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**Alameda County
Resource Conservation District**

Voluntary Local Program

Appendix A

**List of Management Practices and Routine and
Ongoing Agricultural Activities**

October 1, 2012

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Introduction

California Fish and Game Code section 2086 requires that voluntary local programs include measures to avoid and/or minimize impacts to candidate, threatened, and endangered species. These management practices are designed with avoidance and minimization measures that provide standard measures for avoidance of take of Covered Species (Alameda whipsnake and California tiger salamander) but do not cover all possible measures that may be used. As described in more detail below, the management practices were developed in consultation with the US Fish and Wildlife Service (USFWS), Department of Fish and Game (Department), Alameda County Resource Conservation District (ACRCD) and Natural Resources Conservation Service (NRCS) biologists, and species experts using the best scientific information available. The management practices are intended to be flexible, avoid or minimize take of listed species, and maximize wildlife benefits without compromising the economics of the Cooperators' agricultural operations.

The voluntary local program (Program) includes practicable and achievable management practices that minimize take of candidate, threatened and endangered species while also encouraging the enhancement of habitat. These management practices have been developed using the NRCS conservation practices specific standards and specifications and in consultation with the Department, and ACRCD and NRCS biologists. NRCS conservation practice standards provide guidance for applying conservation technology on the land and set the minimum acceptable level for application of the technology. The conservation practices that were selected for the Program were developed from The NRCS California Handbook of Conservation Practices which establishes standards for the design of measures commonly used to treat natural resource problems. These conservation practice standards are based on research, conservation field trials, and accumulated knowledge and experience of agency employees. The conservation practice standard represents the minimum details or factors that must be considered in the design of a site-specific practice or combination of practices. NRCS Standards and/or Specifications for each conservation practice are available on the web in NRCS' electronic Field Office Technical Guide, Section IV (http://efotg.sc.egov.usda.gov//efotg_locator.aspx).

Each management practice will be implemented to meet the minimum standards and specifications for the NRCS and will be tailored at the local level for project specific requirements based on the natural resource need at each site.

During the planning process for an individual project, ACRCD staff and/or its contractors will assess each proposed project site to determine if suitable habitat for the Covered Species occurs on site and, if present, determine its quality and function for the Covered Species under the Program. Implementation of the management practices will incorporate the best available scientific information into the site conditions to ensure that the projects are being implemented to maximize wildlife and habitat benefits without compromising the economics of the Cooperators' agricultural operations.

Management Practices

Cooperators will implement the appropriate management practices associated with each activity covered under the Program. Each Cooperative Agreement will specify the management practices that will be carried out on the enrolled property and include a timetable for implementing the identified activities.

This Program specifically addresses liability for take under the California Endangered Species Act and does not necessarily satisfy any other legal requirements. For example, Cooperators proposing projects or practices that are subject to Fish and Game Code section 1602 must still provide a separate notification to the Department.

Pond Restoration

The activities covered under this section are associated with the repair, maintenance and restoration of breeding and refugia habitat present in livestock ponds for the California tiger salamander and other native aquatic species.

The USFWS (2005) determined that standing bodies of freshwater including ponds, both natural and artificial provide critical habitat for the breeding of California tiger salamander. As natural habitats such as vernal pools continue to be altered or lost, man-made livestock ponds have become the remaining vital breeding habitat for California tiger salamanders in Alameda County. For example, California tiger salamanders breed primarily in seasonal and perennial stock ponds in the East Bay Regional Park District (EBPRD) throughout Alameda County (Bobzien and Didonato, 2007). These EBRPD ponds are maintained for habitat values and to provide water to livestock. USFWS recognizes the importance of the management of livestock ponds as habitat by private landowners, and USFWS authorizes take coverage under the federal Endangered Species Act through the 4d ruling that exempts routine and ongoing ranching activities (USFWS, 2004). The Department also recognizes the importance of continued enhancement and maintenance of these livestock ponds to the recovery of the California tiger salamander (McCamman, 2010).

The Department identified pond restoration activities in the *Status Review of the California Tiger Salamander* (McCamman, 2010) as some of the management and recovery measures that may provide population-level benefits for California tiger salamanders. These include:

1. Active management of California tiger salamander habitats, including maintenance of appropriate vegetation condition as appropriate; removal and/or control of non-native predators,
2. Restoration of ephemeral ponds to enhance existing California tiger salamander populations,
3. Encouragement of public and private stock pond management practices consistent with California tiger salamander conservation as described in the Special Rule Exempting Routine Ranching Activities (USFWS 2004).

Implementation of the activities below will result in the enhancement and/or restoration of California tiger salamander habitat by restoring critical breeding habitat, decreasing predatory species populations in suitable habitat, reducing soil erosion and sedimentation, improving and providing long-term habitat protection, and improving livestock and wildlife water availability. All pond restoration activities must be constructed to NRCS standards and specifications. Take coverage for California tiger salamander will be provided for pond restoration activities that are covered under the Program. Pond Restoration activities may include one or more of the following management practices:

1. Control predator species
Drain ponds to remove predators such as bullfrogs and non-native fish species such as bass, catfish, sunfish, and mosquito fish. Predation and competition from non-native

fishes and amphibians are considered important factors in the decline of California tiger salamander (McCamman, 2010, Bobzien and Didonanto, 2007). A predator control and dewatering plan will be developed for pond restoration activities that involve predator control. This management practice incorporates the following design features and avoidance and minimization measures to limit impacts to Covered Species.

- a. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
 - b. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
 - c. Restoration activities at ponds shall take place between August 31 and October 31 (or the first rainfall of the season depositing more than 0.25 inch) when larval development of California tiger salamanders and other amphibians is likely to be complete and ponds have less water present. California tiger salamanders use ponds to breed and lay eggs primarily following rains in November to February (CDFG, 1997). Metamorphosis usually occurs from May to July, with a peak in June (Trenham et al. 2000). Applying temporal limitations to when pond activities are occurring provides the best avoidance measure to limit impacts on in-pond and surrounding upland populations.
 - d. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
 - e. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.
2. Establish native vegetation
Plant native vegetation around ponds and control non-native invasive plant species. Control and management of noxious weeds with the use of herbicides shall occur according to labeled directions and local, state, and federal regulations and guidelines. This management practice incorporates the following design features and avoidance and minimization measures to limit impacts to Covered Species.
- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing activities that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. California tiger salamanders have been found up to approximately 6,500 feet from any known breeding pond, although California tiger salamander adults remain more concentrated within approximately 650 feet of the pond. Trenham and Shaffer (2005) estimate that in optimal habitat 95 percent of California tiger salamanders remain within 2,100 feet of breeding ponds. Alameda whipsnake use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of

- burrows within the project area, especially with known Covered Species occurrences, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
 - c. All steep-walled holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Holes shall be checked every morning prior to construction activity. If a Covered Species is present in the hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
 - d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
 - e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
 - f. Restoration activities at ponds shall take place between August 31 and October 31 (or the first rainfall of the season depositing more than 0.25 inch) when larval development of California tiger salamanders and other amphibians is likely to be complete and ponds have less water present. California tiger salamanders use ponds to breed and lay eggs primarily following rains in November to February (CDFG, 1997). Metamorphosis usually occurs from May to July, with a peak in June (Trenham et al. 2000). Applying temporal limitations to when pond activities are occurring provides the best avoidance measure to limit impacts on in-pond and surrounding upland populations.
3. Structural components repair
Improve and repair spillways, provide alternative pipe outlets for water flow, and repair embankments as deemed necessary. Practices must meet NRCS standards and specifications for pond repair and be approved by the project engineer in order to meet Federal standards. Management practices that involve structural components repair include spillway repair, installation of alternative pipe outlets and embankment repair.
- i) *Spillway repair*
Design and repair of the emergency earthen spillways utilizing grade stabilization structures to address potential gully erosion associated with spillways. This activity can be used to improve the size of a spillway to adequately address the hydrology of the watershed and/or repair a spillway that is actively eroding and contributing sediment downstream. This activity is especially important where the emergency spillway will also act as the primary spillway in pond restoration.

- ii) *Alternative pipe outlets for water flow*
Installation of corrugated metal pipe to act as a primary or emergency spillway in pond restoration. The activity includes pipe sizing based on the hydrology of the watershed; required appurtenances, such as anti-seep collars and inlet and outlet structures; and installation requirements, such as fill materials, compaction, and depth of cover.
- iii) *Embankment repair*
Includes repairs to embankments that are leaking or other embankment repairs as deemed necessary. All dam repairs will be analyzed using geologists, soil scientists and other experts as necessary to determine the efficacy of such improvements.

These management practices incorporate the following design features and avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing activities that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. California tiger salamanders have been found up to approximately 6,500 feet from any known breeding pond, although California tiger salamander adults remain more concentrated within approximately 650 feet of the pond. Trenham and Shaffer (2005) estimate that in optimal habitat 95 percent of California tiger salamanders remain within 2,100 feet of breeding ponds. Alameda whipsnake use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known Covered Species occurrences, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. Restoration activities at ponds shall take place between August 31 and October 31 (or the first rainfall of the season depositing more than 0.25 inch) when larval

development of California tiger salamanders and other amphibians is likely to be complete and ponds have less water present. California tiger salamanders use ponds to breed and lay eggs primarily following rains in November to February (CDFG, 1997). Metamorphosis usually occurs from May to July, with a peak in June (Trenham et al. 2000). Applying temporal limitations to when pond activities are occurring provides the best avoidance measure to limit impacts on in-pond and surrounding upland populations.

- g. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- h. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.

4. Obstruction removal

This activity relates to the removal of concrete rubble, rip-rap, rock, wood, old tires, refuse (such as household trash) and other debris from the pond area and spillway. ACRC staff and/or its consultant will evaluate removal of debris on a site-by-site basis. All removed material will be properly disposed of off-site at approved locations. This management practice incorporates the following design features and avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing activities that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. California tiger salamanders have been found up to approximately 6,500 feet from any known breeding pond, although California tiger salamander adults remain more concentrated within approximately 650 feet of the pond. Trenham and Shaffer (2005) estimate that in optimal habitat 95 percent of California tiger salamanders remain within 2,100 feet of breeding ponds. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known Covered Species occurrences, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.

- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
 - e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for the Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material..
 - f. Restoration activities at ponds shall take place between August 31 and October 31 (or the first rainfall of the season depositing more than 0.25 inch) when larval development of California tiger salamanders and other amphibians is likely to be complete and ponds have less water present. California tiger salamanders use ponds to breed and lay eggs primarily following rains in November to February (CDFG, 1997). Metamorphosis usually occurs from May to July, with a peak in June (Trenham et al. 2000). Applying temporal limitations to when pond activities are occurring provides the best avoidance measure to limit impacts on in-pond and surrounding upland populations.
 - g. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
 - h. Any rock or rubble designated for removal shall be inspected for presence of Covered Species prior to moving. If Covered Species are found they should be relocated by a qualified biologist to a suitable location out of the construction area or be allowed to leave the area on their own.
 - i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.
5. Pond desiltation
This activity includes desiltation of existing ponds that are filled in with sediment to increase and improve available breeding habitat. Most of the livestock ponds throughout Alameda County were installed thirty to sixty years ago, and were designed with a twenty-year lifespan. Many are now approaching failure due to siltation, are drying up and no longer providing the critical breeding habitat the California tiger salamanders require. Desiltation of these livestock ponds shall not involve any increase in the original storage capacity of a pond and shall incorporate, to the best extent possible the following design features. These design features were developed in consultation with California tiger salamander expert Pete Trenham and were compiled as part of the NRCS and ACRC's Draft Pond Restoration Design and Plan (NRCS and ACRC, 2006).
- i. Ponds shall be sized to retain sufficient water for larval development during the entire rearing season (January, or whenever rains commence, through late July or early

August in most years); ponds can be allowed to dry during the fall (typically mid-August through early December).¹

- ii. Ponds shall contain a shallow water area for larval and juvenile rearing. This shallow area (approximately 1 foot deep) should be unshaded and contain no or very short emergent plants. The shallow area shall be designed so that the water warms quickly in the winter sun but is of sufficient water depth to provide aquatic habitat throughout spring.
- iii. Ponds also shall contain a deep-water escape area with portions deeper than approximately 3.5 feet². This deep-water area should contain a mosaic of open water and dense aquatic vegetation, or dense patches of shoreline vegetation adjacent to deep water.
- iv. When possible, the areal extent of the shallow and deep portions of the pond should be about equal.

In addition, pond desiltation will adhere to the following avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing activities that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. California tiger salamanders have been found up to approximately 6,500 feet from any known breeding pond, although California tiger salamander adults remain more concentrated within approximately 650 feet of the pond. Trenham and Shaffer (2005) estimate that in optimal habitat 95 percent of California tiger salamanders remain within 2,100 feet of breeding ponds. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known Covered Species occurrences, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified

¹ Note that pond management that mimics the natural water cycle, where possible, will be the most beneficial for the California red-legged frog and the California tiger salamander (USFWS 2002).

² Including an area deeper than approximately 3.5 feet provides an area where California red-legged frogs can escape predators, and including an area deeper than approximately 5 feet discourages uniformly thick growth of emergent plants that might shade the entire area (which would provide poor habitat for both California red-legged frogs and California tiger salamanders).

biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.

- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. Restoration activities at ponds shall take place between August 31 and October 31 (or the first rainfall of the season depositing more than 0.25 inch) when larval development of California tiger salamanders and other amphibians is likely to be complete and ponds have less water present. California tiger salamanders use ponds to breed and lay eggs primarily following rains in November to February (CDFG, 1997). Metamorphosis usually occurs from May to July, with a peak in June (Trenham et al. 2000). Applying temporal limitations to when pond activities are occurring provides the best avoidance measure to limit impacts on in-pond and surrounding upland populations.
- g. Sediment removal during pond maintenance/restoration shall be placed where it shall not pass into California tiger salamander breeding pools; nor shall it pass into any other waters of the state as per Fish and Game Code section 5650. Sediment shall not be placed over areas with ground squirrel burrows.
- h. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.

Stream Restoration

The activities covered under the Stream Restoration set of management practices includes activities that are associated with the repair, maintenance and restoration of suitable aquatic and riparian corridor habitat for the Covered Species. These activities are designed to provide erosion control measures, reduce sedimentation, improve water quality and restore and improve the overall quality of riparian habitat.

Many stream courses throughout Alameda County have been severely modified by urban development, increased and modified runoff, flood control management activities, and infrastructure encroachment. In addition, many streams continue to be degraded due to illegal dumping, filling, encroachment (structures), and unsuitable stream stabilization practices. Sometimes these activities are done without an understanding of the effects on the natural resources. The result is an unhealthy stream system and a downward spiral of continued degradation.

Stream restoration activities have the potential to benefit habitat for many local wildlife species. While not the primary habitat for the Covered Species under this Program, these species can benefit from restoration efforts in riparian areas. Riparian habitat is one of the vegetation types adjacent to the scrub habitat that the Alameda whipsnake needs for foraging, dispersal, and population interactions (e.g., stream corridors) (USFWS, 2006). California tiger salamanders are also uncommonly found in stream courses in valley-foothill riparian habitats (CDFG, 2005). Stream restoration can benefit the Alameda whipsnake and California tiger salamander by providing adequate cover for them in these corridors, especially along stream courses where adequate upland habitat exists for each species.

Take coverage for the California tiger salamander and/or the Alameda whipsnake will be provided for stream restoration activities that are covered under the Program. Which species are covered under this activity will be detailed in the Cooperative Agreement and in consultation with the Program Administrator and the Department when enrolling in this Program.

Restoration activities in or near aquatic habitat shall conform to temporal limitations as well as sediment avoidance and other minimization measures as described below. Implementation of these practices may require temporary dewatering of the project site.

Stream restoration activities may include one or more of the following management practices.

1. Native Riparian Habitat Restoration

This activity relates to planting, maintenance and establishment of native vegetation along riparian corridors to enhance and improve habitat. The establishment of riparian buffers and control of invasive plants reduces sediment, nutrient, and other contaminant loading to streams and water bodies and improves wildlife habitat. Non-native plants can out-compete and ultimately replace native plants resulting in a loss of native plant species diversity and wildlife habitat.

i. *Riparian Plantings*

Plantings applied on stable areas adjacent to water bodies and shall consist of native vegetative plantings ultimately resulting in forest canopy and understory development. This practice can be used to create shade to lower water temperatures, provide a source of detritus and large woody debris for fish and other aquatic organisms, and provide riparian habitat and corridors for wildlife.

ii. *Invasive and Non-native Plant Removal*

Restoration and conservation of rare or declining native vegetation communities and associated wildlife species along riparian corridors in Alameda County. This practice may be used to remove invasive plant species in riparian areas, including but not limited to Giant Cane (*Arundo donax*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*) and other non-native, invasive plant species. Any necessary use of herbicides shall occur according to labeled directions and local, State, and Federal regulations and guidelines.

This management practice incorporates the following avoidance and minimization measures listed below to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing conservation practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in

the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species.

- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- d. Native tree removal and disturbance of native shrubs or woody perennials adjacent to the streambank or stream channel shall be avoided or minimized to the fullest extent possible. If riparian vegetation will be disturbed, it shall be replaced with similar species.
- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for the Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- g. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located outside of the stream channels and avoiding areas of concentrated ground squirrel burrows suitable for use by Covered Species. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream or pond shall be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles must be moved away from the stream prior to refueling and lubrication.
- h. For any dewatering activities, water will be diverted by installation of a temporary barrier. All water above the barrier will be diverted downstream at an appropriate rate to maintain downstream flows during construction. A qualified biologist, with all necessary State permits shall relocate Covered Species and other native aquatic species within the project site. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Adequate water

depth and channel width will be maintained at all times to allow for fish passage. When construction is completed, the barriers to flow will be removed in a manner that will allow flow to resume with the least disturbance possible to the substrate.

- i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.

2. In-Stream Channel Stabilization

This activity consists of the use of in-stream structures to provide channel and grade stabilization to reduce erosion and encourage vegetation establishment to reduce sediment loading to streams, improve water quality and improve wildlife habitat. Practices must meet NRCS standards and specifications for stream stabilization practices and be approved by a certified engineer and qualified geomorphologist in order to meet Federal standards. Management practices that involve in-stream stabilization include installation of in-stream stabilization structures and obstruction removal.

i) *Installation of In-Stream Stabilization Structures*

Installation of suitable structures to stabilize stream channels and will be used for streams that are undergoing damaging aggradation (filling in of) or degradation that cannot be controlled by upstream practices. This activity could include installation of rock, concrete, or timber structures that do not control the rate of flow or water level in channels. This activity may also include the removal of accumulated sand or sediment. Concrete rubble shall not be placed within the channel bed or banks.

ii) *Obstruction Removal*

This activity includes the removal and disposal of unwanted structures from streams. This practice includes removal of cars, large appliances, and garbage (items that are anthropogenic and not natural to the system). Large objects will be removed unless their removal will result in a (net) detrimental effect. For example, if it was discovered that multiple cars were stacked behind one another under a stream bank the cars will not be removed if the action will result in disturbance to a significant area (beyond the scope of this program). Obstructions shall be removed when the stream channel is dry or during the lowest flows to minimize impacts.

These management practices incorporate the following design features and avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when constructing conservation practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife

that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.

- d. Native tree removal and disturbance of native shrubs or woody perennials adjacent to the streambank or stream channel shall be avoided or minimized to the fullest extent possible. If riparian vegetation will be disturbed, it shall be replaced with similar species.
- e. No plastic or monofilament erosion control matting shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for the Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. The general construction season for stream restoration shall be from June 15 to October 31 (or the first rainfall depositing more than 0.25 inch) to avoid impacts to breeding, feeding and sheltering of Covered Species found within the riparian corridor.
- g. Excavation and grading activities shall only be conducted during dry weather.
- h. The use or storage of petroleum-powered equipment shall be accomplished in a manner to prevent the release of petroleum materials into waters of the state in accordance with Fish and Game Code section 5650.
- i. If construction shall occur in a riparian area before August 1, a survey must be conducted for nesting bird activity. If nesting birds are found within the area, staff must consult with the Department to determine appropriate avoidance measures.
- j. Sediment removal during stream restoration shall be placed where it shall not pass into any waters of the state as per Fish and Game Code section 5650. Sediment shall not be placed over areas with concentrated ground squirrel burrows.
- k. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- l. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located outside of the stream channels and avoiding areas of concentrated ground squirrel burrows suitable for use by Covered Species. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream or pond shall be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles must be moved away from the stream prior to refueling and lubrication.

- m. For any dewatering activities, water will be diverted by installation of a temporary barrier. All water above the barrier will be diverted downstream at an appropriate rate to maintain downstream flows during construction. A qualified biologist, with all necessary State permits shall relocate fish, amphibians and other native aquatic species within the project site. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Adequate water depth and channel width will be maintained at all times to allow for fish passage. When construction is completed, the barriers to flow will be removed in a manner that will allow flow to resume with the least disturbance possible to the substrate.
- n. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat.

Livestock and Wildlife Water Distribution

The activities covered under the Livestock and Wildlife Water Distribution set of management practices includes activities that provide benefits to habitat and state listed species by improving livestock distribution through spring development and other off stream water developments. These off stream water developments may help reduce pressure on riparian habitats and other aquatic features by decreasing the amount of time livestock spend in streams, enhancing water quality and reducing sedimentation from streambank erosion. Proper placement of off stream developments contributes to proper forage use by livestock which decrease erosion and presence of invasive plants, resulting in improvements to the surrounding upland habitat. In addition to providing additional livestock water to support ongoing grazing management, these facilities also provide clean and readily available water for wildlife such as bats, birds, deer and other mammals. All troughs installed are required to incorporate adequate safe access and escape opportunities such as ramps for small wildlife.

Improved water distribution on rangelands facilitates better management by improving the distribution of water and allows for the limitation of livestock from streams, ponds, and lakes to improve habitat in these areas. Sustainable grazing management is essential to supporting healthy populations of California tiger salamanders, Alameda whipsnakes and other species throughout Alameda County. Both the USFWS and the Department recognize the importance of maintaining sustainable grazing operations to the survival of the California tiger salamander (USFWS, 2004, McCamman, 2010). Maintenance of shorter vegetation improves the ability of California tiger salamanders to move between aquatic and upland habitats and may also make areas more suitable for California ground squirrels whose burrows are essential to California tiger salamanders (USFWS, 2004). One of the factors contributing to the decline of the Alameda whipsnake is the alteration of suitable habitat as a result of fire suppression and the increased likelihood of catastrophic wildfires. Managed grazing can be used as a form of vegetation management to reduce fuel loads and reduce the potential of catastrophic wildfires (Bush, 2006). Developing off-stream water sources on rangelands allows for cattle to be properly managed and distributed. The USFWS believes that livestock grazing, if appropriately managed, can benefit the Alameda whipsnake (USFWS, 1997).

Take coverage for the California tiger salamander and/or the Alameda whipsnake will be provided for water development activities that are covered under the Program. Which species are covered under this activity will be detailed in the Cooperative Agreement and in consultation with the Program Administrator and the Department when enrolling in this Program.

Livestock and Wildlife Water Distribution activities may include one or more of the following management practices

1. Spring Development

The spring development management practice consists of capping or collecting water at a spring or seep and transporting it through pipelines to tanks or troughs to provide alternative livestock watering facilities. Development will be confined to springs or seep areas that could furnish a dependable supply of water. Water flow from the spring or seep may be temporarily reduced during the construction period. The Program Administrator and/or their contractor shall evaluate selection of spring developments and consider the potential impacts on long-term groundwater supply, effects on stream flows in the watershed, and maintaining adequate flow so that the spring development enhances the habitat values of the spring or seep area. This management practice incorporates the following avoidance and minimization measures to limit impacts to Covered Species.

- a. The area around the water source may be fenced to limit livestock access. Fencing shall be wildlife friendly to retain access by smaller species.
- b. All troughs associated with the development shall have float valves installed and will be used to control water flow. All troughs shall have escape ramps for wildlife.
- c. Sufficient spring flow shall remain in the wetland area to maintain the functions and values of the original wetland area. Water collected from the spring will not be held for more than 30 days. Overflow from the development will be directed back into the wetland area.
- d. Native plant species shall be used for revegetation, if necessary, within the disturbed area.
- e. Spring development and enhancement shall be constructed in accordance with NRCS Conservation Practice Standards and Specifications for spring development, wetland restoration and associated practices.
- f. Rodent burrows shall be avoided to the maximum extent practicable when installing practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species..
- g. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- h. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified

biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.

- i. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
- j. No plastic mono-filament erosion control matting shall be used for erosion control near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for California tiger salamanders. Amphibians, birds, reptiles and other species can become trapped in plastic matting.
- k. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- l. All rock outcroppings shall be avoided to minimize effects on Alameda whipsnake.
- m. Disturbance in known or potential Alameda whipsnake habitat shall take place between June 15 and October 31, when the Alameda whipsnake is more active, to promote movement when disturbance may occur.
- n. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat or within coastal scrub habitat.

2. Off-stream Water Facilities

This practice can be associated with spring developments, wells, or other off-stream water sources. Installation of watering facilities including tanks and/or troughs provides adequate amounts and quality of drinking water for livestock and wildlife and improves animal distribution to support effective rangeland management. This practice must incorporate adequate safe access and escape opportunities such as ramps in the watering facility design. This management practice includes pipeline installation.

i) *Pipeline Installation*

This practice is used in conjunction with other livestock and wildlife water improvement practices. It includes the installation of pipelines for conveying water from springs or ponds to alternative locations. Occasionally, pipelines may cross streams or other watercourses. Pipeline installation will be used to shift livestock to constructed water sources and away from streams and lake to reduce bank erosion, sediment yield, and manure deposition in watercourses.

This management practice incorporates the following avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when installing practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for California tiger salamanders. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- g. All rock outcroppings shall be avoided to minimize effects on Alameda whipsnake.
- h. Disturbance in known or potential Alameda whipsnake habitat shall take place between June 15 and October 31, when the Alameda whipsnake is more active, to promote movement when disturbance may occur.
- i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat or within coastal scrub habitat.

Erosion Control

The activities covered under this set of management practices includes activities that provide benefits to habitat and state listed species by reducing damage from sediment and runoff to

watercourses. Installation of erosion control practices improves water quality by reducing non-point source pollution and improving habitat for aquatic species.

Take coverage for the California tiger salamander and/or the Alameda whipsnake will be provided for erosion control activities that are covered under the Program. Which species are covered under this activity will be detailed in the Cooperative Agreement and in consultation with the Program Administrator and the Department when enrolling in this Program.

Erosion control activities may include one or more of the following management practices

Access Road Improvements

This activity is limited to the improvement of an existing road to prevent erosion and maintain or improve water quality. An example of this practice might include re-grading, outsloping, or the addition of a rolling dip to a road so that water is less erosive as it travels across the road. This practice may also be used for repair, removal, or installation of culverts (water control structures) in non-fish bearing streams associated with access road improvements. In some cases this practice may also be used to decommission improperly placed roads (i.e. road that impacts habitat such as a seep area or a road that is too steep and contributing significant erosion) and re-route a new road to a more appropriate path. Roads contribute significant erosion to watercourses and degradation of upland and aquatic habitat values through improper placement, undersized or oversized culverts, and improper or lack of appropriate maintenance. This management practice incorporates the following avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when installing practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.

- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- g. All rock outcroppings shall be avoided to minimize effects on Alameda whipsnake.
- h. Disturbance in known or potential Alameda whipsnake habitat shall only take place between June 15 and October 31, when the Alameda whipsnake is more active and less likely to be impacted.
- i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat or within coastal scrub habitat.

2. Vegetation Establishment

This activity relates to planting, maintenance and establishment of native or non-persistent, noninvasive vegetation to reduce erosion and non-point source pollution to waterways, while also enhancing habitat. This management practice includes critical area planting, installation of filter strips and grassed waterways. Critical Area Planting Planting of trees, shrubs, grasses, or legumes on highly erosive or critically eroding areas. The resulting vegetation cover will be expected to reduce the amount of soil nutrients washed into surface waters or leached into ground water. Pesticide use will be limited to the use of herbicides to control established stands of non-native species.

i) *Filter Strips*

Filter strips or areas of vegetation shall be used at the lower edges of fields, pastures, or other areas adjacent to streams, ponds, and lakes to remove sediment, organic matter, and other pollutants from runoff and wastewater. Installation often requires soil manipulation to remove surface irregularities and to properly address water movement through the filter strip. Pesticides and nutrients may be removed from runoff flowing through the vegetated filter strip by infiltration, absorption, adsorption, decomposition, and volatilization thereby protecting water quality downstream.

ii) *Grassed Waterways*

Used to control runoff by shaping or grading natural or constructed channels and planting the area to grass. This practice may reduce erosion in areas of concentrated flow (e.g., gullies or pond spillways) and result in the reduction of sediment and substances delivered to receiving waters. Vegetation may act as a filter in removing some of the sediment delivered to the waterway, although this is not the primary function of a grassed waterway.

These management practices incorporate the following design features and avoidance and minimization measures to limit impacts to Covered Species.

- a. Rodent burrows shall be avoided to the maximum extent practicable when installing practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain adult Covered Species.
 - b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
 - c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
 - d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
 - e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered Species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
 - f. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
 - g. All rock outcroppings shall be avoided to minimize effects on Alameda whipsnake.
 - h. Disturbance in known or potential Alameda whipsnake habitat shall only take place between June 15 and October 31, when the Alameda whipsnake is more active and less likely to be impacted.
 - i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat or within coastal scrub habitat.
3. Water Control Structures
Installation of a structure in a drainage, stream, or gully, that conveys water, controls the direction or rate of flow, or maintains a desired water surface elevation, such as culverts, pipe drops or chutes within gullies, debris screens, etc. These structures are used to replace or retrofit existing culverts that are either not functioning properly or are a barrier to fish passage. The placement of new culverts, when environmentally beneficial, is also

included in this practice. By controlling the velocity of water running through an area, this practice reduces erosion and prevents down cutting of stream channels. Installation of culverts shall be consistent with the Department's "Culvert Criteria for Fish Passage" (April 2003) and will incorporate the following avoidance and minimization measures to limit impacts to Covered Species..

- a. Rodent burrows shall be avoided to the maximum extent practicable when installing practices that involve surface disturbance. Outside of the breeding season, California tiger salamanders live exclusively on land, primarily in the burrows of ground squirrels and gophers. Alameda whipsnake also use small rodent burrows for areas of retreat (EPA, 2010). Avoidance of burrows within the project area, especially with known occurrences of the Covered Species, will prevent impacts to burrows that could contain Covered Species.
- b. Construction activities shall be conducted during daylight hours, to the maximum extent practicable. Movement and dispersal of California tiger salamanders occurs mostly at night (CDFG, 1997).
- c. All steep-walled trenches and/or holes deeper than 6-inches shall be covered at night or an escape ramp shall be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. If a Covered Species is present in the trench or hole, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- d. Projects shall be designed to minimize disturbance of existing vegetation near and on permanent and seasonal pools of streams, marshes, ponds, and shorelines with extensive emergent vegetation, or weedy vegetation.
- e. No plastic or monofilament erosion control material shall be used near riparian habitat, along the perimeter of ponds, or near other aquatic habitat that may provide habitat for Covered species. Amphibians, birds, reptiles and other species can become trapped in plastic material.
- f. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Covered Species is present in the structure, a qualified biologist shall be notified immediately and no construction activity shall take place within 100 feet of the site until the animal is relocated.
- g. All rock outcroppings shall be avoided to minimize effects on Alameda whipsnake.
- h. Disturbance in known or potential Alameda whipsnake habitat shall only take place between June 15 and October 31, when the Alameda whipsnake is more active and less likely to be impacted.
- i. Fumigants shall not be used for control of ground-burrowing rodents within 2,100 feet of known California tiger salamander breeding habitat or within coastal scrub habitat.

Routine and Ongoing Agricultural Activities

The following is a list of routine and ongoing activities associated with ranching and agriculture that are afforded take coverage under the Program. This list of routine activities is not exhaustive and serves merely to provide guidance to Cooperators as to the type of activities that are anticipated to be covered under the Program. Activities that are not listed below will be reviewed by the Program Administrator and the Department to determine if the activities are appropriate for coverage under the Program. For the purposes of this Program the conversion of rangeland to more intensive agricultural uses, such as permanent crops, is not considered a routine and ongoing agricultural activity. Ordinary pasture maintenance and renovation and dry land farming operations consistent with rangeland management are considered routine and ongoing agricultural activities. Routine activities may vary from one ranching operation to another, and vary with changing environmental and economic conditions.

Routine and ongoing agricultural activities that a Cooperator will receive take authorization for under their participation in the Program will be listed in the Cooperative Agreement. The ACRCD and the Department recognize that these are routine and ongoing agricultural activities that cannot be monitored as part of the Program. Cooperators will provide self-certification that they will implement the routine and ongoing agricultural activities as they are described below to prevent impacts to Covered Species as part of the authorization of the Cooperative Agreement.

1. Livestock grazing according to normally acceptable and established levels of intensity for the various plant communities in terms of the number of head of livestock per acre of rangeland.
2. Routine maintenance or construction of fences for grazing management. Rodent burrows will be avoided to the maximum extent practicable when constructing fencing that involves surface disturbance. Impacts to native and existing vegetation will be avoided to the maximum extent possible.
3. Maintenance and construction of livestock management facilities such as corrals, sheds, and other ranch outbuildings outside of the rainy season. Rodent burrows will be avoided to the maximum extent practicable when constructing and/or maintaining facilities that involves surface disturbance. Impacts to native and existing vegetation will be avoided to the maximum extent possible.
4. Repair, maintenance, or de-commissioning of unimproved ranch roads. This activity may include improvement, upgrade, or construction of new roads if approved by the Department. Activities shall be limited to the dry period of the year and shall be restricted to periods of low rainfall (less than 0.25 inch per 24 hour period), time periods with less than a 30 percent chance of rain, or dry weather periods. If rain is predicted based on the above criteria, within 72 hours during project activity, all activities shall cease until no further rain is forecast. Rodent burrows will be avoided to the maximum extent practicable when conducting road maintenance that involves surface disturbance. Impacts to native and existing vegetation will be avoided to the maximum extent possible. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way.

5. Control of ground-burrowing rodents using alternative management tools such as raptor perches, barn owl boxes and/or trapping methods to encourage natural predation of ground-burrowing rodents is recommended. Rodenticides and fumigants should be used as part of an Integrated Pest Management Strategy in compliance with all Federal, state, and local regulations and guidelines.
6. Perimeter discing or blading for fire prevention control and other fire prevention activities. Activities shall be limited to the dry period of the year and shall be restricted to periods of low rainfall (less than 0.25 inch per 24-hour period), time periods with less than a 30 percent chance of rain, or dry weather periods. If rain is predicted based on the above criteria, within 72 hours during project activity, all activities shall cease until no further rain is forecast. Rodent burrows will be avoided to the maximum extent practicable when constructing discing activities.
7. Placement of mineral supplements and supplemental feeding.
8. Control and management of noxious weeds using an eco-system based strategy through a combination of techniques such as biological control, habitat manipulation, and modification of cultural practices is recommended. Herbicides should only be used with strict adherence to product labeling and Federal, State and local regulations and guidelines. All label directions and best management practices should be followed to prevent herbicide drift and run-off from treatment sites.
9. Riparian area maintenance (e.g., clearing debris not embedded in the stream channel). Rodent burrows will be avoided to the maximum extent practicable when conducting activities that involves surface disturbance. Impacts to native and existing vegetation will be avoided to the maximum extent possible. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way.
10. Movement of livestock.
11. Use of all-terrain and off-road vehicles in pasture for ranch management activities.
12. Use of horses and horse grazing according to normally accepted conditions.
13. Maintenance of existing off-stream livestock water developments including diversions and springs. Rodent burrows will be avoided to the maximum extent practicable when conducting activities that involve surface disturbance. Impacts to native and existing vegetation will be avoided to the maximum extent possible. All steep-walled trenches and/or holes deeper than 6-inches will be covered at night or an escape ramp will be placed in them to facilitate escape by any wildlife that may fall into the excavated area. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle of no greater than 30 degrees. Trenches and holes shall be checked every morning prior to construction activity. All construction pipes, culverts, or similar structures that are stored in the project area for one or more overnight periods shall be securely capped prior to storage or thoroughly inspected for animals if the pipe is subsequently buried, capped, or otherwise used or moved in any way.

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