDER/CALIFORNIA RED-LEGGED FROG HABITAT EVALUATION
BETTERAVIA PROPERTIES PARCEL
(APN 113-240-02)
SANTA MARIA, CALIFORNIA

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Submitted:
September 25, 2014
TABLE OF CONTENTS

Introduction..........................................................................................................................................................1
Background..............................................................................................................................................................1
Objective...............................................................................................................................................................1
Environmental Setting ........................................................................................................................................1
Method .................................................................................................................................................................2
Results.................................................................................................................................................................2
Conclusion ...........................................................................................................................................................3
References............................................................................................................................................................4

Figures
Figure 1: Vicinity Map..........................................................................................................................end of document
Figure 2: Area Subject to Survey................................................................................................................end of document

Photos
Photo 1: ..............................................................................................................................................................end of document
Photo 2: ..............................................................................................................................................................end of document
Photo 3: ..............................................................................................................................................................end of document
Introduction

The following is an assessment of habitat suitability for two federally-listed amphibian species, the California Tiger Salamander (*Ambystoma californiense*) and California Red-legged Frog (*Rana aurora draytonii*). The assessment was completed by Thomas Olson and John Storrer of Storrer Environmental Services (SES) under contract to the County of Santa Barbara Public Works Department, Laguna County Sanitation District (LCSD).

Background

LCSD is in the process of preparing a Habitat Conservation Plan (HCP) for expansion of their wastewater treatment facility in the western Santa Maria Valley of Santa Barbara County (Figure 1). Construction of a new treated effluent storage reservoir will eliminate approximately 32 acres of upland habitat for the two amphibian species referenced above. Both are Covered Species in the HCP: California Tiger Salamander (CTS) and California Red-legged Frog (CRLF). LCSD has proposed acquisition and permanent protection of aquatic and upland habitat for the two Covered Species as partial mitigation for this impact. This would be accomplished through acquisition and granting of a conservation easement to a qualified conservation organization who would become the Management Entity for the Conservation Easement Area (CEA).

Objective

The purpose of this assessment was to evaluate the suitability of the proposed CEA with respect to habitat value for the Covered Species. An area of approximately 130 acres was surveyed, 48 of which are to be protected in a Conservation Easement.

Environmental Setting

The proposed CEA is a combination of LCSD and privately-owned lands near the existing wastewater treatment facility. The CEA encompasses portions of two parcels (APN 113-240-002 and -014) and is adjacent to the area that would be impacted by construction of new facilities (Figure 2). APN - 002 is owned by Betteravia Properties; APN – 014 by LCSD. Pacific Gas & Electric (PG&E) owns a narrow strip of land between these two parcels (APN 113-240-003).

An ephemeral pool lies on the border of the two parcels. This pool, known as the “Reservoir Pool” or U.S. Fish & Wildlife Service (USFWS) designation “GUAD-3” is a confirmed breeding site for CTS and CRLF. A second CRLF breeding pool, “GUAD-5” lies approximately 2,400 feet to the south. The PG&E parcel bisects the pool from north to south (Figure 2).

Orcutt/Solomon Creek trends in a northwesterly direction, roughly dividing APN -002 into northern and southern sections. The northern portion of the parcel is currently used for livestock grazing. This is an area of approximately 130 acres. The pasture has also been used for disposal of tertiary-treated effluent through spray irrigation from the LCSD plant in recent years. The southern portion of the parcel is presently in cultivated agriculture and was excluded from the assessment. Irrigated croplands are considered...
unsuitable as habitat for the Covered Species. Intensive agricultural use on this portion of the property is likely to continue for the foreseeable future.

The parcel is characterized by undulating terrain on a mesa that slopes southward toward Orcutt/Solomon Creek. Course, sandy soils support disturbed grassland and sparse dune scrub vegetation. Perennial shrubs were likely more prevalent before the introduction of livestock. It is also possible that a portion of the land was dry-farmed at some time in the past. These past and current land uses have resulted in type conversion to a predominantly annual grassland vegetation type with a high relative component of non-native forbs such as California croton (*Croton californicus*). Although best characterized as annual grassland, one perennial species, Bermuda grass (*Cynodon dactylon*), is common.

Bermuda grass and other low-lying grasses cover large portions of the parcel. These are likely to flourish and persist under the influence of spray irrigation. Elevated portions of the parcel support remnant patches of perennial dune shrubs, including dune lupine (*Lupinus chamissonis*), mock heather (*Ericameria ericoides*), and goldenbush (*Isocoma* sp.).

**Methods**

The assessment was based primarily on a field reconnaissance conducted by biologists Thomas Olson and John Storrer on 29 October 2008. Sources of information regarding the status of the Covered Species in the project area were also researched. These include maps of known and potential CTS distribution (USFWS 2007), field notes compiled during surveys sponsored by the USFWS (Drexhage 2003, 2006, 2008; Storrer 2006), and previous survey and monitoring reports prepared for LCSD (Hunt 2000; SES 2006a, 2006b, 2008). Consultation with LCSD maintenance staff provided anecdotal information on persistence of surface water within the area subject to spray irrigation (Alvarez, 2008 pers. com.).

The two biologists walked meandering transects over the northern portion of the parcel. Two features were specifically targeted in the survey: (1) possible topographic low areas that would sustain ephemeral pools; and (2) small mammal burrows that could provide upland harborage for the Covered Species.

LCSD maintenance staff staked areas that had held ponded water for one to several weeks, depending on annual rainfall and frequency of irrigation. Each of these was examined for evidence of persistent surface water that could afford breeding habitat for the Covered Species.

The general distribution of small mammal burrows was mapped on an aerial photograph of the parcel. Abundance and species of origin were recorded in field notes.

**Results**

CTS and CRLF have been previously documented on LCSD properties (Hunt 2000; Drexhage 2006, 2008, 2003; Storrer 2003; SES 2006a, 2006b, 2008).
The Reservoir Pool is a known breeding site for CTS and CRLF, as previously noted. At least three (3) other much smaller depressions within the proposed CEA are capable of sustaining surface water for two or more weeks, according to LCSD maintenance personnel (Alvarez, pers. com.). The duration of surface water in these smaller depressions would depend on annual rainfall patterns and (when in practice) the spray irrigation regime.

A topographic depression near the northern parcel boundary appears to hold water on a consistent basis (Figure 2). This feature is a shallow swale that trends southward from the adjacent parcel to the north. It is divided by a berm at the crossing of a dirt service road that parallels the northern property boundary. This depression is referenced as the “Cow Pond” in USFWS field notes (Drexhage 2008). This pond did not contain any amphibian larvae when sampled in April 2008 however, it was noted as a “potential” CTS breeding site (Drexhage 2008). The “Cow Pond” is not included within the proposed CEA. The three smaller features within the proposed CEA are unlikely to sustain surface water for more than four weeks, even in years of heavy rainfall.

Rodent burrows were found to be unevenly distributed, but locally abundant within the survey area. Pocket gopher (Thomomys bottae) was most widespread. Burrows identified as kangaroo rat (Dipodomys sp.) were much less common. California ground squirrel (Spermophilus beecheyi) burrows were locally common, particularly on the south-facing slope where the mesa slopes toward Orcutt/Solomon Creek.

**Conclusion**

The proposed CEA contains both aquatic and upland habitat suitable for CTS and CRLF. The ephemeral pool “Reservoir Pool” between APN 113-240-002 and -014 is a known breeding site for CTS and CRLF (Hunt 2000; Drexhage 2003, 2006, 2008; SES). CRLF has been documented on another parcel, APN 113-210-015 (Figure 2), also owned by LCSD, that is adjacent to and north of APN 113-240-002 (Drexhage 2003, 2006; Storrer 2006), in a second ephemeral pool to the south (“GUAD-5”), and in Orcutt/Solomon Creek which forms the southern boundary of the CEA (SES 2006a, 2006b, and 2008).

The minimum period required for embryo and larval development is 10 weeks for CTS and 4 months for CRLF. Besides the Reservoir Pool, only the largest of the other topographic depressions (“Cow Pond”) has potential to support breeding populations of CTS and CRLF in years of especially heavy rainfall. Potential for successful breeding would be enhanced through augmentation by surplus irrigation or “tail water”, which could extend the duration of surface water for larval development.

The proposed CEA also supports viable populations of small mammals. Burrow systems of at least three mammals; Botta’s pocket gopher, kangaroo rat, and California ground squirrel were found at various locations. These were found to be unevenly distributed across the parcel, but were locally common or abundant where present. The burrows provide good potential refuge habitat for all three of the Covered Species.

The upland habitat component of the proposed CEA is within the known range of dispersal for CTS and CRLF to and from breeding sites. There are no natural or artificial barriers that would impede migration or dispersal.
The proposed CEA has very high potential for supporting and sustaining populations of the three Covered Species, with long-term protection and management. The proposed CEA contains one known breeding pool (Reservoir Pool) for CTS and CRLF. The proposed CEA also supports (1) suitable upland habitat for the Covered Species and (2) small mammal burrows that provide harborage for the Covered Species. An additional benefit is the proximity of the proposed CEA to the project site. As such, the primary mitigation for biological resource impacts associated with the expansion of the wastewater treatment facility would be in the immediate vicinity of the project.

References


LEGEND:

- Known CTS Breeding Ponds

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Project Location

Reservoir Pool (GUAD-03)

Laguna Sanitation District Wastewater Treatment Plant

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Laguna County Sanitation District
Betteravia Properties - Parcel Habitat Assessment
Vicinity Map

Figure 1 | September 25, 2014
LEGEND:

- **Orange Dotted Line**: Area Subject to Survey
- **Blue Line**: Reservoir Pool
- **Yellow Line**: Parcel Boundaries

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**Figure 2**

**Laguna County Sanitation District**

**Betteravia Properties - Parcel Habitat Assessment**

Image provided by Digital Globe

January 15, 2009
APPENDIX A

SITE PHOTOGRAPHS
Photo 1: Stake marks center of topographic depression looking northwest.  
[Photo taken on 29 October 2008]

Photo 2: Southern portion of CEA looking west toward Orcutt/Solomon Creek  
[Photo taken on 29 October 2008]
Photo 3: Concentration of California ground squirrel burrows on south-facing slope of parcel looking northeast.
[Photo taken on 29 October 2008]
APPENDIX D

CONSERVATION EASEMENT MANAGEMENT PLAN
LAGUNA COUNTY SANITATION DISTRICT

CONSERVATION EASEMENT MANAGEMENT PLAN

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(Revised) February 2017
TABLE OF CONTENTS

TABLE OF CONTENTS ..................................................................................................... i
1.0 INTRODUCTION ................................................................................................... 1
1.1 RESPONSIBLE PARTIES .................................................................................. 1
1.2 BACKGROUND .................................................................................................. 1
1.3 GOALS AND OBJECTIVES .............................................................................. 2
1.4 CONSERVATION EASEMENT DESCRIPTION ............................................. 2
   1.4.1 Location ........................................................................................................ 2
   1.4.2 Wetlands ....................................................................................................... 2
   1.4.3 Topography ................................................................................................... 3
   1.4.4 Land Use History and Existing Conditions .................................................. 3
   1.4.5 Buffers and Setbacks ..................................................................................... 4
   1.4.6 Soils ............................................................................................................... 5
   1.4.7 Habitats ......................................................................................................... 6
   1.4.8 Wildlife ......................................................................................................... 6
   1.4.9 Special-status Species ................................................................................... 7
2.0 MANAGEMENT PLAN ......................................................................................... 7
2.1 GOALS AND OBJECTIVES .............................................................................. 7
   2.1.1 Biological Goal 1: To permanently protect aquatic and upland habitat for Covered Species .............................................................................................................................................................................................. 8
   2.1.2 Biological Goal 2: To minimize impacts of land use within the Conservation Easement on Covered Species .............................................................................................................................................................................................. 8
   2.1.3 Biological Goal 3: To manage habitat of the Covered Species on the Conservation Easement in perpetuity .............................................................................................................................................................................................. 8
   2.1.4 Biological Goal 4: To contribute to the survival and recovery of Covered Species in Santa Barbara County .............................................................................................................................................................................................. 8
2.2 PROHIBITED ACTIVITIES ............................................................................... 9
   2.2.1 Use of Herbicides, Rodenticides, and Fungicides ........................................ 9
   2.2.2 Motor Vehicle Use ........................................................................................ 9
   2.2.3 Cultivated Agricultural Uses ......................................................................... 9
   2.2.4 Recreational Activities ................................................................................ 10
   2.2.5 Commercial and Industrial Uses .................................................................. 10
   2.2.6 Subdivision .................................................................................................. 10
   2.2.7 Construction ................................................................................................ 10
   2.2.8 Burning and Dumping ................................................................................ 10
   2.2.9 Non-native Plant or Animal Introduction .................................................. 10
   2.2.10 Mineral Recovery ...................................................................................... 10
   2.2.11 Topographical Alterations ........................................................................ 10
   2.2.12 Destruction of Small Mammal Burrows ................................................... 10
   2.2.13 Vegetation Removal .................................................................................. 11
   2.2.14 Alteration of Naturally Occurring Bodies of Water ................................... 11
   2.2.15 Mineral and Water Rights Transfer ........................................................... 11
2.3 MANAGEMENT PERSONNEL ....................................................................... 11
   2.3.1 Responsibilities of Laguna County Sanitation District ............................... 11
   2.3.2 Responsibilities of U.S. Fish and Wildlife Service ..................................... 12
1.0 INTRODUCTION

This document is the Management Plan for mitigation lands to be included in a Conservation Easement established by the Santa Barbara County Public Works Department, Laguna County Sanitation District (District). The Conservation Easement was developed in support of a Habitat Conservation Plan (HCP) prepared by the District for submittal to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (LCSD 2017). The HCP addresses permanent and temporary impacts to habitat for California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*) in the Plan Area, as described in the HCP. The California tiger salamander (CTS) and California red-legged frog (CRLF) are federal-listed endangered and threatened species, respectively. The CTS is also a California state-listed threatened species. Both the CTS and CRLF are Covered Species in the HCP.

1.1 RESPONSIBLE PARTIES

The mitigation lands comprising the Conservation Easement are owned by the District. The District is responsible for establishment of the Conservation Easement and its long-term management, including periodic surveys and monitoring to be conducted per this Management Plan. Survey data will be used within the framework of an adaptive management strategy described in the HCP to revise or augment management actions, as necessary.

1.2 BACKGROUND

The Conservation Easement is located approximately four miles south of Santa Maria in an unincorporated portion of northern Santa Barbara County (Figure 1). It comprises 132.83 acres of upland and aquatic habitat for CTS and CRLF. The Conservation Easement includes the majority of the “Reservoir Pool” identified by the USFWS (designation GUAD-3) as a known CTS and CRLF breeding pool. Protection of this habitat is part of the mitigation for temporary and permanent impacts to CTS and CRLF upland habitat that may occur due to Covered Activities described in the HCP. The impacts are anticipated to result from planned future facilities construction and operation, maintenance, and repair of utilities. The Conservation Easement will provide compensatory mitigation for loss of upland refuge and dispersal habitat for Covered Species. The habitat protected by the Conservation Easement is adjacent to, or in proximity to that being affected by Covered Activities.

The Conservation Easement will be developed between the District and USFWS. The Conservation Easement was surveyed by biologists John Storrer and Thomas Olson on October 29, 2008. The objective of the survey was to evaluate the area as habitat for CTS and CRLF. Methods used and results of the survey are described in the Biological Assessment (SES 2009). The assessment concluded that the proposed Conservation Easement supports high-quality breeding and upland habitat for CTS and CRLF. In view of this determination, the Conservation Easement would provide suitable compensatory
mitigation for the loss of upland habitat associated with the Covered Activities. Adequacy of the proposed conservation easement for project-related impacts was confirmed by the U.S. Fish and Wildlife Service (Henry, 2017 personal communication).

1.3 GOALS AND OBJECTIVES

The goal of this Management Plan is to protect and manage the upland and aquatic (vernal pool) habitats in the Conservation Easement to the benefit of Covered Species in the HCP: CTS and CRLF. Effective management of these habitats may contribute to the recovery of the CTS and CRLF and benefit other wildlife species, as described in Section 1.4.8. Terms of the Conservation Easement will ensure protection of the aquatic and upland CTS and CRLF habitat in perpetuity. Specific methods to be used to accomplish this goal are described in this Management Plan. The conservation values are defined as the physical, biological, and environmental processes needed to maintain the Conservation Easement. Specific management strategies are described in Section 2.5.

To meet the above-defined goal, the following biological objectives have been established:

- Protect and maintain the Reservoir Pool (GUAD-3) as CTS and CRLF breeding habitat;
- Maintain upland habitat in the Conservation Easement in a condition beneficial to CTS and CRLF;
- Enhance breeding potential for Covered Species through creation of a second pond within the boundaries of the Conservation Easement;
- Maintain small mammal burrows in the upland habitat to serve as CTS and CRLF refugia; and
- Minimize obstacles to dispersal between upland habitat and aquatic breeding habitats.

1.4 CONSERVATION EASEMENT DESCRIPTION

1.4.1 Location

The Conservation Easement is located in the Santa Maria Valley approximately four miles southwest of the city of Santa Maria in an unincorporated portion of northern Santa Barbara County. It is within in Rancho Punta de la Laguna Land Grant on the Guadalupe 7.5-minute U.S. Geological Survey (USGS) quadrangle map.

1.4.2 Wetlands

Wetland delineations were not completed onsite as part of the habitat assessment conducted on October 29, 2008 (SES 2009). As such, the descriptions that follow are primarily qualitative. During the habitat assessment survey, there were four locations (referred to as pools) identified where surface water is present for periods of time from weeks to months, depending on the amount of winter–spring precipitation received. These were identified on the basis of topography, vegetation, and consultation with
District maintenance personnel, who have used the parcel for disposal of tertiary-treated water through spray irrigation.

Of these four seasonal pools, the Reservoir Pool is the largest, at 2.57 acres in size. This pool is referred to as “GUAD-3” on the 2010 USFWS CTS habitat map. The pool is located at the eastern edge of the Conservation Easement. A parcel owned by PG&E that accommodates a fee-owned transmission line right-of-way runs through the pool. One transmission line support tower is located in the bed of the pool. Surface water in the pool can be as deep as four feet. The pool has cattails (Typha sp.) and bulrush (Scirpus sp.) along its margins. The Reservoir Pool is a natural-occurring seasonal body of water, created by a low-lying area with a low permeability benthic substrate that collects runoff from precipitation.

The other three seasonal pools are shallow depressions that do not appear to sustain surface water long enough to develop or support obligate wetland plant species. Based on anecdotal information from District maintenance personnel, it is unlikely that these seasonal pools would persist long enough to enable development of CTS or CRLF (10 weeks for CTS, 12 weeks for CRLF).

Orcutt/Solomon Creek follows the southern boundary of the Conservation Easement. Orcutt/Solomon Creek is a tributary to the Santa Maria River. It is a perennial stream whose seasonal flows are augmented by agricultural runoff or “tail water”. Orcutt/Solomon Creek is not included in the Conservation Easement.

1.4.3 Topography

As described above, the Conservation Easement includes a seasonal pool (Reservoir Pool) in the southeastern quarter, in addition to three shallow topographic depressions (see below for more detailed description). Undulating terrain characterizes much of the northeastern 3/4 of the Conservation Easement, including most areas to the west and north of the seasonal pool. The Reservoir Pool lies at an elevation of 183 feet above sea level. Maximum elevation within the Conservation Easement is approximately 200 feet above sea level. The land slopes southwestward toward Orcutt/Solomon Creek. Surface runoff is conveyed from the upper part of the Conservation Easement to the lower portion by two gullies that serve as ephemeral drainages.

1.4.4 Land Use History and Existing Conditions

The property is currently used as pasture for cattle. It has also been used for disposal of tertiary-treated water from the District’s wastewater treatment plant. The water is distributed through spray irrigation, which enhances range value for livestock. It is assumed that stocking rates (number of animal units per acre) were less prior to irrigation. Some relatively level locations in the northern 3/4 of the Conservation Easement may have been dry-farmed decades ago. Adjacent lands to the west and northwest are also used mostly as irrigated pasture. Row crops are grown to the north, northeast, and south. A reservoir for storage of tertiary-treated effluent and a large soil stockpile occur to the east and southeast of the proposed Conservation Easement. Both the reservoir and stockpile have been in place since 1993. Prior to that time, those areas were characterized by natural vegetation and were used for livestock grazing.
Existing Easements on the Conservation Easement

The proposed Conservation Easement is entirely in District-owned lands near the existing wastewater treatment facility on APNs 113-240-13 and -15 (Figure 2). Pacific Gas & Electric (PG&E) owns an adjacent, narrow strip of land to the east of the Conservation Easement (APN 240-003). The PG&E parcel is owned in-fee and is not part of the proposed Conservation Easement. The Conservation Easement is not encumbered by other easements. However there are District-owned operational pipelines within the proposed conservation easement that may require occasional maintenance and/or repair.

1.4.5 Buffers and Setbacks

The Conservation Easement is bordered by cultivated agriculture to the northeast, west, and south and by irrigated livestock pasture on the northwest (Figure 2). These areas are zoned and designated for agricultural use and these uses are likely to continue. East of the Conservation Easement are the District’s storage reservoir and the large soil stockpile created by the construction of the reservoir. The reservoir will continue to be used for seasonal storage of tertiary treated effluent from the District’s wastewater treatment plant. The stockpile is proposed to be removed and another reservoir (similar in size to the existing reservoir) constructed in its place. This project is included as a Covered Activity in the HCP.

Assuming current land use practices continue into the future, no additional buffers will be needed on the west, north, and south sides to preserve the integrity of the Conservation Easement. Lands to the west, north, and south are in cultivation (the last separated by Orcutt/Solomon Creek). Some of the habitats less suitable to CTS and CRLF to the northeast (row crops) and east (the treated effluent reservoir) are expected to continue in the same land use, and therefore, will act as buffers to more intensive uses, such as residential development.

Surrounding Landscape

As described in Section 1.4.4, surrounding land uses include:

- Irrigated pasture (similar to that found on the Conservation Easement) to the north;
- Irrigated row crops to the west, north and south; and
- A tertiary-treated effluent reservoir and large soil stockpile to the east.

Regional Perspective

Aquatic breeding and upland habitats for CTS and CRLF are limited in extent in Santa Barbara County. These habitats are declining due to conversions to more intensive land uses, such as cultivated agriculture and residential development. Preservation of areas that include both upland and breeding habitat is essential to the recovery and continued existence of the CTS and CRLF.

Preservation of the proposed Conservation Easement would be a valuable opportunity to aid in the conservation of these two species. CTS and CRLF have been detected in recent years during aquatic surveys of the Reservoir Pool located on the Conservation Easement (SES 2009). The federal-listed threatened CRLF has also been found Orcutt/Solomon Creek. The entire Conservation Easement is within Critical Habitat Unit 1 (Western
Santa Maria/Orcutt) for the Santa Barbara County Distinct Population Segment of CTS. Protection of the pool and the adjacent upland habitat would help ensure the continuation of CTS within this unit of designated critical habitat. The context and value of this habitat should make its protection a high regional priority.

**Hydrology**

Seasonal pools on the Conservation Easement hold water for variable lengths of time, depending on the amount of annual precipitation received. The Reservoir Pool has been known to sustain surface water for several months in years with high precipitation. In most years, surface water is present in the Reservoir Pool for about four to six months. The other pools are smaller and hold surface water for shorter periods, ranging from two weeks to several weeks, depending on rainfall. In most years, only the Reservoir Pool has surface water for a sufficient time to allow the Covered Species to reproduce.

Surface runoff from the Conservation Easement drains from northeast to southwest – down-gradient toward Orcutt/Solomon Creek.

### 1.4.6 Soils

*The Soil Survey of the Northern Santa Barbara Area* (Shipman 1972) indicates that the Conservation Easement contains five soil mapping units:

- Betteravia loamy sand, 0-2% slopes;
- Betteravia loamy sand, 2-9% slopes;
- Marina sand, 2-9% slopes;
- Oceano sand, 2-15% slopes, severely eroded; and
- Tierra loam, 5-30% slopes, severely eroded.

Each soil mapping unit is described below.

**Betteravia Loamy Sand, 0-2% Slopes**

This soil type is usually found on nearly level sites on lower terraces. Characteristics include very slow permeability and surface runoff. The soil is often boggy after rains. It is very susceptible to wind erosion, but not to water erosion. Its fertility level is considered to be low. This type of Betteravia loamy sand is used mostly for range, but in some situations may accommodate row crops, especially strawberries (Shipman 1972).

**Betteravia Loamy Sand, 2-9% Slopes**

This classification of Betteravia loamy sand is usually found on gently to moderately sloping sites. Its permeability is very slow, while surface runoff is slow to moderate. Similar to the Betteravia loamy sand with 0-2% slopes, the hazard of erosion due to blowing is high. However, the potential for water erosion is slight to moderate. Also similar to the same soil on 0-2% slopes, the fertility is very low and it is used mostly for range, and in some situations, row crops such as strawberries.

**Marina Sand, 2-9% Slopes**

This type of Marina sand is typically found on gently rolling sites occurring on mesa-like situations. The permeability of the soil is moderate, and the surface runoff is slow to moderate. The hazard to erosion by wind is high. The potential for water erosion is slight
to moderate. Similar to the other soils found on the Conservation Easement, the fertility is very low. Marina sand soils are typically used for grazing and some irrigated agriculture.

**Oceano Sand, 2-15% Slopes, Severely Eroded**

This soil is found on the steep southwest-facing slopes of the Conservation Easement that are partially eroded. This soil type has very slow permeability and surface runoff. Similar to the Betteravia loamy sand, Oceano sand has a tendency to be boggy after rains. It is rated as having only slight hazard of water erosion, but very high potential for wind erosion. Its fertility is very low. Oceano sand soils are used mostly for livestock range, but also occasionally planted in row crops such as strawberries.

**Tierra Loam, 5-30% Slopes, Severely Eroded**

This soil type can be found on a variety of topographical situations, from gently sloping to moderately steep sites. It often occurs on terraces and usually displays deep fluted gullies with some subsoil exposed due to erosion. This soil occurs in some of the southwest-facing banks in the southwest ¼ of the Conservation Easement. The permeability of this soil is very slow. That combined with rapid surface runoff makes this type of Tierra loam quite susceptible to both water and wind erosion. Due to limitations, such as degree of erosion and the steepness of slopes, this soil is used only for range and not for more intensive forms of agriculture.

1.4.7 **Habitats**

Past and current land uses have resulted in type-conversion from stabilized dune scrub to a predominantly annual grassland vegetation type over much of the proposed Conservation Easement. There is a high relative component of non-native and native forbs such as California croton (*Croton californicus*). Although best characterized as annual grassland, one perennial species, Bermuda grass (*Cynodon dactylon*), is common.

Bermuda grass and other low-lying annual grasses cover large portions of the Conservation Easement. These are likely to flourish and persist under the influence of spray irrigation. Elevated portions of the parcel support remnant patches of perennial dune shrubs, including dune lupine (*Lupinus chamissonis*), mock heather (*Ericameria ericoides*), and goldenbush (*Isocoma* sp.). These perennial shrub species were likely more prevalent prior to the introduction of livestock.

Orcutt/Solomon Creek follows the southern boundary of the Conservation Easement. This segment of Orcutt/Solomon Creek is confined to a relatively narrow channel, most of which is lined with arroyo willow (*Salix lasiolepis*). In-stream vegetation is comprised largely of cattail (*Typha* sp.) and bulrush (*Scirpus californicus*).

1.4.8 **Wildlife**

The proposed Conservation Easement provides breeding and foraging habitat for a variety of wildlife. Bird species recorded onsite are typical of annual grasslands. They include long-billed curlew (*Numenius americanus*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferus*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), barn owl (*Tyto alba*), black ploeb (Sayornis nigricans),
Say’s phoebe (Sayornis saya), tropical kingbird (Tyrannus melancholicus), Cassin’s kingbird (Tyrannus vociferans), western kingbird (Tyrannus verticalis), horned lark (Eremophila alpestris), savannah sparrow (Passerculus sandwichensis), and vesper sparrow (Poecetes gramineus). There is suitable habitat for burrowing owl, in addition to several other species. Small mammals, including Botta’s pocket gopher (Thomomys bottae), kangaroo rat (Dipodomys sp.), and California ground squirrel (Spermophilus beecheyi) were locally common to abundant. Larger mammals would also be expected to occur, including Audubon’s cottontail (Sylvilagus audubonii), striped skunk (Mephitis mephitis), raccoon (Procyon lotor), bobcat (Lynx rufus), gray fox (Urocyon cinereoargenteus), and coyote (Canis latrans). CTS, Pacific treefrog (Hyla regilla), and CRLF have been documented as breeding in the Reservoir Pool and are expected to use upland habitats within the Conservation Easement on a seasonal basis. One reptile species, western fence lizard (Sceloporus occidentalis), was observed during the field survey for the habitat assessment: Other reptile and amphibian species expected to occur include side-blotched lizard (Uta stansburiana), coast horned lizard (Phrynosoma coronatum frontale), gopher snake (Pituophis catenifer), and common kingsnake (Lampropeltis getulus. Common garter snake (Thamnophis sirtalis) has been documented in the Reservoir Pool (USFWS 2008). The western spadefoot toad is known to occur in the project area (Hunt 2000) but has not been documented on District parcels or within the proposed Conservation Easement.

1.4.9 Special-status Species

CTS and CRLF have been previously documented on District properties (Hunt 2000; Drexhage 2006, 2008, 2003; Storrer 2003; SES 2006a, 2006b, 2008, 2014).

The Reservoir Pool is a known breeding site for CTS and CRLF, as previously noted. At least three (3) other much smaller depressions within the proposed Conservation Easement are capable of sustaining surface water for two or more weeks, according to District maintenance personnel (Alvarez, pers. com.). The duration of surface water in these smaller depressions would depend on annual rainfall patterns.

Rodent burrows were found to be unevenly distributed but locally abundant within the Conservation Easement (SES 2009). Pocket gopher was most widespread. Burrows identified as kangaroo rat were much less common. California ground squirrel burrows were locally common, particularly on the south-facing slope where the mesa descends toward Orcutt/Solomon Creek. The abundance and availability of these small mammal burrows contributes significantly to the upland habitat value for the Covered Species.

2.0 MANAGEMENT PLAN

2.1 GOALS AND OBJECTIVES

As stated in Section 1.3, the goal of this Management Plan is to protect and manage the habitats in the Conservation Easement to promote the continued existence of the Covered Species in the HCP: CTS and CRLF. Appropriate management of the habitats may contribute to the recovery of the CTS and CRLF and may benefit other special-status species, such as western spadefoot, coast horned lizard, and burrowing owl. To ensure
protection and management of Covered Species, the District will establish a Conservation Easement on 132.83 acres of property owned by the District. Long-term management actions by District include general site maintenance, vegetation management, control of invasive species, and adaptive management as discussed below.

The biological goals and objectives are described below. The objectives are the means for achieving goals. Management actions will be the specific implementations of the objectives. The goals, objectives, and management actions are consistent with those described in the HCP (LCSD 2015).

2.1.1 Biological Goal 1: To permanently protect aquatic and upland habitat for Covered Species.

*Biological Objective 1:* Set-aside 132.83 acres of habitat in a Conservation Easement. The habitat will be comprised of both aquatic and upland habitat for CTS and CRLF.

*Management Action:* Establish a Conservation Easement on 132.83 acres of habitat suitable to the Covered Species.

2.1.2 Biological Goal 2: To minimize impacts of land use within the Conservation Easement on Covered Species.

*Biological Objective 2:* Develop a Management Plan that includes parameters for future land use that are compatible with long-term preservation of CTS and CRLF.

*Management Action:* Identify compatible and incompatible land uses.

2.1.3 Biological Goal 3: To manage habitat of the Covered Species on the Conservation Easement in perpetuity.

*Biological Objective 3:* Provide a program that will manage onsite habitat in perpetuity, with a means for revising or augmenting management actions as appropriate.

*Management Action:* Develop and implement this Management Plan that incorporates an adaptive management approach. The adaptive management approach will include periodic review (through field surveys) of the effectiveness of management actions, as well as adjustments to such actions as needed.

2.1.4 Biological Goal 4: To contribute to the survival and recovery of Covered Species in Santa Barbara County.

*Biological Objective 4:* Set-aside a contiguous block of known breeding and adjacent upland habitat that will provide year-round habitat requirements of CTS and CRLF.

*Management Action:* Include 132.83 acres of habitat in the Conservation Easement.

The Conservation Easement Area includes known breeding habitat and upland habitat for both CTS and CRLF. When mapped in 2008, the existing aquatic habitat (GUAD-3) was
1.88 acres in size. At maximum capacity, the pool may exceed 2 acres. The conservation of breeding and upland habitat will benefit both Covered Species.

A second pool (in addition to GUAD-3) will be created within the Conservation Easement. The new pool will be situated at the location of an existing topographic depression as shown in Figure 2 (“Proposed Pool Creation”). The feature will be enlarged to increase capacity and extend its hydro-period.

It should be noted that the intent of this Management Plan is to support the HCP and the Section 10(a) (federal) endangered species permit. If any discrepancies between this Management Plan and the conditions of the HCP and permits exist, the HCP and permits supersede the Management Plan stipulations.

2.2 PROHIBITED ACTIVITIES

This section describes the restrictions on land use practices and activities that can take place in the Conservation Easement. The Conservation Easement also defines prohibited activities that may include, but are not limited to, those defined here. It is understood that the following activities are prohibited, except as needed to accomplish the above-mentioned management and maintenance activities or as described below. Additionally, if any of these activities must be undertaken due to special circumstances, they may be reviewed and approved by the USFWS on a case-by-case basis.

2.2.1 Use of Herbicides, Rodenticides, and Fungicides

There shall be no use of any; herbicides, rodenticides, fungicides, or other pesticides or chemical agents used to kill or suppress plants, animals, or fungi in the Conservation Easement, unless otherwise approved by USFWS for control of noxious weeds.

2.2.2 Motor Vehicle Use

No motorized vehicles shall be ridden, brought, used, or permitted on any portion of the Conservation Easement, except for:

- Routine or emergency District operation and maintenance activities, including irrigation;
- Conservation Easement management actions;
- Management of the ongoing livestock grazing program; and
- Emergency or law enforcement situations requiring access by medical, fire or law enforcement vehicles.

2.2.3 Cultivated Agricultural Uses

No part of the Conservation Easement shall be used for row crops or dryland farming. The only agricultural uses shall be a continuation of irrigated and dry rangeland for livestock grazing.
2.2.4 Recreational Activities
Activities including, but not limited to, biking and off-road vehicle use for recreational purposes are prohibited.

2.2.5 Commercial and Industrial Uses
There shall be no commercial or industrial uses of the Conservation Easement.

2.2.6 Subdivision
No legal or de facto division, subdivision or partitioning of the Conservation Easement will be allowed.

2.2.7 Construction
No construction, reconstruction or placement of any building, billboard, sign, structure, or other improvement shall be allowed in the Conservation Easement with the exception of: facilities necessary to the operation of the livestock operation or District operations. The latter would need to be authorized by the USFWS.

2.2.8 Burning and Dumping
No burning or dumping of soil, rubbish, garbage or any other wastes or fill materials shall be allowed in the Conservation Easement.

2.2.9 Non-native Plant or Animal Introduction
No introduction of non-native or exotic plant or animal species shall be allowed in the Conservation Easement. Cattle used for grazing purposes are allowed.

2.2.10 Mineral Recovery
No removal of mineral resources on or below the surface of the ground or granting or authorizing any surface entry for access to mineral resources shall be allowed in the Conservation Easement.

2.2.11 Topographical Alterations
No modification of the topography within in the Conservation Easement is allowed. Altering the surface or general topography of the Conservation Easement including building roads, paving, changes to existing drainage patterns, or otherwise covering the Conservation Easement with concrete, asphalt, or any other impervious material is prohibited. Maintenance and repair of existing roads within the Conservation Easement is permitted.

2.2.12 Destruction of Small Mammal Burrows
There shall be no intentional destruction of small mammal burrows in the Conservation Easement, including those made by California ground squirrels and Botta’s pocket
gophers. Such burrows are valuable to CTS and CRLF as upland refuge sites during non-breeding times of the year.

2.2.13 Vegetation Removal
No killing, removal, or alteration of any existing native vegetation shall be allowed in the Conservation Easement, except as required for maintenance of existing roads or as approved by USFWS for control of noxious weeds.

2.2.14 Alteration of Naturally Occurring Bodies of Water
No alteration or manipulation of the Reservoir Pool or other seasonal pool in the Conservation Easement shall be allowed, except to enhance breeding habitat for Covered Species, as authorized by the USFWS.

2.2.15 Mineral and Water Rights Transfer
No transfer or abandonment of any mineral or water rights necessary to protect the conservation values of the Conservation Easement shall be allowed.

2.3 MANAGEMENT PERSONNEL

The following outlines the roles and responsibilities of: (1) parties that entered into the Conservation Easement; and (2) District. Collectively, these parties are responsible for the implementation of this Management Plan. The parties that entered into the Conservation Easement are the landowner/ (District) and the resource agency (USFWS). The District will also serve as the Management Entity.

General oversight and long-term management is the responsibility of District. The District will work with the USFWS and a Monitoring Biologist to oversee, monitor, and coordinate management and maintenance activities. The above-referenced parties will work together as a team to manage the Conservation Easement by exchanging information, problem-solving, and generally having a pro-active relationship. The roles and responsibilities of District, USFWS, and Monitoring Biologist are described below.

2.3.1 Responsibilities of Laguna County Sanitation District
The District will be responsible for managing the Conservation Easement and will act as the Management Entity for the Conservation Easement). As such, the District will have responsibility for ensuring management of the Conservation Easement pursuant to the Conservation Easement Management Plan. This Management Plan will be incorporated into the Conservation Easement. It will be the responsibility of the District to provide annual reports to USFWS. The District will retain a Monitoring Biologist who will perform periodic surveys to assess the condition of the Conservation Easement relative to habitat viability for CTS and CRLF. This information, with recommendations for adaptive management, will be provided in the annual report, as appropriate.

Funding for the perpetual management and care of the Conservation Easement will be provided through rate payer revenue planned in its annual grounds maintenance budget. Annual operations, maintenance, and replacement revenue to run the plant and other
facilities are derived from annual rate payer sewer charges and are billed on the tax roll. The costs for management of the Conservation Easement will be a component of the overall charge assessed to District customers.

The District’s responsibilities include but are not limited to overseeing or completing the tasks below. For tasks not directly conducted by District, such as biological monitoring and surveys, the District will be responsible for their coordination and execution.

- Maintaining fences, gates and signs.
- Analyzing monitoring data and coordinating with USFWS regarding any recommended remedial actions.
- Maintaining a log for the Conservation Easement. This log will contain a record of all activities, correspondence, and determinations regarding the Conservation Easement.
- Performing general inspections of the Conservation Easement, as required by this Management Plan.
- Coordinating all baseline biological monitoring as required by this Management Plan.
- Coordinating biological surveys to be conducted by the Monitoring Biologist.
- Monitoring the effects of grazing on habitat for Covered Species.
- Arranging for any corrective action (such as erosion control, non-native plant or animal control, etc.) necessary to ensure the performance of the habitat within the Conservation Easement, as required by this Management Plan.
- Evaluating the effects of grazing and spray irrigation on habitat for the Covered Species through annual survey.
- Management and monitoring of spray irrigation on pasture lands.

2.3.2 Responsibilities of U.S. Fish and Wildlife Service

As a party to the Conservation Easement, USFWS will have the following responsibilities regarding the Conservation Easement:

- Review annual reports.
- Provide recommendations and advice regarding revisions to management actions, as appropriate.
- Adherence to other responsibilities and assurances included in the HCP and Implementing Agreement.

2.3.3 Monitoring Biologist

The District shall retain a professional biologist (“Monitoring Biologist”) to conduct specialized tasks. The Monitoring Biologist may be a qualified staff member or contractor to the District. The Monitoring Biologist shall be familiar with California flora and fauna, and have detailed knowledge of CTS and CRLF, including their ecology.
and habitat requirements. The Monitoring Biologist shall have a valid Section 10(a)(1)a permit to sample for CTS and CRLF if surveys or monitoring will include handling of adult or larval animals. Responsibilities of the Monitoring Biologist might include handling of Covered Species, as well as the responsibilities listed below.

Duties of the Monitoring Biologist may include but are not limited to:

- Monitoring habitat suitability of Conservation Easement for CTS and CRLF;
- Monitoring for erosion,
- Conducting annual surveys, collecting data on the Conservation Easement, and preparing reports required by this Management Plan,
- Evaluating conditions on the Conservation Easement and recommending remedial actions, as appropriate, to District,
- Identifying adaptive management activities to the District, and
- Evaluating the presence of non-native plant and animals and making management recommendations, as necessary, to the District.

If the landowner or Management Entity changes, the outgoing and incoming personnel will tour the Conservation Easement together and the former will advise the latter of trends, problem areas, and any administrative issues that require attention.

2.4 ADAPTIVE MANAGEMENT

The U.S. Department of Interior defines “Adaptive Management” as “…an iterative learning process that produces improved understanding and management over time.” It is a process that involves the use of monitoring data and other new information to revise and refine the Management Plan. It is designed to reduce the amount of uncertainty involved in management planning and decisions. On a regular basis, management techniques are evaluated in consideration of identified goals and objectives. Management techniques may then be revised or augmented if necessary, as determined through this process of review and evaluation.

Adaptive management is the process that will allow this Management Plan to be adjusted during the life of the HCP Permit to ensure that the most current information is being used in making management decisions. It also provides a means for ensuring that the biological goals and objectives of this Management Plan and the Conservation Easement are being met.

This Management Plan has been prepared in good faith, incorporating the most current field-verified methods. Future developments in habitat and species management may affect how the goals of the Plan are met and Adaptive Management techniques will be used to incorporate new management methodologies. This will be done by using feedback loops to incorporate results of monitoring into decision-making regarding revisions to future management techniques. Adaptive Management is a component of HCPs that is required by the Five-point Policy (USFWS and NMFS 2000). Adaptive Management strategy described in this Plan will ensure that the biological goals and
objectives of the Management Plan and the Conservation Easement are met using the best available information.

It is essential that monitoring results be utilized to change management techniques in this Management Plan. Such changes will be necessary through the life of the HCP Permit to ensure that goals and objectives are achieved. Revisions to this Management Plan may be necessary in response to:

1. Knowledge or discovery of new management techniques.
2. Determination that initial management techniques are ineffective.
3. New information about CTS and CRLF distribution in the Conservation Easement.
4. The need to refine management techniques after they have been put into practice and results evaluated.

The items described above could result in the need for new approaches, strategies, or other measures that would be incorporated into this Management Plan and/or the Conservation Easement.

The process of incorporating new information into this Management Plan, the Conservation Easement, and/or the HCP may be accomplished through various means, including:

1. Annual reports prepared by the Monitoring Biologist working with District. The annual reports will present monitoring results, as well as recommended changes to management practices based on those results.

2. Annual meetings between the Monitoring Biologist and the District. Results of annual or follow-up surveys may indicate the need to effect changes in land use, maintenance, or management practices. Such changes can be developed jointly through an annual meeting, if survey results warrant such discussions.

3. Contributions from USFWS. As part of the agency review of annual reports, it is expected that USFWS may have suggestions and recommendations that might improve the management of the Conservation Easement. Such suggestions and recommendations will be reviewed for inclusion into this Management Plan.

Note that substantial changes to this Management Plan may be beyond the scope of the Adaptive Management process and may require amending the Conservation Easement, Incidental Take Permits and/or Implementing Agreement.

2.5 MANAGEMENT AND MAINTENANCE ACTIVITIES

This section describes management and maintenance activities that are allowed within the Conservation Easement. Management activities are actions implemented to maintain habitat quality necessary for the Covered Species. These activities may include routine management, as well as “corrective actions” (such as the control of newly detected non-native species). The activities, described in Sections 2.5.1 through 2.5.4, will be conducted by the Monitoring Biologist, as directed by the District. New management
actions developed to address a specific issue not encompassed by this plan will be reviewed and approved by USFWS prior to implementation.

*Maintenance activities* are those that support the permitted land uses in the Conservation Easement, primarily livestock grazing and spray irrigation. These activities will be the responsibility of District and are described below in Section 2.6.

### 2.5.1 Management of Seasonal Pool Habitat for Covered Species

#### Objectives

The objective of the management activities for seasonal pool habitat is to provide suitable aquatic breeding habitat within the Conservation Easement for CTS and CRLF. Specific goals of seasonal pool habitat management include:

1. Annual pool surveys to determine if breeding of CTS and/or CRLF has occurred.
2. Maintenance of Reservoir Pool basin morphology to allow the pool to continue to hold surface water for at least 12 weeks during normal rainfall years.
3. Creation and management of a second breeding pool for Covered Species.
4. Monitoring of the effects of livestock grazing on seasonal pools.

#### Strategies

The management strategies to be used to achieve the overall objective and specific goals described above involve monitoring, and as necessary, active management. The strategies for each specific goal are presented below.

1. Annual aquatic surveys for larval CTS and CRLF will be conducted each spring. Surveys will be timed to coincide with anticipated peak of breeding activity, in consideration of the amount and timing of precipitation received.
2. Evidence of soil erosion or sedimentation of aquatic breeding habitat will be recorded during the annual survey. Active management actions will be developed, as necessary, such as erosion control up-gradient of the Reservoir Pool. Removal of accumulated sediments, if determined necessary, will be done between September 1 and November 1 to avoid the breeding season for amphibians.
3. The Reservoir Pool and any other pool with the potential to be used as breeding habitat by the Covered Species will be examined for evidence of compaction, damage to vegetation, or other adverse effects by cattle. If adverse effects to the pools’ basins due to cattle trampling are noted, management actions will be developed and implemented. Such actions may include installation of fencing within or around the affected pools to exclude cattle. Fencing would be installed to exclude cattle from the pools or portions of the pools, but allow passage by amphibians.
4. Seasonal hydrology will be maintained such that pools are allowed to dry each year to prevent establishment and breeding by non-native fish, amphibians, and invertebrates. Ponds will not be pumped dry unless undesirable species are detected during periodic field surveys. The nine man-made storage ponds
in the western portion of the Plan Area (GUAD-9) will be managed in a similar manner to prevent breeding by non-native predatory species (i.e. drained or allowed to dry at least once each year).

5. An existing service road will be re-routed such that the portion adjacent to GUAD-3 can be abandoned and allowed to revegetate. This will help to arrest sediment transport to the pond from the adjacent stockpile will allow an existing sediment control (silt fence) to be removed. The silt fence is a possible impediment to CTS dispersal. The road realignment is shown in Figure 2.

2.5.2 Management of Upland Habitat for Covered Species

Objectives

The objective of management activities for upland habitats is to provide suitable upland habitat within the Conservation Easement for CTS and CRLF. Specific goals of the upland habitat management include:

1. Retention of open small mammal burrows that can be used as upland refugia by CTS and CRLF.
2. Prevention of loss or degradation of upland habitat.

Strategies

The management strategies to be used to achieve the overall objective and specific goals described above involve monitoring, and as necessary, active management. The strategies for each specific goal are presented below.

1. To minimize loss of small mammal burrows by collapse, cross-country travel by equipment and vehicles will be avoided to the extent possible. Rodenticides will not be used on the Conservation Easement. Small mammal burrows tend to lose their structural integrity within 18 months following abandonment. Ground squirrels and gophers are needed within the Conservation Easement to construct new burrows that can be used by the Covered Species. Annual monitoring will include an assessment of the relative number of small mammal burrows within the Conservation Easement.

2. Conversion of the irrigated pasture to more intensive uses, such as row crops, will not be allowed. The upland portions of the Conservation Easement will be reviewed annually for evidence of substantial erosion. If the results of the review indicate substantial loss of upland habitat due to erosion, an erosion control plan will be developed and implemented.

3. Effects of pasture irrigation will be assessed by comparing the density of small mammal burrows in irrigated vs. non-irrigated portions of the easement. Frequency and location of spray irrigation will be adjusted if a correlation between irrigation and burrow density is found. That portion of the easement with the highest density of ground squirrel burrows (slope above Orcutt/Solomon Creek) will not be subject to irrigation.
2.5.3 Management of Movement Corridors

Objectives

The objective for sustaining migration corridors is to provide viable means of dispersal within the Conservation Easement for CTS and CRLF to travel between upland refugia and aquatic breeding habitat. Specific goals of the upland habitat management include:

1. Minimization of potential vegetative barriers to movement between upland habitat and the Reservoir Pool.
2. Minimization of structural barriers to movement between upland habitat and the Reservoir Pool.

Strategies

The management strategies to be used to achieve the overall objective and specific goals described above involve monitoring, and as necessary, active management. The strategies for each specific goal are presented below.

1. Livestock grazing will be regulated to prevent overuse of upland habitat and degradation of aquatic breeding habitat. Grazing will also be used as a management tool to prevent accumulation of thatch and weeds that could impede amphibian migration and dispersal. The most common indicator used for rangeland management is Residual Dry Matter (RDM), or the amount of accumulated thatch present before the onset of fall rains. CTS and CRLF biologists have suggested that RDM is not the best means of determining suitability of grassland habitat for these species because it is measured only in the fall, which does not coincide with the seasonal peak of dispersal (Ford et al. 20013). Measurements of vegetation condition surrounding ponds and other habitat features (e.g. complexes of small mammal burrows) will be made during the spring survey, prior to the anticipated interval of juvenile dispersal. Vegetation height and density will be measured, as these are the parameters most likely to present obstructions to dispersal. Adjustments to the level or interval of livestock grazing (an increase in grazing pressure would likely result in less vegetative cover) would be the first preference in management, followed by a reduction in irrigation. No permanent structures that could pose barriers to CTS or CRLF movement will be installed within the Conservation Easement. Cultivation will not be allowed. If additional internal fencing (fencing inside the Conservation Easement, not fencing along the boundaries) will be raised at least four inches above the ground surface to enable amphibian passage

2.6 MAINTENANCE ACTIVITIES

The land within the Conservation Easement will continue to be spray-irrigated and used for livestock grazing. Maintenance activities described below will involve the management of those land uses, as well as actions in support of the Conservation Easement.
2.6.1 Livestock Grazing

The existing cattle grazing operation within the Conservation Easement will continue at the current stocking rate by the owner or owner’s tenant. Surveys of the Reservoir Pool in 2003, 2006, and 2008 have indicated successful breeding by CTS and CRLF at this level of grazing (Drexhage 2003, 2006, 2008; SES 2009). According to the previous landowner, stocking rates in the recent past have been approximately 35 to 40 head per 100 acres (0.35 - 0.4 head per acre) on dry pasture (Ferrini 2009 personal communication). Stocking rates on adjacent, irrigated pasture owned by District have been 200 head on 263 acres (0.76 head per acre). These grazing rates will not be exceeded within the Conservation Easement and will be reduced if necessary, based on the results of information gathered during annual spring surveys, as described above. The District will be responsible for monitoring the grazing rates. Livestock management will require occasional access by vehicles for mending fences and moving animals between pastures.

2.6.2 Treated Effluent Disposal (Spray Irrigation)

The District may continue to use the Conservation Easement for disposal of tertiary treated effluent. Irrigation rates are expected to vary depending on effluent volume and availability of other pastures and other alternatives for disposal. Irrigation schedule and volume will not exceed historic rates documented since 2000. The potential effects of spray irrigation on small mammals and amphibians are discussed in Appendix D to the HCP (LCSD 2017).

Current rates of water disposal range from 3,900 gallons per day/acre to 4,300 gallons per day/acre. Irrigation rates vary seasonally, with the highest rates of application in summer and lowest application rates in winter. The pasture within the Conservation Easement was irrigated from 2001 to 2007, but has not been used for effluent disposal since.

Transport and relocation of irrigation pipe will require periodic access by vehicles and maintenance crews. Although existing access roads will be used to the extent possible, some off-road travel by a limited number of vehicles will be required within the Conservation Easement. District personnel will be instructed to avoid small mammal burrows while driving off-road in the Conservation Easement.

The effects of livestock grazing and pasture irrigation, including limited off-road vehicle travel necessary to deploy pipe will be monitored. Recommendations to alleviate these effects will be developed and implemented, as appropriate. They may include an increase or decrease in grazing intensity and adjustments to the frequency and specific location of spray irrigation.

2.6.3 Fencing and Signage

The intent of the Conservation Easement is to maintain the preserved habitat in perpetuity. Unapproved pedestrian and vehicle access to the Conservation Easement will be discouraged through fencing and signage. Most of the Conservation Easement is currently fenced to enclose cattle. Signage will also be installed on perimeter fencing. The signs will state that trespassing, hunting, and other unapproved uses of the land are prohibited. Signs will be in English and Spanish.
The District and/or the landowner will be responsible for the maintenance and replacement of the perimeter fencing and signage. Existing perimeter fences will be repaired and replaced as needed at or about their existing locations. Additional permanent fencing may be added or maintained for site maintenance purposes if impacts occur to breeding pools as the result of grazing.

Maintenance activities will include keeping gates locked to prevent unauthorized motor vehicle access. These gates will be used for allowing access to the Conservation Easement, including but not limited to access for maintenance vehicles and emergency access to the Conservation Easement.

2.6.4 Rodent Control

Ground squirrel and rodent control programs will be strictly prohibited within the Conservation Easement because ground squirrel and other rodent burrows provide upland refuge sites for CTS and CRLF.

2.6.5 Trash Removal

The District will periodically remove accumulations of trash and other unwanted debris from the Conservation Easement when necessary.

2.6.6 Recreational/Educational Activities

Recreational and educational activities will not be part of the management or maintenance of the Conservation Easement. No hiking, hunting, horseback riding, fishing, or other recreational activities will be allowed. Field trips and other educational activities are not anticipated. An exception will be conducting surveys of the pools as part of the annual monitoring described in Section 2.5.1 or other studies authorized by USFWS to gather additional data on CTS populations. Agency personnel and the Monitoring Biologist will be allowed to conduct surveys within the Conservation Easement.

2.7 MONITORING

The monitoring/inspections described below are to be carried out in perpetuity. As previously stated, the District shall serve as the Management Entity for the Conservation Easement. The District will retain a Monitoring Biologist to perform the biological surveys. Funds required for hiring a Monitoring Biologist will be provided by the District in its annual operating budget. The schedule of inspections for the Conservation Easement in all monitoring years is as follows:

- The District will conduct at least one General Inspection each year to assess the need for fence repair, replacement of signage, trash removal, and other general maintenance needs. The Monitoring Biologist will conduct one Biological Survey each year. The survey will be optimized to verify the quality and conditions of the habitat in the Conservation Easement and to assess the effects of grazing and irrigation on upland and aquatic habitats. The survey will be timed to coincide with CTS/CRLF larval development.
(March through June) so that breeding within aquatic habitats can be ascertained.

- Follow-up surveys will be conducted by the Monitoring Biologist if necessary to evaluate seasonal effects of land use on Covered Species or to assess the efficacy of remedial actions recommended in Annual Reports.

Specific Biological Monitoring methods and schedule for CTS and CRLF and their habitats are described in detail in Section 2.7.3. The objective of the annual surveys will be to assess the condition of both aquatic and upland habitats. Survey results will be used to guide management decisions according to the adaptive management strategy described in Section 2.4 to ensure species presence and vegetation cover. Funds required for hiring the Monitoring Biologist would be provided through the District’s annual operating budget.

2.7.1 Seasonal Pool Habitat

The Monitoring Biologist will conduct annual aquatic surveys for CTS and CRLF. Methods will include use of dip nets for capture and examination of larval amphibians. A qualitative assessment of the pool basin morphology, water quality, and vegetative characteristics will also be made. Monitoring will occur only in the seasonal pools that contain surface water for a period time sufficient for breeding by the Covered Species.

2.7.2 Upland Habitat

Upland habitat for CTS and CRLF will be qualitatively monitored through the use of the site by fossorial mammals (e.g., California ground squirrels) observed during annual monitoring efforts. The relative number of burrows observed will be noted, as well as the locations of the burrows in relation to seasonal pools, especially the Reservoir Pool.

Upland vegetation will be assessed. Common and characteristic species will be noted. The approximate height and density of the vegetation will be described, as well as the biologist’s assessment about the suitability of the vegetation as upland habitat and movement corridor for the Covered Species. Results will be presented in the annual monitoring reports and recommendations will be made, if appropriate, regarding management of upland plant species Height and density. Livestock grazing and/or regulation of spray irrigation may be used to adjust the character of vegetation to facilitate amphibian dispersal.

2.7.3 Evaluation Criteria

If substantial changes are noted relative to conditions documented in previous annual surveys, recommendations for remedial action will be provided in the annual report. If necessary, existing management actions will be revised, or new actions developed using the adaptive management guidelines as described in Section 2.4.

2.7.4 General Inspections

The District will schedule the General Inspections at a frequency and duration that adequately verifies the integrity of the Conservation Easement. At minimum, these
inspections will be conducted annually. Inspections will concentrate on an evaluation of the following factors: erosion, fencing integrity, condition of signage, trash accumulation, evidence of unauthorized use by vehicles, and evidence of other unauthorized use, such as hunting. The entire perimeter of the Conservation Easement shall be surveyed, as well as meandering transects through the entirety of the Conservation Easement. An inspection report will be prepared upon the completion of the General Inspection survey. Previous inspection reports will be reviewed before each visit to better identify potential or recurring problem areas. If maintenance issues or violations are identified, more frequent inspections will be done to identify if the problem is a recurring issue and whether remedial actions are effective. Evaluation and corrective actions for each factor are described below:

**Erosion**

If it is determined during the inspection that drainage is causing any erosion or other adverse effects on either the seasonal pool habitat or upland habitat within the Conservation Easement, standard erosion control measures will immediately be implemented. If the extent of the erosion is greater than what can be controlled with standard erosion control measures, USFWS will be notified and a qualified erosion control specialist will be consulted.

**Fencing and Signage**

The condition of the fencing and signage on the Conservation Easement will be checked during the General Inspection. The District will be responsible for maintaining the fencing and signage on the perimeter of the Conservation Easement.

**Unauthorized Motor Vehicle Use**

The perimeter and interior of the Conservation Easement will be inspected for evidence of unauthorized motor vehicle use/access. If necessary, corrective actions such as repairing locks and gates will be taken.

**Other Unauthorized Uses**

The perimeter and interior of the Conservation Easement will also be inspected for evidence of other unauthorized uses. Representatives of the Management Entity will search for items such as discarded trash. Finding such evidence may indicate the need to review the integrity of the fencing and gates, install additional signs prohibiting entry to the Conservation Easement, or periodically patrol the perimeter of the Conservation Easement.

2.7.5 **Annual Biological Survey**

Annual biological surveys by the Monitoring Biologist will help ensure the long-term integrity of the seasonal pool and upland habitats. These surveys will generally consist of walking meandering transects through the Conservation Easement to gather qualitative information on the status of upland habitat values and species presence on the site. Quantitative assessment of vegetation height and density and estimates of small mammal burrow density in irrigated vs. non-irrigated portions of the Conservation Easement will also be made. Aquatic sampling will be conducted to determine if breeding by Covered Species has occurred. This information will be used to assist in determining if the long-
term integrity of seasonal pool and upland habitat values are being maintained. Surveys
will be used to evaluate presence of newly introduced non-native species. Results of the
annual surveys will be presented to the USFWS in the annual report.

2.7.6 Conservation Easement Monitoring [General Inspection]
The District is responsible for conducting one monitoring visit each year to monitor compliance
with the terms of the Conservation Easement. A report documenting their findings will be
submitted to the District, and USFWS. If any easement restriction is deemed non-compliant (i.e.,
if there is a violation of an easement requirement), the District will immediately contact USFWS.

2.7.7 Agency Monitoring and Inspections
USFWS may inspect and monitor the condition of the Conservation Easement at any time. However, unless an emergency exists, 48-hour prior notice to the District will normally
be given.

2.8 FUNDING
The annual cost of monitoring and management described in this Management Plan will
be funded through the District’s annual operating budget. The revenue for the annual
budget is derived from service charges collected from District customers. The annual
amount will be included in the budgeted amounts for property and grounds maintenance.

The amount of the annual Conservation Easement maintenance budget will be based
upon the costs necessary to manage the Conservation Easement as estimated by
calculation of the actual costs of each management and maintenance task. The annual
budget to manage the Conservation Easement shall remain as a permanent fixture to the
District’s annual budget to manage the Conservation Easement consistent with this
Management Plan and the Conservation Easement. The District may use the amount
budgeted to pay any costs and expenses reasonably incurred through the monitoring,
maintenance, or long-term management, including, without limitation, contracts,
equipment or materials, and signage related to the management of the Conservation
Easement and consistent with the Management Plan.

Anticipated annual costs for monitoring and reporting are summarized in Appendix A.
The fiscal and management obligations described in this Management Plan, and the
obligations under the Conservation Easement shall continue in perpetuity as a covenant
running with the land.

3.0 REPORTING REQUIREMENTS

3.1 ANNUAL MONITORING REPORTS
The District and the Monitoring Biologist will be responsible for preparing and
submitting an Annual Report to USFWS, by December 31 in perpetuity. The report will
include information gathered through General Inspections performed by the Management
Entity and Annual Biological Surveys conducted by the Monitoring Biologist. The Annual Monitoring Reports will include, at minimum:

- Overall condition of the Conservation Easement;
- A map of the Conservation Easement;
- Photos documenting the status of the Conservation Easement;
- A description of management and maintenance activities conducted over the past year;
- Adaptive management needs, if any;
- A description of management and maintenance activities proposed for the next year;
- Results of the Annual Biological Survey, including quantitative assessment of upland and aquatic habitats as described above; and
- Economic reports of income and expenditure.

The District will prepare the Annual Reports and will also be responsible for coordination with USFWS.

4.0 REFERENCES


Laguna County Sanitation District. 2017. Final Habitat Conservation Plan Laguna County Sanitation District Facilities Construction, Operation, and Maintenance Western Santa Maria Valley, Santa Barbara County, California. February.


4.1 PERSONAL COMMUNICATIONS


FIGURES
APPENDIX A

ANNUAL BUDGET FOR MONITORING AND REPORTING
It is estimated that the annual monitoring and reporting described will cost approximately $6,000.00 (2017 dollars). This includes a contingency for a half-day follow-up review and is based on the estimated hours and rates for qualified biologists to perform the following:

- Sampling of CTS/CRLF breeding pool.
- Assessment of upland habitat (presence of small mammal burrows, condition of vegetation).
- Assessment of land use on endangered species habitat, including livestock grazing and spray irrigation.
- Preparation of written report describing survey results and providing recommendations regarding upland and/or aquatic habitats as appropriate.

This amount will be included in the annual O&M Laguna County Sanitation budget as included with other costs it already incurs for grounds maintenance.
APPENDIX E

POTENTIAL EFFECTS OF PASTURE IRRIGATION ON SMALL MAMMAL POPULATIONS AND CTS
INTRODUCTION

Among comments received on a previous draft of the Laguna County Sanitation District Facilities Construction, Operation, and Maintenance Habitat Conservation Plan (HCP), was a request by the U.S. Fish and Wildlife Service (USFWS) for a review of any publications, evidence, etc. that irrigating a pasture does or does not affect the density of rodent burrows and/or California tiger salamanders (*Ambystoma californiense*; CTS). To respond to this request, a review of available literature and contacts were made with California tiger salamander biologists and University of California extension personnel who focus on control of small mammals in agricultural production areas.

METHODS

Professional Contacts

Telephone conversations were conducted between Biologist Tom Olson of Storrer Environmental Services (SES) and the following individuals regarding the potential effects of irrigation on small mammal burrows and/or CTS;

- Roger Baldwin, Cooperative Extension, University of California, Davis;
- James Bartolome, Department of Environmental Science, Policy, and Management, University of California, Berkeley;
- Steve Brady, Department of Public Works, City of Santa Rosa, CA;
- Paul Collins, Curator of Vertebrate Zoology Department, Santa Barbara Museum of Natural History;
- Dave Cook, Biologist, Sonoma County Water District;
- Tim Lacy, Senior Biologist, LSA Associates Inc., Pt. Richmond, CA;
- Terry Salmon, Wildlife, Fish, and Conservation Biology and Cooperative Extension (Emeritus), with expertise in control of California ground squirrels (*Spermophilus beecheyi*), University of California, Davis;
- David Smith, Merritt Smith Consulting; and

Literature Review

Literature reviewed focused on publications that discussed grazing and CTS, as well as methods used to discourage the use of areas by ground squirrels (*Otospermophilus beecheyi*). Two publications that were particularly helpful were Marsh (1994) and DiDonato (2006).

RESULTS

Potential Effects of Irrigation on Burrowing Small Mammals

It appears that no studies have been conducted that evaluated the effects of irrigation on burrowing small mammals (Baldwin, Bartolome, Salmon, Van Hoorn, personal communication, 2015). However, wildlife damage control experts have made incidental observations over the years on species of ground squirrels. There is less information available on the effects of irrigation on Botta’s pocket gophers (*Thomomys bottae*) or other species of gophers. Spray/sprinkler irrigation appears to have limited effects on ground squirrels, including
California ground squirrel, Belding’s ground squirrel (*Spermophilus beldingi*), and rock ground squirrel (*Spermophilus variegatus*). In contrast, flood irrigation has been observed to discourage ground squirrels in orchards and fields of alfalfa and pasture, but does not completely exclude them (Marsh 1994). Salmon (personal communication, 2015) has observed California ground squirrels occupy spray irrigated orchards, and re-occupy other orchards when the method of irrigation changed from flood to drip irrigation. Belding’s ground squirrels are known to occupy burrows in irrigated alfalfa fields in northeastern California (Salmon, personal communication, 2015).

Based on years of California ground squirrel work Salmon (personal communication, 2015) suggested that spray irrigation may discourage California ground squirrels only if the intensity of irrigation was high enough to cause areas of standing water. Even then, ground squirrels might adjust burrow locations to slightly higher ground, but remain on the irrigated land.

On Laguna County Sanitation District (LCSD) lands proposed for conservation easement status, treated waste water has been applied via sprinkler irrigation in previous years, including 2001 to 2007 (Wilder, personal communication, 2015). During that period, ground squirrel and gopher burrows continued to be observed (Storrer, personal observations; Olson, personal observations). Both species continue to occupy the fields that were irrigated.

### Potential Effects of Irrigation on California Tiger Salamander

The City of Santa Rosa uses irrigated pastures and cropland as a means of treated wastewater disposal (Brady, personal communication, 2015). Some of the irrigated fields are within dispersal distance of known CTS breeding ponds. In order to collect data on possible use of the fields by CTS, a drift fence survey was conducted in 2005 by LSA. The study included drift fences and pitfall bucket traps across irrigated fields, both cropland and irrigated pasture. CTS were trapped during the study in irrigated fields. It was not determined if the CTS were using burrows in the irrigated fields or traveling from burrows off the irrigated lands to nearby breeding ponds (Lacy, personal communication, 2015). Because there are few ground squirrels in the vicinity, it is assumed that the CTS utilized gopher burrows. Thus, it has been shown that CTS will utilize irrigated fields, at least to travel across during breeding season.

No additional CTS studies have been conducted by the City of Santa Rosa in the area described above. Irrigation has been discontinued on some fields, but continued on others (Smith, personal communication, 2015). It is not known if studies in other areas have attempted to live-trap CTS in irrigated pasture or cropland.

There is potential for irrigated fields to contain a higher density of vegetation, which could discourage CTS from using or traversing such fields. This potential could be offset by the continuation of livestock grazing. DiDonato (2006) pointed out a connection among livestock grazing, reduced vegetative cover, higher densities of burrowing rodents, and the presence of CTS. These conclusions were based on non-irrigated situations, but the positive effects of livestock grazing could be similar for irrigated pastures as well.

As described above, land within the proposed LCSD conservation easement was irrigated and grazed by cattle from 2001 to 2007. During that time, CTS were found in the adjacent known CTS breeding pond (GUAD-3) during the annual “CTS Roundup” organized by the Ventura office of USFWS (USFWS 2005, 2006, 2008). It is unknown if CTS were using burrows in the irrigated pasture, but some likely traversed the pasture to reach the breeding pond.
SUMMARY AND CONCLUSION

Information was collected on possible effects of spray irrigation on fossorial small mammals (particularly California ground squirrels and Botta’s pocket gophers, species whose burrows are relied upon by CTS for upland refuge), and on CTS. Sources included professional contacts with university extension specialists who focus on control of small mammals, review of literature, and personal observations.

Spray irrigation has limited effects on ground squirrels, which may adapt by building burrows on slightly higher ground within the irrigated lands. CTS have been trapped in irrigated fields in Sonoma County, as well as detected in a pond adjacent to the proposed LCSD conservation easement in Santa Barbara County while irrigation was ongoing. Principal conclusions from this review of information include:

- Flood irrigation will exclude ground squirrels from an area, at least on a temporary basis, but spray or sprinkler irrigation likely will not.
- CTS are known to traverse irrigated fields, but it has not been determined if they use burrows in the irrigated fields.

REFERENCES


Bartolome, J. 2015. Personal communication. Department of Environmental Science, Policy, and Management, University of California, Berkeley. Email communication.

Brady, S. 2015. Personal communication. City of Santa Rosa, Department of Public Works. Telephone conversation.


Salmon, T. 2015. Personal communication. Wildlife, Fish, and Conservation Biology and Cooperative Extension (Emeritus), University of California, Davis. Email communication.


Wilder, M. 2015. Personal communication. Laguna County Sanitation District, Orcutt, CA. Email communication.