Biological Resources Assessment

Gray Lodge Water Supply Project
Butte County, California

Prepared For:

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1.0 INTRODUCTION

This Biological Resources Assessment (BRA) document discusses the existing biological setting and anticipated impacts to biological resources in the Gray Lodge Wildlife Area Water Supply Project study area (Study Area), which is comprised of a linear corridor covering the length of all canals included in the project design and a 250 foot buffer on each side of canal center line. Much of the information is gathered from the U.S. Department of the Interior (DOI) project *Conveyance of Refuge Water Supply - East Sacramento Valley Study Area Environmental Assessment and Initial Study* (EA / IS) (DOI 1997). Documentation performed in this 1997 study evaluated two water delivery projects including utilizing the Biggs-West Gridley Water District facilities delivering water to the Gray Lodge Wildlife Area (WA) and the Sutter-Butte Main Canal delivering water to the Sutter National Wildlife Refuge. The current evaluation is for water delivery from the Biggs-West Gridley Water District to the Gray Lodge Wildlife Area (**Figure 1**).

Guidance for the original EA / IS Biological Resources Section was provided, in part, by the U.S. Fish and Wildlife Service (Service) through joint initial site evaluation meetings conducted on November 9 and 10, 1994 for the Gray Lodge WA. Subsequent surveys were conducted in the fall of 1995, and September 1996. The Service provided species lists and suggested surveys be conducted to determine the effects of the action on federally-listed, proposed, and species of concern and their habitat. Information and guidance was also provided from the California Department of Fish and Game (CDFG) in 1994. The Service's Endangered Species Division provided further guidance in April 1996.

Currently, an evaluation of existing documentation associated with the Project is being conducted and documentation produced in the original 1997 evaluation and recent 2011 evaluations of the Study Area are combined. This section integrates documentation of the 1997 EA / IS study and incorporates new findings due to environmental changes, land conversions, recent field surveys and/or new special-status species listings associated with the Study Area.

Based on the current project design, the proposed project has the potential to affect the following biological resources listed below. Mitigation measures to address these impacts are discussed in **Section 7.0**.

- Giant Garter Snake;
- Northwestern Pond Turtle;
- Raptors;
- Nesting Migratory Birds, including cliff swallows; and
- Jurisdictional waters of the U.S. and Waters of the State.

2.0 METHODOLOGY

2.1 Document Review

As mentioned above, this biological evaluation tiers off of the previously conducted investigation and results of the *Conveyance of Refuge Water Supply EA / IS* (DOI 1997). A review of the Biological Resources section of the document was conducted to evaluate special-status species occurrence potential and sensitive habitat communities associated with the Study Area. Within the document are potential special-status plant and wildlife species tables (Table IV-3 and IV-4) which were evaluated and largely relied on when conducting 2011 field surveys.

2.2 Field Survey

After reviewing special-status species and habitat type tables associated with the *Conveyance of Refuge Water Supply EA / IS* (DOI 1997) and habitat communities, a field survey of the canal sections proposed for improvement occurred on August 8, 2011. Field surveys consisted of driving and walking along the existing farm roads paralleling the canal. An area 250 feet on each side of the centerline of the canal was evaluated. During the site assessment, plant and wildlife species were recorded and biological communities onsite were categorized and assessed for the potential to support special-status species. Representative ground-level photographs were also taken. Biotic communities previously classified in the EA / IS (DOI 1997) according to the California Department of Fish and Game's Wildlife Habitat Relationships System (CWHRS) which is a wildlife habitat classification system for California's commonly occurring birds, mammals, reptiles, and amphibians (Mayer and Laudenslayer 1988) were confirmed.

During the August 8, 2011 field surveys, a delineation of waters of the U.S. was also performed within the proposed Study Area. Where areas contained culverts or siphons, direction of flow was determined and recorded. Existing types of habitat and agricultural production were noted on aerial photographs and a species list was generated for plants observed.

2.3 California Natural Diversity Database

Special-status species considered for this analysis are in-part based on a query of the California Natural Diversity Database (CNDDB). **Table 1** represents the results of document review, field surveys and professional opinion in regard to potential of occurrence of all regionally occurring special-status plant and wildlife species. **Table 1** includes the common name and scientific name for each species, regulatory status (federal, state, local, CNPS), habitat requirements, and potential for occurrence within the Study Area. Only species considered potentially occurring in the 1997 document and newly listed or observed species with potential to occur are contained in **Table 1**. For an exhaustive list of regionally occurring special-status species refer to the *Conveyance of Refuge Water Supply EA / IS* (DOI 1997).

The CNDDB is a natural heritage database program maintained by the California Department of Fish and Game (CDFG) Habitat Conservation Division that provides natural history and location information on rare, threatened, endangered, and other special-status species to the public, other agencies, and conservation organizations (CDFG 2011). The CNDDB is often used as a tool by natural resource specialists and project planners to identify special-status plant and wildlife species that have been reported as occurring in specific geographic areas and habitat types since this database tracks occurrences and records of rare and sensitive species.

3.0 AFFECTED ENVIRONMENT

3.1 Vegetation

Vegetation in the vicinity of the Gray Lodge WA and within the Study Area has been strongly influenced by agricultural conversion and associated water diversion. Currently, the vast majority of these areas are intensively managed as farmland. The most prevalent agricultural practice in the Study Area is rice farming; tree orchards, row crops, and alfalfa are also common. Unfarmed land is often grazed.

Prior to agricultural conversion, the Study Area was a vast complex of marshes, riparian forests, valley grasslands, and alkali sinks. Under existing conditions only remnant examples of these plant communities occur, primarily in isolated or fragmented patches. As a result of agricultural conversion and other landscape alterations, plant species in areas where these native habitats still occur have also become isolated, influenced by exotic species and in some cases extirpated.

Plant communities within the Study Area corridors and impact areas were classified according to the habitats defined in the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (Skinner and Pavlik, 1994). CNPS habitats observed in the Study Area include valley and foothill grassland and marshes and swamps. Agricultural habitats are not considered habitat for rare and endangered plant species and are not classified by the CNPS habitat definitions.

3.2 Wildlife

The Gray Lodge WA and the agricultural region surrounding it is a key area for migratory waterfowl associated with the Pacific Flyway, attracting large numbers of ducks, geese, swans, and shorebirds during the fall and winter months. The Gray Lodge WA vegetation communities are actively managed habitat for waterfowl, and adjacent private wetlands and harvested rice fields are excellent waterfowl habitat when flooded in the winter period.

Ricelands also form an essential component of remaining habitat for the federally-listed threatened giant garter snake (*Thamnophis gigas*) (Service 1999).

Aside from waterfowl, resident wildlife species include numerous amphibians, reptiles, large and small mammals, and various shorebirds, raptors, and songbirds. Wildlife habitats present in the Study Area were characterized according to, *A Guide to the Wildlife Habitats of California* (Mayer and Laudenslayer, 1988). Wildlife habitats occurring within the proposed Study Area and canal corridors include annual grassland, fresh emergent wetland, pasture, riverine, and riceland. These habitat types are described below in Biological Communities (**Section 4.0)**.

3.3 Wetlands/ Waters

Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, a prevalence of vegetation typically adopted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Features potentially meeting the required hydric vegetation, hydric soil, and wetland hydrology criteria were observed during surveys of the Study Area. Although, many of these areas presumably do not qualify as jurisdictional (U.S. Army Corps of Engineers) wetlands or waters, as they are artificially sustained by man-made water conveyance, and the result of canal seepage, generally referred to as "leaky ditch" wetlands.

Similarly, some rice fields and other croplands in the Study Area are located on former wetlands, but are usually regarded as "prior-converted wetlands" by federal regulatory agencies and also do not qualify as jurisdictional.

3.4 On Refuge Wetlands/ Waters

The Gray Lodge WA contains hundreds of acres of permanent ponds, seasonal wetlands, irrigated watergrass units, and uplands. These habitat types and particularly the wetlands, support watergrass and invertebrate populations that serve as a foodsource for migratory waterfowl, marsh, and water birds. Upland areas of the Gray Lodge WA support large concentrations of geese, upland birds, and other wildlife species. Approximately 2 million ducks and 0.5 million geese, which represent nearly half of the Pacific Flyway waterfowl total, utilize the refuges of the Sacramento Valley (Service 1996).

4.0 BIOLOGICAL COMMUNITIES

4.1 Annual Grassland

Annual grassland is typified by the dominance of annual herbaceous species and the lack of a significant overstory. Introduced annual grasses are the dominant species of this habitat. This habitat exists within the Study Area; however, it is important to note that this site is routinely mowed in order to suppress weeds and maintain staging areas associated with farming operations. While there are a few trees within the site, they do not dominate the site and provide very limited, fragmented cover. Interspersed through the annual grasses onsite are annual herbaceous, weedy species, many of which are considered noxious weeds. Much of the vegetation occurring on site is introduced non-native weedy species remnant from disturbance and farming practices. At the time of field survey, annual grass species were identifiable, and included perennial rye grass (*Lolium perenne*), soft chess (*Bromus hordeaceous*), foxtail (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), foxtail fescue (*Vulpia myuros*), and wild oat (*Avena fatua*). Common dominant herbaceous non-natives included yellow star thistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), prickly lettuce (*Lactuca serriola*), Johnson grass (*Sorghum halepense*), and stork's bill (*Erodium cicutarium*).

4.2 Fresh Emergent Wetland

Fresh emergent wetlands are characterized by erected, rooted water-tolerant plant species. Emergent wetland areas flood frequently, enough so that roots prosper in an anaerobic (oxygen-free) environment. This habitat type may occur in close association with other terrestrial communities including riverine, lacustrine, and riceland. Many areas have been identified as freshwater emergent wetlands within the Study Area, primarily in association with seepage ditches paralleling the main canals. These areas are well colonized by cattails, bulrush and Himalayan blackberry (*Rubus discolor*).

Wildlife species that utilize these habitat types include: raccoon, striped skunk, western pond turtle, and Pacific tree frog among others. This habitat type also supports and provides habitat for a number of managed wetlands and wildlife management areas for several species of waterfowl.

4.3 Pasturelands

Pasturelands include fields of alfalfa, rice, clover, turf farms, Bermuda grass, rye grass, and other mixed and native pastures. Pasture vegetation is a mix of perennial grasses and legumes that typically form 100 percent cover. The height of vegetation depends on whether livestock have been grazing the pasturelands and how livestock are rotated (Mayer and Laudenslayer 1988). Several areas adjacent to the Biggs-West Gridley WA canals contain residences with small pasture areas containing horses or other livestock.

Pasturelands, when occurring alone in the landscape or in association with freshwater marshes or emergent wetlands, provide substantial habitat value for various species of

wildlife. In particular, this type of habitat provides excellent wintering forage for several over-wintering shorebirds that visit these fields during the non-breeding season including white-faced ibis (*Plegadis chihi*), greater sandhill crane (*Grus canadensis*), long-billed curlew (*Numenius americanus*), mountain plover (*Charadrius montanus*), and black-necked stilt (*Himantopus mexicanus*). Swainson's hawks utilize these habitats and alfalfa fields as their prime source for foraging.

4.4 Riverine

Riverine features are characterized by at least intermittent or continually running surface water from streams and rivers. A riverine feature typically originates at some elevated source such as a spring or lake and flows downward at a rate relative to slope or gradient and the volume of surface runoff (Mayer and Laudenslayer 1988). Riverine systems support pool and riffle habitat often times with overhanging riparian vegetation and other terrestrial habitats. Riverine habitats often occur in close association with nearby emergent wetland and marsh habitats. Riverine areas within the Study Area are comprised of the canal system, and drainage ditches, which conveys water year-round to and from agricultural fields in the region.

Riverine habitat generally provides excellent habitat value to a number of nesting and foraging birds species including waterfowl, shorebirds, and raptors; foraging and roosting bat species; aquatic species such as western pond turtle (*Clemmys marmorata*), Pacific tree frogs (*Hyla regilla*), as well as fish species. But these man-made artificially sustained drainage areas, though riverine in nature, are highly managed, un-vegetated, and provide marginal habitat for regional species. Without riparian vegetation or surrounding woodlands or other high value habitat types the canal is a water source but offers little in the way of foraging opportunities for wildlife.

4.5 Riceland

Agricultural areas adjacent to the canal are comprised almost entirely of rice fields. Rice and wild rice are flood irrigated crops that are seed producing annual grasses. Commercial rice generally is only a couple of feet tall, whereas, commercially grown wild rice may be six feet tall or taller. They are usually grown in leveled fields that are flooded much of the growing period, and dried out to mature and to facilitate harvesting. They usually produce 100 percent canopy closure as they mature and are usually planted in spring and harvested in fall.

Rice often occurs in association with other croplands in the Central Valley of California and other wildlife habitats such as riparian, and wetlands. Wild rice is grown similarly in the Central Valley, but also is grown in northern California where it may occur near annual grassland, riparian, wetland, and brushland habitat types.

Rice is grown usually in heavier clay soils that hold water well. Many of these soils once supported natural wetlands that historically supported an abundance of wildlife, especially waterfowl and shorebirds. Although other croplands have greatly reduced the wildlife richness and diversity of California, rice has been more compatible. Many

species of wildlife and especially waterfowl, shorebirds and wading birds have adapted to rice. Prior to establishing State and Federal wildlife refuges, waterfowl depredation of rice was extensive. The problem has been reduced; however, some species of waterfowl depend on waste rice that remains in the fields after harvesting. Pheasants have also benefited from rice, but pheasants have experienced recent population declines owing to changes in crop patterns and cultural practices for growing small grains. Changes include clean farming, double cropping, laser leveling and straight or "squared" levees as opposed to contour levees, and chemical control of rice diseases and pests rather than leaving land fallow in alternate years are examples of problems. Wildlife such as waterfowl, shorebirds, and other species that use waste grains after harvest are usually not discouraged. Rice fields flooded after harvest with waste grain and for waterfowl hunting serve as freshwater wetlands for a variety of associated wetland wildlife, including shorebirds, wading birds, and gulls (CDFG, 1999).

Riceland associated with the Study Area showed evidence of foraging by raccoons (*Procyon lotor*) on crayfish (*Procambarus clarki*) by piles of scat within the Study Area. Localized blackbird populations would be expected to forage on the site when the rice crop is maturing, and regionally occurring heron and egret (Ardeidae) species presumably forage on crayfish as well.

Wildlife species observed while surveying this habitat included: great egret (*Ardea alba*), marsh wren (*Cistothorus palustris*), crayfish, Brewer's blackbird (*Euphagus cyanocephalus*), and sign of raccoon. Plant species observed within rice habitat included predominantly rice (*Oryza* sp.). Along rice levees and along field margins were Johnson grass (*Sorghum halapense*), yellow-nut sedge (*Cyperus esculentus*), Himalayan blackberry (*Rubus discolor*), and mustard (*Brassica* sp.) among other common ruderal plant species.

5.0 REGULATORY SETTING

5.1 Federal Regulations

5.1.1 Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

The FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harassment is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

The FESA and Clean Water Act (CWA) Section 404 guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The U.S. Army Corps of Engineers (COE) must consult with the Service and/or the National Oceanic and Atmospheric Administration (NOAA) when threatened or endangered species under their jurisdiction may be affected by a project. In the context of the project, FESA would be triggered if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

5.1.2 Executive Order 11990 "Protection of Wetlands"

Executive Order 11988 requires federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. The Order further requires that federal agencies avoid undertaking or providing assistance for new construction located in wetlands unless a finding can be made that the proposed action is the only practicable alternative and that this alternative includes all practicable measures necessary to minimize harm to wetlands.

5.2 State Regulations

5.2.1 California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to the FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the CDFG when preparing CEQA documents to ensure that lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). The CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy would occur, and allows CDFG to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFG to authorize exceptions to the state's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code §2081).

5.2.2 CDFG Species of Concern

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFG and lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern", developed by these resource agencies. It tracks species in California whose numbers, reproductive success, or habitat may be in decline.

5.2.3 California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Plants of California* (CNPS 2001). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants presumed Extinct in California
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- List 3: Plants about which we need more information – A Review List
- List 4: Plants of limited distribution – A Watch List

5.2.4 Migratory Bird Treaty Act and California Fish and Game Codes

The Migratory Bird Treaty Act (MBTA), first enacted in 1916, prohibits any person, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take,

capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention…for the protection of migratory birds…or any part, nest, or egg of any such bird." (16 U.S.C. 703). Thus, it is illegal under MBTA to directly kill, or destroy a nest of, nearly any bird species, not just endangered species. Activities that result in removal or destruction of an active nest (a nest with eggs or young being attended by one or more adults) would violate the MBTA. Removal of unoccupied nests, or bird mortality resulting indirectly from disturbance activities, is not considered a violation of the MBTA.

Section 3503.5 of the CDFG Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) 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." Disturbance activities that result in abandonment of an active bird-of-prey nest in areas adjacent to the disturbance may also be considered a violation of the CDFG Code.

5.2.5 Clean Water Act

The USACE regulates discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. "Discharges of fill material" is defined as the addition of fill material into waters of the United States, including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the United States include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below.

- Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site.

- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the USACE as "the line on the shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 C.F.R. §328.3(e)].

5.2.6 California Department Fish and Game Code Section 1600

CDFG is a trustee agency that has jurisdiction under Section 1600 et seq. of the CDFG Code. Under Section 1602, any public or private entity must notify CDFG if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds except when the department has been notified pursuant to Section 1600." If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFG may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFG identifying the approved activities and associated mitigation measures.

5.3 Regional Regulations

5.3.1 Butte County General Plan 2030

The Butte County General Plan identifies the following goals, policies, and actions applicable to conservation and open space and relevant to the Project Study Area.

Conservation and Open Space Element

Goal COS-6: Engage in cooperative planning efforts to protect biological resources.

Policy COS-P6.1: The County shall coordinate with applicable federal, State, regional and local agencies on natural resources and habitat planning.

Action COS-A6.1: Continue to work with the Butte County Association of Governments and the five municipalities to develop and implement the Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan, and subsequently update it as necessary.

Action COS-A6.2: Work with Butte Creek Canyon residents and local groups toward adopting a planning strategy for a Butte Creek Canyon overlay. The purpose of the planning strategy is to facilitate the protection and preservation of the historical and ecological foundation of Butte Creek Canyon, including the survival of salmon, steelhead and other sensitive plants and animals such as the East Tehama Deer Herd, preservation of historical sites and ecological preserves, and the optimum balance of recreation and residential use.

Goal COS-7: Conserve and enhance habitat for protected species and sensitive biological communities.

Policy COS-P7.1: Conservation easements that protect habitat areas, habitat corridors and sensitive biological resources shall be promoted.

Policy COS-P7.2: Clustered development patterns shall be encouraged in order to conserve habitat for protected species and biological resources.

Policy COS-P7.3: Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.*

Policy COS-P7.4: New development projects shall mitigate their impacts in habitat areas for protected species through on- or off-site habitat restoration, clustering of development, and/or project design and through the provisions of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) within the HCP/NCCP Planning Area, upon the future adoption of the HCP/NCCP.*

Policy COS-P7.5: No new development projects shall occur in wetlands or within significant riparian habitats, except within the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the HCP/NCCP.*

Policy COS-P7.6: New development projects shall include setbacks and buffers along riparian corridors and adjacent to habitat for protected species, except where permitted in the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area and where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the HCP/NCCP.*

Policy COS-P7.7: Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.*

Policy COS-P7.8: Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special-status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other State and federal regulations.*

Policy COS-P7.9: A biologist shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.*

Policy COS-P7.10: Long-term recovery plans for areas affected by wildfire shall incorporate native species and enhance wildlife habitat.

Action COS-A7.1: Develop and provide incentives to developers to conserve and maintain important habitat areas and sensitive biological resources.

Action COS-A7.2: Develop a set of guidelines for evaluating development project impacts to habitat in locations outside of the approved Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan Planning Area, as well as for requiring specific mitigations for impacts that are identified.

Action COS-A7.3: Establish a mitigation bank program for impacts to habitats for protected species, such as oak woodlands, riparian woodlands and wetlands, in locations outside of the approved Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan Planning Area, using mitigation fees on new development projects as a funding mechanism.

Action COS-A7.4: Seek funding to conduct a study to develop an approach to protecting significant specimen trees and tree groves.

Goal COS-8: Maintain and promote native vegetation.

Policy COS-P8.1: Native plant species shall be protected and planting and regeneration of native plant species shall be encouraged, wherever possible, in undisturbed portions of development sites.

Policy COS-P8.2: New landscaping shall promote the use of xeriscape and native tree and plant species, including those valued for traditional Native American cultural uses.

Policy COS-P8.3: Native plants shall be used wherever possible on County owned and -controlled property.

Policy COS-P8.4: Introduction or spread of invasive plant species during construction of development projects shall be avoided by minimizing surface disturbance; seeding and mulching disturbed areas with certified weed-free native mixes; and using native, noninvasive species in erosion control plantings.*

Goal COS-9: Protect identified special-status plant and animal species.

Policy COS-P9.1: A biological resources assessment shall be required for any proposed development project where special-status species or critical habitat may be present. Assessments shall be carried out under the direction of Butte County. Additional focused surveys shall be conducted during the appropriate season if necessary. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), assessment requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area.*

Policy COS-P9.2: If special-status plant or animal species are found to be located within a development site, proponents of the project shall engage in consultation with the appropriate federal, State and regional agencies and mitigate project impacts in accordance with State and federal law. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), mitigation requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area.

Examples of mitigation may include:*

A. Design the proposed project to avoid and minimize impacts.

B. Restrict construction to specific seasons based on project specific special-status species issues (e.g. minimizing impacts to special-status nesting birds by constructing outside of the nesting season).

C. Confine construction disturbance to the minimum area necessary to complete the work.

D. Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County, or purchasing or donating mitigation lands of substantially similar habitat.

E. Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife.

F. Establish setbacks from the outer edge of special-status species habitat areas.

G. Construct barriers to prevent compaction damage by foot or vehicular traffic.

Goal COS-10: Facilitate the survival of deer herds in winter and critical winter migratory deer herd ranges.

Policy COS-P10.1: Clustered development projects that are designed to accommodate herd migration patterns shall be allowed and encouraged, with remaining areas protected under conservation easements, within the Winter and Critical Winter Deer Herd Migration Area Overlays in order to protect migratory deer herd ranges.

Action COS-A10.1: Coordinate with the California Department of Fish and Game to monitor the effects of development on migratory deer herds.

Action COS-A10.2: Seek funding for and conduct more detailed studies about deer herd migration, and use those studies to update the Deer Herd Migration Area Overlay if needed.

6.0 SPECIAL-STATUS SPECIES

Special-status species are plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g., Migratory Bird Treaty Act);
- CDFG Species of Special Concern;
- Receive consideration during environmental review under CEQA.

Special-status species considered for this analysis are based on document review, results of a query of the CNDDB, and field surveys.

Table 1 includes the common name and scientific name for each species, regulatory status, habitat descriptions, species identification period and potential for occurrence within the Study Area. The following set of criteria has been used to determine each species' potential for occurrence on the site:

- **Present**: Species is known to occur on the site, based on CNDDB records, and/or was observed onsite during the field survey(s).
- **High**: Species is known to occur on or near the site (based on CNDDB records within a five-mile radius of the site, and/or based on professional expertise specific to the site or species) and there is suitable habitat onsite.
- **Low**: Species is known to occur in the vicinity of the site, and there is marginal habitat onsite.-OR-Species is not known to occur in the vicinity of the site, however there is suitable habitat onsite.
- **No**: Species is not known to occur on or in the vicinity of the site and there is no suitable habitat for the species onsite. **-OR-** Species was surveyed for during the appropriate season with negative results.

Only those species that are known to be present, have a high potential for occurrence or have a low potential for occurrence will be discussed further following **Table 1**.

Table 1 — Special-Status Species Potentially Occurring within the Proposed Gray Lodge Wildlife Area Water Supply Study Area, Butte County, California

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Plants				
Brazilian watermeal *Wolffia brasiliensis*	--;--;--;1B	Marshes and swamps and assorted freshwater areas from 90 to 300 feet above mean sea level (MSL).	April - December	**No**; Suitable habitat occurs within the Study Area, but the species was not found during surveys.
Brown fox sedge *Carex vulpinoidea*	--;--;--;2	Marshes and swamps, riparian woodlands from 90 to 3,600 feet above MSL.	May - June	**No**; Suitable habitat occurs within the Study Area, but the species was not found during surveys.
Sanford's arrowhead *Sagittaria sanfordii*	--;--;--;1B	Assorted shallow freshwater marshes and swamps.	May - October	**No**; Suitable habitat occurs within the Study Area, but the species was not found during surveys.
Woolly rose-mallow *Hibiscus lasiocarpus*	--;--;--;2	Marshes and swamps, freshwater areas from 0 to 360 feet above MSL.	June - September	**No**; Marginal habitat occurs within the Study Area, but the species was not found during surveys.
Wildlife				
Amphibians/Reptiles				
Giant garter snake *Thamnophis gigas*	FT;CT;--;--	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November – mid March).	Optimal detection early spring through mid fall (about mid March - early November) during their active period.	**Present**; Although the species may not prefer habitat within the canal, areas adjacent are suitable habitat and the species in known to occur within the region.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Western pond turtle *Actinemys marmorata*	--;CSC;--;--	Occurs in permanent or nearly permanent water in a wide variety of habitat types.	Year-round.	**Low**; Known to occur in agricultural areas and regional drainages associated with the Study Area. Marginal foraging and basking sites occur within the Study Area, but the species was not observed during field surveys.
Birds				
Greater sandhill crane *Grus canadensis tabida*	--;CT;--;-- (nesting and wintering)	Nests in wet meadows interspersed with emergent marsh habitat. Winters in agricultural croplands and irrigated pastures.	Wintering: September - January Nesting: This species does not nest in California.	**No (nesting)**; There is no suitable nesting habitat within the Project site. **Low (wintering)**; Species is known to utilize rice fields during the winter period and could occur adjacent to the Study Area. Project activities are not expected to occur during the winter period due to GGS hibernation period (May 1 to October 1) so impacts to wintering cranes would not occur.
Northern harrier *Circus cyaneus*	--;CSC;--;--	Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	Nesting: April-September	**High**; Marginal nesting habitat occurs within and adjacent to the Study Area.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Swainson's hawk *Buteo swainsoni*	--;CT;--;-- (nesting)	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	Nesting: early March - early September	**Low**; There is suitable nesting habitat within 10 miles of the Study Area. Minimal foraging areas occur adjacent to the canal due to the fragmented nature of annual grassland in the vicinity and high prevalence of riceland which is not suitable foraging habitat.
Tricolored blackbird *Agelaius tricolor*	--;CSC;--;-- (nesting colony)	Nests in dense blackberry, cattails, tules, willows, or wild rose within emergent wetlands throughout the Central Valley and the foothills surrounding the valley.	Nesting: mid-April - late July	**No**; There is no suitable habitat within or adjacent to the Study Area for this species to nest as a colony.
White-faced ibis *Plegadis chihi*	--;CSC;--;-- (nesting)	Prefers to nest in dense marsh vegetation near foraging areas in shallow water or muddy fields. Extensive marshes required for nesting.	Nesting: May-July	**No**; There is no suitable nesting habitat within the Study Area; although the species was observed during field surveys extensive marsh areas are not present and disturbance is common along the canal area.
Other Raptors (Hawks, Owls and Vultures)	MBTA and §3503.5 Department of Fish and Game Code	Nests in a variety of communities including cismontane woodland, mixed coniferous forest, chaparral, montane meadow, riparian, and urban communities.	Nesting: February – September (Most nesting raptors are found in large trees but some nest on ground.)	**High**; Suitable nesting habitat for some regionally occurring raptor species is present in and adjacent to the Study Area.

Federally Listed Species:	**California State Listed Species:**	**CNPS* List Categories:**
FE = federal endangered	CE = California state endangered	1A = plants presumed extinct in California
FT = federal threatened	CT = California state threatened	1B = plants rare, threatened, or endangered in California and elsewhere

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
FC = candidate	CR = California state rare		2 = plants rare, threatened, or endangered in California, but common elsewhere	
PT = proposed threatened	CSC = California Species of Special Concern		3 = plants about which we need more information	
FD = delisted			4 = plants of limited distribution	
			Other Special-Status Listing:	
Source: Foothill Associates			SLC = species of local or regional concern or conservation significance	

Based upon review of documentation results for previously conducted studies, a query of regionally occurring special-status species recorded in the CNDDB, and results of field surveys of the Study Area and adjacent areas by Foothill Associates' wildlife biologists, most species known to regionally occur and listed by the Service have no potential to occur in the Study Area.

6.1 Special-Status Plant Species

Although suitable habitat types occur in the Study Area for regionally occurring special-status plant species, no special-status plant species were observed in the Study Area. Due to the highly manipulated landscape and high prevalence of invasive weeds and ruderal habitat areas within the Study Area, special-status plant species are highly unlikely to occur and further surveys for special-status plant species are not necessary.

6.2 Special-Status Wildlife Species

The special-status wildlife species potentially occurring within the Study Area include the following species: giant garter snake (*Thamnophis gigas*) and northwestern pond turtle (*Actinemys marmorata*); regionally occurring raptors including Swainson's hawk (*Buteo swainsoni*) and northern harrier (*Circus cyaneus*); and, nesting birds protected by the Migratory Bird Treaty Act, including cliff swallow (*Petrochelidon pyrrhonota*). Several other special-status species were considered to have potential for occurrence in the Study Area are also listed in **Table 1**, but were determined not to be present by onsite field surveys.

6.2.1 Giant Garter Snake

Giant garter snake (GGS) is an endemic species to wetlands in the Central Valley of California. Historically, GGS was found in the Sacramento and San Joaquin Valleys from the vicinity of Butte County southward to Buena Vista Lake, near Bakersfield in Kern County. Currently, populations of GGS are found in the Sacramento Valley and isolated portions of the San Joaquin Valley (Service 1999). This species historically inhabited natural wetlands and now occupies a variety of agricultural, managed, and natural wetlands. The GGS was listed as a state threatened species in 1971 and federally listed as a threatened species in 1993.

California Department of Fish and Game studies indicate that GGS populations are distributed in portions of the rice production zones of Sacramento, Sutter, Butte, Colusa, and Glenn counties (Service 1999).

Giant garter snakes feed primarily on aquatic prey such as fish and amphibians. GGS are most active from early spring, when they emerge from overwintering site, through mid-fall (generally April through November) (Service 1999). Fluctuations in weather temperature may result in variances from seasonal norms, such as short distance movement on warm winter days or early emergence from overwintering sites.

Essential habitat for GGS includes "agricultural wetlands and other waterways, such as irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Essential habitat components consist of: (1) adequate water during the snake's active season (early spring through mid-fall) to provide adequate permanent water to maintain dense populations of food organisms; (2) emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.) for escape and cover and foraging habitat during the active season; and (3) upland habitat with grassy banks and openings in waterside vegetation for basking…" (Service 1999).

GGS appear to be most numerous in rice growing regions. GGS can thrive in these artificial ecosystems because the spring and summer flooding and fall dry-down of rice fields closely coincides with the biological needs of this species (Service 1999). GGS utilize agricultural waterways for movement, foraging, and feeding and are able to use rice fields during most stages of the year for part of their biological needs.

The Study Area contains suitable habitat for GGS, is in close proximity to records of GGS, is within the Sacramento Valley Recovery Unit for this species, and the species is known to be present within the Study Area.

6.2.2 Northwestern Pond Turtle

Northwestern Pond turtles are a California species of special concern. Pond turtles occupy perennial water features (e.g. marshes, ponds, and slow reaches of streams and rivers) and require adjacent dry upland habitats for basking sites, breeding, egg-laying, and overwintering (Zeiner *et. al.* 1988). This species is active year-round, although the level of activity is generally reduced in colder months (October-February). Adults have been found at distance of over 1 km from water and overwintering may extend up to 500 m from watercourses (Holland 1994). Eggs are laid in open areas, usually with compact soils, sparse grasses or other vegetation, and a generally south-facing exposure. Egg-laying occurs from late April-July. Hatchlings may overwinter in the nest or nearby vegetation in some areas. Agricultural ditches and drainages provide marginal habitat and prey base for the species. Therefore there is a low potential the species may occur within the Study Area.

6.2.3 Raptor Species

Raptor species are known to forage and nest within this region. Swainson's hawk is unexpected to nest in the vicinity of the Study Area and has low potential to forage in the Study Area. Raptor species expected to occur in or adjacent to the Study Area include northern harrier (*Circus cyaneaus*) and great horned owl (*Bubo virginianus*), and other common raptor species have the potential to occur in the Study Area. Raptor nests are protected under the MBTA and Section 3503.5 of the California Fish and Game Code. The few mature trees occurring within and adjacent to the Study Area are suitable nesting habitat; additionally northern harrier is known to nest on the ground in marsh and wetland areas associated with emergent vegetation. Therefore, raptor species have a high potential to occur within the Study Area.

6.2.4 Migratory Birds

Migratory bird species forage and nest in a variety of habitats throughout Butte County. Migratory birds and their nests are protected under the Migratory Bird Treaty Act (MBTA), which makes it illegal to "take" migratory bird species. The emergent wetland vegetation including cattail (*Typha* sp.) and bulrush (*Scirpus acutus*) within and adjacent to the Study Area provide nesting habitat for several blackbird species; although tri-colored blackbird, a California species of concern, is unlikely to nest in the relatively small stands of emergent vegetation observed in the site. Additionally, cliff swallow, which is a migratory bird species, was observed nesting on several canal crossing structures. The species frequently builds mud nests on the bottom of bridges where it can easily forage over water and riceland. Nesting migratory birds were determined to be present within the Study Area.

7.0 IMPACT ANALYSIS

Based on the current project design, the proposed project has the potential to affect the biological resources listed below. Mitigation measures to address these impacts discussed below are carry-over from the original mitigation measures prescribed to the project in the *Conveyance of Refuge Water Supply - East Sacramento Valley Study Area Environmental Assessment and Initial Study* (EA / IS) (DOI 1997), as the environment and biological resources associated with the Study Area appear relatively unchanged since 1997.

- Giant garter snake;
- Northwestern pond turtle;
- Raptors;
- Nesting Migratory Birds, including cliff swallows; and
- Jurisdictional waters of the U.S. and Waters of the State.

7.1 Giant Garter Snake

The proposed project may result in impacts to both aquatic and upland habitat for giant garter snake. Giant garter snakes are particularly vulnerable to construction impacts during the inactive season (approximately October 1 to May 1). Direct mortality may occur during clearing grading, and excavating activities if encountered. This species is a state and federally listed threatened species. These impacts are considered potentially significant and mitigation is required.

7.1.1 Mitigation Measures

Mitigation Measure BIO – 1: Conduct pre-construction surveys for GGS. Surveys should be conducted between April 15 and June 1 by a qualified biologist and should follow the procedures outlined in *Protocols for Pre-project Surveys to Determine the Presence of Giant Garter Snake (GGS) and to Evaluate Habitats* (Service 1993). During final design, avoid all habitat features that contain GGS or provide suitable habitat for GGS.

Mitigation Measure BIO – 2: If impacts to GGS habitat cannot be avoided, employ mitigation measures to avoid direct impact to snakes. No grading excavating or filling will take place within 30 feet of GGS habitat between October 1 and May 1. To ensure avoidance of impacts to individual snakes, a trained monitor will be present onsite to remove snakes prior to construction if individual snakes are found to be present. Other elements of GGS mitigation should be

consistent with the *Guidelines for Procedures and Timing of Activities Related to the Modification or Relocation of Giant Garter Snake Habitat* (Service, 1990).

Implementation of the above mitigation measures would reduce impacts to jurisdictional waters to a **less than significant level**.

7.2 Northwestern Pond Turtle

The proposed project may result in impacts to both aquatic and upland habitat for northwestern pond turtle. The turtle species nests and over-winters in upland habitats such as grassland adjacent to summer aquatic habitats. This species could occur in the canal, associated drainages, and associated upland habitat. Temporary construction impacts that may impact this species include the de-watering of the canal and associated drainages, presence of heavy equipment, placement of rip-rap, and earthmoving activities. Because this species is extremely wary of humans, adult pond turtles that may be in aquatic habitats during summer months are likely to move away from the area during project construction activities. Following construction, upland habitats will be re-vegetated and this species would be able to return to the area. These impacts are considered less than significant and implementation of **Project Design Feature 1** addresses potential impact to this species (see **Section 8.0).**

7.3 Raptors

Mature trees within and in the vicinity of the Study Area have the potential to provide suitable nesting habitat to raptor species, including Swainson's hawk, northern harrier, and great horned owl. Swainson's hawk is a state listed threatened species and other raptor species are protected by Section 3503.5 of the Fish and Game Code. Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) 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." Construction activities have the potential to disturb or harass nesting raptors to the point of nest failure which is "take". These impacts are considered potentially significant and mitigation is required.

7.3.1 Mitigation Measures

Mitigation Measure BIO – 3: Conduct pre-construction surveys for raptors (including Swainson's hawk) prior to the peak march-through-August nesting period. Construction during critical nesting period (March through August) will be avoided, OR if nesting pairs and fledglings are identified within 0.25 miles of construction, a monitoring program will be initiated in consultation with the Department.

Implementation of the above mitigation measures would reduce impacts to raptors to a **less than significant level**.

7.4 Potential Impacts to Nesting Migratory Birds Including Cliff Swallows

Active cliff swallow nests were observed under several existing bridges and structures associated with the Canal. Construction activities are expected to include the demolition and replacement of bridges and structures within the Study Area which may support nesting cliff swallows. Additionally, other passerine bird species protected by the MBTA have the potential to nest within the various habitat types associated with the Study Area. As migratory bird species, the swallow and many other passerine bird species are protected under the MBTA and therefore certain measures shall be implemented to ensure that this species are not adversely affected by the project. Implementation of Project Design Features 2, 3, 4, and 5 will address the potential impact to this species (see **Section 8.0**).

7.5 Potential Impacts to Jurisdictional Waters of the U.S. and Waters of the State

The Study Area supports potential jurisdictional waters of the U.S. Some jurisdictional waters may be filled during canal improvement activities. Additionally, some jurisdictional waters may be temporarily affected by construction activities associated with staging and bridge and water conveyance structure replacement. Waters of the U.S are regulated by the U.S. Army Corps of Engineers (COE), Regional Water Quality Control Board (RWQCB), and CDFG and this impact is therefore considered potentially significant and is subject to mitigation. Prior to permanent or temporary fill of waters of the U.S., the following mitigation measures are required.

7.5.1 Mitigation Measures

Mitigation Measure BIO – 4: Conduct pre-construction delineations of wetlands and waters of the United States. Request a verification for the delineated boundaries from the COE. Following verification of the delineation boundaries, develop measures to avoid impacts to jurisdictional wetlands.

Mitigation Measure BIO – 5: After final design, quantify impacts to wetlands and other waters. Submit to COE a permit application for discharge of fill material into waters of her United States, pursuant to Section 404 of the Clean Water Act.

Mitigation Measure BIO – 6: Install and maintain appropriate erosion and sedimentation controls during and following construction as specified in the required Erosion Control Plan (See Hydrology and Water Quality section).

Mitigation Measure BIO – 7: Obtain a streambed alteration agreement with the Department, pursuant to Section 1601 of the Fish and Game Code, before initiating construction within the 100-year floodplain of any stream crossing.

Mitigation Measure BIO – 8: Develop and implement mitigation plans for impacts to wetlands. Replace eliminated wetlands at a 2:1 ratio. Temporarily impacted wetlands should be restored onsite. Stockpile topsoil removed from wetlands and store in upland landscape positions. Following construction disturbance, restore the land surface contours and backfill the top 6 to 12 inches with stockpiled topsoil.

Mitigation Measure BIO – 9: Following project completion, monitor the site to assess mitigation success. Success criteria should be clearly defined for all measures implemented to mitigate for project impacts to wetlands. Yearly reports should be submitted to the Service and COE until implementation has been determined to be successful.

Implementation of the above mitigation measures would reduce impacts to jurisdictional waters to a **less than significant level**.

8.0 PROJECT DESIGN FEATURES

The following Project Design Features will be implemented into the Project as applicable to reduce potential impacts to special-status species to a level that is less than significant.

Project Design Feature 1: Prior to construction, a worker environmental awareness training in the recognition of northwestern pond turtle, and their habitat shall be conducted by a qualified biologist. If a turtle is observed on the site, work shall cease in the area until the turtle can be moved to a safe location.

Project Design Feature 2: Prior to initiating construction activities that may cause the failure of nesting activities by passerine bird species nesting within or in close proximity to the Study Area, a qualified biologist will survey the area to determine if nesting passerine bird species are present and whether they are afforded the protection of the MBTA. If nesting bird species protected by the MBTA are present, a buffer will be established by the qualified biologist to preclude the failure of the nest until chicks have fledge and left the nest. If no nesting birds are discovered in proximity of the Project, no further action is necessary.

Project Design Feature 3: If swallows begin colonizing the bridge before March 1, all nest precursors (mud placed by swallows for the construction of nests) shall be knocked or washed down at least once daily until demolition is complete or the swallows cease trying to construct nests, whichever is first. Under no circumstances can this activity result in harm or death to any adult swallows or their eggs.

Project Design Feature 4: If the proposed bridge construction activities are to occur during the cliff swallow's breeding season (April through July), the underside of the bridge shall be covered with ½ to ¾ inch mesh netting before March 1. The netting shall remain in place until demolition of the structure. The netting must be anchored such that the swallows cannot construct their nests in the bridge. It is recommended that once such netting is put in place, a monitor visit the site weekly to check for signs that swallows are trying to nest under the bridge. If swallows enter the netted area and begin nest building, the net's integrity shall be repaired. If a swallow successfully completes a nest and lays eggs within the

netted area of the bridge, all bridge modifications shall be suspended until fledging of the nestlings.

Project Design Feature 5: If netting of bridges or applicable canal structures does not occur by March 1 and cliff swallows colonize any structure associated with the canal, demolition of the isolated structure shall be postponed until August 1, or until all nestlings have fledged.

Implementation of the above Project Design Features would reduce impacts to migratory birds to a **less than significant level**.

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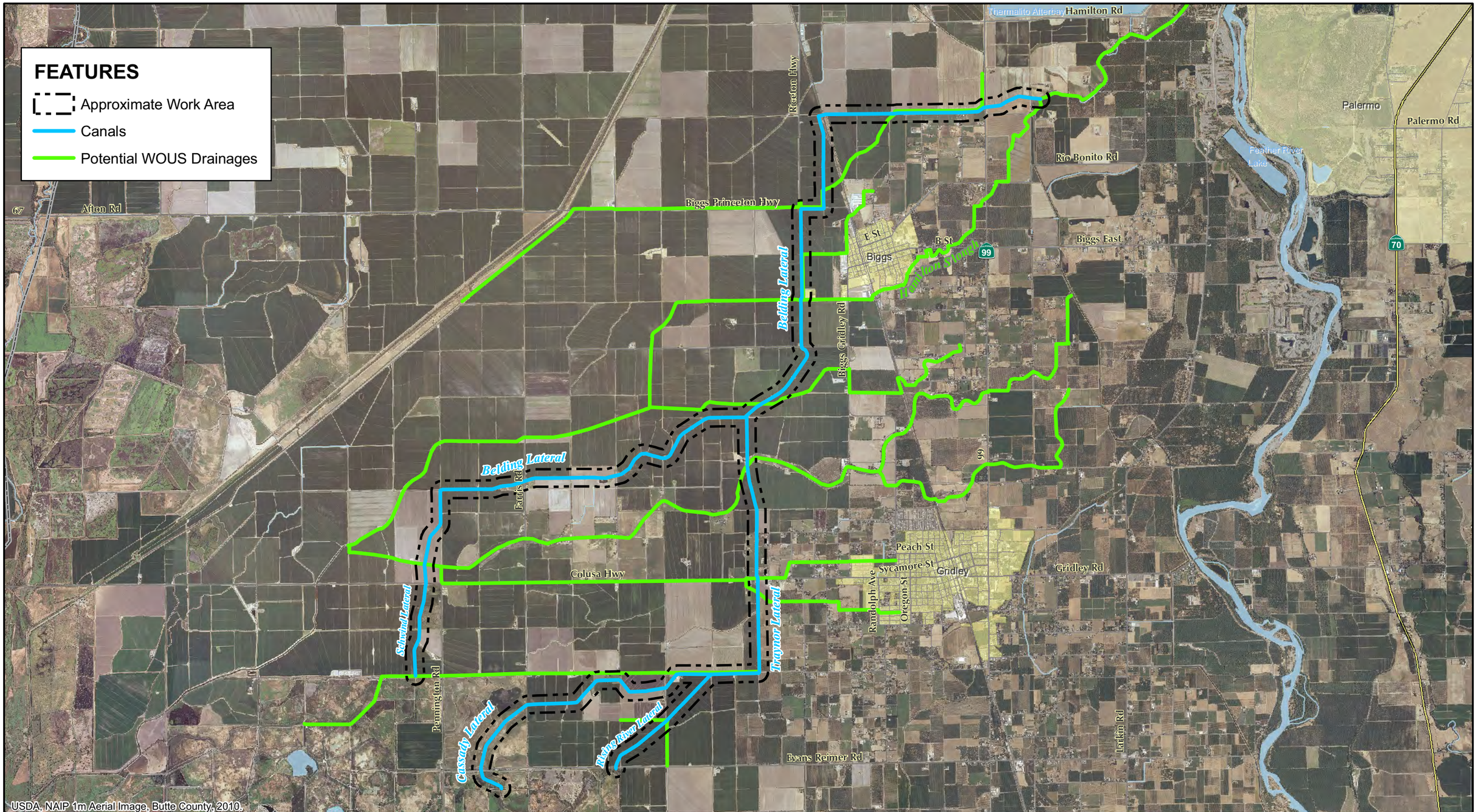

PROJECT AREA

FOOTHILL ASSOCIATES
ENVIRONMENTAL CONSULTING • PLANNING • LANDSCAPE ARCHITECTURE

N

0 4250 8500
SCALE IN FEET

Drawn By: RJM, MMB
Date: 09/26/11

FIGURE 1

BIGGS WEST GRIDLEY

project_area_no_labels.mxd © 2011

Appendix A — Species Observed Onsite (2011)

Common Name	Scientific Name
Flora	
Azolla	*Azolla* spp.
Bermuda Grass	*Cynodon dactylon*
Black Wallow	*Salix nigra*
Bull Thistle	*Cirsium vulgare*
Cattail	*Typha* spp.
Cheese Mallow	*Malva sylvestris*
Common Duckweed	*Lemna minor*
Common Mullein	*Verbascum thapsus*
Common Nightshade	*Solanum nigrum*
Dallisgrass	*Paspalum dilatatum*
Field Mustard	*Brassica rapa*
Giant Reed Cane	*Arundo donax*
Glyceria spp.	*Glyceria* spp.
Hardstem Bulrush	*Scirpus acutus*
Himalayan Blackberry	*Rubus discolor*
Honey Locust	*Gleditsia triacanthos*
Johnson Grass	*Sorghum halepense*
Mulberry	*Morus rubra*
Parrot's Feather	*Myriophyllum aquaticum*
Pecan	*Carya illinoisensis*
Pokeweed	*Phytolacca americana*
Puncture Vine	*Tribulus terrestris*
Rabbitsfoot Grass	*Polypogon monspeliensis*
Rice	*Oryza sativa*
Sedge spp.	*Cyperus* spp.
Smartweed	*Polygonum* spp.
Spanish Lotus	*Lotus purshianus*
Spotted Spurge	*Euphorbia maculata*
Vervain	*Verbena* spp.
Water Plantain	*Damasonium* spp.
Water Primrose	*Ludwigia peploides*
Yellow Nutsedge	*Cyperus eragrostis*
Fauna	
American Bittern	*Botaurus lentiginosus*
American Bullfrog	*Rana catesbaiena*
American Kestrel	*Falco sparverius*
Barn Owl	*Tyto alba*

Common Name	Scientific Name
Black Phoebe	*Sayornis nigricans*
Black-crowned Night Heron	*Nycticorax nycticorax*
Brewer's Blackbird	*Euphagus cyanocephalus*
California Ground Squirrel	*Spermophilus beecheyi*
California Towhee	*Piplio crissalis*
Cattle Egret	*Bubulcus ibis*
Cliff Swallow	*Petrochelidon pyrrhonota*
Double-crested Cormorant	*Phalacrocorax auritus*
European Starling	*Sturnus vulgaris*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Killdeer	*Charadrius vociferous*
Mallard	*Anas platyrhyncos*
Marsh Wren	*Cistothorus palustris*
Monarch Butterfly	*Danaus plexippus*
Mourning Dove	*Zenaida macroura*
Muskrat	*Ondatra zibethicus*
Raccoon	*Procyon lotor*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Rock Dove	*Columba livia*
Tree Swallow	*Tachycineta bicolor*
Tri-colored Blackbird	*Agelaius tricolor*
Turkey Vulture	*Cathartes aura*
Western Brush Rabbit	*Sylvilagus bachmani*
Western Kingbird	*Tyrranus verticalis*
Western Mosquitofish	*Gambusia affinis*
White-faced Ibis	*Plegadis chihi*