



# **LIVE OAK ASSOCIATES, INC.**

an Ecological Consulting Firm

**LONG-TERM MANAGEMENT PLAN  
POINT MILLERTON CONSERVATION AREA  
MADERA COUNTY, CALIFORNIA**

**Prepared in Compliance with the USFWS File No. 81420-2008-F-1248  
and CDFG Incidental Take Permit No. 2081-2011-001-04**

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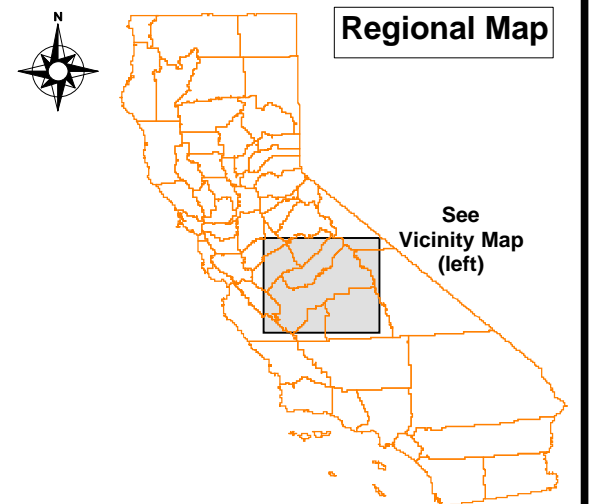
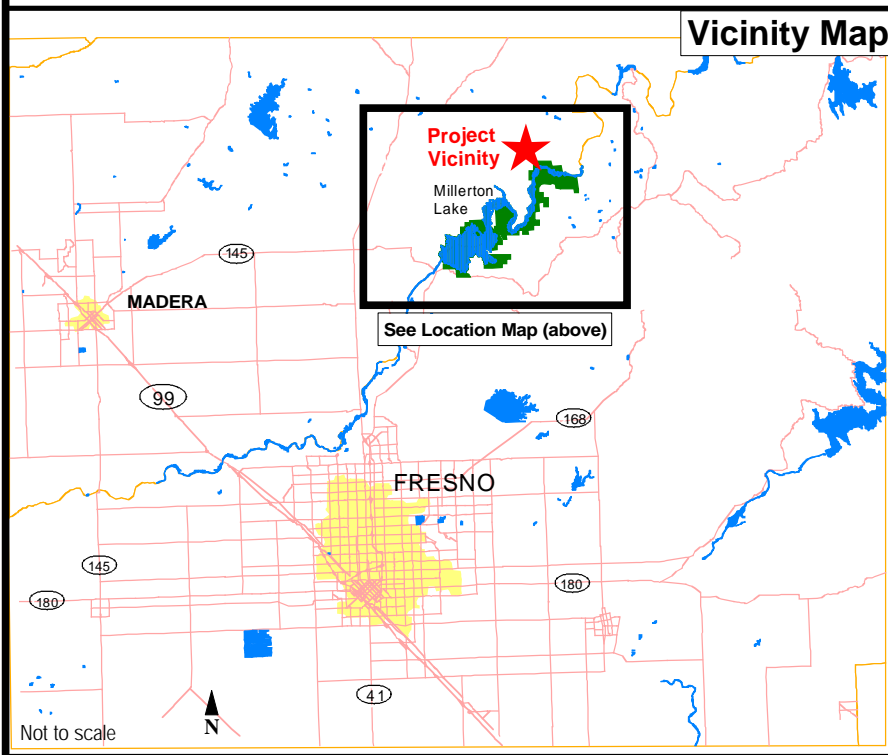
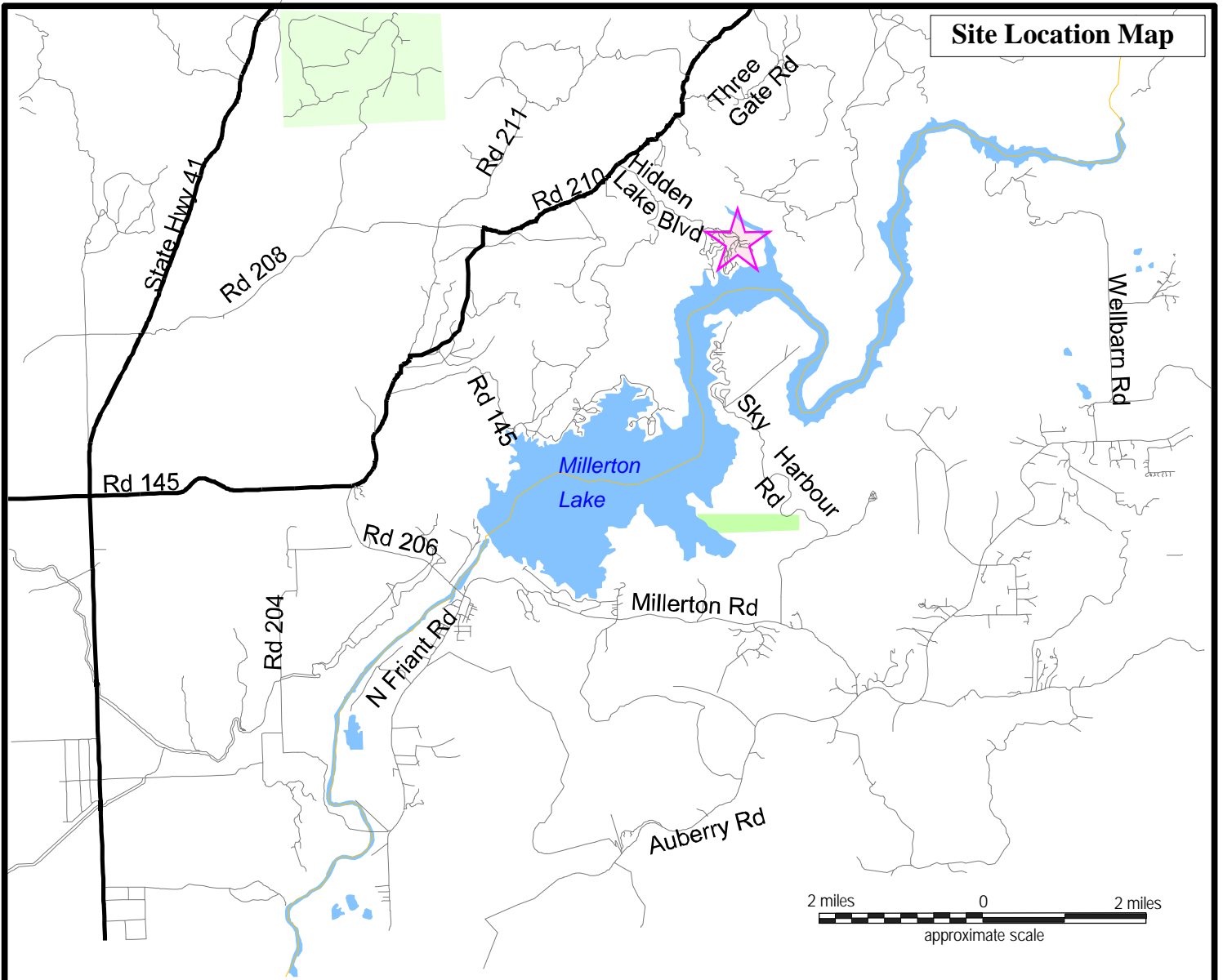
## **1.0 INTRODUCTION**


### **1.1 PURPOSES OF ESTABLISHMENT**

Point Millerton Ranch, LLC proposes to establish the 200-acre Point Millerton Conservation Area (PMCA) in the Sierra foothills of Madera County. This conservation area will compensate for unavoidable impacts to approximately 70 acres of habitat suitable for one state and federal threatened species, the California tiger salamander (*Ambystoma californiense*, commonly referred to as the “CTS”), from proposed residential development and related infrastructure within and near Tract 4870 of the Millerton Specific Plan Area (referred to also as the “Project”) in Fresno County. Such compensation will be achieved through the conservation and protection of CTS habitat and associated biological resources of the conservation area in perpetuity. This management plan covers long-term management of the PMCA in order to promote and maintain its conservation values for the CTS, as well as the other biological resources known to be present.

The PMCA consists of two non-contiguous parcels located in the western foothills of the Sierra Nevada Range in Madera County (Figures 1 and 2). The South Unit of the PMCA is located south of Hidden Lake Boulevard and due west of Hidden Lake Estates. It can be found on the Millerton Lake West U.S.G.S. Quadrangle in Section 14, 15, 22, and 23 of Township 10 South, Range 21 E. The North Unit is located north of Hidden Lake Boulevard and due west of and contiguous with the Sierra Foothill Conservancy’s Finegold Preserve. This unit can be found on the Millerton Lake West U.S.G.S. Quadrangle in Section 14 of Township 10 South, Range 21 E.

The PMCA will consist of 200 acres of undisturbed blue oak woodland typical of the low Sierra foothills. Drainage features of both the north and south units of the Conservation Area are limited to minor drainages that carry seasonal or ephemeral flows during the winter rainy season. These small drainages are tributary to Lake Millerton, an impoundment of the San Joaquin River. A stock pond has been created by damming one small drainage on the South Unit of the Conservation Area. Two other stock ponds have been created on the same drainage, but outside of the Conservation Area. Two additional stock ponds are within 0.5 mile of the Conservation Area boundaries. All five stock ponds supported robust CTS populations in the



 <b>Live Oak Associates, Inc.</b>		
<b>Point Millerton Ranch</b> Site / Vicinity Map		
Date	Project #	Figure #
4/14/2011	xxxx-01	1



# LEGEND



Stock ponds used by CTS for Breeding



Point Millerton Ranch

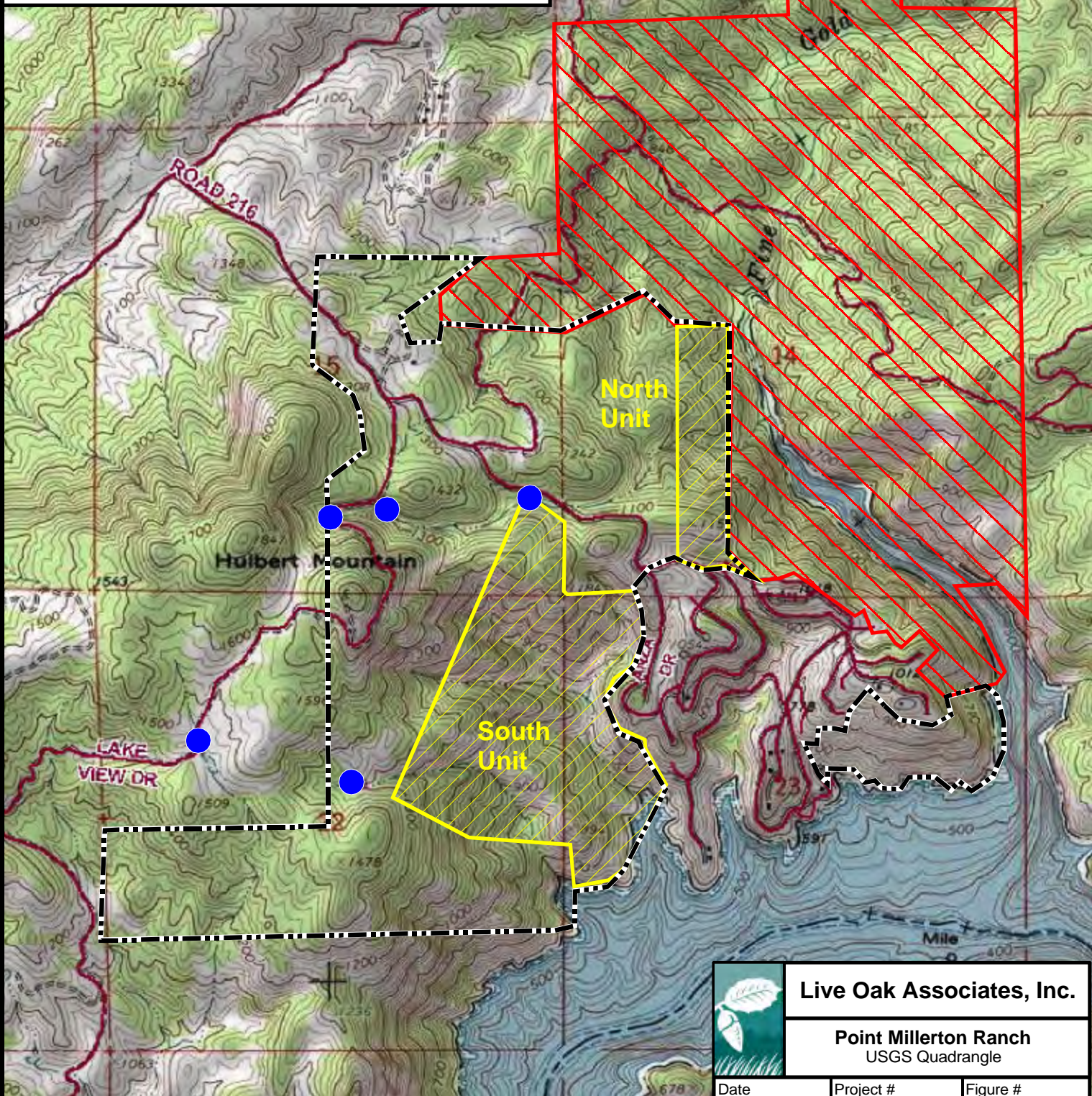


Point Millerton Ranch Conservation Areas



Fine Gold Preserve

1/2 mile 0 1/2 mile  
approximate scale



Live Oak Associates, Inc.

Point Millerton Ranch  
USGS Quadrangle

Date	Project #	Figure #
4/14/2011	1520-01	2



spring of 2011 (John Vollmar, pers. correspondence, 2011). Therefore, some or all of both the North and South Units of the Conservation Area serve as CTS aestivation habitat.

The Conservation Area also provides habitat for the blue elderberry (*Sambucus mexicanus*), a species that is the obligate host of the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). A number of individual elderberry bushes have been documented on the North Unit of the Conservation Area, and additional bushes are likely to occur on the South Unit. The proposed development of Tract 4870 will have no effect on the VELB, since elderberry shrubs are absent from that site. Mitigation for the loss of VELB habitat is not required for this project. The presence of elderberry shrubs within the Conservation Area, however, enhances its conservation value beyond that provided by the presence of CTS.

Thus, the preservation and management of habitats of the PMCA per the provisions of this long-term management plan will fully compensate for the possible take of the state and federally listed CTS occurring within the approximately 70 acres of Tract 4870, and provide additional conservation values that exceed those of the project site.

This management plan is consistent with the Biological Opinion issued by the USFWS (File No. 81420-2008-F-1248) on July 1, 2008 (Attachment A) and the Incidental Take Permit No. 2081-2011-001-04 issued by the California Department of Fish and Game (CDFG) for Tract 4870.

## **1.2 PURPOSES OF THIS LONG-TERM MANAGEMENT PLAN**

The purpose of the long-term management plan is to ensure that the PMCA is managed, monitored, and maintained in perpetuity consistent with the requirements of the biological opinion issued by the U.S. Fish and Wildlife Service and the Incidental Take Permit issued by CDFG. This management plan establishes objectives, priorities and tasks to monitor, manage, maintain and report on the habitats sustaining possible CTS populations. It is a binding and enforceable instrument, implemented by the conservation easement covering the PMCA.

### **1.3 LAND MANAGER AND RESPONSIBILITIES**

The land manager and easement holder will be the Sierra Foothill Conservancy, a land trust based in Tollhouse, California, and serving Fresno, Madera, and Mariposa Counties. The selection of this land trust to hold the easement and to manage the PMCA is subject to final approval of the USFWS and CDFG (i.e., Signatory Agencies to proposed mitigation and management). The land manager, and subsequent land managers upon transfer, shall implement the long-term management plan, managing and monitoring the PMCA in perpetuity to preserve its habitat and conservation values in accordance with the objectives of the biological opinion issued by the USFWS and the Incidental Take Permit issued by the CDFG. Long-term management tasks shall be funded through an Endowment Fund set up specifically for the PMCA. The property owner is responsible for management of the PMCA in accordance with the Management Plan and shall also be responsible for providing annual reports to the Signatory Agencies and the National Fish and Wildlife Foundation that itemizes management tasks completed within a given period of time, the time and money expended on those tasks, the outcomes resulting from all management activities, and likely modifications to on-going management activities that would be warranted in order to better preserve and enhance the habitat values of the PMCA. The property owner may contract with a land manager to complete some or all of the tasks as outlined in this Management Plan.

## **2.0 PROPERTY DESCRIPTION**

### **2.1 SETTING AND LOCATION**

The PMCA is located in Madera County's Sierra foothills north and south of Hidden Lake Boulevard. The City of Fresno lies approximately 20 miles to the southwest. Millerton Lake is located immediately to the south of the Conservation Area's South Unit. The foothills at this location are gently to steeply rolling. Elevations range from a low of approximately 600 feet National Geodetic Vertical Datum (NGVD) to a high of nearly 1,350 NGVD.

The PMCA will be established as required by the biological opinion (81420-2008-F-1248) issued by the USFWS on January 7, 2009 and the Incidental Take Permit No. 2081-2011-001-04 issued by CDFG. The approximately 200-acre PMCA is to be located within the larger 731-acre Pt. Millerton Ranch shown in Figure 2.

### **2.2 HISTORY AND LAND USE**

The PMCA is accessed from Hidden Lake Boulevard (County Road 216). There are no improved roads into the Conservation Area. Buildings are absent from the Conservation Area. Five-strand barb wire fencing will be maintained along those boundaries of the conservation area that are adjacent to lots of the Hidden Lake Estates Subdivision and Hidden Lake Boulevard. The boundaries of the Conservation Areas adjacent to other parcels of Pt. Millerton Ranch will remain unfenced until such time that Point Millerton Ranch, LLC sells those parcels to other parties. Upon the sale of any parcels adjacent to the Conservation Area, 5-strand barbwire fence will be erected along those boundaries and maintained in perpetuity. In the meantime, all the parcels of the Point Millerton Ranch, including those making up the North and South Units of the Conservation Area, will be managed as two large parcels, one north and one south of Hidden Lake Boulevard. All the parcels of the Point Millerton Ranch will be grazed according to the grazing plan developed for the PMCA (Attachment B).

The PMCA consists of rangeland characterized by non-native grassland and blue oak woodland. The sole use of these lands has been cattle grazing. Historic stocking rates are not known. The lands of the PMCA have not been overgrazed in recent years. Evidence of this includes the



presence of considerable standing herbaceous vegetation during the late fall (i.e., just prior to the onset of winter rains), the absence of noxious weeds such as yellow star thistle (*Centaurea solstitialis*) and medusa head (*Taeniatherum caput-medusae*), and the absence of conspicuous erosional features typical of overgrazed lands (i.e., head cuts, gully erosion, and rill erosion).

### **2.3 CULTURAL FEATURES**

There are no known cultural features associated with the PMCA.

### **2.4 HYDROLOGY AND TOPOGRAPHY**

The PMCA consists of gently to steeply rolling rangeland with elevations that vary from a high of approximately 1350 feet National Geodetic Vertical Datum (NGVD) on the highest hills in the northern part of the South Unit to a low of approximately 600 feet along Millerton Lake.

A number of seasonal and/or ephemeral drainage features pass through the PMCA. One small ephemeral drainage passes through both the North and South Units. Two additional drainages pass through the South Unit. All drainages flow into Millerton Lake. During winters of roughly average rainfall these small drainages carry flows of surface water from January through April. During particularly wet years, flows may persist until May or June. During particularly dry years, these drainages may never carry any surface flows.

One small seasonal stock pond is located on the PMCA with two other small stock ponds located elsewhere on the Pt. Millerton Ranch (but outside the Conservation Area). These small ponds hold water from approximately mid-winter through mid to late summer, or even early fall during the wettest years.

### **2.5 SOILS**

Soils of the site have been placed in a single soils mapping unit, Coarsegold rocky loam, 35 to 75 percent slopes (NRCS 1962). Soils of the Coarsegold Series are derived from weathered metamorphosed sedimentary rocks and intrusive basic igneous rocks. Soils are deep and rock outcrops are few. Runoff is rapid to very rapid and the erosion hazard is moderate to severe.

## **2.6 EXISTING EASEMENTS**

The Title Report for the subject four Conservation Parcels shows three old easements from 1952, for road purposes, over the subject Parcels and other property, but there is no easement location or other description described in the documents. These same easements appear of record in the adjacent existing 719 acre Fine Gold Preserve held by Sierra Foothill Conservancy for USFWS and CDFG.

There are no existing roads on any of the subject Parcels. Vehicle use within the PMCA shall be limited to fence repair/construction activities and emergency cattle health purposes with prior approval from USFWS and CDFG. No vehicle use shall be permitted within 250 feet of CTS breeding habitat except on existing off-site roads.

## **2.7 ADJACENT LAND USES**

The North Unit of the PMCA is surrounded on all sides by undeveloped lands used to graze cattle. This unit is contiguous with the Sierra Foothill Conservancy's Finegold Preserve to its north and east.

The South Unit of the Conservation Area is bordered on the north by Hidden Lake Boulevard, but is effectively bordered by undeveloped land used to graze cattle on its north, west, and south. Millerton Lake lies to the south of the eastern-most parcel of the South Unit. Rural "ranchette" development in the form of Hidden Lake Estates is located immediately to the east of the South Unit.

### **3.0 HABITAT AND SPECIES DESCRIPTIONS**

#### **3.1 BIOLOGICAL RESOURCES SURVEY OF OPEN SPACE RESERVES**

Both reconnaissance level and focused surveys for biological resources have been conducted within the PMCA. Specific surveys conducted within the proposed Conservation Area include the following:

- Reconnaissance level biological survey, North Unit of proposed Conservation Area (Live Oak Associates, Inc., October, 2000);
- Botanical resources survey, North Unit of proposed Conservation Area (Live Oak Associates, Inc., July 2003);
- Reconnaissance level biological survey, South Unit of proposed Conservation Area (Live Oak Associates, Inc., April, 2006)
- CTS Survey, South Unit of proposed Conservation Area (Live Oak Associates, Inc., Spring, 2007)
- VELB Survey, North Unit of proposed Conservation Area (Live Oak Associates, Inc., Spring, 2007)
- VELB Survey, North Unit of proposed Conservation Area (Live Oak Associates, Inc., Spring, 2008);
- CTS Survey, South Unit (H.T. Harvey and Associates, Inc., Spring, 2008)
- CTS Survey, South Unit (Vollmar Natural Lands Consulting, LLC, Spring, 2011)

The results of these surveys permit not only a detailed description of habitats of the PMCA, but documentation of VELB habitat and the presence of CTS breeding ponds on and near the Conservation Area.

##### **3.1.1 Biotic Habitats**

Three biotic habitats, blue oak woodland, one seasonal drainage, and the aquatic habitat of one stock pond, were present within the proposed PMCA.

###### *Blue Oak Woodland*

Blue oak woodland habitat makes up the majority of the PMCA. This habitat supports vegetation that is adapted to dry hot summers. Sclerophyllous vegetation consisting of plants with thick, hard leathery leaves resistant to water loss is typical of this habitat. Trees dominating the study area include blue oak (*Quercus douglasii*), interior live oak (*Quercus wizlisenii*) and

foothill pine (*Pinus sabiniana*). The understory is dominated by several species of shrubs including, but not limited to, chaparral whitethorn (*Ceanothus leucodermis*), Mariposa manzanita (*Arctostaphylos viscida* ssp. *mariposa*), poison oak (*Toxicodendron diversilobum*) and California coffeeberry (*Rhamnus californica* ssp. *occidentalis*). The herbaceous understory supported annual grasses and forbs primarily of European origin. Such species included ripgut (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), silver European grass (*Aira caryophylla*), little quaking grass (*Briza minor*) and wild oats (*Avena barbata*). Melic grass (*Melica imperfecta*), a native perennial bunchgrass, was found on site as well. Several native forbs are found in the understory as well. These include pretty face (*Triteleia ixioides* ssp. *scabra*), showy milkweed (*Asclepias speciosa*), Eastwood's fiddleneck (*Amsinckia eastwoodiae*) and beautiful lupine (*Lupinus formosus* ssp. *robustus*).

Many terrestrial vertebrates typical of the Sierra foothills use blue oak woodland habitat. Rocks, decaying logs and rodent burrows provide habitat for various salamanders such as California newts (*Taricha torosa*), Arboreal salamanders (*Aneides lugubris*), Black-bellied salamander (*Batrochoseps nigriventris*) and California slender salamanders (*Batrachoseps attenuatus*). Western fence lizards (*Sclerophorus occidentalis*) are attracted to rocks, logs and tree trunks. Brush and piles of downed branches and leaves provide habitat for more reclusive lizards such as the Gilbert's skinks (*Eumeces gilberti*) and southern alligator lizards (*Gerrhonotus multicarinatus*). Common kingsnakes (*Lampropeltis getulus*), gopher snakes (*Pituophis melanoleuca*) and western rattlesnakes (*Crotalus viridis*) are common predators of frogs, lizards and small mammals.

Blue oak woodland provides habitat for numerous resident and migratory birds. Resident birds (i.e. birds of year-round occurrence) observed on site during the fall of 2000 include Acorn Woodpeckers (*Melanerpes formicivorus*), Nuttall's Woodpeckers (*Picoides nuttallii*), Northern Flickers (*Colaptes auratus*) Oak Titmice (*Parus inornatus*), Scrub Jays (*Aphelocoma coerulescens*), Common Ravens (*Corvus corax*) and California Quail (*Callipepla californica*). Other resident birds would include Red-tailed Hawks (*Buteo jamaicensis*), Cooper's Hawks (*Accipiter cooperii*), Canyon Wrens (*Catherpes mexicanus*), Greater Roadrunners (*Geococcyx californianus*), White-breasted Nuthatches (*Sitta carolinensis*), etc. Winter migrants using the study area would include White-crowned Sparrows (*Zonotrichia leucophrys*), Golden-crowned

Sparrows (*Zonotrichia atricapilla*) and Dark-eyed Juncos (*Junco hyemalis*). Summer migrants would include Western Kingbirds (*Tyrannus verticalis*), House Wrens (*Troglodytes aedon*) and Bullock's Orioles (*Icterus bullocki*).

A variety of mammals occur in this habitat. Dave Hartesveldt observed mule deer (*Odocoileus hemionus*), a bobcat (*Lynx rufus*) and many California ground squirrels (*Spermophilus beecheyi*) during a reconnaissance site visit in the Fall of 2000. He also observed abundant evidence of Botta's pocket gophers (*Thomys bottae*) in the form of burrows. Other small mammals that would be expected to use the blue oak woodland include deer mice (*Peromyscus maniculatus*), brush mice (*Peromyscus boylii*), and desert cottontails (*Sylvilagus audubonii*). Small birds and mammals provide prey for various predators including long-tailed weasels (*Mustela frenata*), badgers (*Taxidea taxus*), gray foxes (*Urocyon cinereoargenteus*), coyotes (*Canis latrans*) and bobcats (*Lynx rufus*). Resident mule deer observed on the site would attract their principal predator the mountain lion (*Felis concolor*).

#### *Seasonal Drainage*

Several small drainages pass through the PMCA. Two drainages carry flows of water long enough to support a number of hydrophytes (wetland plants). While riparian trees such as willows and cottonwoods are absent from the riparian zone along these drainages, several herbaceous species would be expected. Some of these species would include common monkeyflower (*Mimulus guttatus*), white-tipped clover (*Trifolium variegatum*), toad rush (*Juncus bufonius*), and curly dock (*Rumex crispus*).

The seasonal drainages of the site provide terrestrial vertebrates many of the same habitat values as the blue oak woodlands. The seasonal aquatic habitat of the drainage provides western toads (*Bufo boreas*) and Pacific tree frogs (*Hyla regilla*) breeding habitat. The presence of water during the winter and spring enables western toads and pacific chorus frogs to breed in these wetlands. Amphibians and small mammals may attract common garter snakes (*Thamnophis sirtalis*) to this habitat during the spring. Black phoebes (*Sayornis nigricans*) would forage near or within the narrow riparian zones associated with the seasonal drainage. Otherwise, small pools in the swales and seasonal drainages are used as a source of drinking water for many of



the mammals occurring in the adjoining blue oak woodland and non-native grassland. Although other species are present from time to time, the small size of the wetland habitats within the Conservation Area probably precludes its use by many species that occur in more extensive wetlands of the San Joaquin Valley to the west.

#### *Aquatic Habitat of Stock Pond*

One stock pond is located within the South Unit of the Conservation Area. No stock ponds are present in the North Unit. No botanical survey has been conducted within the pond, but plant species common to the shoreline and drying margins of stock ponds of the Sierra foothills include umbrella sedge (*Cyperus eragrostis*), creeping spikerush (*Eleocharis macrostachya*), and swamp timothy (*Crypsis schoenoides*).

Seasonal ponds provide suitable habitat for a limited number of amphibians, reptiles, birds and mammals. The single pond of the South Unit supported a robust CTS population in the spring of 2008 and 2011. Other amphibian species that may have colonized some of these ponds from local populations in the vicinity of the study area include Pacific treefrogs and western toads.

Other wildlife species of this habitat would be similar to those occurring in the bordering non-native grassland habitat, with the addition of species that are exclusively attracted to ponds or wetlands. The presence of amphibians in the pond may attract common garter snakes, as well as birds that feed on amphibians such as great egrets (*Casmerodius alba*). Great blue herons (*Ardea herodias*) and mallards (*Anas platyrhynchos*) are commonly observed in foothill stock ponds. The vegetation and insects of the ponds could attract other species of waterfowl, as well. Mammals that might be attracted to the ponds include ornate shrews (*Sorex ornatus*) and various species of bats that occur in the area. Most mammalian species of the area would only come to this habitat to drink.

### **3.2 ENDANGERED AND THREATENED SPECIES**

One state and federal threatened species, the California tiger salamander (CTS), has been documented within the PMCA. The valley elderberry longhorn beetle may occur within the PMCA. Habitat for this latter species in the form of elderberry bushes is known to occur on the

North Unit, and may occur within the South Unit as well. A brief discussion of each state and federally listed species potentially occurring within the Conservation Area is provided below:

### ***Plants***

None. Extensive surveys for state and federally listed vascular plants were conducted on the North Unit in the spring of 2003 and none of the listed species occurring in the vicinity were found during those surveys. Reconnaissance level surveys conducted on the South Unit in 2007 failed to locate habitats that would be suitable for listed species occurring in the vicinity. State and federally listed vascular plants are therefore not likely to occur on either unit.

### ***Animals***

- Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorpha*) (Federally Threatened): This species resides in and feeds on its obligate host plant, the Mexican elder or blue elder (*Sambucus mexicanus*). As many as four elderberry shrubs have been documented on the North Unit, and it is possible that additional elderberry shrubs occur within the South Unit as well. Elderberry shrubs of the site may harbor this beetle.
- California Tiger Salamander (*Ambystoma californiense*) (Federally Threatened, California Threatened): This species is known to occur on nearby lands 2-3 miles to the south of the Conservation Area (CNDDB [2010]). Live Oak Associates, Inc. first detected CTS in a pond immediately adjacent to Point Millerton Ranch in 2006. H.T. Harvey and Associates, Inc. detected additional CTS in ponds of the Point Millerton Ranch itself in 2008. During the spring of 2011 John Vollmar of Vollmar Natural Lands Consulting, LLC observed numerous CTS larvae in all three stock ponds occurring on the Point Millerton Ranch (one of which is within the South Unit of the Conservation Area), as well as in two additional stock ponds occurring on lands immediately adjacent to Point Millerton Ranch.

Other state listed species that may forage on the PMCA from time to time include the bald eagle (*Haliaeetus leucocephalus*) and the peregrine falcon (*Falco peregrines*). Both species are known to forage over rangeland surrounding Millerton and Hensley Lakes during the winter.

### **3.3 RARE SPECIES AND SPECIES OF SPECIAL CONCERN**

California species of special concern and California Native Plant Society-listed plants have been documented in the general vicinity of the PMCA. These species are discussed below:

## ***Plants***

Madera leptosiphon (*Leptosiphon serrulatus*): This species has been documented one-two miles to the southwest of the PMCA along the south shore of Millerton Lake. It occurs in grassland and blue oak woodland habitats similar to those of the preserve. The PMCA provides suitable habitat for this species. This species was not observed on the North Unit during extensive spring surveys conducted in 2003. In the absence of focused surveys for this species on the South Unit, this species remains potentially present.

## ***Animals***

Golden Eagle (*Aquila chrysaetos*): This California fully protected species has been observed foraging near the PMCA (Live Oak Associates 2006).

Merlin (*Falco columbarius*): Merlins have been observed foraging on various foothill parcels by Live Oak Associates, Inc. biologists during the past 20 years. This species would only occur on site during the winter.

Western Burrowing Owl (*Athene cunicularia*): While burrowing owls sometimes occur in blue oak woodlands of the low Sierra foothills, this species would more likely occur in grassland habitats at lower elevations. The western burrowing owl may occur within the PMCA, but the likelihood is relatively low.

Due to the presence of suitable habitat within the PMCA, other California special status species or California fully protected species expected to occur on it from time to time include northern harrier (*Circus cyaneus*), ferruginous hawk (*Buteo regalis*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperi*), Vaux's swift (*Chaetura vauxi*), black swift (*Cypseloides niger*), loggerhead shrike (*Lanius ludovicianus*), and American badger (*Taxidea taxus*). Many of the aforementioned bird species occur on the site only to forage, and several would only occur on the site during the winter.

#### 4.0 MANAGEMENT AND MONITORING

The goal of long term management of the PMCA is to foster the long term viability of its covered species and covered habitat. Routine monitoring and minor maintenance tasks (Table 1) are intended to assure the viability of the PMCA in perpetuity. All tasks will be completed as needed, but not all tasks will be needed every year.

<b>TABLE 1. PMCA MONITORING AND MANAGEMENT SCHEDULE.</b>			
<b>BIOLOGICAL MONITORING</b>			
	<b>Monitoring/Maintenance Activity</b>	<b>Implementation Schedule</b>	<b>Implementing Entity</b>
	<i>Waters of the U.S.:</i> Examine such waters of PMCA at reconnaissance level to assess extent and biological health.	Years 1, 3, 5, and 7 following execution of the conservation easement agreement and once every ten years thereafter. Surveys to be conducted in late March, April, or May depending on precipitation that year.	Qualified biologists (i.e., employed by biological consulting firm, academic foundation, or land trust).
	<i>Covered species and their habitat:</i> Examine PMCA for habitats suitable for covered species (primarily stock ponds) at the appropriate time of year at a reconnaissance level to assess presence and abundance of such species.	First spring following execution of easement agreement Two (2) surveys per spring will occur with one each in March or April and one in May. Four (4) spring survey events will occur over a 7 year period and then once in a ten year period thereafter. Surveys will occur during average or above average rainfall years ( $> 14$ inches).	Qualified biologists (i.e., employed by biological consulting firm, academic foundation, or land trust).
	<i>Invasive Species:</i> Examine PMCA for invasive alien species and recommend measures to control such species should any become established.	First spring following execution of conservation easement agreement and every other spring thereafter. Surveys to be conducted in late April or early May, depending on the year.	Qualified biologists (i.e., employed by biological consulting firm, academic foundation, or land trust).
	<i>Vegetation Management.</i> Use monitoring data (RDM) to adjust grazing regime (Attachment B), propose invasive weed management measures, or otherwise use adaptive management to maximize the conservation values of the PMCA.	Adjustments to the grazing plan, implementation of weed management measures, and other adaptive management measures will occur as needed. Conduct RDM monitoring yearly in late fall and spring in conjunction with the biannual easement monitoring activities.	Qualified biologist or range management specialist (i.e., employed by biological consulting firm, academic foundation, or land trust).
<b>MONITORING OF PROVISIONS OF THE CONSERVATION EASEMENT</b>			
	<b>Monitoring/Maintenance Activity</b>	<b>Implementation Schedule</b>	<b>Implementing Entity</b>
	<i>Conservation Easement.</i> Site	Spring (late April or early May)	Land trust holding the conservation

	inspection to ensure compliance with all provisions of the conservation easement.	and fall (late October early November) of every year.	easement. Owner of PMCA to rectify any violations of the easement.
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**TABLE 2. PMCA MONITORING AND MANAGEMENT SCHEDULE.**

<b>INFRASTRUCTURE, FACILITIES, SECURITY, SAFETY, AND PUBLIC ACCESS</b>			
	<b>Monitoring/Maintenance Activity</b>	<b>Implementation Schedule</b>	<b>Implementing Entity</b>
	<i>Trash and Trespass.</i> Examine PMCA for accumulated trash and evidence of trespass. Identify measures required to clean up site and repair barriers to unauthorized trespass.	Spring (late April or early May) of every year.	Land manager/land trust holding the conservation easement will monitor site for trash and trespass and implement measures to clean up accumulated trash or secure PMCA from unauthorized trespass.
	<i>Fences and Gates.</i> Monitor condition of fences and gates of site, and identify required maintenance to maintain fencing as required by this management plan.	Spring (late April or early May) of every year.	Land manager will monitor fences and gates and make required repairs necessary to maintain the conservation values of the PMCA. The owner of the PMCA will have the option of replacing gates and fencing at his/her expense so long as doing so is in compliance with the intent of this management plan.
<b>REPORTING AND ADMINISTRATION</b>			
	<b>Monitoring/Maintenance Activity</b>	<b>Implementation Schedule</b>	<b>Implementing Entity</b>
	<i>Biological Monitoring Report.</i> Report documenting conditions of biological resources of the PMCA.	Every other spring when monitoring is implemented. The report is due to Land Manager on June 30 <sup>th</sup> of every year.	Qualified biologists conducting surveys.
	<i>Annual Easement Monitoring Report.</i> Report documenting compliance with conditions of the conservation easement. Annual Report and Annual Workplan will be submitted to NFWF. The biological monitoring report will be attached as an appendix to this document every other year.	This report will be prepared and submitted to the Signatory Agencies every year by August 15 <sup>th</sup> . The Annual Report and Annual Workplan will be submitted to NFWF annually.	Land manager/land trust holding the conservation easement.

#### 4.1 BIOLOGICAL RESOURCES

The approach to the long term management of the PMCA is to conduct site surveys and to monitor select characteristics to determine stability and ongoing trends of the on-site CTS population through evaluation of one stock pond serving as breeding habitat for CTS and upland grassland serving as refugia for CTS, other endangered and threatened species, other species of



special concern, and the grassland habitats and other biotic resources on which they rely. Monitoring for biological resources will begin the year after the PMCA is formally approved as mitigation for the Tract 4870 Project and will assess the general condition of the preserve, degree of erosion, invasion of exotic or deleterious species, water quality, fire hazard, and/or other aspects that may warrant management actions. While it is not anticipated that major management actions will be needed, an objective of the long-term management plan is to conduct monitoring to identify any issues that arise, and using adaptive management to determine what actions might be appropriate. Those chosen to accomplish monitoring responsibilities will have the knowledge, training and experience to do so.

Adaptive management means an approach to natural resource management which incorporates changes to management practices, including corrective actions as determined to be appropriate by the Corps, USFWS, and the CDFG in discussion with the land manager. Before considering any adaptive management changes to the long-term management plan, the Signatory Agencies will consider whether such actions will help ensure the continued viability of the biological resources within the PMCA.

The land manager for the PMCA shall implement the following monitoring activities by retaining qualified biologists to perform the following surveys, and prepare reports summarizing survey results and recommending changes in site management where such changes may be warranted:

#### **4.1.1 Waters of the U.S., Including Wetlands**

##### ***Objective***

Monitor, conserve and maintain the PMCA's waters of the U.S. including wetlands and stock ponds in perpetuity. Limit any impacts to aquatic habitats from vehicular travel, unauthorized dumping of refuse or fill, spraying of herbicides and pesticides, or other activities.

### ***Task 1***

A qualified biologist will conduct one walk-through survey the first, third, fifth, and seventh spring following execution of the conservation easement agreement and one spring every ten years thereafter to qualitatively monitor the general condition of the PMCA's waters of the U.S., focusing on the aquatic habitat used by CTS as breeding habitat. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, erosion, will be noted, and evaluated. Notes to be made will include observations of species encountered, water quality (i.e, turbidity, amount of algae, presence/absence of oil sheen on surface, etc.), general extent of aquatic habitat and wetlands, and any occurrences of erosion, and weed invasion.

### ***Task 2***

Establish reference sites for photographs and prepare a site map showing the reference sites for the PMCA. Reference sites will be of aquatic habitat used by CTS as breeding habitat. Photographs will be taken of each reference site each spring that monitoring is to occur to provide a visual record of the on-site aquatic habitat.

## **4.1.2 Covered Species and their Habitat**

### ***Objective***

Monitor, conserve and enhance the covered species (California tiger salamander), and other species that might be present, and their habitats (stock ponds, terrestrial habitat supporting burrowing rodents, and mature elderberry shrubs) occurring on the PMCA in perpetuity.

### ***Task 1***

A qualified herpetologist possessing the appropriate USFWS- and CDFG-approved scientific collecting permit will sample all potential breeding locations within the PMCA twice each

spring with one sampling event in March or April and one in early May for a total of 4 years after execution of the easement agreement within the first 7 years and in March or April and one in early May once every 10 years thereafter for the California tiger salamander. The purpose of these surveys is to establish that this species remains present in such habitats of the preserve, and that populations of this species are not obviously declining. This task provides for two surveys using seines or dipnets consisting of one in March or April and one in early May of each designated monitoring year. Long-term monitoring (i.e., monitoring that occurs at least every 10 years following the baseline monitoring) will occur during years that rainfall meets or exceeds average rainfall for the foothill region within which the PMCA is located.

## ***Task 2***

As part of the annual site walk-through, the covered habitats of the PMCA will be examined for any changes, current condition or pending needs. The status and any changes to the covered habitats will be noted, and adaptive management measures related to grazing, weed control, water control, allowable ingress and egress of vehicles, etc. will be proposed and implemented.

### **4.1.3 Invasive Species**

#### ***Objective***

Monitor and maintain control over major noxious weeds and/or other strongly invasive plants or wildlife that diminish site quality and reduce the long-term viability of populations of covered species. Obvious species to monitor the PMCA for include yellow star-thistle, medusa-head, Italian thistle, and milk thistle, although others may appear in the future that have not been of regional significance to date. Alien species common to the grasslands of the site are naturalized species that could not be readily controlled. Upland genera would include *Hordeum*, *Avena*, *Vulpia*, *Erodium*, and *Hypochaeris*. Wetland genera would include *Polypogon*, *Lythrum*, *Polygonum*, and *Gnaphalium*. These species will only be addressed if during on-going site monitoring it appears that one or more is proliferating at the expense of wetland function and/or native species. To date, invasive weeds have not been a threat to the conservation of either, and there is no reason to suspect that a proliferation of invasive weeds will occur any time soon.

### ***Task 1***

The PMCA will be monitored for alien plant species every year in perpetuity during the spring site assessment conducted by the Preserve Manager. This will be accomplished by means of a walk-through survey at which time a qualitative assessment will be made of potential or observed weed invasions, primarily in or around wetlands. Additional actions to control invasive species will be evaluated and prioritized.

### ***Task 2***

Mapping of targeted invasive species shall occur as required during the annual site monitoring survey following formal establishment of the PMCA. Mapping shall be accomplished through the use of available technologies, such as Global Positioning Systems (GPS), GIS, and aerial photography. All mapping will facilitate the tracking of weed abatement measures and the development of alternative control measures, should alien species continue to spread notwithstanding the implementation of initial control measures.

### ***Task 3***

The land manager will implement weed abatement measures such as mowing, disking, the application of suitable herbicides, or making modifications to the grazing plan when noxious weeds threatened or potentially threaten the conservation values of the PMCA. Mowing, disking, and application of herbicides shall not occur within 250 feet of CTS breeding habitat, 100 feet from elderberry shrubs, or during the nesting bird season unless a qualified biologist is present to ensure CTS, other sensitive species, nesting birds, or sensitive habitats are not impacted by such activities and approval is obtained from the Signatory Agencies.

## **4.1.4 Vegetation Management**

### ***Objective***

Adaptively manage vegetation based on site conditions and data acquired through monitoring to maintain and enhance existing biological values of the PMCA.

### ***Task 1***

The current grazing regime appears to adequately maintain the vegetation in blue oak woodland, seasonal drainages, and one stock pond occurring in the conservation area. The biological monitor and Preserve Manager shall, however, analyze the effects of grazing on habitat quality. To that end, the Preserve Manager will assess residual dry matter twice each year in the late fall (late October through early November) and Spring (late April through early May) according to the Grazing Plan (Exhibit B) or other methodologies acceptable to CDFG and USFWS (i.e., through clipping and weighing and evaluation of percent ground cover).

### ***Task 2***

If determined necessary to maintain site quality, the Preserve Manager in consultation with the PMCA owner and the Signatory Agencies will develop alternative grazing practices and amend this long-term management plan as needed. The land manager will then direct the PMCA owner to implement revised grazing practices.

### ***Task 3***

Implement vegetation management techniques to maintain vegetation height and composition to enhance burrowing rodent use and maintain seasonal wetland function for the benefit of CTS and threatened/endangered plant species habitat. Implementation of vegetation management techniques must be approved by the Signatory Agencies.

## **4.2 COMPLIANCE WITH THE CONSERVATION EASEMENT**

The land manager will monitor the PMCA twice annually in the late spring and in the fall to verify that the management of the preserve is in full compliance with the terms and conditions of the conservation easement, and to assess the need to modify site management, repair fences, remove trash, stabilize erosion, etc.

## **4.3 INFRASTRUCTURE, FACILITIES, SECURITY, SAFETY, AND PUBLIC ACCESS**

The PMCA will be fenced and shall have no general public access, nor any regular public or private use (other than those permitted in the adopted conservation easement for the PMCA). Research and/or other education programs or efforts will be allowed on the PMCA as deemed



appropriate by the owner, land manager, and Signatory Agencies, but are not specifically funded or a part of this long-term management plan.

Specific management activities that the land manager will be responsible for are as follow:

#### **4.3.1 Trash and Trespass**

##### ***Objective***

Monitor sources of trash and trespass, and collect trash, repair vandalized structures, and rectify trespass impacts.

##### ***Task 1***

During each site visit, record occurrences of trash and/or trespass. Record type, location, and management mitigation recommendations to avoid, minimize, or rectify a trash and/or trespass impact.

##### ***Task 2***

The land manager will collect and remove all trash and repair and rectify all vandalism and trespass impacts that adversely affect the conservation values of the PMCA. Such work, should it be deemed necessary, will occur within 30 days of accumulated trash and required repair work being detected.

#### **4.3.2 Fences and Gates**

##### ***Objective***

Construct new fencing and gates as needed and monitor condition of all fences and gates for PMCA, and maintain fences and gates to prevent casual trespass, allow necessary access, and facilitate grazing regime and management. New fencing will be required along the South Unit's common boundary with residential lots in Hidden Lake Estates. This fencing will be constructed in order to facilitate grazing of the South Unit. The parcels making up the South and North Units are contiguous with other parcels of Point Millerton Ranch and will be

managed as part of the larger ranch. Therefore, fencing along that part of the PMCA's perimeter contiguous with other parcels of Point Millerton Ranch will not be immediately constructed. Fencing in such areas will only be constructed if and when those parcels are sold to other parties.

### ***Task 1***

The preserve manager will construct fencing as needed along the PMCA's common boundary with parcels not part of the existing Point Millerton Ranch.

### ***Task 2***

During each annual site visit, the land manager will record the condition of all fences and gates, and prepare recommendations for repair work that is determined to be necessary to maintain the security of the PMCA. It is expected that the owner of the PMCA will also monitor fences and gates to ensure that cattle grazing on the PMCA are contained.

### ***Task 3***

Land manager will make required repairs to fences and gates necessary to maintain the conservation values of the PMCA. The owner of the PMCA will have the option of replacing gates and fencing at his/her expense so long as doing so is in compliance with the intent of this management plan.

## **4.4 REPORTING AND ADMINISTRATION**

### **4.4.1 Annual Report**

#### ***Objective***

Preparation for submittal to the Corps, USFWS, CDFG, and other parties such as NFWF an annual report on all monitoring and management tasks conducted for the PMCA that documents site conditions. The monitoring report will be completed and sent to the Signatory Agencies and other parties by August 15 of each year. Thus, the annual report will be submitted to the Signatory Agencies within approximately 90 days of the completion of the annual monitoring

surveys. The Annual Report and Annual Workplan will be submitted to NFWF annually as per their instruction.

***Task 1***

The land manager will prepare and submit to the Corps, USFWS, and CDFG an annual report on all management tasks conducted during the previous year and general site conditions. This report will further document site conditions at the time of each monitoring site visit. The land manager will prepare and submit to NFWF an Annual Report and Annual Workplan per their instruction.

***Task 2***

Within the annual report, the land manager will make recommendations with regard to (1) any habitat enhancement measures deemed to be warranted, (2) any problems that need near term attention (e.g. weed removal, fence repair, erosion control, and/or (3) any changes in the monitoring or management program that appear to be warranted based on monitoring results to date.

## **5.0 TRANSFER, REPLACEMENT, AMENDMENTS, AND NOTICES**

### **5.1 TRANSFER**

Any subsequent transfer of responsibilities under this long-term management plan to a different land owner shall require notification of the Corps, USFWS, and CDFG in writing and no less than sixty days prior to transfer and shall be incorporated into this long-term management plan by amendment. A subsequent Property Owner will assume land manager responsibilities described in this long-term management plan and as required in the Conservation Easement, unless otherwise amended in writing by the Corps, USFWS, and CDFG.

### **5.2 REPLACEMENT**

If the property owner's contracted land manager fails to implement the tasks described in this long-term management plan and is notified of such failure in writing by the Corps, USFWS, or CDFG, the property owner shall have 90 days to remedy such failure. If the failure is not remedied within 90 days, the property owner may request a meeting with these agencies to resolve the failure. Such a meeting shall occur within 30 days or a longer period if approved by the agencies. Based on the outcome of the meeting, or if no meeting is requested, the agencies may request in writing that the land owner designate a replacement land manager. If the land owner fails to designate a replacement land manager, then such public or private land or resource management organization acceptable to and as directed by the Signatory Agencies may enter onto the PMCA in order to fulfill the purposes of this long-term management plan.

### **5.3 AMENDMENTS**

The land manager, property owner, and the Corps, USFWS, and CDFG may meet and confer from time to time, upon the request of any one of them, to revise the long-term management plan to better meet the management objectives and preserve the habitat and conservation values of the PMCA. Any proposed changes to the long-term management plan shall be discussed with the Corps, USFWS, CDFG, and land manager. Any proposed changes will be designed with input from all parties. Amendments to the long-term management plan approved by the

agencies in writing shall be required management components and shall be implemented by the land owner or designated land manager.

If the Corps, USFWS, or CDFG determine in writing that continued implementation of the long-term management plan would jeopardize the continued existence of a state or federally listed species, any written amendment to this long-term management plan, determined by either the USFWS or CDFG as necessary to avoid jeopardy, shall be a required management component and shall be implemented by the land owner or designated land manager.

#### **5.4 NOTICES**

Any notices regarding this long-term management plan shall be directed to the land owner and the designated land manager, who at this time is the Sierra Foothill Conservancy. All appropriate contact information will be provided the Corps, USFWS, and CDFG after execution of the conservation easement.

Notices to be sent to Signatory Agencies approving the PMCA as mitigation for the Tract 4870 Project shall be directed as follows:

U.S. Army Corps of Engineers  
Sacramento District  
Attention: Chief, Regulatory Branch  
1325 J Street  
Sacramento, CA 95814-2922  
Telephone: (916) 557-6605

U.S. Fish and Wildlife Service  
Sacramento Field Office  
Attention: Field Supervisor  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825  
Telephone: (916) 414-6600

U.S. Environmental Protection Agency  
Region IX  
Attention: Water Division  
75 Hawthorne Street  
San Francisco, CA 94105  
Telephone: (415) 947-8707



May 12, 2011

California Department of Fish and Game  
Region 4  
Attention: Dr. Jeffrey Single  
1234 E. Shaw Avenue  
Fresno, CA 93710  
Telephone: (559) 243-4014

California Department of Fish and Game  
Habitat Conservation Planning Branch  
Attention: Branch Chief  
1416 Ninth Street, 12<sup>th</sup> Floor  
Sacramento, CA 95814  
Telephone: (916) 653-4875

Point Millerton Ranch, LLC  
Attention: Austin Ewell  
466 W. Fallbrook Ave, Suite 101  
Fresno, Ca 93711

## 6.0 FUNDING

Monitoring and management activities for the PMCA will be funded from an endowment established during the year that the PMCA is formally approved by the Signatory Agencies. The endowment amount has been determined in consultation with the CDFG. Tasks and other expenditures to be funded by the endowment include the following:

### Monitoring

#### Biological Monitoring/Management (Years 1, 3, 5, and 7 and every 10 years thereafter)

Herpetologist (Senior):	12 hours @ \$125/hour (once every 10 years)
Herpetologist (Assistant):	12 hours @ \$ 75/hour (once every 10 years)
Herpetologist (Senior):	64 hours @ \$125/hour (2x annually for 4 years)
Herpetologist (Assistant):	64 hours @ \$ 75/hour (2x annually for 4 years)

#### Infrastructure, Facilities, Security, Safety, And Public Access Monitoring (twice yearly)

Project Monitoring:	16 hours @ \$ 90/hour 8 hours @ \$ 35/hour
Project Management:	
Fence repair:	8 hours @ \$ 35/hour (yearly)
Weed control:	4 hours @ \$ 75/hour (every 5 years) 4 hours @ \$ 35/hour (every 5 years)
Animal control:	4 hours @ \$ 35/hour (every 7 years)
Trash cleanup:	4 hours @ \$ 35/hour (every 5 years)

#### Administrative Tasks, Report Writing and Workplan Generation (yearly)

Data Management:	12 hours @ \$ 50/hour
Admin Operations (invoicing, contract mgmt, etc.):	16 hours @ \$ 90/hour 40 hours @ \$ 30/hour
Annual Report and Workplan:	8 hours @ \$125/hour 8 hours @ \$ 90/hour 16 hours @ \$ 50/hour
CDFG Staff report review:	8 hours @ \$ 90/hour

### Other Expenses

May 12, 2011

Approximately 13,550 linear feet of existing 5-strand barbwire fencing on a 50-year replacement schedule @ \$8.00/foot, four (4) gates on a 50-year replacement schedule @ \$190.00/gate, and funding for repair of 250 linear feet of fencing on an annual basis @ \$1.00/foot.

A line item has been provided for exotic weed control with \$275.00 of herbicide and equipment provided. It is expected that most years, weed control will not be required, since the PMCA has no history of weed infestations.

Equipment fuel: 15 gallons/year @ \$3.80/gallon

Mileage: 1,000 miles/year @ \$ 0.58 per mile

Liability insurance: 200 acres/year @ \$0.40/acre

### **Other Assumptions**

Capitalization Rate: 3.5%

Administration: 22%

Contingency: 10%

Remedial measures that may be required (repair of erosion, trash clean-up, etc. would be funded from the contingency fund. Remedial measures have not been required in past years, and it is likely that any measures that may be required could be fully funded from the monies in the contingency fund.

The total endowment amount to fund the monitoring and management activities as described in this document would be \$460,215.00 (see Attachment C for printout of PAR-like summary).

**ATTACHMENT A:  
BIOLOGICAL OPINION ON THE MILLERTON NEW TOWN  
TRACT 4870 CHANGE IN THE SERVICE AREA UNDER THE  
WATER SERVICES CONTRACT BETWEEN THE UNITED STATES  
AND THE COUNTY OF FRESNO, SERVICE AREA NO. 34  
FRESNO COUNTY, CALIFORNIA  
U.S. FISH AND WILDLIFE SERVICE FILE NO. 81420-2008-F-**



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In reply refer to:  
81420-2008-F-1278

JAN 7 2009

Dr. Ned Gruenhagen  
Wildlife Biologist, Environmental Management Team  
U.S. Bureau of Reclamation  
South-Central California Area Office  
1243 N Street  
Fresno, CA 93721

Subject: Formal Consultation on the Millerton New Town Tract 4870 Change in the Service Area Under the Water Service Contract Between the United States and the County of Fresno, Service Area No. 34, Fresno County, California

Dear Dr. Gruenhagen:

This is in response to the Bureau of Reclamation's (Reclamation) request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Millerton New Town (MNT) Tract 4870 change in service area under the water service contract between the United States and the County of Fresno (County), Service Area No. 34, Fresno County, California, located on Millerton Road, 2.5 miles east of the unincorporated town of Friant, in Fresno County, California. Your March 19, 2008 request for consultation on the proposed project was received in our office on March 20, 2008. This document represents the Service's biological opinion on the effects of the proposed action on the federally-threatened California tiger salamander (*Ambystoma californiense*) and designated critical habitat for this species. This document is issued in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this consultation are based on: (1) the June 2008, *Biological Assessment—Millerton New Town Tract 4870 Change in the Service Area Under the Water Service Contract Between the United States and the County of Fresno, Service Area No. 34*, prepared by H. T. Harvey & Associates, (2) the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service 1998); (3) the June 2008, *JPJ Conservation Easement (JPJCE) Management Plan; JPJ Conservation Easement Management And Monitoring Plan For*

TAKE PRIDE  
IN AMERICA

*The JPJ, Inc., Tract 4870 Project Within Millerton New Town*, prepared by H. T. Harvey and Associates; (4) faxes, telephone calls, and electronic mail messages between Jeff Jorgenson of the Service and Bonadelle Homes and its representatives; and (5) other information available to the Service.

Because the proposed project site contains suitable habitat for the California tiger salamander, the Service has determined that construction of the proposed project is likely to adversely affect the California tiger salamander. We have determined that the proposed project may affect, but is not likely to adversely affect the endangered San Joaquin kit fox (*Vulpes macrotis mutica*), the threatened San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), the threatened succulent owl's clover (*Castilleja campestris* ssp. *succulenta*), and the threatened vernal pool fairy shrimp (*Branchinecta lynchi*). We have made this determination regarding the San Joaquin kit fox because the species has not been documented on the proposed project site, or in the vicinity of the proposed project site and the applicant has committed to the implementation of the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Service 1999). We have made this determination for the San Joaquin Valley Orcutt grass, the succulent owl's clover, and the vernal pool fairy shrimp because no project activities will occur within 250 of the nearest vernal pool ecosystem; therefore, there will be no direct or indirect effects from the proposed project to these species. The proposed project site lies within designated critical habitat Unit 24b (Fresno County) for the vernal pool fairy shrimp. We have determined that the proposed project will not result in adverse modification to designated critical habitat for the vernal pool fairy shrimp because the action area does not contain suitable vernal pool or seasonal wetland habitat.

### Consultation History

- August 6, 1998: Ben Ewell of The Clarksfield Company, Inc. and Dave Hardeveldt of Live Oak Associates, Inc. attended a pre-application meeting with the U.S. Army Corps of Engineers (Corps) and the Service to discuss environmental issues related to the planning of the MNT Specific Plan development.
- January 5, 2006: The Service met with the project applicant and the Bureau of Reclamation to discuss the potential effects of the project to federally-listed species and the MNT Specific Plan Area in general.
- May 31, 2006: The Service and representatives from the Fresno County Department of Public Works and Planning met to discuss regional planning issues related to wetlands and endangered species.
- December 5, 2006: The Service and representatives from MNT met to discuss the proposed project.
- December 6, 2006: Ben Ewell and Austin Ewell, MNT project representatives, met with Steve Thompson and others staff of the Service.

- March 16, 2007: Representatives of MNT, Fresno County, the California Department of Fish and Game (CDFG), and the Service met to discuss regional habitat planning issues.
- April 16, 2007: Representatives of the Service, Fresno County, the Sierra Foothill Conservancy, and MNT met to review conservation measures for the proposed project and regional habitat planning efforts.
- August 28, 2007: Representatives of the Service, MNT, and H. T. Harvey & Associates met to discuss the approach for analyzing the effects of the MNT Tract 4870 and full build-out of the MNT Specific Plan Area to federally-listed species.
- October 12, 2007: Representatives of the Service, MNT, H. T. Harvey & Associates, and the Sierra Foothill Conservancy participated in a conference call to discuss the JPJCE easement documentation.
- November 20, 2007: Representatives of the Service, MNT, and H. T. Harvey & Associates participated in a conference call to discuss California tiger salamander population genetics. A meeting was held with representatives of the Service, Reclamation, the Corps, MNT, and H. T. Harvey & Associates, to discuss a collective approach to address Section 404, formal consultation, and National Environmental Policy Act (NEPA) requirements.

## **BIOLOGICAL OPINION**

### **Description of the Proposed Action**

The proposed Federal action would expand the County's Municipal and Industrial (M&I) water service area boundary under the existing contract to match the new M&I boundary approved by the State Water Resources Control Board.

Bonadelle Homes proposes to develop the 83-acre Tract 4870 area located entirely within the MNT Specific Plan Area (Exhibit A). The proposed project site is located at: Township 11S, Range 21E, Sections 9, 10, 15, and 16, USGS Friant, California 7.5-Minute Quadrangle. Approximately 13.06 acres of Tract 4870 are proposed for preservation as open space. Proposed construction activities on the remaining 69.94 acres of Tract 4870 include: 161 residential lots, 8070 linear feet of on-site internal roadways, 2660 linear feet of off-site roadways, a storm water basin, propane storage areas, Millerton Road expansion areas, two water tanks and service roads to the tanks, a sewer main from Tract 4870 to the existing sewer treatment plant, water mains to the water treatment plant and to Tract 4870, and haul roads necessary for the grading of Tract 4870.

All tertiary treated effluent from the wastewater treatment plant, including effluent from Tract 4870, will be used to irrigate existing golf course greens within the Brighton Crest development



to the east. Construction access to Tract 4870 will be via the Marina Drive alignment off of Millerton Road (Exhibit A).

The JPJCE for the MNT Tract 4870 development project is a 196.59-acre area (Exhibit A) implemented as part of the proposed action to conserve habitat for federally-listed species, including the California tiger salamander and vernal pool fairy shrimp. The acreage is representative of grasslands and wetlands, including several specialized vernal pool habitat types, located in eastern Fresno County, California.

The management and monitoring plan for the JPJCE contains a 2-tiered approach to maximize the MNT Project's long-term contribution to recovery efforts for plants and animals dependent on vernal pool ecosystems: an Interim Management Plan (IMP) and Long-term Management Plan (LMP). The IMP acknowledges that future projects within the MNT Specific Plan Area will include conservation measures, including permanent, off-site habitat protection and management, and that a greater conservation benefit may be achieved through the preservation and management of a single, larger area of equal or greater habitat quality outside of the MNT Specific Plan Area. The identification and agency approval of a larger alternative site providing greater conservation value is anticipated to occur within approximately five years. Thus, the IMP is designed to manage and monitor conditions within the 196.59-acre easement area during this five year or longer period.

The LMP addresses the requirement to ensure that conservation measures are fully implemented, whether or not an alternative conservation site is located. The LMP will be implemented if an alternative conservation site is not located and preserved.

Historically, domestic livestock have grazed the JPJCE area, with the grazing management practices influencing the floral and faunal communities. Consequently, a combination of plant and animal species adapted to grazing occur within the JPJCE, including the vernal pool fairy shrimp and California tiger salamander.

Proposed conservation measures for the federally-listed species are detailed below:

#### *Conservation Measures for the California Tiger Salamander*

The following conservation measures will be implemented as part of the proposed project to minimize the effects of the proposed project to the California tiger salamander:

1. Bonadelle Homes shall compensate for the permanent loss of 66.07 acres of California tiger salamander upland habitat associated with development of the Tract 4870 development area through the dedication of the JPJCE.
2. Bonadelle Homes shall fully implement and comply with all measures contained in the *JPJ Conservation Easement Management and Monitoring Plan* (H. T. Harvey & Associates 2008) during and following establishment of the JPJCE.



3. Construction activities will be limited to between 30 minutes after sunrise and 30 minutes before sunset during December 1 to February 28 (i.e., the season when most adult California tiger salamanders would be moving to and from local breeding ponds).

#### *Conservation Measures for the San Joaquin Kit Fox*

The applicant will implement the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Service 1999) prior to any construction activities on the proposed project site.

#### **Action Area**

The action area of this proposed project comprises all areas to be affected directly or indirectly by the Federal action, not merely the immediate area involved in the action. For this proposed project, the action encompasses all or portions of the following: 1) lands proposed for development within the MNT Tract 4870, including all supporting infrastructure, and upgrades to the existing wastewater treatment plant south of Millerton Road and east of the Friant-Kern Canal and 2) proposed open space conservation areas within the MNT Specific Plan Area (Exhibit A).

#### **Status of the Species**

##### *California Tiger Salamander*

The Central California population of the California tiger salamander was federally listed as threatened throughout its range on August 4, 2004 (Service 2004a). Critical habitat for the Central California population of the California tiger salamander was designated on August 23, 2005, (Service 2005).

The California 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; Stebbins 2003). California tiger salamander exhibit sexual dimorphism (e.g., males tend to be larger than females). As adults, California tiger salamander tend to have creamy yellow to white spotting on the sides that becomes much reduced on the dorsal surface of the animal, whereas other tiger salamander species have brighter yellow spotting that is heaviest on the dorsum.

Historically, the California tiger salamander inhabited low elevation grassland and oak savannah in the Central Valley, adjacent foothills, and inner Coast Ranges in California (Storer 1925; Shaffer et al. 1993; Jennings and Hayes 1994). The species occurs from near sea level up to approximately 3,900 feet in the Coast Ranges and up to approximately 1,600 feet in the Sierra Nevada foothills (Shaffer et al. 2004). Along the Coast Ranges, the species occurred from the vicinity of Santa Rosa in Sonoma County to near Buellton in Santa Barbara County. In the Central Valley and surrounding foothills, the species occurred from northern Yolo County southward to northeastern Kern County and northern Tulare County.

The California tiger salamander has an obligate biphasic life cycle (Shaffer et al. 2004). Although breeding, egg-laying, and development of the larval salamanders occur in vernal pools and other ponds, the species otherwise spends most of its post-metamorphic life in widely-dispersed, underground retreats (Trenham et al. 2001; Shaffer et al. 2004). Subadult and adult California tiger salamander spend the dry summer and fall months of the year in the burrows of small mammals (e.g., California ground squirrel [*Spermophilus beecheyi*] and Botta's pocket gopher [*Thomomys bottae*]) (Storer 1925; Loredó and Van Vuren 1996; Petranka 1998; Trenham 1998a). These burrows provide protection from the sun and dry winds that are associated with the dry California climate. In addition, camel crickets and other invertebrates that reside within these burrows provide a prey base for the species. Given that California tiger salamander utilize burrows created by other species (rather than dig their own burrows) and these burrows typically collapse within 18 months if not maintained, an active population of burrowing mammals is necessary to sustain sufficient underground refugia for the species (Loredó et al. 1996).

The burrows inhabited by California tiger salamander are not aestivation sites. Recent studies have demonstrated that individuals move, feed, and remain active in their burrows during the summer months (Trenham 2001; van Hatten 2004). Individuals may even move between closely located burrows (Trenham 2001). In addition, researchers have long inferred that individuals are feeding while underground since they arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving the pond.

Once the fall or winter rains begin, individuals emerge from their burrow (typically on rainy nights) to feed and migrate to the breeding ponds (Shaffer et al. 1993). Adult salamanders mate in the ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer et al. 1993, Petranka 1998). Historically, the California tiger salamander utilized vernal pools as breeding ponds. However, many current breeding sites also include stock ponds. Females attach their eggs singly, or in rare circumstances, in groups of 2 to 4 eggs to twigs, grass stems, other 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 that are located on the pond bottom (Jennings and Hayes 1994). After breeding, adults leave the pond and return to the small mammal burrows (Loredó et al. 1996; Trenham 1998a) where they may continue to exit the burrows nightly for the next few weeks to feed (Shaffer et al. 1993). It should be noted that in drought years the seasonal ponds may not fill and adults do not breed (Barry and Shaffer 1994).

California tiger salamander eggs hatch in 10 to 14 days with newly hatched larvae ranging from 0.45 to 0.56 inches in total length (Petranka 1998). The larvae are entirely aquatic. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about 6 weeks after hatching, after which they switch to larger prey (typically the larvae of other amphibian species) (J. Anderson 1968). They often rest on the bottom in shallow water, but may also be found at different depths in the water column in deeper water. The larvae are wary and when approached by potential predators, they dart into vegetation on the bottom of the pond (Storer 1925).

The larval stage of the California tiger salamander usually lasts three to six months as most seasonal ponds dry completely during the summer months (Petranka 1998). Amphibian larvae must develop to a critical minimum body size before they can metamorphose 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 ponds 60 to 94 days after the eggs had been laid. Furthermore, larvae developed faster in smaller, more rapidly drying ponds. Thus, larvae and metamorphosing juveniles are larger in ponds that are inundated longer and are more likely to survive and reproduce (Pechmann et al. 1989; Semlitsch et al. 1988; Morey 1998; Trenham 1998b). The larvae will perish if the pond dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Vollmar Consulting (2002) found that vernal pools occupied by California tiger salamander larvae in Merced County averaged 14.8 inches in depth, while vernal pools that were unoccupied averaged 6.0 inches in depth. Pechmann et al. (1989) found a strong positive correlation between ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 ponds sampled supported larval California tiger salamander, and five of these ponds dried before metamorphosis could occur. Therefore, out of the original 30 ponds, 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 the ponds and move into the upland habitat. This emigration occurs in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo et al. 1996). Unlike during their winter migrations, 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 suitable upland refugia (including leaf litter, desiccation cracks in the soil, and beneath boards or rocks in addition to small mammal burrows). These latter refugia are typically used temporarily and only until more suitable refugia can be found (i.e., small mammal burrows). Upon arrival of the next winter's rains individuals may then move further within the upland habitat. Once juvenile California tiger salamanders leave their breeding ponds, they may not return to breed for four to five years. However, they remain active in the upland habitat and come to the surface during rainfall events to disperse or forage.

Lifetime reproductive success for California tiger salamanders is low. Trenham et al. (2000) found that the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in approximately 11 metamorphic offspring over the lifetime of the female. Two reasons for the low reproductive success associated with this preliminary data are that most individuals require two years to become sexually mature, but some individuals may be slower to mature and do not breed until they are four to six years old (Shaffer et al. 1993). While individuals may survive for more than 10 years, many breed only once, and in some populations, less than five 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 ponds can quickly extirpate a population.

Dispersal and migration movements made by adult California tiger salamanders can be grouped into three categories: (1) post-metamorphosis dispersal; (2) breeding migration; and (3) interpond dispersal. After metamorphosis, juveniles move away from breeding ponds into the



surrounding upland habitat 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 (i.e., birth) pond to breed. However, 20 percent of the individuals dispersed to other ponds where they breed (Trenham et al. 2001). Following breeding, adult California tiger salamanders return to the upland habitat where they may live for one or more years before breeding again (Trenham et al. 2000).

California tiger salamanders are known to travel relatively long distances from the breeding ponds into the surrounding upland habitat (given the size of the species). Maximum distances moved are difficult to establish for the species, but an individual in Santa Barbara County was found approximately 1.3 miles from the nearest known breeding pond (Sweet 1998) suggesting that the species may be able to move up to distances of this magnitude. As previously mentioned, California 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 later captured at other ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001). In addition to traveling long distances during breeding migrations or interpond dispersals, California tiger salamanders may reside in burrows that are far from known breeding ponds. At one site in Contra Costa County, hundreds of California tiger salamanders were captured three years in a row in upland habitat approximately 0.75 miles from the nearest known breeding pond (Orloff 2003).

Although observations show that California tiger salamanders may travel far from breeding ponds, individuals typically reside in upland habitat that is closer to the breeding ponds. Evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adult California tiger salamanders. A trapping study conducted in Solano County during winter 2002-2003 found that juveniles used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile individuals were captured at distances of 328, 656, and 1,312 feet from a breeding pond than at 164 feet. 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 individuals could be found within 2,099 feet with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-2004 trapping effort detected juvenile California tiger salamanders at even greater distances, with a large proportion of the total California tiger salamanders caught at 2,297 feet from the breeding pond (Trenham et al., unpublished data). Surprisingly, most juveniles captured, even those at 2,100 feet, were still moving away from the ponds. In Santa Barbara County, juvenile California tiger salamanders have been trapped approximately 1,200 feet away while dispersing from their breeding pond (Science Applications International Corporation, unpublished data). Such movements (particularly by juvenile California tiger salamanders) may reflect a "hardwired" genetic behavior that increases the likelihood that a metapopulation will persist (particularly given the short and long-term ephemeral nature of vernal pool systems) if individuals travel longer distances where they may encounter other breeding ponds. This latter behavior and the known interpond dispersal behavior that has been demonstrated at some sites would appear to support this concept. Furthermore, interpond movements may also reduce local in-breeding depression, genetic drift, and founder effects that could occur if individuals only returned to their natal pond.

Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-breeding emigration, radio-telemetered adult California 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 after breeding or due to the drier weather conditions that often occur during the period when adults leave the ponds. The reduced movement may also reflect the effects of the internally placed radio-telemeter on the physiology of the individual. However, the shorter movement distances of adult California tiger salamanders may also reflect the selective advantages of only moving as far away from the breeding pond as necessary to find suitable refugia (such that more energy goes into reproduction and less into travel costs).

Once California tiger salamanders have moved into the surrounding upland habitat most individuals do not remain in a single burrow. Most individuals use several successive burrows at increasingly greater distances from the pond. Although the studies discussed above provide an approximation of the distances that California tiger salamanders move from their breeding ponds, movement in the upland habitat is believed to be driven by the local habitat features. Trenham (2001) found that radio-telemetered adults favored grassland with scattered large oaks over more densely wooded areas. A drift fence survey at a pond in Santa Barbara County found that many emigrating juveniles moved towards an adjacent strawberry field. However, no adults were captured returning to the pond from this direction. Nor, did many California tiger salamanders return to the pond from the direction of adjacent sandhill or eucalyptus habitats found in other quadrants. Most of the California tiger salamanders returning to the pond were captured coming from a nearby, extensive overgrazed grassy flat (Steve Sykes, pers. comm.). Furthermore, based on studies of radio-telemetered individuals, California tiger salamanders do not appear to favor specific corridors for movement in the upland habitat (Trenham 2001). At two ponds completely encircled by drift fence and pit fall traps, captures of arriving adults and dispersing juveniles were distributed randomly around the ponds. Therefore, it appears that dispersal into the surrounding upland habitat occurs randomly with respect to direction and habitat types.

The California tiger salamander is imperiled throughout its range by a variety of human activities (Service 2004a). Current factors associated with declining populations of California tiger salamanders include continued degradation and loss of habitat due to agriculture and urbanization, hybridization with non-native eastern tiger salamanders (*Ambystoma tigrinum*) (Riley et al. 2003; Fitzpatrick and Shaffer 2004), and introduced aquatic predators (e.g., bullfrog, mosquitofish, and gamefish). Other threats include predation and competition from introduced, exotic species; disease; various chemical contaminants; road-crossing mortality; and certain unrestrictive mosquito and rodent control programs. Furthermore, the various primary and secondary threats are not currently being offset by existing Federal, State, or local regulatory mechanisms. The California tiger salamander is also vulnerable to chance environmental or demographic events (small populations which are especially vulnerable).

Although most populations are likely threatened by more than one factor, conversion of natural habitat to modified habitat for urban and agricultural uses (T. Jones in litt. 1993; Service 2003, 2004a, 2004b; Shaffer et al. 1993), and fragmentation of existing habitat represent the most significant current threats to the California tiger salamander. Some of the largest remaining populations of California tiger salamanders are in areas that are severely threatened by new

urban development, including the Livermore Valley, Santa Clara Valley, and eastern Fresno County. Urban effects that threaten California tiger salamander survival include housing, commercial, and industrial developments; road construction and widening; golf course construction and maintenance; trash dumping, landfill operation, and expansion; and the operation of gravel mines and quarries. Agricultural activities that threaten California tiger salamander survival include disking and deep-ripping, as well as the cultivation, planting, and maintenance of row crops, orchards, and vineyards. Historically, California supported approximately 15.59 million acres of valley and coastal grasslands, blue oak/foothill pine, valley oak, or mixed hardwood lands (Kuchler 1988). Urbanization and intensive agriculture have eliminated virtually all valley grassland and oak savanna habitat from the Central Valley floor. Currently there are about 1.1 million acres of such habitat where the California tiger salamander is still potentially extant.

The relative loss of native habitat has been even more extreme with respect to vernal pools, the historic breeding habitat of the California tiger salamander. Remaining vernal pool complexes are now fragmented and reduced in area. Where vernal pools remain, they are often disturbed and degraded by drainage modification, overgrazing, off-road vehicle use, non-native plant invasion, trash dumping, road construction, and urban development (Jones & Stokes Associates 1987). The annual loss of vernal pool habitat in Madera County from 1987 to 1997 was estimated by Holland (1998) at 0.4 percent (413 acres per year). However, the amount of vernal pool loss in all counties assessed by Holland (including Fresno County) may have been underestimated given that the 1987 baseline mapping methodology was less refined than the mapping used in 1997.

While California tiger salamanders breed successfully in artificial ponds (e.g., bermed or stock ponds), these ponds often are poorer habitat for California tiger salamanders than are natural vernal pools. Hydroperiods in artificial ponds may be so short that larvae cannot metamorphose, or so long that predatory fish and bullfrogs can colonize the pond (Shaffer et al. 1993, Seymour and Westphal 1994). Artificial ponds that are managed to maintain year-round water often become attractive as a site for the introduction of gamefish. The result of these introductions is the extirpation of California tiger salamanders that breed in the ponds (Shaffer et al. 1993, Seymour and Westphal 1994).

In addition to direct loss of habitat, the widespread conversion of undisturbed land to residential and agricultural uses has fragmented habitat throughout the range of the California tiger salamander and has isolated several remaining populations (Shaffer et al. 1993). Isolation and fragmentation of habitats within many watersheds have precluded dispersal between subpopulations and jeopardized the viability of metapopulations (i.e., adjacent subpopulations that occasionally exchange individuals (and genes) through dispersal and that are capable of colonizing new habitat patches or recolonizing habitat from which a population was extirpated).

A number of non-native species have adversely affected the California tiger salamander through predation and competition. A strong negative correlation exists between bullfrog presence and California tiger salamander presence (Shaffer et al. 1993, Seymour and Westphal 1994). Morey and Guinn (1992) documented a shift in amphibian community composition at a vernal pool complex, with California tiger salamanders becoming proportionally less abundant as bullfrogs



increased in number. Mosquito fish (*Gambusia affinis*) likely have also adversely affected California tiger salamanders via predation and competition. Loredó-Prendeville et al. (1994) failed to find any California tiger salamanders inhabiting ponds containing mosquito fish. About 50 local mosquito abatement districts introduce this species of fish throughout the state (Boyce in litt. 1994).

A number of other non-native species have been directly implicated in predation of California tiger salamanders or appear to have the potential to do so. Introductions of largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* spp.), and fathead minnows (*Pimephales promelas*) likely eliminated tiger salamanders from several breeding sites in Santa Barbara County (Service 2000a). Non-native sunfish, catfish, and bullheads (*Ameiurus* spp.) have been and still are widely introduced into many ponds in California for sport fishing. Crayfish (*Pacifastacus*, *Orconectes*, and *Procambarus* spp.) are known to prey on California newt (*Taricha torosa*) eggs and larvae, despite toxins they produce (Gamradt and Kats 1996). Thus, these crayfish also likely prey on California tiger salamanders.

Like most amphibians, California tiger salamanders inhabit both aquatic and terrestrial habitats at different stages in their life cycle. They are exposed, therefore, to both aquatic and terrestrial pollutants due to their highly permeable skin (Blaustein and Wake 1990). During 2001, the 23 counties where California tiger salamanders occur used over 105 million pounds of pesticides (California Department of Pesticide Regulation Internet website, December 2002). Some of these pesticides are extremely toxic to aquatic organisms, including amphibians and the organisms on which they prey. Some of these pesticides, such as chlorpyrifos, malathion, and endosulfan are cholinesterase inhibitors. Reduced cholinesterase activity has been linked to uncoordinated swimming, increased vulnerability to predation, depressed growth, and increased mortality in larvae (Rosenbaum et al. 1988, Bridges 1997, Berrill et al. 1998, Sparling et al. 2001). Even when toxic or detectable amounts of pesticides are not found in breeding ponds or groundwater, California tiger salamanders may still be affected, particularly by chemicals applied during the migration and dispersal seasons. Sparling et al. (2001) examined pesticide usage and amphibian (*Rana* and *Bufo* spp.) population declines in California and provided evidence that pesticides are instrumental in the declines of these species.

Widespread control of California ground squirrels and pocket gophers may also pose a significant threat to the California tiger salamander. Ground squirrel control is conducted by trapping, shooting, fumigation, toxic (including anticoagulant) baits, and habitat modification (including deep-ripping of burrow areas) (University of California Integrated Pest Management Internet website, January 2003). Ground squirrel and pocket gopher control may have the indirect effect of reducing the number of upland burrows available to specific California tiger salamander populations (Loredó-Prendeville et al. 1994).

Light-to-moderate livestock grazing by cattle, sheep, and horses is generally thought to be compatible with continued successful use of rangelands by the California tiger salamander, provided the grazed areas do not also have intensive burrowing rodent control efforts (T. Jones, in litt. 1993, Shaffer et al. 1993). By maintaining shorter vegetation, grazing may make areas more suitable for ground squirrels whose burrows are essential to the California tiger salamander.

Conservation of the California tiger salamander requires a five-pronged approach: (1) maintaining the current genetic structure across the species' range; (2) maintaining the current geographic, elevational, and ecological distribution; (3) protecting the hydrology and water quality of breeding pools and ponds; (4) retaining or providing for connectivity between breeding locations for genetic exchange and recolonization; and (5) protecting sufficient barrier-free upland habitat around each breeding location to allow for sufficient survival and recruitment to maintain a breeding population over the long term. Specific actions that help meet these goals include, but are not limited to (1) protection, restoration, and management of large blocks of contiguous aquatic and terrestrial habitat; (2) management of stock ponds to eliminate or reduce populations of non-native predators; (3) elimination of non-native tiger salamanders and their hybrids; and (4) reduced exposure to contaminants, particularly in the vulnerable larval stages (Service 2004b, 2005).

#### *California Tiger Salamander Critical Habitat*

Critical habitat was designated in a final rule for the Central California population of the California tiger salamander on August 23, 2005, (Service 2005). The Service divided the current range of the Central California population into four geographic regions: (1) Central Valley; (2) Southern San Joaquin Valley; (3) East Bay; and (4) Central Coast. A total of 7,416 acres was designated as critical habitat for the species in Fresno County. The action area lies entirely within designated critical habitat Unit 2 (Northeast Fresno - Southern San Joaquin Valley Geographic Region). This 4,961-acre unit is located northeast of Fresno, southwest of Millerton Lake, east of Friant Road, and generally west of Academy Avenue.

#### **Environmental Baseline**

##### *California Tiger Salamander*

H. T. Harvey & Associates conducted three reconnaissance surveys on August 17, November 8, and November 9, 2007. These surveys evaluated the potential for California tiger salamanders to occur within the boundaries of the MNT Specific Plan Area and adjacent areas. The 2007 reconnaissance surveys revealed that no potential California tiger salamander breeding habitat exists within the proposed Tract 4870 development area or any other area proposed for permanent or temporary impacts. However, the surveys and a review of aerial imagery identified eight depressions or ponds within 0.6 miles of the Tract 4870 development site boundaries or other proposed development areas that could be used by the California tiger salamander as breeding sites. One of those eight ponds (a perennial stock pond) was observed to contain bullfrogs. Further investigation by H. T. Harvey & Associates identified six documented California tiger salamander breeding ponds within 1.3 miles of the Tract 4870 development site boundaries or other proposed development/construction areas outside Tract 4870 proper. The most recent of these six records are two vernal pool breeding sites documented by Stebbins (1997) on the south side of Millerton Road within the MNT Specific Plan Area. These two records are located approximately 3,700 feet and 4,500 feet to the north-northwest of the Marina Drive alignment and Tract 4870. The former pool is situated in grazed, non-native annual grassland habitat that will not be affected by the proposed action, while the latter pool is located within the JPJCE area. Each is located approximately 3,480 feet northwest of the nearest area of



proposed temporary impacts, a haul road that parallels White Fox Creek on its east side and terminates on the north side of the sewage treatment settling ponds that service the existing Brighton Crest development. These two occurrence records are not listed in the California Natural Diversity Data Base (CNDDB). The remaining four records are listed in the CNDDB (2008), and all but one lies outside the MNT Specific Plan Area.

CNDDB California tiger salamander occurrence number 76 (1973) appears to represent a vernal pool located adjacent to Millerton Road on its north side within the MNT Specific Plan Area. This point location is indicated in the CNDDB to be "non-specific," so some uncertainty exists as to the precise location of the pool. Alternatively, since the record does not specifically mention which life stage was found or any type of pool, it is possible that the record refers to a post-metamorphic individual found on or near the road. Nonetheless, a small vernal pool exists at almost exactly the point coordinates given in the CNDDB for this record. No other pools of any type were found in that general area along Millerton Road. This vernal pool was assessed during the 2007 reconnaissance surveys conducted by H. T. Harvey & Associates, and is reported to be much too shallow and small in its current state to support breeding by the California tiger salamander. If this is indeed a former California tiger salamander breeding site, it is unclear as to what kind of disturbance may have occurred to this pool to reduce its size from what formerly must have been a relatively large pool to what now appears to be little more than a small puddle; however, maintenance or widening of Millerton Road that may have occurred since 1973 could be the source of possible disturbance.

CNDDB occurrence number 93 (1974) represents a vernal pool located approximately 2,600 feet south of the nearest proposed construction area and approximately 3,370 feet south of the Tract 4870 development area. This vernal pool was not accessible during the 2007 reconnaissance surveys conducted by H. T. Harvey & Associates, and no current information exists regarding the current status of this pool or the resident California tiger salamander population. Although a hill lies between this vernal pool and the proposed Tract 4870, this hill is not considered a barrier to dispersal by the California tiger salamander. The vernal pool is located at an elevation on approximately 626 feet above sea level. Following the contours of a roadbed that traverses the hill between the vernal pool and the proposed Tract 4870 project area, dispersing California tiger salamanders would have to ascend to an elevation of approximately 790 feet, an elevation gain of approximately 164 feet; a descent of approximately 210 feet would then be required to reach the proposed Tract 4870 project area. The grade, terrain, and distance between the vernal pool and the proposed Tract 4870 project area are sufficiently moderate that potential movements by California tiger salamanders between these sites cannot be precluded.

CNDDB occurrence numbers 126 (1992) and 626 (1974) are located approximately 4,040 feet west and approximately 4,040 feet southwest, respectively, of proposed Tract 4870 development areas. CNDDB occurrence number 626 is considered extirpated (CNDDB 2008). CNDDB occurrence number 126, located on the south side of Millerton Road, represents three vernal pools in non-native grassland habitat. Many individuals, presumably larvae, were reportedly observed at the three pools (CNDDB 2008). No current data on this California tiger salamander occurrence is available.

Tract 4870 currently consists of barren, compacted ground, with some ruderal vegetation, providing what appears to be generally low quality upland habitat for the California tiger salamander. No barriers to movement exist between the nearby potential and documented breeding sites described above and the proposed Tract 4870 project area, though California ground squirrel burrows, which are frequently utilized as underground refugia by California tiger salamanders during the dry season (Service 2004a), are absent from the graded area. However, recent findings by Orloff (2007) and others (e.g., LSA 2002 in Orloff 2007) indicate that the absence of ground squirrel burrows does not preclude the presence of California tiger salamander in those areas. Therefore, it is possible that California tiger salamanders may occupy upland habitats within Tract 4870. Other areas proposed for development or other ground disturbance have not been graded and provide generally high quality, potentially occupied upland habitat for California tiger salamanders.

### **Effects of the Proposed Action**

#### *California Tiger Salamander*

The proposed action may result in a number of adverse effects to the California tiger salamander. Construction activities could result in the entombment or crushing of an unknown number of California tiger salamanders in small burrows within the construction site. Furthermore, individuals that are exposed on the surface during removal of overburden may be injured or subjected to increased predation or desiccation. Individuals could also fall into pits, trenches, or other excavations and be killed directly or indirectly (through desiccation, entombment, or starvation).

Construction activities would also result in the permanent loss of up to 66.07 acres of suitable habitat (i.e., non-native grassland and disturbed ruderal). This loss of habitat would involve removal of potential refugia associated with small mammal burrows and habitat that may be used for migration and dispersal by California tiger salamanders.

The construction activities associated with the construction of Phase I of Marina Drive and the widening of Millerton Road could result in the entombment or crushing of an unknown number of California tiger salamanders located in small mammal burrows within the right-of-ways (ROWs). In addition, individuals that are exposed on the surface during excavation or grading within the ROWs may also be injured or subjected to increased predation or desiccation. Individuals could also fall into pits, trenches, or other excavations and be killed directly or indirectly (through desiccation, entombment, or starvation). Individuals could become entangled if plastic mono-filament netting is used for erosion control and then be subject to predation, starvation, or desiccation (Stuart et al. 2001).

The increased width of the road and higher levels of construction-related vehicular traffic could also be expected to temporarily result in greater mortality of California tiger salamanders that are moving to or from breeding ponds. However, to the maximum extent practicable, nighttime construction will be minimized. Therefore, the likelihood of construction-related California tiger salamander mortalities would be minimized. The timing of juvenile dispersal away from the breeding ponds is more difficult to predict since it is based on when individual breeding ponds

dry and the timing of this event can vary considerably from year to year. However, construction operations would normally be finished for the day by 7:00 pm. during late spring to summer (when metamorphs would typically be dispersing away from their natal ponds). Therefore, increased construction-related roadway mortality during juvenile dispersal would not be expected during normal operations since individuals would not move until after dark (an hour or more after construction operations have ceased for the day).

No measurable effects to California tiger salamander breeding habitat outside the construction site or road ROWs are expected since the applicant would be required to comply with all Best Management Practices and other measures required in the storm water pollution prevent plan (SWPPP) for the proposed project. Thus, no contaminants (including significant sedimentation) would be expected to reach and adversely affect potential breeding ponds outside the construction site or road ROWs.

The proposed action will increase the number of homes in the area, thereby contributing to traffic volumes on routes that California tiger salamanders may traverse, including Millerton Road. Highways and roads can have adverse impacts on California tiger salamanders, including but not limited to, vehicle strikes, habitat fragmentation and loss, and environmental contamination (Shaffer et al. 1993). Besides Marina Drive and internal roadways, which are analyzed as direct effects, the proposed action would not install additional roadways contributing to habitat fragmentation and loss. Potential effects to water quality were also analyzed as a direct effect. The proposed action will increase traffic on Millerton Road. This increase in traffic is a cumulative contribution to traffic levels in the region and the cumulative threat of vehicle strikes. Therefore, for the purposes of this analysis, the increase in the threat of vehicle strikes is analyzed below as a cumulative effect.

While the effects of night time lighting have not been documented for the California tiger salamander, lighting may adversely affect the California tiger salamander, which typically move at night, by exposing them to harassment or predators. As such, lighting will be precluded from the JPJCE and lights associated with the residential subdivision will be directed away from California tiger salamander habitat areas, to the extent practicable.

The development of Tract 4870 (and related infrastructure) will result in additional humans and pets, increasing the chances of encroachment into California tiger salamander habitat. Human activities in habitat supporting listed species could disrupt vital activities, including foraging and breeding. Use of chemicals and poisons, including pesticides (e.g., rodenticides), or an increased use of these substances within the development areas or in the adjacent lands, may increase the risk of harm to California tiger salamanders through exposure. Edge effects from the development may result in the degradation of California tiger salamander upland aestivation habitat and potential breeding habitat. Domestic pets may prey on California tiger salamanders. The likelihood of introducing or further expanding areas occupied by invasive exotic species such as predatory fish or bullfrogs will increase as the population of humans within the action area increases. Humans, pets, and vehicles moving within the developed portions of the Project sites may also disturb California tiger salamanders. Encroachment by off-road vehicles could result in habitat degradation and destruction of California tiger salamander burrows.



*Designated Critical Habitat*

The action area lies entirely within designated critical habitat Unit 2 (Northeast Fresno - Southern San Joaquin Valley Geographic Region) for California tiger salamander. While California tiger salamander may take refuge within suitable, upland habitat within the action area, the areas proposed for development do not provide suitable breeding habitat. Previous grading within the Marina Drive alignment and residential areas within Tract 4870 has severely degraded the habitat quality of the non-native grasslands, although some rodent burrows are present. Collectively, the Tract 4870 development area provides only limited physical and biological features for the California tiger salamander and is not essential to the conservation of the species. Therefore, the project is not likely to adversely modify designated critical habitat for the California tiger salamander.

The implementation and management of the JPJCE may affect, but is not likely to adversely affect critical habitat for California tiger salamander because it is expected to be wholly beneficial. The interim management of the JPJCE will maintain or enhance habitat conditions for California tiger salamander. Excess thatch and short-grass conditions will be maintained through a managed grazing regime. This effort will reduce the risk of wildfire by limiting herbaceous growth and will help to create the desired habitat conditions for small mammals, which will in turn benefit California tiger salamander. The removal of non-native plants and other enhancements will also be undertaken, if necessary.

**Cumulative Effects**

Cumulative effects are those 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 unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Environmental compliance within the action area has been a focus of state, local, and private entities for more than a decade. Fresno County identified and selected the MNT Specific Plan Area, including Tract 4870, during studies conducted in the early 1980s that were in support of its Sierra Nevada-Sierra Foothills General Plan update (LandUse Associates 1984). The Sierra North Regional Plan included a number of elements that directed future planning efforts for MNT. The new community was to be located on 1,400 acres, 1,000 acres of which would be slated for Low Density Residential. A 400-acre core was to be designated "Millerton New Town Reserve." The Regional Plan also directed the County to prepare a specific plan for the New Town Reserve, which was prepared and adopted by Fresno County. The action area addressed in this BA is entirely located within the adopted MNT Specific Plan Area. Since the adoption of the MNT Specific Plan EIR in 1984, land owners within the planning area have worked closely with Fresno County, as well as state and Federal agencies to develop final plans consistent with the requirements of the specific plan, as well as state and Federal regulations.

The planned community of Millerton addressed in the MNT Specific Plan is designed to accommodate a population of 8,000 to 10,000. It incorporates the necessary housing (approximately 3,500 units), commercial and public facilities, recreation areas, and open space to provide for the needs of community residents. Development projects within MNT include the proposed action addressed in this biological opinion as well as the development of six additional tracts. Development in the MNT Specific Plan Area will be conducted in phases over an extended period, and is expected to begin shortly after the completion of section 7 consultation. The effects of developing the remaining tracts are the subject of a separate section 7 consultation covering the entire MNT Specific Plan Area.

Several other residential developments have been proposed in the vicinity of the action area. The Brighton Crest development is situated along the eastern boundary of Tract 4870 and the Millerton New Town Specific Plan Area. An expansion of Brighton Crest has been proposed that would add 250 new homes within the existing boundaries of the Brighton Crest development. The additional residential construction proposed within the existing Brighton Crest development is independent of the action proposed for Tract 4870, and the effects of developing additional areas within Brighton Crest are the subject of a separate Act consultation.

### **Conclusion**

After assessing the current status of the California tiger salamander, the environmental baseline for the action area, effects of the proposed action, and cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the California tiger salamander. The action area lies within designated critical habitat Unit 2 (Northeast Fresno - Southern San Joaquin Valley Geographic Region) for the California tiger salamander. The Tract 4870 development area provides only limited physical and biological features for the California tiger salamander that are not essential to the conservation of the species. Therefore, although, this action affects designated critical habitat for the California tiger salamander, no adverse modification of critical habitat would occur.

### **INCIDENTAL TAKE STATEMENT**

Section 9(a)(1) of the Act and Federal regulations pursuant to Section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species 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 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 Reclamation so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate activities covered by this incidental take statement. If Reclamation: (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 section 7(o)(2) may lapse.

### **Amount or Extent of Take**

#### *California Tiger Salamander*

The Service anticipates that incidental take of the California tiger salamander will be difficult to detect for the following reasons: (1) when this amphibian is not at its breeding ponds, or foraging, migrating, dispersing, or conducting other surface activity, it inhabits the burrows of ground squirrels or other rodents; (2) occupied burrows may be located relatively long distances from breeding ponds; (3) dispersal and migration occurs during limited periods on rainy or humid nights during fall, winter, or spring; and (4) its relatively small body size hinders finding injured or dead individuals. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or other environmental disturbances. For these reasons, the Service anticipates that all adult and juvenile California tiger salamanders will be taken in conjunction with the permanent loss of 66.07 acres of the species' upland habitat. This incidental take is expected to be in the form of harm, harassment, capture, trap, injury, and mortality to adult and juvenile California tiger salamanders from loss and modification of upland habitat, construction-related disturbance, and maintenance and operation activities. Upon implementation of the Reasonable and Prudent Measures, incidental take associated with construction of the Tract 4870 (and related infrastructure) development project in the form of harm, harassment, capture, trap, injury, and mortality to adult and juvenile California tiger salamander from loss and modification of upland habitat, construction-related disturbance, and maintenance and operation activities will become exempt from prohibitions described under section 9 of the Act.

### **Effect of the Take**

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the California tiger salamander. The entire action area lies within designated critical habitat Unit 2 (Northeast Fresno- Southern San Joaquin Valley Geographic Region) for the California tiger salamander. However, no adverse modification of critical habitat would occur as a result of the proposed project.

### **Reasonable and Prudent Measures**

The following reasonable and prudent measures are necessary and appropriate to minimize the effects of the Tract 4870 (and related infrastructure) construction operations on the California tiger salamander.



*California Tiger Salamander*

1. Take in the form of harassment or harm of the California tiger salamander during construction activities and implementation of the proposed project shall be minimized.
2. Effects of permanent losses and degradation of habitat of the California tiger salamander shall be minimized and, to the greatest extent practicable, habitat restored or compensated.

**Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary:

1. The following terms and conditions implement reasonable and prudent measures number one (1) and two (2):
  - a. Before any work (including grading), occurs in the construction area, a qualified biologist approved by the Service (Service-approved biologist) will conduct pre-construction surveys for California tiger salamanders in the action area. A Service-approved biologist means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the California tiger salamander. Resumes of all biologists proposed to capture or handle California tiger salamanders and serve as biological monitors for the proposed project shall be submitted by the applicant for approval by the Service no later than 20 days prior to the start of construction. No project activities shall begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work. The Service-approved biologist will be on-site until all grading activities are complete.
  - b. Bonadelle Homes and its contractors shall minimize the potential for harm and harassment of the California tiger salamander resulting from project-related activities by implementation of the project description (including the conservation measures) described in the initiation letter (and associated Biological Assessment) from Reclamation to the Service dated March 19, 2008, and Description of the Proposed Action section of this biological opinion.
  - c. Before any work (including grading), occurs in the construction area, a qualified biologist approved by the Service (Service-approved biologist) will train all project contractors and other personnel regarding habitat sensitivity, identification of special-status species, and required practices before the start of construction. The training shall include the general measures that are being implemented to conserve these species as they relate to the proposed action, the penalties for noncompliance, the boundaries of the action area, and the boundaries of the permitted disturbance zones.

A fact sheet or other supporting materials containing this information will be prepared and distributed. Upon completion of training, employees will sign a form stating that they have attended the training and understand all the conservation and protection measures. Training shall be conducted in languages other than English, as appropriate. Proof of this instruction will be kept on file with the applicant. The applicant will provide the Service with a copy of the training materials within 30 days of the completion of the first training session, as well as copies of the signed forms by project staff indicating that training has been completed. Copies of signed forms will be submitted monthly as additional training occurs for new employees. The crew foreman will be responsible for ensuring that construction personnel adhere to the guidelines and restrictions. If new construction personnel are added to the proposed action, the crew foreman will ensure that the personnel receive the mandatory training before starting work.

- d. A representative shall be appointed by the applicant who will be the contact source for any contractor who might inadvertently kill or injure a California tiger salamander or who finds a dead, injured, or entrapped individual. The representative shall be identified during the employee education program. The representative's name and telephone number shall be provided to the Service prior to the initiation of ground-disturbance activities. Any worker who inadvertently injures or kills a federally-listed species or finds one dead, injured, or entrapped will immediately report the incident to the applicant's appointed representative. The applicant's representative will immediately notify the applicant, who will provide verbal notification to the Service's Endangered Species Office in Sacramento, California, and to the local California Department of Fish and Game (CDFG) warden or biologist within one working day. The applicant will follow up with written notification to Service and CDFG within five working days. All observations of federally-listed species will be recorded on California Natural Diversity Database (CNDDB) field sheets and sent to the CDFG.
- e. Nets or bare hands may be used to capture California tiger salamanders. Service-approved biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within 2 hours before and during periods when they are capturing and relocating California tiger salamanders. To avoid transferring disease or pathogens between aquatic habitats during the course of surveys or handling of tiger salamanders, Service-approved biologists will follow the *Declining Amphibian Populations Task Force's "Code of Practice."* Service-approved biologists will limit the duration of handling and captivity of California tiger salamanders. While in captivity, individuals of these species shall be kept in a cool, moist, aerated environment, such as a bucket containing a damp sponge. Containers used for holding or transporting adults of these species shall not contain any standing water.
- f. The Service-approved biologist shall have oversight over the implementation of all the conservation measures, and shall have the authority to stop project activities if any of the requirements associated with these measures is not being fulfilled. If the biologist has requested work stoppage due to take of any federally-listed, the Service and the CDFG will be notified within one working day via email or telephone.



- g. If requested during or upon completion of construction activities, the Service-approved biologist will accompany Service or CDFG personnel on an on-site inspection of the site to review proposed project effects to the California tiger salamander and its habitat.
- h. Plastic monofilament netting (erosion control matting) will not be allowed because California tiger salamanders can become caught in this type of erosion control material. Tightly woven (less than 0.25 inch diameter) fiber netting or similar material shall be used for erosion control or other purposes to ensure that California tiger salamanders do not become trapped. Coconut coir matting is an acceptable erosion control material. This limitation will be communicated to the contractor(s) through use of special provisions included in the bid solicitation package.
- i. To avoid entrapment of California tiger salamanders, all excavated, steep-walled holes or trenches more than six inches deep will be covered with plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each workday. All trenches will be inspected by the biological monitor daily to insure that California tiger salamanders have not become entrapped. If a California tiger salamander is found, the approved biologist will remove the animal from the area and release it into a suitable burrow at least 300 feet outside the construction area.
- j. A litter control program shall be instituted at the entire project site. The contractor will provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scraps). All garbage will be removed daily from the project site. Construction personnel will not feed or otherwise attract fish or wildlife to the action area.
- k. No canine or feline pets or firearms (except for federal, state, or local law enforcement officers and security personnel) shall be permitted at the project site to avoid harassment, or killing or injuring of wildlife.
- l. Reclamation and Bonadelle Homes shall ensure that a copy of this biological opinion is enclosed with any solicitations for the proposed project, such as solicitations for design and construction of the proposed project making the prime contractor responsible for implementing all requirements and obligations included within the biological opinion, and to educate and inform all other contractors involved in the project as to the requirements of the biological opinion. A copy of the solicitations containing the biological opinion also will be provided to the Deputy Assistant Field Supervisor at the address on this letterhead.
- m. Prior to the commencement of any ground-disturbing activities, Bonadelle Homes shall dedicate the JPJCE to the Foothill Conservancy. Furthermore, the Service shall be a signatory party to the easement such that the easement cannot be extinguished without the signature of the Service.

- n. Bonadelle Homes shall adhere to the provisions of the Reporting Requirements as described below in this biological opinion.

### **Reporting Requirements**

1. A post-construction compliance report prepared by the monitoring biologist for Bonadelle Homes must be submitted to the Deputy Assistant Field Supervisor at the Sacramento Fish and Wildlife Office within 30 calendar days of the completion of construction activity or within 30 calendar days of any break in construction activity lasting more than 30 calendar days. This report shall detail the following: (i) dates that groundbreaking at the proposed project started and the project was completed; (ii) pertinent information concerning the success of the proposed project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on California tiger salamander, if any; (v) any occurrences of incidental take of California tiger salamander; and (vi) other pertinent information.
2. Bonadelle Homes must report to the Service immediately any information about take or suspected take of federally-listed species not authorized in this biological opinion. Bonadelle Homes must notify the Service within 24 hours of receiving such information. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal. In the case of a dead animal, the individual animal should be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contact persons are Deputy Assistant Field Supervisor at (916) 414-6600 and Daniel Crum, Resident Agent-in-charge of the Service's Office of Law Enforcement at (916) 414-6660.
3. Any contractor or employee who during routine operations and maintenance activities inadvertently kills or injures a State-listed wildlife species must immediately report the incident to their representative and Bonadelle Homes. This representative and Bonadelle Homes must contact the CDFG immediately in the case of a dead or injured listed species. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045.

### **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 databases.

1. Reclamation should continue to assist the Service in the implementation of recovery efforts for the California tiger salamander.

### REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the proposed Tract 4870 development project in Fresno County, California. 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 maintained (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 that was 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.

If you have questions regarding the proposed Tract 4870 development project, please contact Ms. Susan P. Jones, Chief of the San Joaquin Valley Branch at (916) 414-6600.

Sincerely,



Kenneth Sanchez  
Assistant Field Supervisor

Enclosures (1):

- Exhibit A: Map of Tract 4870 and related infrastructure (66.07 acres permanent impacts, 3.87 acres temporary impacts; total = 69.94 acres) and JPJCE (196.59 acres).

cc:

U.S. Army Corps of Engineers, Sacramento, California (Attn. Mr. Ramon Aberasturi)  
California Department of Fish and Game, Fresno, California (Attn. Ms. Julie Vance)  
H. T. Harvey & Associates, Fresno, California (Attn. Dr. Brian Boroski)  
Bonadelle Homes, Fresno, California (Attn. Mr. Rick Heyman)  
The Clarksfield Company, Inc., Fresno, California (Attn. Mr. Austin Ewell)

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**Exhibit A**

Map of Tract 4870 and related infrastructure (66.07 acres permanent impacts, 3.87 acres temporary impacts; total = 69.94 acres) and JPJCE (196.59 acres).







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## Potential Take of California Tiger Salamander during Construction and Loss of Habitat From Development

Although salamander breeding habitat is absent from the Tract 4870 development area (and related infrastructure), known and potential breeding habitat in the form of vernal pools, vernal pool swales, and depressions in intermittent creek channels is present in the Action Area. Because CTS may travel considerable distances from breeding pools to aestivation sites (Trenham and Shaffer 2005, Orloff 2007), breeding pools are known in the Action Area (Stebbins 1997a, 1997b), and uncertainty exists regarding the use of some potential breeding pools in the Action Area due to a lack of comprehensive and recent surveys, it is prudent, pending the results of a detailed analysis of potential breeding pools, to conclude that CTS may aestivate within all suitable, upland habitat within the Action Area.

The conservation strategy incorporated into this BA, and detailed below, ensures that potential take of CTS during construction, and habitat loss and fragmentation as a result of the Proposed Action, is avoided and/or minimized through appropriate conservation measures. Conservation measures provided in this BA are designed to be consistent with the recovery objectives for CTS, and are intended to be compatible with, and complementary to, measures incorporated in future plans or processes to address impacts to CTS from additional future development within the Action Area.

Take Avoidance Measures for California Tiger Salamanders. Prior to any future ground disturbance within the Action Area, a temporary barrier will be constructed along the limits of grading and disturbance, which will be approved by the Service. A qualified biologist will inspect this area prior to installation. The barrier will be designed to allow CTS to leave the construction site and prevent them from entering the construction site, and shall remain in place until all development activities have been completed. Following the first significant rainfall (>0.25 in) in October, this barrier will be inspected daily by the on-call biologist and/or construction foreman/manager, and maintained and repaired as necessary to ensure that it is functional and not a hazard to CTS on the outside of the fence. Daily inspections shall be continued through 31 March. The Service will approve any relocation of CTS.

A qualified biologist shall be on-call during all activities, including groundbreaking, earthmoving, and construction activities that could result in the take of CTS; the need for the biologist's presence shall be determined in consultation with the Service.

Prior to project groundbreaking, the applicant shall submit to the Service for its review the qualifications of its qualified biologist(s). The biologist(s) shall be given the authority to stop any work that may result in the take of CTS. If the biologist(s) exercises this authority, the Service shall be notified by telephone and electronic mail within one (1) working day. The on-call biologist will be the contact for any employee or contractor who might inadvertently kill or injure a salamander or anyone who finds a dead, injured, or entrapped salamander. The on-call biologist shall possess a working cellular telephone

whose number shall be provided to the Service.

A readily available copy of these Avoidance and Minimization Measures shall be maintained by the construction foreman/manager on the construction site whenever earthmoving and/or ground disturbance is taking place. The name and telephone number of the construction foreman/manager shall be provided to the Service prior to project groundbreaking.

Under the direction of the qualified biologist, orange plastic mesh fencing that is at least 4 ft in height will be erected around the portion of any designated conservation areas where disturbance is unnecessary to prevent any unintentional disturbance during construction.

Project-related vehicles will observe a 15 mile-per-hour speed limit in all project areas, except on City and County roads, and State highways; this is particularly important on rainy nights when CTS are most active. To the maximum extent practicable, nighttime construction will be minimized.

If at any time a CTS is discovered in the construction area by the on-call biologist or anyone else, the on-call biologist shall move the animal to a safe location in the JPJCE. The biologist will monitor any translocated animal until it is determined that predators or other dangers do not imperil it. Tiger salamanders will be translocated to appropriate habitat for their life cycle. Tiger salamanders found in burrows will be translocated to burrows, and not aquatic habitats.

Because CTS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the on-call biologist and/or the construction foreman/manager for these animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a CTS is discovered inside a pipe by the on-call biologist or anyone else, the on-call biologist shall move the animal to a safe nearby location and monitor it until it is determined that the salamander is not imperiled by predators or other dangers.

To prevent inadvertent entrapment of CTS during construction, the on-call biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1-ft-deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the on-call biologist. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the on-call biologist and/or construction foreman/manager. If at any time the on-call biologist or anyone else discovers a trapped CTS, the on-call biologist shall move the animal to a safe nearby location (and monitor it until it is determined that it is not imperiled by predators or other dangers). CTS shall not be moved without authorization of the Service.

To eliminate an attraction for the predators of CTS, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.

An employee education program will be conducted for contractors and their employees involved in the project. The program will consist of a brief presentation by persons knowledgeable about CTS. The program will include the following: a description of the species and their habitat needs, photographs, an explanation of the legal status of the species and their protection under the ESA, and a list of measures being taken to reduce effects to this species during project construction. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the construction site. Upon completion of training, employees shall sign a form stating that they attended the training and understand all the conservation and protection measures. The original form(s) shall be submitted to the Service.

A representative shall be appointed by the proponent of the Proposed Action who will be the contact source for any employee, contractor, or agency personnel who might inadvertently kill or injure a tiger salamander, or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

If a CTS, or any animal that construction personnel believes may be one of this species, is encountered during project construction, the following protocol shall be followed:

- All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease.
- The foreman and on-call biologist shall be immediately notified.
- The on-call biologist shall immediately notify the Service via telephone or electronic mail when a CTS is encountered that may be in harm's way.
- The on-call biologist shall move the CTS to a safe nearby location and monitor it until he/she determines that predators, or other dangers do not imperil the animal(s). In the case of trapped animals (e.g., in a ditch or trench), escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

Tightly woven fiber netting or similar material shall be used for erosion control or other purposes at the project to ensure that CTS do not get trapped. This limitation will be communicated to the contractor through use of Special Provisions included in the bid solicitation package. Plastic monofilament netting (erosion control matting) or similar material shall not be used in construction areas because CTS may become entangled or trapped in it.



The use of pesticides, rodenticides, and herbicides in construction areas shall be utilized in such a manner to prevent primary or secondary poisoning of CTS, and the depletion of prey populations on which they depend within the Action Area. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate State and Federal regulations, as well as additional project-related restrictions deemed necessary by the Service.

During all construction in the vicinity of White Fox Creek and its tributaries, Best Management Practices (BMPs) will be used to minimize erosion and impacts to water quality to protect water quality in downstream areas used by CTS.

Preservation of Upland Aestivation and Potential Breeding Habitat for CTS. The Proposed Action includes the establishment and management of the 196.59-acre JPJCE comprised of Northern Hardpan vernal pools and swales, seasonal wetlands associated with several minor intermittent drainage channels, non-native grassland habitat, and White Fox Creek. The proposed JPJCE contains both CTS breeding and aestivation habitat.

The goal is to ensure that the preserved wetland, riparian, and upland habitats within the JPJCE are maintained in good condition such that they will continue to support the existing flora and fauna (Appendix A). The conservation approach incorporated into the Proposed Action acknowledges that future projects within the MNT Specific Plan Area will include conservation measures, including permanent off-site habitat protection and management, and that a greater conservation benefit may be achieved through the preservation and management of a single, larger area of equal or greater habitat quality outside of the MNT Specific Plan Area. Thus the conservation measures incorporated into the Proposed Action ensure the immediate protection and management of occupied CTS habitat and provide future opportunities to maximize the MNT Project's long-term contribution to recovery efforts for CTS.

### **Potential Take of San Joaquin Kit Fox During Construction**

San Joaquin kit fox are not known to currently occupy the Action Area or suitable habitats in the vicinity. While kit foxes are unlikely to occur in the Tract 4870 development area (and related infrastructure), the rare occurrence of a dispersing individual cannot be ruled out. Construction and ground disturbance activities, in rare instances, could potentially take individual, disbursing or transient foxes. To avoid and/or minimize take, the Service's standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance (Service 1999, Appendix E) are incorporated into the Proposed Action.



## **ATTACHMENT B GRAZING PLAN**

### **RESOURCE AND BIODIVERSITY GOALS AND OBJECTIVES**

- Protection and enhancement of various wetland seeps, springs, small pools, and stock ponds, particularly those water features for breeding by California tiger salamander (CTS).
- Increased microhabitat for CTS, other amphibians and reptiles (logs, burrows, etc.).
- Reduction of excessive standing dry biomass for ecological and fire control purposes.
- Protection and reestablishment of native bunchgrasses in appropriate areas.
- Increased oak regeneration and protection of young trees through screening, etc.
- Reduction of non-native “weedy” thistles and other non-native invasive plants.
- Provide adequate cover and forage for wildlife.

### **GRAZING GOALS**

- Maintain vegetation density to encourage burrowing rodents to provide suitable upland habitat for CTS.
- Reduce numbers of non-native invasive plant species.
- Increase establishment and enhancement of native plant species.
- Provide adequate nutrition for livestock.
- Maintain economic viability of the PMCA for the grazing lease when compatible with CTS objectives.
- Monitor and evaluate selected areas over time to achieve the above goals.

### **SPECIES OF USE**

On the Point Millerton Conservation Area (PMCA), established for the benefit of CTS, cattle are the recommended species to be used for grazing and forage removal, although grazing of sheep or goats will not be prohibited so long as the objectives of the management of the PMCA are not compromised.

### **GRAZING SYSTEM**

The PMCA will continue with a winter/spring system of grazing. Because the PMCA currently has limited cross fencing, this type of system is the most practical method of grazing.

The PMCA is separated into a Northern area and a Southern area divided by Road 216. Both the Northern and Southern areas of the PMCA are part of larger pastures owned by the same landowner. Both the Northern and the Southern areas of the PMCA will be grazed as part of the larger pastures of which they are a portion and will not be fenced as separate pastures until or unless ownership of the larger pasture of which the PMCA is a part changes or if for any reason it is no longer possible to graze the PMCA as a part of the larger pastures as a whole, the Northern and Southern areas of the PMCA will be fenced.

Livestock will not be turned out onto the PMCA in the fall before November 1. The specific factors that determine when the livestock are turned out are 1) the amount of residual dry matter (RDM), and 2) the amount of new forage growth. The livestock will not be turned out unless there is an

average of at least 1,000 pounds of residual dry matter and a cumulative total of 1 inch of seasonal rainfall at least one week prior to the turn out date. All livestock will be removed from the PMCA by May 31 with adjustments in stocking rates and duration occurring based on the RDM sampling rates, precipitation, and invasive species management needs. The goal of grazing is to reach an RDM of 1,500 pounds per acre over 60%, no less than 1,000 pounds per acre on 40 percent, and no less than 800 pounds per acre over 5 percent of the PMCA. If mean RDM fall below these goals, the livestock will be removed within two weeks regardless of the date.

The amount of residual dry matter will be determined by clipping, drying and weighing forage at an appropriate number of sites. The average values should combine measurements of at least three types of areas on the PMCA: 1) low, flat slopes or swales; 2) gentle rolling slopes; and 3) steep slopes. The sampling will be performed by Sierra Foothill Conservancy personnel trained to do so or other qualified designated representative of the land owner.

### **STOCKING RATES**

The Northern area of the PMCA contains approximately 80 acres of usable grazing land within a larger 218-acre pasture. The carrying capacity of the Northern area based upon good husbandry practices is approximately 18 animal units (AUs) or cow/calf pairs for the 7-month winter-spring grazing period. The Northern area should not be stocked at a rate that exceeds an average of 1 AU per 12 acres.

The Southern area of the PMCA contains approximately 120 acres of usable grazing land within a larger 490-acre pasture. The carrying capacity of the Southern area based upon good husbandry practices is approximately 40 AUs for the 7-month winter-spring grazing period. The Southern area should not be stocked at a rate that exceeds an average of 1 AU per 12 acres.

The Northern and Southern areas of the PMCA may be treated not as separate pastures, but as part of a single larger grazing unit and if managed in this manner, the stocking density in a particular "pasture" at any given period in time may exceed this recommended level.

### **SUPPLEMENTAL FEEDING**

There is no supplemental feeding allowed.

### **MONITORING**

The livestock grazing program for PMCA will be based on cattle because that kind of livestock is relatively self-sufficient in protection against predators and requires less labor and maintenance effort. However, sheep or goats may be desired in the future or may be used periodically to promote special status species and wetland values.

If monitoring results indicate the grazing management performance standards are exceeded, grazing utilization is insufficiently distributed, or livestock traffic is excessive, then the grazing operator will implement additional livestock dispersal incentives to less utilized sites, such as by additional placement of mineral licks, as feasible and in consultation with the conservation land manager. Stocking rates, seasonal use, and other management approaches may also be employed to ensure optimal conditions for sensitive wildlife and plants in the PMCA. Mineral licks will be placed by the grazing operator throughout the PMCA area as needed to improve the distribution of livestock. Such livestock attractants can also be used to reduce livestock congregation around special-status plant

species and vernal pools. To maintain water quality, it is important to place the attractants a minimum of 500 feet away from vernal pools, swales, and other wetlands. Also, attractant locations will be rotated to prevent surface compaction and damage. The grazer may also use horses and riders to herd the livestock periodically as needed to achieve better livestock distribution.

When the weather predictions indicate a normal year and normal forage production, the normal stocking rates will be used in the mitigation area. Such predictions can be made with reasonable precision in the late winter. The monthly stocking rates for the current year will be reduced to appropriate levels from the planned normal year rates when a substantial deficit of forage is predicted. When a substantial forage deficit occurs, but was not predicted, the operator will be given 72 hour notice to begin removing stock and the stocking rates will be reduced as per the notification within 14 calendar days. For years following an unexpected drought year, the base stocking rates for the next year will be reduced (anticipating a repeat of drier conditions) whether or not the predictions indicate below-normal forage production the next year. The reduced stocking rate will be based on the expected number of pounds of forage to be available in the next drier month or year. In extremely severe drought years, the available forage might be less.

When a wetter year is predicted or occurs, and forage production exceeds the normal amounts as confirmed by monitoring, the grazing operator may, at the discretion of land manager, temporarily increase the stocking rates in the mitigation area to make use of the excess forage during the forage growing season. Monitoring will determine whether the increased rates should continue.

The residual dry matter (RDM) levels at the site will be maintained in accordance with the recommendations described by Bartolome et al. (2002) in California guidelines for RDM management on coastal and foothill annual rangelands. The recommendations are based on the division of grasslands and associated woodlands and savannas into three types, which, in turn, are based on annual rainfall: 1) dry annual grassland (<12 inches), 2) annual grassland/hardwood range (12 to 40 inches), and 3) coastal prairie (rainfall variable). Since average annual precipitation near Friant is 14 inches (Fire and Resource Assessment Program, California Department of Forestry and Fire Protection <http://frap.cdf.ca.gov/webdata/maps/statewide/rainmap.pdf>), the grasslands typically comprise the annual grassland hardwood range type.

Maintain at least  $\geq 1,000$  lbs/acre minimum mean RDM on 40% of the conservation property acreage and  $\geq 1,500$  lbs/acre minimum mean RDM on 60% of the conservation property acreage in December to facilitate a mosaic of shrub/tree grassland habitat; plus the maintenance of populations of native grasses and wetland plants. No more than 5% of the total conservation property will be below the minimum 800 lbs/acre RDM at any given time.

RDM will be sampled in late fall just before the first precipitation event that is expected to result in germination (late October or early November) and again in spring (late April early May) in conjunction with the biannual easement compliance visits. Without grazing, from the time of the peak standing crop, RDM may fall by a factor of 10 to 15 percent per month until the fall germinating rain. Thus it is important to also determine RDM during the grazing season to be certain that enough remains to ensure the desired amount for soil protection by the beginning of the rainy season. For example, at a loss rate of 15% per month, and RDM of approximately 2,500 pounds per acre on June 1 would be reduced to 1,000 pounds per acre by December 1 without any livestock grazing.

RDM will be determined by six (6) random monitoring locations; 3 for each parcel. One (1) of the three (3) for each parcel during fall RDM sampling will be for the purposes of clipping and weighing RDM inside of a 0.98 foot by 0.98 foot per side square sampling plot. The remaining two (2) will be sampled using a 0.98 foot by 0.98 foot per side square sampling plot to estimate percent ground cover. In the sampling plots where clipping and weighing will occur, tree leaves will be removed as well as summer annuals. The remaining vegetation will be clipped within the sample plot to ground level. The samples will then be weighed either in the field or when immediately brought back to the lab. The samples will then be dried in a paper bag until no changes in weight occur between reweighing. The final dried sample is then to be used to convert grams per plot to pounds per acre. This rate will then be used to calculate backward from the desired RDM amount in October-November to an amount that will need to be present in early summer. During spring RDM sampling, all six (6) random sampling plots will be for the purposes of determining percent ground cover. The percent cover (on a modified Daubenmire cover class scale of <1, 1 to 5, 5 to 25, 25 to 50, 50 to 75, 75 to 95, and >95% absolute cover) and the height of each plant species within the sample plot will be recorded. Each monitoring location shall be documented with GPS coordinates and a photograph of the sampling plot will be taken. The photographs will be used for rangeland cover comparison and as part of the analysis for determining comparative yield.

Grazing will occur from November 1 through May 31 with adjustments in stocking rates and duration based on the RDM sampling rates, precipitation, and invasive species management needs. The goal of grazing is to reach a an RDM of 1,500 lbs/acre over 60% and no less than 1,000 lbs/acre minimum mean RDM on 40% of the mitigation lands acreage in late December.

May 12, 2011

**ATTACHMENT C**  
**PAR ANALYSIS FOR ENDOWMENT CALCULATION**

August 2007