United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Mother Lode Field Office
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El Dorado Hills, CA 95762-5713
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Cosumnes River Preserve
Badger Creek Restoration (CA-180-15-46)
Finding of No Significant Impact
June 2015

It is my determination that this decision will not result in significant impacts to the quality of the human environment. Anticipated impacts are within the range of impacts addressed in the Sierra Resource Management Plan/Final Environmental Impact Statement. The proposed action does not constitute a major federal action having a significant effect on the human environment; therefore, an environmental impact statement is not necessary and will not be prepared. This conclusion is based on my consideration of CEQ's following criteria for significance (40 CFR §1508.27), regarding the context and intensity of the impacts described in the EA, and based on my understanding of the project:

1) Impacts can be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects. No significant environmental impacts have been identified; only beneficial impacts for a state and federally listed species, giant garter snake (*Thamnophis gigas*).

2) The degree of the impact on public health or safety. No aspects of the proposed action have been identified as having the potential to significantly and adversely impact public health or safety.

3) Unique characteristics of the geographic area. The project area does not contain ACEC values.

4) The degree to which the effects on the quality of the human environment are likely to be highly controversial effects. No anticipated effects have been identified that are scientifically controversial. As a factor for determining within the meaning of 40 C.F.R. § 1508.27(b)(4) whether or not to prepare a detailed environmental impact statement, "controversy" is not equated with "the existence of opposition to a use." *Northwest Environmental Defense Center v. Bonneville Power Administration*, 117 F.3d 1520, 1536 (9th Cir. 1997). "The term 'highly controversial' refers to instances in which 'a substantial dispute exists as to the size, nature, or effect of the major federal action rather than the mere existence of opposition to a use.'" *Hells Canyon Preservation Council v. Jacoby*, 9 F.Supp.2d 1216, 1242 (D. Or. 1998).

5) The degree to which the possible effects on the human environment are likely to be highly uncertain or involve unique or unknown risks. The analysis does not show that this action would involve any unique or unknown risks.

6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The restoration of habitat on Cosumnes River Preserve owned lands is not precedent setting.

7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. No significant cumulative impacts have been identified. The proposed action is consistent with the actions and impacts anticipated in the Sierra Resource Management Plan and its associated environmental impact statement.

8) The degree to which the action may adversely affect National Historic Register listed or eligible to be listed sites or may cause loss or destruction of significant scientific, cultural or historical resources. The proposed action will not affect cultural resources listed on or eligible for the National Register of Historic Places and would not cause the loss or destruction of significant scientific, cultural or historical resources.

9) The degree to which the action may adversely affect ESA listed species or critical habitat. No ESA listed species (or their habitat) would be adversely impacted by the proposed project. During construction, the mitigation measures/project design features set forth in the Environmental Assessment would prevent impacts to listed species. Additionally, upon project completion, the project area would provide new/restored acres of habitat for the state and federally listed species giant garter snake.

10) Whether the action threatens a violation of environmental protection law or requirements. There is no indication that the decision to move forward with the proposed project would result in actions that will threaten such a violation.

_____ _____

William S. Haigh Date
Field Manager, Mother Lode Field Office

COUNTY OF SACRAMENTO
PLANNING AND ENVIRONMENTAL REVIEW DIVISION
& BUREAU OF LAND MANAGEMENT
MOTHER LODE FIELD OFFICE
INITIAL STUDY/ENVIROMENTAL ASSESSMENT

PROJECT INFORMATION

CONTROL NUMBER: PLER2014-00037

ENVIRONMENTAL ASSESSMENT NUMBER: CA-180-15-46

NAME: BADGER CREEK RESTORATION

LOCATION: The proposed project area is located along the south fork of Badger Creek from Highway 99 east to near Riley Road, within the Cosumnes River Preserve (Preserve). This section of Badger Creek is located roughly eight miles north of Galt, California, adjacent to California Highway 99. The project area spans across the south ½ of section 28, T6N, R6E, and the south ½ of section 27, T6N, R6E, of the MDM on the 7.5-minute Galt, CA USGS quadrangle. The latitude and longitude of the project area are 38°20' 20.23" N, and 121° 18'57.54"W.

ASSESSOR'S PARCEL NUMBERS: 134-0280-084-0000, 138-280-013-0000 (Horseshoe Lake Unit), and 134-0280-078-0000, 134-280-062-0000, 134-280-073-0000 (Bjelland Unit)

OWNER:

The Nature Conservancy
Cosumnes River Preserve
13501 Franklin Blvd.
Galt, CA 95632

Sacramento County
Cosumnes River Preserve
13501 Franklin Blvd.
Galt, CA 95632

APPLICANT:

U.S. Bureau of Land Management
Cosumnes River Preserve
13501 Franklin Blvd.
Galt, CA 95632

Project Description/Proposed Action

The proposed project would restore and improve aquatic habitat for the federally and state-listed "threatened" giant garter snake (GGS) (*Thamnophis gigas*), and other native California species throughout Assessor's Parcels 134-0280-084 (Horseshoe Lake Unit) and 134-0280-078 (Bjelland Unit) within the Cosumnes River Preserve (Preserve) (Figure 1). These two adjacent parcels are located immediately to the east of California Highway 99, and are hydrologically connected by Badger Creek to a documented population of GGS. The project area is located less than 1200 meters from this existing population. The proposed improvements to Horseshoe Lake and Badger Creek, and the surrounding uplands within the project areas, would create approximately 1.5 additional miles of protected, contiguous wetland, riparian, and floodplain habitat suitable for GGS. Many other species would also benefit from the restoration project including federal trust species of migratory waterfowl and waterbirds, and state listed species like the western pond turtle (*Clemmys marmorata*), and greater sandhill crane (*Grus canadensis tabida*).

The Badger Creek Restoration Project includes participation from multiple landowning partners at the Cosumnes River Preserve including the BLM, The Nature Conservancy, and Sacramento County. In order to simplify implementation of this project, and to comply with the negotiated mitigation settlement associated with the Bjelland Unit portion of the project area, the BLM would be the lead agency for NEPA compliance and project implementation, and Sacramento County would be the lead agency for CEQA compliance.

Horseshoe Lake Unit

The Preserve's Horseshoe Lake, located immediately to the east of California highway 99, is currently infested with highly invasive, non-native yellow water primrose (*Ludwigia hexapetala*). The proposed activities include herbicidal treatment of primrose throughout Horseshoe Lake, and the south fork Badger Creek. The goal for herbicidal treatment would not be complete eradication; rather, the goal would be to gain control of the primrose infestation so that it can be managed and maintained at more biologically and ecologically relevant levels. Mechanical removal of primrose also would be used in the "western pond" and the outflow portion of Badger Creek leading to Highway 99, to restore open-water foraging habitat for GGS.

An excavator, and/or tow-behind or self-propelled belly scraper, would be used to remove primrose biomass from the western pond in order to restore the open-water habitat required by GGS for their survival and recovery (Figure 2). A temporary access road would be mowed from Dillard Road south to the primrose treatment areas to facilitate access for the heavy equipment, and ensure adherence to seasonal fire restriction policies. The access road would be approximately 12 feet wide, and would only be mowed, not graded, to minimize ground disturbance. The spoils (i.e., the primrose biomass) that are removed from the open-water foraging areas would be deposited on a small island adjacent to the western pond in order to create additional upland aestivation and hibernaculum sites for GGS. If depositing the biomass on the island is unfeasible, the spoils would be deposited around the perimeter

of the western pond. These spoil piles would be left in place to create micro-habitat sites for GGS and other species that utilize the western pond (e.g., western pond turtles). The biomass from the Badger Creek outflow would be deposited on the south side of the creek. Once dry, it would be contoured into the landscape to match the existing topography.

If funds are available, herbicide treatments would also be applied on portions of the surrounding uplands to control infestations of yellow star- thistle (*Centaurea solstitialis*). These treatments would be conducted in accordance with the BLM's March 2015 Environmental Assessment for the Integrated Weed Management Program at the Cosumnes River Preserve.

Bjelland Unit

The Bjelland Unit, adjacent to, and upstream of, the Horseshoe Lake Unit, is a highly modified, ruderal area composed of fallow agricultural land and a highly channelized reach of the south fork Badger Creek. Habitat improvements would include moving approximately 52,537 cubic yards of soil to restore wetland function and create a more natural creek channel configuration on 25 acres in the northwest corner of the Unit (Figure 3). Standard earth moving equipment would be used during the construction phase of the project including, but not limited to, graders, scrapers, backhoes, etc. as needed for grubbing and contouring of the 25 acres.

A temporary mowed access road would be used to facilitate access for the heavy equipment, and ensure adherence to seasonal fire restriction policies. The access road would be approximately 12 feet wide, and would only be mowed, not graded, to minimize ground disturbance. The access road would originate at Riley Road and continue west through the Preserve's Valensin Unit before entering the Bjelland Unit (Figure 3).

During the construction phase of the project, heavy equipment would be confined (when not in use) in an equipment staging area, located within the 25-acre restoration area. At the conclusion of the construction phase of the project, the 25 acres would be re-vegetated using a predominantly native seed mix and/or plugs as needed to support GGS recovery, and prevent invasive species from becoming established. The restored Unit would, upon completion, contain approximately 1.2 acres of the south fork of Badger Creek, 8.98 acres of adjacent floodplain habitat (5.71 acres of open-water and 3.27 acres of seasonal marsh) and 14.82 acres of adjacent upland habitat.

Justification/Purpose and Need

The primary purpose of this project is to enhance the survival and recovery of the federally and state-listed "threatened" GGS, an endemic species to California's Central Valley. The GGS inhabits natural and man-made wetlands, irrigation ditches and canals, marshes, sloughs, ponds, low gradient streams, and adjacent uplands (Hansen, 2012). The historical range of this species is believed to have covered much of the California Central Valley, but due to flood control activities and urban encroachment, among other factors, only a fraction of the original habitat exists today (USFWS 1999, 2012). The most recent

5-year status review confirms that the few persisting populations of GGS continue to be threatened by habitat loss, fragmentation and degradation (USFWS 2012).

One of the remaining populations of GGS, the Cosumnes-Mokelumne watershed population (also known as the Badger Creek population), is located just downstream from the proposed project areas on a Preserve-owned parcel known as the Valensin-Badger Creek Unit. Compared to all existing known populations of GGS, the Badger Creek population has been found to support the highest densities of individuals at eight snakes per hectare (Wylie *et al.* 2010). Additionally, despite being a species with generally low genetic variability, the Badger Creek population is known to contain several unique haplotypes (Paquin *et al.* 2006, Engstrom 2010). The proposed project areas are hydrologically connected to, and are located less than one mile upstream from the existing Badger Creek population.

Conformance with Applicable Land Use Plans

The proposed project is in conformance with several management plans and guiding documents. The U.S. Bureau of Land Management's (BLM) February 2008 Sierra Resource Management Plan (RMP) is the overarching Plan for management actions within the entire BLM Mother Lode Field Office's jurisdiction, which includes the Cosumnes River Preserve (BLM 2008). The RMP states that one goal for the BLM Mother Lode Field Office-managed area is to "Maintain, improve, or enhance native fish and wildlife populations and ecosystems upon which they depend" (p. 12). The Objectives under that goal include:

- Restore disturbed or altered habitat for all life states of native wildlife species, aquatic species, macroinvertebrates, special status species, and native fish species, including spawning fish passage habitat;
- Maintain or improve numbers of native fish, macroinvertebrates, and other aquatic species;
- Maintain or improve desired native plant communities while providing for wildlife/fisheries needs and soil stability;

The proposed project is also in conformance with the goals, objectives and actions described in the Preserve March 2008 Final Management Plan (Kleinschmidt 2008), including the Preserve's primary Overarching Goal:

- Native biological communities and the resident migratory species dependent on them are restored and maintained to sustainable conditions and population levels (p. ES-1).

Tiered under the Overarching Goals is a series of sub-goals (p. ES-2). The sub-goals that are consistent with the proposed project include:

- Protect, maintain, and restore riparian and floodplain communities, the natural hydrologic processes that sustain the habitat, and the native species that depend on the habitat;
- Maintain and restore a mosaic of freshwater wetland habitats (seasonal and permanent) that support native species;
- Maintain and enhance the population of the giant garter snake in the Badger Creek watershed.

The proposed project is also supported by the U.S. Fish and Wildlife Service Draft Recovery Plan for the Giant Garter Snake. The recovery strategy tasks (p. 41) pertinent to this project include the need for:

- Habitat management and restoration with a primary focus on habitat located near the largest populations of GGS, and creation or management of corridors between existing populations to enhance population interchange.
- Surveying and monitoring to determine if repatriation is required for a particular habitat, and to assess progress towards meeting recovery criteria.

No Action Alternative

Under the No Action Alternative, the Bureau of Land Management would be unable to execute the parameters of a negotiated settlement between the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management, and AKT development for the 25 acre Bjelland Unit project site. The site would remain in its current condition as a ruderal area of agricultural land, dominated by non-native grasses and shrubs. No new habitat would be created for the federal and state listed threatened giant garter snake and no further habitat improvements for other species which may utilize the site would occur.

Additionally, within the Horseshoe Lake Unit section of the proposed project area, no excavation and/or treatment of the highly invasive yellow water primrose would occur. The site would be left in its current condition in which yellow water primrose is the dominant aquatic species, and little open water aquatic habitat is available.

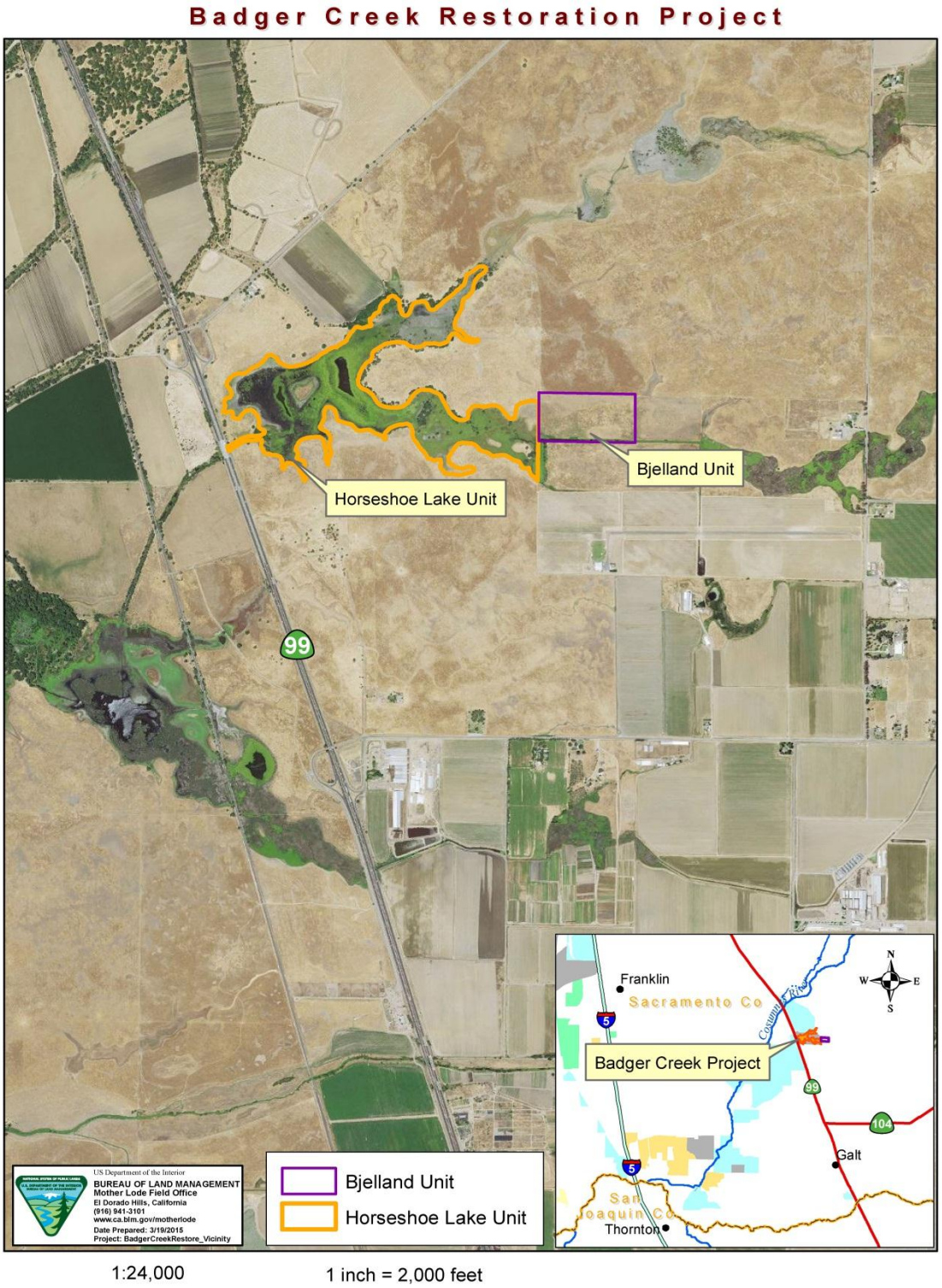


Figure 1: Badger Creek Restoration Project vicinity. The Horseshoe Lake site is outlined in yellow. The Bjelland Unit site is outlined in purple.

Figure 2: Area of potential impacts on the Horseshoe Lake Unit.

Figure 3: Area of potential impacts on the Bjelland Unit

REQUESTED ENTITLEMENTS

The project applicant is requesting that Sacramento County issue a **Grading Permit** and CEQA documentation for the project. Therefore, Sacramento County will be the CEQA lead agency. It is anticipated that other State responsible agencies will rely on the County's CEQA documentation in subsequent permitting activities, including but not limited to the California Department of Fish and Wildlife for any Streambed Alteration Permit and the Central Valley Regional Water Quality Control Board for any issuance of a Water Quality Certification.

A grading permit is a discretionary action and is required when more than 350 cubic yards of soil would be moved or when more than 1 acre of land would be disturbed. The Badger Creek Restoration Project consists primarily of the following two construction activities:

- Excavate up to approximately 28,485 cubic yards of invasive yellow water primrose and its accumulated biomass to restore open-water foraging habitat for the GGS within an approximate 3.2-acre area of the western portion of Horseshoe Lake, and remove invasive yellow water primrose and its accumulated biomass to restore a narrow channel (0.7 acres) of open-water foraging habitat on the west end of Horseshoe Lake near Highway 99 (Figure 2). The use of a long-reach excavator or similar piece of equipment may be required for this task. Yellow water primrose would also be treated with herbicides within Horseshoe Lake in areas which were once open-water foraging habitat for GGS. Any vegetation and soils that are removed from the western pond would be deposited on a small island adjacent to the restored open-water foraging habitat in order to create additional upland aestivation and hibernaculum sites for GGS. Spoils removed from the creek channel would be deposited on the bank and distributed. At the conclusion of the project, the site would continue to be managed as an open-water habitat natural area, with on-going invasive vegetation management provided by the Preserve staff, volunteers and contractors, as needed.
- Grade, scrape, and cut and fill of approximately 52,537 cubic yards of soil (with no net import or export of soil) to create adjacent floodplain habitat and uplands on approximately 25 acres of the TNC-owned Bjelland parcel within the project area. (The majority of the cut and fill material will be moved within the southern 8.98 acres of the Bjelland Unit to create open-water, wetland, and seasonal marsh habitat. The remaining 14.82 acres will be grubbed/scraped to allow for planting/seeding of native species for upland habitat). Restoration activities would also include re-contouring the approximate 1.3 acre creek channel to provide a more natural configuration to a highly channelized reach of the creek, and a water source to the new wetland areas.

ENVIRONMENTAL SETTING/AFFECTED ENVIRONMENT

BACKGROUND

The Cosumnes River Preserve (Preserve) consists of over 50,000 acres of fish, plant and wildlife habitat and agricultural lands owned by seven land-owning partners. The land-owning partners include The Nature Conservancy, Bureau of Land Management, California Department of Fish & Wildlife, Sacramento County, Department of Water Resources, Ducks Unlimited, and the California State Lands Commission. The Preserve provides numerous social, economic, and recreational benefits to local communities and to people residing in the larger Sacramento and San Joaquin County areas. The habitat of the Preserve supports hundreds of native and non-native plant and animal species.

HORSESHOE LAKE UNIT

On the Horseshoe Lake Unit, the reduction of the highly invasive yellow water primrose biomass would increase the overall acreage of open-water foraging habitat suitable for sustaining GGS and other native California species and expand contiguous habitat between the existing Badger Creek GGS population and the restored floodplain habitat at the Bjelland Unit.

BJELLAND UNIT

On the Bjelland Unit, heavy equipment would be used to restore 25 acres of adjacent floodplain, and upland habitat(s). The site would, upon completion, contain an additional 8.98 acres of wetlands (approximately 5.71 acres of open water and 3.27 acres of seasonal marsh), as well as 14.82 acres of restored upland habitat. The newly restored floodplain would provide additional suitable habitat for GGS, waterfowl, shorebirds and other native California plant and animal species, such as the State-listed greater sandhill crane (*Grus canadensis tabida*). The newly restored floodplain habitat would also provide ecosystem services by slowing precipitation runoff from upstream Badger Creek locations, reducing erosion of the adjacent uplands and increasing flood storage capacity.

INTRODUCTION

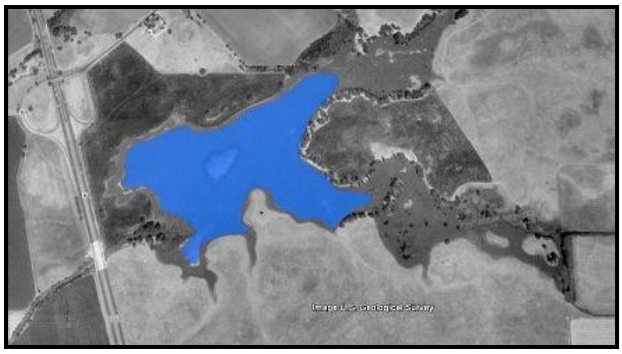
Terrestrial vegetation over the majority of the project area is typified by non-native grassland with a strong weedy component. Aquatic vegetation is dominated by highly invasive yellow water primrose.

HORSESHOE LAKE UNIT

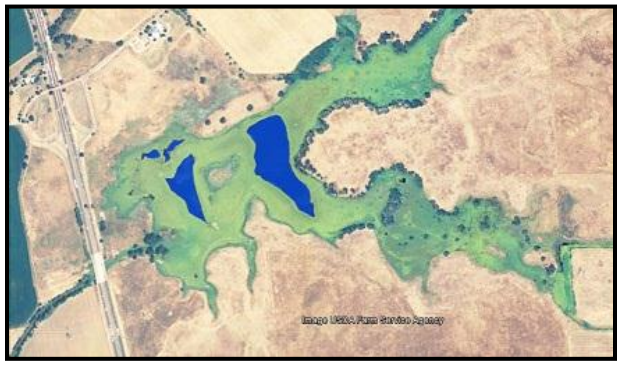
Terrestrial vegetation throughout the Horseshoe Lake Unit (approximately 291 acres) is primarily composed of non-native pasture grasses and weedy species like smooth brome (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*), wild radish (*Raphanus sativus*), and mustard (*Brassica nigra, Herschfeldia incana*) with occasional valley oak trees (*Quercus lobata*) and scattered willows (*Salix spp*.) surrounding the highly variable +/-62 acre Horseshoe Lake. Aquatic vegetation on this Unit is dominated by a near monoculture of highly invasive yellow water primrose (Figure 4). Over a 15 year period the primrose infestation has reduced open-water foraging habitat in the lake from 52.85 acres in 1998 to

2.83 acres in 2013, a 94.7% reduction (Figure 5). Small populations of smartweed (*Persicaria hydropiperoides, Persicaria amphibia*) and cocklebur (*Xanthium strumarium*) also occur in the aquatic portions of this Unit. By removing the highly invasive primrose, smartweed, cocklebur and other native plants would recolonize the area, thereby furthering the restoration.

Figure 4. Dense primrose infestation at the Horseshoe Lake Unit. Date taken 09/02/14



August, 1998: 52.85 acres of open water



August, 2005: 11.34 acres of open water

August, 2013: 2.83 acres of open water

Figure 5: A 94.7% reduction over a 15-year period in giant garter snake open-water foraging habitat due to highly invasive yellow water primrose *(Ludwigia hexapetala*) infestation. (Blue=Remaining open water)

Bjelland Unit

To the east of the Horseshoe Lake Unit is the Bjelland Unit. The Bjelland Unit (approximately 92 acres) consists of a 0.5-mile channelized segment of the south fork of Badger Creek, which runs through the middle of the property, and 91 acres of leveled, fallow agricultural land created years ago by cutting and filling of wetlands and stream channel associated with the south fork of Badger Creek (Figure 2). This segment of Badger Creek is currently dominated by yellow water primrose, but also supports stands of tules (*Schoenoplectus acutus*), and cattails (*Typha latafolia*) (Figure 6).

Figure 6: Channelized reach of the south fork of Badger Creek within the Bjelland Unit. Date taken 09/02/14

Terrestrial vegetation consists of weedy species and non-native grasses associated with cattle grazing. The property is located within a mapped FEMA flood zone. The property is bound on two sides (north and west) by the Preserve's Valensin Ranch, by the Preserve's Horseshoe Lake Unit to the west, and by a private airport (Mustang Airport) to the south. The Unit contains soils designated as important farmland in Sacramento County, but it has not been farmed in the time since it was acquired in 1998. The property contains no structures or public trails and there is no public access to this area since it is in a closed area of the Preserve. The nearest public roads are Arno Road, located to the south, and Riley Road to the east. The property contains no railroad crossings, or levees. The property contains 5-strand barbed wire fences around its perimeter.

Environmental Effects

See the Initial Study Checklist attached to this report and the following discussion.

Aesthetics

The Preserve manages the proposed project area in accordance with BLM-class II visual resource management (VRM) standards (Though the project area does not contain BLM owned lands, the BLM acts as the managing agency, and therefore manages these parcels under the VRM class II standards). The objective of this class is to retain the existing character of the landscape. The level of change to the existing characteristic landscape should be low and temporary in nature. Restoration and long-term management activities may be seen, but would not attract the attention of the casual observer. Any changes would repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Horseshoe Lake unit

The Horseshoe Lake Unit currently exists as a combination of several different land cover types including freshwater marsh, grasslands, riparian trees and shrubs, and water. As part of the Preserve's Integrated Weed Management (IWM) Program, the Horseshoe Lake Unit is grazed annually on a seasonal basis to reduce non-native grasses and forbs, and increase the visual character of the Unit. Restoration activities on this Unit include treatment of invasive aquatic yellow water primrose, including mechanical removal in the western pond and a portion of the south fork of Badger Creek channel. These weed control techniques would not have any permanent impacts on the visual aesthetics of the site. In fact, these management techniques would serve to return the lake to suitable habitat for GGS and other species, as it existed prior to infestation. The activities associated with the treatment and removal of yellow water primrose would be brief in nature and would be consistent with BLM–Class II VRM standards. Aesthetic impacts would be less than significant.

Bjelland Unit

The visual character of the Bjelland Unit has been highly modified over the years prior to its inclusion in the Cosumnes River Preserve. Agricultural practices and periodic grazing have left the site artificially leveled with a strong non-native vegetation component, and a highly channelized reach of the south fork of Badger Creek. The proposed activities of the Badger Creek Restoration Project would restore wetland composition and ecological function to this Unit by creating a more natural creek configuration and adjacent floodplain habitat. The use of heavy equipment/grading during the construction phase of this project may temporarily degrade the visual character of the site; however, upon completion, the site would be re-vegetated using a native-dominated seed mix and plugs, thereby restoring and improving the site to a more natural pre-construction condition (see Appendix A- Wetland Restoration Plan for a more detailed re-vegetation plan).

Though this Unit would see more extensive construction than the adjacent Horseshoe Lake Unit, the proposed activities would still fall within BLM-Class II VRM standards. The channelized portion of Badger Creek within this Unit would be reshaped but not removed, wetland function and open-water foraging habitat for GGS would be restored, and non-native grasses would be replaced with a mix of native dominated species. As such, the net result would be a restored portion of the Unit that provides habitat for a state and federally listed threatened species, GGS (as well as many other species), while maintaining an aesthetically similar landscape to that seen before construction. Aesthetic impacts would be less than significant.

TRANSPORTATION/TRAFFIC

This section describes the potential traffic and circulation impacts associated with the proposed project. Sacramento County has developed quantitative thresholds for determining the significance of project related impacts that are discussed below.

SIGNIFICANCE CRITERIA

Appendix G of the California Environmental Quality Act (CEQA) provides guidance for assessing the significance of potential environmental impacts. Based on this guidance, Sacramento County has developed an Initial Study Checklist attached to this report. The Checklist identifies a range of potential significant effects by topical area. With regard to transportation and traffic, a project would typically have a significant impact if it would:

- Result in a substantial increase in vehicle trips that would exceed, either individually or cumulatively, a level of service standard established by the County, or
- Result in a substantial adverse impact to access and/or circulation, or
- Result in a substantial adverse impact to public safety on area roadways, or
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

If a proposed project is expected to increase p.m. peak hour vehicle trips by 100 or more over existing zoning of the subject property or result in more than 1000 new daily trips, a traffic study is required to further analyze impacts. If a proposed project is not expected to increase p.m. peak hour trips by 100 or more or result in more than 1000 new daily trips, traffic related impacts are considered less than significant.

The project will not have any operational impacts to traffic as no permanent traffic generating uses are proposed. Construction impacts are evaluated below.

CONSTRUCTION IMPACTS

ACCESS

HORSESHOE LAKE UNIT

Access into the Horseshoe Lake Unit would be through an existing gate on the north side of the property off of Dillard Road. Mechanical removal of primrose biomass in the western pond and south fork of Badger Creek channel would require the use of a long-reach excavator. To facilitate access to the site, the existing entrance gate off of Dillard Road would be widened from approximately 10 feet to approximately 20 feet to accommodate a standard width long-reach excavator. An approximately 4,100 foot long access road would be mowed to allow an excavator into the site while maintaining adherence to BLM fire restriction policies (Figure 2). Construction activities within this Unit would be minimal (dipping of aquatic invasive yellow water primrose to maintain open water in the western pond and a portion of the south fork of Badger Creek channel), thus preventing the need to establish more than a mowed path for access.

BJELLAND UNIT

Access to the Bjelland Unit requires the addition of a temporary 4,600 ft. construction access road on the west side of Riley Road (Figure 3). A stabilized construction entrance would be created at the intersection of Riley Road and the construction access. The entrance would be constructed using 3-6 inch washed, angular rock at a minimum thickness of 6 inches per Sacramento County standards. The entrance would be 50 feet long and 15 feet wide to accommodate all construction equipment. The access road would pass through the Valensin Unit, a TNC-owned portion of the Preserve, before entering into the Bjelland Unit (Figure 3). The path of the construction access road was surveyed and flagged by TNC restoration ecologist Sara Sweet and would avoid all vernal pools and/or sensitive vegetation.

To reduce soil compaction, use of the road by heavy machinery/ heavy loads would be minimized (i.e. once in and once out) except as needed for fuel deliveries. Equipment would be staged throughout the construction period in the construction staging area, located just east of the floodplain restoration site on the Bjelland Unit.

This construction access route, as described, was previously approved by the U.S. Fish and Wildlife Service (Service) in May 2002 as part of the *Wetland Mitigation Plan- Kramer Ranch North* (Wetland Restoration Plan) for the Bjelland Unit (see Appendix A). Compliance with Sacramento County requirements and the Service-approved Wetland Restoration Plan is expected to facilitate site access and ensure access impacts would be less than significant.

TRAFFIC GENERATION

All construction equipment utilized throughout the duration of the project would be staged on-site in the construction staging area outlined in the Service-approved restoration plan. With the exception of fueling vehicles, all traffic to and from the site on a daily basis would be limited to approximately 20 or less construction workers in their personal vehicles. Neither the County threshold of 100 peak-hour trips nor 1,000 daily trips would be exceeded by 20 worker commutes; therefore, construction traffic generation impacts associated with the project would be less than significant.

AIR QUALITY

The Badger Creek Restoration Project is located in the Sacramento Valley Air Basin (SVAB). The SVAB's frequent temperature inversions result in a relatively stable atmosphere that increases the potential for pollution. Sacramento County is within the Sacramento Federal Ozone Nonattainment Area (SFNA). A "non-attainment area" is an area considered to have air quality worse than then National Ambient Air Quality Standards as defined in the Clean Air Act Amendments of 1970. With two exceptions, the SFNA area is in attainment for all state and national ambient air quality standards. The exceptions are that the SFNA is designated a "serious" non-attainment area for the federal eight-hour ambient air quality standards for ozone, and is also a "serious" non-attainment area for the state one-hour standard. Therefore, as part of the SFNA, Sacramento County is out of compliance with the state and federal ozone standards.

Sacramento County is also designated non-attainment for the state 24-hour PM^{10} ambient air quality standards. The EPA recently reclassified Sacramento County to attainment for 24-hour PM^{10} and proposes to classify Sacramento County as being in attainment with the new federal $PM^{2.5}$ standard.

Within the SVAB, the SAQMD is responsible for ensuring that emission standards are not violated. Project related air emissions would have a significant effect if they would result in concentrations that either violate an ambient air quality standard or contribute to an existing air quality violation. Moreover, SAQMD has established significance thresholds to determine if a proposed project's emission contribution significantly contributes to regional air quality impacts (Table 1). Short-term air quality impacts are mostly due to dust (particulate matter) generated by construction (earthmoving projects) and development activities, as well as emissions from equipment and vehicle engines operated during these activities. Dust generation is dependent on soil type and soil moisture, as well as the amount of total acreage involved in clearing, grubbing and grading activities. Clearing and earthmoving activities comprise the major source of construction dust generation, but traffic and general disturbance of the soil also contribute to the problem. The effects of construction activities include increased dust fall and locally elevated levels of suspended particulates. Particulate matter is considered unhealthy because the particles are small enough to inhale and damage lung tissue, which can lead to respiratory problems.

Table 1 SMAQMD Significance Thresholds

	ROG[1] (lbs/day)	NO_x (lbs/day)	CO ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)
Construction (short-term)	None	85	CAAQS[2]	CAAQS
Operational (long-term)	65	65	CAAQS	CAAQS

1. Reactive Organic Gas
2. California Ambient Air Quality Standards

PARTICULATE MATTER

The SMAQMD "Guide to Air Quality Assessment in Sacramento County" (Guide) contains recommended methodologies and screening thresholds for assessing particulate matter impacts. According to the Guide, particulate matter impacts are presumed to be less than significant if a project disturbs less than 15 acres at any one time and implements all Basic Construction Emission Control Practices. As the project requires multiple phases on two separate parcels within the project area, and would use a limited equipment list in order to complete each phase, the 15-acre daily threshold will not be exceeded. The Basic Construction Emission Control Practices applicable to this project and required by SMAQMD rule number 403 are listed below (As there will be no net import or export of soil within the project area, and therefore no hauling/transporting of soils outside the project area, the list below is limited to a single Emission Control Practice).

Basic Construction Emission Control Practices Applicable to the Project:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

NITROGEN OXIDES (NOX)

For short term projects, the pollutants of greatest concern are nitrogen oxides (NOx) which primarily come from equipment and vehicle exhaust. In consultation with SMAQMD, Planning and Environmental Review staff determined the Roadway Construction Emission Model (version 7.1.5.1) was best suited to modeling this project's NOx impacts.

The major sources of emissions related to the proposed project are associated with site grading, grubbing, and excavation. In order to ensure that emission levels would remain below SMAQMD thresholds, an equipment list was created which includes the maximum number of each piece of equipment that would be used for the proposed project. This is the list that was then entered into the Roadway Model. According to the applicant, a maximum of three graders, two excavators, two scrapers, one crawler tractor, one water truck, and four tractors/loaders/backhoes may be present and active at the project site. However, these numbers likely exceed the actual number necessary to complete the project.

Using the SMAQMD Roadway modeling program, it was determined that during the grading/excavation stages, the equipment used for the proposed project would result in NOx emissions of approximately 72.3 lbs/day. This falls under the SMAQMD significance threshold of 85.0 lbs/day. All other phases of the project (i.e. grubbing, scraping, etc.) fall well under this threshold as well (Appendix B). SMAQMD was consulted during this model run, and approved the equipment list and methodology with which the model run was performed.

CONCLUSION

As described above, the project's particulate matter and NOx impacts are less than significant. Additionally, according to the Guide, SMAQMD does not expect construction activity to generate high

concentrations of other criteria air pollutants (e.g., NO2, SOX, CO) and, therefore, does not recommend evaluation of their concentrations. Therefore, the project is not expected to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard nor will it expose sensitive receptors to pollutant concentrations in excess of standards. Air quality impacts *are less than significant* and no mitigation is required.

WATER QUALITY

CONSTRUCTION WATER QUALITY: EROSION AND GRADING

Construction on undeveloped land exposes bare soil, which can be mobilized by rain or wind and displaced into waterways or become an air pollutant. Construction equipment can also track mud and dirt onto roadways, where rains will wash the sediment into storm drains and thence into surface waters. After construction is complete, various other pollutants generated by site use can also be washed into local waterways. These pollutants include; but are not limited to: vehicle fluids, heavy metals deposited by vehicles, and pesticides or fertilizers used in landscaping.

Sacramento County has a National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit issued by Regional Water Board. The Municipal Stormwater Permit requires the County to reduce pollutants in stormwater discharges to the maximum extent practicable and to effectively prohibit non-stormwater discharges. The County complies with this permit in part by developing and enforcing ordinances and requirements to reduce the discharge of sediments and other pollutants in runoff from newly developing and redeveloping areas of the County.

The County has established a Stormwater Ordinance (Sacramento County Code 15.12). The Stormwater Ordinance prohibits the discharge of unauthorized non-stormwater to the County's stormwater conveyance system and local creeks. It applies to all private and public projects in the County, regardless of size or land use type. In addition, Sacramento County Code 16.44 (Land Grading and Erosion Control) requires private construction sites disturbing one or more acres or moving 350 cubic yards or more of earthen material to obtain a grading permit. To obtain a grading permit, project proponents must prepare and submit for approval an Erosion and Sediment Control (ESC) Plan describing erosion and sediment control best management practices (BMPs) that will be implemented during construction to prevent sediment from leaving the site and entering the County's storm drain system or local receiving waters. Construction projects not subject to SCC 16.44 are subject to the Stormwater Ordinance (SCC 15.12) described above.

In addition to complying with the County's ordinances and requirements, construction sites disturbing one or more acres are required to comply with the State's General Stormwater Permit for Construction Activities (CGP). CGP coverage is issued by the State Water Resources Control Board (State Board) http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml and enforced by the Regional Water Board. Coverage is obtained by submitting a Notice of Intent (NOI) to the State Board prior to construction and verified by receiving a WDID#. The CGP requires preparation and

implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) that must be kept on site at all times for review by the State inspector.

Applicable projects applying for a County grading permit must show proof that a WDID # has been obtained and must submit a copy of the SWPPP. Although the County has no enforcement authority related to the CGP, the County does have the authority to ensure sediment/pollutants are not discharged and is required by its Municipal Stormwater Permit to verify that SWPPPs include six minimum components.

The project must include an effective combination of erosion, sediment and other pollution control BMPs in compliance with the County ordinances and the State's CGP.

Erosion controls should always be the *first line of defense*, to keep soil from being mobilized in wind and water. Examples include stabilized construction entrances, tackified mulch, 3-step hydroseeding, spray-on soil stabilizers and anchored blankets. Sediment controls are the *second line of defense*; they help to filter sediment out of runoff before it reaches the storm drains and local waterways. Examples include rock bags to protect storm drain inlets, staked or weighted straw wattles/fiber rolls, and silt fences.

In addition to erosion and sediment controls, the project must have BMPs in place to keep other construction-related wastes and pollutants out of the storm drains. Such practices include, but are not limited to: filtering water from dewatering operations, providing proper washout areas for concrete trucks and stucco/paint contractors, containing wastes, managing portable toilets properly, and dry sweeping instead of washing down dirty pavement.

It is the responsibility of the project proponent to verify that the proposed BMPs for the project are appropriate for the unique site conditions, including topography, soil type and anticipated volumes of water entering and leaving the site during the construction phase. In particular, the project proponent should check for the presence of colloidal clay soils on the site. Experience has shown that these soils do not settle out with conventional sedimentation and filtration BMPs. The project proponent may wish to conduct settling column tests in addition to other soils testing on the site, to ascertain whether conventional BMPs will work for the project.

If sediment-laden or otherwise polluted runoff discharges from the construction site are found to impact the County's storm drain system and/or Waters of the State, the property owner will be subject to enforcement action and possible fines by the County and the Regional Water Board.

Project compliance with requirements outlined above, as administered by the County and the Regional Water Board will ensure that project-related erosion and pollution impacts are *less than significant*.

Biological Resources

The Central Valley was once dominated by native grassland and extensive freshwater marsh. Riparian woodlands extended along lowland streams and vernal pools lay scattered in pockets amid the grasslands. The valley perimeter was ringed by oak woodland and chaparral. Since 1850, however, most of the Central Valley has been converted to intensive agriculture. The lowland floodplains have

been severed from their rivers by levees, channelization, and flow regulation by dams (Mount 1995). This hydrologic disconnection facilitated the conversion of more than 90–95 percent of historic riparian forests, wetlands, and basins into farmland, rangeland, and urban centers. The Cosumnes River floodplain however, continues to maintain extensive expanses of wetland and riparian habitat. Today, the Preserve, with its wetlands, grasslands, agricultural land, and remnant stands of valley oak riparian forest, supports tens of thousands of migratory waterfowl and waterbirds, including about half of the Central Valley's population of greater sandhill cranes, neo-tropical migratory songbirds, Swainson's hawks (*Buteo swainsoni*), mammals, native and non-native fish, and other state- and federal-listed threatened and endangered species are also found at the Preserve.

There are four known and ten potentially occurring special status plant species on the Preserve. These special status plant species are described in more detail in the Lower Cosumnes River Watershed Assessment (RBI 2006). Of the plant species occurring on the Preserve, 63 percent are native to California; the remaining 37 percent are exotic species (RBI 2006). Wildlife diversity on the Preserve is high, with a total of 295 known wildlife taxa, including 30 species of mammals, 18 species of amphibians and reptiles, including a large GGS population at Snake Marsh, and 247 species of birds (RBI 2006).

A few of the species have been identified as special status, meaning that they have been designated as rare, threatened, or endangered by State and/or federal wildlife agencies. These special status species include vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californicus dimporphus*), California tiger salamander (*Ambystoma californiense*), western pond turtle, giant garter snake, greater sandhill crane, and Swainson's hawk (RBI 2006).

REGULATORY SETTING

Certain special-status species and their habitats are protected by federal, State, or local laws and agency regulations. The Federal Endangered Species Act (ESA) of 1973 (7. U.S.C § 136, 16 U.S.C § 1531 et seq.) provides legal protection for plant and animal species in danger of extinction. This act is administered by USFWS and the National Marine Fisheries Service. The California Endangered Species Act (CESA) of 1977 parallels the ESA and is administered by the California Department of Fish and Wildlife (CDFW). The plant and animal species protected under the ESA and CESA are listed as endangered, threatened, or, in the case of plants, rare.

In addition to formal lists of endangered and threatened species, the Federal and State agencies also maintain lists of species of special concern based on factors such as limited distribution, declining population size, and diminishing habitat acreage or value. Also, the BLM maintains a list of taxa that are BLM designated Sensitive Species. Species of special concern are not afforded the same legal protection as listed species, but may be added to official lists in the future. The two general categories of special interest species include species that are candidates for listing as threatened or endangered, and species that are not candidates for listing, but have been unofficially identified as species of special interest by private conservation organizations or local government agencies.

Special-status species are those that meet any of the following criteria:

- Listed or candidate for listing under ESA.
- Listed or candidate for listing under CESA.
- Plants or animals designated by the BLM as Sensitive Species.
- Nesting bird species and active nests of birds listed under the Migratory Bird Treaty Act.
- Species listed in the Bald and Golden Eagle Protection Act.
- Fully protected or protected species under the California Fish and Wildlife *California Code of Regulations, Title 14 (Natural Resources)*.
- Species of concern that have the potential to occur in the project area due to suitable or marginal habitat existence for those species, as identified by USFWS.
- Species of special concern listed by CDFG that have the potential to occur in the project area because suitable or marginal habitat may exist for those species.
- Plant species listed as "rare" under the California Native Plant Protection Act (CDFG Code, Section 1900 *et seq*.).
- Plant species listed by the California Native Plant Society to be rare, threatened, or endangered in California. The purpose of the California Native Plant Society is to call attention to the status of a species that is experiencing decline, but is not afforded legal protection.

MIGRATORY BIRD TREATY ACT (MBTA)

Migratory birds and their habitats are protected under the Migratory Bird Treaty Act (MBTA), as amended (16 U.S.C703 et seq.). Several migratory birds, including waterfowl, shorebirds, song birds, hummingbirds, vultures, and raptors are commonly found around the project area. Waterfowl and songbirds, in particular, have the potential to utilize tree and shrub habitat located within the project area (Horseshoe Lake Unit), including the wood duck (*Aix sponsa*), marsh wren (*Cistothorus palustris*), tree swallows (*Tachycineta bicolor*), black phoebe (*Sayornis nigricans*), and golden-crowned sparrow (*Zonotrichia atricapilla*). Raptors that are found and observed in the area include great-horned owl (*Bubo virginianus*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*) and Swainson's hawk.

ENVIRONMENTAL SETTING

Special-status species that have the potential to occur in the vicinity of the project area were determined through a review of various sources, including the USFWS species list, the California Natural Diversity Database Rarefind, Version 3.1.0 (CNDDB 2013), and the California Native Plant Society Inventory of Rare and Endangered Plants, 7th edition (CNPS 2010).

Each species on the list was evaluated for its potential to occur within the project areas. Species that are not found in the land cover types present in the project area, or whose known range falls outside the project area were eliminated from further consideration.

VEGETATION

Vegetation throughout the project area is not completely homogeneous, but there are clear patterns in the vegetation between both units. Uplands have historically been grazed and are typified by non-native grasses like brome (*Bromus spp.*) and slender wild oat (*Avena barbata*) interspersed with native and non-native forbs like tarweed (*Holocarpha spp*., *Centromadia spp.*), dock (*Rumex crispus, Rumex pulcher*) and prickly lettuce (*Lactuca seriola*). Uplands in the Horseshoe Lake Unit contain some old growth cotton wood trees (*Populus fremontii*) as well as valley oak trees (*Quercus lobata*).

Lower lying, seasonally flooded habitat is located on both the north and south sides of the Badger Creek channel. This community supports a higher density of forbs (approximately 50% grasses, 50% forbs), but is also very weedy. Common species include chicory (*Cichorium intybus*), mint (*Mentha arvensis, M. canadensis*), bristly ox-tongue (*Helminthotheca echioides*), sunflower (*Helianthus annuus*), and Himalayan blackberry (*Rubus armeniacus*). One small cluster of sandbar willow (*Salix exigua*) exists in the southwest corner of the proposed floodplain restoration area.

Weedy aquatic species dominate the wetland community within the Badger Creek channel and the perennial water open-water habitat area at the Horseshoe Lake Unit. Any open water within the project boundaries has been occluded by a near monoculture of invasive yellow water primrose over the last several years. Although primrose comprises the vast majority of all vegetation in the wet areas within the project vicinity, there is a small percentage of other species present as well. Smartweed (*Persicaria hydropiperoides, Persicaria amphibia*), as well as small patches of tule (*Schoenoplectus acutus*) and cattail (*Typha latifolia*) can also be found along the creek channel in the Bjelland Unit.

HORSESHOE LAKE UNIT

Within the Horseshoe Lake Unit, treatment and/or removal of invasive yellow water primrose would result in a net increase of perennial open-water foraging habitat for the GGS. Creation of a temporary mowed access road to the ponds would have minimal impacts on terrestrial vegetation within the site. Cotton wood trees, valley oak trees and willow trees within the Horseshoe Lake Unit would not be affected by construction activities.

BJELLAND UNIT

The proposed project would result in the temporary loss of 25 acres of fallow agricultural land adjacent to the south fork of Badger Creek in the Bjelland Unit during grading and land contouring operations. Upon completion, this portion of the site would contain 8.98 acres of wetland habitat (5.71 acres of open water and 3.27 acres of seasonal marsh), the additional 1.2 acres of Badger Creek and 14.82 acres of upland habitat. Approximately .1 acres of sandbar willow (*Salix exigua*) would be removed from the Bjelland Unit during site grubbing.

No special-status plant species were identified as having the potential to occur in the project area, or are known to occur in the project area.

WILDLIFE

Many of the species that commonly occur at the project area are not specifically managed for as part of the Preserve's overall management strategy. However, these species benefit from habitat that is created, restored, or preserved as part of the Preserve's projects and continued management. Preserve habitats support several species of waterfowl and waterbirds, including great egret (*Ardea alba*), great blue heron (*Ardea Herodias*), passerines such as willow flycatcher (*Empidonas traillii*), tree swallows (*Tachycineta bicolor*), and marsh wren (*Cistothorus palustris*), black tailed deer (*Odocoileus hemionus*), river otter (*Lutra Canadensis*), California vole (*Microtus californicus*), beaver (*Castor canadensis*), American bittern (*Botaurus lentiginosus*), redwing blackbird (*Agelaius phoeniceus*), western fence lizard (*Sceloporus occidentalis*), common kingsnake (*Lampropeltis getulus*), muskrat (*Ondatra zibethica*), and several species of bats.

Seven special-status wildlife species were identified as having the potential to occur in the project area or are known to occur in the project area, and an additional four species could potentially occur within 2 miles of the project area (Table 2).

Table 2. Sensitive, threatened and endangered species

Common Name	Species	Known Occurrence or Potential	USFWS/ NOAA	CDFW	BLM
Valley Longhorn Elderberry Beetle	*Desmocerus californicus dimorphus*	Elderberry shrubs are typically common in riparian habitat; however, there are none within the project area. Due to the absence of elderberry shrubs on site suitable habitat does not occur.	Threatened		
Western Pond Turtle	*Clemmys marmorata*	Known to occur on Preserve in many locations, including wetland areas.	Species of Concern	Species of Special Concern	Sensitive Species
Tricolored Blackbird	*Agelaius tricolor*	Known to historically nest on the Preserve. Currently they are migratory only; however habitat being developed could encourage nesting.		Threatened	Sensitive Species
Western Yellow-billed Cuckoo	*Coccycus americanus*	Known to occur at Preserve, however transitory.	Threatened	Endangered	Sensitive Species
Swainson's Hawk	*Buteo swainsoni*	Known to occur seasonally.		Threatened	Sensitive Species
Greater Sandhill Crane	*Grus canadensis tabida*	Known to occur seasonally.		Threatened	Sensitive Species
Giant Garter Snake	*Thamnophis gigas*	Known to occur less than 1 mile downstream from the project area at Snake Marsh; hydrologically connected to the project area during high water flows.	Threatened	Threatened	

VALLEY ELDERBERRY LONGHORN BEETLE:

Elderberry shrubs (*Sambucus* spp.) do not occur within the project area. As the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is typically found only in and around host plants, suitable habitat does not exist at the site. Impacts to this species are *less than significant.*

GIANT GARTER SNAKE:

The giant garter snake is listed as threatened for both the California State and the Federal Endangered Species Act. USFWS published a proposal to list the GGS as an endangered species on December 27, 1991 (USFWS 1991). The Service re-evaluated the status of the snake before adopting the final rule and listed it as a threatened species on October 20, 1993 (USFWS 1993). Critical habitat has not been designated for this species.

The GGS is one of the largest garter snake species reaching a total length of approximately 64 inches. Females tend to be slightly longer and proportionately heavier than males. Generally, the snakes have a dark dorsal background color with pale dorsal and lateral stripes, although coloration and pattern prominence are geographically and individually variable (Hansen 1980; Rossman et al. 1996). Studies have shown significant differences in the size of GGS between different populations (USFWS 2012). The most robust snakes have been observed in the population at Yolo Bypass and the population at Badger Creek (Hansen 2001, 2006), less than one mile from the project area.

GGS formerly occurred throughout the wetlands that were extensive and widely distributed in the Sacramento and San Joaquin Valley floors of California (Fitch 1940; Hansen and Brode 1980; Rossman and Stewart 1987). The historical range of the snake is thought to have extended from the vicinity of Chico, Butte County, southward to Buena Vista Lake, near Bakersfield, in Kern County (Fitch 1940; Fox 1948; Hansen and Brode 1980; Rossman and Stewart 1987). Early collecting localities of GGS coincide with the distribution of large flood basins, particularly riparian marsh or slough habitats and associated tributary streams (Hansen and Brode 1980). Loss of habitat due to agricultural and flood control activities have extirpated the snake from the southern one third of its range in former wetlands associated with the historic Buena Vista, Tulare, and Kern lake beds (Hansen 1980; Hansen and Brode 1980).

The current distribution of GGS is much reduced from its historic range (USFWS 1999, 2012). Prior to reclamation activities beginning in the mid- to late-1800s, about 60 percent of the Sacramento Valley was subject to seasonal overflow flooding providing expansive areas of snake habitat (Hinds 1952). Now, less than 10 percent, or approximately 319,000 acres, of the historic 4.5 million acres of Central Valley wetlands remain (U.S. Department of Interior 1994), of which very little provides habitat suitable for GGS.

Upon Federal listing in 1993, the Service identified 13 separate populations of giant garter snakes, with each population representing a cluster of discrete locality records (USFWS 1993). As of the most recent 5-year review, USFWS found that, with the likely extirpation of at least two populations, and the combining of the two Yolo Basin populations together, and the three Delta populations together, there

are now 9 separate populations of GGS (USFWS 2012). The proposed project is approximately 1 mile to the northeast of the Preserve's Badger Creek/Willow Creek population.

The last confirmed detection of GGS in the vicinity of the Project area and east of California Highway 99 occurred in 1986 where the north fork of Badger Creek intersects Riley Road (Hansen 1988). Subsequent surveys conducted in 2001 and 2002 failed to detect any snakes east of California Highway 99, probably due to changes occurring in local hydrology (Hansen 2003). Although it is unlikely that snakes would be encountered at the project area, there are habitat components present that could be used by the snake for foraging and transportation corridors. Therefore, the following mitigation measures are recommended:

1. Construction activity within habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Between October 2 and April 30 contact the USFWS's Sacramento office to determine if additional measures are necessary to minimize and avoid take.

2. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area should be avoided by all construction personnel.

3. Construction personnel shall receive Service-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s).

4. 24-hours prior to construction activities, the project area shall be surveyed for giant garter snakes. Survey of the project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Report any sightings and any incidental take to the USFWS.

5. Any dewatered habitat shall remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

6. After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.

As the project is designed to improve habitat for this species, while avoiding impacts during construction and restoration, impacts to this species are expected to be less than significant.

WESTERN POND TURTLE:

According to the California Fish and Wildlife Life History Account for the species, the western pond turtle (*Emys marmorata*), is an aquatic turtle that usually leaves the aquatic site to reproduce, to aestivate, or

to overwinter. Western pond turtles require some slack- or slow-water aquatic habitat. High-gradient streams with minimal cover or basking habitat are not suitable. In pond environments the species typically only leaves the water to reproduce, whereas in stream environments the turtles more commonly leave the water to aestivate or overwinter, in addition to leaving for reproduction. Turtles leave the water to overwinter in October or November, and typically become active in March or April. Mating typically occurs in late April or early May, but may occur year-round. Most egg-laying occurs in May or June, but may occur as early as April or as late as August. The hatchlings remain in the nest over the winter, and emerge in the spring. Suitable nesting locations have dry soils (usually in a substrate with a high clay or silt fraction) on a slope that is unshaded and may be at least partially south-facing. The nest site can be up to 1,300 feet from the aquatic habitat, but it is more typical for the nest to be within 650 feet of aquatic habitat. The Life History Account conservatively recommends a buffer of 1,650 feet to ensure that neither adults nor nests will be impacted.

The project site contains suitable habitat for western pond turtles. If western pond turtles are present in the project area, there is potential for harm or harassment associated with construction equipment, noise or vibrations. The California Department of Fish and Wildlife has not published mitigation or other regulatory guidance for the treatment of impacts to this species. As a result, mitigation is focused on preventing construction activities from resulting in direct mortality of a western pond turtle. The project applicant will be required to perform surveys 24-hours prior to ground-disturbing activity to ensure that there are no western pond turtles within or near the construction area. In addition, the project applicant has proposed additional avoidance measures including the presence of a biological monitor during all construction activities. Implementation of the proposed avoidance measures ensures impacts to the western pond turtle are *less than significant*.

TRICOLORED BLACKBIRD:

The tri-colored blackbird is protected under the California Fish and Game Code (Section 3503.5 and 3800) and is considered a California Species of Special Concern. On December 3, 2014 the California Fish and Game Commission enacted emergency protection for tri-colored blackbird as an endangered species under the California Endangered Species Act. The Commission's action grants a 180-day period for the Department of Fish and Wildlife to determine whether to make the protections permanent. Reasons for decline of tri-colored blackbird populations include loss of nesting and foraging habitat.

According to the California Fish and Wildlife Life History Account for the tricolored blackbird (*Agelaius tricolor*), the species is mostly a resident in California, and common locally throughout the Central Valley. The species is a colonial nester which breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, and tall herbs. Nesting colonies usually support a minimum of 50 pairs. The species feeds in grassland and cropland habitats. The usual breeding season is mid-April into late July.

Tri-colored blackbirds historically occurred on the Preserve. A nesting colony existed until approximately 10 years ago, roughly 8 miles southwest of the proposed project area in the Preserve's "Barn Pond" wetland Unit. The Preserve is currently managing nesting habitat for the tricolored blackbird roughly 8.5 miles southwest of the proposed project area in the Preserve's "Lost Slough"

wetland unit. The proposed project area contains habitat components that could have the potential to be used by the tricolored blackbird for feeding, resting, nesting, and other essential behaviors. The proposed project is expected to take place outside of the usual breeding season of mid-April to late July, and would result in approximately 8.98 additional acres of wetland habitat which could potentially support the nesting birds, the impact to tri-colored blackbirds is expected to be *less than significant*. In the unforeseen event that construction occurs between March 1 and July 31, mitigation is included requiring surveys and avoidance. With mitigation, impacts will be less than significant.

WESTERN YELLOW-BILLED CUCKOO:

The Western Distinct Population Segment of the yellow-billed cuckoo (*Coccyzus americanus*), was listed as a Federally Threatened species effective on November 3, 2014. The western population of the species breeds along river systems west of the Rocky Mountains. Western yellow-billed cuckoos require relatively large (greater than 50 acres), contiguous patches of multilayered riparian habitat along broad, lower flood-bottoms of larger river systems for nesting. Cottonwood-willow forests are preferred.

The yellow-billed cuckoo is a medium-sized bird about 30 centimeters (11.8 inches) in length and a wingspan of 38-43 cm (15-17 in). The species has a slender, long-tailed profile, with a fairly stout and slightly down-curved bill, which is blue-black with yellow on the base of the lower mandible. Plumage is grayish-brown above and white below, with red primary flight feathers. The tail feathers are boldly patterned with characteristic rows of large white spots on the underside and the legs are short and bluish-gray. Adults have a narrow, yellow eye ring. Juveniles resemble adults, except the tail patterning is less distinct, and the lower bill may have little or no yellow.

While yellow-billed cuckoos nest primarily in willow (*Salix* spp.) trees, cottonwood (*Populus fremontii*) trees are important as foraging habitat, particularly as a source of insect prey. All studies indicate a highly significant association with relatively expansive stands of mature cottonwood-willow forests, especially dynamic riverine habitats where the river is allowed to meander and willows and cottonwoods can regenerate on point bars and stream banks; however, yellow-billed cuckoos would occasionally occupy a variety of marginal habitats, particularly at the edges of their range (Laymon 1998).

Breeding populations of this species in California are concentrated along the upper Sacramento River from Red Bluff to Colusa, and along the South Fork of the Kern River. Small numbers of breeding pairs have also been detected along the Feather River from Oroville to Verona, and in a few locations in southern California.

The yellow-billed cuckoo is extremely rare at the Preserve; however, they have been observed by ornithologists in the riparian forest approximately seven miles southwest of the project area. The proposed project area does not contain suitable habitat components described above that could be used by the cuckoo. Though there are scattered willow and cottonwood trees present at the project site, they do not occur in the extensive and mature, multilayered patches which are utilized by the species for nesting and foraging. However, a Service-approved biological monitor will be onsite during all construction phases to observe and ensure no listed species are present within the project area. If

construction occurs during the yellow-billed cuckoo nesting season, the recommended migratory bird pre-construction surveys and avoidance will assure that impacts are *less than significant*.

SWAINSON'S HAWK:

The Swainson's hawk (*Buteo swainsoni*) is listed as a Threatened species by the State of California and is a candidate for federal listing as threatened or endangered. It is a migratory raptor typically nesting in or near valley floor riparian habitats during spring and summer months. Swainson's hawks were once common throughout the state, but various habitat changes, including the loss of nesting habitat (trees) and the loss of foraging habitat through the conversion of native Central Valley grasslands to certain incompatible agricultural and urban uses has caused an estimated 90% decline in their population.

Swainson's hawks feed primarily upon small mammals, birds, and insects. Their typical foraging habitat includes native grasslands, alfalfa and other hay crops that provide suitable habitat for small mammals. Certain other row crops and open habitats also provide some foraging habitat. The availability of productive foraging habitat near a Swainson's hawk's nest site is a critical requirement for nesting and fledgling success. In central California, about 85% of Swainson's hawk nests are within riparian forest or remnant riparian trees. CEQA analysis of impacts to Swainson's hawks consists of separate analyses of impacts to nesting habitat and foraging habitat.

The CEQA analysis provides a means by which to ascertain impacts to the Swainson's hawk. When the analysis identifies impacts, mitigation measures are established that will reduce impacts to the species to a less than significant level. Project proponents are cautioned that the mitigation measures are designed to reduce impacts and do not constitute an incidental take permit under the California Endangered Species Act (CESA). Anyone who directly or incidentally takes a Swainson's hawk, even when in compliance with mitigation measures established pursuant to CEQA, may violate the California Endangered Species Act.

NESTING HABITAT IMPACT METHODOLOGY

For determining impacts to and establishing mitigation for nesting Swainson's hawks in Sacramento County, California Fish and Wildlife recommends implementing the measures set forth in the California Fish and Wildlife Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California (November 1, 1994). These state that no intensive new disturbances, such as heavy equipment operation associated with construction, should be initiated within ¼-mile of an active Swainson's hawk nest in an urban setting or within ½-mile in a rural setting between March 1 and September 15.

Swainson's hawks nest and forage throughout the Preserve and there have been observed nests less than one mile from the project area. If construction, grading, or project-related improvements are to commence between March 1 and September 15, a focused survey for Swainson's hawk nests on the site and within ¼ mile of the site shall be conducted by a qualified biologist no later than 30 days prior to the start of construction work (including clearing and grubbing). If an active nest is found within the project area, CDFW would be contacted to determine appropriate protective measures, and these measures shall be implemented prior to the start of any ground-disturbing activities. If no active nests are found

during the focused survey, no further mitigation will be required. Although a rural setting, due to the presence of Highway 99 and the Dillard Road interchange, the ¼ mile urban screening distance is recommended instead of the ½ mile. Furthermore, because Highway 99 is a substantial source of noise and disturbance, the mitigation measure and survey requirements will only apply to lands on the east side of the highway where the project is located. This mitigation will insure impacts to nesting Swainson's hawks are *less than significant*.

FORAGING HABITAT IMPACT METHODOLOGY

Swainson's hawks are known to forage up to 18 miles from their nest site; however, that is the extreme range of one individual bird's daily movement. It is more common for a Swainson's hawk to forage within 10 miles of its nest-site. Therefore it is generally accepted and California Fish and Wildlife recommends evaluating projects for foraging habitat impacts when they are within 10 miles of a known nest site. Virtually all of Sacramento County is within 10 miles of a known nest.

Statewide, California Fish and Wildlife recommends implementing the measures set forth in the California Fish and Wildlife Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California (November 1, 1994) for determining impacts to Swainson's hawk foraging habitat unless local jurisdictions develop an individualized methodology designed specifically for their location. Sacramento County has developed such a methodology and received confirmation from California Fish and Wildlife in May of 2006 that the methodology is a better fit for unincorporated Sacramento County and should replace the statewide, generalized methodology for determining impacts to foraging habitat.

The floodplain and wetland restoration to take place within the Bjelland Unit would result in the temporary disturbance of approximately 25 acres and a loss of approximately 8.98 acres of land which could be utilized as foraging habitat by Swainson's hawks. However, this land currently exists as a combination of ruderal non-native grassland and a channelized portion of the South Fork of Badger Creek which is dominated by invasive yellow water primrose. Though there would be a loss of a small area of foraging habitat, the upland habitat within the Unit (14.43 acres), would be restored to a native species dominated grassland which would potentially provide more productive habitat for Swainson's hawks and associated prey species. Additionally, the Preserve contains over 20,000 acres of lands which support habitat for foraging Swainson's Hawks, including the adjacent Valensin-West Riley Unit (803.7 acres), Valensin-East Riley Unit (587.3 acres) and Valensin Badger Creek Unit (826.9 acres) which can be utilized by the species during the construction phase of the project. As such, the impact to Swainson's hawk foraging habitat is *less than significant*.

NESTING BIRDS OF PREY

This section addresses raptors which are not listed as endangered, threatened, or of special concern, but are nonetheless afforded general protections by the Fish and Wildlife Code. Raptors and their active nests are protected by the California Fish and Wildlife Code Section 3503.5, which states: "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey, or raptors) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by

this code or any regulation adopted pursuant thereto." Section 3(18) of the Federal Endangered Species Act defines the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Causing a bird to abandon an active nest may cause harm to egg(s) or chick(s) and is therefore considered "take." Thus, take may occur both as a result of cutting down a tree or as a result of activities nearby an active nest which cause nest abandonment.

Raptors within the Sacramento region include tree-nesting species such as the red-tailed hawk and red-shouldered hawk, as well as ground-nesting species such as the northern harrier. The following raptor species are identified as "special animals" due to concerns over nest disturbance: Cooper's hawk, sharp-shinned hawk, golden eagle, northern harrier, and white-tailed kite.

To avoid impacts to nesting raptors, mitigation is recommended for pre-construction nesting surveys to identify any active nests and to implement avoidance measures if nests are found – if construction will occur during the nesting season of March 1 to September 15. The purpose of the survey requirement is to ensure that construction activities do not agitate or harm nesting raptors, potentially resulting in nest abandonment or other harm to nesting success. If nests are found, the biological monitor would be required to contact California Fish and Wildlife to determine what measures need to be implemented in order to ensure that nesting raptors remain undisturbed. The measures selected will depend on many variables, including the distance of activities from the nest, the types of activities, and whether the landform between the nest and activities provides any kind of natural screening. If no active nests are found during the focused survey, no further mitigation will be required. Mitigation will ensure that impacts to nesting raptors will be *less than significant*

GREATER SANDHILL CRANE

According to the California Fish and Wildlife life history account, the greater sandhill crane (*Grus canadensis tabida)* forages in open plans, agricultural fields, and emergent wetland habitats. Nests are typically built of large mounds of wetland plants within open areas of wet meadows. The species feeds on grasses, herbaceous annual plants, and cereal crops, though will also eat earthworms, insects, amphibians, snakes, and small mammals. The species typically roosts standing in flocks. The species does not nest in Sacramento County. Wintering flocks typically arrive in the County in September or October and depart in March or April. The species is noted as particularly sensitive to human disturbance, and is listed in California as a Threatened species. In Sacramento County, wintering populations are typically observed within the Cosumnes River floodplain, in areas of the Delta, and at the Stone Lakes National Wildlife Refuge.

The project area contains habitat suitable for roost and forage for cranes (lesser and greater). However the area has not been documented as a roost site and few birds have been observed foraging on either the Horseshoe Lake or Bjelland Unit. The proposed project will be constructed during the summer to early fall season, and though some early arriving cranes may be present in and around the project area, the brief duration of construction activities is not likely to significantly affect the species. The Cosumnes River Preserve provides almost 2,000 acres of high quality essential wetland habitat and there is an additional 9,000 acres of habitat on Staten Island. The brief disturbance of foraging and roosting habitat

is not likely to adversely affect the species. In fact, the resulting addition of 8.98 wetland acres, within the Bjelland Unit and removal of invasive yellow water primrose within the Horseshoe Lake Unit would provide beneficial habitat improvements for the species. Impacts to the greater sandhill crane are expected to be *less than significant*.

TOXICS AND HAZARDOUS MATERIALS

This section presents a general overview of the potential for encountering, producing and utilizing hazardous materials at the project area including, but not limited to, gasoline, diesel, solvents, oil based products, and/or other wastes.

Federal and State environmental laws require all property owners to pay for cleanup, when necessary, of contamination caused by hazardous materials located on or originating from their land. Because of the potential liability, purchasers and developers of commercial, industrial, and agricultural property should perform environmental assessments before developing or purchasing land. In addition to clean up liability, property owners can be held responsible for toxic effects on human health; therefore, measures should be taken to avoid exposure of people or property to hazardous materials.

ENVIRONMENTAL SETTING

Potential contaminants at the project area are those associated with the construction phase of the project. Machinery and earth moving equipment would require the use of fuels (gasoline, diesel), solvents, oil-based products, or other wastes within the project area. All construction equipment would be contained in a staging area when not in use. The staging area would be located in the northeastern quadrant of the Bjelland Unit just to the east of where the excavation and grading work would take place.

REGULATORY SETTING

The term hazardous substance refers to both hazardous wastes and hazardous materials. In general, a material or waste is classified as “hazardous” if it is one of the more than 700 chemicals specifically listed in the California Code of Regulations (CCR); if it contains one of these chemicals; or if it is reactive, ignitable, corrosive, or toxic. Because of their potential danger to public health and the environment, hazardous substances are closely regulated by federal, state, and local laws that focus on controlling their production, handling, storage, transportation and disposal.

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The RCRA of 1976 (substantially amended in 1984), administered by the U.S. Environmental Protection Agency (EPA), is the principal federal legislation regulating hazardous waste. The RCRA imposes reporting, permitting and operational control requirements on businesses or individuals that generate, treat, store, or dispose of hazardous materials or hazardous waste. The RCRA is implemented by Title 40 of the Code of Federal Regulations (CFR). The 1984 amendments to the RCRA involve stringent

monitoring of landfills and underground storage tanks (USTs) for hazardous materials and hazardous wastes.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)

In response to the need to clean up hazardous waste sites created before implementation of the RCRA, Congress enacted the CERCLA (Superfund) in 1980. Subsequently, abandoned hazardous waste sites had to be inspected and cleaned up, and the waste disposed of properly.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA)

The risk of exposure to hazardous waste as a result of the RCRA and CERCLA was addressed in the SARA of 1986. As a result of SARA, the federal Occupational Safety and Health Administration (OSHA) published hazardous waste cleanup regulations in 29 CFR 1910.120.

STATE OF CALIFORNIA

California regulations governing hazardous materials are as stringent as (and in some cases, more stringent than) federal regulations. The State has been granted primacy (primary responsibility for oversight) by the EPA to administer and enforce hazardous waste management programs such as those listed above. State regulations also have detailed planning and management requirements to ensure that hazardous materials are handled, stored, and disposed of properly to reduce human health risks. California regulations pertaining to hazardous waste management are published in the California Code of Regulations (CCR), previously called the California Administrative Code. The CCR is updated yearly and incorporates all legislation and final regulations enacted during the year, as well as specifying the agencies responsible for enforcing the various regulations. 26 CCR, administered by the California EPA, is the largest state code and incorporates all the regulations that deal with toxic materials from other portions of the code.

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

22 CCR gives the California Department of Toxic Substances Control (DTSC) responsibility for regulating hazardous waste management at the state level. The DTSC regulates the treatment, storage, and disposal of hazardous waste in accordance with 22 CCR and RCRA. The DTSC administers the State and federal Superfunds for cleanup of major hazardous waste contamination sites.

REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)

23 CCR charges the nine RWQCBs with responsibility for overseeing water quality control. The RWQCBs are responsible for protecting actual or potential beneficial uses of water, including municipal, industrial, and agricultural water supplies and recreation. Each RWQCB has authority to supervise hazardous waste cleanup at sites referred by local agencies and in cases where water quality is affected of threatened.

Either the DTSC or the RWQCB may be responsible for cleanup of sites or significant contamination by hazardous wastes. The two agencies often work together to ensure that their requirements are consistent and are implemented as intended.

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (CAL-OSHA)

Health and safety regulations applying to the investigation and cleanup of sites contaminated with hazardous waste are enforced by the Cal-OSHA under 8 CCR and the adopted federal regulations (29 CFR 1910).

SACRAMENTO COUNTY

The Sacramento County General Plan has a Hazardous Materials Element revised by the Board of Supervisors in May 1997 and re-adopted in November 2011. To protect the health and welfare of the residents of Sacramento County, the Board of supervisors of Sacramento County has set a goal to manage and regulate hazardous materials with a focus on preventing problems. To effectively manage hazardous materials and prevent incidents of contamination from occurring in the future, the Board of Supervisors has established policy. The following hazardous materials policies apply to the proposed project:

> HM-4 The handling, storage and transport of hazardous materials shall be conducted in a manner so as not to compromise public health and safety standards.
>
> HM-8 Continue the effort to prevent ground water and soil contamination.
>
> HM-9 Continue the effort to prevent surface water contamination.
>
> HM-10 Reduce the occurrences of hazardous material accidents and the subsequent need for incident response by developing and implementing effective prevention strategies.

State law (California Health and Safety Code, Section 25180, Chapter 6.5) authorizes the local health officer to coordinate the delivery of hazardous waste regulatory activities in Sacramento County. The Sacramento County Environmental Management Department (EMD) has entered into a Memorandum of Understanding (MOU) with the DTSC to fulfill this duty. In addition, the EMD is the implementing agency for Underground Storage Tanks (UST) and business plan laws (Chapters 6.7, 6.75 and 6.95 of the California Health and Safety Code).

- The County of Sacramento has existing agencies/programs that undertake regulation of hazardous materials. These are: Environmental management Department (EMD), Hazardous Materials Division, Disclosure Program, Underground Storage Tanks, Ground Water Monitoring;
- Public Works Agency, Industrial Waste Program, Solid Waste management Program, Transportation Division, and Water Resources Department;
- Local Fire Districts;
- General Services, Emergency Planning;
- Agricultural Commission;
- District Attorney;
- County Counsel

EMD's Hazardous Materials Division is the County's lead regulatory agency and is responsible for a variety of tasks related to the storage, handling, and management of hazardous materials. EMD maintains the County of Sacramento "Toxic Site Clean-Up Site Specific Report" that lists where unauthorized releases of potentially hazardous materials has occurred.

Use and production of toxic and hazardous material at the project area would be minimal due to the brief duration of the project and limited equipment list required for completion. However, heavy equipment on site would require the use of gasoline, diesel, solvents, oil-based products, and/or other wastes during the construction phase of the project. To minimize the potential for negative impacts to people or to the environment, a designated staging area has been established in the upland portion of the Unit as to avoid unnecessary travel along access routes and within project area. Compliance with existing regulations will ensure that impacts are *less than significant.*

Cultural Resources

This section presents a general overview of cultural resources vis-à-vis the proposed project. The project area or area of potential effects (APE) has been studied to determine whether the proposed project would affect significant cultural resources, as required under federal and State authorities discussed below. Cultural resources include archaeological sites, historic-era roads, and places that continue to be used by Native Americans to conduct traditional cultural activities such as gathering of native plants for basket-making.

Environmental Setting

The cultural resources setting of the APE, and the lower Cosumnes River generally, has been shaped by various land uses, events, and industries. These include thousands of years of Native American hunter-gatherer settlement beginning at least 4,500 years ago, followed by a relatively brief period of early European and Euro-American contact (Spanish exploration, trapper exploitation, and Mexican land grant-related activities and settlement) from the 1770s to 1848 as well as Native American (Plains Miwok) responses to this intrusion. This brief period of early contact was soon followed by the Gold Rush (1848 to circa 1858), the most significant event in the area's history, during which California became part of the United States and was extensively settled by Euro-Americans. Beginning during the Gold Rush, the area's cultural resources setting was drastically transformed by large-scale industrial land uses (i.e., agriculture, etc.), transportation and town development, and large-scale reclamation (i.e., levee building and other flood-control measures) within the Cosumnes River floodplain. This transformation continues to this day; fluctuations in the agriculture market and other factors have given rise to large-scale vineyards, orchards, and rice farms in recent decades. The following describes the area's land-use history beginning with Native American settlement during prehistory, which has been studied through archaeology.

The lower Cosumnes River area was subjected to among the earliest systematic archaeological studies in California, with site surveys in the 1920s by the University of California (Schenck and Dawson 1929), and intensive site excavations beginning in the 1930s under the direction of Jeremiah B. Lillard, President, Sacramento Junior College (Lillard and Purves 1936; Lillard et al. 1939). This early archaeological

research is summarized by Moratto (1984:174-181). Early research in this area is notable for its heavy focus on burials and associated grave goods in large mounded sites. It is also notable for training some of California's most influential archaeologists (i.e., Robert F. Heizer) and profoundly affecting the course of later archaeology in the region.

By the time Moratto summarized the archaeology of the Central Valley in 1984, as part of a broader synthesis of California archaeology (Moratto 1984:167-216), the cultural chronology for this region had undergone serious revision, reflecting changes in archaeological theory and method, academic debate, and further field investigations, especially to the west, near the Diablo Range. The Central Valley's prehistoric archaeological record was described in terms of "patterns" (broad adaptive modes). These patterns included the Windmiller, Berkeley, and Augustine. The Windmiller pattern dates from 2,500 BC to 500 BC and was known for a distinctive burial complex with skeletons often extended ventrally and oriented toward the west. The Berkley pattern dated from roughly 500 BC to AD 1,000. The Augustine pattern, dating from AD 1,400 to historic contact, was associated with new technologies such as the bow and arrow. The Augustine pattern is thought to be related to Penutian-speaking groups (i.e., Wintu, Plains Miwok, Yokuts, etc.) which migrated into the Central Valley.

Rosenthal et al. (2007:147-163) have reevaluated Central Valley archaeology. They note little archaeological progress in the region since Moratto's 1984 summary and attribute this to a lack of large-scale cultural resources management (CRM) projects and PhD dissertation research as well as ongoing difficulty in locating archaeological deposits that predate Windmiller (roughly 4,500 years before present) since they are likely buried due to geomorphic processes. The San Joaquin Valley remains the least understood portion of the valley while the Sacramento Valley is less so. Rosenthal et al. have proposed a revised cultural chronology that takes into account the entire period of probable human occupation in the Central Valley, beginning in the late Pleistocene more than 12,000 years ago: Paleo-Indian, Lower Archaic, Middle Archaic, Upper Archaic, and Emergent. The late Pleistocene and early Holocene (Lower Archaic) remain relatively unknown, as they did when Morrato summarized the region. The Middle Archaic, Upper Archaic, and Emergent roughly correspond to the Windmiller, Berkeley, and Augustine patterns.

By historic contact, Plains Miwok speakers occupied the general area. Ethnographic data for this group are summarized by Levy (1978). The political formation was the triblet (a concept defined by UC Berkeley anthropologist Alfred Kroeber to describe a common sociopolitical organization in central California): one or more principal villages and associated satellite settlements within a circumscribed territory. Milliken indicates that the APE may have been within the territory of either the Cosomne or Amuchumne triblet (Milliken 2002: Figure K-1).

Spanish exploration of the interior, including the Delta, started in 1772 and was related to Spanish colonial settlements and missions along California's coast and costal interior valleys. The purpose was to find suitable places for mission sites but more often than not expeditions spent time tracking down runaway mission neophytes, recovering rustled livestock and horses, and punishing raiders. The Central Valley was first crossed by an expedition led by Fages and Crespi in 1772 and later by Garces, Anza, and Font. Moraga led a number of expeditions into the valley between 1806 and 1817. The expeditions were

unable to find suitable places to establish missions in the interior. Fur trappers also entered the Central Valley, including Jedediah Smith in 1827-28, followed by the McLeod and Ogden brigades in 1828-30 and the Laframboise and Work brigades in 1832-33. About this time (1830-33) an epidemic, possibly malaria, stuck Native American villages in the Sacramento Valley and likely affected villages in the lower Cosumnes River area (Cook 1955, 1960; Cutter 1950; Thompson 1957:101-109).

California came under Mexican rule after Mexico gained independence from Spain in 1821. The Franciscan missions were secularized by the Mexican government in 1834. After this time the Mexican government began awarding large land grants in California, possibly to prevent foreign/U.S. takeover. There were twelve grants in the eastern Delta and Sacramento region from the Calaveras River north to the American River (see Milliken 2002:Figure K-2) – the most prominent of which was John Sutter's New Helvetia at present-day Sacramento. The APE was located within the Rancho Sanjon de los Moquelumnes land grant. The petition for this grant was made to the Mexican government by Anastocio Chabolla in 1844 for eight leagues of land on the south side of the Cosumnes River. The petition was accepted but the grant was never issued. During the 1850s the land grant was extensively settled by Euro-Americans, as were other land grants in the area, setting the stage for legal battles to come. After California became a state in 1850, Chabolla's claim went before the U.S. Board of Land Commissioners and U.S. District Court, as discussed further below (Hubert 1862:130-132; Sperry 1975).

Spanish colonial activities, fur trapper expeditions, epidemics, and later Mexican-era settlement (land grants such as John Sutter's New Helvetia), not to mention the influx of settlers during the Gold Rush beginning in the late 1840s, at first disrupted and eventually devastated Plains Miwok societies both culturally and demographically, as summarized by Bennyhoff (1977) and Milliken (2002). What happened to Plains Miwok people in the early historic era is not well documented, but there is evidence that they continued to live in the area, including by the late 1800s, the small railroad station and service center of Arno near the APE. Some became workers in agriculture and other local industries (see, for example, a history of the Ione Band of Miwok Indians by Glen Villa Jr. in Bard and Sharpe 2003:8-11). Groups such as Ione Band have persisted to the present and have been invited to participate in the Badger Creek Restoration Project.

During the Gold Rush, hundreds of thousands of people entered California, most via San Francisco. California gained statehood in 1850. People made their way inland to the goldfields of the Sierra Nevada and the Klamath Mountains. Many traveled by boat up the Delta and through the rapidly growing city of Sacramento on the Sacramento River. Stockton and Marysville were also entrepôts connected to San Francisco via Delta waterways and Central Valley rivers. In the early 1850s, most of Sacramento County's population was concentrated in the city of Sacramento, as people stayed or dispersed to the smaller towns and camps in the goldfields of the Sierra Nevada or Klamath mountains. Gold mining occurred in the Sierra Nevada foothills at Dry Creek, Deer Creek, and the Cosumnes River, east of the APE. Settlement remained sparse in portions of the County including along the lower Cosumnes River, as transportation and other infrastructure was not well developed.

Many placer gold deposits were quickly depleted by the early 1850s, and as the Gold Rush faded entirely by the end of the 1850s, the mining industry turned to hydraulic and hardrock methods dominated by

companies rather than individual, or small groups of, miners. Many gold-rush miners left the state for other mining frontiers or looked for opportunities in other California industries to make a living. Farming the fertile lands along the lower Cosumnes, Mokelumne and other rivers of the Central Valley was an attractive option, especially for those with a farming background.

The biography of John McFarland is a case in point. McFarland was a farmer, originally from Scotland, who came to California via Canada in 1850 to mine for gold in the Sierra Nevada (El Dorado County). He eventually settled near Galt in 1856 where he developed an extensive ranch near the Cosumnes River. His operations were enhanced by the construction of a rail line by the Central Pacific Railroad in 1869. In fact, the town of Galt (through which the new rail line was routed) was named by McFarland in 1869 after his former home in Galt, Ontario, Canada (Gudde 1949:117; Thompson & West 1880:256).

McFarland and other early settlers in the lower Cosumnes River area profited from railroad construction and other infrastructure improvements during the mid-to-late 1800s. However, legal title to the lands they occupied within the Rancho Sanjon de los Moquelumnes and other land grants in the area remained in question. In 1852 Anastocio Chabolla filed a petition to the U.S. Board of Land Commissioners for confirmation of his Sanjon de los Moquelumnes grant in the lower Cosumnes River area but the situation was muddled because Chabolla family members had already begun to sell off portions of the land grant for which they did not have clear title. The claim was rejected by the Board of Land Commissioners on the grounds that Chabolla family members never lived on the grant; however title to the grant was eventually confirmed by U.S. District Court in 1865, long after the death of both Chabolla and his wife. The patent was issued to Chabolla's heirs, but remained mired in complex litigation regarding title that was unresolved well into the 1870s. Among the numerous litigants claiming title to portions of the grant include many of the prominent local landowners and Galt area "founding fathers" including Obed Harvey, John Brewster, Andrew Whittaker, John McFarland, and John F. McCauley (Hubert 1862:130-132; Sperry 1975).

John F. McCauley was a son in law of William Hicks, who came to California in 1843, and is mentioned in John Sutter's diaries. Hicks settled on the south side of the Cosumnes River in the late 1840s and attempted to acquire title to a grant of one league in this area. His claim was contested by Sutter, on behalf of the Muquelemne Indians (who had fought for Governor Micheltorena), and was rejected by the Board of Land Commissioners in 1855. The title was instead given to the Muquelemne Indians who then sold it to Hicks and others, though the Muquelemne title decision was challenged in the U.S. District Court and eventually struck down by the U.S. Supreme Court. Hicks's house was located near where the Stockton Road crossed the Cosumnes River. McCauley and his family, including his young daughter Alice (born 1848), came to California in 1852, crossing the plains and settling in San Francisco. The family was eventually able to acquire over 10,000 acres in the Central Valley including in the lower Cosumnes River area where William Hicks had a foothold. In 1873 McCauley's daughter Alice married Julio Valensin in Italy and the couple settled on family lands at Hicksville (established by Williams Hicks by 1860) along the Stockton Road south of Hick's house site along the south bank of the Cosumnes River. During the late 1800s and early 1900s Hicksville was serviced by the small railroad station of Arno, on the Central Pacific, and later Southern pacific railroad. The station was named after the Arno

River in Florence (Millikan 2002; Peak et al. 2002; Reed 1923:297-299). A portion of the APE (Horseshoe Lake) is located on the Valensin Ranch.

Railroad construction in the mid-to-late 1800s allowed access to markets formerly unreachable by local residents and towns such as Galt that grew along the rail line. While stock-raising continued to dominate local farming practices, hay and barley for stock feed were also cultivated. During the early 1900s, the agricultural industries in the Galt area grew to include fruit orchards, hops, and vineyards. Poultry and dairy farms were also common in the area (Costello 1993; Marvin and Fryman 1994). Agriculture continues to dominate to this day, with large-scale dairies, vineyards, walnut orchards, and rice farms (within the Cosumnes River floodplain).

REGULATORY SETTING

Cultural resources are considered during federal projects chiefly under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and the National Environmental Policy Act (NEPA). During state projects, cultural resources are chiefly considered under the cultural resource provisions of the California Environmental Quality Act (CEQA). The framework of Section 106 of the NHPA and provisions of CEQA are similar and are typically implemented in tandem on joint federal-state projects in California. Other federal authorities pertinent to the proposed project include the Archaeological Data Preservation Act of 1974, the American Indian Religious Freedom Act of 1978, and the Federal Land Policy and Management Act of 1976 (which governs the BLM including its management of historical, cultural, archaeological, and scientific values). Note that other important federal authorities including the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1989, and Executive Order 13007 are not applicable because the proposed project does not involve federal lands. However, state authorities pertaining to protection of Native American burials and associated grave items would apply. Important applicable federal and state authorities are summarized below.

FEDERAL

NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act (54 USC 300101) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The implementing regulations for Section 106 are at 36 CFR 800, though some agencies including the BLM have their own procedures for complying with Section 106 and 36 CFR 800 based on national programmatic agreements and statewide protocol agreements. Under Section 106, the significance of any adversely affect cultural resource is assessed and treatments are proposed to avoid, minimize, and mitigate these effects. Significant cultural resources are those resources that are listed, or are eligible for listing, on the National Register of Historic Places per the criteria listed at 36 CFR 60.4 below.

The quality of significance in American history, architecture, archaeology, engineering and culture must be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and that:

a) Are associated with events that have made a significant contribution to the broad pattern of our history; or

b) Are associated with the lives of persons significant in our past; or

c) Embody the distinctive characteristic of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) Have yielded, or may be likely to yield, information important in prehistory or history.

The Section 106 review process is typically implemented in steps: 1) determination of whether the project or action is an undertaking subject to Section 106; 2) identification of consulting parties and lead agency responsibilities; 3) determination of the scope of the identification efforts and the area potential effects or APE; 4) identification and evaluation of historic properties (those listed on or eligible for the National Resister) within the APE; 5) assessment of the effects of the undertaking on historic properties. Consultation with the State Historic Preservation Office (SHPO) occurs throughout the process and including, if necessary, for the development of a memorandum of agreement that addresses the treatment of historic properties. The Advisory Council on Historic Preservation may also comment on the memorandum of agreement or results of consultation. The project is implemented according to the conditions of the memorandum of agreement. There are also post-review discovery procedures.

The Section 106 compliance process may not consist of all the steps above, depending on the situation. For example, if identification and evaluation result in the documented conclusion that no properties included in or eligible for inclusion are present, the process ends with the identification and evaluation step.

BLM uses a State Protocol Agreement to comply with Section 106 for most undertakings. For the proposed project, the BLM has consulted with the USACOE regarding Section 106 lead agency responsibilities for this undertaking. Both agencies have agreed that the BLM should act as lead agency and that the BLM should proceed with Section 106 review under the State Protocol Agreement.

NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) requires federal agencies to assess whether a federal action would result in significant effect on the human environment. The Council on Environmental Quality's National Environmental Policy Act regulations further stipulate that identification of significant effects should incorporate, "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places

or may cause loss or destruction of significant scientific, cultural, or historical resources" (40 CFR 1508.27[b][8]).

STATE OF CALIFORNIA

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEAQ) requires a lead agency to determine whether a project may have a significant effect on historical resources. If it can be demonstrated that a project will cause damage to a unique archaeological resources, the lead agency may require reasonable efforts to be made to permit any of all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2 (a), (b), and (c)). Section 21083.2(g) describes a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A historical resource is a resource listed, or determined to be eligible for listing, in the California Register of Historical Resources (Section 21084.1); a resource included in a local resister of historical resources (Section 15064.5(a)(2)); or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5(a)(3)). Sacramento County does not have a local register.

Public Resources Code Section 5024.1, Section 15064.5 of the Guidelines, and Sections 21083.2 and 21084.1 of the Statutes of California Environmental Quality Act were used as the basic guidelines for the cultural resources study. Public Resources Code Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the California Resister of Historical Resources. The purpose of the resister is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the California Resister were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places.

NATIVE AMERICAN BURIALS AND POST-REVIEW DISCOVERIES

California law protects Native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains (Section 7050.5 of the Health and Safety Code and Public Resources Code 5097.9).

When human remains are discovered, the protocol to be followed is specific in California Health and Safety Code, which states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commending with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

California Environmental Quality Act Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native American, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and dispositions of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the California Environmental Quality Act Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources. Pursuant to Section 15064.5, subdivision (f), these provisions should include "an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place".

LOCAL REGULATIONS

SACRAMENTO COUNTY GENERAL PLAN

Under California law, cities and counties must adopt a comprehensive, long-term general plan for physical development related to their planning boundaries. The Sacramento County General Plan (General Plan) was adopted November 9, 2011 with a planning horizon to 2030. The General Plan serves as the principal land use planning and policy document for Sacramento County. Furthermore, the General Plan establishes broad goals, objectives and policies that guide county-wide land use. The

General Plan consists of 15 elements and five policy plans. Each element provides goals, objectives, and polices to guide land use decisions related to the subject matter of that element.

The following are the most pertinent General Plan policies related to cultural resources that pertain to the project.

Policy CO-150:

> Utilize local, state and national resources, such as the North Central Information Center, to assist in determining the need for a cultural resources survey during project review.

Policy CO-157:

> Monitor projects during construction to ensure crews follow proper reporting, safeguards, and procedures.

Policy CO-158:

> As a condition of approval of discretionary permits, a procedure shall be included to cover the potential discovery of archaeological resources during development or construction

Policy CO-161:

> As a condition of approval for discretionary projects, require appropriate mitigation to reduce potential impacts where development could adversely affect paleontological resources.

CULTURAL RESOURCES STUDY METHODOLOGY

In 1999 BLM performed a records search for the entire Cosumnes River Preserve (including what is now the Badger Creek Restoration Project's area of potential effects) through the North Central Information Center (NCIC) at Sacramento State University. In January 2015, the BLM performed a records search, in person, at the NCIC specific to the project's APE and surroundings (within 0.25 miles) to update the 1999 records search. The BLM also searched cultural resource program files of the BLM Mother Lode Field Office and at the Center for Sacramento History. These record searches are on file in the cultural resource program records at the BLM Mother Lode Field Office.

The record searches indicate that small areas near (but not within) the APE have been subjected to previous cultural resources field inventory. No cultural resources have been found within the APE where project-related ground disturbance/heavy equipment use is proposed. In 1979 Peak & Associates conducted an inventory for a Sacramento Municipal Utility District (SMUD) 230 KV transmission line, including along the southern banks of Horseshoe Lake. No cultural resources were found in this area (NCIC # 418). In 2000 Peak & Associates conducted a field inventory and other cultural resource studies

for The Nature Conservancy's Costello Property. A portion of the study area included the northeast portion of the Horseshoe Lake unit, near the APE. No cultural resources were found in this area. The report was prepared for TNC and the Preserve partners (NCIC # 2878). There may have also been field survey during the 1920s (by the University of California), during the 1930s by Sacramento Junior College, and later in time by other groups (i.e., Sacramento Soil Survey?), but the available documentation is relatively poor compared to current standards. The NCIC has proposed locations for prehistoric sites identified during this early era of research (including three locations for prehistoric site CA-SAC-97, originally recorded by the famous California archaeologist Robert F. Heizer in 1937) but none have been verified in the field within or near the APE.

In January, February, and April 2015 a BLM archaeologist conducted an intensive field inventory of all portions of the APE where project-related ground disturbance would occur (BLM 2015). These areas include the Bjelland unit, portions of the Horseshoe Lake unit, and all temporary routes where heavy equipment would operate. Most of the fieldwork occurred in January 2015 when vegetation is reduced thus making surface visibility relatively good. Transect spacing within the Bjelland unit was 30 meters or better. Transect spacing within the Horseshoe Lake unit was 5 meters or better, and 3 meters or better within the temporary routes. Shovel test units were used to help search for archaeological materials on the island within Horseshoe Lake. A portion of the Horseshoe Lake unit west of the island (where heavy equipment would operate) was not surveyed because it was inundated at the time of fieldwork. No cultural resources were identified within any of the areas examined. Cultural resources monitoring is recommended for the portion of the Horseshoe Lake unit that was not surveyed due to inundation, as indicated in the Mitigation section.

Additionally, standard mitigation is included for the proper steps to take and for the treatment of artifacts and human remains in the event of their unanticipated discovery. The presence of a monitor and the standard mitigation will ensure cultural and paleontological resources impacts are less than significant.

Cumulative Effects

NEPA and CEQA regulations require analysis of any cumulative effects caused by the proposed project when combined with the impacts from other actions. Cumulative effects may result from individually minor, but collectively significant, effects of several projects over a period of time.

Known cumulative effects occurring on or near Preserve Lands include, but are not limited to, the Preserve's past or on-going restoration projects, such as the 2008 Snake Marsh Restoration Project and the 2014 Lower Cosumnes Floodplain Restoration Project; annual routine land management and maintenance activities, local agricultural farming and ranching activities, and local (e.g., Elk Grove and Galt) urban development projects. These cumulative effects may include the following:

- Temporary impacts to breeding, feeding and sheltering habitat for multiple terrestrial and aquatic species

- Permanent creation/restoration of new breeding, feeding and sheltering habitat for multiple terrestrial and aquatic species
- Temporary impacts to other resources including air quality, water quality, transportation/traffic, *etc.*
- Potential expansion of acres devoted to urban development in the cities of Galt, and Elk Grove
- Potential expansion of acres devoted to agricultural, ranching, and grazing activities

Though the proposed project may cause temporary disturbances/impacts for some individual plants and animals, the cumulative result of this project, combined with other habitat restoration projects on Preserve lands, would be a net gain in acres of habitat for various species, including multiple special status species. Additionally, the cumulative effects on other resources (air quality, water quality, transportation/traffic, *etc.*) are reduced by the various project design features, mitigation measures, and BMP's employed for each individual project. As such, no minor or major cumulative effects are expected from the proposed project.

ENVIRONMENTAL MITIGATION MEASURES/PROJECT DESIGN FEATURES

MITIGATION MEASURE A: BIOLOGICAL RESOURCES

A qualified, Service-approved biological monitor shall be on site during all activities related to the project. The biological monitor shall provide Service-approved worker environmental training to the project proponents and crew about the special status species covered in this document and their habitats. The biological monitor shall monitor all activities to ensure that no special status species is harmed or harassed, and to ensure that the project otherwise conforms to the avoidance and minimization measures outlined in this document. The biological monitor shall have the authority to stop any aspect of the project that will result in unauthorized take of special status species.

MITIGATION MEASURE B: GIANT GARTER SNAKE

1. Construction activity within habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Between October 2 and April 30 contact the USFWS's Sacramento office to determine if additional measures are necessary to minimize and avoid take.

2. Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area should be avoided by all construction personnel.

3. Construction personnel shall receive Service-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s).

4. 24-hours prior to construction activities, the project area shall be surveyed for giant garter snakes. Survey of the project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Report any sightings and any incidental take to the USFWS.

5. Any dewatered habitat shall remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.

6. After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel.

Mitigation Measure C: Western Pond Turtle

1. Twenty four hours prior to the commencement of ground-disturbing activity (i.e. clearing, grubbing, or grading) suitable habitat within the project area shall be surveyed for western pond turtle by a qualified biologist. The survey shall include aquatic habitat and 1,650 feet of adjacent uplands surrounding aquatic habitat within the project area. The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity.
2. Construction personnel shall receive worker environmental awareness training. This training instructs workers how to recognize western pond turtles and their habitat.
3. If a western pond turtle is encountered during active construction, all construction shall cease until the animal has moved out of the construction area on its own or has been relocated by a qualified biologist. If the animal is injured or trapped, a qualified biologist shall move the animal out of the construction area and into a suitable habitat area. California Fish and Wildlife and the Environmental Coordinator shall be notified within 24-hours that a turtle was encountered.

Mitigation Measure D: Nesting Raptors and Migratory Birds, Including the Swainson's hawk, yellow-billed cuckoo and the tricolored blackbird

This mitigation measure only applies to lands east of Highway 99 as lands west are assumed separated from disturbance by the highway.

If construction, grading, or project-related improvements are to commence between March 1 and September 15, a focused survey for nesting raptors on the site and within ¼ mile of the site and for other migratory birds nests within 300 feet of the site, shall be conducted by a qualified biologist no later than 30 days prior to the start of construction work (including clearing and grubbing). If active nests are found, a ¼-mile non-disturbance buffer shall be established around raptor nests and 300-foot

buffer around other migratory bird nests. If the above buffers can't be maintained, the project must cease until the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service (depending on listing status) is contacted and appropriate protective measures are determined and implemented or until a qualified biologist determines that all nestlings have fledged.

If no active nests are found during the focused survey, no further mitigation will be required.

Mitigation Measure E: Cultural Resources Unanticipated or Post-Review Discoveries

A BLM-approved cultural resources monitor shall be on site during all activities related to project implementation. The cultural resources monitor shall monitor all activities to identify unanticipated or post-review discoveries (such as buried archaeological or paleontological deposits), and to ensure that the post-review discovery procedures (such as those under BLM's Protocol Agreement and CEQA) and all other applicable authorities (such as those pertaining to protection of Native American burials) are followed in regard to any post-review discoveries. Pursuant to Section 5097.98 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop in the vicinity of the discovery and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains. The cultural resources monitor shall have the authority to stop any aspect of the project that will result in negative effects to cultural resources discovered during project implementation.

Mitigation Measure Compliance

Comply with the Mitigation Monitoring and Reporting Program for this project, including the payment of 100% of the Department of Community Development, Planning and Environmental Review Division staff costs, and the costs of any technical consultant services incurred during implementation of that Program.

Initial Study Preparers

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Section Manager: John Lundgren

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Initial Review: Todd Smith

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BLM Interdisciplinary Team/Reviewers

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Cultural Resources Specialist Date

/s/ Beth Brenneman *5/29/15*

_____

Botanist/NEPA Coordinator Date

/s/ H. McQuillen *5/28/15*

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Wildlife Biologist Date

Availability of Document and Comment Procedures

This EA will be posted on Mother Lode Field Office's website (www.blm.gov/ca/motherlode) under NEPA and will be available for a 15-day public review period. The EA is also available by mail upon request during this 15-day public review period. Comments should be sent to Beth Brenneman at Bureau of Land Management, Mother Lode Field Office, 5152 Hillsdale Circle, El Dorado, CA, 95762, or emailed to bbrennem@blm.gov.

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