BIOLOGICAL RESOURCE ANALYSIS
CHERRY RANCH
CITY OF SANTA ROSA, CALIFORNIA
APNs: 035-101-004

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# TABLE OF CONTENTS

1. INTRODUCTION ......................................................................................................................... 5
2. PROPOSED PROJECT .................................................................................................................... 5
3. PROPERTY LOCATION AND SETTING ......................................................................................... 6
4. PROJECT SITE HISTORY .............................................................................................................. 6
5. ANALYSIS METHODS .................................................................................................................. 6
   5.1 Background Research .................................................................................................................. 6
   5.2 Site Investigation .......................................................................................................................... 7
   5.3 Wetland Delineation .................................................................................................................... 7
   5.4 Special-Status Plant Surveys ....................................................................................................... 7
   5.5 California Tiger Salamander Surveys ......................................................................................... 8
6. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES ....................................................... 9
   6.1 Topography and Hydrology ........................................................................................................ 9
   6.2 Plant Communities and Associated Wildlife Habitats ................................................................. 9
      6.2.1 RUDEAL HERBACEOUS HABITAT .................................................................................. 9
      6.2.2 CONSTRUCTION-RELATED FEATURES ....................................................................... 10
      6.2.3 ROADSIDE DITCH LINEAR WETLAND ....................................................................... 10
   6.3 Wildlife Corridors ...................................................................................................................... 11
7. SPECIAL-STATUS SPECIES DEFINITION .................................................................................. 12
   7.1 Definitions ................................................................................................................................. 12
   7.2 Potential Special-Status Plant Species on the Project Site ......................................................... 14
      7.2.1 SONOMA SUNSHINE ........................................................................................................ 14
      7.2.2 BURKE’S GOLDFIELDS ................................................................................................ 14
      7.2.3 SEASTOPOL MEADOWFOAM ........................................................................................ 15
   7.3 Potential Special-Status Wildlife Species on the Project Site ................................................... 15
      7.3.1 CALIFORNIA TIGER SALAMANDER .......................................................................... 16
      7.3.2 WHITE-TAILED KITE .................................................................................................. 19
8. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS .................... 19
   8.1 Federal Endangered Species Act .............................................................................................. 19
      8.1.1 RESPONSIBLE AGENCY .............................................................................................. 21
      8.1.2 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 21
   8.2 Federal Migratory Bird Treaty Act ............................................................................................ 23
      8.2.1 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 23
   8.3 California Endangered Species Act ......................................................................................... 23
      8.3.1 SECTION 2081 OF THE CALIFORNIA ENDANGERED SPECIES ACT .................... 23
      8.3.2 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 25
   8.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513 ........................................... 26
      8.4.1 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 26
   8.5 Santa Rosa Plain Conservation Strategy (USFWS 2005) ......................................................... 27
      8.5.1 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 28
   8.6 Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007) .................................... 28
      8.6.1 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 30
   8.7 USFWS Recovery Plan for the Santa Rosa Plain (USFWS 2016) ........................................... 31
      8.7.1 APPLICABILITY TO THE PROPOSED PROJECT .......................................................... 32
9. CITY OF SANTA ROSA TREE ORDINANCE .............................................................................. 33
FIGURES
(At Back of Report)

Figure 1. Regional Location of the Cherry Ranch Project Site.

Figure 2. Cherry Ranch Project Site Location.

Figure 3. Aerial Photograph of the Cherry Ranch Project Site.

Figure 4. Known CNDDB Records for Special-Status Species Within 3 Miles of the Cherry Ranch Project Site.

Figure 5. *Blennosperma bakeri* Core and Management Areas (USFWS 2016) in the Vicinity of the Cherry Ranch Project Site.

Figure 6. *Lasthenia burkei* Core and Management Areas (USFWS 2016) in the Vicinity of the Cherry Ranch Project Site.

Figure 7. *Limnanthes vinculans* Core and Management Areas (USFWS 2016) in the Vicinity of the Cherry Ranch Project Site.

Figure 8. USFWS Critical Habitat in the Vicinity of the Cherry Ranch Project Site.

Figure 9. Santa Rosa Plain California Tiger Salamander Core and Management Areas (USFWS 2016) in the Vicinity of the Cherry Ranch Project Site.

TABLES
(At Back of Report)

Table 1. Plant Species Observed on the Cherry Ranch Project Site.

Table 2. Wildlife Species Observed on the Cherry Ranch Project Site.

Table 3. Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site.

Table 4. Special-Status Wildlife Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site.
ATTACHMENTS
(At Back of Report)

Attachment A. Cherry Ranch Development Plan prepared by Cinquini & Passarino.

Attachment B. USFWS Biological Opinion, dated February 14, 2006 (File No. 1-1-06-F-0054).

Attachment C. Historic Aerial Photographs of the Cherry Ranch Project Site.


Attachment E. Revised Wetland Delineation for Cherry Ranch.

Attachment F. Aquatic Resources Delineation Map prepared by Monk & Associates dated June 2018 (Corps-Confirmed December 2018).

1. INTRODUCTION

Monk & Associates, Inc. (M&A) prepared this Biological Resources Analysis for the proposed Cherry Ranch Project located at 930 Fresno Avenue in the City of Santa Rosa, California (Figures 1 and 2). The purpose of our analysis is to provide a description of existing biological resources within the proposed development site (hereinafter the project site) and to identify significant or potentially significant impacts that could occur to sensitive biological resources from development of this project site and associated infrastructure.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society (CNPS). Biological resources also include waters of the U.S. and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and CDFW.

In this analysis, we present the state, federal, and local regulations that would be relevant to impacts to sensitive biological resources. This Biological Resources Analysis also provides mitigation measures for “significant” and “potentially significant” impacts that could occur to biological resources if the project site is developed. Whenever possible, upon implementation, the prescribed mitigation measures would reduce impacts to levels considered less than significant pursuant to the California Environmental Quality Act (CEQA) (Pub. Resources Code §§ 21000 et seq.; 14 Cal. Code Regulations §§ 15000 et seq). Accordingly, this report is suitable for review and inclusion in any review being conducted by the City of Santa Rosa for the proposed project site pursuant to the CEQA.

2. PROPOSED PROJECT

The Cherry Ranch project was fully approved in 2007 but development was halted owing to the Great Recession. This project is again moving forward. The 930 Fresno Avenue, Santa Rosa project, referred to as the Cherry Ranch Project, has been planned as a mixed-use project with a total of 81 residences (Attachment A). There are 29 “type-A” units that are one-story single-family residences, plus garage space each. The type-A units are situated around the perimeter of the single-family residence area of the development. There are also 20 “type-B” units that are two-story town home single-family residences, plus garage space each. These type-B units are situated in the center of the single-family residence area of the development. Finally, there are 32 apartment units in building clusters situated at the northern end of the project site. Twenty-four of these two-bedroom apartment units are in three-story buildings with two floors of living area, plus the garage space. The remaining 8 two-bedroom units are two stories with grade level parking.

There will be roads within the development to allow access to the parking areas and to provide access for fire department equipment. There are 150 parking spaces planned for the project. The City of Santa Rosa is requiring that the applicant widen Fresno Avenue along the property boundary and incorporate road improvements, such as curb and gutter along Fresno Avenue, as part of the Cherry Ranch Project. These road improvements will impact Corps’ jurisdictional
area that was not formally permitted by the Corps in its prior 2002 and 2007 permit authorizations. The applicant will also be creating landscaping berms along that frontage.

3. PROPERTY LOCATION AND SETTING

The 6.63-acre project site is located at 930 Fresno Avenue in the City of Santa Rosa, California (Figures 1 and 2). The project site is immediately east of Fresno Avenue, a relatively well-used road that provides access to the site. The project site is bordered to the south and east by the Santa Rosa Air Center. To the north there are several private residences and a small open lot, and private residences occur to the west of Fresno Avenue. The project site formerly supported a barn that was removed in 2017 (based on Google Earth images). The project site currently supports routinely disturbed anthropogenic habitats. Figure 3 provides an aerial photograph of the project site showing the land use of the site and the surrounding area.

4. PROJECT SITE HISTORY

On March 20, 2002, the former applicant submitted an application to the Corps for authorization to fill 0.40-acre of seasonal wetlands on the project site to construct the Cherry Ranch residential development. On May 6, 2002, the Corps issued a permit and confirmed that the project qualified for authorization under Nationwide Permit (NWP) Number 29. The applicant re-applied for a Corps permit in 2007, and the Corps re-issued a NWP 29 permit on July 13, 2007 (Corps File No. 26570N). The RWQCB issued a 401 Water Quality Certification on July 5, 2007 (WDID No. 1B02040WNSO). The USFWS issued a Biological Opinion (File No. 1-1-06-F-0054) on February 14, 2006 (Attachment B).

The fully approved project was mass graded in 2007. In compliance with the conditions in a permit issued by the Corps, the applicant submitted a Certificate of Compliance to the Corps on December 17, 2007. Aerial photographs in Attachment C illustrate the project site’s wetland conditions in 2005 prior to any site grading. This aerial photograph clearly shows wetland pools to the northeast of the project site and two relatively small wetlands on the project site. Attachment C also includes a 2018 aerial photograph where the wetland pools to the northeast the project site are still apparent, but there are no visible wetlands on the project site. The wetlands that were previously mapped on the project site had been graded and otherwise “filled” during the mass grading in 2007. The project site has been subjected to routine disturbance on an annual basis after it was graded in 2007.

5. ANALYSIS METHODS

5.1 Background Research

Prior to preparing this biological resource analysis report, M&A researched the most recent version of CDFW’s Natural Diversity Database (CNDDB 2019) for historic and recent records of special-status plant and animal species (that is, threatened, endangered, rare) known to occur in the region of the project site. M&A also searched the 2018 electronic version of the CNPS’ Inventory of Rare and Endangered Plants of California (CNPS 2001) for records of special-status plants known in the region of the project site. M&A examined all known record locations for special-status species to determine if special-status species could occur on the project site or
within a zone of influence. All special-status plant and wildlife species records known to occur within 3 miles of the project site were compiled into tables.

5.2 Site Investigation

M&A biologists, Mr. Geoff Monk and Ms. Hope Kingma, conducted a general survey of the project site on April 23, 2018 to record biological resources and to assess the likelihood of resource agency regulated areas on the project site. The survey involved searching all habitats on the site and recording all plant and wildlife species observed. All plant and wildlife species observed on the project site are compiled in Tables 1 and 2, respectively. M&A cross-referenced the habitats found on the project site against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species.

5.3 Wetland Delineation

On March 7, 2002, the Corps confirmed the extent of its jurisdiction pursuant to the Clean Water Act on the project site (Corps File No. 26570N). The Corps verified that the project site supported 0.40-acre of seasonal wetlands. The Corps-stamped jurisdictional map is dated March 7, 2002 (Attachment D). The Revised Wetland Delineation map for Cherry Ranch (Attachment E) shows the roadside ditch and indicates that the ditch was inspected by the Corps on November 20, 2006.

M&A conducted a delineation of the roadside ditch on July 26, 2018, using criteria prescribed in the Corps’ 1987 Wetland Delineation Manual (Corps 1987) and the Corps’ Regional Supplement for the Arid West Region (Corps 2008). The Corps-confirmed an Aquatic Resources Delineation Map of the roadside ditch (confirmed on December 13, 2018) taking jurisdiction over this feature (Attachment F).

5.4 Special-Status Plant Surveys

Protocol-level surveys were conducted at the project site on March 5, April 10, April 19, and May 10, 2001, and February 8, March 27, and May 2, 2002, and no endangered plant species were observed. In 2007 the project site was mass graded with all applicable permits. Due to the great recession, the development project went on hold. The project site thereafter reverted to a ruderal herbaceous habitat. In addition, to update the plant surveys, M&A conducted follow-up rare plant surveys on April 4, May 2, May 21, and July 15, 2018 in accordance with guidelines established by the California Department of Fish and Wildlife (CDFG 2000, 2009), USFWS (USFWS 2000), and the inventory guidelines published by the CNPS (CNPS 2001) for assessing the effects of proposed developments on rare and endangered plants and plant communities.

These guidelines state that special-status plant surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. The guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were and will be conducted during the months when special-status plant species from the region are known to be
evident and flowering well in advance of any ground-disturbing activities where suitable habitat is present. This may entail repeated floristic surveys to observe all the potential target species during the appropriate floristic period(s).

All areas within the proposed project site were examined by walking transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants. All plants were identified to the level needed to determine whether they qualify as special-status plants. A list of all vascular plant taxa encountered within the project site was recorded in the field. Plants that needed further evaluation were collected and keyed in the lab. Final determinations for collected plants were made by keying specimens using standard references such as *The Jepson Manual* (Baldwin 2012). *No rare plants have ever been found during any plant survey conducted on this project site.*

### 5.5 California Tiger Salamander Surveys

California tiger salamander (*Ambystoma californiense*) (CTS) surveys were conducted during the months of December 2001 through February 7, 2002. During surveys conducted on February 7 and 8, 2002, Dr. Fawcett observed more than 20 CTS larvae in a pool on the project site. A copy of the *Report on California Tiger Salamander Surveys, Cherry Ranch Property* prepared by Dr. Fawcett, dated June 13, 2002, is provided as Attachment G.

Due to the confirmed presence of CTS the project site, no additional site surveys were conducted. As the CTS was only a designated species of special concern in the first half of 2002, mitigation requirements were discussed with Mr. Carl Wilcox and Mr. Liam Davis of the California Department of Fish and Game (CDFG) which is now CDFW. Based agreements with CDFG, the Corps issued a NWP 29 in May of 2002 authorizing the fill of 0.40-acre of wetland at the site, provided mitigation was provided for wetland and CTS impacts.

Having obtained all the necessary resource agency permits and having purchased both wetland, rare plant and CTS mitigation credits as required by the Corps and CDFG, the project was poised to proceed with development when the USFWS emergency listed the CTS as endangered on July 22, 2002. The USFWS formalized the listing of the Sonoma County “Distinct Population Segment” (DPS) of the CTS as endangered on March 19, 2003 (USFWS 2003). The emergency listing of the CTS caused a re-evaluation of the mitigation and also resulted in requirement for a CTS salvage operation that was subsequently conducted in 2004/2005 under the guidance of the USFWS and the CDFG. The USFWS issued a Biological Opinion (BO) (File No. 1-1-06-F-0054) to the Corps on February 14, 2006 (Attachment B). As required in that BO additional CTS salvage was required over the winter and spring of 2005/2006. This second salvage effort was to be completed prior to mass grading of the project site. Under the guidance of the USFWS and the CDFG, CTS larvae were collected from the on-site breeding pool using dip-nets and funnel traps and re-located to the Todd Road Preserve.
6. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES

6.1 Topography and Hydrology

The project site is relatively flat with slight undulating topography. The project site was graded in 2007 per authorized permits from the City of Santa Rosa, Corps, RWQCB, and USFWS. All wetlands previously mapped on the project site were filled.

Currently, there are a few subsided low topographic low areas on the project site that have developed since the site was mass graded in 2007. These low areas are regarded as “construction-related” features that are not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019.

6.2 Plant Communities and Associated Wildlife Habitats

A complete list of plant species observed on the project site is presented in Table 1. Nomenclature used for plant names follows The Jepson Manual Second Edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website (http://ucjeps.berkeley.edu/interchange/index.html). Table 2 is a list of wildlife species observed on the project site. Nomenclature for wildlife follows CDFW’s Complete list of amphibian, reptile, bird, and mammal species in California (2016) and any changes made to species nomenclature as published in scientific journals since the publication of CDFW’s list.

The plant communities found onsite are primarily ruderal herbaceous habitats that developed after the site was mass graded in 2007. Ruderal communities are a result of human influence and disturbance to the natural environment. Below we discuss the plant communities found on the project site.

6.2.1 RUDERAL HERBACEOUS HABITAT

Ruderal (weedy) communities are assemblages of plants that thrive in waste areas, intensively maintained urban and agrarian landscapes and other sites that have been disturbed by human activity. Ruderal herbaceous species are often associated where undesirable or competitive vegetation is frequently suppressed by mowing, disk ing, and/or spraying during the growing season.

A ruderal herbaceous community comprises the majority of the project site. Some of the non-native grass dominants found on the project site include Harding grass (Phalaris aquatica), wild oats (Avena barbata), soft chess (Bromus hordeaceus), ripgut brome (Bromus diandrus), Italian ryegrass (Festuca perennis), brome fescue (Festuca bromoides), silver European hairgrass (Aira caryophyllea), and Mediterranean barley (Hordeum marinum ssp. gussoneanum). Common non-native forbs found on the project site include perennial pepperweed (Lepidium latifolium), subterranean clover (Trifolium subterraneum), Queen Ann’s lace (Daucus carota), rough cat’s ear (Hypochaeris radicata), Chicory (Cichorium intybus), bristly ox tongue (Helminthotheca echioi des), as well as filarees (Erodium botrys, E. cicutarium and E. moschatum), vetches (Vicia
Linear wetlands are topographic features that convey stormwater flows. Due to past grading disturbance, very few native, herbaceous taxa remain on the project site. The few native plant species found in the ruderal community include California poppy (Eschscholzia californica), Spanish clover (Acnipspon americanus ssp. americanus), willow herb (Epilobium brachycarpum), bicolored lupine (Lupinus bicolor), sun cups (Taraxia ovata), Secund bluegrass (Poa secunda), California brome (Bromus carinatus), and California buttercup (Ranunculus californicus var. californicus).

Typically, ruderal communities provide habitat for those animal species adapted to man. Wildlife species observed on the project include American crow (Corvus brachyrhynchos), violet-green swallow (Tachycineta thalassina), white-breasted nuthatch (Sitta carolinensis), Nuttall's woodpecker (Picoides minutus), mourning dove (Zenaida macroura), northern mockingbird (Mimus polyglottos), California towhee (Pipilo crissalis), European starling (Sturnus vulgaris), house sparrow (Passer domesticus), house finch (Haemorhous mexicanus), western fence lizard (Sceloporus occidentalis), and Botta's pocket gopher (Thomomys bottae), among others.

6.2.2 CONSTRUCTION-RELATED FEATURES

A few topographic low areas occur in the southern portion of the project site that developed as result of project site grading in 2007 (Sheet 1). Settling and imperfect grading allowed small depressions to form after grading or were created when grading did not fill all the way to the property boundary. The graded building site is now higher than surrounding adjacent property topography, and thus rain water now pools where the constructed toe extends imperfectly to the eastern and southern property boundaries. Several topographic low areas primarily along the property boundaries are dominated by a mix of native and non-native hydrophytic (wetland) plant species including annual semaphore grass (Pleuropogon californicus), spiny buttercup (Ranunculus muricatus), low buttercup (Ranunculus pusillus), purslane speedwell (Veronica peregrina ssp. xalapensis), lesser hawkbit (Leontodon saxatilis), nodding clover (Trifolium campestre), smooth boisduvalia (Epilobium campestre), chaffweed (Lysimachia minima), and common frog-fruit (Phyla nodiflora). Other associated species observed within the construction-related features include bracted popcornflower (Plagiobothrys bracteatus), smooth goldfields (Lasthenia glaberrima), pennyroyal (Mentha pulegium), spikerush (Eleocharis macrostachya), poverty rush (Juncus tenuis), spotted-throat downingia (Downingia concolor var. concolor), small quaking grass (Briza minor), Mediterranean barley, and meadow barley (Hordeum brachyantherum).

There is one construction-related feature along the southern boundary of the project site which is primarily dominated by curly dock (Rumex crispus), manna grass (Glyceria declinata), velvet grass (Holcus lanatus), creeping wildrye (Elymus triticoideus), and Italian ryegrass as well as a few patches of Himalayan blackberry (Rubus armeniacus). Examples of animals associated with these construction-related features include black phoebe (Sayornis nigricans) and Sierran treefrog (Pseudacris sierra).

6.2.3 ROADSIDE DITCH LINEAR WETLAND

Linear wetlands are topographic features that convey stormwater flows. In the Santa Rosa Plain, linear wetlands are typically dry in the summer and fall months, but with winter rains become
saturated and/or inundated and convey/hold water for a period of several weeks to months at a
time depending upon storm frequency and residence time of flows. Such areas eventually are
dominated by hydrophytic plant species (e.g. wetland plants) and otherwise persist as “ditch
like” seasonal wetlands.

There is a roadside ditch along the east side of Fresno Avenue that collects rain water on the
western project site boundary. It flows intermittently south to north in the winter months. This
roadside ditch is dominated by a mix of native and non-native hydrophytic (wetland) plant
species that includes common rush (*Juncus patens*), Mediterranean barley, meadow barley,
semaphore grass, manna grass, spikerush, hyssop loosestrife (*Lythrum hyssopifolia*), Italian
ryegrass, red sand spurrey (*Spergularia rubra*), tall flatsedge (*Cyperus eragrostis*), iris-leaved
rush (*Juncus xiphioides*), dock (*Rumex crispus* and *R. pulcher*), English plantain (*Plantago
lanceolata*), and annual beard grass (*Polypogon monspeliensis*), as well as native and non-native
upland plant species including slender oats, Harding grass, ripgut brome, bristly ox-tongue,
Spanish clover, vetch, wild carrot (*Daucus carota*), chicory, fescues (*Festuca myuros* and *F.
bromoides*), and cleavers (*Galium aparine*).

### 6.3 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural
vegetation communities within a landscape fractured by urbanization and other development.
Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging
animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can
move in response to environmental changes and natural disasters; and 3) individuals can
recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992).
All three of these functions can be met if both regional and local wildlife corridors are accessible
to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for
migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors
also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project will not interfere with the movement of native wildlife. It does not support
a regionally or locally significant wildlife corridor. As illustrated in Figure 2, the project site is
surrounded by development to the west and north, and the Santa Rosa Air Center to the south
and east. Wildlife species that are not adapted to living in close quarters with humans would not
use the project site as a corridor between other open spaces. For example, any animals using the
old Santa Rosa Air Center could only cross the project site into dense housing. Thus, the utility
of the project site as a corridor is limited to those species that are interested in urban housing
areas. Typically, striped skunks (*Mephitis mephitis*), Virginia opossums (*Didelphis virginiana*),
and feral cats (*Felis catus*) are likely the only animals that make use of local wildlife corridors
that lead to dense urban housing. Since the project site is completely enclosed by a tall chain-link
fence, it is unlikely that the project site provides a wildlife corridor to provide access from or to
other properties. Thus, M&A concludes that the construction of the proposed project would not
result in significant adverse impacts to regionally or locally important wildlife corridors.
7. SPECIAL-STATUS SPECIES DEFINITION

7.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are legally protected under the California and Federal Endangered Species Acts (CESA and FESA, respectively) or other regulations, and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 et seq.; 14 CCR §670.1 et seq.) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);

- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);

- plants and animals that meet the definition of endangered, rare, or threatened under the CEQA (14 CCR §15380) that may include species not found on either CESA or FESA lists;

- plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS’ electronic Inventory (CNPS 2001). The CDFW recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in most cases, would qualify for State listing, and CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001). Such plants may be included as special-status species on a case by case basis due to local significance or recent biological information (more on CNPS Rank species below);

- migratory nongame birds of management concern listed by the USFWS (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);

- animals that are designated as "species of special concern" by CDFW (2016);

- animal species that are “fully protected” in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

- Bat species that are designated on the Western Bat Working Group’s (WBWG) Regional Bat Species Priority Matrix as: “RED or HIGH.” This priority is justified by the WBWG as follows: “Based on available information on distribution, status, ecology, and known threats, this designation should result in these bat species being considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented
should a commitment to management exist. These species are imperiled or are at high risk of imperilment.”

In the paragraphs below, we provide further definitions of legal status as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. A species listed as Endangered or Threatened under the FESA is protected from unauthorized “take” (that is, harass, harm, pursue, hunt, shoot, trap) of that species. If it is necessary to take a federally-listed Endangered or Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from the USFWS prior to initiating the take.

State Threatened Species. A species listed as Threatened under the CESA (§2050 of California Fish and Game Code) is protected from unauthorized “take” (that is, harass, pursue, hunt, shoot, trap) of that species. If it is necessary to “take” a state listed Threatened species as part of an otherwise lawful activity, it would be necessary to receive permission from CDFW prior to initiating the “take.”

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered “rare.” Pursuant to its rarity status, any unmitigated impacts to rare species could be considered a “significant effect on the environment” (§15382). Thus, species of special concern must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency.

CNPS Rank Species. The CNPS maintains an “Inventory” of special status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federally-listed species), CDFW requests the inclusion of Rank 1 species in environmental documents. In addition, other state and local agencies may request the inclusion of species on other lists as well. The Rank 1 and 2 species are defined below:

- Rank 1A: Presumed extinct in California;
- Rank 1B: Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
- Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern and are reviewed by CDFW and maintained on “watch lists.”
Additionally, in 2006 CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”;
- .2 is “fairly endangered in California (20-80% of occurrences threatened)”;
- .3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

Under the CEQA review process only CNPS Rank 1 and 2 species are considered since these are the only CNPS species that meet CEQA’s definition of “rare” or “endangered.” Impacts to Rank 3 and 4 species are not regarded as significant pursuant to CEQA.

**Fully Protected Birds.** Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time.

### 7.2 Potential Special-Status Plant Species on the Project Site

Figure 4 provides a graphical illustration of the known records for special-status plant species within 3 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. The project site falls within the geographic region called the Santa Rosa Plain by the USFWS and the Corps. The Santa Rosa Plain has a number of state and federally-listed species and there are regulatory agency rules that govern how projects must evaluate impacts to wetlands and species protected pursuant to the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). Due to the sensitivity federally and state-listed plant species known from the Santa Rosa Plain, we discuss listed species further below.

#### 7.2.1 Sonoma Sunshine

Sonoma sunshine (*Blennosperma bakeri*) is a federally and state-listed endangered plant species. It is also a CNPS Rank 1B.1 species. The USFWS’ Recovery Plan for the Santa Rosa Plain (USFWS 2016) designates the project site within the *Blennosperma bakeri* Southern Core Area (Figure 5). This annual member of the sunflower family is found in vernal pools and grassland habitats in the Santa Rosa Plain and from the Sonoma area. Sonoma sunshine flowers from March through May. It is threatened by urbanization, grazing and agriculture.

The closest CNDDB record for Sonoma sunshine is located 1.3 miles northwest of the project site (Occurrence No. 37) (Figure 4). *Sonoma sunshine plants were not detected during appropriately-timed rare plant surveys conducted in 2001, 2002, and 2018.*

#### 7.2.2 Burke’s Goldfields

Burke’s goldfields (*Lasthenia burkei*) is a federally and state-listed endangered species protected pursuant to the FESA and the CESA, respectively. It is also a CNPS Rank 1B.1 species. The
USFWS’ Recovery Plan for the Santa Rosa Plain (USFWS 2016) designates the project site within the *Lasthenia burkei* Southern Core Area (Figure 6).

This small, slender annual member of the sunflower family is found in meadows, seeps, and vernal pools. The yellow flowers of the Burke’s goldfields bloom from April through June. This species is known only from southern portions of Lake and Mendocino counties, the western portion of Napa County, and from northeastern Sonoma County (the Santa Rosa Plain). Historically, 39 colonies were known from the Santa Rosa Plain, two colonies were known from Lake County, and one colony was known in Mendocino County. The occurrence in Mendocino County is most likely extirpated. From north to south in the Santa Rosa Plain, the species occurs from north of the community of Windsor to east of the city of Sebastopol. It is threatened by agriculture, urbanization, development, grazing, road widening, road maintenance, and non-native plants.

The closest CNDDB record for Burke’s goldfields is located 1 mile northwest of the project site (Occurrence No. 28) (Figure 4). *Burke’s goldfields were not detected during appropriately-timed rare plant surveys conducted in 2001, 2002, and 2018.*

7.2.3 SEBASTOPOL MEADOWFOAM

Sebastopol meadowfoam (*Limnanthes vinculans*) is a federally and state-listed endangered species. It is also a CNPS Rank 1B.1 species. The USFWS’ Recovery Plan for the Santa Rosa Plain (USFWS 2016) designates the project site within the *Limnanthes vinculans* Southern Core Area (Figure 7).

This annual member of the meadowfoam family blooms April through May, and is found in meadows and seeps, seasonally wet grasslands, and vernal pools. Although the first leaves are narrow and undivided, leaves on the mature plant have three to five undivided leaflets along each side of a long stalk (petiole). The shape of the leaves distinguishes Sebastopol meadowfoam from other members of the *Limnanthes* genus. It is threatened by urbanization, agriculture, grazing, non-native plants, and vehicles. The only known natural occurrences of this species have been recorded in Sonoma County.

The closest CNDDB record for Sebastopol meadowfoam is located 0.3-mile north of the project site (Occurrence No. 31) (Figure 4). *Sebastopol meadowfoam plants were not detected during appropriately-timed rare plant surveys conducted in 2001, 2002, and 2018.*

7.3 Potential Special-Status Wildlife Species on the Project Site

Figure 4 provides a graphical illustration of the known records for special-status wildlife species within 3 miles of the project site and helps readers visually understand the number of sensitive species known to occur near the project site. A search of the CNDDB found five records for special-status wildlife species occurring within 3 miles of the project site (Table 4). Special-status species with potential to occur on the project site are discussed below.
7.3.1 CALIFORNIA TIGER SALAMANDER

The California tiger salamander Sonoma County “Distinct Population Segment” (DPS) is a federally listed endangered species. The project site is located within its known range. The USFWS determined that the Sonoma County DPS is significantly and immediately imperiled by a variety of threats including habitat destruction, degradation, and fragmentation due to urban development, road construction, pesticide drift, collection, and inadequate regulatory mechanisms. In addition, it was determined that this population could face extinction as a result of naturally occurring events (e.g., fires, droughts) due to the small and isolated nature of the remaining breeding sites combined with the small number of individuals in the population. On August 31, 2011, the Final Rule on the Revised Designation of Critical Habitat for the Sonoma County Distinct Population of the California tiger salamander was published (76 FR 54346 54372) (USFWS 2011). Approximately 47,383 acres were designated as critical habitat. The project site is located within this mapped critical habitat (Figure 8). Per the USFWS Recovery Plan for the Santa Rosa Plain (USFWS 2016), the project site is located within the Llano Crescent-Stony Point “Core Area” (Figure 9).

On March 4, 2010, CTS was also state-listed as a threatened species under the CESA. Proposed projects may not impact CTS without incidental take authority from both the USFWS and the CDFW. Prior to implementing a project that would result in “take” (i.e., to harm, harass, or kill) of CTS, the USFWS must prepare an incidental take permit pursuant to either Section 7 or Section 10 of the FESA. Similarly, projects that could result in take of CTS also require incidental take authority from the CDFW pursuant to the CESA.

CTS occur in grasslands and open oak woodlands that provide suitable over-summering and/or breeding habitats. M&A has worked with populations that are almost at sea level (Catellus Site in the City of Fremont) to almost 2,900 feet above sea level (Kammerer Ranch, East Santa Clara County). CTS spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. While 1.3 miles is typically considered the maximum migration distance of CTS to/from their breeding pools to upland over-summering habitat, there is literature suggesting that the CTS could migrate up to 1.5 miles from their breeding pools. This migration distance is reported by the USFWS’ Recovery Plan for the Santa Rosa Plain (USFWS 2016) where it states: Based on distances travelled per night, Searcy and Shaffer (2011) estimated that Central CTS are physiologically capable of moving up to 2.4 km (1.5 mi) each breeding season, with an average dispersal distance estimated to be 0.56 km (1,840 ft). Orloff (2007) found that the majority of CTS dispersed at least 0.5-mile (0.8 km) from the breeding site, with a smaller number of salamanders appearing to move even farther—from 1.2 to 2.2 km (0.75 to 1.3 miles) between breeding ponds and upland habitat. M&A biologists, Mr. Monk and Ms. Sarah Lynch, have observed CTS migrating up to 0.6-mile from their underground refugia to breeding ponds (personal data from Livermore, California collected in 1997). As such, unobstructed migration corridors are important component of CTS habitat.

In Sonoma County, CTS emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of CTS do not occur unless it has been raining hard and continuously for several hours. Typically, for larger movements of
CTS to occur, nighttime temperatures also must be above 48° F (Mr. Monk and Ms. Lynch pers. observations). Other factors that encourage larger movements of CTS to their breeding ponds include flooding of refugia (observed by Mr. Monk in Springtown, east Alameda County in 1997) as occurs after significant rainfall events.

During the spring, summer, and fall months, most known populations of the CTS throughout this species range in California predominately use California ground squirrel (*Otospermophilus beechyi*) burrows as over summering habitat (Mr. Monk personal observation). However, in Sonoma County where California ground squirrel populations are scarce to non-existent, subterranean refugia likely include Botta’s pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g., downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by CTS. In such locations, CTS attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about ¾ the diameter of a dime to the full diameter of a dime.

Occasionally CTS are found breeding in slow moving streams or ditches. In 1997, Mr. Monk observed CTS breeding in large, still ditches in Fremont, California. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain CTS egg attachment through hatching, and thus, are not usually used successfully by CTS for breeding (Mr. Monk and Ms. Lynch, pers. observations). Similarly, streams and/or ditches that support predators of CTS or their eggs and larvae such as fish, American bullfrogs (*Lithobates catesbeiana*), red swamp crayfish (*Procambarus clarkii*), or signal crayfish (*Pacifastacus leniusculus*), almost never constitute suitable breeding habitat.

In most of the range of CTS, seasonal wetlands that are used for breeding typically must hold water into the month of May to allow enough time for larvae to fully metamorphose. Typically, in Sonoma County pools that are 16 inches or deeper in the peak winter months will remain inundated long enough to provide good breeding conditions for CTS. In dry years, seasonal wetlands, especially shallower pools, may dry too early to allow enough time for CTS larvae to successfully metamorphose. Under such circumstances, desiccated CTS larvae are often found in dried pools. In addition, as pools dry down to very small areas of inundation, CTS larvae become concentrated and are very susceptible to predation.

CTS surveys were conducted during the months of December 2001 through February 7, 2002. During surveys conducted on February 7 and 8, 2002, Dr. Fawcett observed more than 20 CTS larvae in a pool on the project site. A copy of the *Report on California Tiger Salamander Surveys, Cherry Ranch Property* prepared by Dr. Fawcett, dated June 13, 2002, is provided as Attachment G. The nearest CTS observation (CNDDB Occurrence No. 237) was identified to be the vernal pools on the northwest edge of the abandoned Santa Rosa Air Center, which is east of the Cherry Ranch property. This CNDDB record also includes the CTS found on the Cherry Ranch property by Dr. Fawcett in 2002.
Due to the confirmed presence of CTS on the project site, no additional site surveys were conducted. As the CTS was only a designated species of special concern at that time, that is, it was not listed under either the FESA or CESA, mitigation requirements were discussed and agreed upon with the Mr. Wilcox and Mr. Davis of CDFG. Based on these agreements, the Corps issued a NWP 29 in May 2002, authorizing the fill of 0.40-acre of wetland on the project site, provided agreed upon mitigation was provided.

Having obtained all the necessary local agency and resource agency permits, the project was poised to proceed with development when the USFWS emergency listed the CTS as endangered on July 22, 2002. The USFWS formalized the listing of the Sonoma County DPS of the CTS as endangered on March 19, 2003 (USFWS 2003).

The emergency listing of the CTS caused a re-evaluation of the mitigation and also resulted in requirement for a CTS salvage operation that was subsequently conducted in 2004/2005 under the guidance of the USFWS and the CDFG. The USFWS issued a Biological Opinion (BO) (File No. 1-1-06-F-0054) to the Corps on February 14, 2006 (Attachment B). As required in that BO additional CTS salvage was required over the winter and spring of 2005/2006. This second salvage effort was to be completed prior to mass grading of the project site. Under the guidance of the USFWS and the CDFG, CTS larvae were collected from the on-site breeding pool using dip-nets and funnel traps and re-located to the Todd Road Preserve.

The USFWS’ Biological Opinion states that the 6.63-acre project site supported 5.49 acres of CTS habitat. The 5.49 acres included breeding habitat as well as upland, foraging, and dispersal habitat. Approximately 1.14 acres of the 6.63-acre site supported a parking lot and buildings, which were not regarded as CTS habitat. To mitigate the loss of 5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve to satisfy the 3:1 replacement ratio for impacts to CTS habitat, as required by the USFWS’ Biological Opinion. Having obtained all the necessary resource agency permits and having purchased all the required mitigation credits, the project site was graded in 2007, removing the previously occupied CTS habitats on the project site. The roadside ditch was included in the CTS habitat acreage, as the APN acreage was used to calculate CTS mitigation requirements. The APN extends to the pavement section of Fresno Avenue.

Currently, there are a few shallow topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features that are not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that project site walk, Mr. Griego also agreed that the CTS impacts had been fully mitigated and that construction of the proposed project currently would not impact CTS breeding habitat.
7.3.2 **White-tailed Kite**

The white-tailed kite (*Elanus leucurus*) is a “Fully Protected” species under the California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time. It is also protected under the federal Migratory Bird Treaty Act (50 CFR 10.13). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where there are dense-topped trees or shrubs for nesting and perching. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Native trees used are live and deciduous oaks (*Quercus* spp.), willows (*Salix* spp.), cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), maples (*Acer* spp.), toyon (*Heteromeles arbutifolia*), and Monterey cypress (*Cupressus macrocarpa*). Although the surrounding terrain may be semiarid, kites often reside near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source (Shuford 1993). Kites primarily hunt small mammals, with California meadow voles (*Microtus californicus*) accounting for between 50-100% of their diet (Shuford 1993).

The nearest CNDDB record for this species is located 2.1 miles east of the project site (Occurrence No. 77). The project site provides suitable hunting grounds for white-tailed kites, and the trees on and immediately adjacent to the project site provide potentially suitable nesting habitat. Accordingly, impacts to white-tailed kite are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

**8. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS**

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

**8.1 Federal Endangered Species Act**

The FESA forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:


Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a Habitat Conservation Plan.
In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the NMFS. The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers’ Association, Jeff Menges, vs. the USFWS and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site. Rather, they must show that it is actually present.

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an incidental take permit either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency), or requires preparation of a Habitat Conservation Plan (HCP) pursuant to Section 10 of FESA (for state and local agencies, or individuals, and projects without a federal “nexus”).

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the “federal nexus agency,” for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation at the discretion of the federal agencies conducting the Section 7 consultation. The Section 7 consultation process is triggered by a determination of the “action agency” – that is, the federal agency that is carrying out, funding, or approving a project - that the project “may affect” a listed
species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion, it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federal listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows applicants to “take” federally-listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities, for example private parties, cities, counties that are considering a discretionary permit, Section 10 provides the mechanism for obtaining take authorization. Under Section 10 of FESA, for the applicant to obtain an "incidental take permit," the applicant is required to submit a "conservation plan" to the USFWS or NMFS that specifies the impacts that are likely to result to federally-listed species, and the measures the applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

8.1.1 RESPONSIBLE AGENCY
FESA gives regulatory authority to the USFWS for federally-listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally-listed marine mammals and anadromous fish.

8.1.2 APPLICABILITY TO THE PROPOSED PROJECT
The project site does not provide fisheries habitat; thus, the project would not result in impacts to federally-listed anadromous fish species. As such, consultation with the NMFS for the proposed project is not warranted.

A Biological Assessment for the Cherry Ranch Development Project was prepared by Golden Bear Biostudies, dated November 22, 2002. On October 25, 2005, Mr. Dave Wickens of the Corps, requested initiation of formal FESA Section 7 consultation with the USFWS for the proposed project. On February 14, 2006, the USFWS issued a Biological Opinion (File No. 1-1-06-F-0054) for the Cherry Ranch Project (Attachment B).

Protocol-level rare plant surveys were conducted at the project site in 2001, 2002, and 2018, and no rare plant species were observed. Therefore, the project site is not considered to support “occupied” habitat for federally-listed plant species. Regardless, the USFWS Biological Opinion
states that the project site supported 0.40-acre of potential Sebastopol meadowfoam, Sonoma sunshine, and Burke's goldfields habitat and required mitigation for impacts to “suitable” listed vernal pool plant habitat. To mitigate the loss of 0.40-acre of suitable, but not occupied endangered plant habitat, the applicant purchased 0.40-acre of wetland creation/restoration credits and 0.40-acre of vernal pool preservation credits for Sebastopol meadowfoam from the Hale Mitigation Bank (transferred from WMP LLC) (October 22, 2002), as authorized in the USFWS Biological Opinion. In addition, the applicant purchased mitigation credits from the Southwest Santa Rosa Vernal Pool Preserve Bank (equivalent to 2.4 acres of endangered plant habitat and/or 4.8 acres of CTS habitat) (June 10, 2002). The roadside ditch does not support suitable listed plant habitat; therefore, additional mitigation credits for impacts to listed plant habitat is not required.

CTS surveys were conducted during the months of December 2001 through February 7, 2002, by Dr. Fawcett. During surveys conducted on February 7 and 8, 2002, Dr. Fawcett observed more than 20 CTS larvae in a pool on the project site. A copy of the Report on California Tiger Salamander Surveys, Cherry Ranch Property prepared by Dr. Fawcett, dated June 13, 2002, is provided as Attachment G. Due to the confirmed presence of CTS on the project site, no additional site surveys were conducted. Having obtained all the necessary resource agency permits, the project was poised to proceed with development when the USFWS emergency listed CTS as endangered on July 22, 2002. The emergency listing of the CTS caused a re-evaluation of the mitigation and also resulted in requirement for a CTS salvage operation that was subsequently conducted in 2004/2005 under the guidance of the USFWS and the CDFG. The USFWS issued a Biological Opinion (BO) (File No. 1-1-06-F-0054) to the Corps on February 14, 2006 (Attachment B). As required in that BO additional CTS salvage was required over the winter and spring of 2005/2006. This second salvage effort was to be completed prior to mass grading of the project site. Under the guidance of the USFWS and the CDFG, CTS larvae were collected from the on-site breeding pool using dip-nets and funnel traps and re-located to the Todd Road Preserve.

The USFWS Biological Opinion states that the 6.63-acre project site supported 5.49 acres of tiger salamander habitat. The 5.49 acres included breeding habitat as well as upland, foraging, and dispersal habitat. Approximately 1.14 acres of the 6.63-acre site supported a parking lot and buildings, which were not regarded as CTS habitat. To mitigate the loss of 5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve (November 3, 2006) to satisfy the 3:1 replacement ratio for CTS habitat, as required by the USFWS Biological Opinion. The roadside ditch does not support suitable CTS habitat; therefore, additional species mitigation credits are not required.

Currently, there are a few topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features, not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that project site walk, Mr. Griego also agreed that the CTS impacts had been fully mitigated and that
construction related topographic low areas did not constitute CTS breeding habitat. In addition, Mr. Griego stated that the USFWS’ previously issued Biological Opinion remains valid today and can be used by the Corps in its current permit authorization.

8.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Executive Order 13186 for conservation of migratory birds (January 11, 2001) requires that any project with federal involvement address impacts of federal actions on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the Migratory Bird Treaty Act and does not constitute any legal authorization to take migratory birds. The order also requires federal agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through the following means:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

8.2.1 Applicability to the Proposed Project

Common songbirds and raptors, such as white-tailed kite, that could nest in the trees on the site or directly adjacent to the site would be protected pursuant to the Migratory Bird Treaty Act. As long as there is no direct mortality of species protected pursuant to the Migratory Bird Treaty Act caused by development of the site, there should be no constraints to development of the site. To comply with the Migratory Bird Treaty Act, non-disturbance buffers would have to be established around any active nesting site and would have to be of sufficient size to protect the nesting birds from harm. Upon completion of nesting, the buffers could be removed, and the project could commence as otherwise planned. Please review specific requirements for avoidance of nest sites in the Impacts and Mitigations section below.

8.3 California Endangered Species Act

8.3.1 Section 2081 of the California Endangered Species Act

In 1984, the state legislated the CESA (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would impact threatened or endangered species if reasonable and prudent alternatives are available. Because CESA does not have a
provision for "harm" (see discussion of FESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If CDFW determines that a proposed project could impact a state-listed threatened or endangered species, CDFW will provide recommendations for "reasonable and prudent" project alternatives. The CEQA lead agency can only approve a project if these alternatives are implemented, unless it finds that the project's benefits clearly outweigh the costs, reasonable mitigation measures are adopted, there has been no "irreversible or irretrievable" commitment of resources made in the interim, and the resulting project would not result in the extinction of the species. In addition, if there would be impacts to threatened or endangered species, the lead agency typically requires project applicants to demonstrate that they have acquired "incidental take" permits from CDFW and/or USFWS (if it is a federally-listed species) prior to allowing/permitting impacts to such species.

If proposed projects would result in impacts to a state-listed species, an "incidental take" permit pursuant to §2081 of the Fish and Game Code would be necessary (versus a federal incidental take permit for federally-listed species). CDFW will issue an incidental take permit only if:

1) The authorized take is incidental to an otherwise lawful activity;
2) the impacts of the authorized take are minimized and fully mitigated;
3) measures required to minimize and fully mitigate the impacts of the authorized take:
   a) are roughly proportional in extent to the impact of the taking on the species;
   b) maintain the project applicant’s objectives to the greatest extent possible; and,
   c) capable of successful implementation; and,
4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing a HCP as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the FESA, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of “take.” These species are listed in several statutes that identify “fully protected” species and “specified birds.” See Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a “fully protected” species or a “specified bird” occurs, an applicant must design the project to avoid all take.

Fish and Game Code §2080.1 allows an applicant who has obtained a “non-jeopardy” federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a federal 10(a) permit (federal incidental take permit) pursuant to the FESA, to submit the federal opinion or permit to CDFW for a determination as to whether the federal document is “consistent” with CESA. If after 30 days CDFW determines that the federal incidental take permit is consistent with state law, and that all state listed species under consideration have been considered in the
federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are state listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state CESA permit under Section 2081(b). Section 2081(b) is of no use if an affected species is state-listed, but not federally-listed.

State and federal incidental take permits are issued on a discretionary basis and are typically only authorized if applicants are able to demonstrate that impacts to the listed species in question are unavoidable and can be mitigated to an extent that the reviewing agency can conclude that the proposed impacts would not jeopardize the continued existence of the listed species under review. Typically, if there would be impacts to a listed species, mitigation that includes habitat avoidance, preservation, and creation of endangered species habitat is necessary to demonstrate that projects would not threaten the continued existence of a species. In addition, management endowment fees are usually collected as part of the agreement for the incidental take permit(s). The endowment is used to manage any lands set-aside to protect listed species, and for biological mitigation monitoring of these lands over (typically) a five-year period.

8.3.2 Applicability to the Proposed Project

Several state-listed plant and wildlife species are known to occur in the region of the project site (Tables 3 and 4). No state-listed plant species were identified on the project site during protocol surveys conducted in 2001, 2002, and 2018.

During the survey conducted in 2002, Dr. Fawcett confirmed the presence of CTS, a state-listed species, on the project site. The project site was graded in 2007 prior to the state listing of CTS on March 4, 2010. To mitigate the loss of 5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve to satisfy the 3:1 replacement ratio for impacts to CTS habitat. The pools previously occupied by CTS on the project site no longer occur on the site. The roadside ditch was included in the CTS habitat acreage, as the APN acreage was used to calculate CTS mitigation requirements. The APN extends to the pavement section of Fresno Avenue.

To obtain CESA Incidental Take Permit coverage for the currently proposed project, the applicant will submit the USFWS Biological Opinion to the CDFW and request a “Consistency Determination” to obtain an CESA incidental take coverage for this project. Fish and Game Code Section 2080.1 states the requirements and procedures for a 2080.1 Consistency Determination. Section 2080.1 allows an applicant who has obtained a federal incidental take statement pursuant to a federal Section 7 consultation or a federal Section 10(a) incidental take permit to notify the Director of the CDFW in writing that the applicant has been issued an incidental take statement or an incidental take permit pursuant to the federal Endangered Species Act of 1973. The applicant must submit the federal opinion incidental take statement or permit to the CDFW Director for a determination as to whether the federal document is "consistent" with CESA. If CDFW determines that the federal opinion or permit is not consistent with CESA, then the applicant must apply for a state CESA permit under Section 2081(b).

Mitigation requirements for impacts to CTS associated with this project site were originally agreed to by Mr. Carl Wilcox and Mr. Liam Davis of the California Department of Fish and
Biological Resources Analysis
Cherry Ranch Project
Santa Rosa, California

Game (CDFG). Pursuant to the USFWS’ Biological Opinion, mitigation for impacts to CTS was fully implemented at a 3:1 replacement to impacts ratio. In addition, 3:1 mitigation is currently consistent with both CDFW and USFWS policies for mitigating impacts to CTS dispersal habitat. Accordingly, no new mitigation for impacts to CTS are likely to be required by CDFW over that which already purchased for this project prior to the time it was mass graded in 2007.

Currently, there are a few shallow topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features that are not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that project site walk, Mr. Griego also agreed that the CTS impacts had been fully mitigated and that construction related topographic low areas did not constitute CTS breeding habitat. Ms. Day requested that M&A analyze the shallow wetlands that were created along the eastern and southern project boundaries as result of grading in 2007 to determine if they could be breeding habitat. M&A concludes that these wetlands are too small and shallow to constitute CTS breeding habitat. Ms. Day in an email to Mr. Monk thought that it would not be necessary to further mitigate for impacts to these wetlands caused by grading along eastern and southern project site boundaries, but Ms. Day requested that these wetlands be evaluated in any ITP application submitted to the CDFW.

8.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered “take.” Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under CDFG Code (§3503.5). Additionally, “fully protected” birds, such as the white-tailed kite and golden eagle (Aquila chrysaetos), are protected under CDFG Code (§3511). “Fully protected” birds may not be taken or possessed (that is, kept in captivity) at any time.

8.4.1 Applicability to the Proposed Project

Raptors that potentially could be impacted by the project include white-tailed kite, and common birds such as mourning dove, California scrub jay (Aphelocoma californica), and house finch, among others. Preconstruction nesting surveys would have to be conducted to ensure that there is no direct take of nesting birds including their eggs, or young. Any active nests that were found during preconstruction surveys would have to be avoided by the project. Suitable non-disturbance buffers would have to be established around nest sites until the nesting cycle is complete. Please review specific requirements for avoidance of nest sites for nesting bird species in the Impact and Mitigation section.
8.5 Santa Rosa Plain Conservation Strategy (USFWS 2005)

The federal listing of CTS resulted in uncertainty for many local jurisdictions, landowners, and developers about its effects on their current and proposed activities. Because of this uncertainty, local private and public interest groups met with the USFWS to discuss a cooperative approach to protecting CTS, while allowing currently planned and future land uses to occur within its range. The result of these discussions was the creation of the Final Santa Rosa Plain Conservation Strategy (USFWS 2005).

The purpose of the Strategy is threefold: (1) to establish a long-term conservation program sufficient to mitigate potential adverse effects of future development on the Santa Rosa Plain, and to conserve and contribute to the recovery of the listed species and the conservation of their sensitive habitat; (2) to accomplish the preceding in a fashion that protects stakeholders’ (both public and private) land use interests, and (3) to support issuance of an authorization for incidental take of Sonoma County CTS and listed plants that may occur in the course of carrying out a broad range of activities on the Plain. The Strategy establishes interim and long-term mitigation requirements and designates conservation areas where mitigation will occur. It describes how habitat preserves will be established and managed. It also includes guidelines for translocation, management plans, adaptive management and funding.

The Conservation Strategy identifies areas within the Plain that should be conserved to benefit the listed plants and Sonoma County CTS. Their designation was based upon the following factors: 1) known distribution of the CTS; 2) the presence of suitable habitat; 3) presence of large blocks of natural or restorable land; 4) proximity to existing Preserves; and 5) known location of the listed plants. The designation of conservation areas also generally attempted to avoid future development areas established by urban growth boundaries and city general plans. The objective of these conservation areas is to ensure that preservation occurs throughout the distribution of the species.

The goal of the Conservation Strategy is to preserve a large enough area of suitable habitat to ensure the conservation of CTS and listed plants and contribute to their recovery. In order to do this, areas are identified within the Santa Rosa Plain that currently do or potentially could support CTS and listed plants, as well as the areas that currently do or likely will support development. This information was used to develop appropriate “conservation areas” and requirements as well as mitigation guidelines and requirements, in order to “provide consistency, timeliness and certainty for permitted activities.”

Proposed projects within the potential CTS range will fall into one of three categories:

a.) Projects within 1.3 miles of a known CTS breeding site, and likely to impact CTS breeding and/or upland habitat; or
b.) Projects beyond 1.3 miles from a known CTS breeding site, but within the “Potential for Presence of California tiger salamander” or “Potential for Presence of California tiger salamander and Plants”; or
c.) Projects where “Presence of California tiger salamander is Not Likely”.
Different mitigation ratios are recommended for each of these categories.

The Conservation Strategy recommends that projects filling potential listed plant habitat should mitigate these impacts via the preservation of existing occupied habitat at a 1:1 ratio, and projects filling known listed plant habitat should mitigate these impacts via the preservation of existing occupied habitat at a 2:1 ratio, as per a Programmatic Biological Opinion (USFWS 1998) in effect at the time of the Conservation Strategy was prepared in 2005. The USFWS’ 2007 Programmatic Biological Opinion (USFWS 2007) has since superseded the 1998 Programmatic Biological Opinion.

The Conservation Strategy recommends that projects filling wetlands should mitigate these impacts via the preservation of wetlands at a minimum of a 1:1 replacement ratio, depending on the quality of the filled wetlands, as per a Programmatic Biological Opinion (USFWS 1998) in effect at the time of the Conservation Strategy was prepared in 2005. The 1998 Programmatic Biological Opinion was superseded by a Programmatic Biological Opinion prepared by the USFWS for the Corps in 2007 (USFWS 2007). Currently the 2007 Programmatic Biological Opinion is under revision to incorporate the elements of the Recovery Plan for the Santa Rosa Plain (USFWS 2016) (See Recovery Plan below). This revised Programmatic Biological Opinion is currently under revision has not been released to the public at this time (Ms. Sahrye Cohen (Corps), pers. comm. with Mr. Monk on March 23, 2017).

8.5.1 Applicability to the Proposed Project

The project site is located in the Llano Conservation Area, and is a parcel known to previously support CTS breeding habitat (Figure 5 in the Santa Rosa Plain Conservation Strategy, USFWS 2005). The project site is not known to support rare or endangered plant species. Appropriate mitigation credits have been purchased to satisfy both CDFG (now CDFW), and the USFWS. Three to one (replacement habitat to impacted habitat ratio) was acquired for this project consistent with the requirements for CTS mitigation in the USFWS’ 2007 Programmatic Biological Opinion (see discussions below).

8.6 Santa Rosa Plain Programmatic Biological Opinion (USFWS 2007)

The Programmatic Biological Opinion (USFWS 2007) is based on the biological framework presented in the Conservation Strategy. The Programmatic Biological Opinion replaced (supersedes) the July 17, 1998 Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects that May Affect Four Endangered Plant Species on the Santa Rosa Plain (USFWS 1998), that was prepared for listed plant species on the Santa Rosa Plain. Projects that require a Corps permit, that remain consistent with objectives stated in the Conservation Strategy, can be appended to the Programmatic Biological Opinion at the discretion of the USFWS. Projects that are appended to the Programmatic Biological Opinion will be provided individual take authorization for impacts to federally-listed species. It is noteworthy that the USFWS and Corps are revising the 2007 Programmatic Biological Opinion, and per a conversation that Mr. Monk had with Mr. Jason Hanni of the USFWS (conversation in September 2019), the USFWS is now writing project specific Biological Opinions in lieu of using the 2007 Programmatic Biological Opinion, and will do so here forward until the new Programmatic Biological Opinion is released by the USFWS/Corps.
Impacts to Listed Plant Species

Under the *Programmatic Biological Opinion* (USFWS 2007), and as practiced today by USFWS for project specific Biological Opinions, seasonal wetlands are considered “suitable habitat” for listed plants if they are within the range of listed plants occurring on the Santa Rosa Plain. Seasonal wetlands are considered “occupied habitat” if surveys have been conducted following USFWS rare plant survey protocols and listed species are recorded on the site, or if listed species have been recorded on the site in the past. Even if two years of protocol rare plant surveys have been conducted proving absence of federally listed plants, seasonal wetlands are still regarded as “suitable” listed plant species habitat. The following mitigation to impacts ratios are required to adhere to the *Programmatic Biological Opinion* (USFWS 2007), and by convention for most project specific Biological Opinions.

**Burke’s Goldfields**

- Impacts to Occupied Habitat: 3:1 occupied or established habitat.
- Impacts to Suitable Habitat: 1:1 occupied or established habitat AND 0.5:1 established habitat.

**Sonoma Sunshine**

- Impacts to Occupied Habitat: 3:1 occupied or established habitat.
- Impacts to Suitable Habitat: 1:1 occupied or established habitat AND 0.5:1 established habitat.

**Sebastopol Meadowfoam**

- Impacts to Occupied Habitat: 2:1 occupied or established habitat.
- Impacts to Suitable Habitat: 1:1 occupied or established habitat AND 0.5:1 established habitat.

In addition, as per the *Programmatic Biological Opinion* (USFWS 2007), for impact sites with occupied or suitable habitat that are north of Santa Rosa Creek, the Preserve must support Burke's goldfields and/or Sonoma sunshine. For impact sites with suitable habitat that are located south of Santa Rosa Creek, the Preserve must support Sebastopol meadowfoam, Burke's goldfields, and/or Sonoma sunshine.

**Impacts to California Tiger Salamander**

For projects that may affect CTS, mitigation requirements will apply to the entire project area, except the portions of the project site that are covered with existing hardscape (i.e., No Effect
areas). The following mitigation to impacts ratios are required by the *Programmatic Biological Opinion* (USFWS 2007) for project sites that affect Corps regulated waters of the U.S.:

**Mitigation of 3:1**

For projects that are within 500 feet of a known breeding site.

**Mitigation of 2:1**

For projects that are greater than 500 feet and within 2,200 feet of a known breeding site, and for projects beyond 2,200 feet from a known breeding site, but within 500 feet of an adult occurrence.

**Mitigation of 1:1**

For projects that are greater than 2,200 feet and within 1.3 miles of a known breeding site.

**Mitigation of 0.2:1**

For projects that are greater than 1.3 miles from a known breeding site and greater than 500 feet from an adult occurrence but excluding "No Effect" areas.

In addition, as per the *Programmatic Biological Opinion*, “projects and other activities will incorporate measures to minimize their potential direct and indirect effects on CTS. Minimization measures may vary based on environmental factors and site location as determined by the USFWS and [the CDFW].”

**8.6.1 Applicability to the Proposed Project**

Protocol level surveys were conducted at the project site on March 5, April 10, April 19, and May 10, 2001, and February 8, March 27, and May 2, 2002, and no endangered plant species were observed. In addition, M&A conducted rare plant surveys on April 4, May 2, May 21, and July 14, 2018 in accordance with guidelines established by the CDFW (CDFG 2000, 2009), USFWS (USFWS 2000), and the inventory guidelines published by the CNPS 2001 for assessing the effects of proposed developments on rare and endangered plants and plant communities. A list of the plants observed on the project site in 2018 is provided as Table 1. No federally-listed plants have been identified on the project site. Regardless, per *Programmatic Biological Opinion* (op. cit.) even if listed plants are not detected, impacted seasonal wetlands on the project site, the applicant would still be required to mitigate impacts to “suitable” listed plant habitats.

Impacts to suitable listed plant habitat must be mitigated at a 1.5:1 (replacement to impacts) ratio with occupied or established habitat. To mitigate the loss of 0.40-acre of suitable, but not occupied endangered plant habitat, the applicant has already purchased 0.40-acre of wetland creation/restoration credits and 0.40-acre of vernal pool preservation credits for Sebastopol meadowfoam from the Hale Mitigation Bank (transferred from WMP LLC) (October 22, 2002, as authorized in the USFWS Biological Opinion). In addition, the applicant purchased mitigation
credits from the Southwest Santa Rosa Vernal Pool Preserve Bank (equivalent to 2.4 acres of endangered plant habitat and/or 4.8 acres of CTS habitat) (June 10, 2002).

To mitigate the loss of 5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve (November 3, 2006) to satisfy the 3:1 replacement ratio for impacts to CTS habitat, a mitigation ratio consistent with the requirements of the USFWS’ 2007 Biological Opinion, and consistent with mitigation policy practiced today by USFWS based upon the distance to known breeding locations. The roadside ditch does not support suitable listed plant habitat or CTS habitat; therefore, additional mitigation credits are not required.

Currently, there are a few shallow topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features that are not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that project site walk, Mr. Griego also agreed that the CTS impacts had been fully mitigated and that construction related topographic low areas did not constitute CTS breeding habitat.

8.7 USFWS Recovery Plan for the Santa Rosa Plain (USFWS 2016)

In December 2016, the USFWS adopted a formal Recovery Plan for the Santa Rosa Plain (Recovery Plan) addressing recovery efforts necessary to protect and otherwise eventually recover the federally-listed Sonoma County DPS of CTS and three vernal pool plants: *Blennosperma bakeri* (Sonoma sunshine); *Lasthenia burkei* (Burke’s goldfields); *Limnanthes vinculans* (Sebastopol meadowfoam) (USFWS 2016). All four species are confined almost entirely to the Santa Rosa Plain. The Recovery Plan and its objectives are implemented through cooperative CEQA lead agencies, and through federal nexus agency consultations (e.g., Corps consultations) with the USFWS via Section 7 of the FESA. Any federal nexus agency that consults with the USFWS pursuant to Section 7 will obtain a letter of no effect or a Biological Opinion that provides or denies “incidental take authority.” Any conditions of a Biological Opinion issued to the Corps for a pending project are to become conditions of the Corps’ permit authorization.

Pursuant to the FESA Incidental take includes loss of listed species’ habitat or harm that could occur to a federally-listed species. An Incidental Take Permit allows an otherwise legally sanctioned activity to proceed even if there could be a collateral impact to a federally-listed species. Similarly, any Section 10 FESA consultation with the USFWS, which is allowed for in the FESA for all non-federal entities, that results in Incidental Take authority granted by the USFWS to the non-federal entity, would otherwise include provisions for compliance with the objectives of the Recovery Plan.

The USFWS has determined that the primary threats to the three listed vernal pool plants and the CTS on the Santa Rosa Plain is the reduction and fragmentation of habitat due to urban
Biological Resources Analysis
Cherry Ranch Project
Santa Rosa, California

development, agricultural land conversion, and habitat degradation that modifies vernal pool hydrology, and colonization of seasonal wetlands by competitive invasive plants. Consequently, the Recovery Plan focuses on these threats. In order to downlist or delist the four species that are imperiled in the Santa Rosa Plain the threats to the species’ habitat must be reduced or eliminated. The USFWS criteria for downlisting are based upon preservation of extant vernal pools systems and attending uplands that support wetland complexes. The USFWS has segmented the Santa Rosa Plain into “Core” and “Management Areas” (Figures 5-7) where species preservation, and habitat enhancement and management must occur to recover these four listed species. Core areas comprise the heart of the species historical (and current) range and represent central blocks of contiguously occupied habitat that function to allow for dispersal, genetic interchange between populations, and metapopulation dynamics. Management areas are occupied habitat peripheral to the species’ Core areas.

[The following information has been obtained from various personal communications in 2016 and 2017 between Mr. Monk and Mr. Vincent Griego and/or Mr. Ryan Olah of the Sacramento Endangered Species Office of the USFWS. Also, as discussed with Mr. Jason Hanni of USFWS in 2019]. The USFWS is now requiring that projects that impact federally-listed plant species in Core habitats, and/or CTS Core habitat ( Exhibits A and B), mitigate through preservation and enhancement of extant listed species habitats in the same Core Area where the impacts will occur. Mitigation for Core area species always takes precedence over Management area species. The USFWS is also now requiring that impacts to specific federally-listed species’ Management Areas, be mitigated in the affected species Core areas or its Management Areas as designated in the USFWS’ 2016 Santa Rosa Plain Recovery Plan (USFWS 2016) (Mr. Olah pers. comm. with Mr. Monk, January 18, 2017). Also, regarding impacts to CTS habitat, USFWS is now incorporating new Conservation Measures into Biological Opinions that will be in the revised, reissued Programmatic Biological Opinion.

8.7.1 APPLICABILITY TO THE PROPOSED PROJECT

The project site is located within the Southern Core area for Sonoma sunshine, Burke’s goldfields, Sebastopol meadowfoam, as identified in the USFWS’ 2016 Recovery Plan for the Santa Rosa Plain (see Figures 5-7). The mitigation bank (Preserve) that is used to compensate for impacts to suitable listed species seasonal wetlands must be a USFWS approved mitigation bank located within the Southern Core area.

To mitigate the loss of 0.40-acre of suitable, but not occupied endangered plant habitat, the applicant purchased 0.40-acre of wetland creation/restoration credits and 0.40-acre of vernal pool preservation credits for Sebastopol meadowfoam from the Hale Mitigation Bank (transferred from WMP LLC) (October 22, 2002, as authorized in the USFWS Biological Opinion. In addition, the applicant purchased mitigation credits from the Southwest Santa Rosa Vernal Pool Preserve Bank (equivalent to 2.4 acres of endangered plant habitat and/or 4.8 acres of CTS habitat) (June 10, 2002). These mitigation banks are located in the Sebastopol meadowfoam and Baker’s brillnosperma (Southern) Core Areas of the Santa Rosa Plain.

Per the USFWS Recovery Plan for the Santa Rosa Plain (USFWS 2016), the project site is located within the Llano Crescent-Stony Point CTS “Core Area” (Figure 9). Thus, CTS mitigation credits must be purchased from a bank within that Core Area. To mitigate the loss of
5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve (November 3, 2006) to satisfy the 3:1 replacement ratio for impacts to CTS habitat, as required by the USFWS Biological Opinion. The Christina Preserve is located within the Llano Crescent-Stony Point CTS “Core Area” so mitigation was appropriately acquired in 2006 that remains consistent with today’s requirements for mitigating impacts to CTS.

9. CITY OF SANTA ROSA TREE ORDINANCE

The Santa Rosa City Code, Chapter 17.24, has three articles that pertain to the protection of trees within the City of Santa Rosa to discourage the alteration, removal or relocation of trees, including any heritage, protected, or street tree, without a permit.

9.1.1.1 Article III – Prohibitions – Tree alteration, removal, relocation-Permit required.

Article III has provisions that protect trees which are defined as any woody plant with a single trunk diameter of 4 inches or more or a combination of multiple trunks having a total diameter of 8 inches or more. This article also protects the following types of trees:

(a) Heritage tree which includes any of the following trees, whether located on public or private property, at a diameter equal to or greater than those listed below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valley oak (Quercus lobata)</td>
<td>6</td>
</tr>
<tr>
<td>Coast live oak (Quercus agrifolia)</td>
<td>18</td>
</tr>
<tr>
<td>Black oak (Quercus kelloggii)</td>
<td>18</td>
</tr>
<tr>
<td>Oregon oak (Quercus garryana)</td>
<td>18</td>
</tr>
<tr>
<td>Canyon oak (Quercus chrysolepis)</td>
<td>18</td>
</tr>
<tr>
<td>Blue oak (Quercus douglasii)</td>
<td>6</td>
</tr>
<tr>
<td>Interior live oak (Quercus wislizenii)</td>
<td>18</td>
</tr>
<tr>
<td>Coast redwood (Sequoia sempervirens)</td>
<td>24</td>
</tr>
<tr>
<td>Bay (Umbellularia californica)</td>
<td>24</td>
</tr>
<tr>
<td>Madrone (Arbutus menziesii)</td>
<td>12</td>
</tr>
<tr>
<td>Douglas’s fir (Pseudotsuga menziesii)</td>
<td>24</td>
</tr>
<tr>
<td>Red alder (Alnus rubra)</td>
<td>18</td>
</tr>
<tr>
<td>White alder (Alnus rhombifolia)</td>
<td>18</td>
</tr>
<tr>
<td>Big leaf maple (Acer macrophyllum)</td>
<td>24</td>
</tr>
</tbody>
</table>

(b) Protected tree which means any tree, including a heritage tree, designated to be preserved on an approved development plan or as a condition of approval of a tentative map, a tentative parcel map, or other development.

(c) Street tree which means any tree having a single trunk circumference greater than 6 and one-quarter inches or a diameter greater than 2 inches, a height of more than 6 feet, and one half or more of its trunk is within a public right of way or within 5 feet of the paved portion of a City street or a public sidewalk.
The following tree species are exempt from the above provisions (except for those that may exist as street trees): acacia, silver maple, poplar, ailanthus, hawthorn, fruitless mulberry, privet, pyracantha, Monterey pine, Monterey cypress, and fruit and nut trees (except walnut trees). A permit is not required for these tree species alteration, removal or relocation.

9.1.1.1 Article IV – Permit Category II – Tree alteration, removal or relocation on property proposed for development-Requirements.

Article IV requires the following:

(a) All development proposals and subdivision applications shall clearly designate all trees and heritage trees on the property by trunk location and accurate outline of the dripline and shall indicate those trees proposed to be altered, removed or relocated. The reasons for the removal of any tree shall be stated in writing. The development plan or tentative subdivision map shall indicate the genus and species, shape, dripline and trunk circumference of each tree and heritage tree. The owner of the property and person in control of the proposed development shall protect and preserve each tree and heritage tree situated within the site of the proposed development during the period the application for the proposed development is being considered by the City. The proposed development shall be designed so that:

(1) The proposed lots and/or improvements preserve any heritage trees to the greatest possible extent.

(2) The road and lot grades protect heritage trees to the greatest extent possible and the existing grad shall be maintained within each such tree’s root zone.

(b) If the proposed project is approved, the recordation of the final map or issuance of a grading permit or building permit for the project shall constitute a permit to alter, remove or relocate any trees designated for alteration, removal or relocation upon the project’s approved plans. Any change in the trees to altered, removed or relocated as designated on the approved development plan or tentative map shall only be permitted upon the written approval of the Director or, when the Director determines that the proposed change may be substantial, by the Planning Commission.

(c) A tree replacement program that will require the applicant to replace trees and heritage trees approved for removal as part of the approval of the project in accordance with subdivision 1; each protected tree removed or damaged shall be replaced in accordance with subdivision 2. For each 6 inches or fraction thereof of the diameter of a tree which was approved for removal, two trees of the same genus and species as the removed tree (or another approved species), each of a minimum 15-gallon container size, shall be planted on the project site. For each 6 inches or fraction thereof of the diameter of a tree which was not approved for removal, four trees of the same genus and species as the removed tree (or another approved species), each of a minimum 15-gallon container size, shall be planted on the project site.
(d) If the development site is inadequate in size to accommodate the replacement trees, the trees shall be planted on public property with the approval of the Director of the City’s Recreation and Parks Department. Upon the request of the developer and the approval of the Director, the City may accept an in-lieu payment of $100.00 per 15-gallon replacement tree on the condition that all such payments shall be used for tree-related educational projects and/or planting programs of the City.

(e) The following requirements will apply any applicant of property upon which a protected tree is located:

1. Before the start of any clearing, excavation, construction or other work on the site, every protected tree shall be securely fenced off at the “protected perimeter” which shall either be the root zone or other limit as may be established by the City.

2. If the proposed development, including any site work for the development, will encroach upon the protected perimeter of a protected tree, special measures shall be utilized, to allow the roots to obtain oxygen, water and nutrients as needed. Any excavation, cutting, filling, or compaction of the existing ground surface within the protected perimeter, if authorized at all by the Director, shall be minimized and subject to such conditions as may be imposed by the Director. No significant change in existing ground level shall be made within the dripline of a protected tree.

3. No oil, gas, chemicals or other substances that may be harmful to trees shall be stored or dumped within the protected perimeter. All brush, earth and other debris shall be removed in a manner which prevents injury to the protected tree.

4. Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees. If avoidance is impractical, tunnels shall be made below the roots. Trenches shall be consolidated to USFWS as many units as possible. Trenching within the drip line of protected trees shall be avoided to the greatest extent possible and shall only be done under the at-site directions of a certified arborist.

5. No concrete or asphalt paving shall be placed over the root zones of protected trees. No artificial irrigation shall occur within the root zone of oaks.

6. No compaction of the soil within the root zone of protected trees shall occur.

7. If the trees proposed to be removed can be economically relocated, the developer shall move the trees to a suitable location on the site shown on the approved plans.

9.1.1.2 Article V – Permit category II – Street trees and plantings on and adjacent to public streets and sidewalks.

Article V pertains to the alteration, removal, and relocation of street trees and entails the following:
(a) As per Section 17-24.075, no tree growing within a planting strip or within any public right-of-way shall be removed or altered by or at the instigation of the abutting property owner or anyone other than a duly authorized officer, agent or employee of the City, except upon issuance of a permit therefore by the Director of Recreation and Parks who may require, as a condition of permitting the removal or alteration of a tree, the posting of security for such work and the planting, at the expense of the permittee, of a tree to replace the one removed from a list approved under Section 17-24.070 of the city code.

As per Section 17-24.080, a permit approved by the Director of Recreation and Parks under the provisions of this article shall be valid for a period of 60 days from its issuance unless a longer term is set forth in the permit. If the work to be done under the permit does not commence under the permit’s expiration and thereafter expeditiously pursued, the permit shall become null and void.

9.1.2 APPLICABILITY TO THE PROPOSED PROJECT

Currently a total of 14 trees (4 inches or greater diameter at breast height, DBH) occur on the project site, including 13 valley oaks (*Quercus lobata*) and one large Italian cypress (*Cupressus sempervirens*) (18-inch DBH). All trees on the project site are slated for removal. Article 4, Section 17-24.050 Permit Category II-Tree Alteration, Removal, or Relocation on Property Proposed for Development, C (1) requires two 15-gallon size trees to be replanted for every 6 inches of trunk diameter removed. The applicant will be required to obtain a permit from the City of Santa Rosa to remove the trees on the project site. Impacts to trees are regarded as significant. Mitigation that includes tree replacement per the specifications of the City of Santa Rosa Tree Ordinance will mitigate impacts to trees to a level regarded as less than significant.

10. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the Corps, the RWQCB, the State Water Resources Control Board (SWRCB), and CDFW to determine those areas within a project area that would be subject to their regulation.

10.1 Section 404 of the Clean Water Act

Congress enacted the Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. §1251(a)). Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the Corps regulates the disposal of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register "waters of the United States" are defined as, “...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce...” (33 CFR Section 328.3).
Limits of Corps’ jurisdiction:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:

   (1) Extends to the mean high tide line, or
   (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:

   (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
   (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
   (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: “...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions” (33 CFR Section 328.8[b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the Clean Water Act.

10.1.1 PERMITTING CORPS JURISDICTIONAL AREAS

To remain in compliance with Section 404 of the Clean Water Act, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging or otherwise impacting waters of the U.S. In many cases, the Corps must visit a proposed project area (to conduct a “jurisdictional determination”) to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the
appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to “waters of the United States.”

Pursuant to Section 404 of the Clean Water Act, the Corps normally provides two alternatives for permitting impacts to the type of “waters of the United States” found in the project area. The first alternative would be to use Nationwide Permits (NWPs). NWPs are issued and revoked by the Corps every 5 years. A project that meets conditions for one of the NWPs that exist today, that is authorized for use in a particular 5-year NWP program, is not extendable to the next NWP program. Rather, when revoked, the NWP(s) become null and void, although typically the Corps allows a one-year grandfather extension of the 5-year program for projects that were underway during the NWP validity period.

NWPs are issued on a nationwide basis and authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5(c)(2)). In order to use NWP(s), a project must meet 32 general NWP conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must, request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (i.e., must receive “verification” from the Corps).

The second alternative for obtaining a permit from the Corps is to apply for an Individual Permit (33 CFR Section 235.5(2)(b)). Individual Permits are typically valid for 5 years, although if a request is submitted to the Corps prior to expiration, can be extended an additional 5 years. The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an “alternatives analysis” that is prepared pursuant to Section 404(b) of the Clean Water Act (33 U.S.C. 1344(b)). The alternatives analysis is also typically reviewed by the federal EPA and thus brings another resource agency into the permitting framework. Both the Corps and EPA take the initial viewpoint that there are practical alternatives to the proposed project if there would be impacts to waters of the U.S., and the proposed permitted action is not a water dependent project (e.g., a pier or a dredging project). Alternative analyses therefore must provide convincing reasons that the proposed permitted impacts are unavoidable. Individual Permits may be available for use in the event that discharges into regulated waters fail to meet conditions for authorization under a NWP(s).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the U.S.) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (i.e., impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (i.e., if a stream channel would be filled, mitigation would include replacing it with a new stream channel), and at a minimum of a 1:1 replacement ratio (i.e., one acre or fraction thereof recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required. Usually the 2:1 ratio is met by
recreation or enhancement of an equivalent amount of wetland as is impacted, in addition to a requirement to preserve an equivalent amount of wetland as is impacted by the project. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site. For example, if project designs call for filling an intermittent drainage, mitigation should include recreating the same approximate jurisdictional area (same drainage widths) at an offsite location or on a set-aside portion of the project area. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

10.1.2 Applicability to the Proposed Project

On March 7, 2002, the Corps confirmed the extent of its jurisdiction pursuant to the Clean Water Act on the project site (Corps File No. 26570N). The Corps verified that the project site supported 0.40-acre of seasonal wetlands. The Corps-stamped jurisdictional map is dated March 7, 2002 (Attachment D). The Revised Wetland Delineation map for Cherry Ranch (Attachment E) shows the roadside ditch and indicates that the ditch was inspected by the Corps on November 20, 2006.

On March 20, 2002, the former applicant submitted an application to the Corps for authorization to fill 0.40-acre of seasonal wetlands on the project site to construct the Cherry Ranch residential development. On May 6, 2002 the Corps issued a permit and confirmed that the project qualified for authorization under NWP 29. The applicant re-applied for a Corps permit in 2007, and the Corps re-issued NWP 29 permit on July 13, 2007 (Corps File No. 26570N).

The project site was graded in 2007 and the applicant submitted the Certificate of Compliance to the Corps on December 17, 2007. Aerial photographs in Attachment C illustrate the project site’s wetland conditions in 2005 prior to any site grading. This aerial photograph clearly shows wetland pools to the northeast of the project site and two relatively small wetlands on the project site. Attachment C also includes a 2018 aerial photograph where the wetland pools to the northeast the project site are still apparent, but there are no visible wetlands on the project site. The wetlands that were previously mapped on the project site had been graded and otherwise “filled” during the mass grading in 2007. The project site has been subjected to routine disturbance on an annual basis after it was graded in 2007.

M&A conducted a delineation of the roadside ditch on July 26, 2018 using criteria prescribed in the Corps’ 1987 *Wetland Delineation Manual* (Corps 1987) and the Corps’ *Regional Supplement for the Arid West Region* (Corps 2008). M&A requests that the Corps verify the extent of the Corps’ jurisdiction of the roadside ditch pursuant to Section 404 of the Clean Water Act. The Preliminary Aquatic Resources Delineation Map of the roadside ditch (dated July 2018) is provided as Attachment F. The delineation map includes the offsite roadside ditch on the east side of Fresno Avenue that will be impacted by the proposed road improvements required by the City of Santa Rosa. This ditch is subject to the Corps’ jurisdiction as it has hydrologic connectivity with other tributaries that eventually flow to the Russian River, a navigable water of the U.S. Thus, it would be regulated as “waters of the U.S.” pursuant to Section 404 of the Clean Water Act.
A condition of the Cherry Ranch development from the City of Santa Rosa is that the project incorporate road improvements, including curb and gutter along the east shoulder of Fresno Avenue (Attachment A). The total impacts to this linear wetland feature will be 2,003 square feet (0.046-acre) (754 linear feet) (Attachment F). To mitigate anticipated impacts to 0.046-acre of the roadside ditch, the applicant purchased 0.05-acre of wetland creation credits from the Hazel Mitigation Preserve (October 2006), and purchased an additional 0.08-acre of wetland creation credits from the Hazel Mitigation Preserve (November 2006).

Currently, there are a few topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features, not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that site visit Mr. Griego stated that the USFWS’ previously issued Biological Opinion remains valid today and can be used by the Corps for the current permit authorization.

In 2018, M&A submitted a Preconstruction Notice (“permit application”) requesting that the Corps verify that the Cherry Ranch Project meets conditions for use of NWP 29 (Residential Development) as administered by the Corps pursuant to Section 404 of the Clean Water Act. The application only pertained to the impacts to the roadside ditch that would be filled to complete the required road improvements, such as curb and gutter along Fresno Avenue. The Corps issued a permit for impacts to the roadside ditch on July 18, 2019 (Corps File Number 2002 265700N).

### 10.2 Section 401 of the Clean Water Act

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the Clean Water Act. While the Corps administers a permitting program that authorizes impacts to waters of the U.S., including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal Clean Water Act, the CEQA, the CESA, and the SWRCB’s mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

### 10.2.1 Applicability to the Proposed Project

The RWQCB issued a 401 Water Quality Certification for the project on July 5, 2007 (WDID No. 1B02040WNSO). The Certification authorized impacts to 0.40-acre of seasonal wetlands and 0.046-acre of drainage ditch. The Certification stated that “Compensatory mitigation for the Project will be attained through the purchase of 0.40-acre of wetland credits and 0.40-acre of wetland preservation credits from the Hale Mitigation Bank. An additional 0.08-acre of wetland
creation credits will be purchased from the Hazel Mitigation Bank.” The applicant has purchased these required mitigation credits and provided proof of purchase to the RWQCB.

On November 16, 2006, the City of Santa Rosa adopted the Mitigated Negative Declaration (SCH No. 2006082063) for the previously-proposed residential development project to comply with CEQA. The project site was graded in 2007. Aerial photographs in Attachment C illustrate the site conditions in 2005 prior to any site grading, and the site conditions in 2018 showing that the RWQCB-regulated wetlands that were previously mapped on the project site had been filled. However, the applicant did not fill the roadside ditch in 2007, and as the prior 2007 Certification of Water Quality is now expired, the applicant will re-apply for Water Quality Certification to impact the roadside ditch for the City-required road improvements. A new 401 Water Quality Certification application will be submitted to the RWQCB upon adoption of the newly proposed project pursuant to the CEQA by the City of Santa Rosa. All permit conditions in the 401 Water Quality Certification will be implemented by the proposed project.

10.3 Porter-Cologne Water Quality Control Act

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the U.S. EPA, sediment is one of the most widespread pollutants contaminating U.S. rivers and streams. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of stormwater from large construction sites is regulated by the RWQCB under the federal CWA and California’s Porter-Cologne Water Quality Control Act.

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that “any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge” with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1). The term “waters of the State” is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates “isolated wetlands,” or those wetlands considered to be outside of the Corps’ jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute “pollution.” Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any “threat” to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices Plan (BMPs) of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a Stormwater Pollution Prevention Plan (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In
addition, a post construction BMPs plan, or a Stormwater Management Plan (SWMP) must be developed and incorporated into any site development plan.

10.3.1 APPLICABILITY TO THE PROPOSED PROJECT
Since any “threat” to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, care will be required when constructing the proposed project to be sure that adequate pre-and post-construction BMPs are incorporated into the project implementation plans. Since the proposed project will be required to obtain a new Clean Water Act Section 401 permit from the RWQCB, the project will also be required to submit a Storm Water Control Plan (SWCP) to the RWQCB. A Section 401 permit will not be issued by the RWQCB until the SWCP meets the RWQCB’s requirements for stormwater treatment post construction. This will ensure that the project will not, post construction, result in impacts to downstream receiving waters.

It should also be noted that prior to issuance of any permit from the RWQCB this agency will require submittal of a Notice of Determination from the City of Santa Rosa indicating that the current project has been reviewed pursuant to CEQA. The pertinent sections of the CEQA document (typically the biology section) are often submitted to the RWQCB for review prior to the time this agency will issue a permit for a proposed project.

10.4 California Department of Fish and Wildlife Protections

10.4.1 SECTION 1602 OF CALIFORNIA FISH AND GAME CODE
Pursuant to Section 1602 of the California Fish and Game Code: “An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

(1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification shall include, but is not limited to, all of the following:
   (A) A detailed description of the project’s location and a map.
   (B) The name, if any, of the river, stream, or lake affected.
   (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.
   (D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
   (E) A copy of any other applicable local, state, or federal permit or agreement already issued.
   (F) Any other information required by CDFW” (Fish & Game Code 2014).

Please see Section 1602 of the current California Fish and Game Code for further details.

Please also note that while not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream). Thus, any proposed activity in a natural stream channel that would substantially adversely affect an
existing fish and/or wildlife resource, including its riparian vegetation, would require entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

10.4.2 Applicability to the Proposed Project

There are no streams or drainages on the project site that would likely be regulated by CDFW. Hence, a SBAA with CDFW is not necessary for this project.

11. State Water Resources Control Board (SWRCB)/RWQCB – Storm Water Management

11.1 Construction General Permit

While federal Clean Water Act NPDES regulations allow two permitting options for construction related stormwater discharges (individual permits and General Permits), the State Water Resources Control Board (SWRCB) has elected to adopt only one statewide Construction General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans).

The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies BMPs that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.

2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation. Achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project’s projected risk level.

3. Perform inspections of all BMPs.

This Construction General Permit is implemented and enforced by the nine RWQCBs. It is also enforceable through citizens’ suits and represents a dramatic shift in the State Water Board’s approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers.
Types of Construction Activity Covered by the Construction General Permit

- clearing,
- grading,
- disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area.

Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity.

Construction activity does not include:
- routine maintenance to maintain original line and grade,
- hydraulic capacity, or original purpose of the facility,
- nor does it include emergency construction activities required to protect public health and safety.

The Construction General Permit includes several “post-construction” requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This “runoff reduction” approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development (“LID”) design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Improving the quality of site runoff is necessary to improve water quality in impaired and threatened streams, rivers, and lakes (that is, water bodies on the EPA’s 303(d) list). The RWQCB prioritizes the water bodies on the 303(d) list according to potential impacts to beneficial uses. Beneficial uses can include a wide range of uses, such as nautical navigation; wildlife habitat; fish spawning and migration; commercial fishing, including shellfish harvesting; recreation, including swimming, surfing, fishing, boating, beachcombing, and more; water supply for domestic consumption or industrial processes; and groundwater recharge, among other uses. The State is required to develop action plans and establish Total Maximum Daily Loads (TMDLs) to improve water quality within these impaired water bodies. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating the applicable water quality standards.

Pursuant to the CWA, the RWQCB regulates construction discharges under the National Pollutant Discharge Elimination System (NPDES). The project sponsor of construction or other
activities that disturb more than one acre of land must obtain coverage under NPDES Construction General Permit Order 2009-0009-DWQ, administered by the RWQCB\(^1\).

### 11.1.1 Applicability to the Proposed Project

The project will impact greater than one acre and as such is required to obtain coverage under the SWRCB administered Construction General Permit. To obtain coverage the applicant (typically through its civil engineer) must electronically file a number of permit-related compliance documents (Permit Registration Documents (PRDs), including a Notice of Intent (NOI), a risk assessment, site map, signed certification, SWPPP, Notice of Termination (NOT), NAL exceedance reports, and other site-specific PRDs that may be required. The PRDs must be prepared by a Qualified SWPPP Practitioner (QSP) or Qualified SWPPP Developer (QSD) and filed by a Legally Responsible Person (LRP) on the RWQCB’s Stormwater Multi-Application Report Tracking System (SMARTS). (QSDs are typically civil engineers, professional hydrologists, engineering geologists, or landscape architects.) Once filed, these documents become immediately available to the public for review and comment. At a minimum, the SWPPP shall identify BMPs for implementation during project construction that are in accordance with the applicable guidance and procedures contained in the California Stormwater Quality Association’s *California Stormwater Best Management Practices Handbook* (2015). Implementation of the SWPPP also keeps the project in compliance with the Porter-Cologne Water Quality Control Act (see Section 10.3 above) since implementation of the SWPPP prevents impacts to downstream receiving waters during the construction of the project.

### 12. Storm Water Low Impact Development (SWLID)

Participating cities in Sonoma County within the Santa Rosa plain use the *Guidelines for the Standard Urban Storm Water Mitigation Plan (SUSMP), Storm Water Best Management Practices for New Development and Redevelopment for the Santa Rosa Area and Unincorporated Areas around Petaluma and Sonoma* published on June 3, 2005. However, the City of Santa Rosa has updated the process using the 2017 Storm Water Low Impact Development (SWLID) guidelines to better facilitate the processing of Clean Water Act permits. California’s North Coast RWQCB routinely uses the SWLID Design Manual as an example program on how post-construction BMPs should be implemented.

The 2017 SWLID provides technical guidance for project designs that require the implementation of permanent storm water BMPs. This 2017 SWLID supersedes both the 2005 SUSMP guidelines and the 2011 version of the SWLID manual. To reduce storm water pollution, protect water quality of local waterways, and promote groundwater recharge, SWLID integrates specialized landscape features into an urban environment and directs runoff into these features where it can soak into the ground. This design approach mimics the storm water benefits of the natural environment. Specialized swales, planters, and raingardens provide beauty while

\(^1\) CGP Order 2009-0009-DWQ remains in effect, but has been amended by CGP Order 2009-0014-DWQ, effective February 14, 2011, and CGP Order 2009-0016-DWQ, effective July 17, 2012. The first amendment merely provided additional clarification to Order 2009-0009-DWQ, while Order 2009-0016-DWQ eliminated numeric effluent limits on pH and turbidity (except in the case of active treatment systems), in response to a legal challenge to the original order.
also slowing runoff and removing pollutants. Plants and microbes that live in healthy soil use pollutants as nutrients, removing them from runoff.

The SWLID is formally defined as:

_A development site design strategy with a goal of maintaining or reproducing the predevelopment hydrologic system through the use of design techniques to create a functionally equivalent hydrologic setting. Hydrologic functions of storage, infiltration, and groundwater recharge, as well as the volume and frequency of discharges are maintained through the use of integrated and distributed small-scale storm water retention and detention areas, reduction of impervious surfaces, and the lengthening of flow paths, and runoff time._

The SWLID Design Manual is intended to satisfy the specific requirements of “Order No. R1-2015-0030, NPDES No. CA-0025054 NPDES permit and waste discharge requirements for discharges from the municipal separate storm sewer systems.” Additional design requirements imposed by governing agencies, such as local grading ordinances, CAL Green, CEQA, 401 permitting, and hydraulic design for flood control still apply as appropriate.

The intention of the Design Manual is to promote the following SWLID goals:

- Minimize the adverse impacts from storm water runoff on water quality, the biological integrity of receiving waters, and the beneficial uses of water bodies.
- Minimize the percentage of impervious surfaces on land development projects and implement mitigation measures to mimic the pre-development water balance through infiltration, evapotranspiration, and capture and reuse of storm water.
- Minimize pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs, including source control BMPs or good housekeeping practices, SWLID planning and design strategies, and treatment control BMPs.
- Proper selection, design and maintenance of treatment control BMPs, and hydromodification control BMPs to address pollutants generated by land development, minimizing post-development surface flows and velocities, assuring long-term functionality of BMPs, and avoiding the breeding of vectors.

12.1 Projects That Trigger Requirements

_Geographic Areas_

The requirements set forth in this SWLID Design Manual apply to projects within the jurisdiction of City of Santa Rosa, City of Healdsburg, Town of Windsor, City of Cotati, City of Sebastopol, City of Cloverdale, City of Ukiah, and City of Rohnert Park as well as the portions of the County of Sonoma as shown in Attachment C of the NPDES MS4 Permit Order No. R1-2015-0030. Although the Sonoma County Water Agency is named in the Permit, it does not have land use authority.

This SWLID manual does not apply to the areas south of the Russian River/Laguna De Santa Rosa watershed boundary, including portions of Petaluma, Sonoma, and the southern portion of
the County of Sonoma as they are outside the jurisdiction of the North Coast RWQCB and have distinct design requirements.

**Project Triggers and Exemptions**

Since SWLID features are designed to mitigate for the permanent impacts caused by impervious surfaces, the total amount of impervious surface must be considered when determining whether or not a project triggers SWLID requirements. This evaluation must include the built-out project condition (including homes or structures that will be completed under separate building permits) as well as all phases of a phased project. Note that tributary areas where no impervious surface will be added or replaced are not required to install BMPs.

**Impervious Surface**

Impervious surfaces are defined as an area that has been modified such that storm water percolation into underlying soils is reduced or prevented. Examples of surfaces include concrete, asphalt, and roof tops. Existing gravel on a project site prior to the proposed project is considered to be pervious unless documentation is provided that demonstrates that it is impervious. Gravel placed as part of the proposed project is considered to be impervious unless documentation is provided to verify that it is pervious.

**Site Determination**

For the purposes of this Manual, the impacts that must be accounted for in the SWLID design includes everything within the project site of all improved parcels as well as all offsite or associated public improvements, such as trenching and repaving for utility connections.

12.1.1 **APPLICABILITY TO THE PROPOSED PROJECT**

The City of Santa Rosa will require that a SWLID Plan be submitted that integrates the 2017 SWLID Design Manual guidelines. The proposed project will create more than one acre of impervious surface and will therefore be conditioned to meet treatment and hydromodification control requirements. The hydromodification control design goal requires the project to capture and/or infiltrate and/or reuse one hundred percent of the post project impervious surface runoff volume.

The proposed project will be designed to implement permanent water quality treatment and hydro-modification control BMPs set forth in the 2017 SWLID; such as treatment of all runoff generated by a one-inch rainfall event in a 24-hour time period falling on all impermeable surfaces, and the exit off the project site of all such storm water at flow rates similar to predevelopment conditions.

13. **CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REGULATIONS**

A CEQA lead agency must determine if a proposed activity constitutes a project requiring further review pursuant to the CEQA. Pursuant to CEQA, a lead agency would have to determine if there could be significant adverse impacts to the environment from a proposed project. Typically, if within the city limits, the city would be the CEQA lead agency. If a discretionary permit (i.e., conditional use permit) would be required for a project (e.g. an occupancy permit must be issued), the lead agency typically must determine if there could be significant environmental impacts. This is usually accomplished by an “Initial Study.” If there could be
significant environmental impacts, the lead agency must determine an appropriate level of environmental review prior to approving and/or otherwise permitting the impacts. In some cases, there are “Categorical Exemptions” that apply to the proposed activity; thus the activity is exempt from CEQA. The Categorical Exemptions are provided in CEQA. There are also Statutory Exemptions in CEQA that must be investigated for any proposed project. If the project is not exempt from CEQA, the lowest level of review typically reserved for projects with no significant effects on the environment would be for the lead agency to prepare a “Negative Declaration.” If a proposed project would have only minimal impacts that can be mitigated to a level of no significance pursuant to the CEQA, then a “Mitigated Negative Declaration” is typically prepared by the lead agency. Finally, those projects that may have significant effects on the environment, or that have impacts that can’t be mitigated to a level considered less than significant pursuant to the CEQA, typically must be reviewed via an Environmental Impact Report (EIR). All CEQA review documents are subject to public circulation, and comment periods.

Section 15380 of CEQA defines “endangered” species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. “Rare” species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species of animal or plant or the habitat of the species.” The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

13.1.1 APPLICABILITY TO THE PROPOSED PROJECT

This report has been prepared as a Biology section that is suitable for incorporation by the CEQA lead agency (in this case the City of Santa Rosa) into a CEQA review document such as a Mitigated Negative Declaration or an Environmental Impact Report. This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA.

14. IMPACTS ANALYSIS

Below the criteria used in assessing impacts to Biological Resources is presented.

14.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other
federal, state, and local agencies’ considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as “significant,” “potentially significant,” or “less than significant.” Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated “waters of the United States” and/or stream channels.

14.1.1 THRESHOLDS OF SIGNIFICANCE

14.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

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

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.

- Have a substantial adverse effect on federally protected “wetlands” as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

14.1.1.2 Waters of the United States and State

Pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), the Corps regulates the discharge of dredged or fill material into waters of the U.S., which includes wetlands, as discussed in the bulleted item above, and also includes “other waters” (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the Clean Water Act, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.
14.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which CDFW typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

15. IMPACT ASSESSMENT AND PROPOSED MITIGATION

In this section, we discuss potential impacts to sensitive biological resources including special-status animal species and waters of the U.S. and/or State. We follow each impact with a mitigation prescription that when implemented would reduce impacts to a level regarded as less than significant pursuant to CEQA. This impact analysis is based on the Cherry Ranch Development Plan, prepared by Cinquini & Passarino (Attachment A).

15.1 Impact BIO-1. Development of the project would have a significant adverse impact on suitable rare plant habitat (Significant)

Protocol-level surveys were conducted at the project site on March 5, April 10, April 19, and May 10, 2001, and February 8, March 27, and May 2, 2002, and no endangered plant species were observed. In addition, to update the plant surveys, M&A conducted follow-up rare plant surveys on April 4, May 2, May 21, and July 15, 2018 in accordance with guidelines established by the California Department of Fish and Wildlife (CDFG 2000, 2009), USFWS (USFWS 2000), and the inventory guidelines published by the CNPS (CNPS 2001) for assessing the effects of proposed developments on rare and endangered plants and plant communities. No rare plants have ever been found during any plant survey conducted on this project site.

Therefore, the project site is not considered to support “occupied” habitat for federally-listed plant species. Regardless, the USFWS Biological Opinion states that the project site supported 0.40-acre of potential Sebastopol meadowfoam, Sonoma sunshine, and Burke's goldfields habitat and required mitigation for impacts to “suitable” listed vernal pool plant habitat. Accordingly, impacts to “suitable” listed vernal pool plant habitat would be considered significant pursuant to CEQA. This impact has been mitigated to a level considered less than significant.

15.2 Mitigation Measure BIO-1. Impacts to suitable rare plant habitat

To mitigate the loss of 0.40-acre of suitable, but not occupied endangered plant habitat, the applicant purchased 0.40-acre of wetland creation/restoration credits and 0.40-acre of vernal pool preservation credits for Sebastopol meadowfoam from the Hale Mitigation Bank (transferred from WMP LLC) (October 22, 2002), as authorized in the USFWS Biological Opinion. In addition, the applicant purchased mitigation credits from the Southwest Santa Rosa Vernal Pool Preserve Bank (equivalent to 2.4 acres of endangered plant habitat and/or 4.8 acres of CTS habitat) (June 10, 2002). The roadside ditch does not support suitable listed plant habitat; therefore, additional mitigation credits for impacts to listed plant habitat is not required.

Implementation of this mitigation measure reduced impacts to “suitable” listed vernal pool plant habitat to a level considered less than significant.
15.3 Impact BIO-2. Development of the project would have a significant adverse impact on CTS (Significant)

California tiger salamander surveys were conducted during the months of December 2001 through February 7, 2002. During surveys conducted on February 7 and 8, 2002, Dr. Fawcett observed more than 20 CTS larvae in a pool on the project site. The USFWS emergency listed CTS as endangered on July 22, 2002. The emergency listing of the CTS resulted in requirement for a CTS salvage operation that was subsequently conducted in 2004/2005 under the guidance of the USFWS and the CDFG. The USFWS issued a Biological Opinion (BO) (File No. 1-1-06-F-0054) to the Corps on February 14, 2006. As required in that BO additional CTS salvage was required over the winter and spring of 2005/2006. This second salvage effort was to be completed prior to mass grading of the project site. Under the guidance of the USFWS and the CDFG, CTS larvae were collected from the on-site breeding pool using dip-nets and funnel traps and re-located to the Todd Road Preserve.

The USFWS Biological Opinion stated that the 6.63-acre project site supported 5.49 acres of tiger salamander habitat. The 5.49 acres included breeding habitat as well as upland, foraging, and dispersal habitat. Approximately 1.14 acres of the 6.63-acre site supported a parking lot and buildings, which were not regarded as CTS habitat. Accordingly, impacts to CTS habitat would be considered significant pursuant to CEQA. This impact has been mitigated to a level considered less than significant.

15.4 Mitigation Measure BIO-2. Impacts to CTS

The USFWS’ Biological Opinion states that the 6.63-acre project site supported 5.49 acres of CTS habitat. The 5.49 acres included breeding habitat as well as upland, foraging, and dispersal habitat. Approximately 1.14 acres of the 6.63-acre site supported a parking lot and buildings, which were not regarded as CTS habitat. To mitigate the loss of 5.49 acres of CTS habitat on the project site, the applicant purchased 16.47 acres of CTS mitigation credits from the Christina Preserve to satisfy the 3:1 replacement ratio for impacts to CTS habitat, as required by the USFWS’ Biological Opinion. Having obtained all the necessary resource agency permits and having purchased all the required mitigation credits, the project site was graded in 2007, removing the previously occupied CTS habitats on the project site. The roadside ditch was included in the CTS habitat acreage, as the APN acreage was used to calculate CTS mitigation requirements. The APN extends to the pavement section of Fresno Avenue.

Currently, there are a few shallow topographic low areas on the project site that were created during the initial grading activities which have subsided in some areas. These low areas are regarded as “construction-related” features that are not subject to Corps jurisdiction, as verified by the Corps during the site verification project site visit on December 13, 2018. The Corps (Mr. Will Connor and Mr. Bert Ho) again verified that no regulated wetlands remained on the project site during a site walk with M&A (Mr. Geoff Monk and Ms. Hope Kingma), the USFWS (Mr. Vincent Griego), and CDFW (Ms. Melanie Day) on July 10, 2019. During that project site walk, Mr. Griego also agreed that the CTS impacts had been fully mitigated.

To obtain CESA Incidental Take Permit coverage for the currently proposed project, the applicant will submit the USFWS Biological Opinion to the CDFW and request a “Consistency
Determination” to obtain an CESA incidental take coverage for this project. Fish and Game Code Section 2080.1 states the requirements and procedures for a 2080.1 Consistency Determination. Section 2080.1 allows an applicant who has obtained a federal incidental take statement pursuant to a federal Section 7 consultation or a federal Section 10(a) incidental take permit to notify the Director of the CDFW in writing that the applicant has been issued an incidental take statement or an incidental take permit pursuant to the federal Endangered Species Act of 1973. The applicant must submit the federal opinion incidental take statement or permit to the CDFW Director for a determination as to whether the federal document is "consistent" with CESA. If CDFW determines that the federal opinion or permit is not consistent with CESA, then the applicant must apply for a state CESA permit under Section 2081(b).

Mitigation requirements for impacts to CTS associated with this project site were originally agreed to by Mr. Carl Wilcox and Mr. Liam Davis of the California Department of Fish and Game (CDFG). Pursuant to the USFWS’ Biological Opinion, mitigation for impacts to CTS was fully implemented at a 3:1 replacement to impacts ratio. In addition, 3:1 mitigation is currently consistent with both CDFW and USFWS policies for mitigating impacts to CTS dispersal habitat. Accordingly, no new mitigation for impacts to CTS are likely to be required by CDFW over that which already purchased for this project prior to the time it was mass graded in 2007.

_Implementation of this mitigation measure reduced impacts to CTS habitat to a level considered less than significant._

15.5 Impact BIO-3. Development of the project would have a potentially significant adverse impact on tree nesting raptors (Potentially Significant)

While unlikely, white-tailed kite, red-tailed hawk (_Buteo jamaicensis_), red shouldered hawk (_Buteo lineatus_), and possibly other raptor species could nest on the project site or within a zone of influence of the project site (within 300 feet of the project site). The zone of influence includes those areas off the project site where raptors could be disturbed by earth-moving vibrations or noise. Raptors (that is, birds of prey) are protected under the Migratory Bird Treaty Act (50 CFR 10.13) and their eggs and young are protected under California Fish and Game Codes Sections 3503, 3503.5.

Potential impacts from the proposed project include disturbance to nesting raptors, and possibly death of adults and/or young. No nesting raptors (birds of prey) have been identified on the proposed project site; however, no specific surveys for nesting raptors have been conducted. As such, in the absence of survey results, it must be concluded that impacts to nesting raptors from the proposed project would be _potentially significant pursuant to CEQA_. This impact could be mitigated to a level considered less than significant.

15.6 Mitigation Measure BIO-3. Tree Nesting Raptors

To avoid impacts to nesting raptors, a nesting surveys shall be conducted 15 days prior to commencing with construction work, if this work would commence between February 1 and August 31. The raptor nesting surveys shall include examination of the ruderal habitats on the site where ground nesting raptors could construct a nest [e.g. northern harrier (_Circus cyaneus_)]. In addition, all trees on and within 300 feet of the project site (not just trees slated for removal)
shall be surveyed for nesting raptors. A nest survey report shall be prepared upon completion of the survey and provided to the City of Santa Rosa with any recommendations required for establishment of protective buffers as necessary to protect nesting raptors (or other birds).

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 200-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer occurs on the project site. *The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance.* If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 15. This date may be earlier or later, and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1.

*Implementation of this mitigation measure would reduce impacts to nesting raptors to a level considered less than significant.*

### 15.7 Impact BIO-4. Development of the project would have a potentially significant adverse impact on common nesting birds (Potentially Significant)

Common nesting birds such as mourning dove (*Zenaida macroura*), California scrub jay (*Aphelocoma californica*), and house finch (*Haemorhous mexicanus*), among others could be impacted by the proposed project. Common birds and their active nests are protected under California Fish and Game Code (Sections 3503, 3503.5), and the federal Migratory Bird Treaty Act. Impacts to nesting birds, their eggs, and/or young caused by implementation of the proposed project would be regarded as potentially significant. These impacts could be mitigated to levels considered less than significant pursuant to CEQA.

### 15.8 Mitigation Measure BIO-4. Nesting Passerine Birds

A nesting survey should be conducted on the project site and within a zone of influence around the project site. The zone of influence includes those areas off the project site where birds could be disturbed by earth-moving vibrations or noise. Accordingly, the nesting survey(s) must cover the project site and an area around the project site boundary. If project site disturbance associated with the project would commence between March 1 and August 31, the nesting surveys should be completed 15 days prior to commencing with the work. If common birds are identified nesting on or adjacent to the project site, a non-disturbance buffer of 75 feet should be established or as otherwise prescribed by a qualified ornithologist. Modifications to the 75-foot buffer would have to, nonetheless protect the nesting birds such that nest failure does not result from project disturbance. The buffer should be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer should be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed. A nest survey
report shall be prepared upon completion of any required survey and provided to the City of Santa Rosa with any recommendations required for establishment of protective buffers as necessary to protect nesting birds.

Typically, most passerine birds in the region of the project site are expected to complete nesting by August 1. However, many species can complete nesting by the end of June or in early to mid-July. Regardless, nesting buffers should be maintained until August 31 unless a qualified ornithologist determines that young have fledged and are independent of their nests at an earlier date. If buffers are removed prior to August 31, the qualified biologist conducting the nesting surveys should prepare a report that provides details about the nesting outcome and the removal of buffers. This report should be submitted to the City of Santa Rosa prior to the time that nest protection buffers are removed if the date is before September 1.

Implementation of this mitigation measure would reduce impacts to nesting common bird species to a level considered less than significant.

15.9 Impact BIO-5. Development of the project would have a potentially significant adverse impact on protected trees ( Significant)

Currently a total of 14 trees (4 inches or greater diameter at breast height, DBH) occur on the project site, including 13 valley oaks (Quercus lobata) and one large Italian cypress (Cupressus sempervirens) (18-inch DBH). All trees are slated for removal. Impacts to protected trees resulting from the proposed project would be regarded as significant. These impacts could be mitigated to levels considered less than significant pursuant to CEQA.

15.10 Mitigation Measure BIO-5. Protected Trees

Article 4, Section 17-24.050 Permit Category II-Tree Alteration, Removal, or Relocation on Property Proposed for Development, C (1) requires two 15-gallon size trees to be replanted for every 6 inches of trunk diameter removed. Applicant will be required to obtain a permit from the City of Santa Rosa prior to removing the trees on the project site.

Implementation of this mitigation measure would reduce impacts to trees to a level considered less than significant.

15.11 Impact BIO-6. The Development Project Would Have a Significant Impact on Waters of the United States and/or State (Significant)

M&A conducted a delineation of the roadside ditch on July 26, 2018, using criteria prescribed in the Corps’ 1987 Wetland Delineation Manual (Corps 1987) and the Corps’ Regional Supplement for the Arid West Region (Corps 2008). M&A requests that the Corps verify the extent of the Corps’ jurisdiction of the roadside ditch pursuant to Section 404 of the Clean Water Act. The Preliminary Aquatic Resources Delineation Map of the roadside ditch (dated July 2018) is provided as Attachment F. The delineation map includes the offsite roadside ditch on the east side of Fresno Avenue that will be impacted by the proposed road improvements required by the City of Santa Rosa. This ditch is subject to the Corps’ jurisdiction as it has hydrologic connectivity with other tributaries that eventually flow to the Russian River, a navigable water of
the U.S. Thus, it would be regulated as “waters of the U.S.” pursuant to Section 404 of the Clean Water Act.

A condition of the Cherry Ranch development from the City of Santa Rosa is that the project incorporate road improvements, including curb and gutter along the east shoulder of Fresno Avenue (Attachment A). The total impacts to this linear wetland feature will be 2,003 square feet (0.046-acre) (754 linear feet) (Attachment F). Impacts to areas of Corps and RWQCB jurisdiction pursuant to Sections 404 and 401 of the Clean Water Act would be regarded as significant. Those impacts could be mitigated to a level considered less than significant pursuant to CEQA.

15.12 Mitigation Measure BIO-6. Impacts to Waters of the United States and/or State

On March 20, 2002, the former applicant submitted an application to the Corps for authorization to fill 0.40-acre of seasonal wetlands on the project site to construct the Cherry Ranch residential development. On May 6, 2002, the Corps issued a permit and confirmed that the project qualified for authorization under NWP 29. The applicant re-applied for a Corps permit in 2007, and the Corps re-issued a NWP 29 permit on July 13, 2007 (Corps File No. 26570N).

The RWQCB issued a 401 Water Quality Certification for the project on July 5, 2007 (WDID No. 1B02040WNSO). The Certification authorized impacts to 0.40-acre of seasonal wetlands and 0.046-acre of drainage ditch. The Certification stated that “Compensatory mitigation for the Project will be attained through the purchase of 0.40-acre of wetland credits and 0.40-acre of wetland preservation credits for the Hale Mitigation Bank. An additional 0.08-acre of wetland creation credits will be purchased from the Hazel Mitigation Bank.”

To mitigate anticipated impacts to 0.046-acre of the roadside ditch, the applicant purchased 0.05-acre of wetland creation credits from the Hazel Mitigation Preserve (October 2006), and purchased an additional 0.08-acre of wetland creation credits from the Hazel Mitigation Preserve (November 2006).

In 2018, M&A submitted a Preconstruction Notice (“permit application”) requesting that the Corps verify that the Cherry Ranch Project meets conditions for use of NWP 29 (Residential Development) as administered by the Corps pursuant to Section 404 of the Clean Water Act. The application only pertained to the impacts to the roadside ditch that would be filled to complete the required road improvements, such as curb and gutter along Fresno Avenue. The Corps issued a permit for impacts to the roadside ditch on July 18, 2019 (Corps File Number 2002 - 265700N). The applicant will also re-apply for Water Quality Certification to impact the roadside ditch for the City-required road improvements. This application cannot be processed by the RWQCB until the project is adopted by the City of Santa Rosa pursuant to the CEQA. The project shall obtain the new certification of water quality from the RWQCB prior to any project related grading/construction on the project site.

Implementation of the measures described above reduce significant impacts to waters of the U.S./State to a level considered less than significant pursuant to the CEQA. Any other conditions that are stipulated for wetland impacts by the Corps and/or RWQCB shall also be implemented by the proposed project.
16. LITERATURE CITED


CNDDDB (California Natural Diversity Data Base). 2018. RareFind 3.1. Computer printout for special-status species within a 5-mile radius of the project site. California Natural Heritage Division, California Department of Fish and Wildlife, Sacramento, CA.


Figure 1. Cherry Ranch Project Site
Regional Map
Santa Rosa, California
Figure 2. Cherry Ranch Project Site Location Map
Santa Rosa, California
Figure 4. Known Special-Status CNDDB Species Within 3 Miles of the Cherry Ranch Project Site
## Table 1
### Plant Species Observed on the Cherry Ranch Project Site

<table>
<thead>
<tr>
<th>Gymnosperms</th>
<th></th>
<th>Angiosperms - Dicots</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cupressaceae</strong></td>
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<td><strong>Anacardiaceae</strong></td>
</tr>
<tr>
<td><em>Cupressus sempervirens</em></td>
<td>Italian cypress</td>
<td><em>Toxicodendron diversilobum</em></td>
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<tr>
<td><strong>Apiaceae</strong></td>
<td></td>
<td><strong>Boraginaceae</strong></td>
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<tr>
<td><em>Conium maculatum</em></td>
<td>Poison hemlock</td>
<td><em>Plagiobothrys bracteatus</em></td>
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<tr>
<td><em>Daucus carota</em></td>
<td>Queen Anne's lace</td>
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<tr>
<td><em>Conium maculatum</em></td>
<td>Poison hemlock</td>
<td><strong>Brassicaceae</strong></td>
</tr>
<tr>
<td><em>Conium maculatum</em></td>
<td>Poison hemlock</td>
<td><em>Cardamine oligosperma</em></td>
</tr>
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<td><em>Cichorium intybus</em></td>
<td>Bull thistle</td>
<td><em>Hirschfeldia incana</em></td>
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<tr>
<td><em>Eryngium aristatum var. aristatum</em></td>
<td>California coyote-thistle</td>
<td><em>Lepidium latifolium</em></td>
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<td><em>Foeniculum vulgare</em></td>
<td>Sweet fennel</td>
<td><em>Raphanus sativus</em></td>
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<td>Mayweed</td>
<td><strong>Campanulaceae</strong></td>
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<td><em>Baccharis pilularis subsp. consanguinea</em></td>
<td>Coyote brush</td>
<td>Downingia concolor var. concolor</td>
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<td><em>Carduus pyctocephalus subsp. pyctocephalus</em></td>
<td>Italian thistle</td>
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<td><em>Cichorium intybus</em></td>
<td>Endive</td>
<td><strong>Caryophyllaceae</strong></td>
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<td>Bull thistle</td>
<td><em>Cerasium fontanum subsp. vulgar</em></td>
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<td><em>Helminthotheca echioides</em></td>
<td>Bristly ox-tongue</td>
<td><em>Spergularia rubra</em></td>
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<td><em>Hemizonia congesta subsp. lutescens</em></td>
<td>Tarweed</td>
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<td>Rough cat's-ear</td>
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<td><em>Lactuca serriola</em></td>
<td>Prickly lettuce</td>
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<tr>
<td><em>Lactuca serriola</em></td>
<td>Prickly lettuce</td>
<td></td>
</tr>
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<td>Pineapple-weed</td>
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<tr>
<td><em>Matricaria discoidea</em></td>
<td>Pineapple-weed</td>
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<tr>
<td><em>Senecio vulgaris</em></td>
<td>Common groundsel</td>
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<td><em>Sonchus oleraceus</em></td>
<td>Common sow-thistle</td>
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<tr>
<td><em>Tragopogon porrifolius</em></td>
<td>Common salsify</td>
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<tr>
<td>Xanthium strumarium</td>
<td>Cocklebur</td>
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<tr>
<td>* Indicates a non-native species</td>
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</tbody>
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**MONK & ASSOCIATES**

Page 1 of 4
### Table 1

<table>
<thead>
<tr>
<th>Plant Species Observed on the Cherry Ranch Project Site</th>
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</thead>
<tbody>
<tr>
<td><strong>Convolvulaceae</strong></td>
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<tr>
<td><em>Convolvulus arvensis</em></td>
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<tr>
<td><em>Cuscuta campestris</em></td>
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<td>Field dodder</td>
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<td>Bicolored lupine</td>
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<tr>
<td><em>Medicago polymorpha</em></td>
</tr>
<tr>
<td>California burclover</td>
</tr>
<tr>
<td><em>Trifolium cernuum</em></td>
</tr>
<tr>
<td>Nodding clover</td>
</tr>
<tr>
<td><em>Trifolium ciliolatum</em></td>
</tr>
<tr>
<td>Foothill clover</td>
</tr>
<tr>
<td><em>Trifolium dubium</em></td>
</tr>
<tr>
<td>Little hop clover</td>
</tr>
<tr>
<td><em>Trifolium fragiferum</em></td>
</tr>
<tr>
<td>Strawberry clover</td>
</tr>
<tr>
<td><em>Trifolium hirtum</em></td>
</tr>
<tr>
<td>Rose clover</td>
</tr>
<tr>
<td><em>Trifolium subterranean</em></td>
</tr>
<tr>
<td>Subterranean clover</td>
</tr>
<tr>
<td><em>Vicia benghalensis</em></td>
</tr>
<tr>
<td>Purple vetch</td>
</tr>
<tr>
<td><em>Vicia sativa</em></td>
</tr>
<tr>
<td>Common vetch</td>
</tr>
<tr>
<td><strong>Fagaceae</strong></td>
</tr>
<tr>
<td><em>Quercus lobata</em></td>
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<tr>
<td>Valley oak</td>
</tr>
<tr>
<td><strong>Geraniaceae</strong></td>
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<tr>
<td><em>Erodium botrys</em></td>
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<tr>
<td>Broad-leaf filaree</td>
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<td><em>Erodium cicutarium</em></td>
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<tr>
<td>Red-stem filaree</td>
</tr>
<tr>
<td><em>Erodium moschatum</em></td>
</tr>
<tr>
<td>White-stem filaree</td>
</tr>
<tr>
<td><em>Geranium dissectum</em></td>
</tr>
<tr>
<td>Cut-leaf geranium</td>
</tr>
<tr>
<td><strong>Lamiaceae</strong></td>
</tr>
<tr>
<td><em>Mentha pulegium</em></td>
</tr>
<tr>
<td>Pennyroyal</td>
</tr>
<tr>
<td><strong>Lythraceae</strong></td>
</tr>
<tr>
<td><em>Lythrum hyssopifolia</em></td>
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<tr>
<td>Hyssop loosestrife</td>
</tr>
<tr>
<td><strong>Malvaceae</strong></td>
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<tr>
<td><em>Malva nicaeensis</em></td>
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<tr>
<td>Bull mallow</td>
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<tr>
<td><em>Malva parviflora</em></td>
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<td>Cheeseweed</td>
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<td><strong>Myrsinaceae</strong></td>
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<tr>
<td><em>Lysimachia arvensis</em></td>
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<tr>
<td>Scarlet pimpernel</td>
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<tr>
<td><em>Lysimachia minima</em></td>
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<td>Chaffweed</td>
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<tr>
<td><strong>Oleaceae</strong></td>
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<tr>
<td><em>Fraxinus oxycarpa</em></td>
</tr>
<tr>
<td>Raywood ash</td>
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<td><strong>Onagraceae</strong></td>
</tr>
<tr>
<td><em>Epilobium campestre</em></td>
</tr>
<tr>
<td>Smooth spike-primrose</td>
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<tr>
<td><em>Taraxia ovata</em></td>
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<tr>
<td>Sun cup</td>
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<tr>
<td><strong>Orobanchaceae</strong></td>
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<tr>
<td><em>Parentucellia viscosa</em></td>
</tr>
<tr>
<td>Yellow glandweed</td>
</tr>
</tbody>
</table>

* Indicates a non-native species
Table 1
Plant Species Observed on the Cherry Ranch Project Site

<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papaveraceae</td>
<td><em>Eschscholzia californica</em></td>
<td>California poppy</td>
</tr>
<tr>
<td>Plantaginaceae</td>
<td><em>Plantago coronopus</em></td>
<td>Cut-leaf plantain</td>
</tr>
<tr>
<td></td>
<td><em>Plantago lanceolata</em></td>
<td>English plantain</td>
</tr>
<tr>
<td></td>
<td><em>Veronica peregrina subsp. xalapensis</em></td>
<td>Purslane speedwell</td>
</tr>
<tr>
<td>Polygonaceae</td>
<td><em>Rumex acetosella</em></td>
<td>Sheep sorrel</td>
</tr>
<tr>
<td></td>
<td><em>Rumex conglomeratus</em></td>
<td>Green dock</td>
</tr>
<tr>
<td></td>
<td><em>Rumex crispus</em></td>
<td>Curly dock</td>
</tr>
<tr>
<td></td>
<td><em>Rumex pulcher</em></td>
<td>Fiddle dock</td>
</tr>
<tr>
<td>Ranunculaceae</td>
<td><em>Ranunculus californicus var. californicus</em></td>
<td>California buttercup</td>
</tr>
<tr>
<td></td>
<td><em>Ranunculus muricatus</em></td>
<td>Spiny-fruit buttercup</td>
</tr>
<tr>
<td></td>
<td><em>Ranunculus pusillus</em></td>
<td>Low buttercup</td>
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<tr>
<td>Rosaceae</td>
<td><em>Pyrus calleryana</em></td>
<td>Callery pear</td>
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<td></td>
<td><em>Rubus armeniacus</em></td>
<td>Himalayan blackberry</td>
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<tr>
<td>Verbenaceae</td>
<td><em>Phyla nodiflora</em></td>
<td>Common frog-fruit</td>
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<tr>
<td>Vitaceae</td>
<td><em>Vitis vinifera</em></td>
<td>Cultivated grape</td>
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<tr>
<td>Angiosperms -Monocots</td>
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<td></td>
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<tr>
<td>Cyperaceae</td>
<td><em>Cyperus eragrostis</em></td>
<td>Tall flatsedge</td>
</tr>
<tr>
<td></td>
<td><em>Eleocharis macrostachya</em></td>
<td>Creeping spikerush</td>
</tr>
<tr>
<td>Juncaceae</td>
<td><em>Juncus bufonius</em></td>
<td>Toad rush</td>
</tr>
<tr>
<td></td>
<td><em>Juncus patens</em></td>
<td>Spreading rush</td>
</tr>
<tr>
<td></td>
<td><em>Juncus tenuis</em></td>
<td>Slender rush</td>
</tr>
<tr>
<td></td>
<td><em>Juncus xiphioides</em></td>
<td>Iris-leaved rush</td>
</tr>
<tr>
<td>Poaceae</td>
<td><em>Aira caryophyllea</em></td>
<td>Silver European hairgrass</td>
</tr>
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<td><em>Anthoxanthum odoratum</em></td>
<td>Sweet vernal grass</td>
</tr>
<tr>
<td></td>
<td><em>Avena barbata</em></td>
<td>Slender wild oat</td>
</tr>
<tr>
<td></td>
<td><em>Briza minor</em></td>
<td>Small quaking grass</td>
</tr>
<tr>
<td></td>
<td><em>Bromus diandrus</em></td>
<td>Rippgut grass</td>
</tr>
<tr>
<td></td>
<td><em>Bromus hordeaceus</em></td>
<td>Soft chess</td>
</tr>
<tr>
<td></td>
<td><em>Bromus madritensis subsp. madritensis</em></td>
<td>Foxtail chess</td>
</tr>
<tr>
<td></td>
<td><em>Elymus triticeoides</em></td>
<td>Creeping wildrye</td>
</tr>
<tr>
<td></td>
<td><em>Festuca arundinacea</em></td>
<td>Tall fescue</td>
</tr>
<tr>
<td></td>
<td><em>Festuca bromoides</em></td>
<td>Brome fescue</td>
</tr>
</tbody>
</table>

* Indicates a non-native species
# Table 1

**Plant Species Observed on the Cherry Ranch Project Site**

<table>
<thead>
<tr>
<th>Plant Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Festuca myuros</em></td>
<td>Rattail sixweeks grass</td>
</tr>
<tr>
<td><em>Festuca perennis</em></td>
<td>perennial ryegrass</td>
</tr>
<tr>
<td><em>Glyceria declinata</em></td>
<td>Low mannagrass</td>
</tr>
<tr>
<td><em>Holcus lanatus</em></td>
<td>Common velvet grass</td>
</tr>
<tr>
<td><em>Hordeum brachyantherum</em></td>
<td>Meadow barley</td>
</tr>
<tr>
<td><em>Hordeum marinum subsp. gussoneanum</em></td>
<td>Mediterranean barley</td>
</tr>
<tr>
<td><em>Hordeum murinum subsp. leporinum</em></td>
<td>Hare barley</td>
</tr>
<tr>
<td><em>Phalaris aquatica</em></td>
<td>Harding grass</td>
</tr>
<tr>
<td>Pleuropegon californicus var. californicus</td>
<td>Annual semaphore grass</td>
</tr>
<tr>
<td><em>Poa annua</em></td>
<td>Annual bluegrass</td>
</tr>
<tr>
<td>Poa secunda</td>
<td>Secund bluegrass</td>
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</tbody>
</table>

* Indicates a non-native species
<table>
<thead>
<tr>
<th>Wildlife Species Observed on the Cherry Ranch Project Site in 2018</th>
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<tbody>
<tr>
<td><strong>Amphibians</strong></td>
</tr>
<tr>
<td>Sierran treefrog</td>
</tr>
<tr>
<td><em>Pseudacris sierra</em></td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
</tr>
<tr>
<td>Western fence lizard</td>
</tr>
<tr>
<td><em>Sceloporus occidentalis</em></td>
</tr>
<tr>
<td>Common garter snake</td>
</tr>
<tr>
<td><em>Thamnophis sirtalis</em></td>
</tr>
<tr>
<td><strong>Birds</strong></td>
</tr>
<tr>
<td>Red-shouldered hawk</td>
</tr>
<tr>
<td><em>Buteo lineatus</em></td>
</tr>
<tr>
<td>Red-tailed hawk</td>
</tr>
<tr>
<td><em>Buteo jamaicensis</em></td>
</tr>
<tr>
<td>California quail</td>
</tr>
<tr>
<td><em>Callipepla californica</em></td>
</tr>
<tr>
<td>Mourning dove</td>
</tr>
<tr>
<td><em>Zenaida macroura</em></td>
</tr>
<tr>
<td>Nuttall's woodpecker</td>
</tr>
<tr>
<td><em>Picoides nuttallii</em></td>
</tr>
<tr>
<td>Black phoebe</td>
</tr>
<tr>
<td><em>Sayornis nigricans</em></td>
</tr>
<tr>
<td>American crow</td>
</tr>
<tr>
<td><em>Corvus brachyrhynchos</em></td>
</tr>
<tr>
<td>Violet-green swallow</td>
</tr>
<tr>
<td><em>Tachycineta thalassina</em></td>
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<tr>
<td>White-breasted nuthatch</td>
</tr>
<tr>
<td><em>Sitta carolinensis</em></td>
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<tr>
<td>Northern mockingbird</td>
</tr>
<tr>
<td><em>Mimus polyglottos</em></td>
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<tr>
<td>European starling</td>
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<td><em>Sturnus vulgaris</em></td>
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<td>Cedar waxwing</td>
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<tr>
<td><em>Bombycilla cedrorum</em></td>
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<td>California towhee</td>
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<tr>
<td><em>Pipilo crissalis</em></td>
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<tr>
<td>White-crowned sparrow</td>
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<tr>
<td><em>Zonotrichia leucophrys</em></td>
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<tr>
<td>Bullock's oriole</td>
</tr>
<tr>
<td><em>Icterus bullockii</em></td>
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<tr>
<td>House finch</td>
</tr>
<tr>
<td><em>Haemorhous mexicanus</em></td>
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<tr>
<td>Lesser goldfinch</td>
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<tr>
<td><em>Spinus psaltria</em></td>
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<tr>
<td>House sparrow</td>
</tr>
<tr>
<td><em>Passer domesticus</em></td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
</tr>
<tr>
<td>Botta's pocket gopher</td>
</tr>
<tr>
<td><em>Thomomys bottae</em></td>
</tr>
</tbody>
</table>
### Table 3

**Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site**

<table>
<thead>
<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
<th>Status*</th>
<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoxaceae</td>
<td><strong>Viburnum ellipticum</strong></td>
<td>Western viburnum</td>
<td>Fed:</td>
<td>May-July</td>
<td>Chaparral; cismontane woodland; lower montane coniferous forest.</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
</tr>
<tr>
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<tr>
<td>Asteraceae</td>
<td><strong>Blennosperma bakeri</strong></td>
<td>Sonoma sunshine</td>
<td>Fed:</td>
<td>February-April</td>
<td>Valley and foothill grassland (mesic); vernal pools.</td>
<td>The closest record for this species is located approximately 1.3 miles northwest of the property (Occurrence No. 37).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td></td>
<td><strong>Hemizonia congesta congesta</strong></td>
<td>White seaside tarplant</td>
<td>Fed:</td>
<td>April-November</td>
<td>Valley and foothill grassland. 20 to 560 meters.</td>
<td>The closest record for this species is located approximately 0.9 miles northwest of the property (Occurrence No. 27).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td></td>
<td><strong>Lasthenia burkei</strong></td>
<td>Burke's goldfields</td>
<td>Fed:</td>
<td>April-June</td>
<td>Meadows and seeps (mesic); vernal pools.</td>
<td>The closest record for this species is located approximately 1.0 miles northwest of the property (Occurrence No. 28).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td></td>
<td><strong>Microseris paludosa</strong></td>
<td>Marsh microseris</td>
<td>Fed:</td>
<td>April-July</td>
<td>Closed-cone coniferous forest; cismontane woodland; coastal scrub; valley and foothill grassland. 5-300 m.</td>
<td>The closest record for this species is located approximately 2.6 miles south of the property (Occurrence No. 20).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td>Rank 1B.2</td>
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<table>
<thead>
<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
<th>Status*</th>
<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boraginaceae</td>
<td>Bent-flowered fiddleneck</td>
<td>Amsinckia lunaris</td>
<td>Fed:</td>
<td>March-June</td>
<td>Cismontane woodland, valley and foothill grassland, coastal bluff scrub.</td>
<td>The closest record for this species is located approximately 2.5 miles northeast of the property (Occurrence No. 67).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td>CNPS:</td>
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</tr>
<tr>
<td></td>
<td>Campanulaceae</td>
<td>Swamp bellflower</td>
<td>Fed:</td>
<td>June-September</td>
<td>Bogs &amp; fens; closed-cone coniferous forest; coastal prairie; meadows; marshes &amp; swamps (freswater); north coast coniferous forest.</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
</tr>
<tr>
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<td></td>
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<td>CNPS:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dwarf downingia</td>
<td>Downingia pusilla</td>
<td>Fed:</td>
<td>March-May</td>
<td>Valley and foothill grassland (mesic); vernal pools.</td>
<td>The closest record for this species is located approximately 1.9 miles south of the property (Occurrence No. 86).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td>Legenere limosa</td>
<td>Legenere</td>
<td>Fed:</td>
<td>April-June</td>
<td>Vernal pools.</td>
<td>The closest record for this species is located approximately 1.5 miles south of the property (Occurrence No. 39).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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Table 3
Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site

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<thead>
<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
<th>Status*</th>
<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
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<td></td>
<td>Rhynchospora californica</td>
<td>California beaked-rush</td>
<td>Fed: -</td>
<td>May-July</td>
<td>Lower montane coniferous forest; meadows (seeps); marshes and swamps</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td>Ericaceae</td>
<td>Arctostaphylos densiflora</td>
<td>Vine Hill manzanita</td>
<td>Fed: -</td>
<td>February-March</td>
<td>Chaparral (acid marine sand).</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. No chaparral on the project site. No species of Arctostaphylos observed. No impacts to this species anticipated.</td>
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<tr>
<td></td>
<td>Arctostaphylos stanfordiana decumbens</td>
<td>Rincon manzanita</td>
<td>Fed: -</td>
<td>February-April</td>
<td>Chaparral (ryolitic).</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. No chaparral on the project site. No species of Arctostaphylos observed. No impacts to this species anticipated.</td>
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## Table 3
Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site

<table>
<thead>
<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
<th>Status*</th>
<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
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<tbody>
<tr>
<td>Fabaceae</td>
<td><strong>Trifolium amoenum</strong></td>
<td>Showy Indian clover</td>
<td>Fed: FE</td>
<td>April-June</td>
<td>Valley and foothill grassland (sometimes serpentine)</td>
<td>The closest record for this species is located approximately 0.8 miles west of the property (Occurrence No. 20).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td></td>
<td><strong>Trifolium buckwestiorum</strong></td>
<td>Santa Cruz clover</td>
<td>Fed: -</td>
<td>May-July</td>
<td>Broadleaf upland forest; coastal prairie; [margins].</td>
<td>The closest record for this species is located approximately 2.4 miles northeast of the property (Occurrence No. 35).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td></td>
<td><strong>Trifolium hydrophilum</strong></td>
<td>Saline clover</td>
<td>Fed: -</td>
<td>April-June</td>
<td>Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools. 0-300 m.</td>
<td>The closest record for this species is located approximately 0.8 miles west of the property (Occurrence No. 16).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td>Liliaceae</td>
<td><strong>Fritillaria liliacea</strong></td>
<td>Fragrant fritillary</td>
<td>Fed: -</td>
<td>February-April</td>
<td>Coastal prairie; coastal scrub; valley and foothill grassland; [often serpentine].</td>
<td>The closest record for this species is located approximately 2.7 miles south of the property (Occurrence No. 49).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td><strong>Lilium pardalinum pitkinense</strong></td>
<td>Pitkin Marsh lily</td>
<td>Fed: FE</td>
<td>June-July</td>
<td>Cismontane woodland (mesic); meadows and seeps; marshes and swamps (freshwater).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td>Limnanthaceae</td>
<td><strong>Limnanthes vinculans</strong></td>
<td>Sebastopol meadowfoam</td>
<td>Fed: FE</td>
<td>April-May</td>
<td>Meadows (mesic); vernal pools.</td>
<td>The closest record for this species is located approximately 0.3 miles north of the property (Occurrence No. 31).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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Page 4 of 7
### Table 3
**Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site**

<table>
<thead>
<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
<th>Status*</th>
<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
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<tr>
<td><strong>Poaceae</strong></td>
<td><strong>Alopecurus aequalis sonomensis</strong></td>
<td>Sonoma alopecurus</td>
<td>Fed: FE</td>
<td>May-July</td>
<td>Marshes &amp; swamps (freshwater); riparian scrub.</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td></td>
<td><strong>Calamagrostis crassiglumis</strong></td>
<td>Thurber's reed grass</td>
<td>Fed: -</td>
<td>June-July</td>
<td>Coastal scrub (mesic); marshes and swamps (freshwater).</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<tr>
<td><strong>Polemoniaceae</strong></td>
<td><strong>Leptosiphon jepsonii</strong></td>
<td>Jepson's leptosiphon</td>
<td>Fed: -</td>
<td>March-May</td>
<td>Chaparral; cismontane woodland (usually volcanic).</td>
<td>The closest record for this species is located approximately 2.4 miles northeast of the property (Occurrence No. 3).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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## Table 3

### Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site

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<tr>
<th>Family</th>
<th>Taxon</th>
<th>Common Name</th>
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<th>Flowering Period</th>
<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
</tr>
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<tbody>
<tr>
<td></td>
<td><strong>Navarretia leucocephala bakeri</strong></td>
<td>Baker's navarretia</td>
<td>Fed: FE</td>
<td>May-June</td>
<td>Cismontane woodland; lower montane coniferous forest; meadows (mesic); valley and foothill grassland; vernal pools.</td>
<td>The closest record for this species is located approximately 0.6 miles west of the property (Occurrence No. 32).</td>
<td>None. Not observed during appropriately timed surveys in 2001, 2002 and 2018. No impacts to this species anticipated.</td>
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<td><strong>Ceanothus confusus</strong></td>
<td>Rincon Ridge ceanothus</td>
<td>Fed: -</td>
<td>February-April</td>
<td>Closed-cone coniferous forest; chaparral; cismontane woodland; [volcanic or serpentinite].</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. No forest, chaparral or woodland habitat and no serpentinite soils. No species of Ceanothus observed. No impacts to this species anticipated.</td>
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### Table 3

**Special-Status Plant Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site**

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<tr>
<th>Family</th>
<th>Taxon</th>
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<th>Habitat</th>
<th>Area Locations</th>
<th>Probability on Project Site</th>
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<tbody>
<tr>
<td>Rosaceae</td>
<td><strong>Horkelia tenuiloba</strong></td>
<td>Thin-lobed horkelia</td>
<td>Fed:</td>
<td>-</td>
<td>Chaparral (mesic openings).</td>
<td>On CNPS 1 Quad Search.</td>
<td>None. Not observed during</td>
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*Status

**Federal:**
- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate

**State:**
- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CC - California Candidate
- CSC - California Species of Special Concern

**CNPS:**
- Rank 1A - Presumed extinct in California
- Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
  - Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/ high degree and immediacy of threat)
  - Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
  - Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no current threats known)
- Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
  - Rank 2A - Extirpated in California, common elsewhere
  - Rank 2B.1 - Seriously endangered in California, but more common elsewhere
  - Rank 2B.2 - Fairly endangered in California, but more common elsewhere
  - Rank 2B.3 - Not very endangered in California, but more common elsewhere
- Rank 3 - Plants about which we need more information (Review List)
  - Rank 3.1 - Plants about which we need more information (Review List)
  - Rank 3.2 - Plants about which we need more information (Review List)
- Rank 4 - Plants of limited distribution - a watch list

**CNPS Continued:**
- Rank 2B.3 - Not very endangered in California, but more common elsewhere
- Rank 3.1 - Plants about which we need more information (Review List)
  - Seriously endangered in California
- Rank 3.2 - Plants about which we need more information (Review List)
  - Fairly endangered in California
- Rank 4 - Plants of limited distribution - a watch list
Table 4
Special-Status Wildlife Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site

<table>
<thead>
<tr>
<th>Species</th>
<th>*Status</th>
<th>Habitat</th>
<th>Closest Locations</th>
<th>Probability on Project Site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California tiger salamander</td>
<td>Fed: FT</td>
<td>Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.</td>
<td>The closest record for this species is located approximately 0.1 miles east of the property (Occurrence No. 237).</td>
<td>During the survey conducted on February 7, 2002, Dr. Fawcett and Bradley Welch observed California tiger salamander larvae in a pool on the project site. (see text)</td>
</tr>
<tr>
<td><em>Ambystoma californiense</em></td>
<td>State: CT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western pond turtle **</td>
<td>Fed: -</td>
<td>Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.</td>
<td>The closest record for this species is located approximately 1.2 miles northwest of the property (Occurrence No. 680).</td>
<td>None. No suitable habitat onsite or adjacent to the project site.</td>
</tr>
<tr>
<td><em>Actinemys marmorata marmorata</em></td>
<td>State: CSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-tailed kite</td>
<td>Fed:</td>
<td>Found in lower foothills and valley margins with scattered oaks and along river bottomlands or marshes adjacent to oak woodlands. Nests in trees with dense tops.</td>
<td>The closest record for this species is located approximately 2.1 miles east of the property (Occurrence No. 77).</td>
<td>Low. Trees onsite could provide suitable nesting habitat. Preconstruction surveys will be conducted. See text</td>
</tr>
<tr>
<td><em>Elanus leucurus</em></td>
<td>State: FP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tricolored blackbird</td>
<td>Fed: -</td>
<td>Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.</td>
<td>The closest record for this species is located approximately 2.9 miles southwest of the property (Occurrence No. 831).</td>
<td>None. No suitable nesting habitat onsite.</td>
</tr>
<tr>
<td><em>Agelaius tricolor</em></td>
<td>State: CC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other: CSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>*Status</td>
<td>Habitat</td>
<td>Closest Locations</td>
<td>Probability on Project Site</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>American badger</td>
<td>Fed:</td>
<td>Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils &amp; open, uncultivated ground. Prey on burrowing rodents. Dig burrows.</td>
<td>The closest record for this species is located approximately 1.1 miles northwest of the property (Occurrence No. 28).</td>
<td>None. No suitable habitat onsite. Site is surrounded by a chain link fence.</td>
</tr>
<tr>
<td>Taxidea taxus</td>
<td>State: CSC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other:</td>
<td></td>
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</tbody>
</table>

**Table 4**

Special-Status Wildlife Species Known to Occur Within 3 Miles of the Cherry Ranch Project Site

***Status**

Federal:
- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate
- FPD - Federally Proposed for delisting

State:
- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CSC - California Species of Special Concern
- FP - Fully Protected
- WL - Watch List. Not protected pursuant to CEQA

**The USFWS hopes to finish a 12-month finding for western pond turtle in 2021 but until formally listed, it is not afforded the protections of FESA.**
Ms. Jane Hicks
Chief, Regulatory Branch
San Francisco District
U.S. Army Corps of Engineers
333 Market Street
San Francisco, California 94105-2197

Subject: Formal Endangered Species Consultation for the Proposed Cherry Ranch Development in Santa Rosa, Sonoma County, California (Corps' File No. 26570N)

Dear Ms. Hicks:

This is in response to your December 20, 2002 request for formal consultation with the U.S. Fish and Wildlife Service (Service) for the proposed Cherry Ranch Development (Project) in Santa Rosa, Sonoma County, California. On January 24, 2003, the Service suspended this request for formal consultation because the Biological Assessment prepared by Golden Bear Biostudies that was a part of the U.S. Army Corps of Engineers (Corps) original request for consultation did not contain all necessary information for the Service to complete the Section 7 consultation. The Service has since received complete information regarding the proposed project and your October 25, 2005 request to initiate formal consultation. This document represents the Service's biological opinion on the effects of the action on the endangered Sonoma County Distinct Population Segment of the California tiger salamander (*Ambystoma californiense*) (tiger salamander) endangered Burke's goldfield (*Lasthenia burkeri*), endangered Sonoma sunshine (*Blemnosperma bakeri*) and endangered Sebastopol meadowfoam (*Limnanthes vinculans*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

This biological opinion is based on information provided by the following facts, communications and documents:

1. The December 20, 2002 letter from the Corps requesting formal consultation;
2. The February 12, 2002 Biological Assessment for the Cherry Ranch Development Project prepared by Golden Bear Biostudies;

3. The January 24, 2003 letter from the Service to the Corps stating that the Biological Assessment did not contain all information necessary for the Service to complete Section 7 consultation;


5. *Management Plan, Christina Preserve, Santa Rosa, California. Established for the Cherry Ranch Development Project.* Dated January 14, 2005. Prepared for Christina Preserve LLC by Golden Bear Biostudies. Includes Figure 5 which is an oversize Topography Map and Proposed Lot-Line Subdivision of Hale Trust Lands (APN 134-051-026) to accommodate establishment of the 35.20 Christina Preserve and 6.1 acre Hale Trust (retained property).

6. The October 25, 2005, e-mail from David Wickens of the Corps initiating formal consultation for the Project.

7. Meetings between the Service, the applicant (i.e., Harvey Rich, Managing Member of the Cherry Ranch LLC and its representatives (see following Consultation History);

8. Field investigations by David Wooten and Vincent Griego of my staff, and me;

9. References cited in this Biological Opinion;

10. Other information available to the Service.

The amended biological assessment submittal assembled by Monk & Associates on December 24, 2004 containing the following stand-alone documents:


CONSULTATION HISTORY

June 13, 2002. California tiger salamander survey report prepared by Dr. Fawcett was submitted to Service.

November 22, 2002. Biological Assessment submitted on behalf of the applicant by Golden Bear Biostudies to the Service and U.S. Army Corps of Engineers (Corps).

December 20, 2002. The Corps requested formal consultation pursuant to Section 7 of the FESA.


January 24, 2003. Service responded to the Corps’ request for Formal Section 7 consultation pursuant to the Federal Endangered Species Act. Service response stated Biological Assessment does not contain all information necessary to complete a formal Section 7 consultation.

January 30, 2003. Service (Mr. Wooten) visited Cherry Ranch Development project site with applicant.

February 1, 2003. Mr. Waaland submitted assessment to Service stating how California tiger salamander impacts were calculated.

February 24, 2003. On behalf of applicant, Mr. Waaland submitted additional information to Jan Knight.


April 22, 2004. Meeting between Service staff Ms. Goude, Dan Buford, and Mr. Griego, Scott Wilson of California Department of Fish and Game, and applicant to discuss suitable compensation for effects to California tiger salamander from development of the Cherry Ranch Development.

July 21, 2004. Conference call between Ms. Goude, Mr. Griego, and Mr. Buford, Liam Davis of the California Department of Fish and Game, and the applicant to discuss project effects and proposed compensation.

July 16, 2003. The Service sent an e-mail to the Corps stating the request for initiation of formal consultation did not meet the requirements of 50 CFR § 402.
August 6, 2004. Meeting with Wayne White, Ms. Goude, Larry Stromberg and applicant to discuss suitable compensation for effects to California tiger salamander from development at Cherry Ranch Development.

September 9, 2004. Meeting between Ms. Goude and Mr. Buford, and the applicant to discuss the project effects and proposed California tiger salamander compensation.

September 20, 2004. Applicant submitted conceptual compensation plan to Service for the proposed Cherry Ranch Development using the Margaret Preserve (Rafter Property) and the Christina Preserve (Hale Property).

September 22, 2004. Email from Dr. Fawcett to Ms. Goude regarding clarification on approval for California tiger salamander salvage on the Cherry Ranch Development project site.

September 28, 2004. Email from applicant to Ms. Goude that stated his intent to prepare a California tiger salamander salvage plan for the Cherry Ranch Development.

October 6, 2004. Mr. Waaland submitted a preconstruction survey plan to the Service.

October 7, 2004. Mr. Waaland submitted California tiger salamander Preconstruction (salvage) Plan for the Cherry Ranch Development. Emails from Dr. Fawcett to Ms. Goude and Ms. Goude’s response. Emails were regarding salvage plan details (timing).

October 15, 2004. The Service approved the California tiger salamander salvage plan via a telephone call with the applicant.

October 18, 2004. Email from Dr. Fawcett to Ms. Goude and Mr. Griego regarding incidental take limitations of the salvage plan and email response from Ms. Goude.

October 19, 2004. Email from Ms. Goude to Dr. Fawcett regarding a clarification on the salvage plan. Also, email reply (response) from Dr. Fawcett.

October 20, 2004. The Service authorized translocation of California tiger salamander adults to the Todd Road Preserve via an email to applicant.


December 8, 2004. Dr. Larry Stromberg, Mr. Rich and Dick Kirchner met with Ms. Goude to discuss the use of the Christina Preserve for Cherry Ranch.
Ms. Jane M. Hicks

October 25, 2005. Mr. Wickens of Corps staff requested initiation of formal consultation for the Project.

BIOLOGICAL OPINION

Description of Proposed Action

The proposed Cherry Ranch Development project (Project) site is 6.63 acres located at 930 Fresno Avenue in the southwest part of the City of Santa Rosa, Sonoma County, California (Assessor Parcel No. 035-101-004). The Project site is bounded on the west by Fresno Avenue, by commercial development and undeveloped land on the north, undeveloped land and the northern end of the north runway of the abandoned Santa Rosa Air Center on the east, and on the south by the north runway taxi way and undeveloped land. The north runway of the old Santa Rosa Air Center is immediately east of the Project site. The land on the west side of Fresno Avenue opposite the Project site consists of residential and rural residential housing. The Project consists of 39 single-family residential units. A “loop” street off of Fresno Avenue will provide access to 33 of the lots in the southern portion of the development. Access to the remaining six lots at the north end of the development will be from a stub street also off of Fresno Avenue that will terminate as a cul-de-sac.

Project Schedule and Phasing. Grading of the project site is expected to begin in 2007. The Project will be built and sold in phases based on market demand, which is expected to result in the Project being fully constructed within a two- to four-year time period. Model homes and the first phases of production homes will be constructed in 2006. Home construction will continue through 2008. The Project site improvements and infrastructure will be constructed in multiple phases although most major infrastructure, including storm water facilities and interior roads, will be installed during the first year of construction.

Storm Water Pollution Prevention. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to prevent project construction impacts on habitat and waters draining outside the work areas. Erosion control will be accomplished using conventional techniques suitable for local conditions (soil type, slope, etc.). Applicable protection measures, such as barrier and/or silt fencing and regular on-site monitoring, will be used to protect against inadvertent impacts to areas outside the Project impact area during construction.

The applicant will also prepare a Storm Water Quality Management Plan to treat post-construction storm water runoff according to the standards promulgated by the Regional Water Quality Control Board (RWQCB) and implemented through the City of Santa Rosa. Under this plan, a designated portion of the runoff generated by rainfall will be subject to treatment by an approved method, such as bioswales, detention basin, etc., prior to being released to the City’s storm water system. Nuisance flows generated during the non-rainy season due to runoff from residential landscaping activities, watering of park lawns, etc, will also be subject to treatment prior to being released to the City’s storm water system.
Ms. Jane M. Hicks

Proposed Conservation Measures. To compensate for adverse effects to 5.49 acres of tiger salamander breeding, upland, dispersal and foraging habitat, and seasonal wetlands that support potential habitat for the federally listed plant species, the applicant will preserve 16.47 acres of tiger salamander breeding, upland, dispersal and foraging habitat at the Christina Preserve (Preserve). The Preserve supports 35.20 acres of tiger salamander habitat and will be transferred in fee title to the CDFG prior to groundbreaking for the Cherry Ranch Project. The remaining 18.73 acres (i.e. 35.2 minus 16.47 acres) of the Preserve may be used as compensation for another project adversely affecting tiger salamander habitat. The applicant has purchased 0.4-acre of wetland creation/restoration credits and 0.4-acre of vernal pool preservation credits for Sebastopol meadowfoam from the Hale Mitigation Bank (Ilan Silberstein Mitigation Bank). It is recognized that the Sebastopol meadowfoam preservation credits purchased from the Hale Mitigation Bank likely will be considered valid by the Service if the Service approves the Hale Mitigation Bank which is anticipated in February of 2006.

The Preserve is located at 1391 Todd Road in Santa Rosa (APN 134-051-026). It is adjacent to and west of the existing Engel Bank and adjacent to and east of the existing Hale Mitigation Bank. The proposed Preserve supports a mosaic of habitats, including vernal pools, seasonal wetlands and tiger salamander breeding and upland habitat. Once established, the Preserve will be managed according the Management Plan, Christina Preserve, Santa Rosa, California. Established for the Cherry Ranch Development Project, November 14, 2005 (Management Plan).

Summary of Christina Preserve and its Management

The Preserve is located on a portion of a 41.3-acre parcel belonging to the Water Hale and Helen A. Hale Revocable Trust. CDFG has agreed to prepare all necessary documents on behalf of the Christina Preserve LLC to conduct a lot-line subdivision of the 41.3 acre Walter Hale and Helen A. Hale Revocable Trust parcel into a 6.1-acre parcel and a 35.20-acre parcel. At the close of escrow for purchase of the 35.20-acre Preserve by Christina Preserve LLC, the 35.20 acre parcel will be transferred in fee title to CDFG. The applicant will provide documentation of the completed transaction to the Service within 30 days of the completed transaction.

Short-term Maintenance and Contingency Funds. The applicant will undertake and have responsibility for short-term maintenance and management of the 16.47 acres of the Preserve being used as mitigation for impacts to tiger salamander, endangered plants, and wetlands resulting from the Project during the initial five-year monitoring period according to the provisions of the Management Plan. The applicant will provide an endowment, bond or other acceptable security as a contingency security to CDFG. The amount of the contingency security shall cover the expected management and maintenance costs during the five-year interim management period. The amount will need to be agreed upon with the CDFG prior to groundbreaking.

Enhancement. Enhancement efforts will be accomplished within 4 months of acquisition of Christina Preserve by CDFG. The footprint of disturbance includes approximately 0.35 acres. All structures and foundations, plumbing, and associated improvements within the preserve
boundary will be demolished and hauled to the Davis recycling facility about 1,000 feet to the
east of the Christina Preserve. All disturbed ground will be re-contoured as closely as possible to
the previously existing terrain, as indicated by historic aerial photo research. Orange
construction fence will be constructed approximately 10 feet from the disturbance footprint to
ensure motorized vehicles will not unnecessarily stray into adjacent habitat. Work will be done
during daylight hours, on clear days, and at least two days following any rainfall event. Debris
piles will be removed carefully under the direction of the on-site biologist (i.e. biologist listed on
Dr. Michael Fawcett’s Section 10 (a) (1) (A) permit). The biologist will check the debris in
contact with the ground for possible tiger salamanders prior to removal of the debris. To the
extent possible, debris will be moved by hand. In the event that tiger salamanders are
encountered during the work, the on-site biologist will capture and relocate the animal at least
500 feet to the north on the Christina Preserve and release it into a gopher burrow. The biologist
will notify the Service and CDFG of any such encounter and relocation action within 48 hours.

Long-term Management. The Preserve will be managed in accordance with the Management
Plan, as approved by the Service and CDFG. Management will be adaptive, established initially
and modified as necessary based on the results of the monitoring program to maintain the
wetlands and upland habitat for the listed species on the Preserve. Livestock grazing will be used
as a management tool to reduce wildfire fuel loads, and maintain and improve grassland habitat
species diversity. Grazing will be conducted in a manner to achieve the goals established by the
Service and CDFG.

Financial Assurances. Prior to groundbreaking for construction of the Project, the applicant will
provide an irrevocable letter of credit to cover the cost the short-term monitoring and
maintenance program. The amount of the funding for short-term monitoring and maintenance
and longer-term monitoring and perpetual management and maintenance of the Preserve must be
approved and accepted by the Service and CDFG. Prior to groundbreaking for the construction
of the Project, the applicant will provide the Service and the Corps documentation that: (1) funds
for the perpetual management of the Preserve have been transferred to the CDFG (2) the CDFG
has accepted the funds and considers them adequate; and (3) that these funds have been deposited
in an account (i.e. endowment) that will provide adequate financing for the monitoring and
perpetual management and maintenance of the Preserve.

Monitoring Program

The proposed monitoring program include the following elements:

1. Monitor presence of tiger salamanders by conducting larval surveys every other year. All
potential or known breeding ponds will be sampled at an appropriate time, generally
between March 1 and April 20. Conduct tiger salamander larval surveys using standard
dip-netting procedures consistent with standard CDFG and Service protocols. Assess
presence and abundance by total larvae netted, recognizing this provides only a general
abundance level for considering trends. Visually observe the site for changes to tiger
salamander habitat, such as burrow abundance, vegetation height and composition, and
pond depth and duration. Record any observed changes. Approximate the abundance of aestivation sites every other year by counting gopher mounds, gopher holes, and other potential aestivation sites.

2. Monitor status of Sebastopol meadowfoam every two years by conducting population assessment surveys. The annual survey dates will be selected during the appropriate blooming period and will generally occur from late March through April depending on the timing of the blooming period each year. Pools with Sebastopol meadowfoam will be mapped and numbered with the aid of a GPS unit to allow repeatable data collection over subsequent survey years. Abundance will be assessed semi-quantitatively using broad abundance categories, i.e., 1 - 50, 51 - 100, 101 - 500, 501 - 1,000, >1,000, >5,000 plants. Visually observe pools for changes to Sebastopol meadowfoam habitat, such as changed hydrology or vegetation composition.

3. Monitor general wetland status by recording any major changes in hydrology, such as decreased or increased ponding, or changes in water input or output on the site and recording vegetation composition by species. Descriptively compare vegetation composition to prior years’ composition.

Annual monitoring of the Preserve to identify and map areas where invasive species have become established and development treatment protocols to eliminate invasive species, especially in areas where the invasive species would have adverse impacts on habitat for Sebastopol meadowfoam and tiger salamander.

Actions Taken to Minimize Impacts to California Tiger Salamander from the Construction of the Cherry Ranch Development

The following minimization measures will be implemented for the proposed project. They are divided into three categories: protective measures instituted before or during the construction phase that will serve to avoid and minimize effects; avoidance and minimization protocols conducted before any ground disturbance begins to avoid or minimize take; and conservation of habitat.

Protective Measures

1. A duly trained monitor will be present at all times when work is in progress at the project site and compensation site to supervise the on-site compliance of these protection measures. A Service-approved biologist will be responsible for appropriate training of the monitor.

2. A training session will be given by the biologist to all construction workers before work is started on the project. After initial training, all new personnel will be given the training as well. The training session will provide pictures of the tiger salamander, information on their biology, measures required to protect these species, relevant Federal and state regulations, penalties to harming or harassing the tiger salamander, and what to
do if tiger salamanders are found.

3. If a tiger salamander is observed within the project site by a worker, the worker will immediately inform the monitor. The monitor will notify the biologist immediately. All work will halt and machinery turned off within 100 feet of the animal until a biologist can capture and remove the tiger salamander from the work area. Service-approved biologists are the only personnel allowed to handle tiger salamander. Tiger salamanders found in the work area will be relocated to pre-approved areas no more than one hour after capture.

4. The monitor and the biologist have the authority to halt work activities at any time to prevent harming special status species or when any of these protective measures have been violated. Work will only commence when authorized by the monitor or biologists.

5. Before the start of work each morning, the monitor will check for animals under any equipment such as vehicles and stored pipes.

6. Before the start of work each morning, the monitor will check all excavated steep-walled holes or trenches greater than one foot deep for any wildlife. Wildlife will be removed; the biologist will be notified if tiger salamanders are found.

7. A record of all tiger salamanders observed and the outcome of that observation will be kept by the biologist and submitted to the Service.

8. Access routes and number and size of staging and work areas will be limited to the minimum necessary to achieve the project goals. Routes and boundaries of the road work will be clearly marked. Off-road driving will be limited to only what is necessary for the project.

9. All foods and food-related trash items, such as lunch bags, plastic sandwich bags, fast food containers, foods of any type, candy wrappers, chip packages, drink bottles and cans, etc., will be enclosed in sealed trash containers and removed completely from the site once every three days. Food items could attract predators into the work area.

10. No pets are allowed anywhere in the project site during construction.

11. A speed limit of 15 mph on dirt roads will be maintained.

12. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents.

13. Hazardous materials such as fuels, oils, solvents, etc., will be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 200 feet from any aquatic habitat.

14. A pollution prevention plan and the identification of best management practices to control storm water discharge, erosion, and sedimentation will be developed and implemented.
15. All grading and clearing will be conducted between April 15 and October 15 of any given year.

16. Project areas outside of the footprint of the development that have been disturbed by construction activities will be re-vegetated with native plants.

Avoidance and Minimization Protocols.

At the Project site, the applicant will use a fence-and-bucket system to actively relocate tiger salamanders from the work area. The fence-and-bucket system will prevent migrating adults and juveniles from remaining within the work areas and allow those that have aestivated within these areas to disperse toward the breeding ponds. The following are the main elements of the Avoidance and Minimization Protocols:

1. **Active Relocation.** The applicant installed a fence-and-bucket tiger salamander system in the fall of 2004 prior to initiating ground disturbance at the Cherry Ranch project site. This system has resulted in the capture and relocation of tiger salamanders as guided by the Service. Tiger salamanders will continue to be removed from the development site throughout the fall/winter of 2005-06. The fence-and-bucket system was designed to capture tiger salamanders that are within the development footprint and provide the migrating tiger salamander the opportunity to disperse toward other breeding ponds within the Santa Rosa Air Center Lands. Tiger salamanders that are trying to migrate to the breeding ponds within the Project site will be prevented from entering the on-site the breeding pond, captured and translocated to the CDFG Todd Road Preserve.

2. **Larval Translocation from Development Site.** Tiger salamander larvae will be collected from the on-site breeding pond using dip-nets and funnel traps and re-located to a suitable Service-approved breeding pond(s).

Action Area

The Action Area is defined by the Code of Federal Regulations as “all areas to be affected directly or indirectly by the Federal Action, and not merely the immediate area involved in the action.” (50 CFR 402.02). The action area for the proposed Project includes the 6.63-acre project site and the 35.20 acre Christina Preserve compensation site.

Status of the Species

Tiger Salamander

The Sonoma County Distinct Population Segment of the California tiger salamander was emergency listed as endangered on July 22, 2002 (67 FR 47726). The salamander was listed as endangered on March 19, 2003 (68 FR 13497). The California tiger salamander was listed as threatened on August 4, 2004 (69 FR 47212). This latter listing changed the status of the Santa Barbara and Sonoma county populations from endangered to threatened. On August 10, 2004,
the Service proposed 47 critical habitat units in 20 counties. No critical habitat was proposed for Sonoma County. On October 13, 2004, a complaint was filed in the U.S. District Court for the Northern District of California (Center for Biological Diversity and Environmental Defense Council v. U.S. Fish and Wildlife Service et al.). On February 3, 2005, the District Court required the Service to submit for publication in the Federal Register, a final determination on the proposed critical habitat designation on or before December 1, 2005. On August 2, 2005, the Service noticed in the Federal Register a proposed critical habitat designation (70 FR 44301). On August 19, 2005, a court order was filed on the above complaint, which upheld the section 4(d) rule exempting grazing from Section 9 prohibitions, but vacated the downlisting of the Santa Barbara and Sonoma populations and reinstated their endangered distinct population segment status. On December 14, 2005, (70 FR 74138), we made a final determination to designate and exclude approximately 17,418 acres (7,049 hectares) of critical habitat for the Sonoma population. All of critical habitat was excluded based on interim conservation strategies and measures being implemented by those local governing agencies with land use authority over the area and also as a result of economic exclusions authorized under section 4(b)(2) of the Act. Therefore, no critical habitat was designated for the Sonoma County Distinct Population Segment of the California tiger salamander in Sonoma County, California.

Historically, the tiger salamander inhabited low elevation grassland and oak savanna plant communities of the Central Valley, and adjacent foothills, and the inner coast ranges in California (Jennings and Hayes 1994; Storer 1925; Shaffer et al. 1993). The species has been recorded from near sea level to approximately 3,900 feet (1188.7 meters) in the Coast Ranges and to approximately 1,600 feet (487.7 meters) in the Sierra Nevada foothills (Shaffer et al. 2004). Along the coast ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

The Sonoma County Distinct Population Segment of the California tiger salamander is discrete in relation to the remainder of the species. The population is geographically isolated and separate from other California tiger salamanders. The Sonoma County population is widely separated geographically from the closest populations, which are located in Contra Costa, Yolo, and Solano counties. These populations are separated from the Sonoma County population by the Coast Range, Napa River, and the Carquinez Straits, at a minimum distance of approximately 45 miles (72 kilometers). There are no known records of the California tiger salamander in the intervening areas (D. Warenycia, California Department of Fish and Game, personal communication with the Service, 2002). We have no evidence of natural interchange of individuals between the Sonoma County population and other California tiger salamander populations.

Sonoma County Distinct Population Segment of the California tiger salamander inhabits low-elevation (below 300 feet [91 meters]) vernal pools and seasonal ponds, associated grassland, and oak savannah plant communities. The historic range of the Sonoma County population also
may have included the Petaluma River watershed, as there is one historic record of a specimen from the vicinity of Petaluma from the mid-1800s (Borland 1856, as cited in Storer 1925).

The tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches (Petranka 1998). Tiger salamanders exhibit sexual dimorphism; males tend to be larger than females. The coloration of the tiger salamander is white or yellowish markings against black. As adults, California tiger salamanders tend to have the creamy yellow to white spotting on the sides with much less on the dorsal surface of the animal, whereas other tiger salamander species have brighter yellow spotting that is heaviest on the dorsal surface.

The tiger salamander has an obligate biphasic life cycle (Shaffer et al. 2004). Although the larvae salamanders develop in the vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders and spend most of their postmetamorphic lives in widely dispersed underground retreats (Shaffer et al. 2004; Trenham et al. 2001). Subadult and adult tiger salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels (Spermophilus beecheyi) and Botta’s pocket gopher (Thomomys bottae) (Storer 1925; Loredo and Van Vuren 1996; Petranka 1998; Trenham 1998a). Because they spend most of their lives underground, tiger salamanders are rarely encountered, even in areas where they are abundant.

Tiger salamanders may also use landscape features such as leaf litter or desiccation cracks in the soil for upland refugia. Burrows often harbor camel crickets and other invertebrates that provide likely prey for tiger salamanders. Underground refugia also provides protection from the sun and wind associated with the dry California climate that can cause excessive drying of amphibian skin. Although California tiger salamanders are members of a family of “burrowing” salamanders, they are not known to create their own burrows. This may be due to the hardiness of soils in the California ecosystems in which they are found. California tiger salamanders typically use the burrows of ground squirrels and gophers (Loredo et al. 1996; Trenham 1998a). However, Dave Cook (Sonoma County Water Agency, personal communication with the Service, 2001) found that pocket gopher burrows are most often used by California tiger salamanders in Sonoma County. Tiger salamanders depend on persistent small mammal activity to create, maintain, and sustain sufficient underground refugia. Burrows are short lived without continued small mammal activity and typically collapse within approximately 18 months (Loredo et al. 1996).

Upland burrows inhabited by tiger salamanders have often been referred to as “estivation” sites. However, “estivation” implies a state of inactivity, while most evidence suggests that tiger salamanders remain active in their underground dwellings. A recent study has found that tiger salamanders move, feed, and remain active in their burrows (Van Hattem 2004). Because tiger salamanders arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving, researchers have long inferred that tiger salamanders are feeding while underground. Recent direct observations have confirmed this (Trenham 2001; van Hattem 2004). Thus, “upland habitat” is a more accurate description of the terrestrial areas used by tiger salamanders.
Once fall or winter rains begin, the salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer et al. 1993). Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer et al. 1993; Petranka 1998). Historically, the tiger salamander utilized vernal pools, but the animals also currently breed in livestock stockponds. Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). In ponds with no or limited vegetation, they may be attached to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). After breeding, adults leave the pool and return to the small mammal burrows (Loredo et al. 1996; Trenham 1998a), although they may continue to come out nightly for approximately the next two weeks to feed (Shaffer et al. 1993). In drought years, the seasonal pools may not form and the adults can not breed (Barry and Shaffer 1994).

Tiger salamander larvae typically hatch within 10 to 24 days after eggs are laid (Storer 1925). The peak emergence of these metamorphs is typically between mid-June to mid-July (Loredo and Van Vuren 1996; Trenham et al. 2000). The larvae are totally aquatic and range in length from approximately 0.45 to 0.56 inches (1.14 to 1.42 centimeters) (Petranka 1998). They have yellowish gray bodies, broad fat heads, large feathery external gills, and broad dorsal fins extending well up their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume the tadpoles of Pacific treefrogs (Pseudacris regilla), Western spadefoot toads (Spea hammondii), and California red-legged frogs (Rana aurora draytonii) (J. Anderson 1968; P. Anderson 1968). Tiger salamander larvae are among the top aquatic predators in seasonal pool ecosystems. When not feeding, they often rest on the bottom in shallow water but are also found throughout the water column in deeper water. Young salamanders are wary and typically escape into vegetation at the bottom of the pool when approached by potential predators (Storer 1925).

The larval stage of the tiger salamander usually last three to six months, as most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Individuals collected near Stockton in the Central Valley during April varied from 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the ponding duration, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Pechmann et al. 1989; Semlitsch et al. 1988; Morey 1998; Trenham 1998b). The larvae will perish if a site dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann et al. (1989) found a strong positive correlation with ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 pools sampled supported larval California tiger salamanders, and 5 of these dried before metamorphosis could occur. Therefore,
out of the original 30 pools, only six (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch et al. 1988; Scott 1994; Morey 1998). In the late spring or early summer, before the ponds dry completely, metamorphosed juveniles leave them and enter upland habitat. This emigration occurs in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo et al. 1996). Unlike during their winter migration, the wet conditions that California tiger salamanders prefer do not generally occur during the months when their breeding ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under these conditions, they may move only short distances to find temporary upland sites for the dry summer months, waiting until the next winter’s rains to move further into suitable upland refugia. Once juvenile tiger salamanders leave their birth ponds for upland refugia, they typically do not return to ponds to breed for an average of 4 to 5 years. However, they remain active in the uplands, coming to the surface during rainfall events to disperse or forage (Trenham and Shaffer, 2005).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham et al. (2000) found the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in roughly 11 metamorphic offspring over the lifetime of a female. Two reasons for the low reproductive success are the preliminary data suggests that most individuals of the tiger salamanders require two years to become sexually mature, but some individuals may be slower to mature (Shaffer et al. 1993); and some animals do not breed until they are four to six years old. While individuals may survive for more than ten years, many breed only once, and in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well as from human caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration movements made by tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/birth pond to breed, while 20 percent dispersed to other ponds (Trenham et al. 2001). Following breeding, adult tiger salamanders return to upland habitats, where they may live for one or more years before breeding again (Trenham et al. 2000).

Tiger salamanders are known to travel large distances from breeding ponds into upland habitats. Maximum distances moved are generally difficult to establish for any species, but tiger salamanders in Santa Barbara County have been recorded to disperse 1.3 miles from breeding ponds (Sweet, in litt. 1998). Tiger salamanders 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). In addition to traveling long distances during migration to or dispersal from ponds, tiger salamanders may reside in burrows that are far from ponds.

Although the observations above show that tiger salamanders can travel far, typically they stay closer to breeding ponds. Evidence suggests that juvenile tiger salamanders disperse further into upland habitats than adult tiger salamanders. A trapping study conducted in Solano County during winter of 2002/2003 found that juveniles used upland habitats further from breeding ponds than adults (Trenham and Shaffer, 2005). More juvenile salamanders were captured at distances of 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Large numbers, approximately 20 percent of total captures, were found 1,312 feet from a breeding pond. Fitting a distribution curve to the data revealed that 95 percent of juvenile salamanders could be found within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-04 trapping efforts detected juvenile tiger salamanders at even further distances, with a large proportion of the total salamanders caught at 2,297 feet from the breeding pond (Trenham et al., 2005). During post-breeding emigration, radio-equipped adult tiger salamanders were tracked to burrows 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders having depleted physical reserves post-breeding, or also due to the drier weather conditions that can occur during the period when adults leave the ponds.

In addition, rather than staying in a single burrow, most individuals used several successive burrows at increasing distances from the pond. Although the studies discussed above provide an approximation of the distances that tiger salamanders regularly move from their breeding ponds, upland habitat features will drive the details of movements in a particular landscape. Trenham (2001) found that radio-tracked adults favored grasslands with scattered large oaks, over more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as corridors for terrestrial movements (Trenham 2001). In addition, at two ponds completely encircled by drift fences and pitfall traps, captures of arriving adults and dispersing new metamorphs were distributed roughly evenly around the ponds. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Several species have either been documented to prey or likely prey upon the tiger salamanders including coyotes (Canis latrans), raccoons (Procyon lotor), opossums (Didelphis virginiana), egrets (Egretta species), great blue herons (Ardea herodias), crows (Corvus brachyrhynchos), ravens (Corvus corax), bullfrogs (Rana catesbeiana), mosquito fish (Gambusia affinis), and crayfish (Procambarus species).

The tiger salamanders are imperiled throughout its range by a variety of human activities (U.S. Fish and Wildlife Service 2004). Current factors associated with declining populations of the salamander include continued degradation and loss of habitat due to agriculture and urbanization, hybridization with non-native eastern tiger salamanders (Ambystoma tigrinum) (Fitzpatrick and
Shaffer 2004; Riley et al. 2003), and introduced predators. Fragmentation of existing habitat and the continued colonization of existing habitat by non-native tiger salamanders (*Ambystoma tigrinum* and other species) may represent the most significant current threats to tiger salamanders, although populations are likely threatened by more than one factor. Isolation and fragmentation of habitats within many watersheds have precluded dispersal between subpopulations and jeopardized the viability of metapopulations (broadly defined as multiple subpopulations that occasionally exchange individuals through dispersal, and are capable of colonizing or “rescuing” extinct habitat patches). Other threats are predation and competition from introduced exotic species; possible commercial overutilization; disease; various chemical contaminants; road-crossing mortality; and certain unrestrictive mosquito and rodent control operations.

Between 2001 and 2002, five breeding sites for Sonoma County Distinct Population Segment of the California tiger salamander have been destroyed. Loss of real and potential salamander breeding sites, upland refugia, dispersal, and foraging habitat continues to occur in the Santa Rosa Plain. To date, there have been eleven biological opinions (i.e. Section 7 formal consultations) authorizing incidental take to all individuals inhabiting 337.75 acres of tiger salamander habitat since the emergency listing on July 22, 2002. Two of these eleven biological opinions address adverse and beneficial effects associated with the construction of seasonal wetlands and creation of tiger salamander breeding habitat and establishment of Sebastopol meadowfoam and Sonoma sunshine populations. These two sites are known as the Hazel Mitigation Bank and the Slippery Rock Conservation Bank and are proceeding forward through the process to become a Mitigation Bank and Conservation Bank respectively (Banks). The temporary ground disturbance associated with these Banks include approximately 139.06 acres, therefore there has been 198.69 acres of permanent tiger salamander habitat loss permitted by the Service through Section 7 consultations with the Corps. The other nine biological opinions have integrated in their project proposals to conserve 223.48 acres of tiger salamander habitat at Service approved locations within Sonoma County via the purchase of mitigation or conservation credits, recording conservation easements, or offering fee title to the CDFG or another Service approved entity.

**Burke’s goldfields**

Burke’s goldfields was federally listed as endangered on December 2, 1991 (56 FR 61173). No critical habitat has been designated for this species. Burke’s goldfields is an annual herb in the aster family (Asteraceae). Plants are typically less than 30 cm in height (Hickman 1993) and usually branched (California Native Plant Society (CNPS) 1977). Leaves are opposite, less than 5 cm in length, and pinnately lobed. Yellow, daisy-like inflorescences with separate involucre bracts (leaf-like structures beneath the flower head) appear from approximately April through June (Skinner and Pavlik 1994). Fruits are achenes (dry, one-seeded fruits) less than 1.5 mm in length. The fruits of Burke’s goldfields can be distinguished from those of other goldfields by the presence of one long awn (bristle and numerous short scales) (Hickman 1993). Individual Burke’s goldfields plants may exhibit some geographic variation in morphology (McCarten 1985.
Burke's goldfields grow in vernal pools and swales below 500 meters (m) (Hickman 1993). At the Manning Flat occurrence in Lake County, Burke's goldfields is found in a series of claypan vernal pools on volcanic ash soils (56 FR 61173, CNDDB 1998). At this location, the species is associated with common goldfields and few-flowered navarretia (Navarretia leucocephala pauciflora) (CNDDB 1998). In Sonoma County, the vernal pools containing Burke's goldfields are on nearly level to slightly sloping loams, clay loams, and clays. A clay layer or hardpan approximately 0.6 to 0.9 m below the surface restricts downward movement of water (56 FR 61173). Huichica loam is the predominant soil series on which Burke's goldfields is found on the northern part of the Santa Rosa Plain (Patterson et al. 1994, CNDDB 1998). Huichica loam is a fine textured clay loam over buried dense clay and cemented layers (Patterson et al. 1994). More southerly Burke's goldfields sites likely occur on Wright loam or Clear Lake clay (Patterson et al. 1994, CNDDB 1998). Wright loam is a fine silty loam over buried dense clay and marine sediments. Clear Lake clay is hard dense clay from the surface to many feet thick (Patterson et al. 1994). Burke's goldfields sometimes occurs along with Sonoma sunshine and Sebastopol meadowfoam (Limnanthes vinculans). These three federally listed species are all associated with other plants that commonly grow in vernal pools on the Santa Rosa Plain, including Douglas' pogogyne (Pogogyne douglasii spp. parviflora), Lobb's aquatic buttercup (Ranunculus lobbii), smooth goldfields, California semaphore grass (Pleuropogon californicus), maroonspot downingia (Downingia concolor), and button-celery (Eryngium sp.) (CNDDB 1998). The flowers of Burke's goldfields are self-incompatible (Ornduff 1966, Crawford and Ornduff 1989) and insect-pollinated. Seed banks are of particular importance to annual plant species which are subject to uncertain or variable environmental conditions (Cohen 1966, 1967; Parker et
Burke’s goldfields fit this criterion; it is an annual species living in California’s highly variable Mediterranean climate.

No information exists with respect to the seed life of Burke’s goldfields. Circumstantial evidence suggests that Burke’s goldfields successfully germinated from seed in soil collected from a previously developed portion of the Westwind Business Park (Building F) when the soil was translocated and deposited in created seasonal wetlands (C. Wilcox, CDFG, 2000 in litt.). As an annual species, it is expected that Burke’s goldfields and Sonoma sunshine will respond to environmental stochastic events, such as changes in vegetative composition, climate, and disturbance, by partial germination of its seed bank. Baskin et al. (1998) indicate that species (annuals) adapted to “risky environments” produce persistent seed banks to offset years of low reproductive success and to ensure the species can persist at a site without immigration. These characteristics can be attributed to Burke’s goldfields. Considering the adaptations of these plants to a variable Mediterranean climate it is likely the seed of Burke’s goldfields can persist as dormant embryos for an undetermined number of years. Therefore, it is likely that populations of these species may persist undetected for a period of years until conditions are favorable to allow germination. Although formal studies of seed viability have not been conducted for these species, it is reasonable to expect their seed banks may persist for extended periods without germination. Furthermore, it is not unlikely that the individual fruits of Burke’s goldfields may be predisposed to variable germination requirements as a strategy for survival.

For species that develop long-lived seed banks, a census of plants growing above ground may not accurately reflect the total number of plants at the site (Rice 1989, Given 1994). Population sizes of California’s vernal pool/swale annual plant species, including Burke’s goldfields, may fluctuate substantially between very high numbers in some years to very small numbers, or even absence in other years because of varying environmental conditions. Therefore, total extirpation cannot be assumed when above-ground plants of these species are not observed at a site. Furthermore, declines in population size over a few years may not necessarily indicate that habitat is unsuitable (Given 1994), merely that environmental conditions within a vernal pool or swale have not favored seed germination.

Burke’s goldfields is threatened with habitat loss, fragmentation, and degradation throughout all or part of its range by factors including urbanization, agricultural land use changes, alterations in hydrology, and erosion (CNPS 1977, 56 FR 61173, Patterson et al. 1994, CH2M Hill 1995, CNDDB 1998). The only known Mendocino County occurrence is presumably extirpated (CH2M Hill 1995). The Manning Flat occurrence, located on private land in Lake County, is the largest known occurrence of the species and is threatened by extensive gully erosion that is destroying the habitat (CH2M Hill 1995, CNDDB 1998). The second Lake County occurrence is on property owned by a winery. Recent reports suggest that some damage to this population has resulted from vineyard operations (R. Chan, University of California, Berkeley, 1998 in litt.). However, in the past the winery owners appeared willing to coordinate with the Service and the Corps to avoid and/or minimize further damage to the site (N. Haley, Corps, 1998 pers. comm.). On the Santa Rosa Plain, many Burke’s goldfields locations have been extirpated due to
urbanization and conversion of land to row crops. Formerly well-represented in the vicinity of Windsor, Burke's goldfields has now been nearly extirpated from the area (Patterson et al. 1994, CH2M Hill 1995).

Of the 48 known records of Burke's goldfields, 26 are presumed to remain extant, with a majority found on the Santa Rosa Plain. Four populations occur outside of the Santa Rosa Plain, of which only two populations, one in northern Healdsburg and one at the Ployes winery, are extant.

Sonoma sunshine

Sonoma sunshine was federally listed as endangered on December 2, 1991 (56 FR 61173). No critical habitat has been designated for this species. Sonoma sunshine is an annual plant in the aster family. Plants are less than 30 cm (11.8 in) tall with alternate, linear leaves (CNPS 1977, Hickman 1993). The lower leaves are entire, and the upper leaves have one to three lobes that are 1 to 3 cm (0.4 to 1.2 in) deep (Hickman 1993). The daisy-like flower heads of Sonoma sunshine are yellow. The ray flowers have dark red stigmas. The disk flowers have white stigmas and white pollen but are otherwise yellow. Achenes are 3 to 4 mm (0.1 to 0.15 in) long with small rounded or conic protuberances (papillate) and 4 to 6 strongly angled edges (CNPS 1997, Hickman 1993). Sonoma sunshine could be confused with common stickseed (Blennosperma nanum); however, Sonoma sunshine has longer and fewer lobes on the leaves and is more robust (CNPS 1977). The flowers of Sonoma sunshine are self-incompatible, meaning that they can set seed only when fertilized by pollen from a different plant.

Sonoma sunshine occurs only in Sonoma County. In the Cotati Valley, the species ranges from near the community of Fulton in the north to Scenic Avenue between Santa Rosa and Cotati in the south. Additionally, the species extends or extended from near Glen Ellen to near the junction of State Routes 116 and 121 in the Sonoma Valley. During 2001, two new natural populations were identified north and south of the City of Santa Rosa, increasing the number of previously identified CNDDB occurrences from 26 to 28. Of the 28 occurrences, 21 are presumed to be extant with a majority occurring on the Santa Rosa Plain and one occurring in Glen Ellen. In addition, Sonoma sunshine has been introduced to at least one site on Alton Lane during mitigation activities. Seven populations within or near the City of Santa Rosa have been extirpated.

Sonoma sunshine grows in vernal pools and wet grasslands below 100 m (330 ft) (Hickman 1993). In the Sonoma and Cotati valleys, Sonoma sunshine occurs in vernal pools on nearly level to slightly sloping loams, clay loams, and clays, as described for Burke's goldfields (56 FR 61173). The two concentrations of Sonoma sunshine on the Santa Rosa Plain occur on different soil types (Patterson et al. 1994). Sonoma sunshine likely grows on Huichica loam north of
Highway 12 and on Wright loam and Clear Lake clay south of Highway 12 (Patterson et al. 1994, CNDDB 1998). These soil series are briefly described in the discussion of Burke’s goldfields habitat above.

Sonoma sunshine is threatened with habitat loss, fragmentation, and degradation throughout all or part of its range by factors including urbanization, agricultural land use changes, and alterations in hydrology (Patterson et al. 1994, CH2M Hill 1995, CNDDB 1998). In the Sonoma Valley, two of five known occurrences have been extirpated. One was extirpated by habitat destruction in 1986, and the area is now a vineyard. At the second site, most habitat was destroyed by grading for home sites in 1980; the remainder was converted to vineyard or overtaken by weeds (CNDDB 1998). Of the presumed extant Sonoma Valley occurrences, one locality has been largely developed. A small area was retained by CDFG when the development took place, but Sonoma sunshine has not been recorded from this area since the subdivision was developed (Service files). A second Sonoma Valley locale is currently pasture. A portion of the occurrence may have been disced, and the landowners of a second portion want to convert the locale to vineyard (C. Wilcox, 1998, pers. comm., Service files). The third Sonoma Valley occurrence is in Sonoma Valley Regional Park, which is not managed for conservation (CNDDB 1998). On the Santa Rosa Plain, one locale has probably been extirpated by completion of a subdivision and one locale by major land alterations on the locale (CNDDB 1998). Of the presumed extant locales, some support severely degraded habitat, are threatened by development, or have not supported confirmed populations of Sonoma sunshine in recent years (CH2M Hill 1995, CNDDB 1998).

**Sebastopol meadowfoam**

Sebastopol meadowfoam is an annual herb with weak, somewhat fleshy, decumbent stems up to 30 centimeters (11.8 inches) long. The seedlings are unusual among *Limnanthes* species in that they have entire leaves. Leaves of mature plants are up to 10 centimeters (3.9 inches) long and have 3 to 5 leaflets that are narrow and unlobed with rounded tips. The leaves are borne on long petioles; petiole length, like stem length, appears to be promoted by submergence. Sebastopol meadowfoam has fragrant, white flowers that are borne in the leaf axils during April and May. The flowers are bell-shaped or dish-shaped, with petals 12 to 18 millimeters (0.47 to 0.71 inch) long. The sepals are shorter than the petals. The petals turn outward as the nutlets mature. The nutlets are dark brown, 3 to 4 millimeters (0.12 to 0.16 inch) long, and covered with knobby pinkish tubercles (Patterson et al. 1994).

Historically, Sebastopol meadowfoam was known from 40 occurrences in Sonoma County and 1 occurrence (occurrence #39) in Napa County, at the Napa River Ecological Reserve. In Sonoma County, all but two occurrences were found in the central and southern portions of the Santa Rosa Plain. Occurrence #20 occurred at Atascadero Creek Marsh west of Sebastopol, and the second (#40) occurred in the vicinity of Knights Valley northeast of Windsor (California Natural Diversity Database (CNDDB) 2001).
The current condition of numerous Sebastopol meadowfoam occurrences is unclear, because many have not been visited in over 5 years. The southern cluster of occurrences extends 5 kilometers (3 miles) from Stoney Point Road west to the Laguna de Santa Rosa, and is bounded by Occidental Road to the north and Cotati to the south. The central cluster stretches 1.5 miles on either side of Fulton Road extending northwards from Occidental Road to River Road. Patterson et al. (1994) estimated that the Santa Rosa Plain occurrences represent only 10 hydrologically separate populations of Sebastopol meadowfoam. At least one occurrence (#21) has been extirpated from the Santa Rosa Plain (CNDDB 2002). Recent field surveys found that all three occurrences outside of the Santa Rosa Plain have probably been extirpated (CNDDB 2002).

Sebastopol meadowfoam is an annual plant. The seeds germinate after the first significant rains in fall, although late initiation of rains may delay seed germination. Sebastopol meadowfoam plants grow slowly underwater during the winter, and growth rates increase as the pools dry. Repeated drying and filling of pools in the spring favors development of large plants with many branches and long stems. Sebastopol meadowfoam begins flowering as the pools dry, typically in March or April. The largest plants can produce 20 or more flowers. Flowering may continue as late as mid-June, although in most years the plants have set seed and died back by then (Patterson et al. 1994). Each plant can produce up to 100 nutlets (Patterson 1994).

Nutlets of Sebastopol meadowfoam likely remain dormant in the soil, as they do for other species of Limnanthes (Patterson 1994). One case presents strong circumstantial evidence for persistent, long-lived seed banks in this species. In the late-1980’s and early 1990’s, a site in Cotati remote from other Sebastopol meadowfoam colonies was surveyed for several years by independent qualified botanists. None of these botanists identified flowering populations of Sebastopol meadowfoam on the project site. Conditions of the pools on the site were highly degraded by wallowing hogs (Sus scrofa) and subsequent eutrophication of the pools. Following several years of negative surveys 12 plants of Sebastopol meadowfoam emerged simultaneously in one pool in the first year following removal of hogs. The population expanded rapidly to 60 plants the next year and was larger in subsequent years (Geoff Monk, personal communication), all limited to one pool. Long-distance dispersal is an improbable explanation for the simultaneous emergence of multiple plants at one location, so seed banks are implicated in this case as well. This example also indicates that lack of Sebastopol meadowfoam during periods of adverse conditions (drought, heavy disturbance, etc.) does not necessarily mean the population is extirpated.

This species grows in Northern Basalt Flow and Northern Hardpan vernal pools (Sawyer and Keeler-Wolf 1995), wet swales and meadows, on the banks of streams, and in artificial habitats such as ditches (Wainwright 1984; CNDDB 2002). The surrounding plant communities range from oak savanna, grassland, and marsh in Sonoma County to riparian woodland in Napa County (CNDDB 2002). Sebastopol meadowfoam grows in both shallow and deep areas, but is most frequent in pools 25 to 51 centimeters (10 to 20 inches) deep (Patterson et al. 1994). The species is most abundant in the margin habitat at the edge of vernal pools or swales (Pavlik et al. 2000, 2001). Most confirmed occurrences of Sebastopol meadowfoam on the Santa Rosa Plain grow
on Wright loam or Clear Lake clay soils (Patterson et al. 1994, CNDDB 2002). A few occurrences are on other soil types, including Pajaro clay loam, Cotati fine sandy loam, Haire clay loam (Patterson et al. 1994) and Blucher fine sandy loam (Wainwright 1984).

Like Burke's goldfields and Sonoma sunshine, Sebastopol meadowfoam has been and continues to be threatened by habitat loss, habitat degradation, and small population size. Causes of habitat loss include agricultural conversion, urbanization, and road maintenance. Habitat degradation is caused by excessive grazing by livestock, alterations in hydrology, and competition from non-native species (in some cases, exacerbated by removal of grazing), off-highway vehicle use, and dumping (U.S. Fish and Wildlife Service 1991, Patterson et al. 1994, CH2M Hill 1995, CNDDB 2002).

Recovery Actions

A conservation strategy titled “Santa Rosa Plain Conservation Strategy” has been developed and finalized (Santa Rosa Plain Conservation Strategy, December 2005) by a team of representatives from the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, California Department of Fish and Game, Sonoma County and local Cities, North Coast Regional Water Quality Control Board, local governmental agencies, the Laguna de Santa Rosa Foundation, environmental community, and the private landowner community (Conservation Team). The Santa Rosa Plain Conservation Strategy provides strategies to conserve and enhance enough habitat for the tiger salamander in Sonoma County and federally and state listed endangered plants including the Sonoma sunshine (Blemnosperma bakeri), Burke's goldfields (Lasthenia burkei), Sebastopol meadowfoam (Limnanthes vinculans), and many-flowered navarretia (Navarretia leucocephala ssp. plieantha) to provide for long-term conservation and assist in the recovery of these species, while considering the need for development consistent with the general plans for the local jurisdictions. The conservation strategy may be downloaded at http://www.fws.gov/sacramento/es/santa_rosa_conservation.html.

The County of Sonoma, the Cities of Santa Rosa, Cotati, Rohnert Park, the Town of Windsor, Service, and CDFG have commenced a process to develop a plan for implementing the Conservation Strategy. An implementation committee has been formed that is comprised of elected and staff representatives of the local jurisdictions, staff representatives of Service and CDFG, and representatives of the agricultural, development, and environmental communities. The implementation plan is expected to provide a mechanism for applying the Conservation Strategy to cover public and private projects, agricultural activities, and residential and commercial development. The implementation planning process is proposed to be complete and in place within approximately two years, after which the local agencies and participating State and Federal agencies will take action regarding implementation of the Conservation Strategy.

As of November 4, 2005, there were approximately 597 acres of existing preserves, compensation sites and open space that support tiger salamander habitat in Sonoma County. There were also approximately 462 acres of pending mitigation banks, conservation banks, and
compensation sites anticipated to be protected in perpetuity to offset adverse effects to the tiger salamander, Sonoma sunshine, Sebastopol meadowfoam, and Burke’s goldfields.

Environmental Baseline

California Tiger Salamander

*Cherry Ranch Project Site.* The 6.63 acre proposed project site supports 5.49 acres of tiger salamander and 0.4 acre potential Sebastopol meadowfoam, Sonoma sunshine and Burke’s goldfields habitat. The 5.49 acres includes breeding habitat as well as upland, foraging, and dispersal habitat. There is a series of three deeper pools that support tiger salamander breeding within an area of 0.40 acre of seasonal wetlands. Approximately 1.14 acres of the 6.63 acre site supports a parking lot and buildings. The site is part of a series of parcels that remain undeveloped in the vicinity of other tiger salamander breeding pools and upland habitat. Recent development has eliminated much of the land north of the project site that served as upland habitat and provided additional breeding ponds for the tiger salamander. There is remaining undeveloped land to the east and south of the project site that also supports tiger salamander breeding and upland habitat.

*Christina Preserve.* The 35.20 acre Christina Preserve supports a mosaic of habitats, including vernal pools, seasonal wetlands and tiger salamander breeding and upland habitat. Tiger salamander larvae have been observed in vernal pools that naturally occur at the site. The Preserve is adjacent to the proposed Hale Mitigation Bank and the South West Santa Rosa Vernal Pool Preservation Bank (Engel Bank) and is bounded by Todd Road on the southern boundary. Additionally, there is contiguous undeveloped land to the north and south of the Preserve and is within the Llano Conservation Area as defined in the Santa Rosa Plain Conservation Strategy.

Sebastopol Meadowfoam, Sonoma Sunshine and Burke’s Goldfield

*Cherry Ranch Project Site.* The project site is located within the geographic range for the Sebastopol meadowfoam, Sonoma sunshine and Burke’s goldfields. The project site supports potential vernal pool habitat for these three endangered plant species. Protocol level surveys were conducted at the project site in the spring of 2001 and 2002 and these species were not observed. The nearest recorded observation for Sebastopol meadowfoam is approximately 1,233 feet to the north, but has since been converted to residential housing. The nearest Sonoma sunshine reported observation is approximately 1.70 miles to the southwest and Burke’s goldfield is approximately 2.7 miles to the northwest.

*Christina Preserve.* The Christina Preserve supports a vernal pool complex and swales with soils described as Wright loam, wet, 0-2% slopes, Zamora silty clay loam, 2-5% slopes, and Clear Lake clay, ponded, 0-2% slopes. The Preserve supports 6.48 acres of vernal pools and swales and Sebastopol meadowfoam occurs in approximately 5.0 acres of these wetlands. Between
50,000 to 100,000 Sebastopol meadowfoam plants have been estimated to occur in these vernal pools and swales.

Effects of the Proposed Action

Tiger Salamander

Cherry Ranch Project Site. The Cherry Ranch Project will likely result in the permanent loss of approximately 5.04 acres of upland and 0.45 acre of wetland features which supports dispersal, foraging, and breeding habitat. Graders, bulldozers and other heavy equipment are likely to kill, harm, and harass any tiger salamander inhabiting the 6.63-acre project site during the earth moving activities, infrastructure improvements, building construction, landscaping, and replacement of the natural earth surface of the graded area with hardscape. The project site will become unavailable to dispersing tiger salamanders in the vicinity. Individual tiger salamanders inhabiting the project site could be crushed by construction activities that collapse their burrows or other suitable cover from environmental elements such as high air and surface temperatures. Individual tiger salamanders disturbed by construction activities onsite could attempt overland movements in an attempt to find alternative upland habitat. These individuals could be harassed, injured and killed by pedestrians, vehicles, and urban adapted predators during overland movements at the project site, or during attempts to find more suitable habitats on adjacent lands.

Construction related activities are likely to cause disruption of surface movement, disruption or complete loss of reproduction, harassment from increased human activity, and permanent and temporary loss of shelter. Because these animals are nocturnal, if construction is performed at night, associated lighting likely would increase all of the above effects. Wise and Buchanan (2002) reviewed the adverse effects that may result from night time illumination on salamander species. Artificial lighting used during night time construction may increase predation of the tiger salamanders if it occurs during periods of fall, winter, or spring rains, because the amphibians will lose the cover of darkness for movement.

Tiger salamanders have been trapped and relocated from the project site to the Todd Road Preserve, Sonoma County since the fall of 2004 to minimize the potential adverse effects described above. This activity will continue until grading begins and will likely minimize the effects to those individuals captured, however it is unknown what percentage of the tiger salamander population that will be captured and relocated to an off-site location.

Christina Preserve. Enhancement activities including the demolishing and removing of existing structures and re-contouring the land to pre-existing conditions will require the use of some heavy equipment. These activities may kill, injure, and harass individual tiger salamanders within the work footprint (i.e. approximately 0.35 acre) that may be in refugia or dispersing from nearby breeding pools. These direct effects will likely be minimized by having a Service-approved biological monitor present on-site during enhancement activities, demarcating the footprint to prevent unnecessary straying vehicles to adjacent habitat, the work will be conducted
when the on-site tiger salamander breeding pools still retain water when the larvae are likely still within those pools and prior to metamorphs dispersing to nearby refugia.

Preservation of the Christina Preserve will likely benefit the tiger salamander by contributing to its overall recovery. The location of the Preserve is within the Llano Conservation Area as defined in the Santa Rosa Plain Conservation Strategy and provides an important link to existing preserves to the east and west of the Preserve. Implementation of the management plan for the Preserve will ensure that the biological values of the Preserve will be maintained to provide the best conditions for breeding, foraging, refugia, and dispersal of individual tiger salamanders.

Enhancement of the Christina Preserve will likely provide approximately 0.35 acre of quality tiger salamander habitat in the form of refugia, foraging, dispersal, and/or breeding habitat.

**Sebastopol Meadowfoam, Sonoma Sunshine and Burke’s Goldfield**

Grading of the Cherry Ranch project site and filling of the approximately 0.4 acres of wetlands will eliminate potential habitat for Sebastopol meadowfoam, Sonoma sunshine and Burke’s goldfield. Service protocol level surveys were conducted at the project site in the spring of 2001 and 2002 and these species were not observed at the project site. Although no Plants were observed, a seed bank may still be present in the soil and may be lost due to the destruction of the wetland habitat.

Preserving vernal pool complex habitat at the Preserve will forever conserve and protect an existing population of Sebastopol meadowfoam and maintain the function of the swales that connect to other vernal pools on the adjacent mitigation banks. The vernal pool complex will continue to allow the natural dispersal mechanism to function and plant seeds will flow between vernal pools through the connecting swales. Implementation of the management plan will have beneficial effects on the Sebastopol meadowfoam by managing non-native vegetation that may pose a threat of out-competing the native Sebastopol meadowfoam.

**Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Cumulative effects to the tiger salamander include continuing and future conversion of suitable breeding, foraging, sheltering, and dispersal habitat resulting from urban development. Additional urbanization can result in road widening and increased traffic on roads that bisect breeding and aestivation sites, thereby increasing road-kill while reducing in size and further fragmenting remaining habitats.
Tiger salamanders probably are exposed to a variety of pesticides and other chemicals throughout their range. Tiger salamanders also could die from starvation by the loss of their prey base. Hydrocarbon and other contamination from oil production and road runoff; the application of numerous chemicals for roadside maintenance; urban/suburban landscape maintenance; and rodent and vector control programs may all have negative effects on tiger salamander populations. In addition, tiger salamanders may be harmed through collection by local residents.

A commonly used method to control mosquitoes, used in Sonoma County (Marin/Sonoma Mosquito and Vector Control District, internet website 2002), is the application of methoprene, which increases the level of juvenile hormone in insect larvae and disrupts the molting process. Lawrenz (1984) found that methoprene (Altosid SR 10) retarded the development of selected crustacea that had the same molting hormones (i.e., juvenile hormone) as insects, and anticipated that the same hormone may control metamorphosis in other arthropods. Because the success of many aquatic vertebrates relies on an abundance of invertebrates in temporary wetlands, any delay in insect growth could reduce the numbers and density of prey available (Lawrenz 1984).

Threats to Burke's goldfields, Sonoma sunshine, and Sebastopol meadowfoam such as unauthorized fill of wetlands, urbanization, increases in non-native species, and expanded irrigation of pastures with recycled wastewater discharge, are likely to continue with concomitant adverse effects on these species resulting in additional habitat loss and degradation; increasingly isolated populations (exacerbating the disruption of gene flow patterns); and further reductions in the reproduction, numbers, and distribution of these species which will decrease their ability to respond to stochastic events.

Cumulative effects to Burke's goldfields, Sonoma sunshine, Sebastopol meadowfoam, and the tiger salamander could increase in the future if the current application of the Corp's regulatory authority under the Clean Water Act changes. On January 9, 2001, the United States Supreme Court issued an opinion regarding Solid Waste Agency of Northern Cook County, Petitioner v. United States Army Corps of Engineers et al. (SWANCC) which addressed the Corps regulatory authority over isolated wetlands. The Corps' San Francisco District generally has regulated wetlands on the Santa Rosa Plain which are hydrologically connected to the Laguna de Santa Rosa, a tributary of the Russian River. However, following the SWANCC decision, we understand that the Corps has determined that some seasonal wetlands on the Santa Rosa Plain are isolated from navigable waters. Reduced application of the Corps' regulatory authority, and subsequent lack of section 7 consultation with the Service, on such isolated wetlands could result in increased impacts to federally listed species in the Santa Rosa Plain from future State, Tribal, local or private actions.

As stated in the Conservation Strategy, urban and rural growth on the Santa Rosa Plain has taken place for over one hundred years, and for the past twenty years urban growth has encroached into areas inhabited by the tiger salamander and the listed plants. The loss of seasonal wetlands caused by development on the Santa Rosa Plain has led to declines in the populations of California tiger salamander and the listed plants. Voters in the cities of Cotati, Rohnert Park,
Santa Rosa, and Sebastopol, and the Town of Windsor have established urban growth boundaries for their communities. This is intended to accomplish the goal of city-centered growth, resulting in rural and agricultural land uses being maintained between the urbanized areas. Therefore, it can be reasonably expected that rural land uses will continue into the foreseeable future. There are also areas of publicly owned property and preserves located in the Santa Rosa Plain, which will further protect against development. Some of the areas within these urban growth boundaries, however, include lands inhabited by tiger salamanders and the listed plant species. Agricultural practices have also disturbed seasonal wetlands, tiger salamanders and listed plant habitat on the Santa Rosa Plain. Some agricultural practices, such as irrigated or grazed pasture, have protected habitat from intensive development.

The Conservation Strategy was designed to plan for future cumulative effects from federal and non-federal actions to the tiger salamander and listed plant habitat within the Santa Rosa Plain. The Conservation Strategy and the interim guidelines are intended to benefit the tiger salamander and the listed plants by providing a consistent approach for mitigation vital to habitat preservation and the long-term conservation of the species. They are also intended to provide more certainty and efficiency in the project review process. The Conservation Strategy and the interim guidelines provide guidance to focus mitigation efforts on preventing further habitat fragmentation and to establish, to the maximum extent possible, a viable preserve system that will contribute to the long-term conservation and recovery of these listed species.

The County of Sonoma, the Cities of Santa Rosa, Cotati, Rohnert Park, the Town of Windsor, Service, and CDFG have commenced a process to develop a plan for implementing the Conservation Strategy. An implementation committee has been formed that is comprised of elected and staff representatives of the local jurisdictions, staff representatives of Service and CDFG, and representatives of the agricultural, development, and environmental communities. The implementation plan is expected to provide a mechanism for applying the Conservation Strategy to cover public and private projects, agricultural activities, and residential and commercial development. The implementation planning process is proposed to be complete and in place within approximately two years, after which the local agencies and participating State and Federal agencies will take action regarding implementation of the Conservation Strategy.

CONCLUSION

After reviewing the current status of the tiger salamander and the Sebastopol meadowfoam, Sonoma sunshine and Burke’s goldfield, the environmental baseline for the actions areas, and the effects of the proposed action and the cumulative effects, it is the Service’s biological opinion that the Cherry Ranch Project is not likely to jeopardize the continued existence of the tiger salamander, or these three listed plant species. This determination is based on the fact that the proposed project includes sufficient compensation measures to offset the adverse effects described in this biological opinion by preserving and managing the Christina Preserve and the three listed plants have not been observed at the Cherry Ranch project site during past floral
surveys. Critical habitat has not been designated for these species; therefore none will be adversely modified or destroyed.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species 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. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the Corps so they become binding conditions of project authorization for the exemption under 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Corps (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of 7(o)(2) may lapse.

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to listed plant species. However, protection of listed plants is provided to the extent that the Act requires a Federal permit for removal or reduction to possession of endangered and threatened plants from areas under Federal jurisdiction, or for any act that would remove, cut dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

Amount or Extent of Take

The Service anticipates that incidental take of the tiger salamander will be difficult to detect or quantify for the following reasons: the activity patterns of tiger salamanders makes the finding of a dead specimen unlikely, losses may be masked by annual fluctuations in numbers, and the species occurs in habitat that makes it difficult to detect. Due to the difficulty in quantifying the number of tiger salamanders that will be taken as a result of the proposed action, the Service is quantifying take incidental to the project as the number of acres of habitat that will be affected as a result of the action. Therefore, the Service estimates that the proposed action will result in the permanent loss of 5.49 acres and temporary loss of 0.35 acre of habitat suitable for tiger
salamander breeding, foraging, sheltering, and dispersal. Anticipated take is expected to be in the form of harm, harassment, injury, and mortality due to habitat loss and modification, construction related disturbance, increased predation, reduced fitness, and by ongoing operation and use of the Project and enhancement of 0.35 acre of habitat at the Christina Preserve.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tiger salamander in Sonoma County. Critical habitat has not been designated for the tiger salamander in Sonoma County therefore none will be adversely modified or destroyed.

Reasonable and Prudent Measure

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize the effect of take on the tiger salamander:

1. Minimize the potential for harm, harassment, or mortality of tiger salamander.

Term and Condition

To be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following term and condition, which implement the reasonable and prudent measure described above. This term and condition is non-discretionary.

1. The conservation measures in the proposed project shall be implemented as described in the Project Description of this biological opinion

Reporting Requirements

The Corps shall submit a post-construction compliance report to the Sacramento Fish and Wildlife Office within 60 calendar days of the completion of construction activity or within 60 days of any break in construction activity lasting more than 60 days. This report shall detail (i) dates that groundbreaking at the project started and the project was completed; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of the failure to meet such measures, if any; (iv) known project effects on the tiger salamander, if any; (v) occurrences of incidental take of any of this species; and (vi) other pertinent information.

The Service must be notified within 24 hours of the finding of any injured or dead tiger salamanders, or any unanticipated damage to their habitats associated with the proposed project. Injured tiger salamanders shall be cared by a licensed veterinarian or other qualified person, such as the on-site biologist. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. The Service contact persons are Chris
Ms. Jane M. Hicks

Nagano, Deputy Assistant Field Supervisor (Endangered Species Program) at the Sacramento Fish and Wildlife Office at 916/414-6600 and Resident Agent-in-Charge Scott Heard of the Service’s Law Enforcement Division at telephone 916/414-6660. Any dead or injured specimens should be deposited with the Resident Agent-in-Charge at 2800 Cottage Way, Room W-2928, Sacramento, California 95825.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We make the following conservation recommendations:

1. Encourage or require the use of appropriate California native species in re-vegetation and habitat enhancement efforts associated with projects authorized by the Corps.

2. Facilitate educational programs geared toward the importance and conservation of seasonal wetlands.

3. Encourage seed banking in Center for Plant Conservation certified botanic gardens (provided the seed collection does not adversely affect the source populations).

4. Actively participate in developing the implementation plan for the Santa Rosa Plain Conservation Strategy.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action on the proposed Cherry Ranch project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.
Ms. Jane M. Hicks

If you have any questions on this biological opinion on the proposed Cherry Ranch in Santa Rosa, Sonoma County, California, please contact Vincent Griego or Ryan Olah of the Sacramento Fish and Wildlife Office at 916/414-6625.

Sincerely,

Cay C. Geude
Acting Field Supervisor

cc: Carl Wilcox, Liam Davis, Scott Wilson, Tracy Love, CDFG Yountville, California
    Mike Monroe, U.S. Environmental Protection, San Francisco, California
    Andrew Jenson, Regional Water Quality Control Board, Santa Rosa, California
    City of Santa Rosa, Santa Rosa, California
    Harvey Rich, Greenbrae, California
LITERATURE CITED


2000. Natural Heritage Division. California Department of Fish and Game, Sacramento, California.

2001. Natural Heritage Division. California Department of Fish and Game, Sacramento, California.


Cohen, D. 1967. Optimizing reproduction in a randomly varying environment when a correlation may exist between the conditions at the time a choice has to be made and the subsequent outcome. Journal of Theoretical Biology 16:1-14.


Ms. Jane M. Hicks


Ms. Jane M. Hicks


U.S. Fish and Wildlife Service.  1991. Determination of endangered status for three plants: Blemnosperma bakeri (Sonoma sunshine or Baker’s stickyseed), Lasthenia burkei (Burke’s goldfields), and Limnanthes vinculans (Sebastopol meadowfoam).  56 Federal Register 67113.  10pp.

--- 2004. Endangered and threatened wildlife and plants; determination of threatened status for the California tiger salamander; and special rule exemption for existing routine ranching activities; final rule.  Federal Register 69: 47212-47248.


Personal Communications

Cook, D. Sonoma County Water Agency.  Santa Rosa, California

Haley, N. U.S. Army Corps of Engineers.  Sacramento, California

Wilcox, C.  1998. California Department of Fish and Game, Yountville, California


In Litt. Citations


Sam Sweet, University of California, Santa Barbara, 31 August 1998.  Vineyard development posing an imminent threat to Ambystoma californiense.  Letter.

Wilcox, C.  2000. California Department of Fish and Game.  Yountville, California
2005 Aerial Photograph of the project site taken prior to site grading
(Note deep inundated wetlands on the project site consistent with 2002 Corps-verified jurisdictional wetland map and the revised wetland delineation map).
2018 Aerial Photograph of the project site
(Note shallow depressions caused by construction-related activities)
REPORT ON CALIFORNIA TIGER SALAMANDER (*AMBYSTOMA CALIFORNIENSE*) SURVEYS, CHERRY RANCH PROPERTY, SONOMA COUNTY

Prepared for Golden Bear Biostudies
536 B Street
Santa Rosa, CA 95401

by

Michael Fawcett, Ph.D., Ecologist
P.O. Box 274
Bodega, CA 94922
Tel: 707/876-3450

13 June 2002

INTRODUCTION

The Department of Fish and Game (DFG) has an established survey protocol for California tiger salamander (DFG 1997). The protocol includes analysis of the site location with respect to the known range and nearest known breeding locations of the salamander, an assessment of aquatic and terrestrial habitat on the site, a series of five standard nocturnal surveys conducted on rainy nights during the months of November through March when adults may be active above ground, and two standard dipnet surveys of potential breeding areas for salamander larvae during the period from March 15 to May 15. In this report I present the results of nocturnal and dipnet surveys conducted from November 2001 through March 2002 on the Cherry Ranch property located at 930 Fresno Avenue in the southwest Santa Rosa area in Sonoma County (Fig.1).

SITE ASSESSMENT

The property is within the historic range of the California tiger salamander, as defined in the DFG Survey Protocol. The historic range includes Sonoma County. A CNIDDB report for the USGS Sebastopol 7.5 min. quadrangle (report dated August 2001), as well as a recently compiled list of all known sightings of CTS in Sonoma County (Cook 2001) show the nearest known breeding location to be a vernal pool or pools on the northwest edge of the abandoned Santa Rosa Air Center (Fig. 2), which is adjacent to the Cherry Ranch property. The light-colored area labeled Old Naval Air Station in fig. 2 is the concrete of the old runways; the dark area north of the runways is former grazing land with vernal pools, including a large one adjacent to the square white barn in the upper center of the photograph; this pool is less than 300 ft. north of the northernmost vernal pool on the Cherry Ranch (labeled SW in Fig. 2). Other sightings of adult CTS and known breeding locations for CTS are within a mile north, west, and south of the project site.
The habitat assessment was conducted on 28 November 2001, from 1630-1730 hrs., during heavy rain that began at about 1530 hrs. The project site is a 6.4 acre parcel that was last used as livestock auction yard. It is presently covered with unmowed, non-native, annual grassland, with several vernal pool/seasonal wetland areas (locations shown in Fig. 3). Plant species associated with the wetlands are described in Waaland (2002). Representative photographs of habitat at the site are shown as Figs. 4-7 (photographs by Marco Waaland, March 2001). Rodent burrows (Botta's pocket gopher, California vole, and broad-footed mole) were moderately abundant throughout the site, with the greatest density of active burrows on slightly elevated areas around the vernal pools and along the edges of the swale shown in Fig. 3. Piles of wood and other debris were scattered about near the corrals and old barn, which can be seen in the background in Fig. 6. The vernal pools were partially filled on 28 November, with depths up to about 12 inches. By 13 December 2002, the pools were all filled, up to about 16 in. depth, and burrows in low-lying areas were flooded (unusually heavy rainfall occurred in November and December 2001).

**NOCTURNAL SURVEYS**

Nocturnal surveys were conducted during rainstorms on three nights in November-December 2001, and on 7 February 2002 (following a dry period from 5 Jan.-7 Feb. 02). Conditions during the nocturnal surveys are provided in Table 1.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Air Temp. °C</th>
<th>Wind Speed and Direction (m.p.h.)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 Nov. 01</td>
<td>1730-1815, 1845-1930 hrs.</td>
<td>11.0-10.0</td>
<td>5-10 SW</td>
<td>Heavy rain--2-3 inches reported for the area overnight. Looked in about 75 burrows.</td>
</tr>
<tr>
<td>2 Dec. 01</td>
<td>2030-2200 hrs.</td>
<td>8.0</td>
<td>5-15 SW</td>
<td>Rained hard in afternoon and early evening, intermittent during survey.</td>
</tr>
<tr>
<td>13 Dec. 01</td>
<td>2100-2230 hrs.</td>
<td>9.0-8.0</td>
<td>5-10 SW gusts</td>
<td>Heavy rain, most burrows flooded</td>
</tr>
<tr>
<td>7 Feb. 02</td>
<td>1830-2000 hrs.</td>
<td>12.8-11.2</td>
<td>0-5 SW</td>
<td>Light rain all day, heavy around sunset, then stopped at 1900 hrs. Assisted by Brad Welch.</td>
</tr>
</tbody>
</table>

During each survey, I walked around the edges of all the pools, walked around the perimeter of the property, then did either transects or a zig-zag walk through the entire site, then went around the pools a second time. I used a headlamp and hand-held flashlights to examine burrows, look under boards and other objects, and inside the corral.
and barn area. I probably examined 50 percent of the terrestrial habitat on each of the first three surveys, although visibility was hampered by dense live and dead vegetation. On the 7 Feb. 02 survey I was assisted by Brad Welch, and I estimate that we examined 80 percent or more of the ground surface, by walking in paired transects, 25-35 ft. between us.

During the 7 Feb. 02 survey, I observed about twenty California tiger salamander (CTS) larvae foraging or resting on the bottom in the shallow, nearshore areas of the pool designated A4 (Figs. 3 & 5). The larvae appeared to be about 1-1.5 inches long. Invertebrates were attracted to the flashlight, and I could see fairy shrimp, notonectids, dytiscid larvae, chironomid and mosquito larvae, amphipods, copepods, and ostracods. On the following day (8 Feb.), Bill Cox (DFG) met me at the site and we looked more closely at each of the vernal pools, and did some light sampling with dipnets. We each made one sweep in Pool A4, capturing about a dozen CTS larvae between us. We also looked briefly in each of the other main pools, and found one CTS larva in Pool A1. We noted abundant CTS food, especially amphipods, fairy shrimp, and insects, and a few treefrog tadpoles, but no clam shrimp. Pool A4 appeared to offer the best habitat for CTS rearing, in that it had a variety of invertebrate prey and a diverse mixture of emergent plants and algae, with some open-water areas—the other pools, although similar in depth (up to about 14 in.), seemed to be clogged with rotting grass and algae and had fewer invertebrates.

Aside from CTS larvae, the only wildlife observed during the nocturnal surveys were Pacific treefrogs (which were concentrated in the pool designated A4 in Figs. 3 & 5, but were also heard calling from scattered locations throughout the property), a southern alligator lizard, mallards, and common snipe.

AQUATIC SURVEYS

Although the DFG protocol states that no further surveys should be conducted once CTS are found at a site, Bill Cox and I were both interested in knowing whether or not the pools at the project site would retain water long enough for the larvae to transform to the adult phase. I conducted one dipnet survey of the pools at the project site on 15 March 2002. At that time, I found CTS larvae in the same two pools as before, but also found them in relatively high density in a third pool, A3 (a portion of the y-shaped swale in Fig. 3, also shown in Fig. 6). All the pools were less congested with algae than they were in early February. The larvae throughout the site were between 2 and 2.5 in. in length. I also caught a mosquitofish in Pool A3. I visited the site once more on 3 April, without any sampling, and noted that all three pools that had CTS larvae on 15 March appeared to have sufficient water left for the larvae to reach metamorphosis.

REFERENCES

California Department of Fish and Game. 1997. Survey protocol for California tiger salamander (*Ambystoma californiense*). Inland Fisheries Informational Leaflet No. 44.

Figure 1. USGS Topographic Map, Sebastopol Quadrangle, Fresno Ave. Project.
Figure 2. Plant Communities at the Fresno Ave. Site

AG = Annual Grassland  SW = Seasonal Wetland

Source: City of Santa Rosa Aerial Blueline
Flight Index No. H-14, Photo Date: 2/25/87

Golden Bear Biostudies, 536 B St., Santa Rosa, CA 95401
(707) 573-1770 gbb@msn.com www.wetlandservices.com
Figure 5. Vernal pool A4 at Cherry Ranch, March 2001
Figure 4. Representative terrestrial habitat at Cherry Ranch, March 2001
Figure 6. Portion of vernal pool A3 at Cherry Ranch, March 2001
Figure 7. Vernal pool A1 at Cherry Ranch, March 2001
**California Native Species Field Survey Form**

**Mail to:**
Natural Diversity Database
California Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814

**Date of Field Work:** 02-07-02

**Scientific Name:** Ambystoma californiense
**Common Name:** California tiger salamander

**Species Found?** □ yes □ no

**Total No. Individuals** ____________

**Subsequent Visit?** □ yes □ no

**Is this an existing NDBB occurrence?** □ yes □ no □ unk.

**Collection? If yes:**

<table>
<thead>
<tr>
<th>Number</th>
<th>Museum / Herbarium</th>
</tr>
</thead>
</table>

**Plant Information**

<table>
<thead>
<tr>
<th>Phenology:</th>
<th>% vegetative</th>
<th>% flowering</th>
<th>% fruiting</th>
</tr>
</thead>
</table>

**Animal Information**

**Age Structure:**

- □ adults
- □ juveniles
- □ unknown

**Habitat Description (plant communities, dominants, associates, substrates/soils, aspects/slope):**

Formerly grazed field; several small, shallow, snake-type vernal pools present. CTS larvae observed by flashlight in one pool (during nocturnal survey for adults) with variety of emergent plants, dense & diverse invertebrates (including fairy shrimps). Copepods, ostracods, aphids, caterpillars & other insects, plus chorus frog larvae.

**Site Information**

- **Overall site quality:** □ Excellent □ Good □ Fair □ Poor □ Property

- **Current / surrounding land use:** Urban residential, industrial

- **Visible disturbances / possible threats:** Pending development as housing project

- **Comments:** Pool mainly 8-10 deep, formerly (December) a 15”. Returned to site Feb 8th with Bill Cox, who caught 68 larvae. Affirmed 5 confirmed T&D. We also found one larva in another pool on the site (wetland).